

Appendix B.7.1

Vegetation, Riparian and Wetlands Environments Supplemental Baseline Report

**Crawford Nickel Project:
Vegetation, Riparian and Wetland
Environments Supplemental
Baseline Report**

September 30, 2024

Prepared for:

Canada Nickel Company



Prepared by:

Stantec Consulting Ltd.



Limitations and Sign-off

This document entitled Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report was prepared Stantec Consulting Ltd. ("Stantec") for the account of Canada Nickel Company (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

<original signed by>

<original signed by>

Prepared

0'

Signature

Stephen Hart, PhD, R.P. Bio

Printed Name

Signature

Kaitlyn Howe, HBSc

Printed Name

<original signed by>

<original signed by>

Reviewed by:

Approved by:

Signature

Andrew Taylor, B.Sc.

Printed Name

Sean Spisani, B.Sc., ERGC

Printed Name

Project Personnel

Report Authors: Stephen Hart, PhD, R.P. Bio, Environmental Scientist
Kaitlyn Howe, HBSc, Environmental Scientist

Quality Review: Andrew Taylor, B.Sc., Senior Ecologist

Independent Review: Sean Spisani, B.Sc., ERGC, Senior Ecologist

Table of Contents

Limitations and Sign-off	i
Table of Contents.....	iii
Acronyms and Abbreviations	v
1 Introduction	1
1.1 Study Objectives	1
2 Study Area	3
2.1 Project Area	3
2.2 Local Study Area.....	3
2.3 Regional Study Area	3
3 Environmental Policies and Legislation	5
4 Review of Existing Data	6
4.1 Regional Setting.....	6
4.2 Literature Review	7
4.2.1 Methods.....	7
4.2.2 Results.....	9
5 Field Studies and Ecological Land Classification.....	17
5.1 Methods	17
5.1.1 Field Studies.....	17
5.1.2 Ecological Land Classification Mapping.....	17
5.2 Results	18
5.2.1 Ecological Land Classification.....	18
5.2.2 Fragmentation	22
5.2.3 Rare Vegetation Communities	22
5.2.4 Riparian Form and Function.....	23
5.2.5 Wetlands and Wetland Function	23
5.2.6 Plant Species of Management Concern.....	27
5.2.7 Invasive Plant Species	29
6 Summary.....	30
7 Closure.....	31
8 References.....	32

List of Tables

Table 3.1	Summary of Key Legislation, Policy, and Regulatory Guidance Documents for Vegetation, Riparian and Wetland Environments	5
Table 4.1	Summary of Land Cover in the Vegetation, Riparian, and Wetlands Project Area, Local Study Area, and Regional Study Area	10
Table 4.2	Summary of Rare Vegetation Communities with Potential to Occur in the RSA	11
Table 4.3	Plant SAR and SOCC with Potential to Occur in the Regional Study Area	12
Table 4.4	Summary of Potential Plant Species of Indigenous Interest in the Project Area	14
Table 4.5	Noxious Weeds Desktop Review	16
Table 5.1	Summary of Ecological Land Classification in the Local Study Area and Project Area	19
Table 5.2	Summary of Baseline Fragmentation in the Regional Study Area	22

Table 5.3	Summary of Potential Rare Vegetation Ecosites Identified in the Project Area and Local Study Area	22
Table 5.4	Summary of Riparian Areas in the Project Area and Local Study Area	23
Table 5.5	Summary of Wetland Ecosites in the Local Study Area and Project Area	23
Table 5.6	Summary of Estimated Peat Volumes in the Project Area and Local Study Area	24
Table 5.7	Plant Species of Management Concern in the LSA	27
Table 5.8	Plant Species Noted as Being Harvested by Indigenous Nations Identified in the Local Study Area	27
Table 5.9	Invasive Plant Species Occurring in the Local Study Area	29

List of Appendices

Appendix A Figures

Figure A.1	Study Areas
Figure A.2	Ecological Land Classification Study Plots in the Local Study Area
Figure A.3	Ecological Land Classification in the Local Study Area
Figure A.4	Riparian Habitat in the Location Study Area
Figure A.5	Wetlands in the Local Study Area
Figure A.6	Species at Risk and Species of Conservation Concern in the Local Study Area

Appendix B Photolog

Appendix C Description of Ecosites in the Local Study Area

Appendix D Vascular Plant List

Acronyms and Abbreviations

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
ESA	Endangered Species Act, 2007
FRI	Forest Resources Inventory
IAA	Impact Assessment Act, 2019
LIO	Land Information Ontario
LSA	Local Study Area
MNR	Ministry of Natural Resources (formerly Ministry of Natural Resources and Forestry)
NHIC	Natural Heritage Information Centre
O. Reg.	Ontario Regulation
PA	Project Area
RSA	Regional Study Area
SAR	Species at Risk
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
SOCC	Species of Conservation Concern
SWH	Significant Wildlife Habitat
TIS Guidelines	Tailored Impact Statement Guidelines

1 Introduction

Canada Nickel Company (Canada Nickel) proposes to develop, operate, and progressively reclaim the Crawford Nickel Project ('the Project'), a new open pit nickel mine and processing facility approximately 42 kilometres (km) north of Timmins, Ontario along Highway 655. The Project is being assessed in accordance with the *Impact Assessment Act, 2019*.

Stantec Consulting Ltd. (Stantec) has been retained by Canada Nickel to conduct an assessment of vegetation, riparian and wetland environments for the Project. This Vegetation, Riparian and Wetland Environments Supplemental Baseline Report has been completed to inform the Impact Statement. This report supplements the field work completed by WSP as documented in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement). This report has been prepared pursuant to the *Impact Assessment Act, 2019* and in consideration of the Tailored Impact Statement Guidelines: Crawford Nickel Project (IAAC 2023a; TIS Guidelines).

1.1 Study Objectives

This supplemental baseline report presents baseline data collection methods and results for vegetation, riparian and wetland environments from a desktop review and analysis and is intended support the preparation of the Impact Statement. Field study results and methodology are further discussed in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement). Vegetation, riparian and wetland environments resources addressed in this report include:

- Rare vegetation communities - plant communities listed in section 1.2 of the Significant Wildlife (SWH) Habitat Criteria Schedules for Ecoregion 3E (MNRF 2015).
- Wetlands and wetland functions – wetlands are defined as “land which is saturated for a long enough period to promote wetland, or aquatic processes as indicated by hydric soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment” (NWWG 1997). Wetlands are described and classified to the ecosite level following Ecosites of Ontario (Banton et al. 2009). Wetland functions include hydrological, biogeochemical, and habitat functions, as described by Hanson et al. (2008).
- Riparian communities – non-wetland communities occurring on regularly flooded sites. For this study, riparian communities include areas within 30 metres (m) of stream orders 1-4, and within 80 m of the centre line of stream orders 5-6.
- Plant species of management concern – plant species of management concern include vascular and non-vascular plant species at risk (SAR), species of Conservation Concern (SOCC), and species of Indigenous interest. SAR are species listed as endangered or threatened on the current Species at Risk in Ontario (SARO) list (O. Reg. 230/08); these species are afforded protection by the provincial *Endangered Species Act, 2007* (ESA). SOCC are species designated or listed as endangered, threatened, or special concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the federal *Species at Risk Act* (2002; SARA), the

Committee on the Status of Species at Risk in Ontario, and the SARO List (excluding endangered and threatened species), as well as provincially rare species. Provincial sub-national ranks (S-ranks) are used by the provincial Ministry of Natural Resources (MNR) Natural Heritage Information Center (NHIC) to set protection priorities for rare species and vegetation communities; provincial rare species are those with an S-rank of S1 (Critically Imperiled), S2 (Imperiled), and S3 (Vulnerable).

- Plant species of Indigenous interest are plant species harvested by Indigenous nations with traditional territories overlapping the Regional Study Area (RSA) for Vegetation, Riparian and Wetland Environments.
- Invasive plant species – plant species listed under the *Invasive Species Act, 2015* and in Regulation 1096 under the *Weed Control Act 1990*.

2 Study Area

The Local Study Area (LSA) and Regional Study Area (RSA) presented in this supplemental baseline report represent the areas where data was compiled/collected to allow for an understanding of the vegetation, riparian and wetland environments in support of the Project-specific effects assessment and the cumulative effects assessment. The Project is located 42 km north of Timmins along Highway 655, within Ecoregion 3E.

2.1 Project Area

The Project Area (PA) encompasses the Project footprint and is the anticipated area of physical disturbance associated with the construction, operations, decommissioning, and closure of the Project.

The PA covers an area of 11,785 hectare (ha) (118 square kilometres [km²]). The PA includes the Open Pit, Stockpiles, and Impoundment Facility, Tailings Management Facility (TMF), two ore processing plants, and other mine-related infrastructure, as well as a new rail spur line and the realignment of Highway 655 and an existing 500 kV transmission line.

2.2 Local Study Area

The Vegetation, Riparian and Wetland Environments LSA encompasses the area in which Project-related effects (direct or indirect) were predicted or measured with a level of confidence appropriate for the assessment and in which there is a reasonable expectation that the potential effects in the LSA are of public interest.

The Vegetation, Riparian and Wetland Environments LSA is identical to the Surface Water LSA as changes in surface water have the potential to affect wetlands. The LSA includes the PA and subwatersheds on the west side of the West Buskegau River main channel, several catchments within the Jocko Creek watershed and headwater subwatersheds of the North Driftwood River. The LSA continues downstream on the West Buskegau River and North Driftwood River, away from the PA. The LSA is shown on Figure A.1.

2.3 Regional Study Area

The RSA includes the area within which cumulative effects on vegetation, riparian and wetland environments may occur, depending on the location of other past, present or reasonably foreseeable future projects or activities.

The Vegetation, Riparian and Wetland Environments RSA was designed to conform to regional watersheds where possible. The RSA includes the Northeast Mattagami River watershed, North Driftwood River watershed, and the Buskegau River/Frederick House River watershed, or a 20 km boundary from the LSA, whichever is greater, due to the irregularity of some watershed boundaries. The RSA was selected based on regional context needed for the vegetation, riparian and wetland environments assessment to align with wetland connectivity, and with the wildlife and wildlife habitat assessment boundary. The RSA is shown on Figure A.1.

3 Environmental Policies and Legislation

The management of vegetation, riparian and wetland environments is subject to several statutes, policies, and frameworks. Table 3.1 provides a list of the key legislation, policy, and regulatory guidance documents applicable to the assessment of vegetation, riparian and wetland environments

Table 3.1 Summary of Key Legislation, Policy, and Regulatory Guidance Documents for Vegetation, Riparian and Wetland Environments

Legislation, Policy, or Regulatory Guidance	Description
Federal	
Canadian Wetland Classification System (NWWG 1997)	The Canadian Wetland Classification System (NWWG 1997) identifies three hierarchical levels of wetland classification: class, form, and type. There are five classes of wetlands (bog, fen, marsh, swamp, and shallow open water); wetland forms divide up the classes based on surface morphology, water type, and other characteristics. Wetland types are subdivisions of the form and are based on vegetation communities (NWWG 1997). The Canadian Wetland Classification System includes tidal water wetlands.
Federal Policy on Wetland Conservation (GOC 1991)	The Federal Policy on Wetland Conservation identifies seven strategies for the use and management of wetland to preserve wetland function. Objectives of the policy are to promote the conservation of wetlands to sustain ecological and economic function.
<i>Species at Risk Act</i> (2002)	The SARA prohibits killing, harming, or taking of threatened or endangered species; these prohibitions apply to threatened or endangered aquatic species and migratory bird species on federal and non-federal lands and to all threatened or endangered species and their habitat on federal lands. It requires identifying potential adverse effects on any SARA-listed species during project review by the Impact Assessment Agency of Canada (for reviewable projects and projects on federal lands) and taking measures to avoid or lessen effects. Measures must be consistent with any applicable recovery strategies and action plans.
Wetland Ecological Functions Assessment: An Overview of Approaches (Hanson et al. 2008)	The Wetland Ecological Functions Assessment: An Overview of Approaches (Hanson et al. 2008) document provides an outline of wetland ecological functions assessments.
Provincial	
<i>Weed Control Act</i> (1990) and Weed Control Regulation	The <i>Weed Control Act</i> and Regulations requires control of designated noxious plants, which are defined provincially and regionally. The Northwest Invasive Plant Council also identifies species which are of management concern within its region.
<i>Invasive Species Act</i> (2015)	The <i>Invasive Species Act</i> lists four plant species regulated by the Ontario government to help prevent, control, and reduce their spread.
<i>Endangered Species Act</i> (2007; ESA)	The ESA and associated Regulations that are amended from time to time, identifies wildlife species considered to be at risk in Ontario and designates them as threatened, endangered, extirpated or of special concern. The ESA protects SAR and their habitats by prohibiting anyone from killing, harming, harassing or possessing protected species (those listed as endangered or threatened), and prohibiting any damage or destruction to the habitat of protected species.

4 Review of Existing Data

4.1 Regional Setting

The Project is located within the Abitibi Ecoregion (Ecoregion 3E) in northeastern Ontario within the Ontario Shield Ecozone (Crins et al. 2009). The Ecoregion is underlain by granitic or gneissic bedrock with intrusions of metavolcanic and metasedimentary rock. Surficial geology is diverse with highly variable terrain. The northern portion of the Ecoregion is part of the Clay Belt and is underlain by deep, fine-textured, glaciolacustrine sediments from post-glacial Lake Barlow-Ojibway resulting in an extensive area of relatively low relief with poor drainage and large areas of extensive wetlands overlain by deep organic deposits (Appendix B.7.4 of the Impact Statement). The southern portion of the Ecoregion has more varied terrain with poorly developed, thinner soils, and large areas of exposed bedrock.

The Ecoregion has a humid mid-boreal climate with precipitation ranging from approximately 650 millimetres (mm) to over 1000 mm near Lake Superior. Mean annual temperatures ranging from -0.5 degrees Celsius (°C) in the north to 2.5°C in the south with a growing season of 167 to 185 days (Banton et al. 2009). The Ecoregion is almost entirely within the Hudson Bay watershed with drainage predominantly northward into James Bay through large river systems such as the Moose River.

Land cover within the Ecoregion is typical of southern boreal forests with mixed forests and coniferous forests covering 29.5 percent (%) and 28.1% of the landscape, respectively, with smaller amounts of deciduous forest (7.2%; Crins et al. 2009). Forests are composed primarily of boreal species with black spruce (*Picea mariana*) and trembling aspen (*Populus tremuloides*) the most common species with substantial areas of jack pine (*Pinus banksiana*) on drier and coarser soils. Balsam fir (*Abies balsamea*), white spruce (*P. glauca*) and paper birch (*Betula papyrifera*) are common in mixed upland stands with trembling aspen and black spruce, while tamarack (*Larix laricina*) is a large component of conifer swamps and low treed fens and bogs. Red pine (*Pinus resinosa*) and white pine (*Pinus strobus*) reach their northern limit in the southern portion of the Ecoregion where sporadic occurrences of yellow birch (*B. alleghaniensis*) and red maple (*Acer rubrum*) can also occur, predominantly in the south.

Historically, fire has been the dominant disturbance with fire frequencies ranging from 30 to 210 years, depending on forest composition and landscape (Van Sleetuwen 2006). More recently forest harvesting accounts for a large portion of forest disturbance with over 7.8% of the Ecoregion classified as cutover.

Within 100 km of the Project there are Provincially Significant Wetlands, Conservation Reserves, Provincial parks, and First Nation Reserves (Figure A.1). No designated natural areas are found in the LSA, however, several occur within the RSA including the Kraft Creek/Murphy Creek Wetland and Little Goose Lake Provincially Significant Wetland in the south of the RSA (MNRF 2024b); the Mahaffy Township Ground Moraine Conservation Reserve (MNRF 2024a); and the Greenwater, Dana Jowsey Lakes, Frederick House Lake, and Kettle Lakes Provincial Parks (Figure A.1).

4.2 Literature Review

4.2.1 Methods

Stantec completed a background review of natural environment features including records of designated natural areas, SAR, SOCC, and rare vegetation communities. The desktop data was used to supplement previous field surveys completed for the LSA.

Information on landscape context, natural heritage features, SAR and SOCC applicable to the RSA was obtained through a review of background documents and online data sources including:

- Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) online database (MNRF 2024a)
- Land Information Ontario (LIO) Natural Heritage Area Mapping tool (MNRF 2024b)
- LIO Ontario Land Cover Compilation v.2.0 (LIO 2023)
- SARA, Schedule 1 (GOC 2024)
- SARO List (MECP 2024)
- iNaturalist (2024)

Desktop mapping and land classification of the RSA was accomplished by using the Provincial Land Cover, 2nd Edition (LIO 2002), and replacing areas with wetlands from LIO (MNRF 2024b) where available.

Baseline fragmentation was assessed by combining vegetation ecosites into the following landcover classes and determining the mean patch size and mean perimeter/area ratio: treed upland communities, tree wetland communities, open wetland, disturbed/regenerating, and non-vegetated.

Peat volumes were estimated for wetlands using organic matter thickness in wetlands within the PA, LSA and RSA. A minimum peat depth of 40 centimetres (cm) was assumed for organic wetlands. No peat depth was assigned for mineral wetlands. Wetland area was multiplied by peat depth for each soil management unit to determine peat volumes in cubic metres (m³). In the absence of recorded peat depths for wetlands, the application of 40 cm of peat depth is likely an underestimate for most organic wetlands.

For this assessment, riparian areas include areas within 30 metres (m) of stream orders 1-4, and within 80 m of the centre line of stream orders 5-6. Riparian areas exclude wetlands to avoid double counting. Stream orders were determined as described in Chapter 17 of the Impact Statement (Assessment of Potential Effects to Fish and Fish Habitat).

Indigenous knowledge and information about the Indigenous use of vegetation was collected through Project-specific studies. Indigenous use plant species lists may not include every plant species with Indigenous uses. For additional details see Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests). Sources of information reviewed for each Indigenous nation included:

- Apitipi Anicinapek Nation
 - Comments from Apitipi Anicinapek Nation on the draft TIS Guidelines and Indigenous Transportation Initiatives Fund (Apitipi Anicinapek Nation 2023)
 - Technical Review of the Agnico Eagle Upper Beaver Mine Project draft Initial Project Description (Wahgoshig First Nation, Odonaterra Inc. and Shared Value Solutions 2021)
 - Apitipi Anicinapek Nation Canada Nickel Company Crawford Nickel Project Indigenous Knowledge, Land Use and Occupancy Study 2023-2024 (Apitipi Anicinapek Nation 2024)
 - Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
- Flying Post First Nation
 - Flying Post First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Sulfide Project (FPFN 2023)
 - Comments from Matachewan First Nation, Mattagami First Nation, and Flying Post First Nation on the draft TIS Guidelines (Matachewan, Mattagami and Flying Post First Nations 2023)
 - Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
- Matachewan First Nation
 - Matachewan First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Project (Matachewan First Nation 2023)
 - Comments from Matachewan First Nation, Mattagami First Nation, and Flying Post First Nation on the draft TIS Guidelines (Matachewan, Mattagami and Flying Post First Nations 2023)
 - Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
- Mattagami First Nation
 - Mattagami First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Project. Mattagami First Nation (Mattagami First Nation 2023)
 - Comments from Matachewan First Nation, Mattagami First Nation, and Flying Post First Nation on the draft TIS Guidelines (Matachewan, Mattagami and Flying Post First Nations 2023)

- Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
- Métis Nation of Ontario - Region 3
- Métis Nation of Ontario - Region 3. Region 3 Impact Study Crawford Nickel Mine Study (Métis Nation of Ontario - Region 3 2024)
 - Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
- Taykwa Tagamou Nation
 - Taykwa Tagamou Nation Crawford Nickel Project Traditional Knowledge and Land Use Study (Taykwa Tagamou Nation 2023)
 - Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022 to March 08, 2023) (IAAC 2023b)
 -

4.2.2 Results

4.2.2.1 Land Cover and Wetlands in the Regional Study Area and Local Study Area

Land cover in the RSA and LSA is summarized in Table 4.1. Upland treed habitat covers 47.0% (502,956 hectares [ha]) in the RSA and 23.6% (12,817 ha) in the LSA. Mixed forests are the most common forest class in the RSA and LSA followed by coniferous forest and deciduous forests, respectively.

Wetlands are the largest ecosystem category in the RSA covering 39.5% (422,876 ha) of the RSA and 73.7% (40,010 ha) of the LSA. Swamps are the most common wetland class covering 26.9% (287,638 ha) of the RSA and 53.5% (29,038.6 ha) of the LSA, followed by bogs with 4.7% (50,793 ha) of the RSA and 11.2% (6,092 ha) of the LSA.

Open water, such as lakes, rivers, and ponds, covers a relatively small area covering 4.3% (45,730 ha) of the RSA and 0.3% (168 ha) of the LSA. The RSA and LSA are in a relatively undisturbed state with anthropogenic and sparsely vegetated areas covering 9.3% (9,9205 ha) of the RSA and 2.4% (1,330 ha) of the LSA. Cuts (harvested) areas are the largest anthropogenic or sparsely vegetated areas in the RSA and LSA, reflecting the history of logging in the RSA, followed closely by settlement and infrastructure areas.

Table 4.1 Summary of Land Cover in the Vegetation, Riparian, and Wetlands Project Area, Local Study Area, and Regional Study Area

Ecosystem Category	Land Cover Class	Project Area		Local Study Area		Regional Study Area	
		Area (ha)	Area (%)	Area (ha)	Area (%)	Area (ha)	Area (%)
Upland Treed	Coniferous Forest	489.9	4.2	4,796.3	8.8	167,901.9	15.7
	Deciduous Forest	98.4	0.8	485.8	0.9	30,091.3	2.8
	Mixed Forest	1,446.6	12.3	6,315.9	11.6	241,990.0	22.6
	Sparse Forest	216.4	1.8	1,218.4	2.2	62,972.3	5.9
<i>Total Upland Treed</i>		<i>2,251.4</i>	<i>19.1</i>	<i>12,816.5</i>	<i>23.6</i>	<i>502,955.5</i>	<i>47.0</i>
Wetlands	Bog	597.8	5.1	5,020.1	9.2	38,708.9	3.6
	Open Bog	25.1	0.2	87.7	0.2	1,420.0	0.1
	Treed Bog	407.4	3.5	984.4	1.8	10,663.4	1.0
	<i>Subtotal Bog</i>	<i>1,030.3</i>	<i>8.7</i>	<i>6,092.2</i>	<i>11.2</i>	<i>50,792.3</i>	<i>4.7</i>
	Fen	371.7	3.2	4,132.8	7.6	51,254.2	4.8
	Open Fen	0.8	0.0	3.7	0.0	587.9	0.1
	Treed Fen	13.2	0.1	86.9	0.2	1,877.2	0.2
	<i>Subtotal Fen</i>	<i>385.7</i>	<i>3.3</i>	<i>4,223.5</i>	<i>7.8</i>	<i>53,719.3</i>	<i>5.0</i>
	Marsh	260.4	2.2	656.0	1.2	11,152.8	1.0
	Swamp	7,414.2	62.9	29,038.6	53.5	287,637.6	26.9
	Other Wetland	-	-	-	-	19,573.4	1.8
<i>Total Wetlands</i>		<i>9,090.5</i>	<i>77.1</i>	<i>40,010.2</i>	<i>73.7</i>	<i>422,875.4</i>	<i>39.5</i>
Water	Open Water	-	-	-	-	408.2	0.0
	Water - Deep or Clear	10.7	0.1	168.1	0.3	45,321.5	4.2
<i>Total Water</i>		<i>10.7</i>	<i>0.1</i>	<i>168.1</i>	<i>0.3</i>	<i>45,729.7</i>	<i>4.3</i>
Sparsely Vegetated or Anthropogenic	Bedrock	23.5	0.2	23.9	0.0	76.0	0.0
	Burns	-	-	-	-	1,430.1	0.1
	Cropland	-	-	-	-	24.9	0.0
	Cuts	72.1	0.6	776.3	1.4	73,842.7	6.9
	Pasture	-	-	-	-	3,871.4	0.4
	Sand/Gravel/Mine Tailings	4.9	0.0	8.0	0.0	6,687.5	0.6
	Settlement, Infrastructure	331.9	2.8	521.2	1.0	13,272.2	1.2
<i>Total Sparsely Vegetate or Anthropogenic</i>		<i>432.4</i>	<i>3.7</i>	<i>1,329.5</i>	<i>2.4</i>	<i>99,204.6</i>	<i>9.3</i>
Grand Total		11,785.0	100.0	54,324.3	100.0	1,070,765.2	100.0

4.2.2.2 Ecological Communities of Conservation Concern

Rare Vegetation Communities

Nine rare vegetation communities identified in the SWH Criteria Schedules for Ecoregion 3E have potential to occur in the RSA. (Table 4.2, MNRF 2015). A desktop review of the NHIC database did not identify any rare vegetation communities documented in the RSA. However, given the large area and diversity of ecosites in the RSA, there is potential for rare vegetation communities to be present.

Table 4.2 Summary of Rare Vegetation Communities with Potential to Occur in the RSA

Rare Vegetation Community	ELC Ecosite Code	Habitat Description
Cliffs and Talus Slopes	Cliffs: B157-159; B173-175; B201-203	Cliffs: Vertical consolidate bedrock communities with a minimum height of 3 m and a slope of greater than (>) 60° with limited plant growth and species diversity. Dominated by lichens and bryophytes.
	Talus: B166-168; B182-184	Talus: Rock accumulations at cliff bases or former beach cobble with limited soil structure. Dominated by lichens with stunted trees and shrubs.
Red and White Pine Stands	B011, B015, B023, B027, B033, B039, B048, B054, B064, B069, B081, B087, B097, B103, B113, B118	Red and White Pine stands occurring as sporadic, small stands and are generally found on dry, often exposed, and rocky sites. However, these conditions can vary. Stands reach northern limit in Ecoregion 3E. Stands should have >10% absolute cover of red and/or white pine.
Black Ash	B019, B028, B056, B059, B071, B076, B089, B092, B105, B108, B120, B125	Black ash stands occur in low-lying alluvial material throughout the Clay Belt. Stands should have >10% absolute cover of black ash.
Elm	B019, B043, B056, B059, B071, B076, B089, B092, B105, B108, B120, B125	Elm stands with >10% absolute cover of elm occurring in low-lying alluvial material, usually new rivers.
Oak	B017, B019, B028, B041, B043, B057, B059, B072, B076, B090, B092, B106, B108, B121, B125	Hardwood stands with >10% absolute cover of oak (<i>Quercus spp</i>). Typically, in lowland areas with fertile, fresh to moist soils. Often in alluvial floodplains.
Rare Treed Type: Yellow Birch	B019, B028, B040, B043, B055, B059, B070, B076, B088, B092, B104, B108, B119, B125	Stands with >10% absolute cover of yellow birch. Typically, on warmer sites with relatively fertile soils.
Rock Barrens	Calcareous Bedrock: B179, B180, B181; Precambrian Rock Barren: B163, B164, B165	Exposed bedrock areas with less than (<) 5 cm of mineral soil and <25% vascular plant cover.

Rare Vegetation Community	ELC Ecosite Code	Habitat Description
Sand Dunes - American Dune Grass Type	B005, B006, B142	Exposed mineral materials of eolian origin along lakeshores and inland areas. American dune grass type typified by open grassy sand dunes with American dune grass, beach pea, and sand cherry.
Hardwood Swamp	B130, B131, B132, B133	Hardwood dominated canopies in rich floodplains with deep soils.

4.2.2.3 Plant Species of Management Concern

4.2.2.3.1 Plant SAR and SOCC

A review of the NHIC (MNR 2024a) and iNaturalist (2024) identified 18 plant and lichen species of management concern with potential to occur in the RSA (Table 4.3). Black ash (*Fraxinus nigra*) is the only plant SAR identified with potential to occur in the RSA. Seventeen plant and lichen SOCC are found within or near the RSA and have potential to occur in the RSA. Three plant species are listed as S1 or S1S2 (Critically Imperiled) while eight are listed as S2 or S2S3 (Imperiled), and six are listed as S3 (Vulnerable). No plant species of management concern are documented in the LSA.

Table 4.3 Plant SAR and SOCC with Potential to Occur in the Regional Study Area

Plant Group	Common Name	Scientific Name	S-Rank	SARO Status	COSEWIC Status	SARA
Tree	Black ash	<i>Fraxinus nigra</i>	S4	END	THR	-
Forbs	Indian milkvetch	<i>Astragalus australis</i>	S1	-	-	-
	American bugseed	<i>Corispermum americanum</i>	S3	-	-	-
	Auricled twayblade	<i>Neottia auriculata</i>	S3	-	-	-
	Bog Adder's-mouth	<i>Hammarbya paludosa</i>	S1S2	-	-	-
	Heart-leaved alexanders	<i>Zizia aptera</i>	S1	-	-	-
	Lakecress	<i>Rorippa aquatica</i>	S3?	-	-	-
	Limestone swamp bedstraw	<i>Galium brevipes</i>	S2S3	-	-	-
	Stiff sunflower	<i>Helianthus pauciflorus</i>	S2	-	-	-
Graminoids	Mat muhly	<i>Muhlenbergia richardsonis</i>	S3	-	-	-
	Clinton's clubrush	<i>Trichophorum clintonii</i>	S2S3	-	-	-
	Long-Styled rush	<i>Juncus longistylis</i>	S3	-	-	-
	Long-panicled panicgrass	<i>Dichanthelium perlongum</i>	S2	-	-	-

Plant Group	Common Name	Scientific Name	S-Rank	SARO Status	COSEWIC Status	SARA
Ferns	Nahanni oak fern	<i>Gymnocarpium continentale</i>	S3	-	-	-
Mosses	Andalusian nodding moss	<i>Pohlia andalusica</i>	S2	-	-	-
	Blind's bryum	<i>Bryum blindii</i>	S2	-	-	-
	Jensen's peat moss	<i>Sphagnum jensenii</i>	S2	-	-	-
Lichens	Coral-rimmed shingle lichen	<i>Pannaria tavaresii</i>	S2?	-	-	-
Notes: S1 - Critically Imperiled S2 – Imperiled S3 – Vulnerable S4 - Apparently Secure END – Endangered THR – Threatened						

4.2.2.3.2 Plant Species of Indigenous Interest

Plant species/genera and fungi species/genera identified as harvested by Indigenous nations with potential interest in the RSA are listed in Table 4.4. These species/genera are widely distributed in Ecoregion 3E with ranges overlapping the LSA and RSA.

The list of plant and fungi species/genera and their potential importance to Indigenous nations as presented in Table 4.4 is based on engagement with Indigenous nations and the background data reviewed for this report (see Section 4.2.1). It is noted that this list is based on the information available to Canada Nickel at the time of publication and that additional species may be identified as the engagement program advances.

Table 4.4 Summary of Potential Plant Species of Indigenous Interest in the Project Area

Lifeform	Common Name	Scientific Name	Apitipi Anicinapek Nation	Flying Post Nation	Matachewan First Nation	Mattagami First Nation	Taykwa Tagamou Nation	Metis Nation of Ontario
Trees	Balsam fir	<i>Abies balsamea</i>	-	-	-	✓	-	-
	Bamagillia buds (balsam poplar)	<i>Populus balsamifera</i>	-	-	-	-	-	-
	Birch	<i>Betula spp</i>	-	-	✓	✓	-	-
	<i>Eastern white cedar</i>	<i>Thuja occidentalis</i>	✓	✓	✓	✓	✓	✓
	Maple	<i>Acer spp.</i>	-	-	-	✓	-	-
	Mountain Ash	<i>Sorbus spp.</i>	-	-	✓	-	-	-
	Spruce	<i>Picea spp</i>	✓	✓	✓	✓	✓	✓
	Tamarack	<i>Larix laricina</i>	✓	✓	✓	✓	✓	✓
	Willow	<i>Salix spp</i>	-	-	✓	✓	-	-
Shrubs	Blueberry	<i>Vaccinium spp</i>	✓	✓	✓	✓	✓	✓
	Small cranberry	<i>Vaccinium spp</i>	✓	-	-	-	-	-
	Large cranberry	<i>Vaccinium macrocarpon</i>	✓	-	-	-	-	-
	Chokeberry	<i>Aronia melanocarpa</i>	✓	-	-	✓	-	-
	Chokecherry	<i>Prunus virginiana</i>	-	-	-	✓	-	-
	Pin Cherry	<i>Prunus pennsylvanica</i>	-	✓	✓	-	-	-
	Cranberry	<i>Vaccinium spp</i>	✓	✓	-	✓	-	-
	Gooseberry	<i>Ribes spp</i>	✓	✓	✓	✓	✓	✓ -
	Hazelnut	<i>Corylus cornuta</i>	✓	✓	✓	✓	-	✓
	Labrador tea (Swamp tea)	<i>Rhododendron groenlandicum</i>	✓	✓ -	✓	✓	✓	✓
	Rose (Rosehip)	<i>Rosa spp</i>	-	-	✓	✓	✓	-
	Raspberry	<i>Rubus spp</i>	✓	✓	✓	✓	✓	✓
	Tobacco	<i>Nicotianna ssp</i>	-	✓	-	✓	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
4 Review of Existing Data
 September 30, 2024

Lifeform	Common Name	Scientific Name	Apitipi Anicinapek Nation	Flying Post Nation	Matachewan First Nation	Mattagami First Nation	Taykwa Tagamou Nation	Metis Nation of Ontario
	Wild Raspberry	<i>Rubus ideaus</i>	-	✓	-	-	✓	-
Forbs	Goldenrod	<i>Solidago spp</i>	-	-	-	-	✓	-
	Fireweed	<i>Chamaenerion angustifolium</i>	-	✓	-	-	-	-
	Mint	<i>Mentha ssp</i>	-	-	✓	-	-	-
	Mullein	<i>Verbascum thapsus</i>	-	-	-	-	✓	-
	Pearly everlasting	<i>Anaphalis margaritaceae</i>	-	✓	-	-	✓	-
	Plantain	<i>Plantago major</i>	-	-	-	-	✓	-
	Sage	<i>Artemisia spp</i>	✓	✓	✓	✓	✓	✓
	Spearmint	<i>Menthe canadensis</i>	-	-	-	-	-	-
	Strawberry	<i>Fragaria spp</i>	✓	✓	-	✓	-	-
	Swamp aster	<i>Symphyotrichum puniceum</i>	-	-	-	-	✓	-
Yarrow	<i>Achillea millefolium</i>	-	-	-	-	✓	-	
Graminoids	Cattail	<i>Typha spp</i>	-	-	-	-	✓	-
	Sweetgrass	<i>Hierochloe odorata</i>	✓	✓	✓	✓	✓	✓
	Wild rice	<i>Zizania ssp</i>	-	✓	-	-	✓	-
Horsetails	Horsetail	<i>Equisetum spp</i>	-	-	-	-	✓	-
Bryophytes	Moss	Bryophyta (Phylum)	✓	✓	✓	✓	✓	✓
Fungi	Chaga	<i>Ionotus obliquus</i>	✓	-	✓	✓	✓	-
	Chanterelle	<i>Cantharellus spp</i>	-	-	-	✓	-	-
	Mushrooms	Fungi (Kingdom)	✓	✓	✓	✓	✓	✓
	Puffball	<i>Calvatia gigantea</i>	-	-	-	✓	-	-
	Reindeer Lichen	<i>Cladonia spp</i>	✓	✓	✓	✓	✓	✓
	Shaggy mane	<i>Coprinus comatus</i>	-	-	-	✓	-	-

4.2.2.4 Invasive Plant Species

Ten plant species listed as noxious weeds under the *Weed Control Act* are documented as occurring within Ecoregion 3E and have potential to occur in the RSA (Table 4.5).

Table 4.5 Noxious Weeds Desktop Review

Common Name	Scientific Name	Documented in Ecoregion 3E*
Smooth bedstraw	<i>Galium mollugo</i>	Y
Wild chervil	<i>Anthriscus sylvestris</i>	Y
Coltsfoot	<i>Tussilago farfara</i>	Y
Giant hogweed	<i>Heracleum mantegazzianum</i>	Y
Knapweed spp.	<i>Centaurea spp</i>	Y
Wild parsnip	<i>Pastinaca sativa</i>	Y
Cypress spurge	<i>Euphorbia cyparissias</i>	Y
Leafy spurge	<i>Euphorbia esula</i>	Y
Bull thistle	<i>Cirsium vulgare</i>	Y
Canada thistle	<i>Cirsium arvense</i>	Y
Notes: N – No Y – Yes * – Noxious Weeds in Ontario (GOO 2022)		

5 Field Studies and Ecological Land Classification

5.1 Methods

5.1.1 Field Studies

Field investigations were conducted by Wood and WSP in 2021 and 2022 to collect baseline information on vegetation, riparian and wetland environments (Appendix B.7.4 of the Impact Statement). Across all studies, 162 plots were surveyed within the LSA (Figure A.2). Sites were chosen based on initial desktop Forest Resource Inventory (FRI) delineation (LIO 2007, 2020). At each location the following information was collected:

- ecosite classification according to Banton et al. (2009)
- complete list of vascular plant species
- dominant plant species in vegetation layers
- general classification of sites into broad habitat categories (e.g., forest, bog, fen, marsh, swamp)
- basic soil classification by hand auger

Further details of field methods in previous studies are available in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement).

5.1.2 Ecological Land Classification Mapping

Vegetation communities within the LSA were delineated and described according to the Ontario Ecosite Classification system (Banton et al. 2009). FRI Versions 1 and 2 were used as a baseline for vegetation boundaries between wetlands, forests, and vegetation communities (LIO 2007, 2021). FRI from the Abitibi River Forest, Romeo Malette Forest, and Gordon Cosen's Forest were used to update the baseline FRI. Some manual adjustments to polygon boundaries and classification were made based on visual aspects of the polygon and surrounding habitats.

Ontario Land Cover Classification v2 was used for the RSA areas outside the LSA (LIO 2023). FRI was not available for all areas of the RSA, as a result land cover between the RSA and LSA is not comparable.

5.2 Results

5.2.1 Ecological Land Classification

Fifty ecosites and mapping units were identified in the LSA and 42 in the PA (Table 5.1, Figure A.3). Most of the PA and LSA are in a relatively natural condition. Wetlands cover most of the PA and LSA, occupying 73.5% (8,667 ha) and 72.1% (39,175 ha), respectively. Upland forests cover 24.1% (2,837 ha) of the PSA and 26.3% (14,272.9 ha) of the LSA. Conifer forests are the dominant upland forest type covering 21.4% (2,520.8 ha) of the PA and 22.8% (12,385.8 ha) of the LSA.

Open water, including lakes, rivers, and ponds, is relatively uncommon in the PA and LSA, occupying only 0.2% (26.9 ha) of the PA and 0.5% (287.6 ha) of the LSA. Open water occurs as scattered ponds and small lakes throughout the LSA as well as rivers and creeks (Figure A.3).

Anthropogenic and other poorly vegetated areas cover 2.2% (254.8 ha) of the PA and 1.1% (577.8 ha) of the LSA. Utility corridors account for the largest anthropogenic areas covering 1.4% (167 ha) of the PA and 0.7% (359.8%) of the LSA and run throughout the LSA (Figure A.3).

Example photos of ecosites from the 2021 and 2022 field surveys are provided in Appendix B and descriptions of ecosites and map units are provided in Appendix C. Wetlands are described in further detail in Section 5.2.5.

Table 5.1 Summary of Ecological Land Classification in the Local Study Area and Project Area

Land Cover Class	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	%	Area (ha)	%
Upland Coniferous Forest	B012	Very Shallow, Dry to Fresh: Pine - Black Spruce Conifer	-	-	48.16	0.09
	B026	Very Shallow, Humid: Conifer	10.32	0.09	190.20	0.35
	B034	Dry, Sandy: Jack Pine - Black Spruce Dominated	10.26	0.09	15.27	0.03
	B035	Dry, Sandy: Pine - Black Spruce Conifer	-	-	6.02	0.01
	B050	Dry to Fresh, Coarse: Pine - Black Spruce Conifer	-	-	47.37	0.09
	B052	Dry to Fresh, Coarse: Spruce - Fir Conifer	7.47	0.06	47.25	0.09
	B065	Moist, Coarse: Pine - Black Spruce Conifer	13.35	0.11	557.20	1.03
	B066	Moist, Coarse: Hemlock - Cedar Conifer	-	-	9.02	0.02
	B067	Moist, Coarse: Spruce - Fir Conifer	13.39	0.11	64.25	0.12
	B068	Moist, Coarse: Conifer	-	-	65.63	0.12
	B082	Fresh, Clayey Jack Pine - Black Spruce Dominated	16.40	0.14	80.84	0.15
	B083	Fresh, Clayey: Pine - Black Spruce Conifer	0.02	0.00	0.02	0.00
	B085	Fresh, Clayey Spruce - Fir Conifer	3.70	0.03	12.67	0.02
	B098	Fresh, Silty to Fine Loamy Jack Pine - Black Spruce Dominated	6.99	0.06	168.74	0.31
	B099	Fresh, Silty to Fine Loamy: Pine - Black Spruce Conifer	738.72	6.27	1629.67	3.00
	B101	Fresh, Silty to Fine Loamy: Spruce - Fir Conifer	473.31	4.02	1177.68	2.17
	B102	Fresh, Silty to Fine Loamy: Conifer	233.92	1.98	362.32	0.67
	B114	Moist, Fine: Pine - Black Spruce Conifer	881.09	7.48	7402.86	13.63
B115	Moist, Fine: Hemlock- Cedar Conifer	0.81	0.01	43.08	0.08	
B116	Moist, Fine: Spruce - Fir Conifer	81.24	0.69	341.03	0.63	
B117	Moist, Fine: Conifer	29.76	0.25	116.47	0.21	
Subtotal Coniferous Forest			2520.76	21.39	12385.75	22.80

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
5 Field Studies and Ecological Land Classification
 September 30, 2024

Land Cover Class	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	%	Area (ha)	%
Upland Deciduous Forest	B040	Dry, Sandy: Aspen - Birch Hardwood	8.36	0.07	57.16	0.11
	B055	Dry to Fresh, Coarse: Aspen - Birch Hardwood	14.05	0.12	114.42	0.21
	B070	Moist, Coarse: Aspen - Birch Hardwood	0.23	0.00	111.14	0.20
	B088	Fresh, Clayey: Aspen - Birch Hardwood	0.04	0.00	43.61	0.08
	B104	Fresh, Silty to Fine Loamy Aspen - Birch Hardwood	134.72	1.14	751.02	1.38
	B119	Moist, Fine: Aspen - Birch Hardwood	158.93	1.35	809.84	1.49
Subtotal Deciduous Forest			316.33	2.68	1887.18	3.47
Subtotal Upland Forest			2837.08	24.07	14272.93	26.27
Wetland - Bog	B126	Treed Bog	2352.76	19.96	7661.72	14.10
	B137	Sparse Treed Bog	-	-	198.27	0.36
	B138	Open Bog	5.18	0.04	31.61	0.06
Subtotal Wetland -Bog			2357.94	20.01	7891.61	14.53
Wetland - Fen	B136	Sparse Treed Fen	781.35	6.63	4465.40	8.22
	B139	Poor Fen	7.21	0.06	142.75	0.26
	B140	Open Moderately Rich Fen	0.19	0.00	51.75	0.10
	B141	Open Extremely Rich Fen	-	-	16.31	0.03
	B146	Open Shore Fen	-	-	22.11	0.04
Subtotal Wetland – Fen			788.75	6.69	4698.32	8.65
Wetland - Marsh	B142	Mineral Meadow Marsh	12.30	0.10	143.37	0.26
	B144	Organic Meadow Marsh	740.10	6.28	1152.00	2.12
Subtotal Wetland – Marsh			752.39	6.38	1295.37	2.38
Wetland - Swamp	B127	Poor Conifer Swamp	95.25	0.81	1249.22	2.30
	B128	Intermediate Conifer Swamp	2930.95	24.87	19937.66	36.70
	B129	Rich Conifer Swamp	624.69	5.30	1538.03	2.83

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
5 Field Studies and Ecological Land Classification
 September 30, 2024

Land Cover Class	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	%	Area (ha)	%
	B133	Hardwood Swamp	3.01	0.03	7.35	0.01
	B134	Mineral Thicket Swamp	3.57	0.03	31.14	0.06
	B135	Organic Thicket Swamp	932.96	7.92	2001.06	3.68
	B222	Mineral Poor Conifer swamp	177.47	1.51	333.56	0.61
	B223	Mineral Intermediate Conifer Swamp	0.20	0.00	191.60	0.35
Subtotal Wetland – Swamp			4768.10	40.46	25289.61	46.55
Subtotal Wetland			8667.18	73.54	39174.91	72.11
Water	-	Lakes, Rivers, Ponds	25.91	0.22	287.62	0.53
Subtotal Water			25.91	0.22	287.62	0.53
Anthropogenic and Poorly Vegetated	B197	Pavement/Concrete	74.47	0.63	196.36	0.36
	U997	Commercial/Residential	12.96	0.11	20.39	0.04
	U998	Utilities	166.96	1.42	359.83	0.66
	B007	Active Mineral Barren	0.44	0.00	12.26	0.02
Subtotal Anthropogenic and Poorly Vegetated			254.83	2.16	588.83	1.08
Grand Total			11785.00	100.00	54324.29	100.00

5.2.2 Fragmentation

The RSA is fragmented by roads, cutblocks, farms, communities, and other anthropogenic disturbances (Figure A.1, Table 5.1). Mean patch size in the RSA is approximately 188 ha while the mean perimeter/area ratio is approximately 8 km/ha (Table 5.2).

Table 5.2 Summary of Baseline Fragmentation in the Regional Study Area

Broad Land Cover Category	Land Cover Class	Mean Patch Size (ha)	Mean Perimeter/Area Ratio (km/ha)
		Baseline	Baseline
Natural Vegetated Communities	Treed Communities	35.42	1.61
	Treed Wetland	1.96	0.95
	Open Wetland	136.65	0.72
<i>Subtotal Natural Vegetated Communities</i>		174.03	3.27
Anthropogenic and Non-vegetated Communities	Disturbed, Regenerating	8.21	0.92
	Non-vegetated	5.68	3.99
<i>Subtotal Anthropogenic and Non-vegetated Communities</i>		13.88	4.92
Total		187.91	8.19

5.2.3 Rare Vegetation Communities

Desktop mapping and site visits identified one ecosite with potential to support rare vegetation communities occur in the PA and LSA (B133 – Hardwood Swamp). As shown in Table 5.3, 3 ha of B133 were documented in the PA, and 7 ha were documented in the LSA. Specific conditions required to qualify as rare vegetation communities are summarised in Table 4.2.

Table 5.3 Summary of Potential Rare Vegetation Ecosites Identified in the Project Area and Local Study Area

Rare Vegetation Community	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	Area (%)	Area (ha)	Area (%)
Hardwood Swamp	B133	Hardwood Swamp	3	<1	7	<1
Grand Total			3	<1	1894	<1

5.2.4 Riparian Form and Function

Riparian habitat covers approximately 221 ha in the PA and 621 ha in the LSA (Table 5.4, Figure A.4). The majority of riparian habitat is forested with 80.2% (177.6 ha) in the PA and 88.8% (551.6 ha) in the LSA. Anthropogenic riparian habitat covers 19.8% (43.7 ha) in the PA and 11.2% (69.6 ha) in the LSA.

Table 5.4 Summary of Riparian Areas in the Project Area and Local Study Area

Broad Land Classification	Land Cover Class	Project Area		Local Study Area	
		Area (ha)	Area (%)	Area (ha)	Area (%)
Upland Forest	Coniferous Forest	167	76	524	84
	Deciduous Forest	10	5	28	4
<i>Subtotal Upland Forest</i>		178	80	552	89
Anthropogenic	Constructed	21	10	30	5
	Anthropogenic	22	10	40	6
<i>Subtotal Anthropogenic</i>		44	20	70	11
Total		221	100	621	100
Note: Numbers may not add up due to rounding.					

5.2.5 Wetlands and Wetland Function

Wetlands cover 72% of the LSA (39,175 ha, Table 5.5). Wetlands in the LSA are relatively diverse with all four wetland classes, bog, fen, marsh, and swamp, present and distributed throughout the LSA (Figure A.4). Swamps are by far the most common wetland class within the LSA, accounting for 55% (4,768.1 ha) of the PA and 65% (25,289.6 ha) of the LSA, while bogs cover 27.2% (2,357.9 ha) of the PA and 20.1% (7,891.6 ha) of the LSA. Fens and marshes are less common in the PA and LSA compared to swamps and bogs.

The most common swamp community are intermediate conifer swamps (B128), accounting for 33.8 (2,931 ha) of wetlands in the PA and 50.9% (19,937.7 ha) in the LSA (Figure A.4). Treed bogs are the most common bog accounting for 27.2% (2,353.7 ha) of the PA and 19.6% (7,661.7 ha) of the LSA. Sparse treed fens are by far the most common type of fen covering 9.0% (781.4 ha) in the PA and 11.4% (4,465.4 ha) of the LSA.

Table 5.5 Summary of Wetland Ecosites in the Local Study Area and Project Area

Land Cover Class	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	%	Area (ha)	%
Wetland - Bog	B126	Treed Bog	2,352.76	27.15	7,661.72	19.56
	B137	Sparse Treed Bog	-	-	198.27	0.51
	B138	Open Bog	5.18	0.06	31.61	0.08
Subtotal Wetland -Bog			2,357.94	27.21	7,891.61	20.14

Land Cover Class	Ecosite Code	Ecosite Name	PA		LSA	
			Area (ha)	%	Area (ha)	%
Wetland - Fen	B136	Sparse Treed Fen	781.35	9.01	4,465.40	11.40
	B139	Poor Fen	7.21	0.08	142.75	0.36
	B140	Open Moderately Rich Fen	0.19	0.00	51.75	0.13
	B141	Open Extremely Rich Fen	-	-	16.31	0.04
	B146	Open Shore Fen	-	-	22.11	0.06
Subtotal Wetland – Fen			788.75	9.10	4,698.32	11.99
Wetland - Marsh	B142	Mineral Meadow Marsh	12.30	0.14	143.37	0.37
	B144	Organic Meadow Marsh	740.10	8.54	1,152.00	2.94
Subtotal Wetland – Marsh			752.39	8.68	1,295.37	3.31
Wetland - Swamp	B127	Poor Conifer Swamp	95.25	1.10	1,249.22	3.19
	B128	Intermediate Conifer Swamp	2,930.95	33.82	19,937.66	50.89
	B129	Rich Conifer Swamp	624.69	7.21	1,538.03	3.93
	B133	Hardwood Swamp	3.01	0.03	7.35	0.02
	B134	Mineral Thicket Swamp	3.57	0.04	31.14	0.08
	B135	Organic Thicket Swamp	932.96	10.76	2,001.06	5.11
	B222	Mineral Poor Conifer swamp	177.47	2.05	333.56	0.85
	B223	Mineral Intermediate Conifer Swamp	0.20	0.00	191.60	0.49
Subtotal Wetland – Swamp			4,768.10	55.01	25,289.61	64.56
Total Wetlands			8,667.18	100.00	39,174.91	100.00

Wetlands in the PA and LSA contain large, estimated volumes of peat. Within the PA a minimum of 33.9 Million m³ of peat is present, while in the LSA a minimum of 154.7 Million m³ is present. Bogs and Swamps contain the largest amounts of peat, accounting for 27.8% and 54.1%, in the PA and 20.4% and 64.5% in the LSA, respectively (Table 5.6).

Table 5.6 Summary of Estimated Peat Volumes in the Project Area and Local Study Area

Land Cover Class	Ecosite Code	Ecosite Name	PA			LSA		
			Area (ha)	Peat Volume (m3)		Area (ha)	Peat Volume	
				m ³	%		m ³	%
Wetland - Bog	B126	Treed Bog	2352.8	9411031.5	27.8	7661.7	30646896.3	19.8
	B137	Sparse Treed Bog	-	-	-	198.3	793097.5	0.5
	B138	Open Bog	5.2	20720.1	0.1	31.6	126443.6	0.1
<i>Subtotal Wetland - Bog</i>			<i>2357.9</i>	<i>9431751.6</i>	<i>27.8</i>	<i>7891.6</i>	<i>31566437.5</i>	<i>20.4</i>
Wetland - Fen	B136	Sparse Treed Fen	781.3	3125380.0	9.2	4465.4	17861585.2	11.5
	B139	Poor Fen	7.2	28849.8	0.1	142.7	570986.9	0.4

Land Cover Class	Ecosite Code	Ecosite Name	PA			LSA		
			Area (ha)	Peat Volume (m3)		Area (ha)	Peat Volume	
				m ³	%		m ³	%
	B140	Open Moderately Rich Fen	0.2	770.1	<0.1	51.8	207008.1	0.1
	B141	Open Extremely Rich Fen	-	-	-	16.3	65249.0	0.0
	B146	Open Shore Fen	-	-	-	22.1	88447.9	0.1
<i>Subtotal Wetland - Fen</i>			<i>788.7</i>	<i>3155000.0</i>	<i>9.3</i>	<i>4698.3</i>	<i>18793277.1</i>	<i>12.2</i>
Wetland - Marsh	B144	Organic Meadow Marsh	740.1	2960381.3	8.7	1152.0	4608002.2	3.0
<i>Subtotal Wetland - Marsh</i>			<i>740.1</i>	<i>2960381.3</i>	<i>8.7</i>	<i>1152.0</i>	<i>4608002.2</i>	<i>3.0</i>
Wetland - Swamp	B127	Poor Conifer Swamp	95.2	380997.8	1.1	1249.2	4996879.0	3.2
	B128	Intermediate Conifer Swamp	2930.9	11723785.5	34.6	19937.7	79750633.4	51.6
	B129	Rich Conifer Swamp	624.7	2498748.2	7.4	1538.0	6152127.2	4.0
	B133	Hardwood Swamp	3.0	12059.5	<0.1	7.3	29387.5	0.0
	B135	Organic Thicket Swamp	933.0	3731844.1	11.0	2001.1	8004222.0	5.2
	B223	Mineral Intermediate Conifer Swamp	0.2	814.0	<0.1	191.6	766393.1	0.5
<i>Subtotal Wetland - Swamp</i>			<i>4587.1</i>	<i>18,348,249.1</i>	<i>54.1</i>	<i>24924.9</i>	<i>99,699,642.3</i>	<i>64.5</i>
Grand Total			8473.8	33895381.9	100.0	38666.8	154667359.1	100.0

Wetlands in the RSA and LSA have the potential to perform the following ecological functions:

- Hydrological functions:** Hydrological functions include the capacity of wetlands to store, moderate, and release water within the watershed providing groundwater recharge, baseflow maintenance/ augmentation (of adjacent streams), flood flow attenuation, and reducing downstream erosion (Hanson et al. 2008). Hydrological functions of wetlands are determined by the wetland's relative position in the watershed, size of wetland relative to the contributing watershed size, the wetland's hydrogeomorphic group (e.g., fluvial, palustrine, and various basin types), slope, soil type, vegetation structure, and attributes of the wetland outlet (if present). The wetlands in the RSA have the potential to contribute to groundwater recharge, baseflow augmentation, flood flow attenuation, and reducing downstream erosion to varying degrees.
- Biogeochemical Functions:** Biogeochemical functions include the capacity of wetlands to improve water quality by reducing excess suspended sediment and nutrients such as phosphorus and nitrogen, and capture and store atmospheric carbon (Hanson et al. 2008). The potential for

wetlands to improve water quality by removing suspended sediment is linked to their capacity to reduce surface water velocity (which allows sediment to settle) through attributes such as basin form and size, outlet attributes, slope, and vegetation structure. The potential for wetlands to improve water quality by removing excess nutrients is dependent on rates of primary productivity (of vegetation), and hydroperiod (depth and duration of surface water; seasonality of surface water). The potential for wetlands to capture and store atmospheric carbon is dependent on their vegetation structure/ cover, primary productivity, and hydroperiod. The wetlands in the RSA have the potential to improve water quality. The forested swamps and peatlands (bogs and fens) in the RSA have potential to capture and store atmospheric carbon within their biomass and organic soils, respectively.

- **Habitat Functions:** Habitat functions include the capacity of wetlands to provide specific life history requisites for certain plant or animal species or faunal groups (Hanson et al. 2008). The capacity of a wetland to support a given wildlife species, faunal group, or plant species depends on such attributes as the presence/ absence, depth, and duration of surface water; vegetation structure and cover; surface water pH or salinity; and adjacent habitat and/or wetland buffers.

Wetlands within the RSA have been documented to provide the following habitat functions:

- Functional habitat and overwintering for turtles such as midland painted turtle (*Chrysemys picta marginata*) and snapping turtle (*Chelydra serpentina*). Community records show that Blanding's turtle have been found recorded in the LSA and RSA.
- Breeding and non-breeding habitat for aquatic furbearers such as beaver (*Castor canadensis*), American mink (*Neovison vison*) and North American river otter (*Lontra canadensis*). North American river otter complexes are nested along water bodies that support productive fish populations.
- Aquatic feeding areas for moose (*Alces alces*) where there is access to abundant aquatic plants. Aquatic feeding areas are present throughout the RSA, including one small portion in the southern limits of the PA.
- Breeding and non-breeding habitat for aquatic waterfowl. Species documented in the RSA are Canada Goose, Green-winged Teal, Ring-necked Duck, Redhead, and Wood Duck (Wood 2021). These waterfowl species were found using the marshes, ponds, and lakes as a stopover and staging area.
- Breeding and dispersal habitat in shallow open water wetlands for amphibians. A variety of suitable woodland ecosites occur within the PA. American toad (*Anaxyrus americanus*), boreal chorus frog (*Pseudacris maculata*), green frog (*Lithobates clamitans*), mink frog (*Lithobates septentrionalis*), northern leopard frog (*Lithobates pipiens*), spring peeper (*Pseudacris crucifer*), and wood frog (*Lithobates sylvaticus*) were recorded in the LSA (Appendix B.7.4 of the Impact Statement [2023 Terrestrial Ecology Baseline Study]). Two salamanders were also recorded, one blue-spotted salamander (*Ambystoma laterale*) and one unidentified species.

5.2.6 Plant Species of Management Concern

5.2.6.1 Plant SAR and SOCC

The 2021 and 2022 field studies identified 238 species or genera of vascular plants (Appendix D. Of the 18 plant and lichen species identified as having potential to occur in the RSA, only black ash was recorded within the LSA (Table 5.7). One occurrence of black ash has been mapped in the LSA and another immediately west of the LSA (Figure A.6). Both occurrences were in ecosite B119 (moist fine aspen-birch hardwood). Ecosite B119 is the most common upland deciduous forest community and occurs in small stands throughout the LSA (Figure A.3).

Table 5.7 Plant Species of Management Concern in the LSA

Plant Group	Common Name	Scientific Name	S-Rank	SARO Status	COSEWIC Status	SARA
Tree	Black Ash	<i>Fraxinus nigra</i>	S4	END	THR	-
Notes: S4 - Apparently Secure END - Endangered THR - Threatened						

5.2.6.2 Plant Species of Indigenous Interest

Thirty-nine plant and lichen species or genera and 4 species of fungi of Indigenous interest were identified in the LSA during 2022 and 2023 field surveys (Table 5.8). All species or genera recorded are widely distributed throughout the LSA, RSA, and Ecoregion 3E.

Table 5.8 Plant Species Noted as Being Harvested by Indigenous Nations Identified in the Local Study Area

Lifeform	Scientific Name	Common Name
Trees	<i>Abies balsamea</i>	Balsam Fir
	<i>Acer spp</i>	Maple
	<i>Betula papyrifera</i>	Paper Birch / Birch Bark
	<i>Larix laricina</i>	Tamarack
	<i>Picea spp</i>	Spruce
	<i>Populus Balsamifera</i>	Bamagillia buds (balsam poplar)
	<i>Thuja occidentalis</i>	Eastern white cedar
Shrubs	<i>Acer spicatum</i>	Mountain Maple
	<i>Betula pumila</i>	Bog Birch
	<i>Corylus cornuta</i>	Beaked Hazelnut
	<i>Prunus pensylvanica</i>	Pin cherry
	<i>Prunus virginiana</i>	Chokecherry

Lifeform	Scientific Name	Common Name
	<i>Rhododendron groenlandicum</i>	Labrador Tea (Swamp tea)
	<i>Ribes spp</i>	Gooseberries
	<i>Rosa acicularis</i>	Prickly Rose
	<i>Rosa spp</i>	Rosehips
	<i>Rubus idaeus</i>	Red Raspberry
	<i>Rubus pubescens</i>	Dwarf Raspberry
	<i>Salix spp</i>	Willows
	<i>Sorbus spp</i>	Mountain Ash
	<i>Vaccinium spp</i>	Blueberry/Cranberry
	<i>Vaccinium angustifolium</i>	Early Lowbush Blueberry
	<i>Vaccinium myrtilloides</i>	Velvet-leaved Blueberry
	<i>Vaccinium oxycoccos</i>	Small Cranberry
	<i>Vaccinium vitis-idea</i>	Mountain cranberry
Forbs	<i>Achillea millefolium</i>	Yarrow
	<i>Anaphalis margaritacea</i>	Pearly Everlasting
	<i>Fragaria (spp)</i>	Wild Strawberry
	<i>Lobelia inflata</i>	Tobacco
	<i>Mentha arvensis</i>	Wild Mint
	<i>Plantago major</i>	Common Plantain
	<i>Solidago spp</i>	Goldenrod
	<i>Symphotrichum puniceum</i>	Purple-stemmed Aster (Swamp aster)
	<i>Verbascum spp</i>	Mullein
Graminoids	<i>Typha latifolia</i>	Cattail
	<i>Hierochloe odorata</i>	Sweetgrass
Horsetails	<i>Equisetum spp</i>	Horsetail
Lichen	<i>Usnea spp</i>^a	Old man's beard
	<i>Cladonia spp</i>	Reindeer Lichen

Lifeform	Scientific Name	Common Name
Fungi	<i>Inonotus obliquus</i>	Chaga
	<i>Cantharellus cibarius</i>	Chanterelle
	<i>Calvatia gigantea</i>	Puffball
	<i>Coprinus comatus</i>	Shaggy Mane
Notes Bold names refer to genera. ^a Collected as part of the human health risk assessment.		

5.2.7 Invasive Plant Species

Three noxious weed species are documented in the LSA (Table 5.9). Wild parsnip (*Pastinaca sativa*), Bull thistle (*Cirsium vulgare*), and Canada thistle (*Cirsium arvense*) were documented in the LSA in field surveys conducted in 2022 and 2023. Thirty-one additional exotic vascular plant species were also identified (Appendix D).

Table 5.9 Invasive Plant Species Occurring in the Local Study Area

Common Name	Scientific Name	Documented within RSA
Wild parsnip	<i>Pastinaca sativa</i> *	Y
Bull thistle	<i>Cirsium vulgare</i> *	Y
Canada thistle	<i>Cirsium arvense</i> *	Y
Notes: N – No Y – Yes * – Noxious Weeds in Ontario (GOO, 2022)		

6 Summary

The following is a summary of findings:

- One plant SAR (black ash) was identified within the LSA during 2021 and 2022 field surveys.
- Three noxious weeds have been identified to occur in the LSA; Canada thistle, bull thistle, and wild parsnip.
- Thirty-nine plant and lichen species or genera and 4 fungi species harvested by Indigenous nations with traditional territories overlapping the RSA were identified within the LSA.
- One ecosite with potential to support rare vegetation communities is present in the LSA.
- Eighteen wetland communities were identified in the LSA, occupying 72.1% (39,174.9 ha) including bogs, fens, marshes, and swamps. The most common wetland class in the LSA are swamps with intermediate conifer swamp (B128) the most common wetland ecosite which occupies 36.7% (19,937.7 ha).
- Wetlands in the LSA provide a variety of hydrological, biogeochemical, and habitat functions. Habitat functions include:
 - functional habitat and overwintering for turtles
 - breeding and non-breeding habitat for aquatic furbearers
 - aquatic feeding areas for moose
 - breeding and non-breeding habitat for aquatic waterfowl
 - breeding and dispersal habitat in shallow open water wetlands for amphibians

This supplemental baseline report provides baseline information for vegetation, riparian and wetland environments and supports the description of existing conditions for the Project Impact Statement.

7 Closure

The conclusions in this report are Stantec's professional opinion, as of the time of the report, and concerning the scope described in the report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes.

8 References

- Apitipi Anicinapek Nation. 2023. Comments from Apitipi Anicinapek Nation on the draft Technical Impact Statement Guidelines and Indigenous Transportation Initiatives Fund. Submitted on March 1, 2023. Canadian Impact Assessment Registry (Reference #75). Available at <https://iaac-aeic.gc.ca/050/evaluations/proj/83857/contributions/id/59459>.
- Apitipi Anicinapek Nation. 2024. Apitipi Anicinapek Nation Canada Nickel Company Crawford Nickel Project Indigenous Knowledge, Land Use and Occupancy Study. Report prepared for Canada Nickel Company's Crawford Nickel Project. Report on file.
- Banton, E., Johnson, J., Lee, H., Racey, G., Uhlig, P., and Wester, M. 2009. Ecosites of Ontario, Operational Draft April 20th, 2009. Ontario Ministry of Natural Resources, Ecological Classification Working Group.
- Crins, W.J., Gray, P.A., Uhlig, P.W.C. and Wester, M.C. 2009. The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions. MNR Science and Information Branch, Technical Report SIB TER IMA TR-01. 87 pp.
- Flying Post First Nation. 2023. Flying Post First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Sulfide Project. July 2023. Report prepared for Canada Nickel Company's Crawford Nickel Project. Report on File.
- Government of Canada (GOC). Federal Policy on Wetland Conservation. 1991. Electronic Document: Federal policy on wetland conservation: CW66-116/1991E-IN - Government of Canada Publications - Canada.ca. Accessed April 2024.
- Government of Canada (GOC). 2024. *Species at Risk Act (S.C. 2002, C. 29), Schedule 1 (Subsections 2(1), 42(2) and 68(2), List of Wildlife Species at Risk*. Electronic Document: <https://laws.justice.gc.ca/eng/acts/s-15.3/>. Accessed March 2024.
- Government of Ontario (GOO). 2007. Endangered Species Act, 2007, S.O. 2007, c. 6. Electronic Document: <https://www.ontario.ca/laws/statute/07e06>. Last accessed: January 16, 2020.
- GOO. 2022. Noxious Weeds in Ontario. Electronic Document: Noxious weeds in Ontario | ontario.ca. Accessed April 2024.
- Hanson, A., L. Swanson, D. Ewing, G. Grabas, S.Meyer, L. Ross, M. Watmough, and J. Kirkby. 2008 Wetlands ecological functions assessment: an overview of approaches. Canadian Wildlife Service Technical Report Series No. 497. Atlantic Region. 59pp. Copies available from ahanson@ec.gc.ca
- Impact Assessment Agency of Canada (IAAC). 2023a. Tailored Impact Statement Guidelines Crawford Nickel Project. Ref. No. 92. Available at: <https://iaac-aeic.gc.ca/050/evaluations/document/147481>. Accessed April 2024.

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report 8 References

September 30, 2024

- IAAC. 2023b. Crawford Nickel Project – Impact Assessment Agency of Canada responses to comments received during the Planning Phase (August 8, 2022, to March 08, 2023). Canadian Impact Assessment Registry (Reference #101). Available at: <https://iaac-aeic.gc.ca/050/documents/p83857/153117E.pdf>. Accessed January 2024.
- iNaturalist Canada. 2024. iNaturalist. Available: <https://inaturalist.ca/>. Accessed February 2024.
- LIO (Land Information Ontario). 1999. Provincial Land Cover 2000 – Version 2. Available at: Provincial land cover | Ontario GeoHub (gov.on.ca). Accessed May 2024.
- LIO. 2002. Wetlands. Available at: Wetlands | Ontario GeoHub (gov.on.ca). Accessed May 2024.
- LIO. 2007. Forest Resources Inventory Packaged Products - Version 1. Available at: <https://geohub.lio.gov.on.ca/documents/lio::forest-resources-inventory-packagedproducts-version-1/about>. accessed March 2024.
- LIO. 2020. Forest Resources Inventory Package Products – Version 2. Available at: <https://geohub.lio.gov.on.ca/maps/lio::forest-resources-inventory-packaged-products-version-2/about>. Accessed March 2024.
- LIO. 2021. Forest Resources Inventory Packaged Products - Version 2. Cited online: <https://geohub.lio.gov.on.ca/maps/lio::forest-resources-inventory-packaged-productsversion-2/about>. Last accessed March 2022.
- LIO. 2023. Ontario Land Cover Compilation v.2.0. OntarioGeoHub. Available at: Ontario Land Cover Compilation v.2.0 | Ontario GeoHub (gov.on.ca). Accessed February 2024.
- Matachewan First Nation. 2023. Matachewan First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Project. July 2023. Report prepared for Canada Nickel Company's Crawford Nickel Project. Report on File.
- Matachewan First Nation, Mattagami First Nation, and Flying Post First Nation. 2023. Comments from Matachewan First Nation, Mattagami First Nation, and Flying Post First Nation on the draft TIS Guidelines. Submitted on March 8, 2023. Canadian Impact Assessment Registry (Reference #77). Available at <https://iaac-aeic.gc.ca/050/evaluations/proj/83857/contributions/id/59457>. Accessed February 2024.
- Mattagami First Nation. 2023. Mattagami First Nation Knowledge and Use Study for Canada Nickel Company's Crawford Nickel Project. August 2023. Report prepared for Canada Nickel Company's Crawford Nickel Project. Report on file.
- MECP (Ministry of the Environment, Conservation and Parks). 2024. Species at Risk in Ontario. Available at: <https://www.ontario.ca/page/species-risk-ontario>. Accessed April 2024.
- MECP. 2024. *Species at Risk in Ontario*. Electronic Document: <https://www.ontario.ca/page/species-risk-ontario>. Accessed: April 2024.

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report

8 References

September 30, 2024

Métis Nation of Ontario. 2024. Métis Nation of Ontario Region 3 Impact Study: Crawford Nickel Mine Project. Calliou Group. June 2024. Report on File.

Ministry of Natural Resources and Forestry (MNRF). 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 3E. FINAL. Electronic Document: [schedule-3e-2015-final-s.pdf](#) (ontario.ca). Accessed: April 2024.

MNRF. 2024a. Make A Map: Natural Heritage Areas. Available at: https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA. Accessed March 2024.

MNRF. 2024b. *Land Information Ontario*. Electronic Document: <https://www.ontario.ca/page/land-information-ontario>. Accessed March 2024.

NWWG (National Wetlands Working Group). 1997. *The Canadian Wetland Classification System*, 2nd Edition. Wetlands Research Centre, University of Waterloo, Waterloo, ON, Canada.

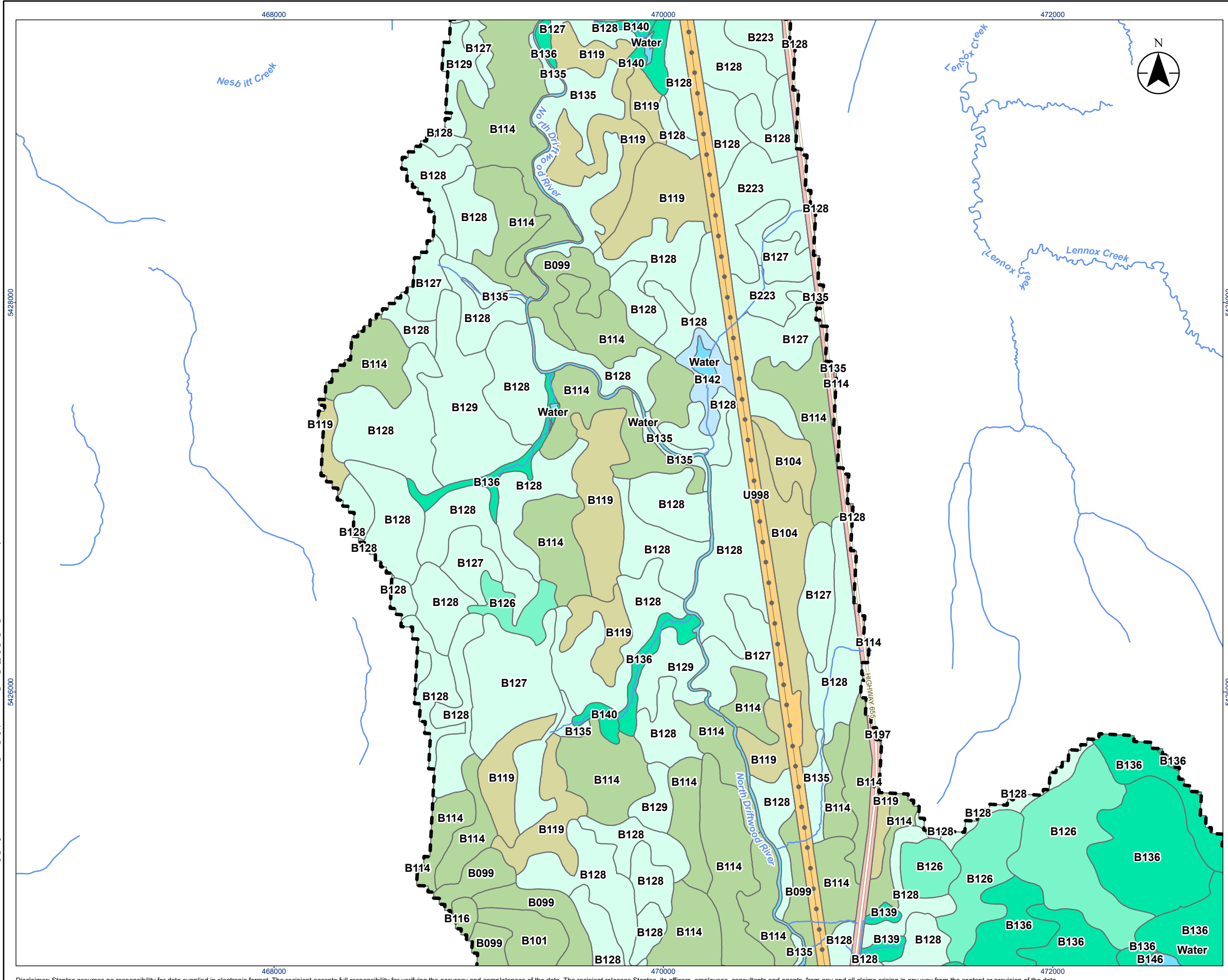
Taykwa Tagamou Nation. 2023. Taykwa Tagamou Nation Crawford Nickel Project Traditional Knowledge and Land Use Study. Report prepared for Canada Nickel Company's Crawford Nickel Project. Report on file.

Van Sleetuwen, M. 2006. *Natural Fire Regimes in Ontario*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto, Ontario. 143pp.


Wahgoshig First Nation, Odonaterra Inc. and Shared Value Solutions. 2021. Technical Review of the Agnico Eagle Upper Beaver Mine Project draft Initial Project Description. Submitted on July 30, 2021. Canadian Impact Assessment Registry (Reference #29) Available at: <https://iaac-aeic.gc.ca/050/evaluations/proj/82960/contributions/id/55924>. Accessed November 2023.

Appendices




Appendix A Figures



Legend



 Local Study Area

Base Features





-  Major Road
-  Hydro Line
-  Watercourse (Permanent)

Ecological Land Classification


Forested Area

-  Coniferous Forest/Stand
-  Deciduous Forest/Stand



Wetland

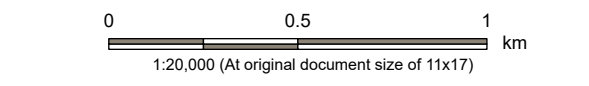
-  Bog
-  Fen
-  Swamp
-  Meadow Marsh

Water

-  Water

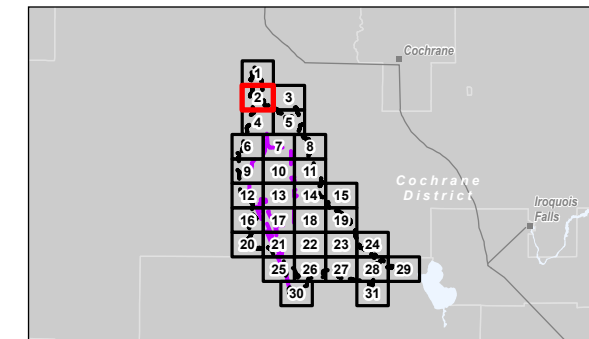
Anthropogenic

-  Anthropogenic
-  Constructed



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



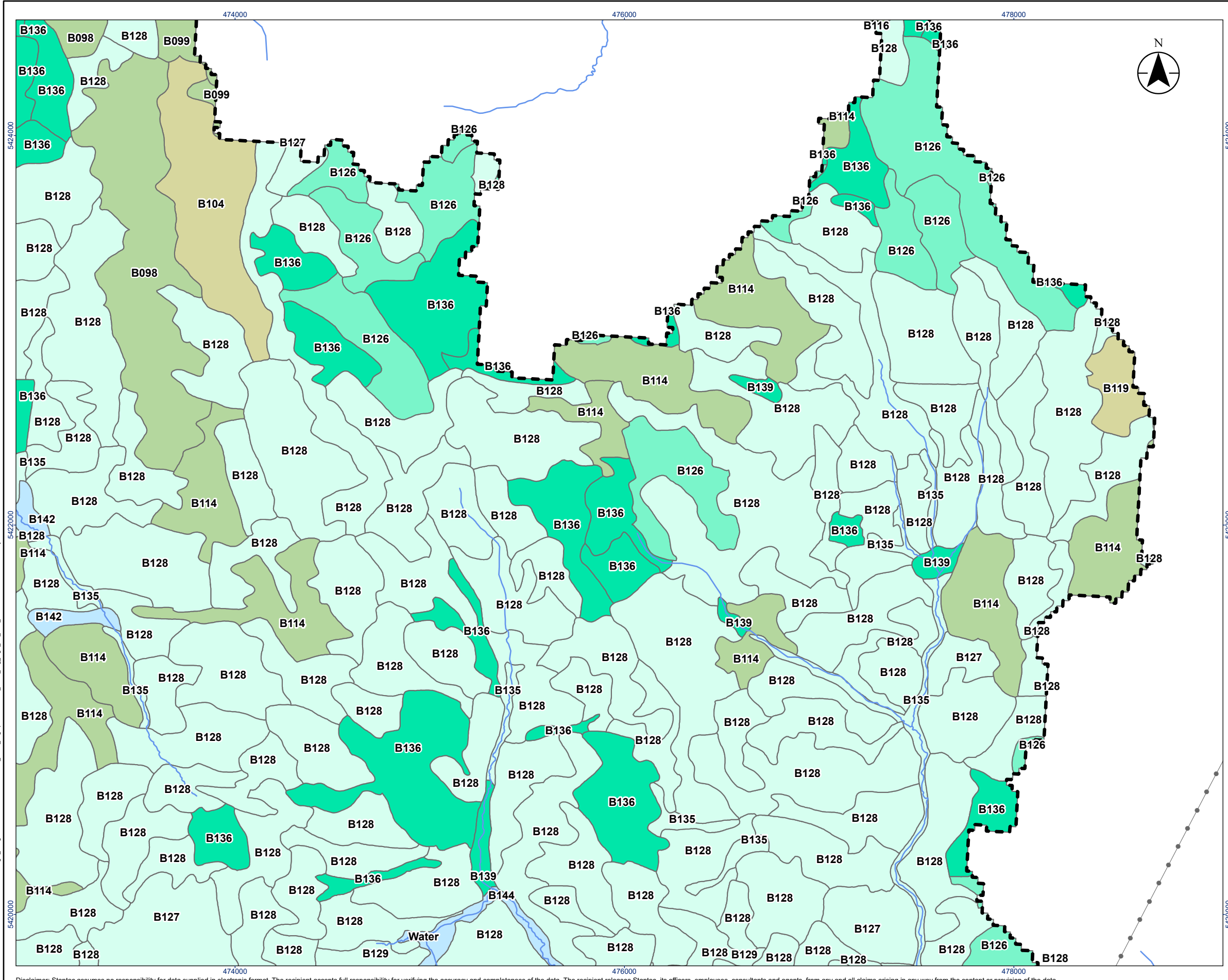
Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

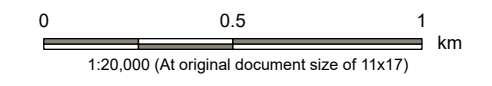
Figure No.: **A.3.2**

Title: **Ecological Land Classification in the LSA**

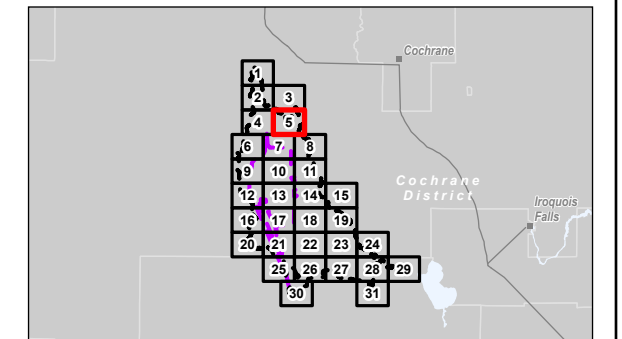
V:\1004-1010\1009\active\160930456\160930456\gis_base\mxd\160930456_gis_base\veg_fig_a_3_x_elc_lsa_2024-09-11 By: awhite
 5426000
 468000
 470000
 472000
 5426000



- Legend**
- Local Study Area
 - Hydro Line
 - Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland**
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water**
- Water



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



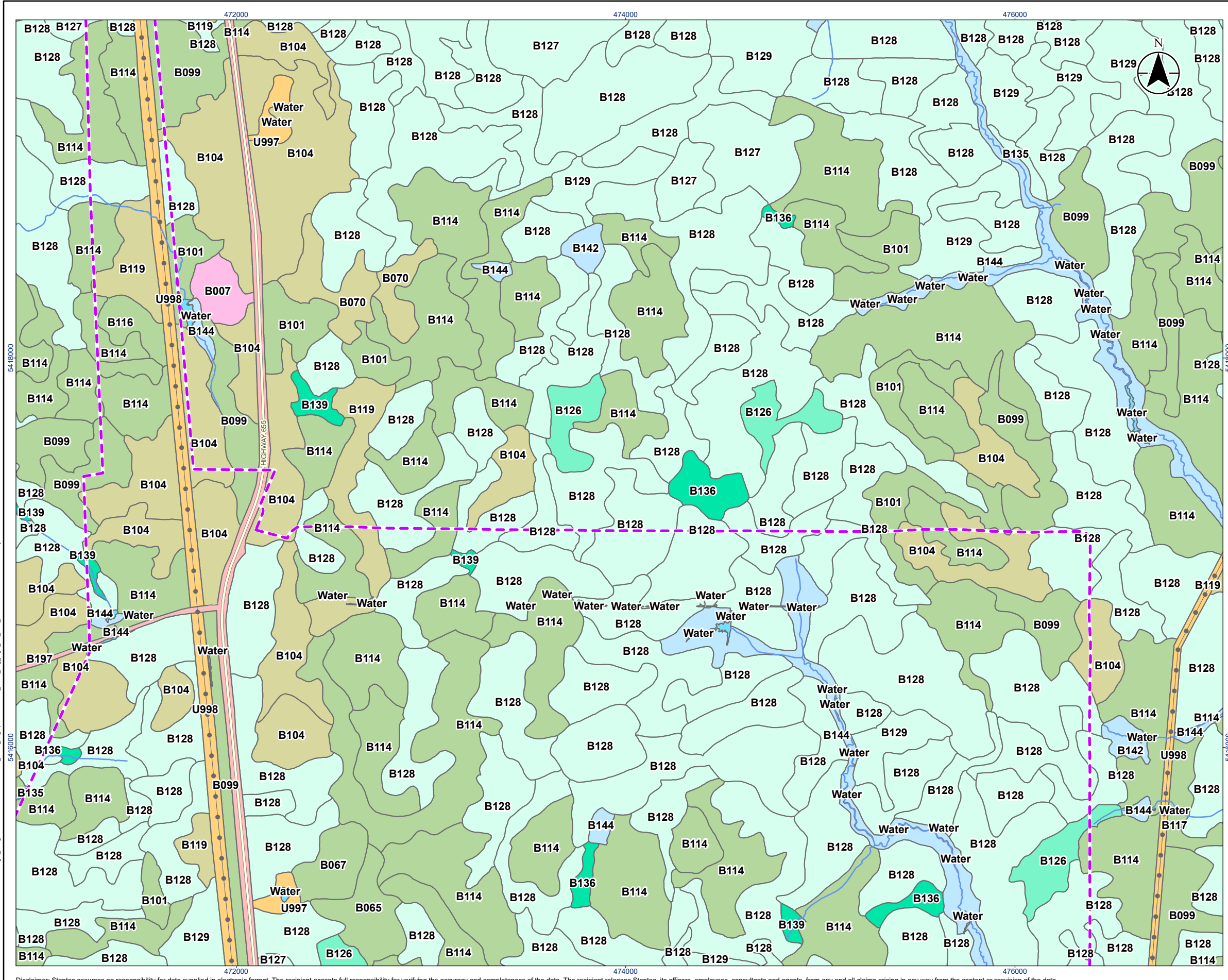
Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.3.5**
 Title **Ecological Land Classification in the LSA**

\mnt\04-10\1099\active\160930456\gis_base\mxd\160930456\gis_base\veg_fig3_x_e.c_LSA_Review_2024-09-11 By: awhite
 5422000

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend

- Project Area
- Local Study Area

Base Features

- Major Road
- Minor Road
- Hydro Line
- Watercourse (Permanent)

Ecological Land Classification

Forested Area

- Coniferous Forest/Stand
- Deciduous Forest/Stand

Wetland

- Bog
- Fen
- Swamp
- Meadow Marsh

Water

- Water

Anthropogenic

- Anthropogenic
- Constructed

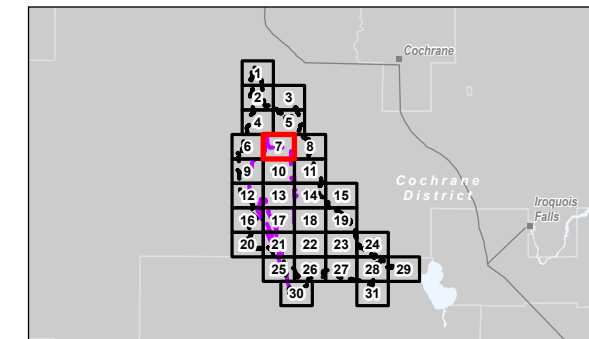
Other

- Barren

0 0.5 1 km
1:20,000 (At original document size of 11x17)

Notes

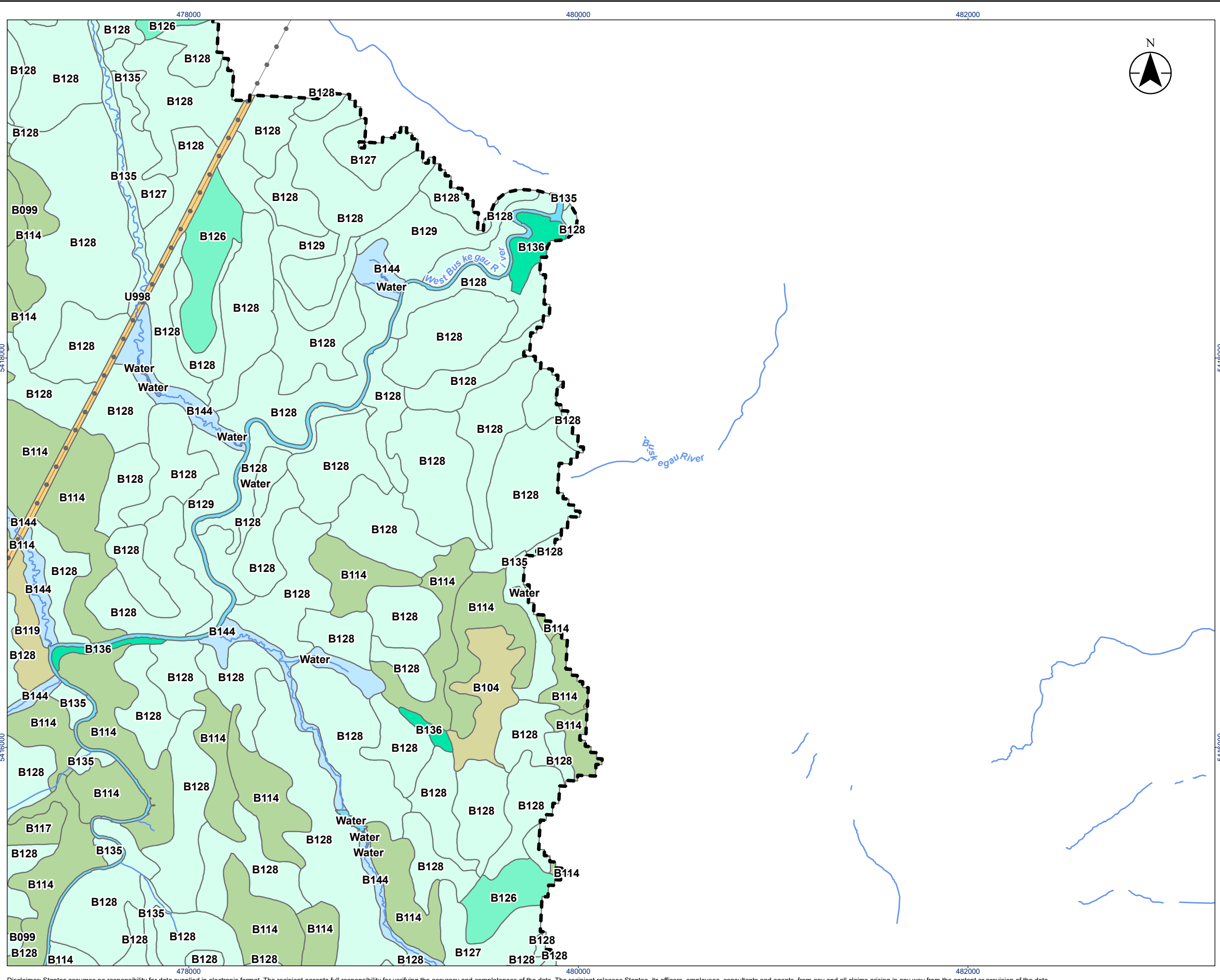
- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

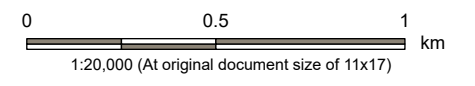
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.3.7**
 Title **Ecological Land Classification in the LSA**

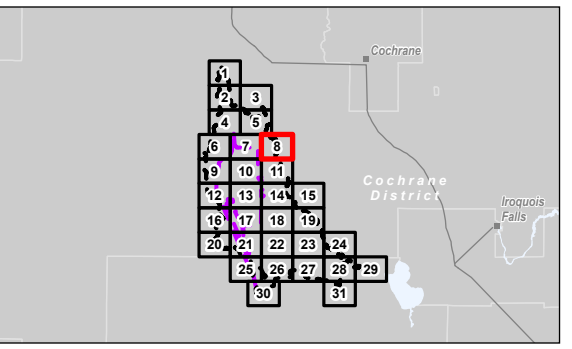


Legend

- Local Study Area
- Hydro Line
- Watercourse (Permanent)
- Ecological Land Classification
- Forested Area
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water
 - Water
- Anthropogenic
 - Anthropogenic



- Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



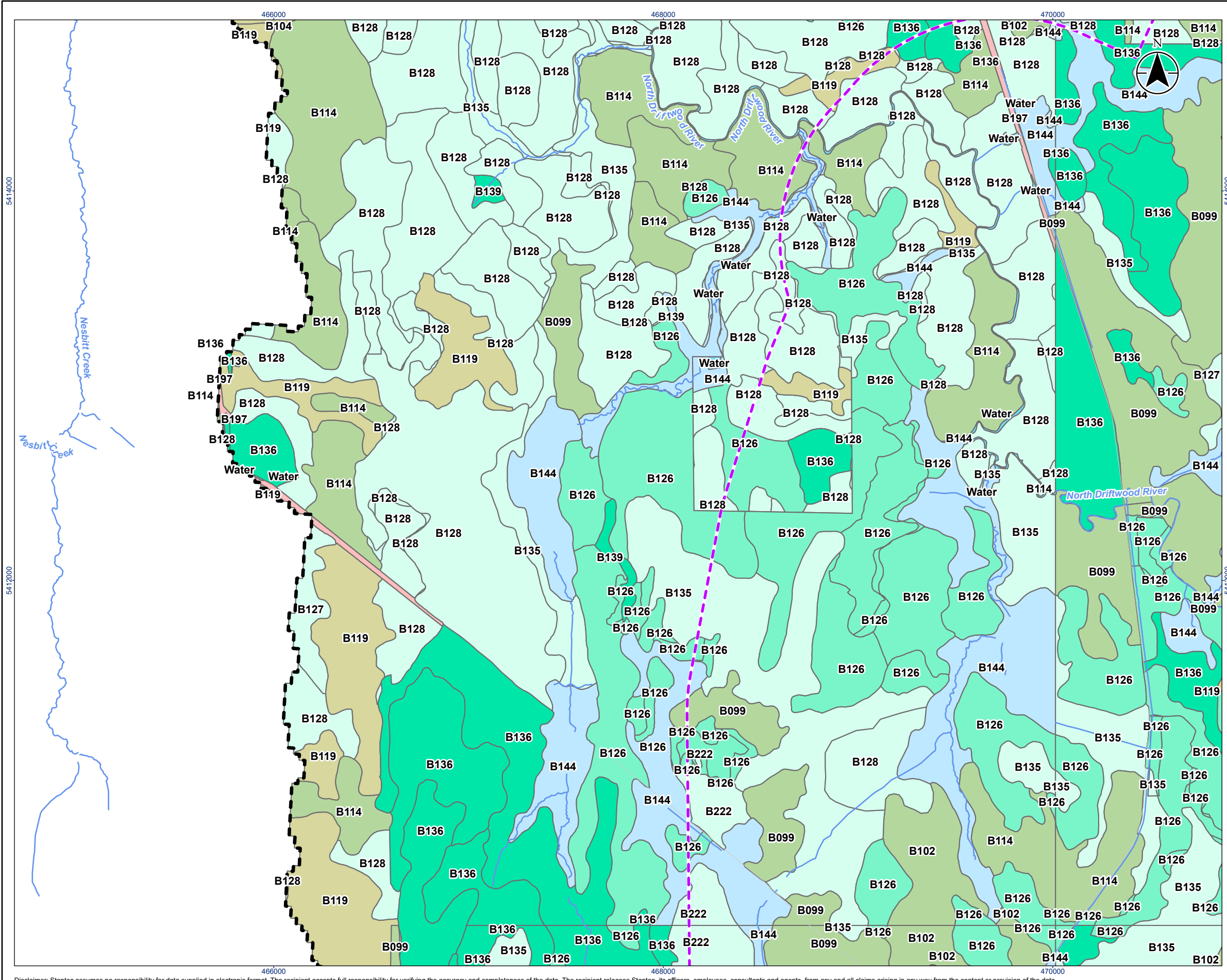
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.
A.3.8
 Title
Ecological Land Classification in the LSA

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

V:\01004\101009\active\160930456\160930456_gis_base\mxd\160930456_ls-bl_veg_fig_3_x_elc_lsa_Review_2024-09-11_By:awhite
 5418000
 5416000



Legend

- Project Area
- Local Study Area

Base Features

- Minor Road
- Watercourse (Permanent)

Ecological Land Classification

Forested Area

- Coniferous Forest/Stand
- Deciduous Forest/Stand

Wetland

- Bog
- Fen
- Swamp
- Meadow Marsh

Water

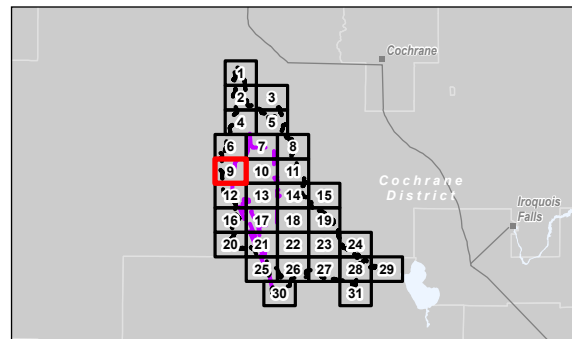
- Water

Anthropogenic

- Constructed

0 0.5 1
 km
 1:20,000 (At original document size of 11x17)

Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



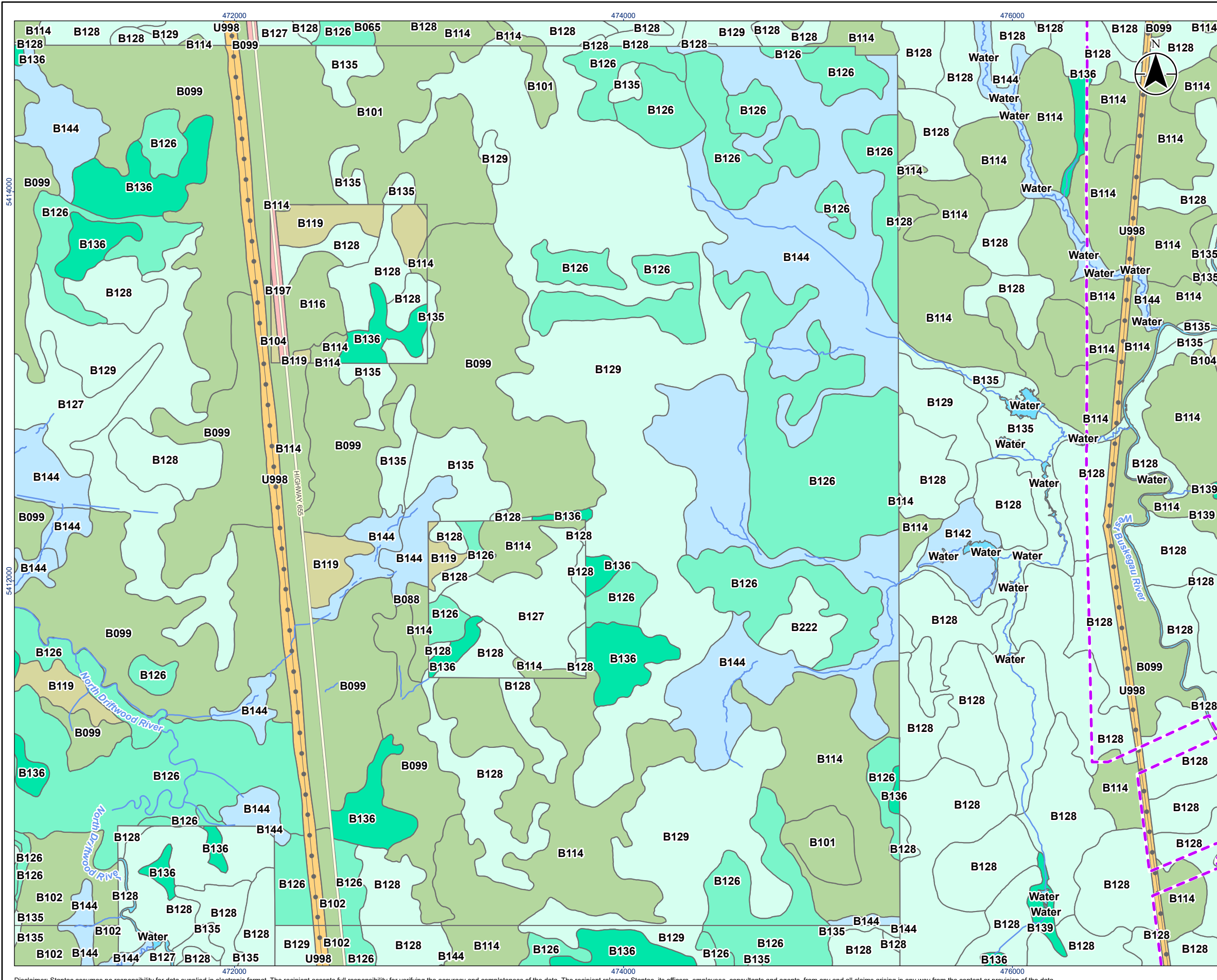
Project Location: Timmins, Ontario
 Prepared by: REVA (160930456) / awhite (on 2024-09-11)

Client/Project: Canada Nickel Company (CNC) / Crawford Nickel Project

Figure No. **A.3.9**

Title: **Ecological Land Classification in the LSA**

V:\1004\1010\160930456\160930456\GIS\carriage\mxd\160930456\160930456\IS-BL_Veg_FigA_3_x_ELC_LSA_Review_2024-09-11 By: awhite 5412000 5414000



Legend

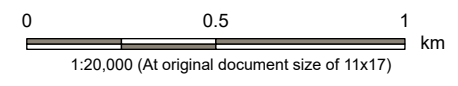
- Project Area
- Local Study Area

Base Features

- Major Road
- Hydro Line
- Watercourse (Permanent)

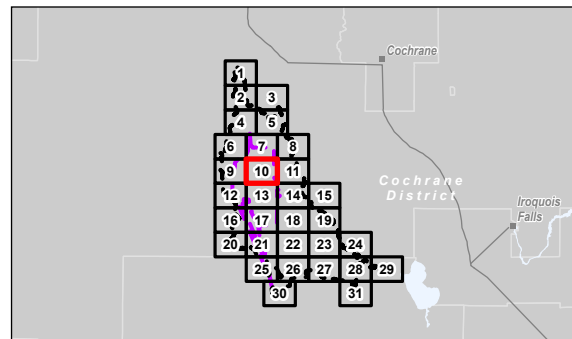
Ecological Land Classification

- Forested Area
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water
- Water
- Anthropogenic
- Anthropogenic
 - Constructed



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



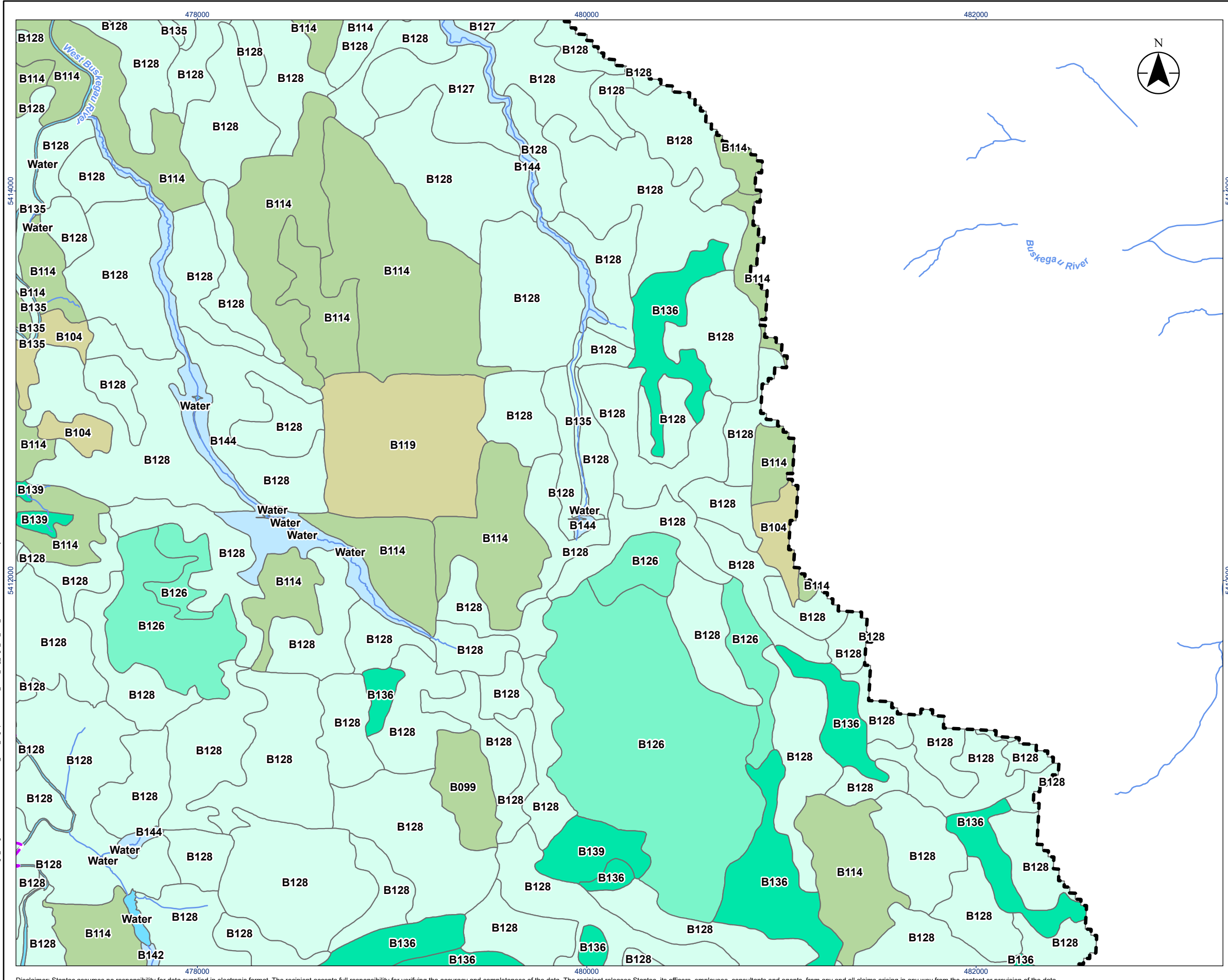
Project Location: Timmins, Ontario 160930456 REVA
 Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

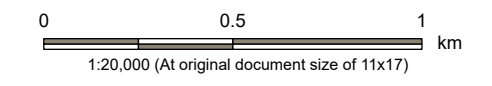
Figure No.: **A.3.10**
 Title: **Ecological Land Classification in the LSA**

V:\1004-0101009\active\160930456\gis_base\mxd\160930456_gis_base\veg_fig_a_3_x_e.c_LSA_Review_2024-09-11 By: awhite
 5414000 5412000 472000 474000 476000

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

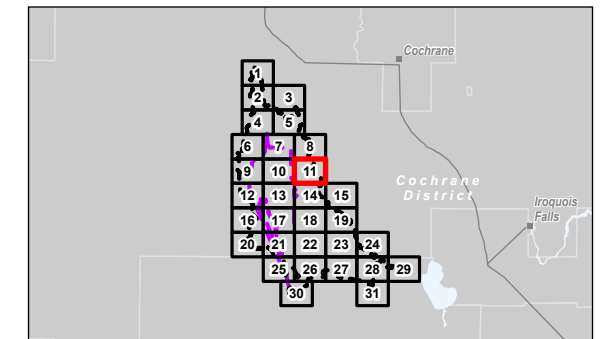


- Legend
- Project Area
 - Local Study Area
 - Watercourse (Permanent)
- Ecological Land Classification
- Forested Area
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water
- Water



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

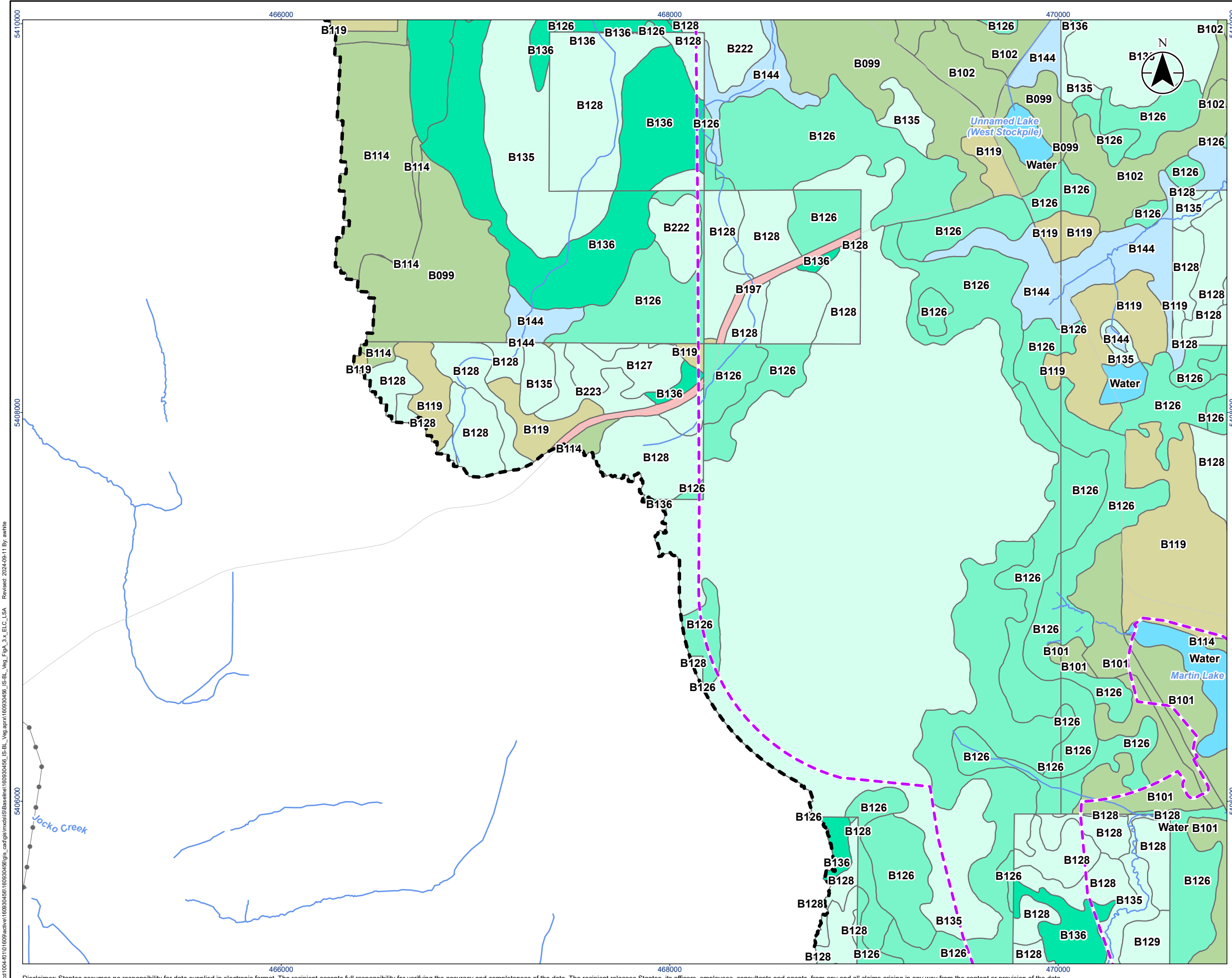


Project Location: Timmins, Ontario
160930456 REVA
Prepared by awhite on 2024-09-11

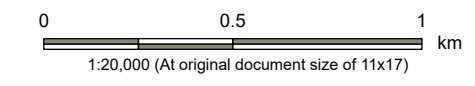
Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.3.11
Title
Ecological Land Classification in the LSA

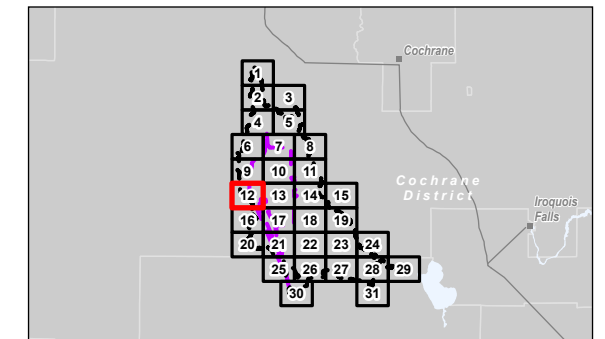
Vertical text on the left edge of the map area, likely a file path or revision information.



- Legend**
- Project Area
 - Local Study Area
 - Base Features**
 - Minor Road
 - Hydro Line
 - Watercourse (Permanent)
 - Ecological Land Classification**
 - Forested Area**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Wetland**
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
 - Water**
 - Water
 - Anthropogenic**
 - Constructed



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

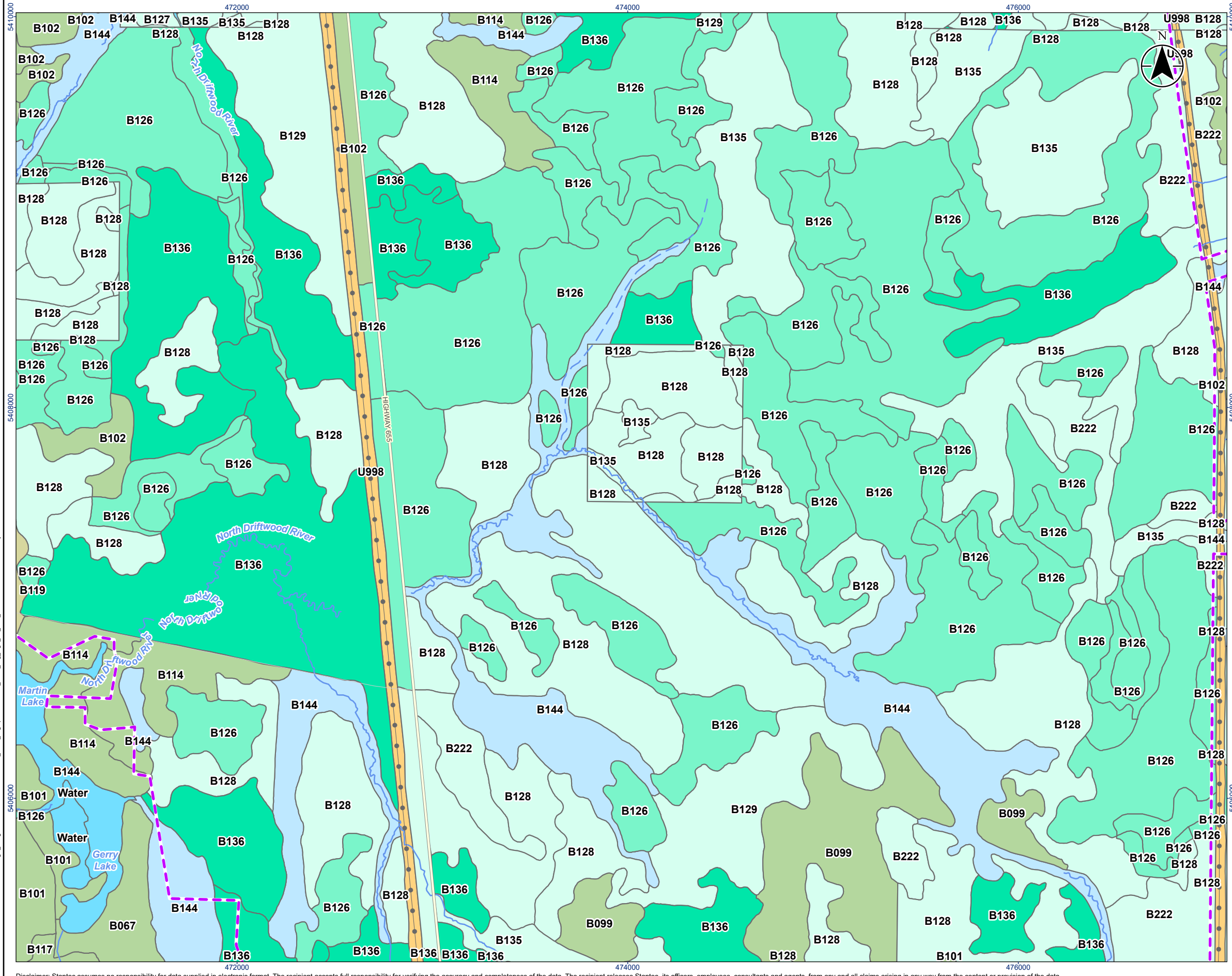


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA

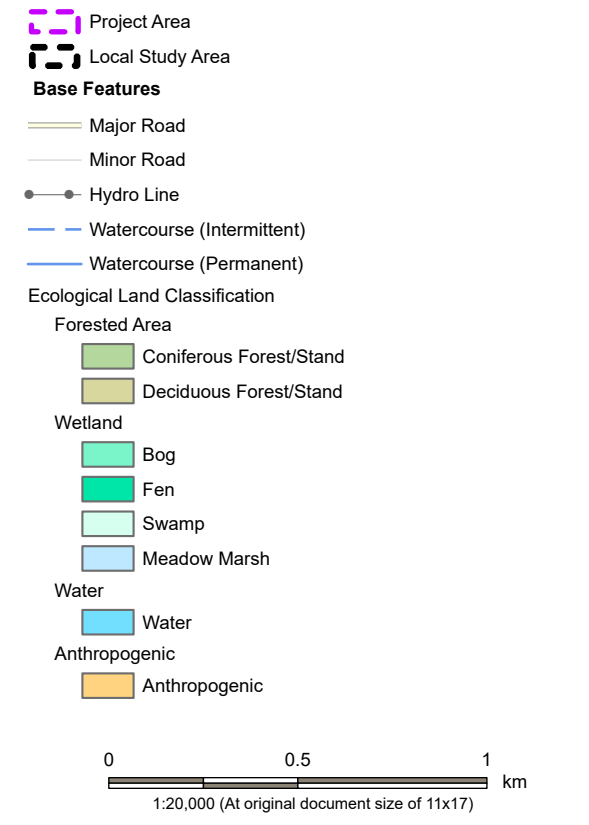
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.12**
 Title: **Ecological Land Classification in the LSA**

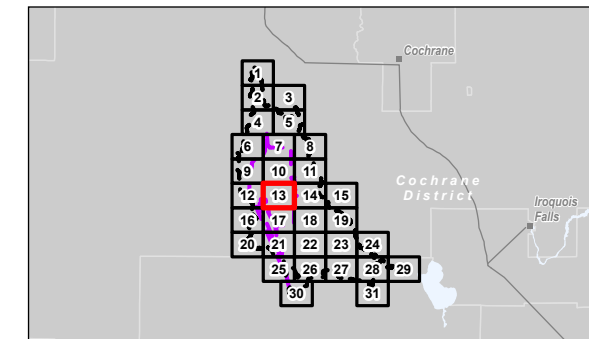
V:\0104-1010\09\active\160930456\160930456\gis_car\gis_car\mxd\160930456_IS-ELC_Veg_FigA_3_x_ELC_LSA_Reviseet_2024-09-11 By: awhite
 5406000
 5406000
 5406000
 5406000



Legend



Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

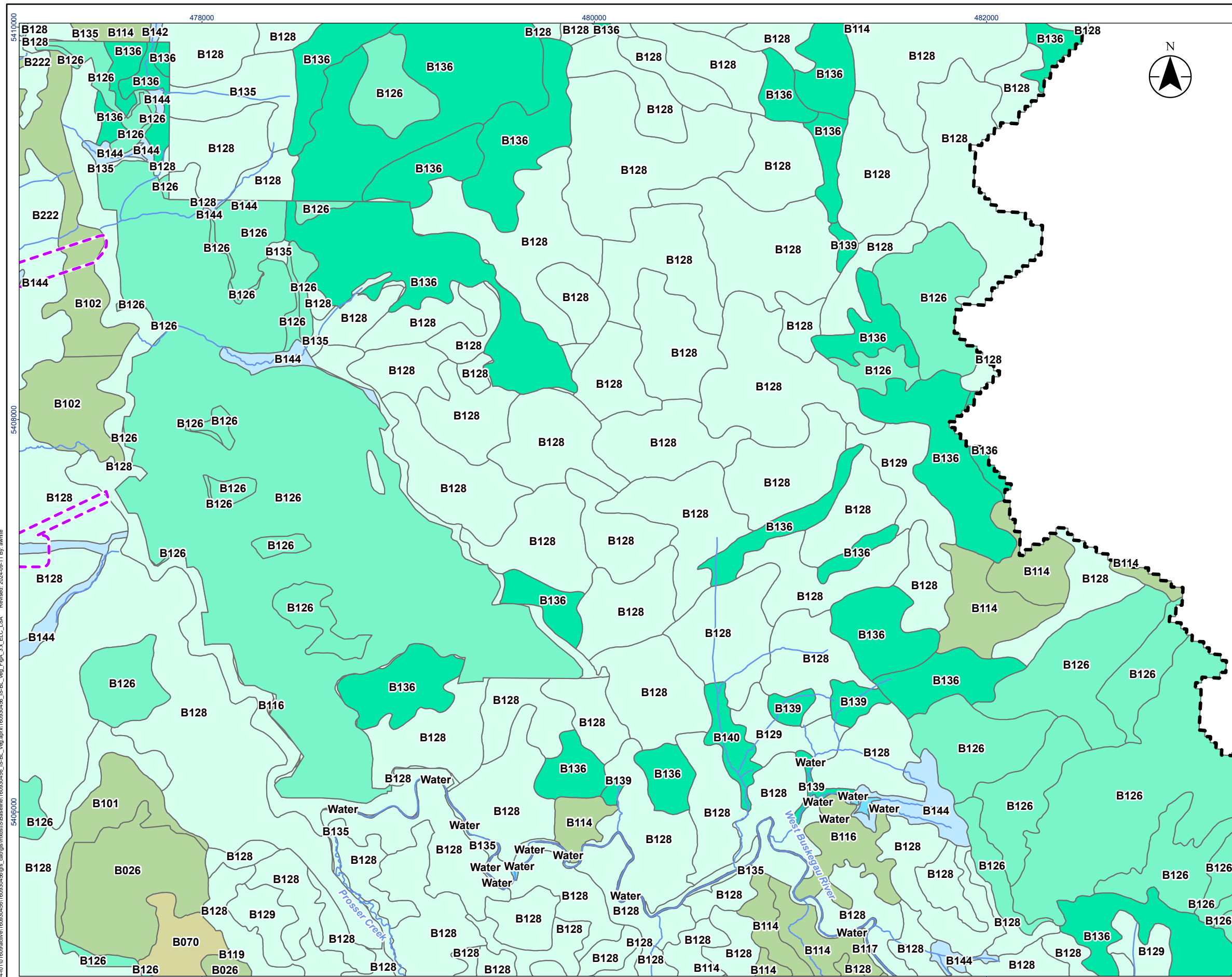


Project Location: Timmins, Ontario
160930456 REVA
Prepared by: awhite on 2024-09-11

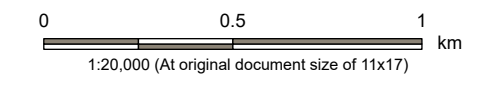
Client/Project: Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No. **A.3.13**
Title **Ecological Land Classification in the LSA**

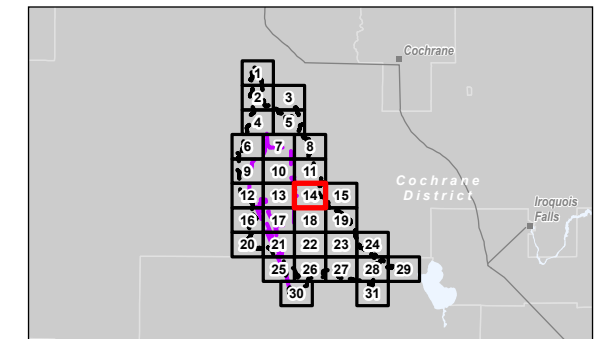
Vertical text on the left side containing file paths and revision information: \\s101010160930456\active\160930456\gis_base\mxds\160930456_gis_base\veg_fig_3_x_elc_lsa_160930456_2024-09-11 By: awhite



- Legend**
- Project Area
 - Local Study Area
 - Hydro Line
 - Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland**
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water**
- Water



- Notes**
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

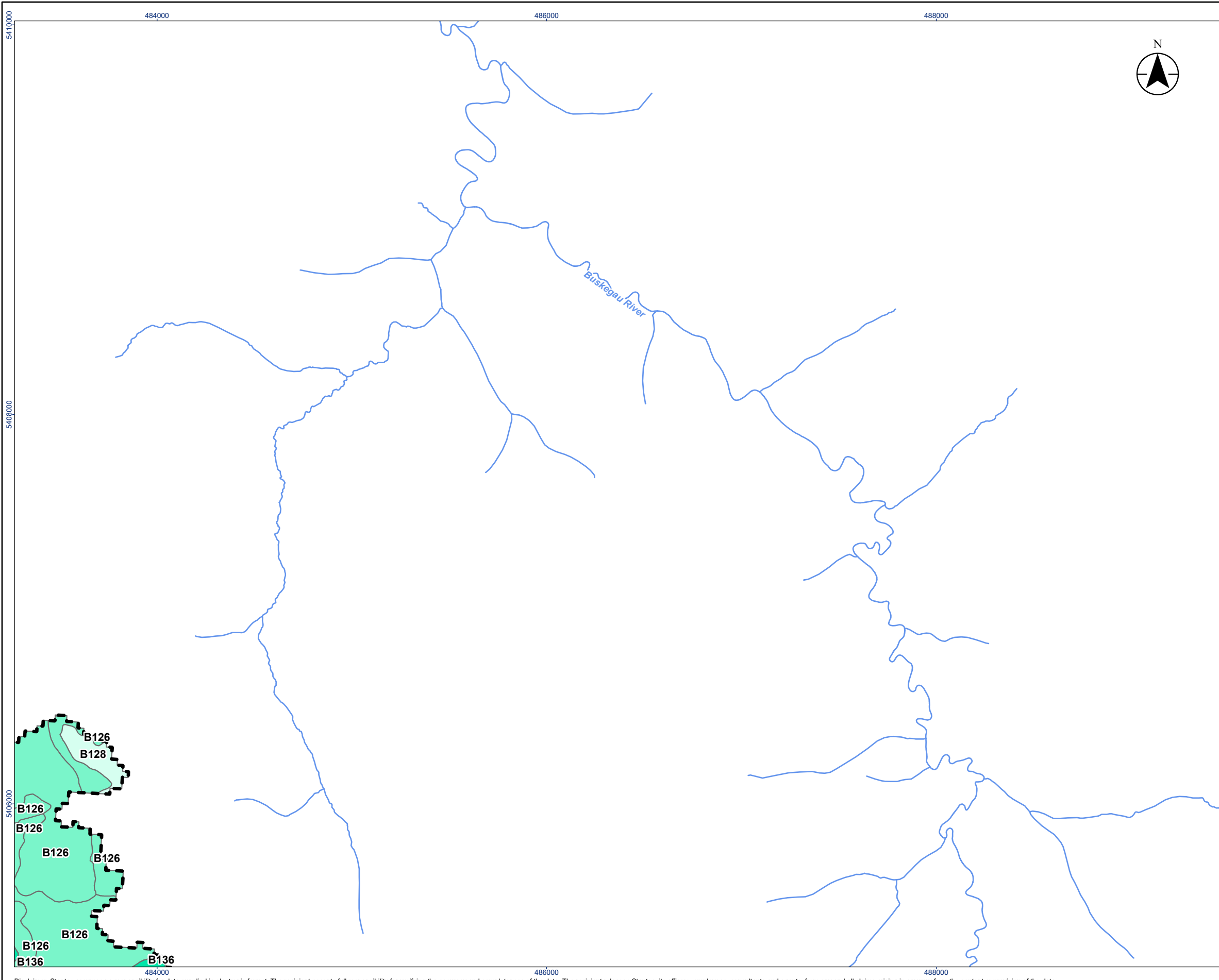


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA



Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.14**
 Title: **Ecological Land Classification in the LSA**

V:\1004-10\1009\active\160930456\gis\car\gis\mxd\160930456_elc_blt_vlg_fig_a_3_x_elc_lsa_2024-09-11 By: awhite
 160930456\gis\car\gis\mxd\160930456_elc_blt_vlg_fig_a_3_x_elc_lsa_2024-09-11

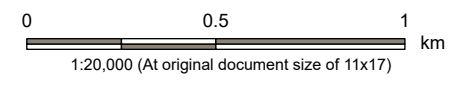


Legend

-  Local Study Area
-  Watercourse (Permanent)

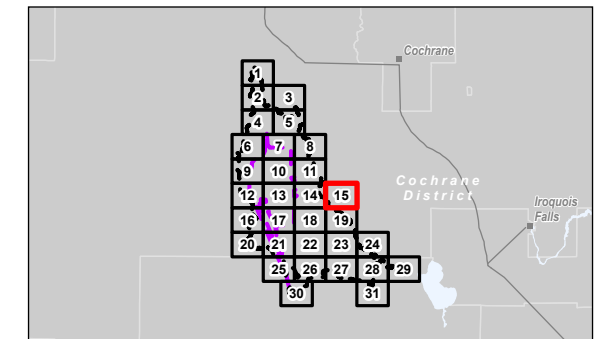
Ecological Land Classification

- Wetland
-  Bog
 -  Fen
 -  Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

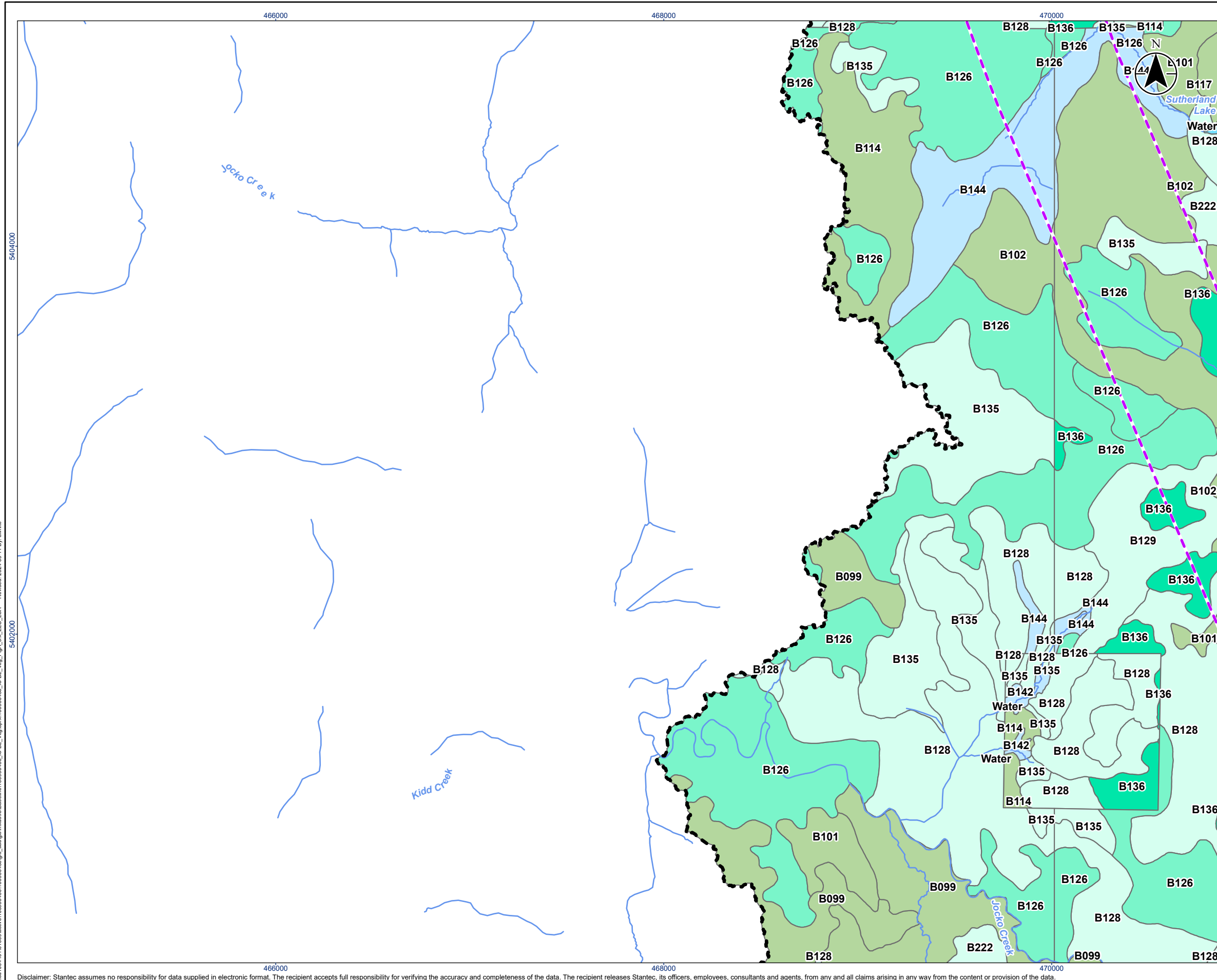


Project Location: Timmins, Ontario 160930456 REVA
Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
Crawford Nickel Project

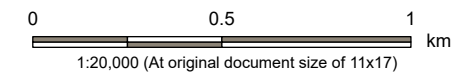
Figure No.: **A.3.15**
Title: **Ecological Land Classification in the LSA**

\\st1004-101160930456\active\160930456\160930456\gis_cad\gis_cad\mxd\160930456\160930456\160930456\160930456_160930456_LSA_Reviseet_2024-09-11 By: awhite

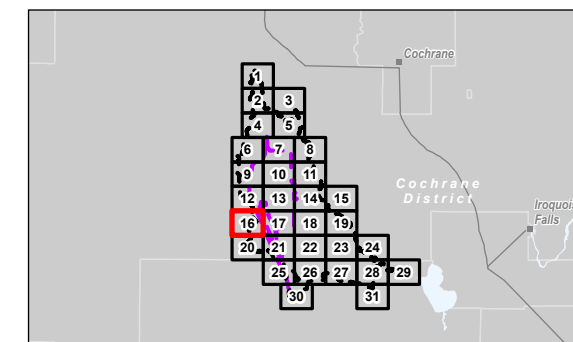


Legend

- Project Area
- Local Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
 - Coniferous Forest/Stand
- Wetland**
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water**
 - Water



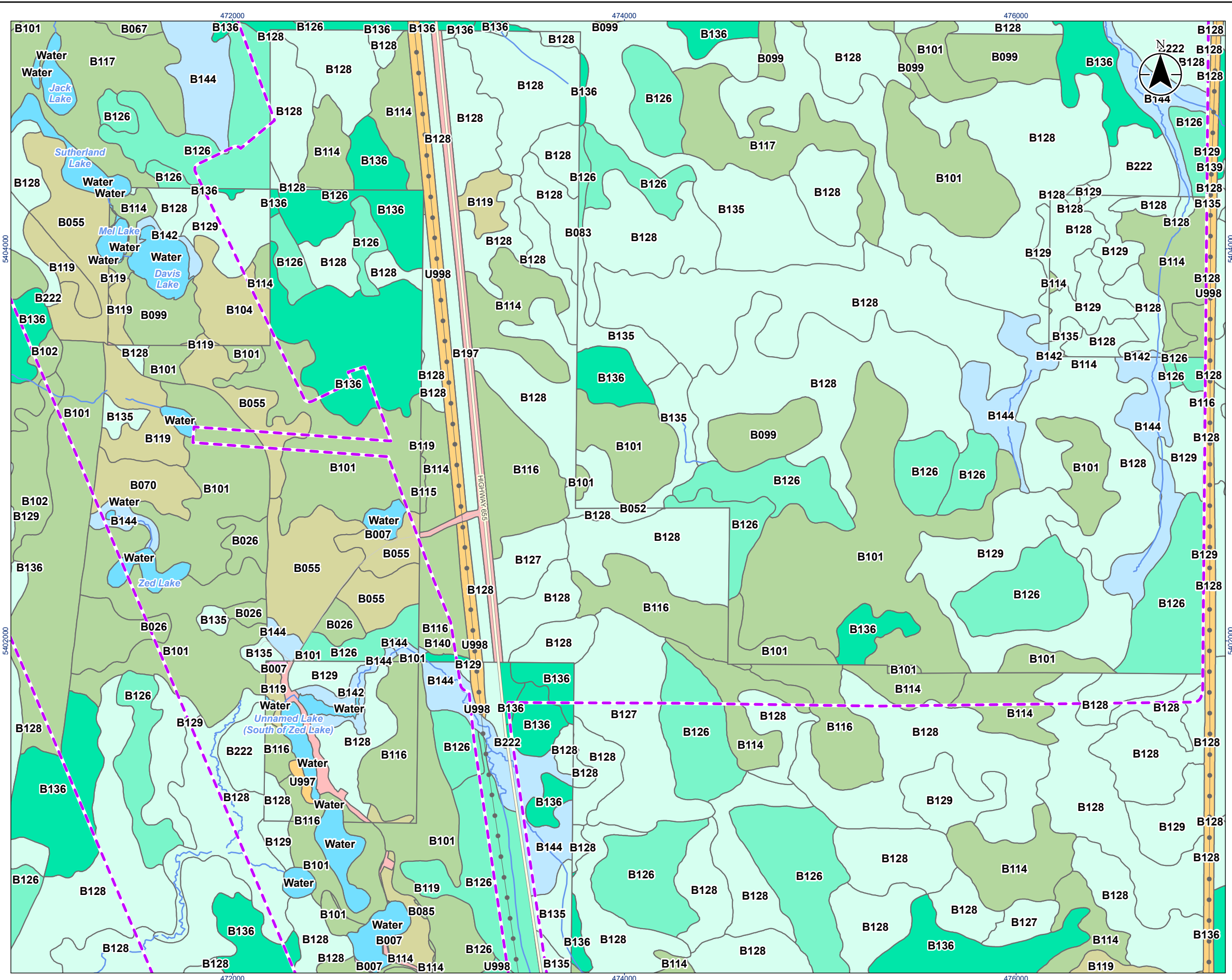
- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.3.16**
 Title **Ecological Land Classification in the LSA**

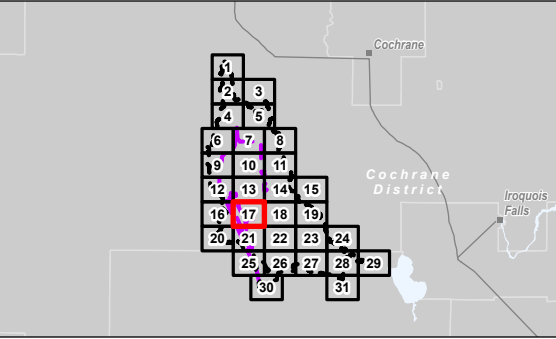


Legend

- Project Area
- Local Study Area
- Base Features**
 - Major Road
 - Minor Road
 - Hydro Line
 - Watercourse (Permanent)
- Ecological Land Classification**
 - Forested Area**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Wetland**
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
 - Water**
 - Water
 - Anthropogenic**
 - Anthropogenic
 - Constructed
 - Other**
 - Barren

0 0.5 1 km
1:20,000 (At original document size of 11x17)

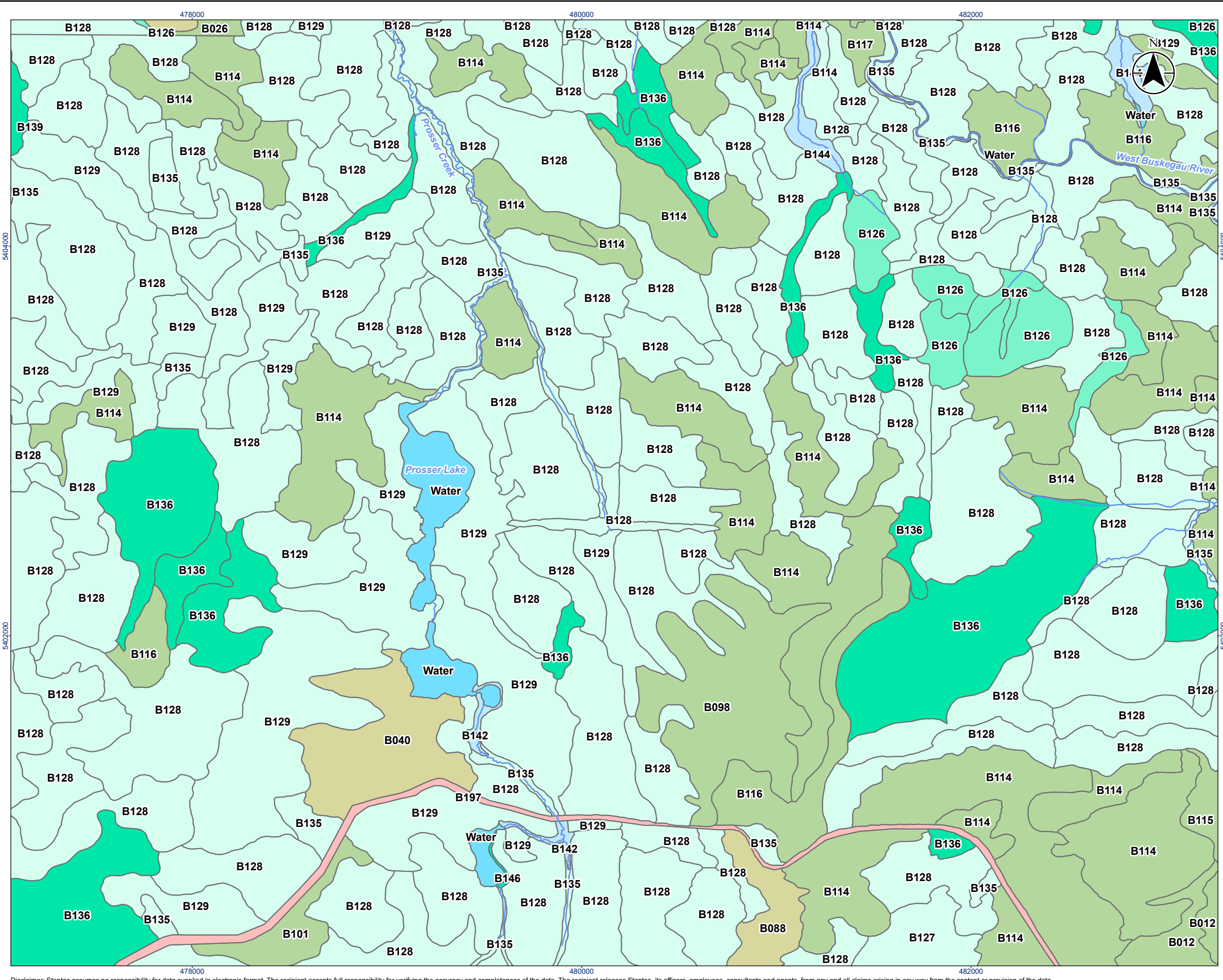
Notes
 1. Coordinate System:NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

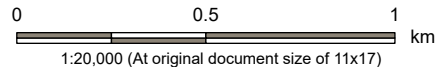
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.3.17**
 Title **Ecological Land Classification in the LSA**

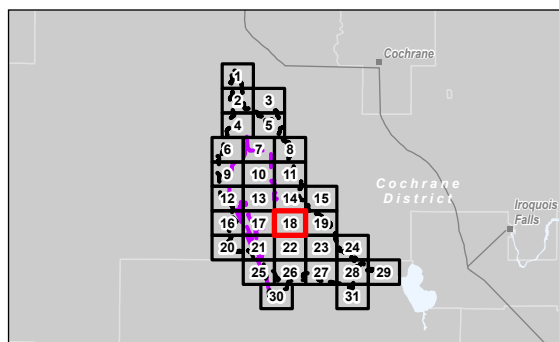


Legend

- Local Study Area
 - Hydro Line
 - Watercourse (Permanent)
- Ecological Land Classification
- Forested Area**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Wetland**
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
 - Water**
 - Water
 - Anthropogenic**
 - Constructed



- Notes
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



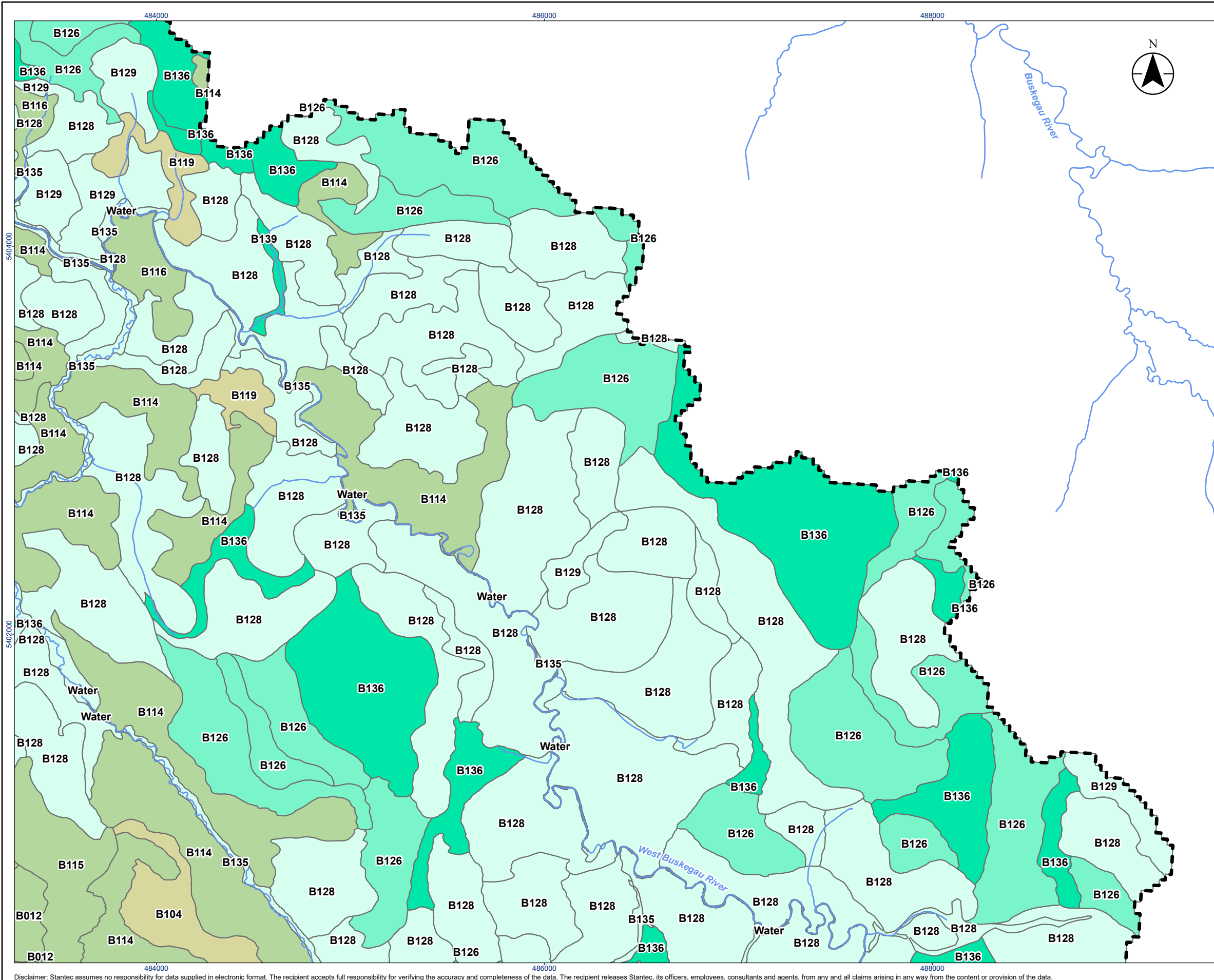
Project Location: Timmins, Ontario
160930456 REVA
Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC) Crawford Nickel Project

Figure No. A.3.18
Title: Ecological Land Classification in the LSA

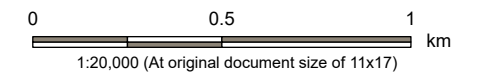
Vertical text on the left margin containing technical details and a disclaimer.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

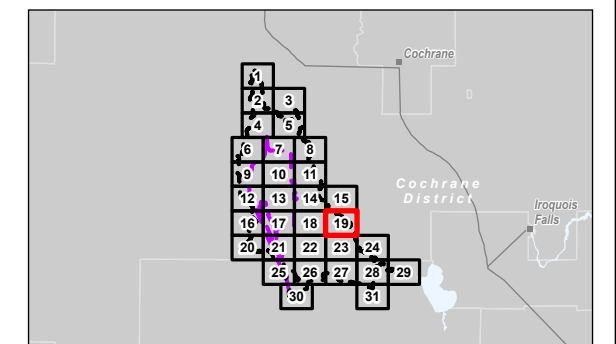


Legend

- Local Study Area
- Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland**
 - Bog
 - Fen
 - Swamp
- Water**
 - Water



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

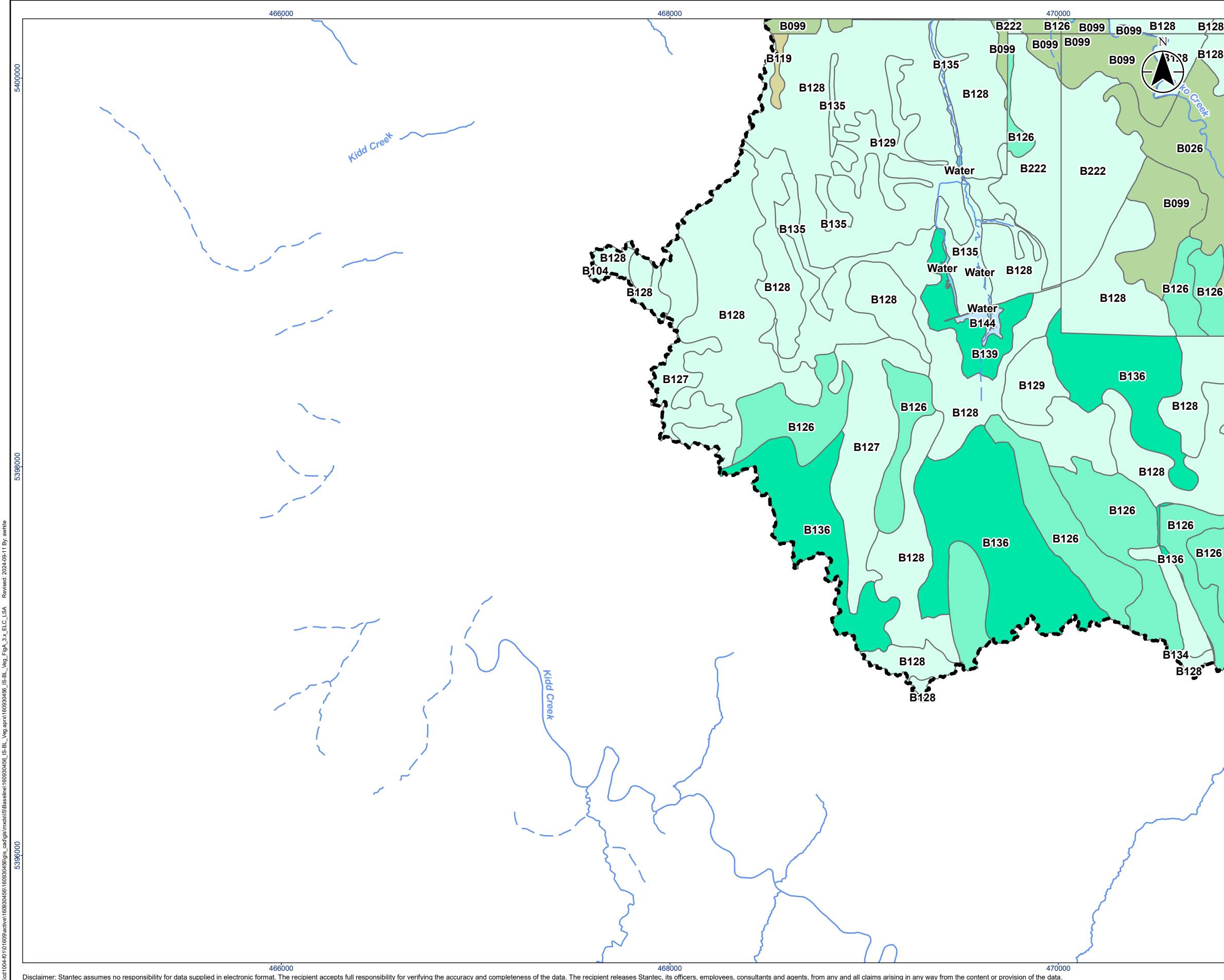


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

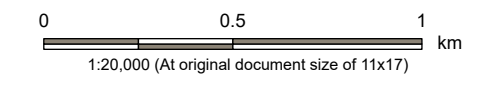
Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.19**
 Title: **Ecological Land Classification in the LSA**

V:\1004-101\09\active\160930456\160930456\gis_cad\gis_md\160930456\ls-bl_v\veg_apr\160930456_ls-bl_v\veg_fig_3_x_elc_lsa_2024-09-11 By: awhite
 5402000
 5404000

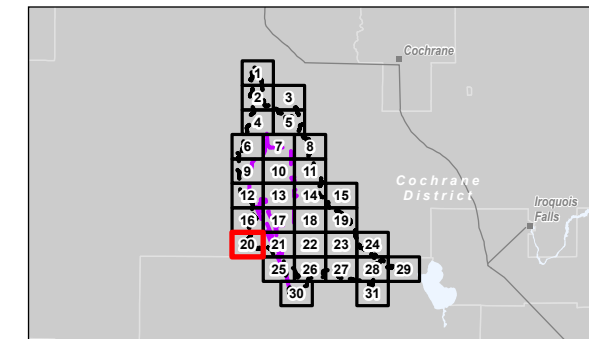


- Legend**
- Local Study Area
 - Watercourse (Intermittent)
 - Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland**
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water**
- Water



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

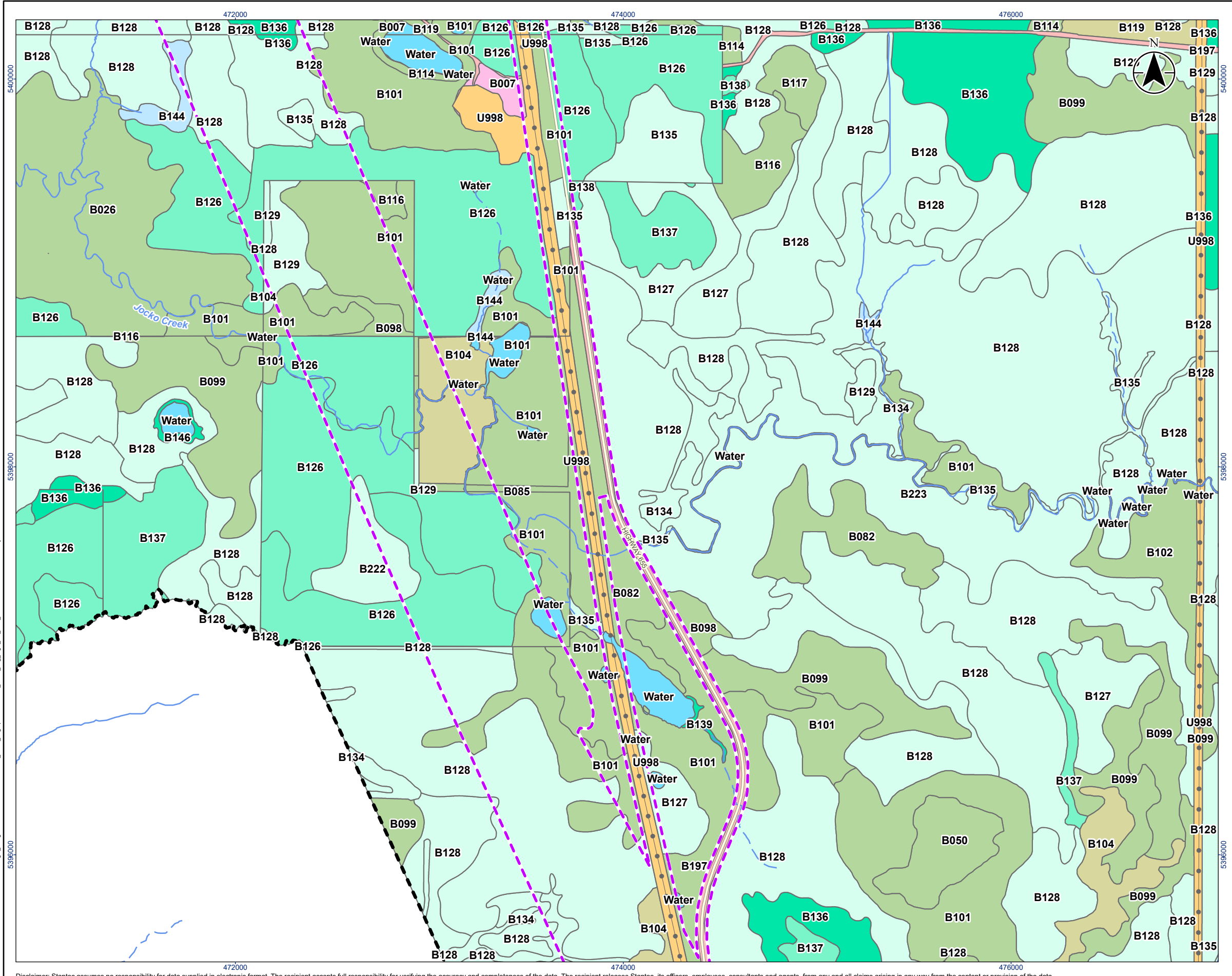


Project Location: Timmins, Ontario 160930456 REVA
Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.: **A.3.20**
Title: **Ecological Land Classification in the LSA**

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend

- Project Area (dashed purple line)
- Local Study Area (black outline)

Base Features

- Major Road (solid black line)
- Hydro Line (dashed black line)
- Watercourse (Intermittent) (dashed blue line)
- Watercourse (Permanent) (solid blue line)

Ecological Land Classification

Forested Area

- Coniferous Forest/Stand (light green)
- Deciduous Forest/Stand (yellowish-green)

Wetland

- Bog (light cyan)
- Fen (darker cyan)
- Swamp (pale green)
- Meadow Marsh (light blue)

Water

- Water (shaded light blue)

Anthropogenic

- Anthropogenic (orange)
- Constructed (pink)

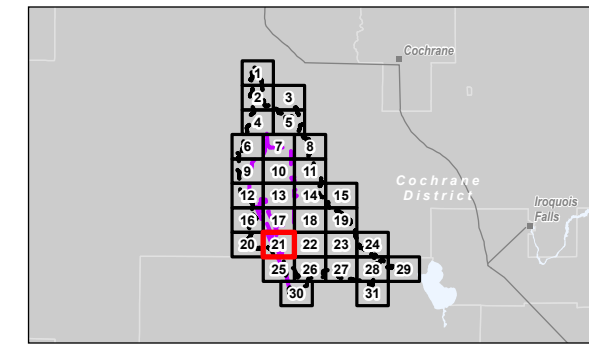
Other

- Barren (light pink)

0 0.5 1 km
1:20,000 (At original document size of 11x17)

Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

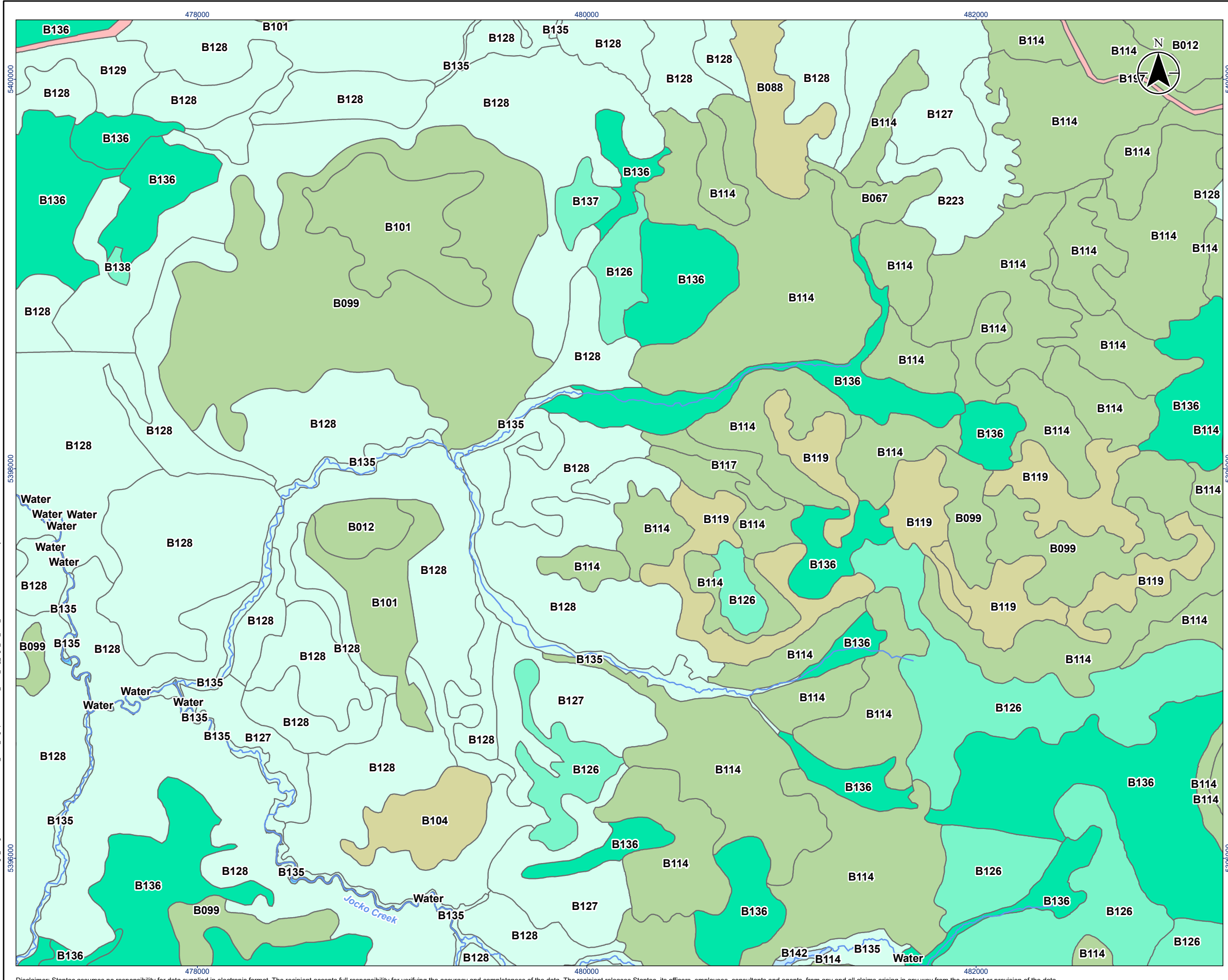


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11











Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

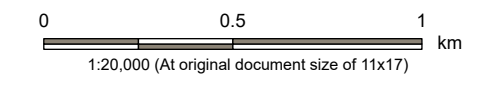
Figure No.: **A.3.21**
 Title: **Ecological Land Classification in the LSA**

\s\1004-10\1009\active\160930456\gls_cad\gis_data\160930456\ls-bl_Veg_Fig_3_x_ELC_LSA_Revisee_2024-09-11 By: awhite
 \s\1004-10\1009\active\160930456\gls_cad\gis_data\160930456\ls-bl_Veg_Fig_3_x_ELC_LSA_Revisee_2024-09-11 By: awhite

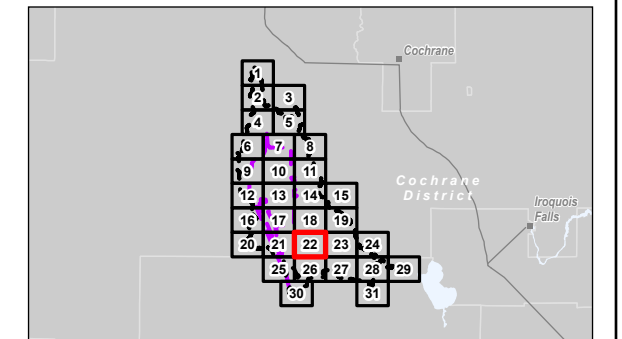


Legend

-  Local Study Area
-  Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
 -  Coniferous Forest/Stand
 -  Deciduous Forest/Stand
- Wetland**
 -  Bog
 -  Fen
 -  Swamp
 -  Meadow Marsh
- Water**
 -  Water
- Anthropogenic**
 -  Constructed



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

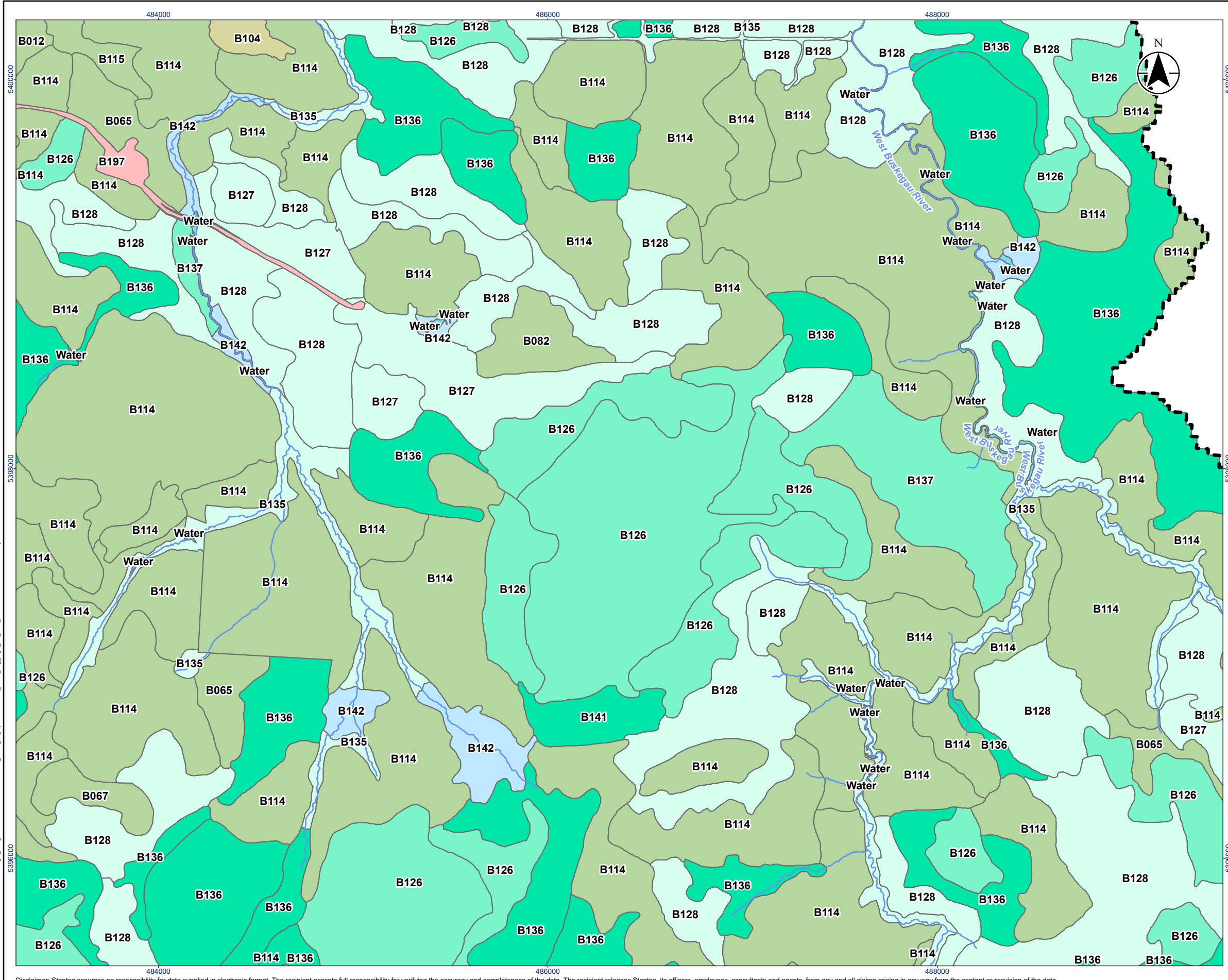


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11











Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

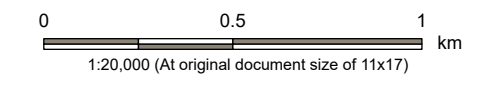
Figure No.: **A.3.22**
 Title: **Ecological Land Classification in the LSA**

V:\0104-101009\active\160930456\gis_data\mxd\160930456_gis_data\mxd\160930456_LSA_Veg_FigA_3_x_ELC_LSA_Review_2024-09-11_By_awhite

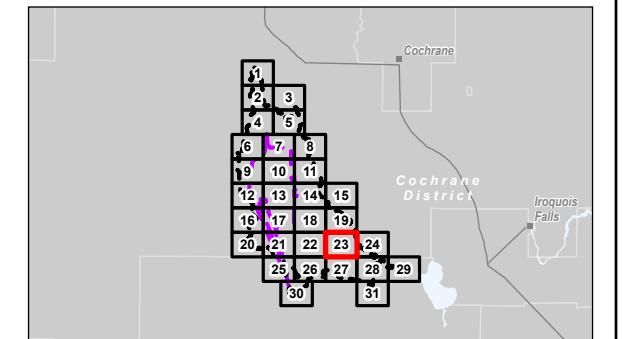


Legend

-  Local Study Area
-  Watercourse (Permanent)
- Ecological Land Classification
 - Forested Area
 -  Coniferous Forest/Stand
 -  Deciduous Forest/Stand
 - Wetland
 -  Bog
 -  Fen
 -  Swamp
 -  Meadow Marsh
 - Water
 -  Water
 - Anthropogenic
 -  Constructed



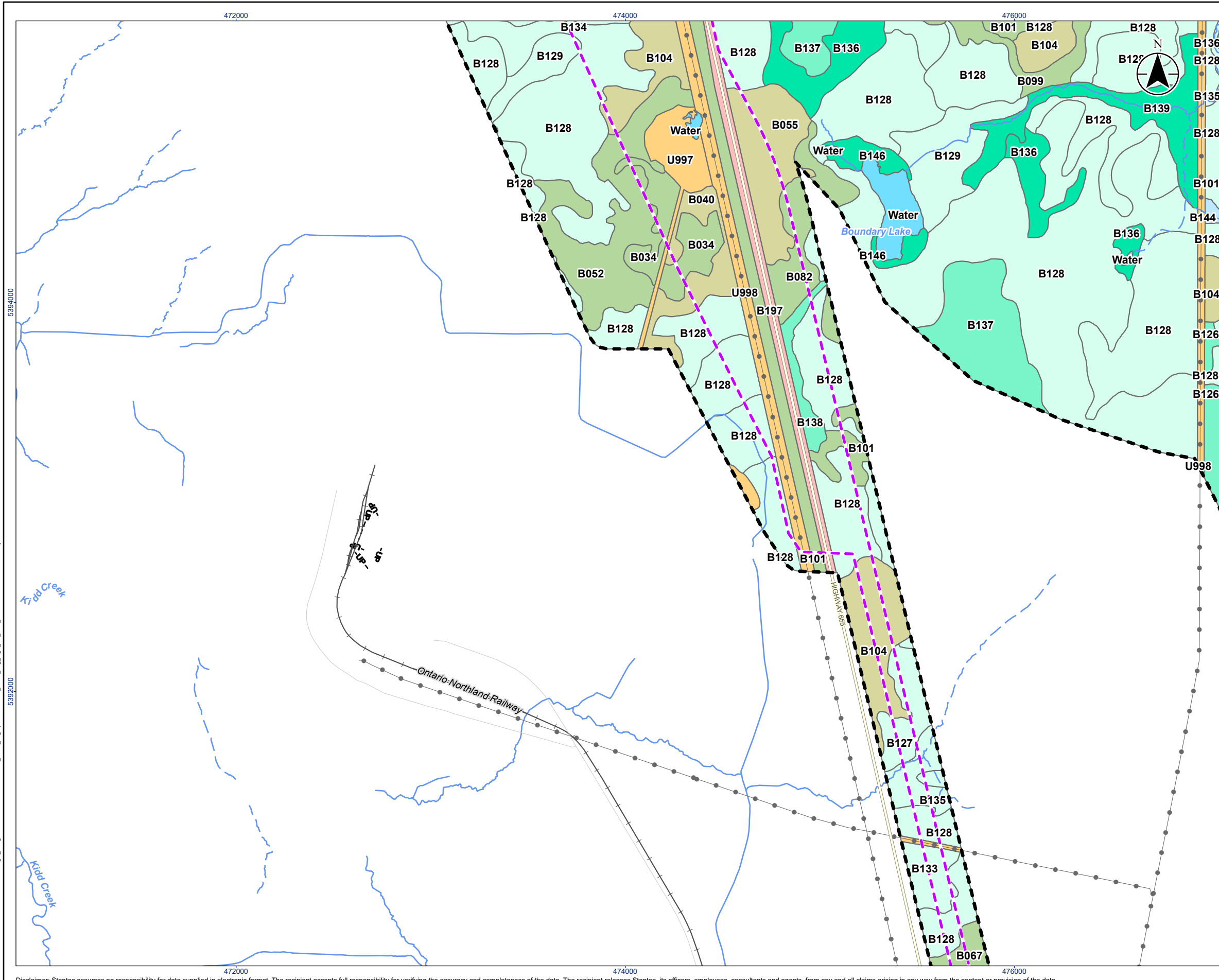
- Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.23**
 Title: **Ecological Land Classification in the LSA**

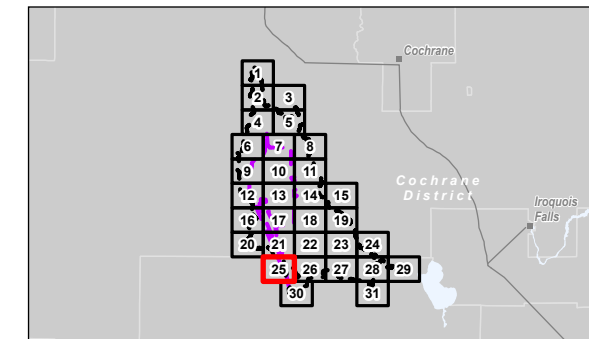


Legend

- Project Area
- Local Study Area
- Base Features**
 - Major Road
 - Minor Road
 - Railway
 - Hydro Line
 - Unknown Pipeline
 - Watercourse (Intermittent)
 - Watercourse (Permanent)
- Ecological Land Classification**
 - Forested Area**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Wetland**
 - Bog
 - Fen
 - Swamp
 - Meadow Marsh
 - Water**
 - Water
 - Anthropogenic**
 - Anthropogenic
 - Constructed

0 0.5 1 km
1:20,000 (At original document size of 11x17)

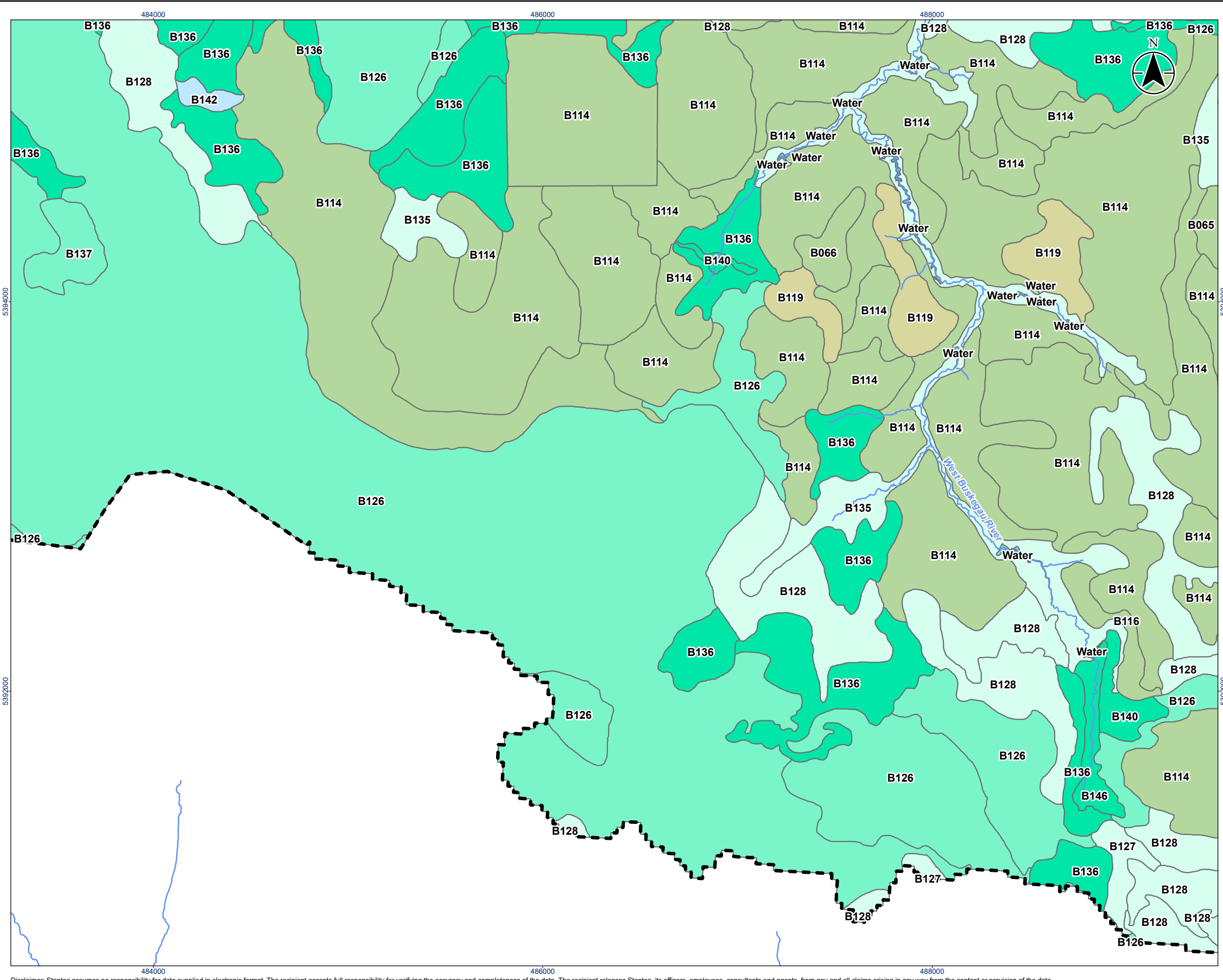
Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.












Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

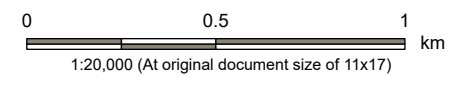
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.25**
 Title: **Ecological Land Classification in the LSA**

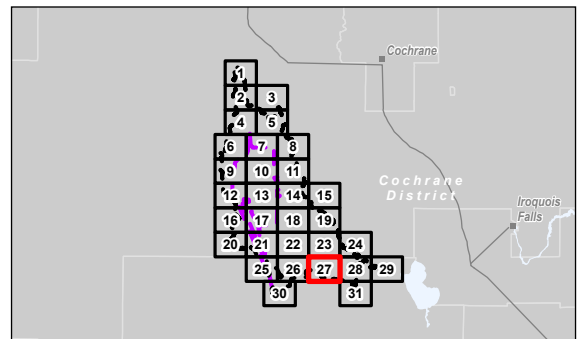


Legend

-  Local Study Area
-  Watercourse (Permanent)
- Ecological Land Classification**
 - Forested Area**
 -  Coniferous Forest/Stand
 -  Deciduous Forest/Stand
 - Wetland**
 -  Bog
 -  Fen
 -  Swamp
 -  Meadow Marsh
 - Water**
 -  Water



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

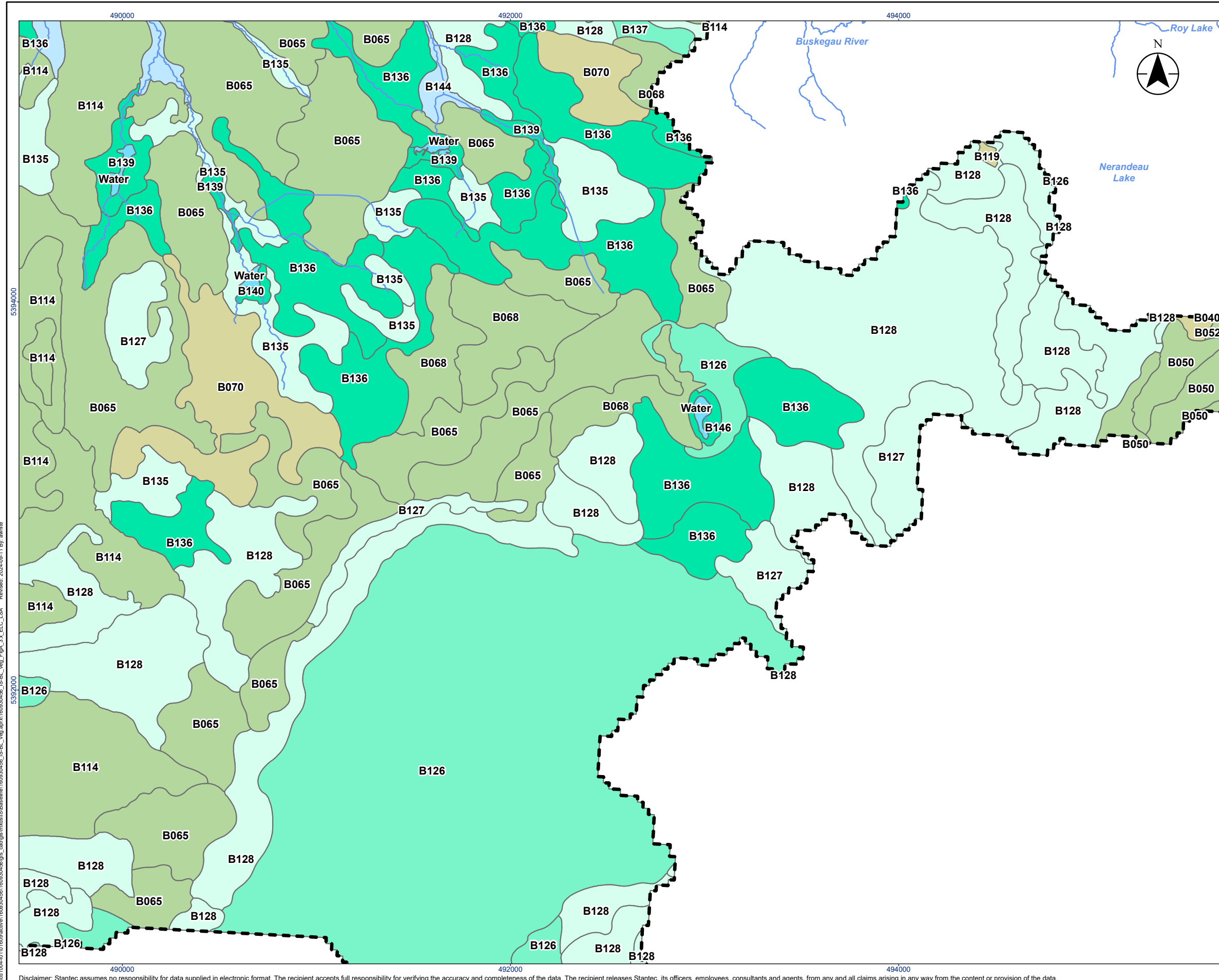


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

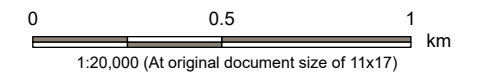
Figure No.: **A.3.27**
 Title: **Ecological Land Classification in the LSA**

V:\0104-10\109\active\160930456\160930456\GIS\mxd\160930456\160930456_IS-ELC_Veg_FigA_3_x_ELC_LSA_Review_2024-09-11 By: awhite

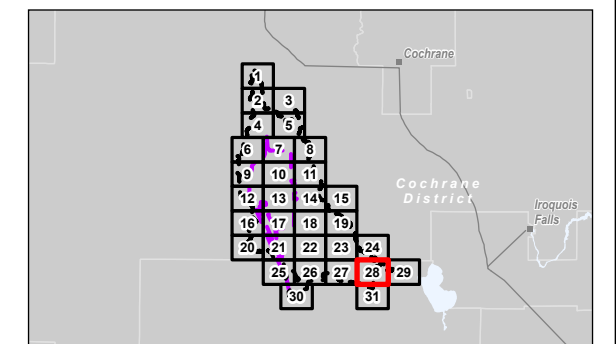


Legend

- Local Study Area
 - Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
- Wetland**
- Bog
 - Fen
 - Swamp
 - Meadow Marsh
- Water**
- Water



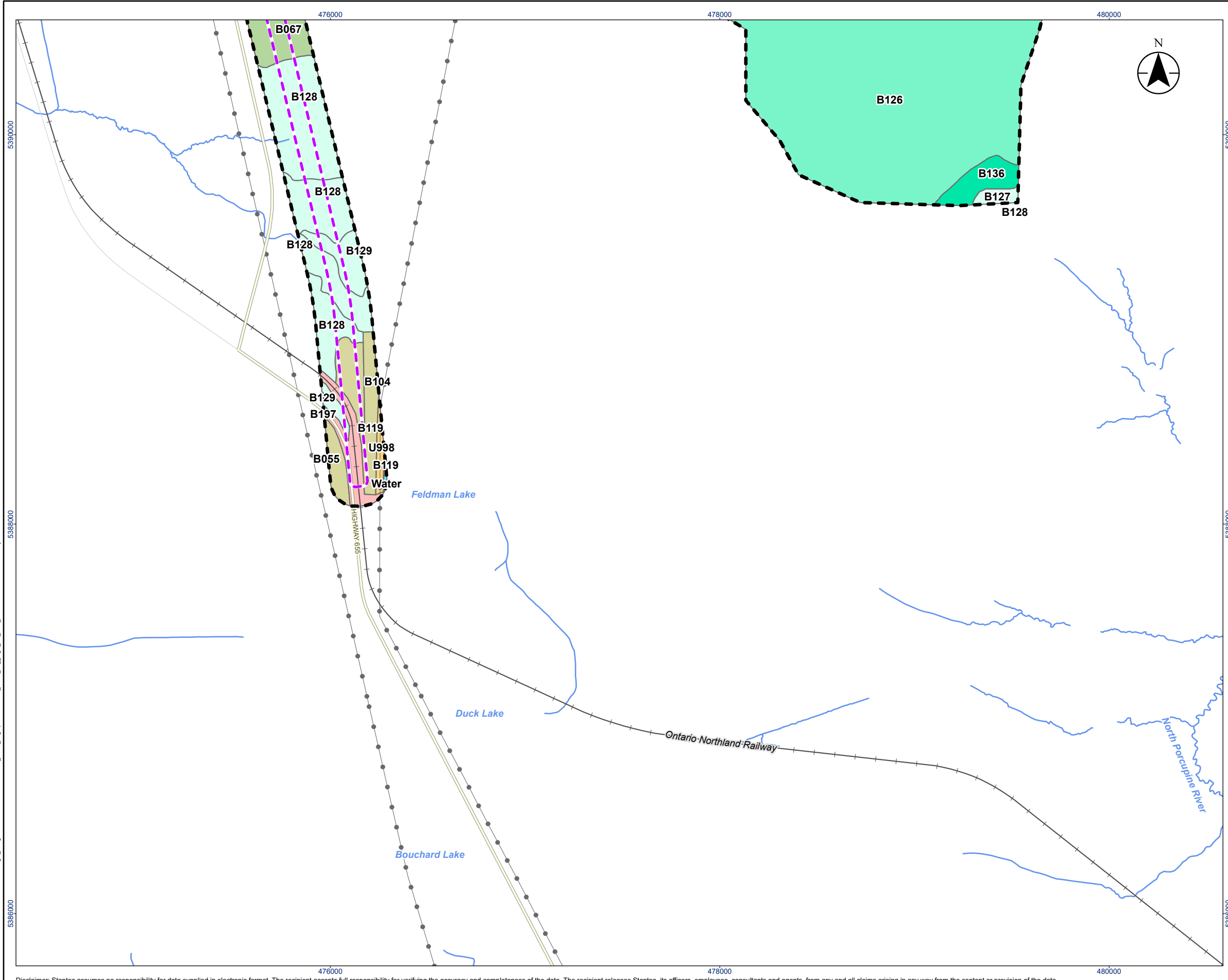
Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 Project ID: 160930456 REVA
 Prepared by: awhite on 2024-09-11

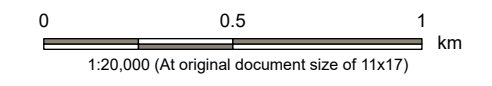
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.3.28**
 Title: **Ecological Land Classification in the LSA**

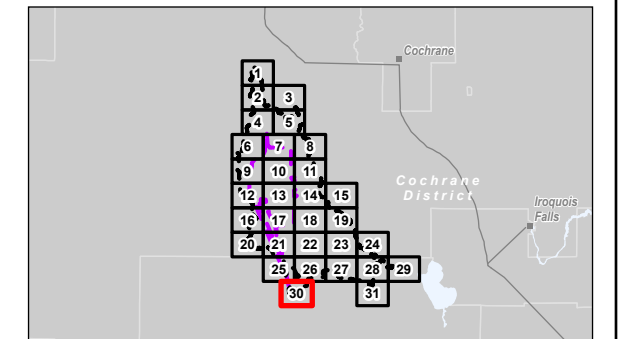


Legend

- Project Area
- Local Study Area
- Base Features**
- Major Road
- Minor Road
- Railway
- Hydro Line
- Watercourse (Permanent)
- Ecological Land Classification**
- Forested Area**
- Coniferous Forest/Stand
- Deciduous Forest/Stand
- Wetland**
- Bog
- Fen
- Swamp
- Water**
- Water
- Anthropogenic**
- Anthropogenic
- Constructed



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



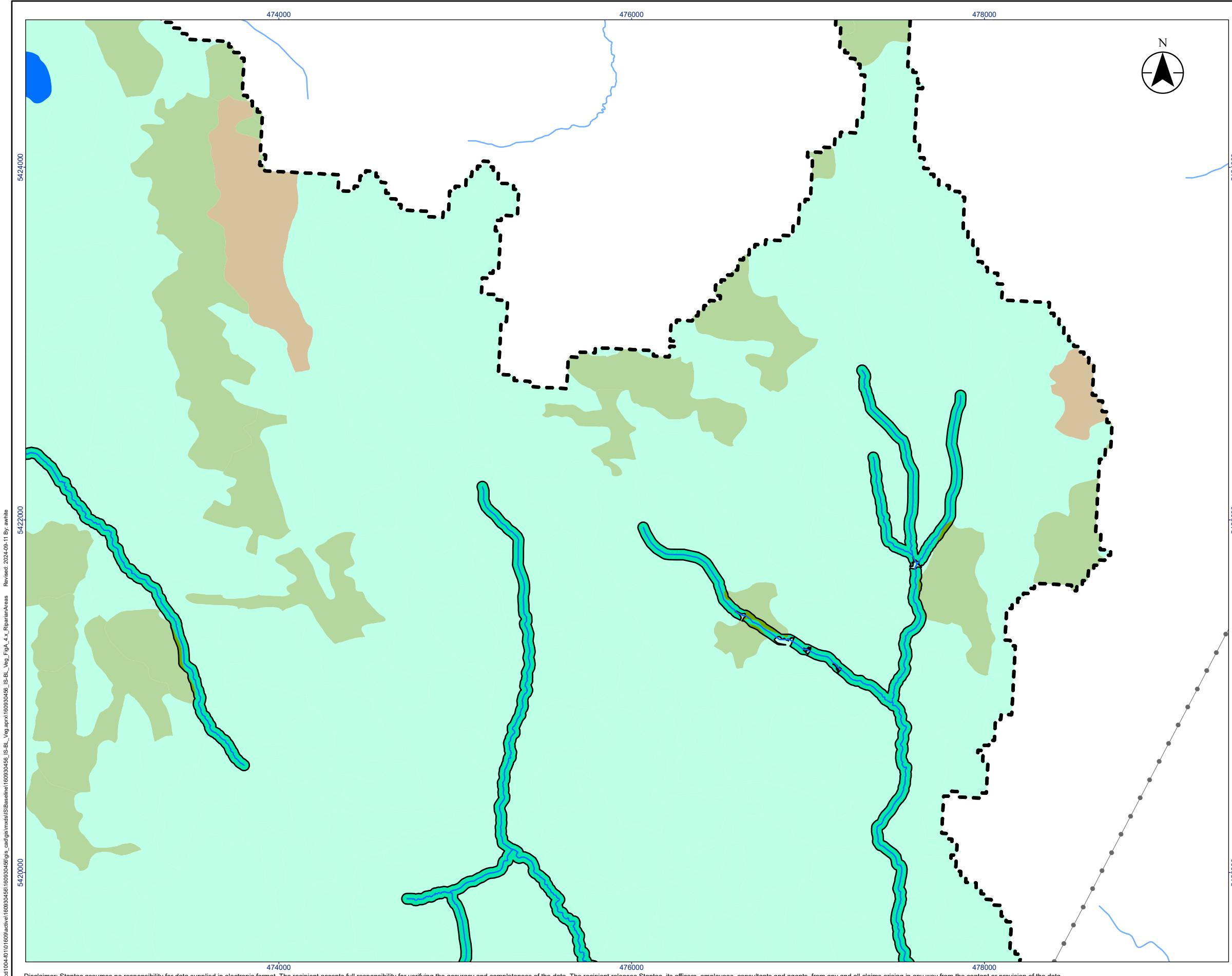
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

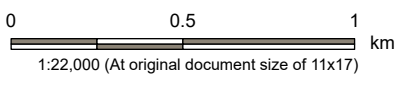
Figure No.: **A.3.30**

Title: **Ecological Land Classification in the LSA**

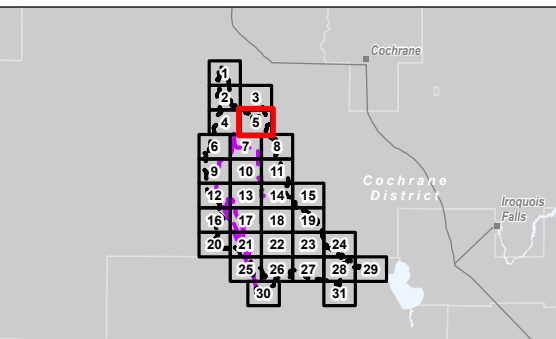
V:\1004-10\160930456\160930456\GIS\mxd\160930456\gis_cad\gis_cad\gis_cad\gis_cad\160930456\160930456\160930456_3_x_ELC_LSA_Revise_2024-09-11 By: awhite



- Legend**
-  Local Study Area
 - Ecosite Type**
 -  Coniferous Forest/Stand
 -  Deciduous Forest/Stand
 -  Water
 -  Wetland
 - Riparian Area**
 -  Coniferous Forest/Stand
 -  Water
 -  Wetland
 -  Hydro Line
 -  Watercourse
 -  Waterbody



- Notes**
- 1. Coordinate System: NAD 1983 UTM Zone 17N
 - 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location
Timmins, Ontario

160930456 REVA
Prepared by awhite on 2024-09-11

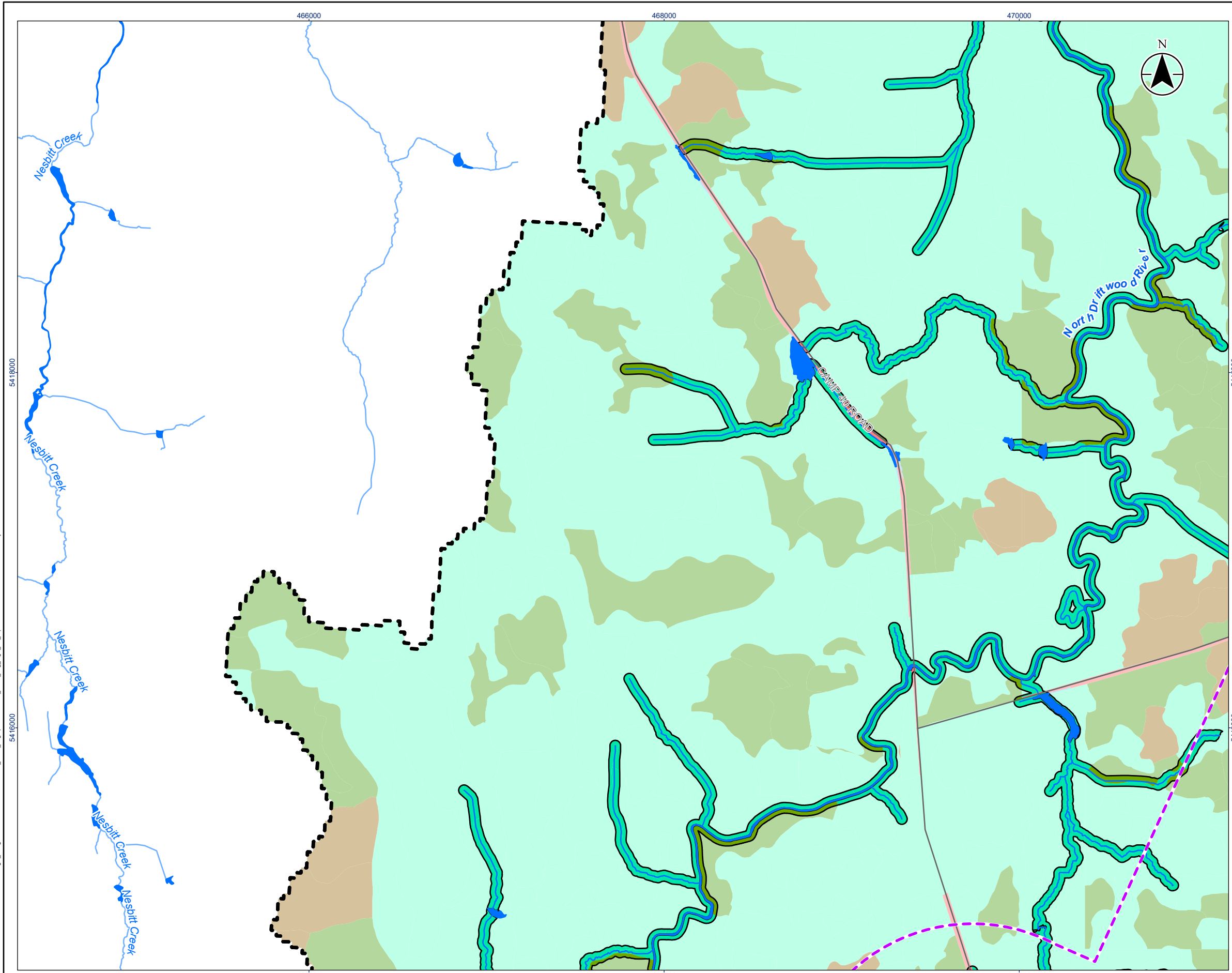
Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.4.5

Title
Riparian Habitat in the Local Study Area

\\s01004-10\1009\active\160930456\mxd\gis\mxd\160930456\gis_adg\mxd\160930456_IS-BL_Veg_Apr\160930456_IS-BL_Veg_Fig_A_4_x_RiparianAreas_Revisee_2024-09-11 By awhite

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

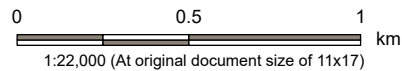


- Legend**
- Project Area
 - Local Study Area

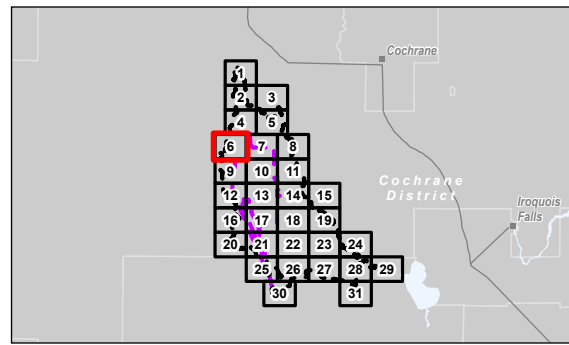
- Ecosite Type**
- Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland

- Riparian Area**
- Coniferous Forest/Stand
 - Constructed
 - Water
 - Wetland

- Base Features**
- Minor Road
 - Watercourse
 - Waterbody



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location
Timmins, Ontario

160930456 REVA
Prepared by awhite on 2024-09-11

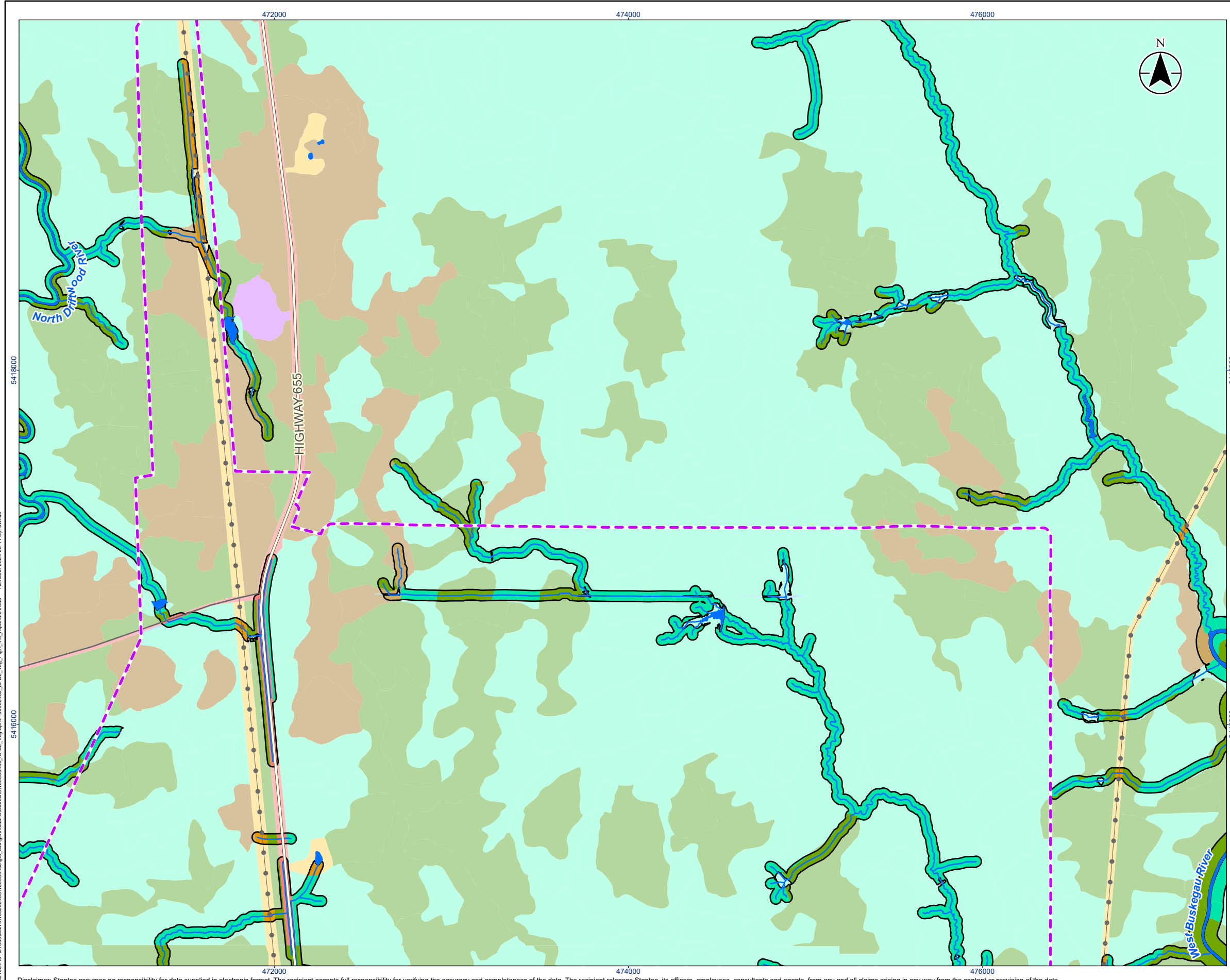
Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.

A.4.6

Title

Riparian Habitat in the Local Study Area

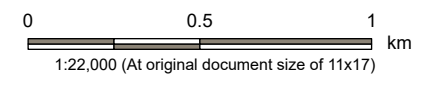


Legend

- Project Area
- Local Study Area
- Ecosite Type
 - Anthropogenic
 - Barren
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland

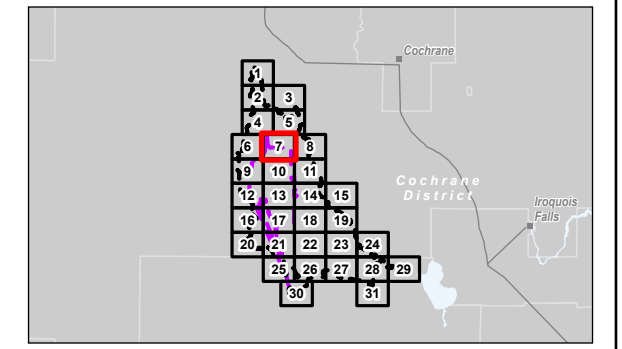
- Riparian Area
 - Anthropogenic
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland

- Base Features
 - Major Road
 - Minor Road
 - Hydro Line
 - Watercourse
 - Waterbody



Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by: awhite on 2024-09-11

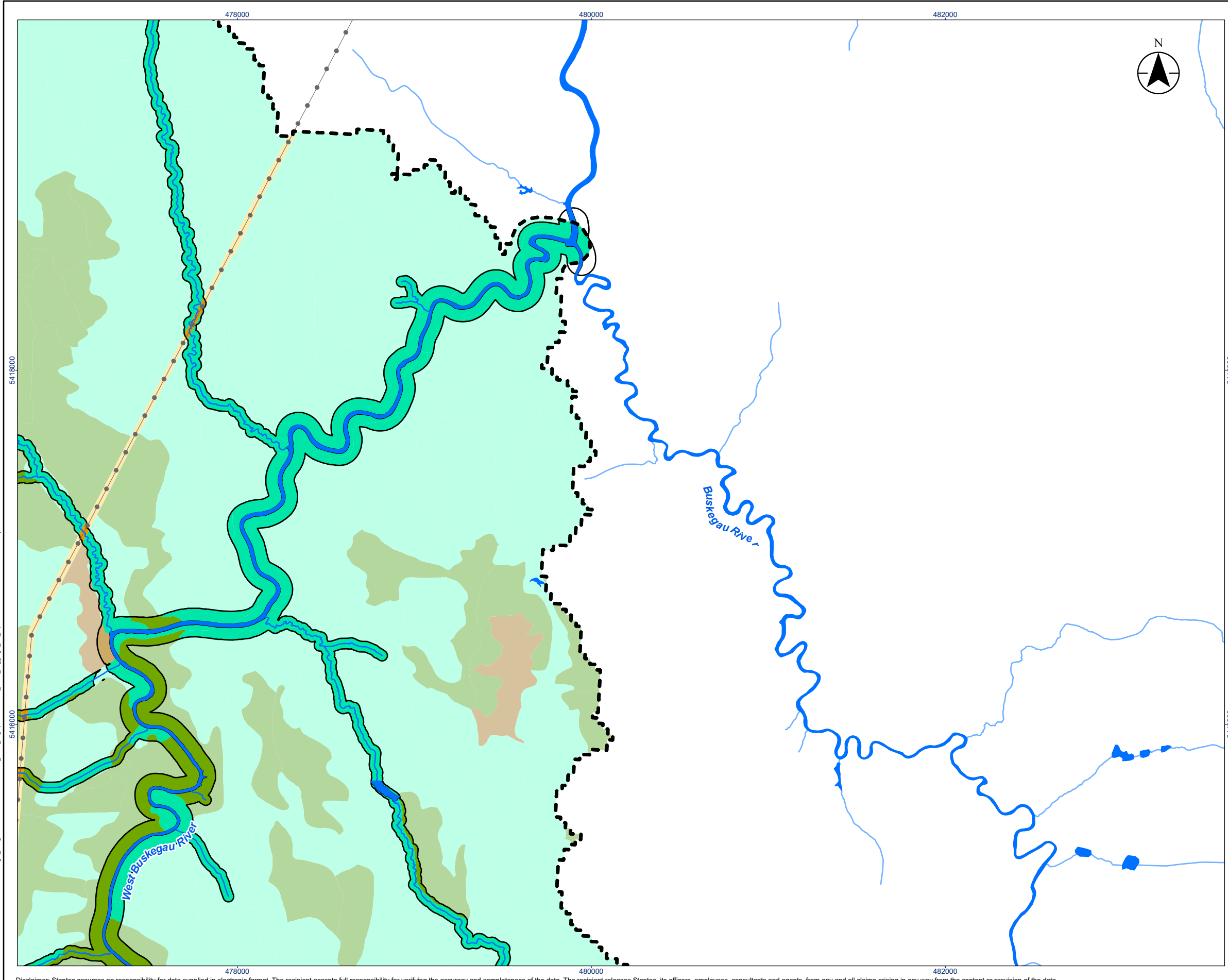
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.4.7**


Title: **Riparian Habitat in the Local Study Area**

\\1004-101109\active\160930456\gis_car\gis_car\gis_car\160930456\160930456\IS-BL_Veg_Apr\160930456_IS-BL_Veg_Fig_A_4_x_RiparianAreas_Revise\2024-09-11 By: awhite

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend


 Local Study Area

Ecosite Type

-  Anthropogenic
-  Coniferous Forest/Stand
-  Deciduous Forest/Stand
-  Water
-  Wetland

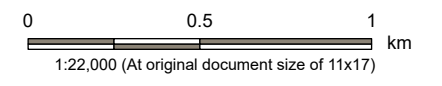
Riparian Area

-  Anthropogenic
-  Coniferous Forest/Stand
-  Deciduous Forest/Stand
-  Water
-  Wetland

 Hydro Line

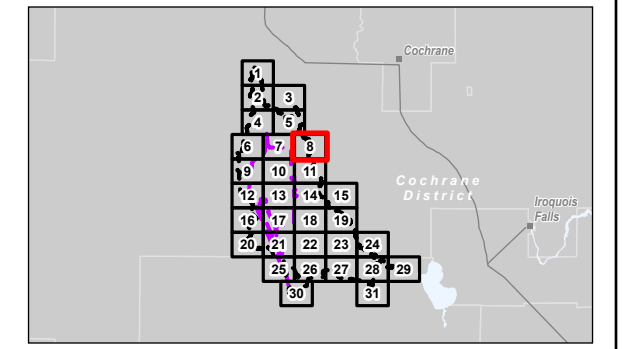
 Watercourse

 Waterbody



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

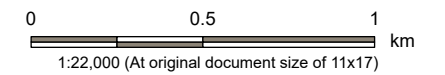
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.4.8**
 Title **Riparian Habitat in the Local Study Area**

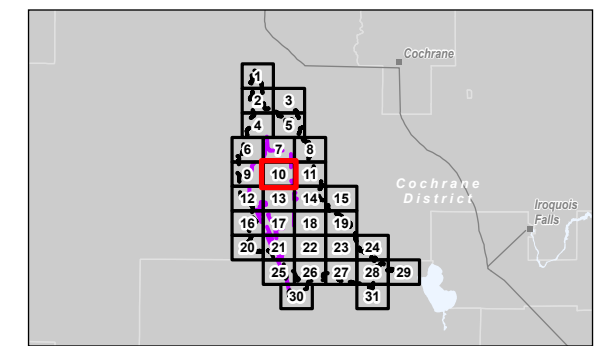
V:\1004\1010\909\active\160930456\gis_data\mxd\160930456_gis_data\veg_fig4_x_riparianAreas Revised: 2024-09-11 By: awhite

Legend

- Project Area
- Local Study Area
- Ecosite Type
 - Anthropogenic
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Riparian Area
 - Anthropogenic
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Base Features
 - Major Road
 - Hydro Line
 - Watercourse
 - Waterbody



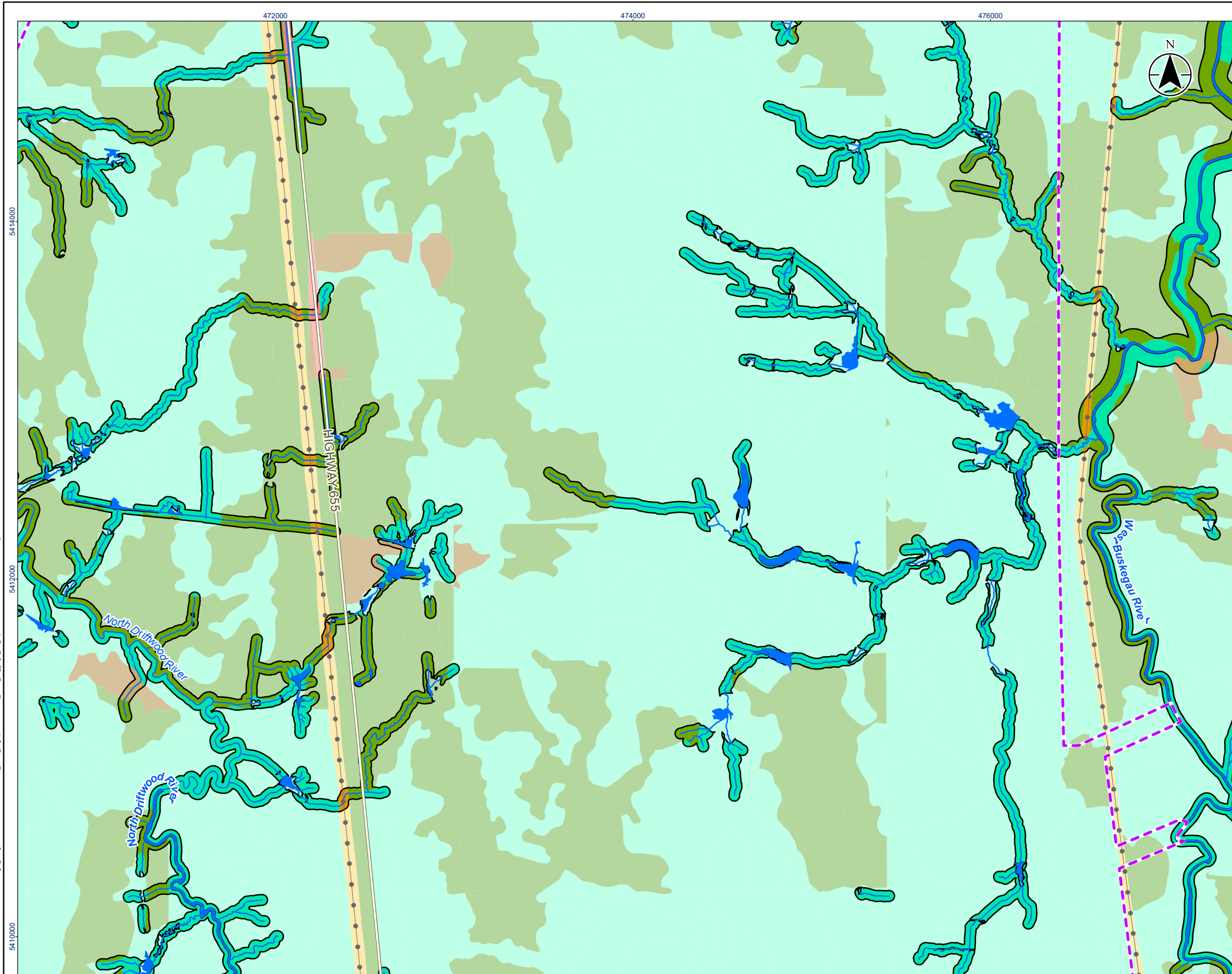
Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

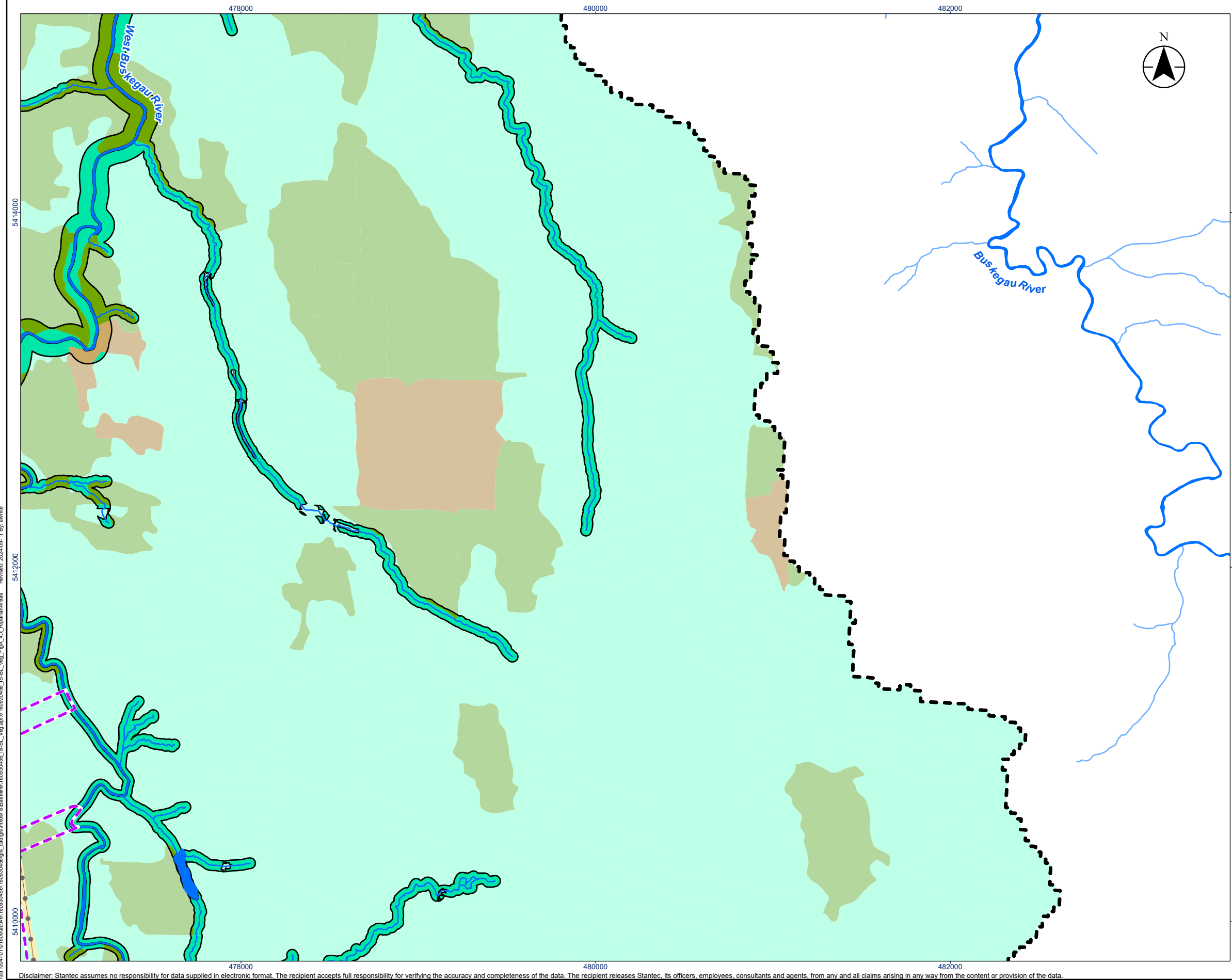


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.
A.4.10
 Title
Riparian Habitat in the Local Study Area

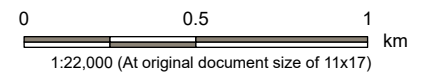




V:\04-10-1019\active\160930456\gms_cad\gis_md\160930456\IS-EL_Veg.apr\160930456_IS-EL_Veg_FigA_4_x_RiparianAreas_2024-09-11_By_ahwhite

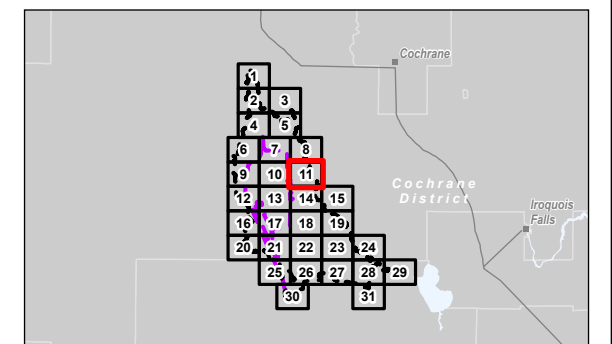
Legend

- Project Area
- Local Study Area
- Ecosite Type
 - Anthropogenic
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Riparian Area
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Hydro Line
- Watercourse
- Waterbody



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

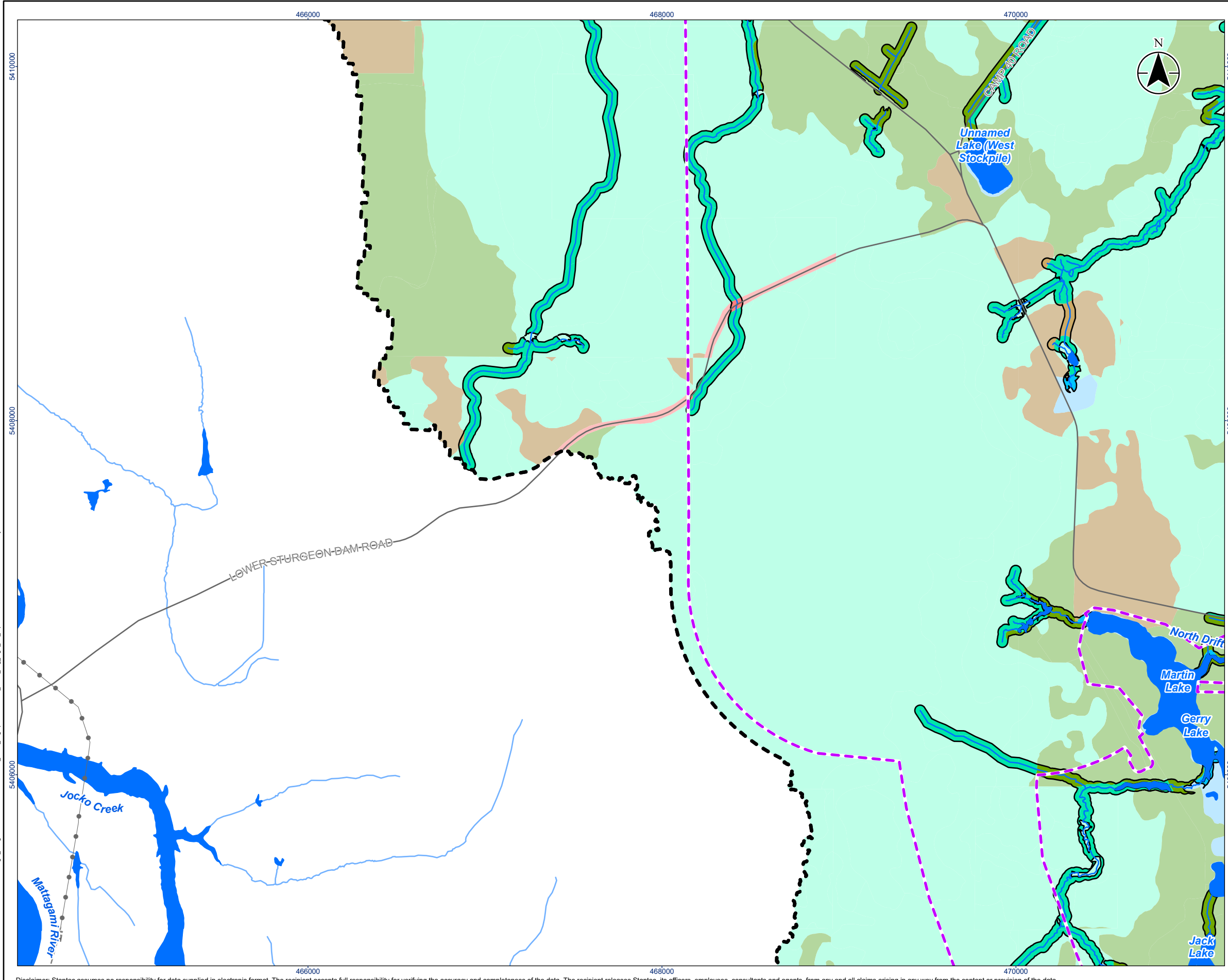


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by ahwhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

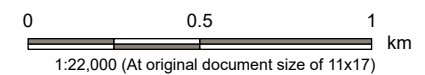
Figure No.: A.4.11

Title: Riparian Habitat in the Local Study Area

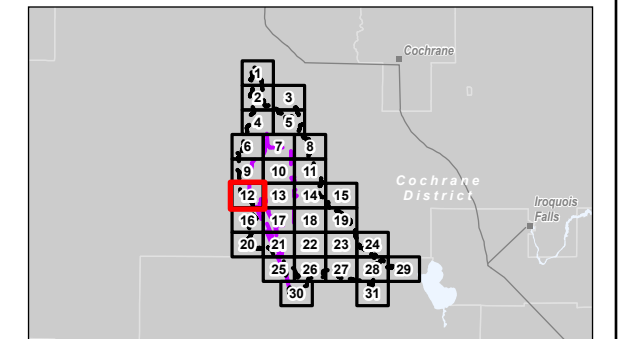


Legend

-  Project Area
-  Local Study Area
- Ecosite Type**
 -  Coniferous Forest/Stand
 -  Constructed
 -  Deciduous Forest/Stand
 -  Water
 -  Wetland
- Riparian Area**
 -  Coniferous Forest/Stand
 -  Constructed
 -  Deciduous Forest/Stand
 -  Water
 -  Wetland
- Base Features**
 -  Minor Road
 -  Hydro Line
 -  Unknown Transmission Line
 -  Watercourse
 -  Waterbody



- Notes**
- 1. Coordinate System: NAD 1983 UTM Zone 17N
 - 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



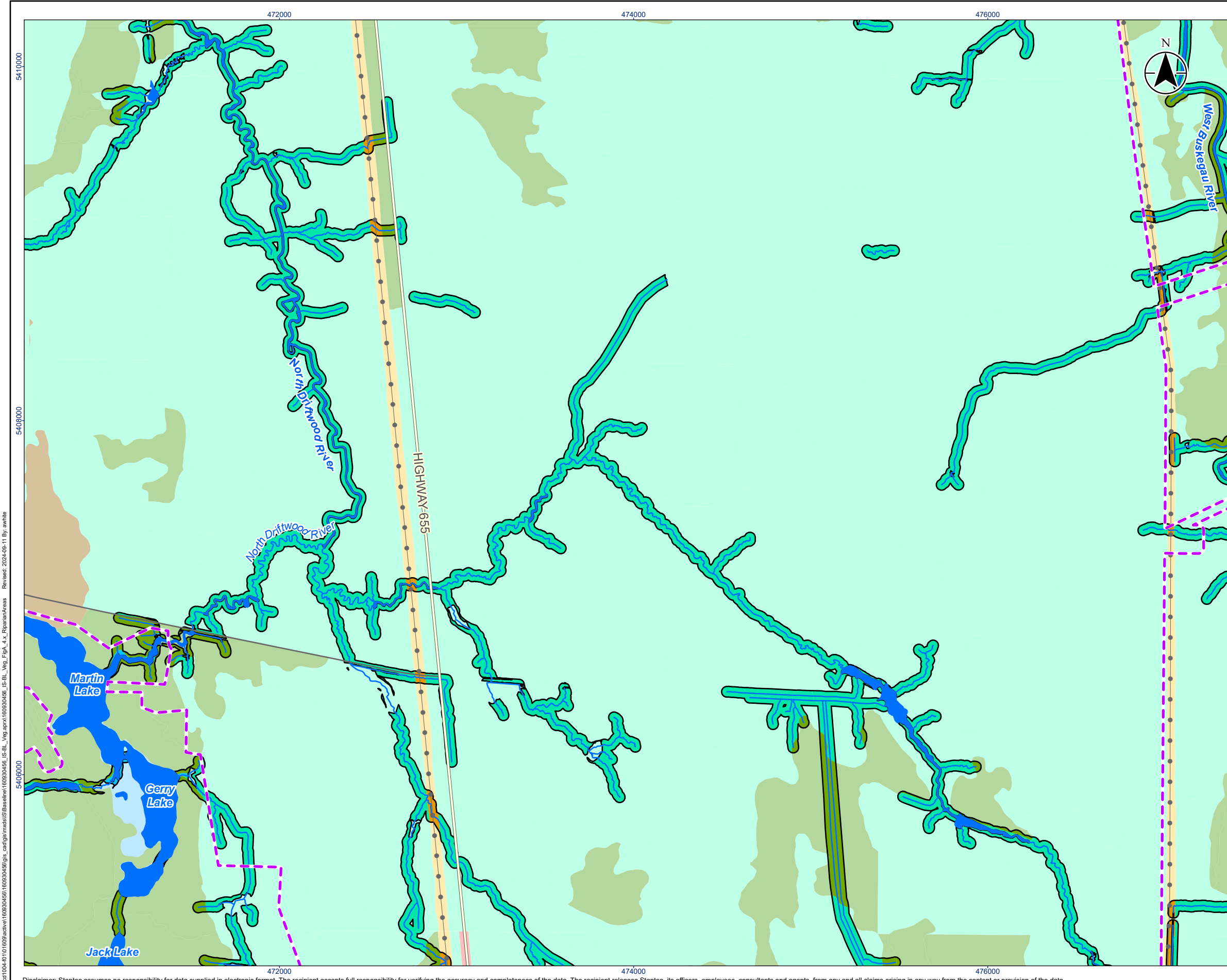
Project Location
Timmins, Ontario 160930456 REVA
Prepared by awhite on 2024-09-11

Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

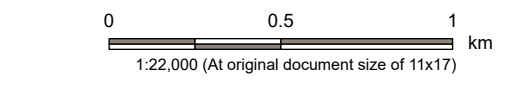
Figure No.
A.4.12

Title
Riparian Habitat in the Local Study Area

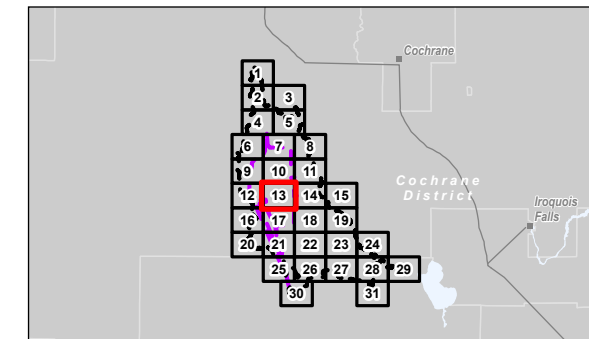
\\st1004-10-101009active\160930456\160930456\gis_cad\gis_md\160930456\IS-BL_Veg apr\160930456_IS-BL_Veg_FigA_4_x_RiparianAreas Revised: 2024-09-11 By: awhite



- Legend**
- Project Area
 - Local Study Area
- Ecosite Type**
- Anthropogenic
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Riparian Area**
- Anthropogenic
 - Coniferous Forest/Stand
 - Water
 - Wetland
- Base Features**
- Major Road
 - Minor Road
 - Hydro Line
 - Watercourse
 - Waterbody



- Notes**
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

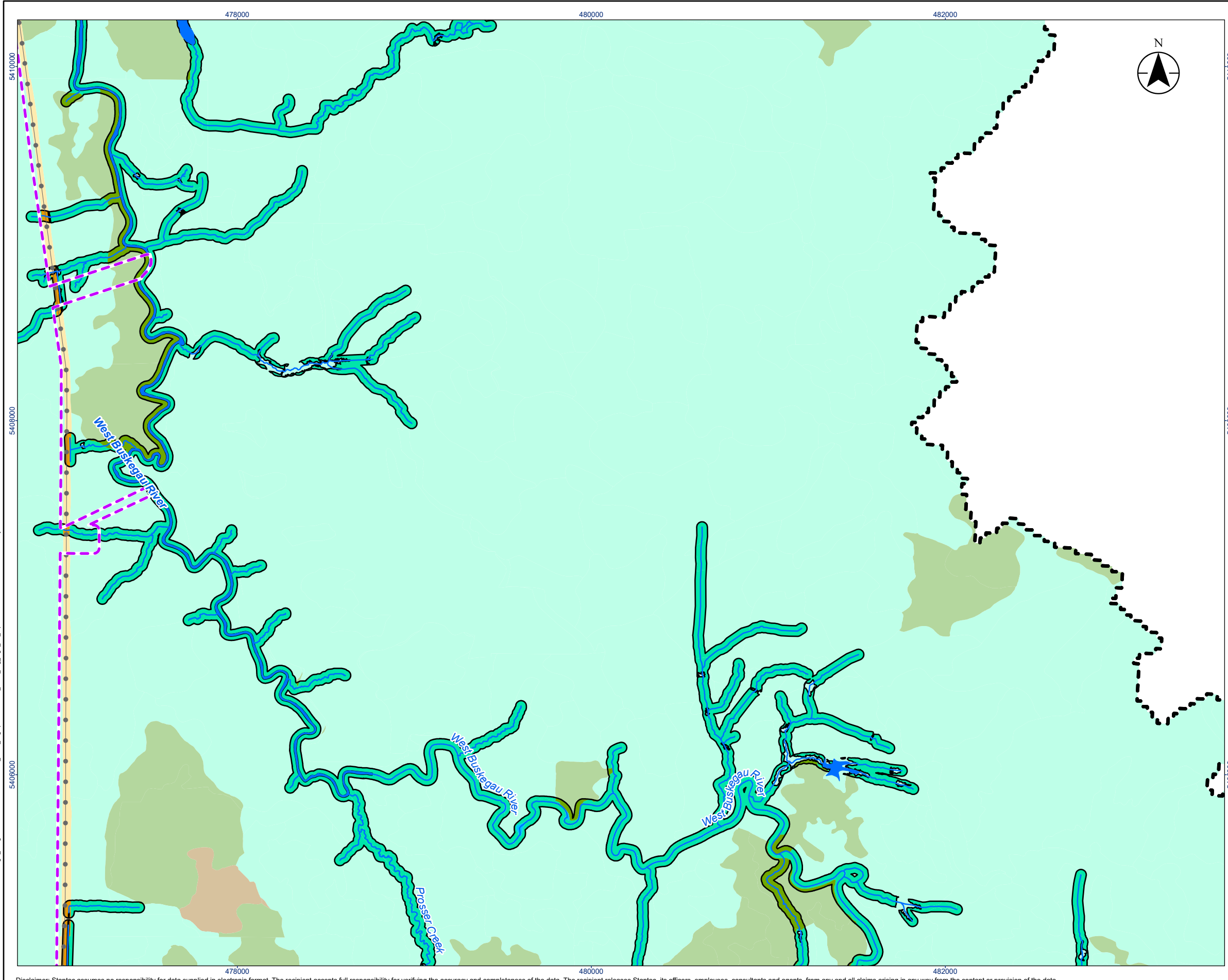


Project Location: Timmins, Ontario 160930456 REVA
 Prepared by: awhite on 2024-09-11

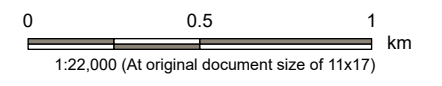
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.4.13**
 Title: **Riparian Habitat in the Local Study Area**

\\st004-1010160930456\160930456\gis_cad\gis_mxd\160930456\160930456\160930456\160930456_Veg_FigA_4x_RiparianAreas Revised: 2024-09-11 By: awhite

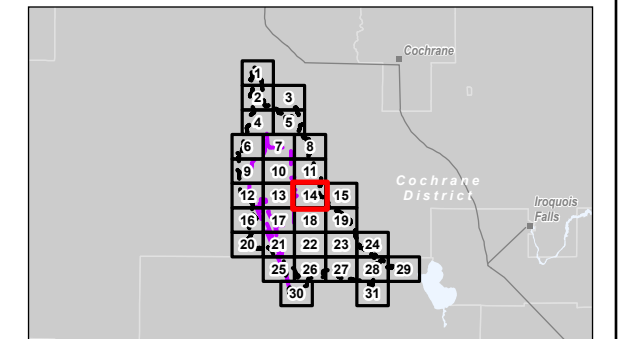


- Legend**
- Project Area
 - Local Study Area
- Ecosite Type**
- Anthropogenic
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Riparian Area**
- Anthropogenic
 - Coniferous Forest/Stand
 - Water
 - Wetland
- Hydro Line
 - Watercourse
 - Waterbody



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

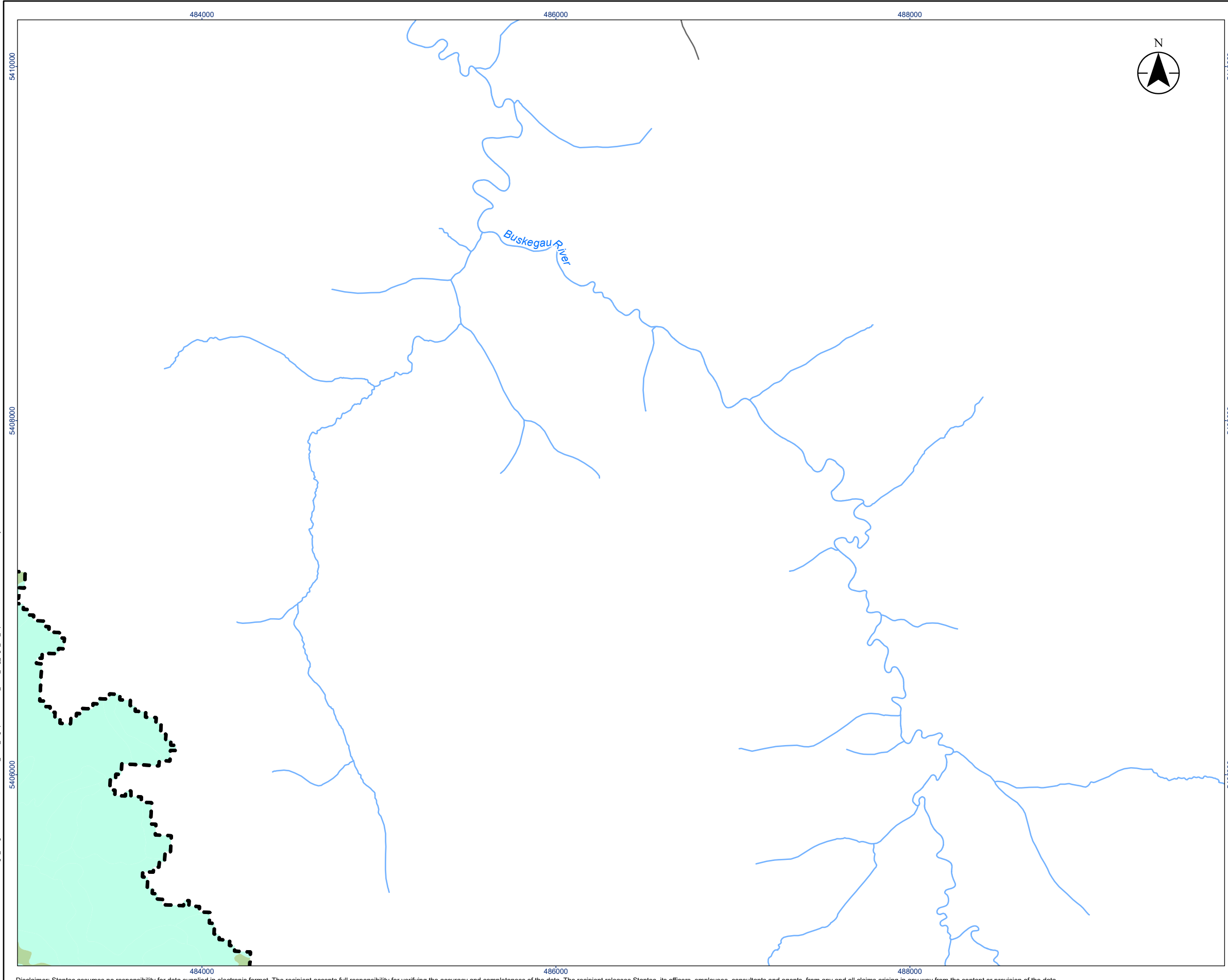






Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

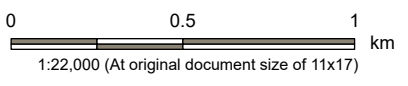
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.4.14**
 Title: **Riparian Habitat in the Local Study Area**

\srt1004-1010\09\active\160930456\160930456\gis_mxd\160930456_gis_tbl_veg_apr160930456_ls-bl_veg_figA_4_x_RiparianAreas
 Revised: 2024-09-11 By: awhite

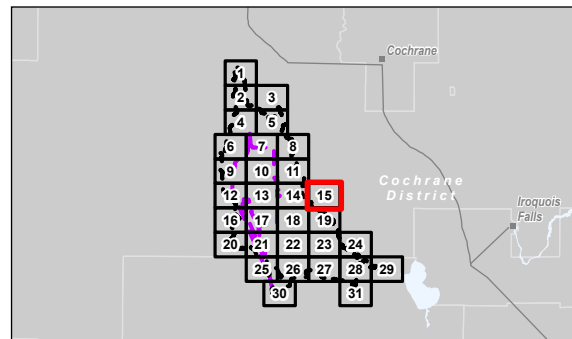


- Legend
-  Local Study Area
 - Ecosite Type
 -  Coniferous Forest/Stand
 -  Wetland - Base Features
 -  Minor Road



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



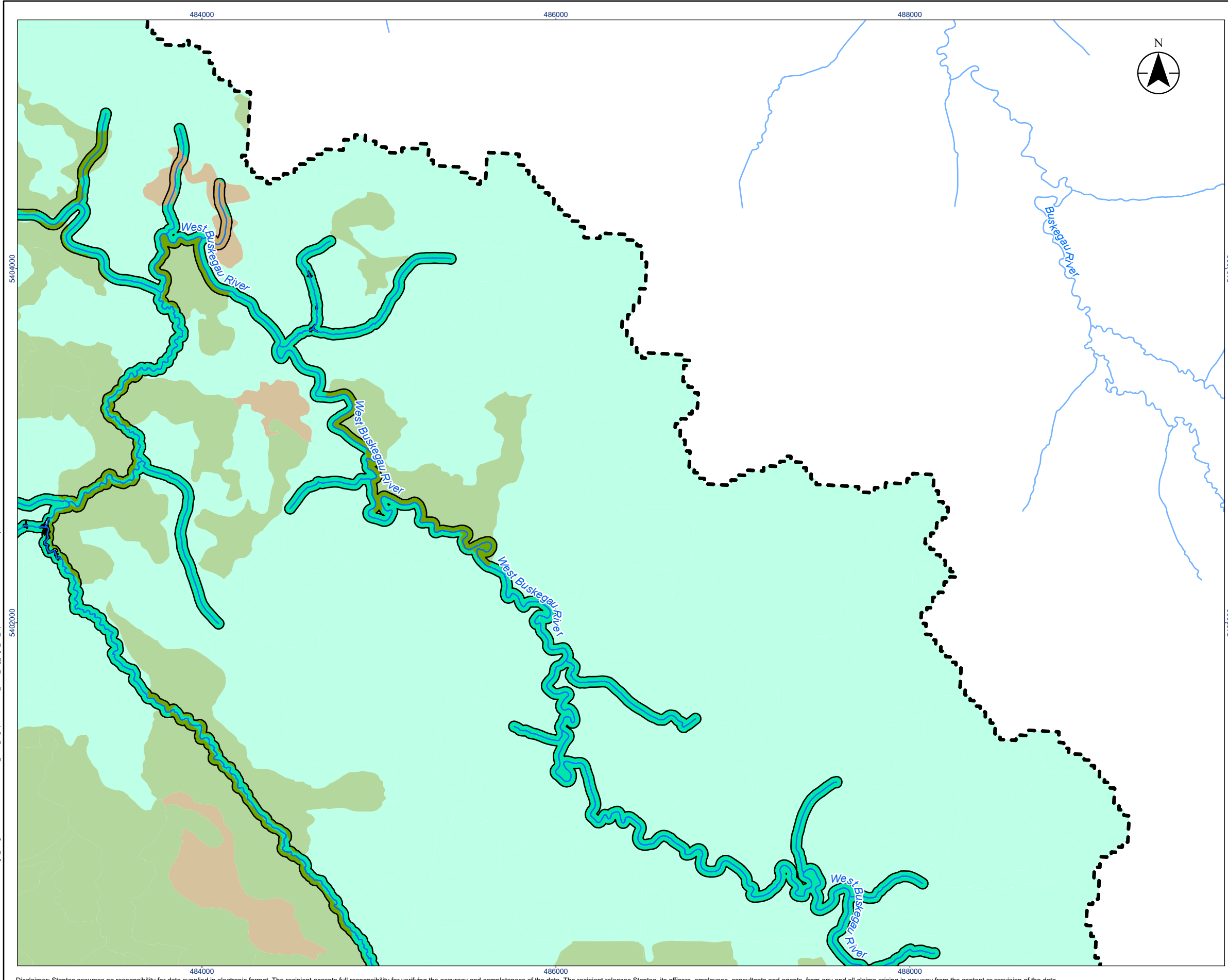
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

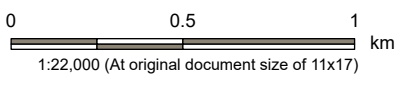
Figure No.: **A.4.15**

Title: **Riparian Habitat in the Local Study Area**

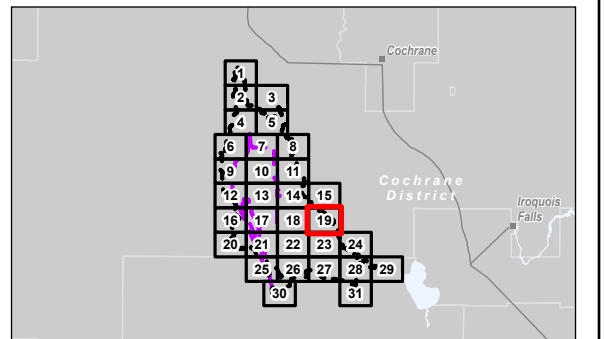
V:\1004-10\1609\active\160930456\gis_data\mxd\160930456\IS-BL_Veg.aprx\160930456_IS-BL_Veg_FigA_4x_RiparianAreas_Revise2024-09-11_By_ahwhite



- Legend
- Local Study Area
- Ecosite Type
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Riparian Area
- Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Water
 - Wetland
- Watercourse



- Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location 160930456 REVA
Timmins, Ontario Prepared by awhite on 2024-09-11

Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.4.19

Title
Riparian Habitat in the Local Study Area

V:\1004-10 160930456\160930456\gms_data\gis\mxd\160930456\IS-BL_Veg_Apr160930456-IS-BL_Veg_FigA_4_x_RiparianAreas_2024-09-11 By: awhite

466000

468000

470000



Legend

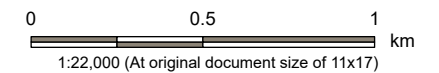
Local Study Area

Ecosite Type

- Coniferous Forest/Stand
- Deciduous Forest/Stand
- Water
- Wetland

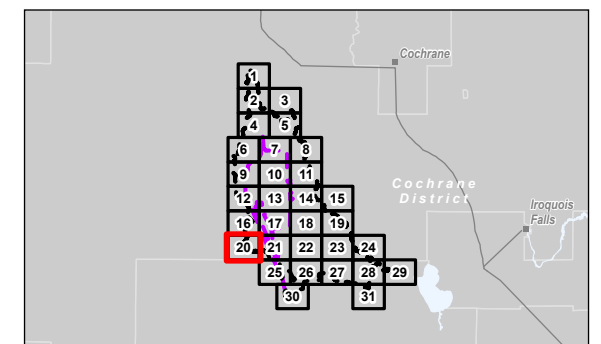
Riparian Area

- Coniferous Forest/Stand
- Water
- Wetland
- Watercourse
- Waterbody



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.4.20**

Title: **Riparian Habitat in the Local Study Area**

5400000

5399000

5399000

5400000

5399000

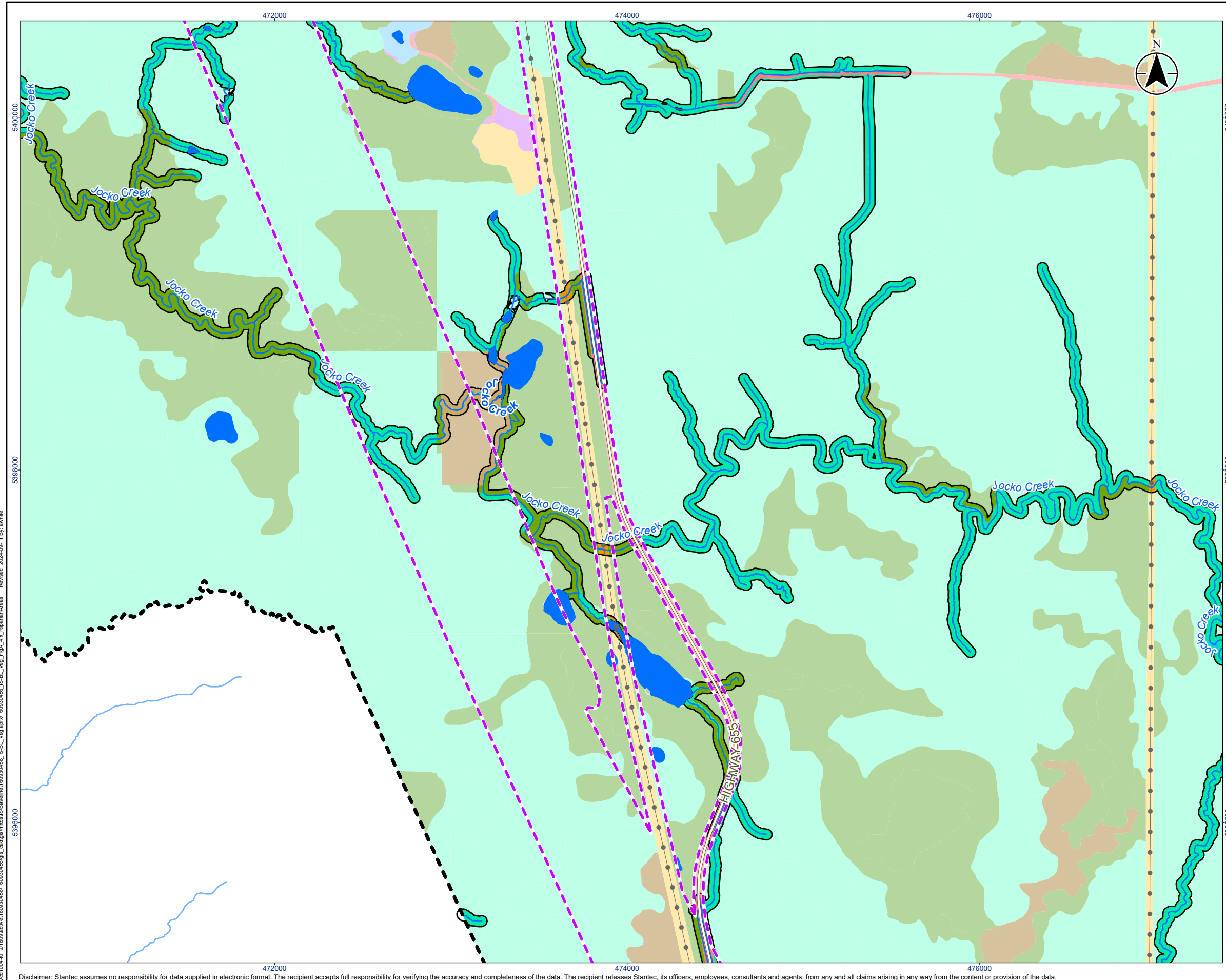
5399000

466000

468000

470000

\\or1004-101009\active\160930456\160930456\gis_cad\gis_md\160930456\160930456_IS-BL_Veg_FigA_4x_RiparianAreas_Revised_2024-09-11_By_ahwhite



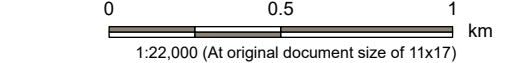
Legend

- Project Area
- Local Study Area

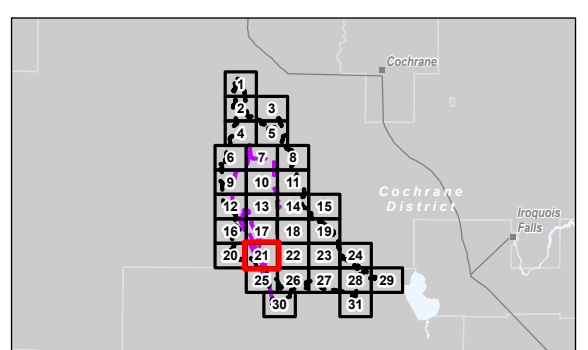
- Ecosite Type
- Anthropogenic
 - Barren
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland

- Riparian Area
- Anthropogenic
 - Coniferous Forest/Stand
 - Constructed
 - Deciduous Forest/Stand
 - Water
 - Wetland

- Base Features
- Major Road
 - Hydro Line
 - Watercourse
 - Waterbody



- Notes
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

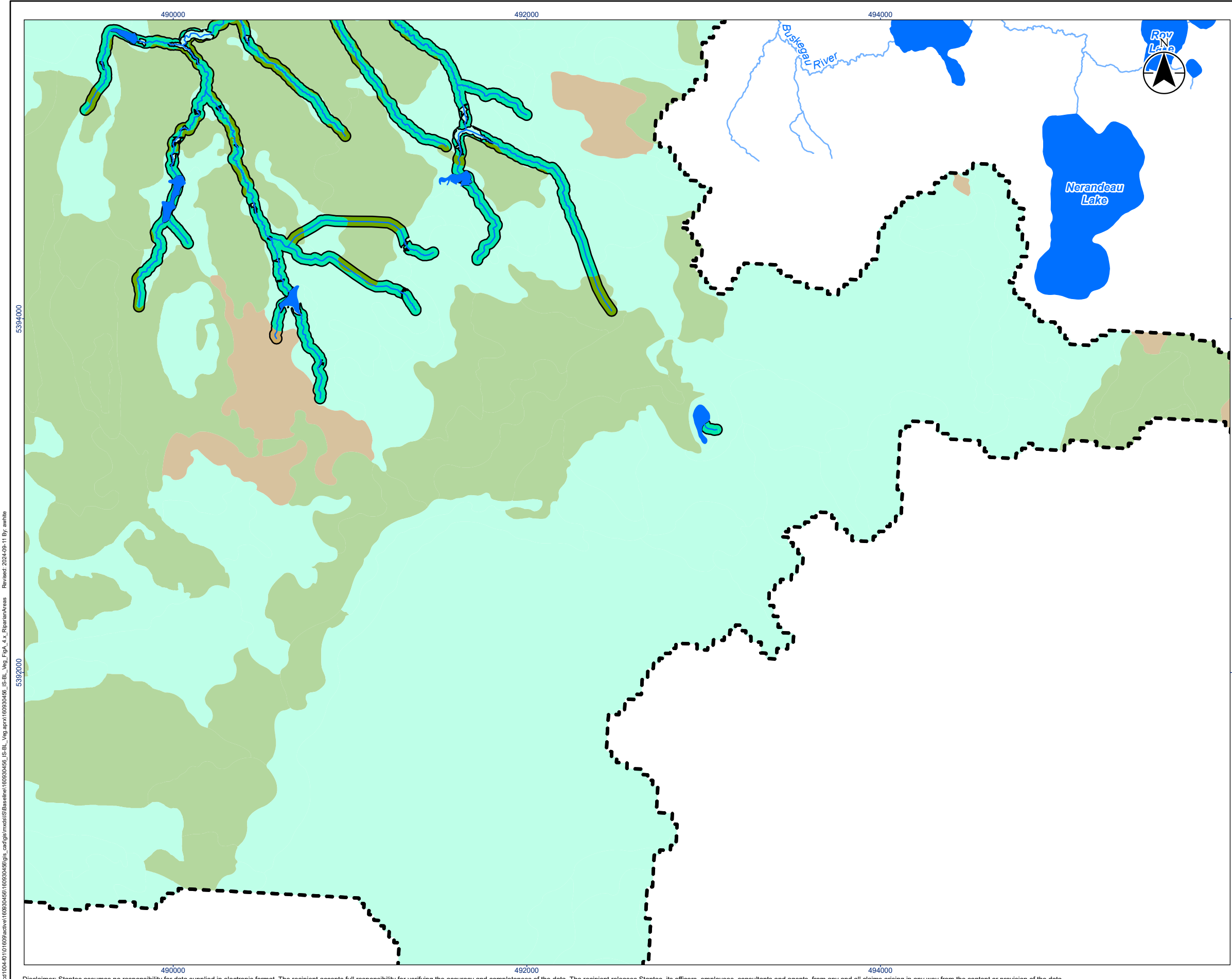


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11


Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.4.21**
 Title: **Riparian Habitat in the Local Study Area**





V:\04-10\1009\active\160930456\gis_cad\gis_cad\gis_cad\gis_cad\160930456\IS-BL_Veg_FigA_4x_RiparianAreas_Revise_2024-09-11 By: awhite
 Revised: 2024-09-11 By: awhite



Legend

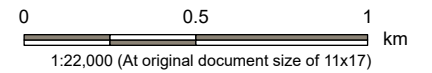
 Local Study Area

Ecosite Type

-  Coniferous Forest/Stand
-  Deciduous Forest/Stand
-  Water
-  Wetland

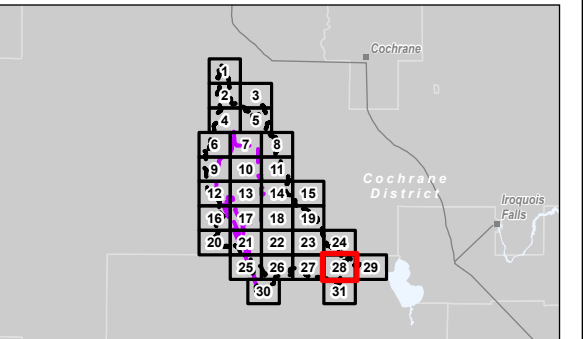
Riparian Area

-  Coniferous Forest/Stand
-  Deciduous Forest/Stand
-  Water
-  Wetland
-  Watercourse
-  Waterbody



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



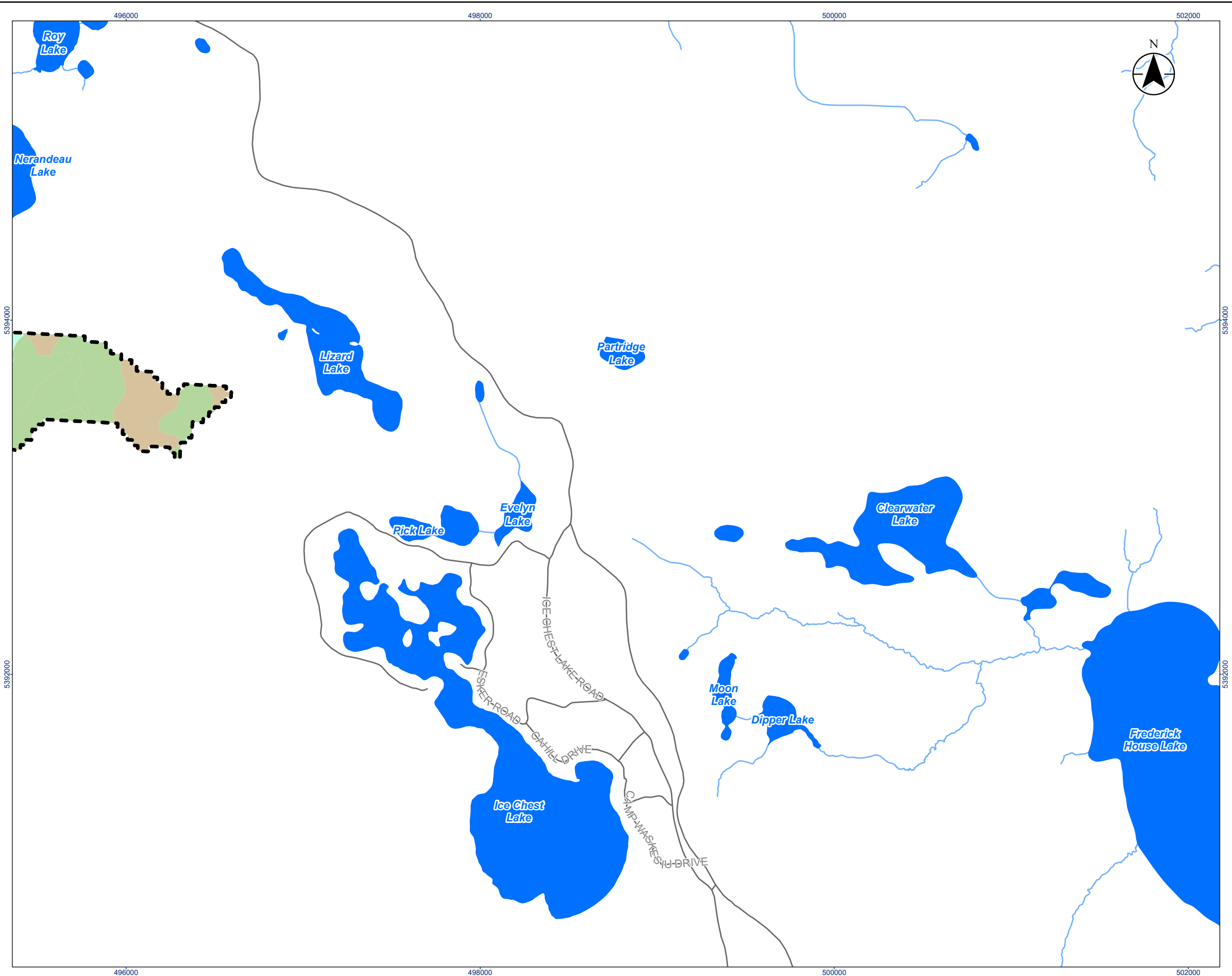
Project Location: Timmins, Ontario 160930456 REVA
Prepared by: awhite on 2024-09-11

Client/Project:
Canada Nickel Company (CNC)
Crawford Nickel Project

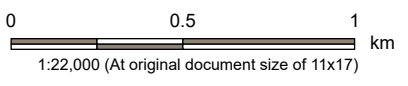
Figure No.
A.4.28

Title:
Riparian Habitat in the Local Study Area

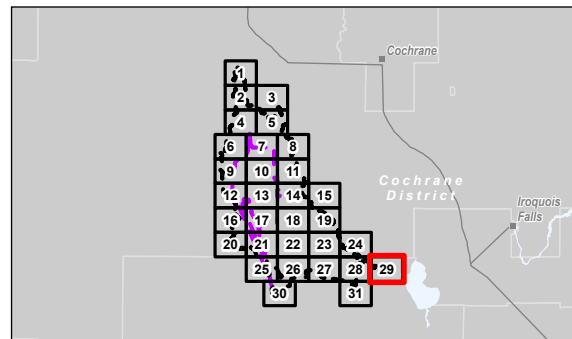
\\or1004-10\1009\active\160930456\160930456_gis_data\gms\mxd\160930456_gis_data\160930456_gis_data\160930456_gis_data\160930456_RiparianAreas_2024-09-11_By_ahwhite



- Legend**
- Local Study Area
 - Ecosite Type**
 - Coniferous Forest/Stand
 - Deciduous Forest/Stand
 - Wetland
 - Base Features**
 - Minor Road
 - Waterbody



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

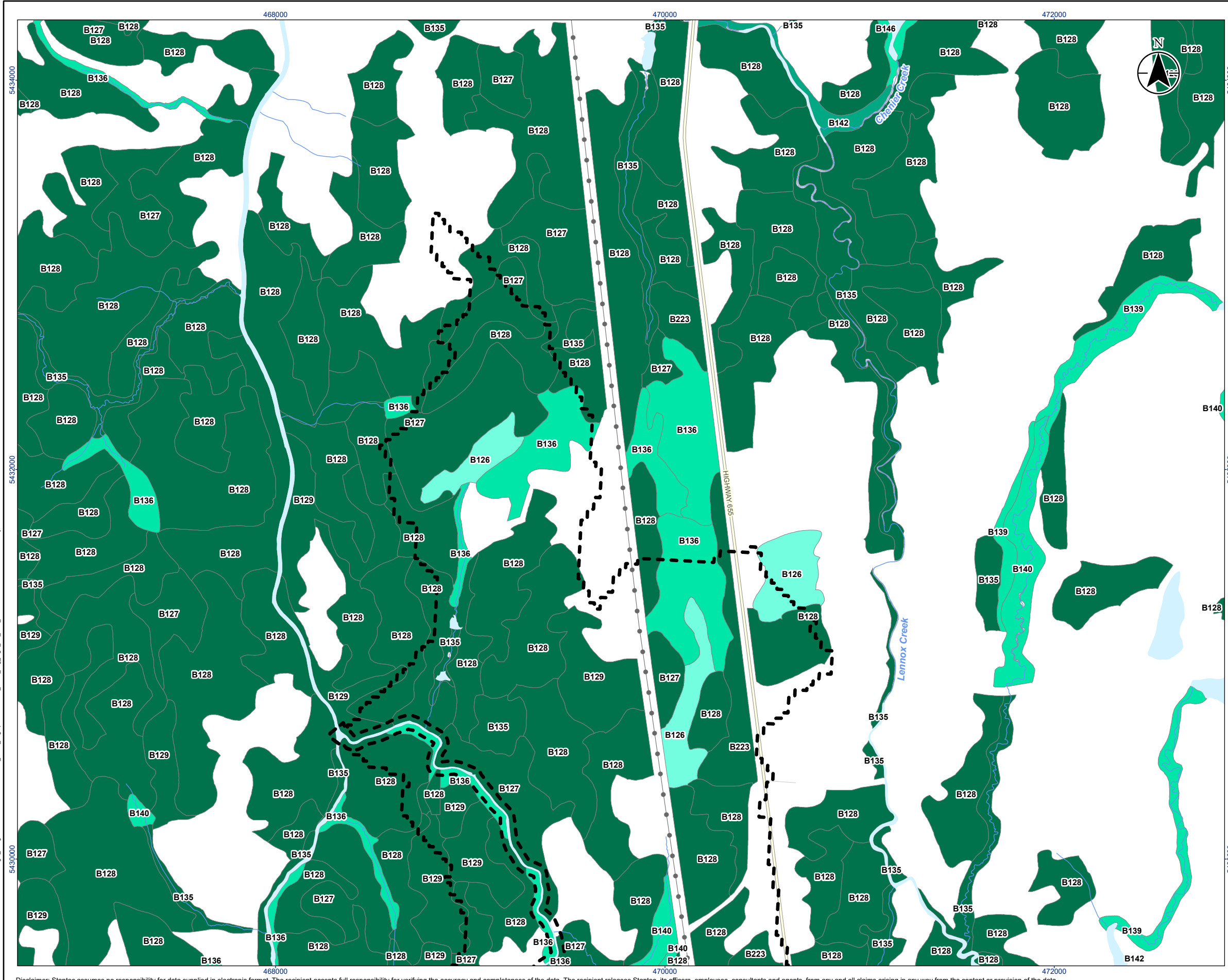


Project Location: Timmins, Ontario 160930456 REVA
Prepared by awhite on 2024-09-11

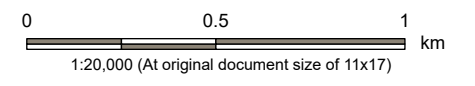
Client/Project: Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No. **A.4.29**
Title **Riparian Habitat in the Local Study Area**

\\ort1004-101\609\active\160930456\160930456\gis_cad\gis_md\160930456\160930456\160930456\160930456_160930456_Veg_FigA_4x_RiparianAreas_Revisee\2024-09-11 By awhite

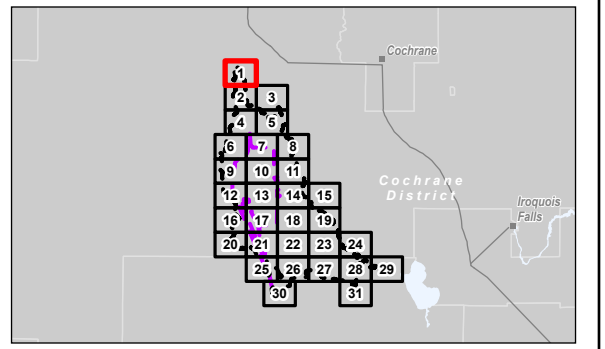


- Legend**
- Local Study Area**
- Base Features**
- Major Road
 - Minor Road
 - Hydro Line
 - Watercourse (Permanent)
 - Waterbody
- Ecological Land Classification**
- Wetland**
- Bog
 - Fen
 - Meadow Marsh
 - Swamp



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



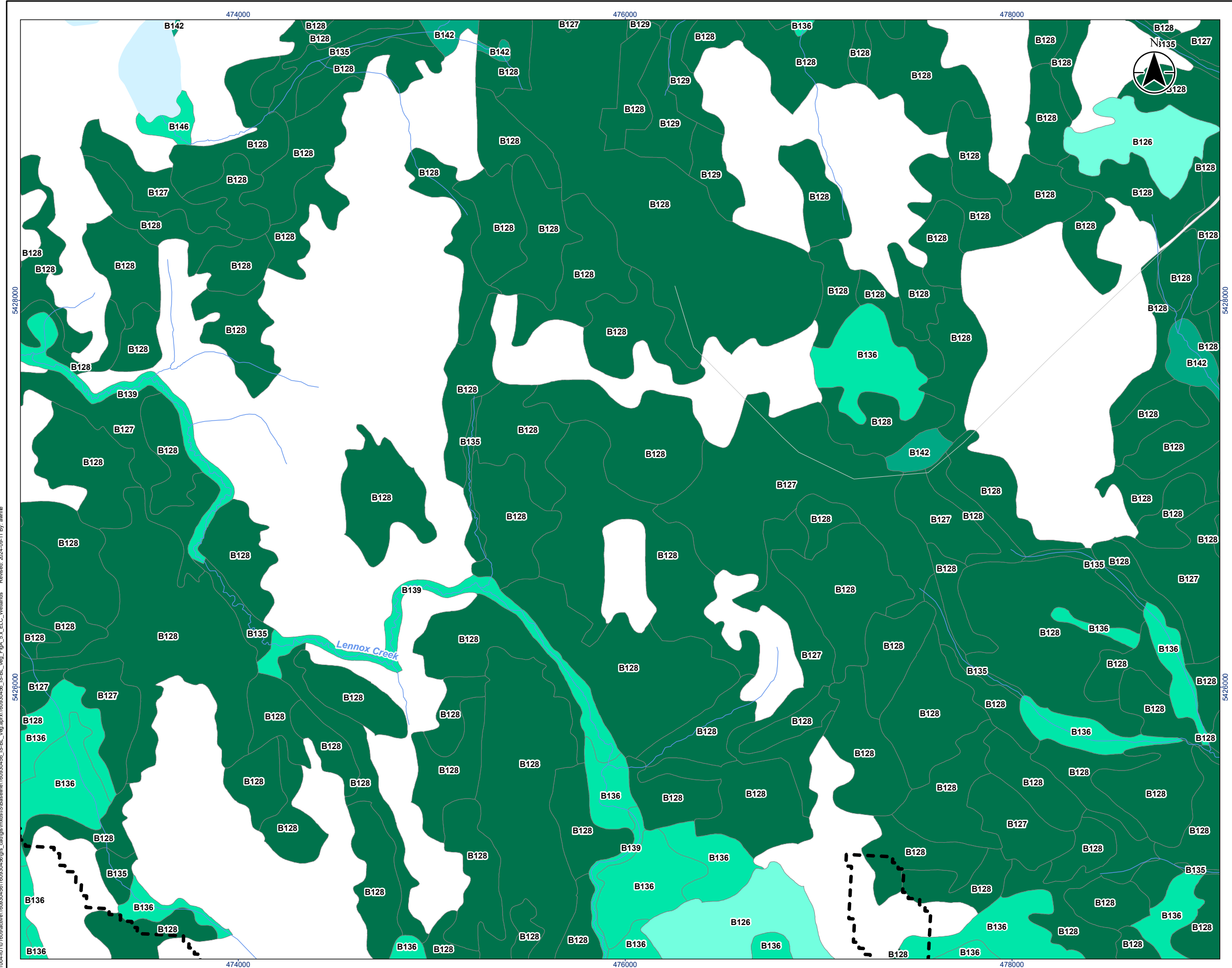
Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.5.1**
 Title **Wetlands in the Local Study Area**

V:\1004-10109\active\160930456\GIS\maps\160930456\gis_cad\gis_md\160930456\ls-bl_vig_fig_a_5x_11\w\etlands_revised_2024-09-11_by_ahwhite

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

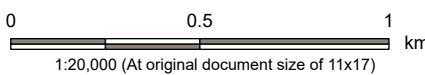


V:\004\0101009\active\160930456\gis_base\gis_md\160930456\160930456\160930456_160930456_160930456_ELC_Wetlands_Revised_2024-09-11_By: awhite

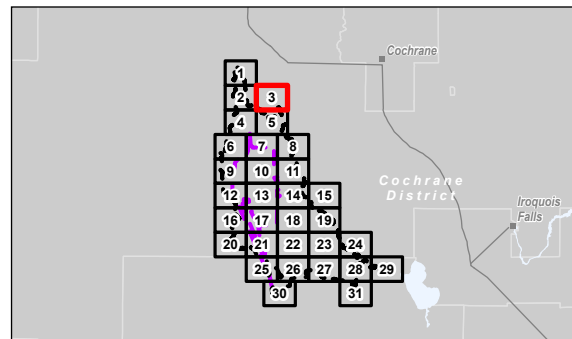


Legend

Local Study Area		Ecological Land Classification
Base Features	Wetland	
Minor Road	Bog	
Watercourse (Permanent)	Fen	
Waterbody	Meadow Marsh	
	Swamp	



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

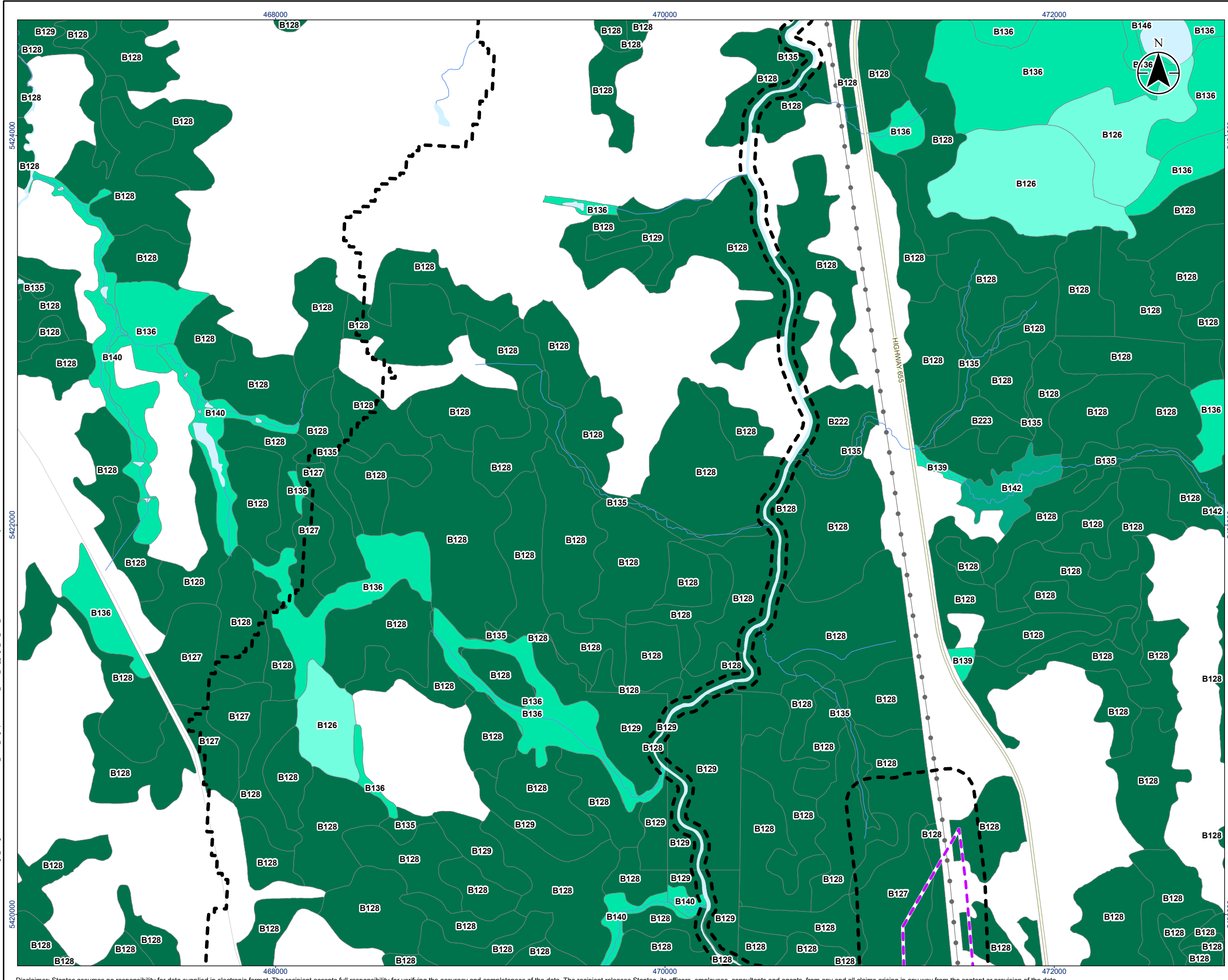


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.5.3**
 Title: **Wetlands in the Local Study Area**

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend

- Project Area
- Local Study Area

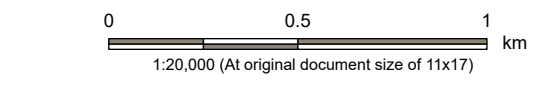
Base Features

- Major Road
- Minor Road
- Hydro Line
- Watercourse (Permanent)
- Waterbody

Ecological Land Classification

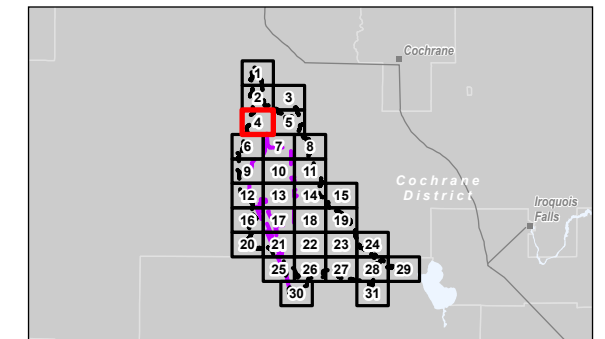
Wetland

- Bog
- Fen
- Meadow Marsh
- Swamp



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

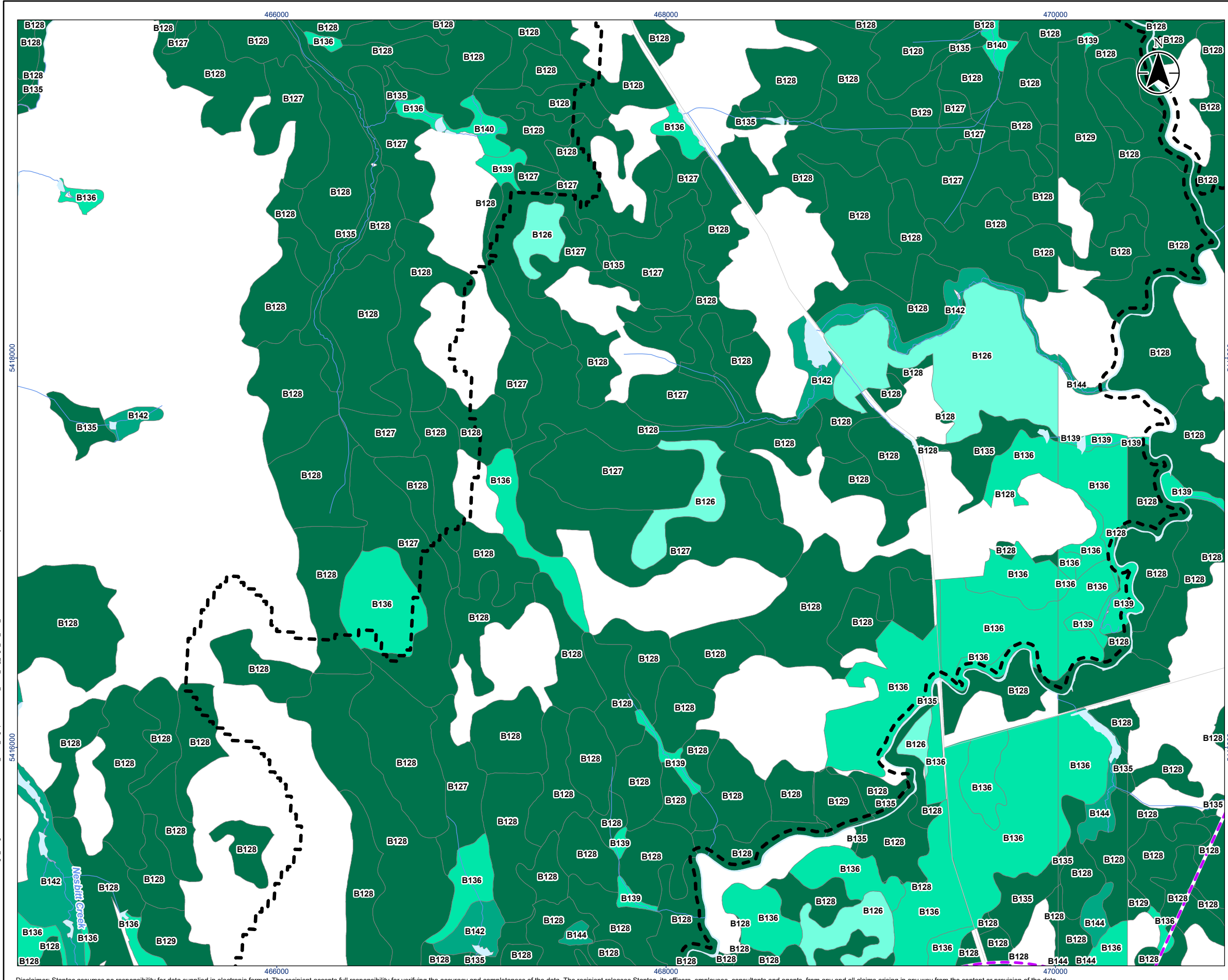


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11











Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

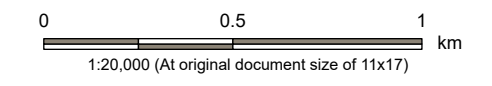
Figure No.: **A.5.4**

Title: **Wetlands in the Local Study Area**

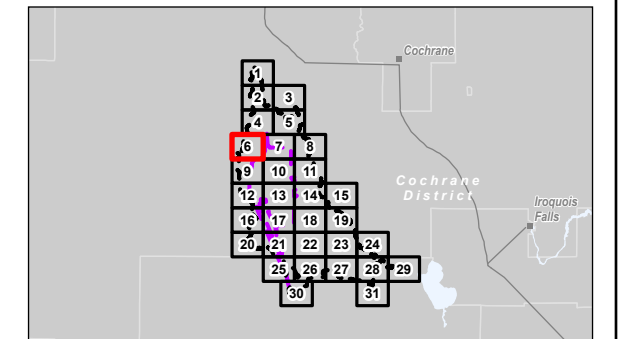


Legend

 Project Area	Ecological Land Classification
 Local Study Area	
Base Features	
 Minor Road	 Wetland
 Watercourse (Permanent)	 Bog
 Waterbody	 Fen
	 Meadow Marsh
	 Swamp



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

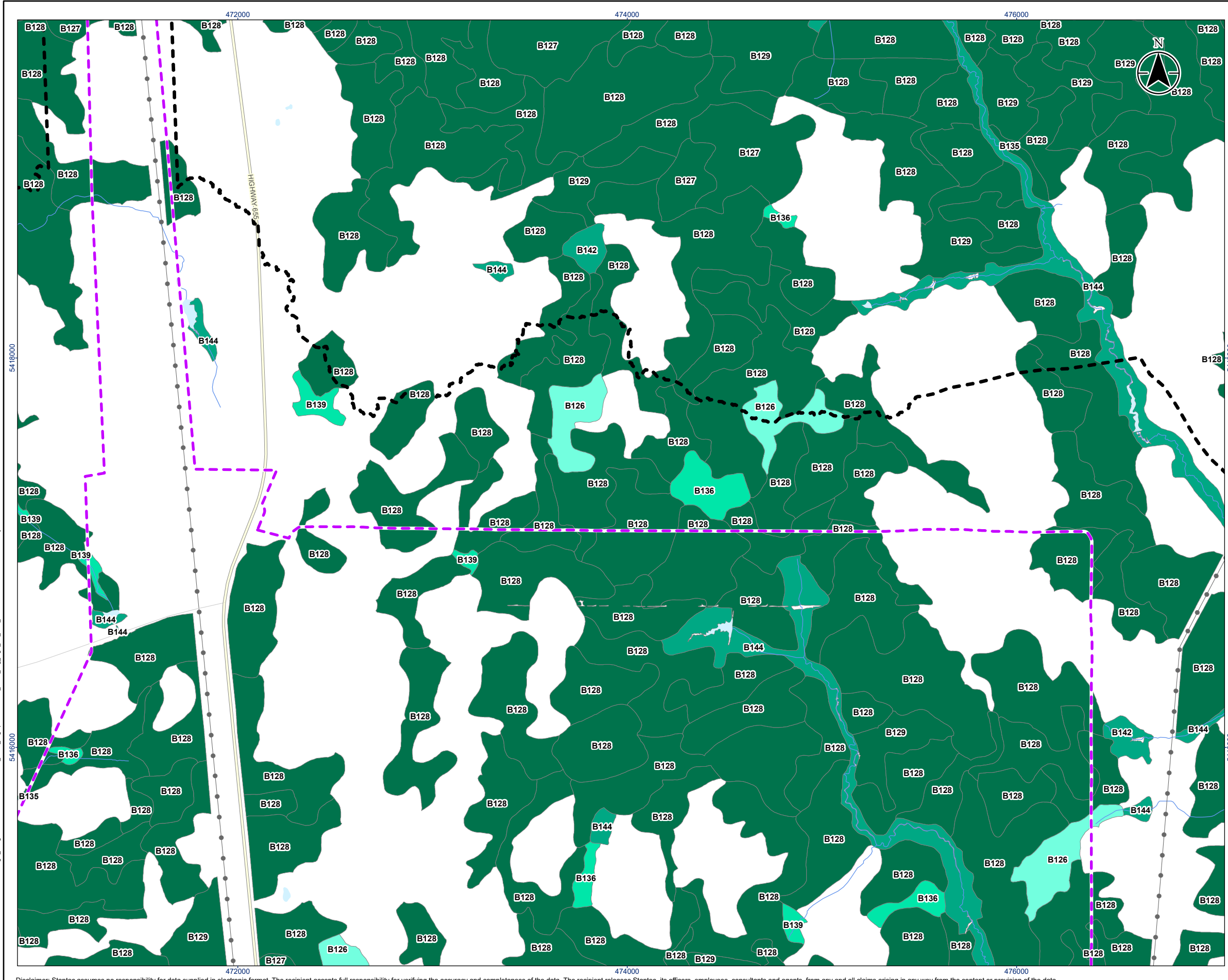


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA



Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.
A.5.6
 Title
Wetlands in the Local Study Area






V:\1004-10\1009\active\160930456\gis_md\sl\B\Bases\160930456\IS-BL_Veg.aprx\160930456_IS-BL_Veg_FigA_Sx_ELC_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite



Legend





 Project Area
 Local Study Area

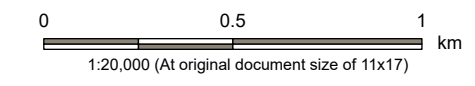
Base Features

 Major Road
 Minor Road
 Hydro Line
 Watercourse (Permanent)
 Waterbody

Ecological Land Classification

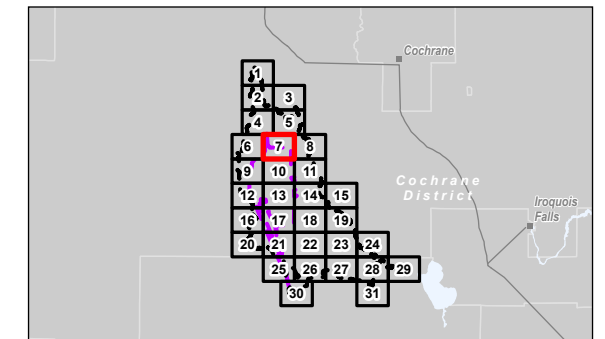
Wetland

 Bog
 Fen
 Meadow Marsh
 Swamp



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

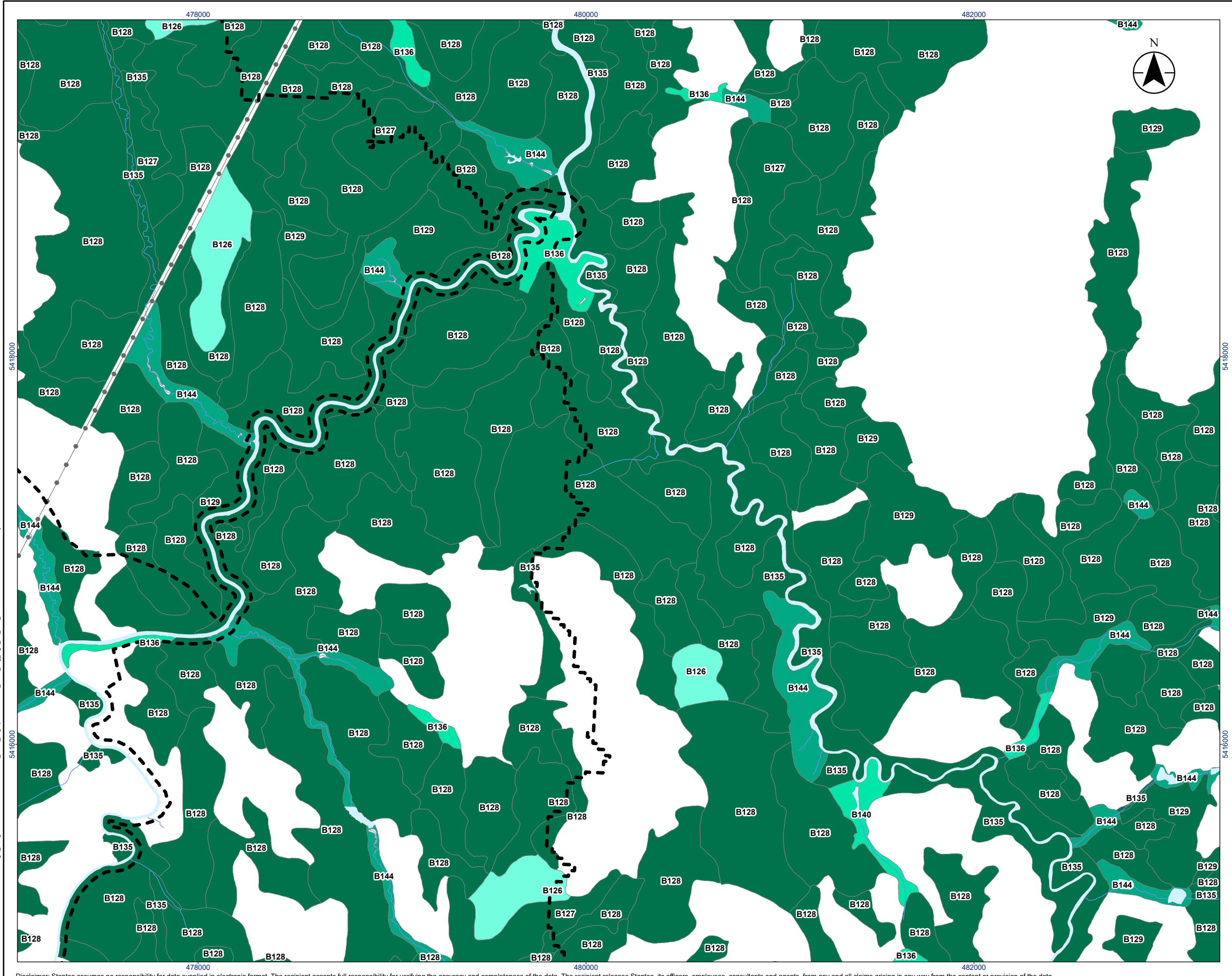


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.:
A.5.7
 Title:
Wetlands in the Local Study Area

V:\1004-101009\active\160930456\GIS\mxd\160930456_gis_carriage\mxd\160930456_Ls-BL_Veg_Apr160930456_Ls-BL_Veg_FigA_5x_ELC_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite



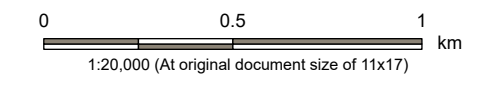
Legend

- Local Study Area
- Hydro Line
- Watercourse (Permanent)
- Waterbody

Ecological Land Classification

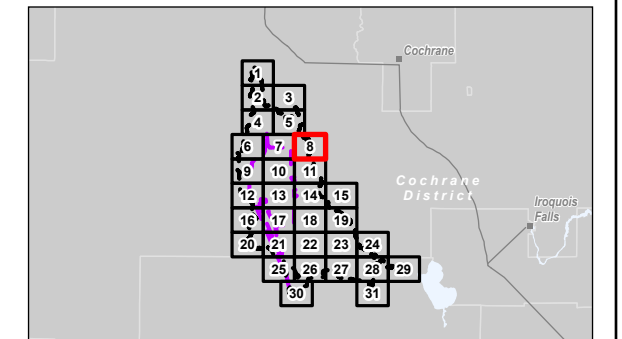
Wetland

- Bog
- Fen
- Meadow Marsh
- Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



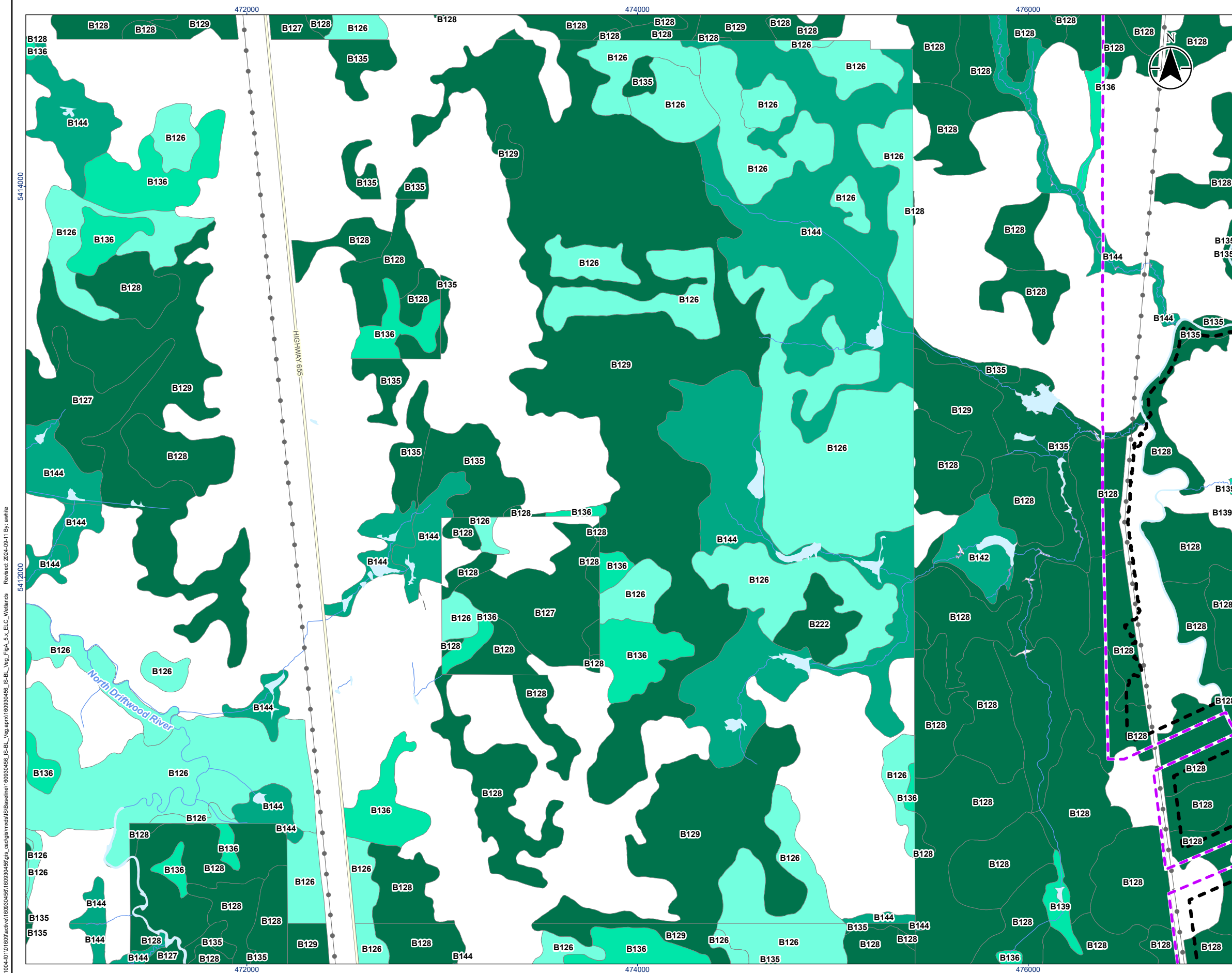
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by: awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.:
A.5.8

Title:
Wetlands in the Local Study Area

V:\004-10109\active\160930456\160930456_gis_carriage\mxd\160930456_gis_carriage\Map_A5.8_ELC_Wetlands.mxd
 Revised: 2024-09-11 By: awhite



Legend

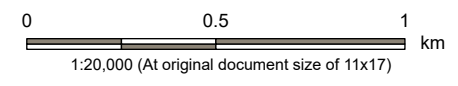
Project Area
 Project Area

Local Study Area
 Local Study Area

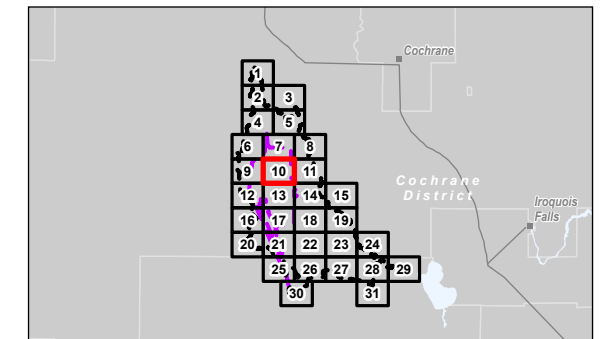
Base Features
 Major Road
 Hydro Line
 Watercourse (Permanent)
 Waterbody

Ecological Land Classification

Wetland
 Bog
 Fen
 Meadow Marsh
 Swamp



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



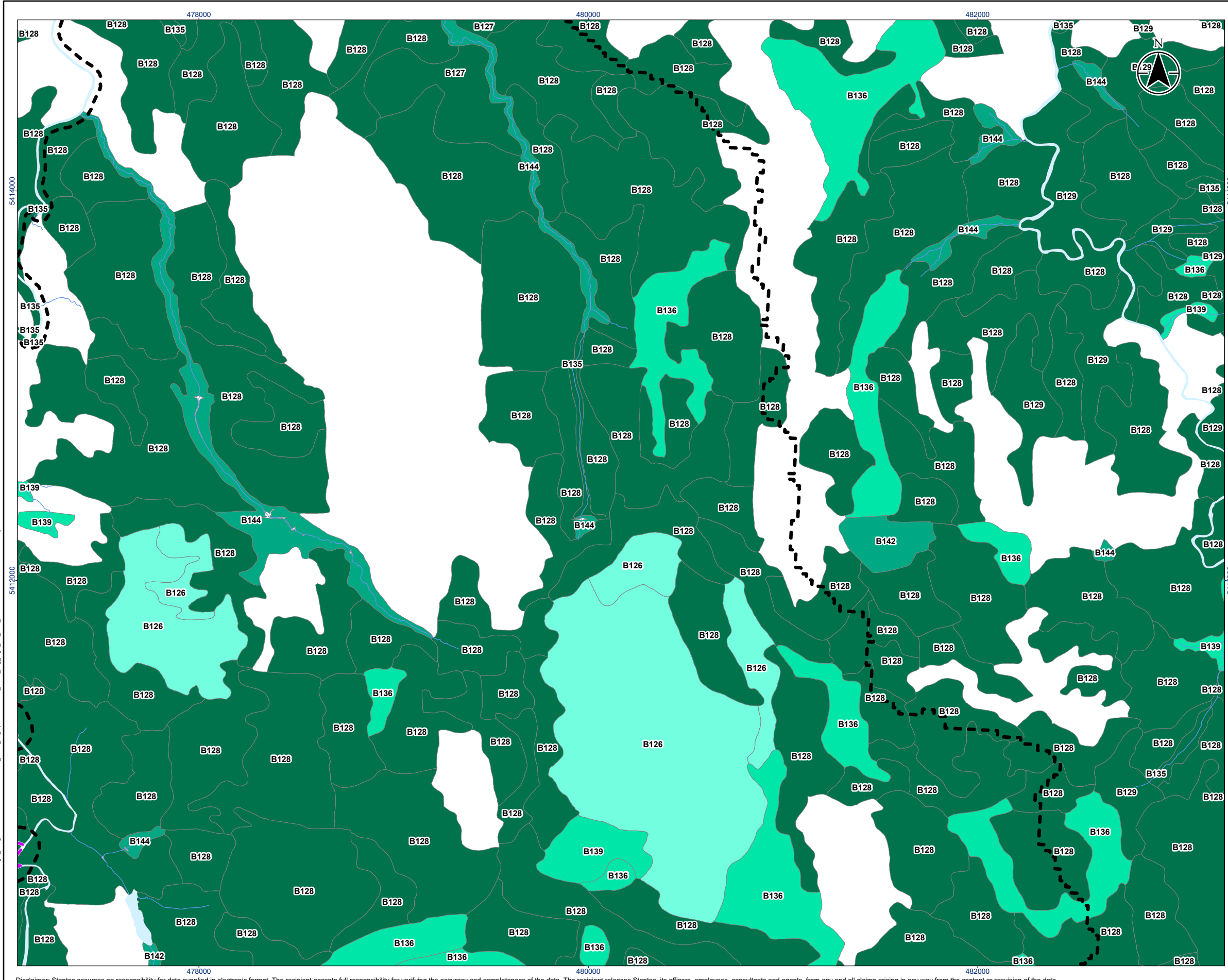
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.
A.5.10
 Title
Wetlands in the Local Study Area

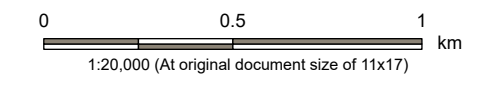
\s01004-101009\active\160930456\160930456\giss_cad\gis\mxd\160930456_gis_base\160930456_gis_base\veg_fig\veg_fig_a_5x_elc_wetlands
 Revised: 2024-09-11 By: awhite

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

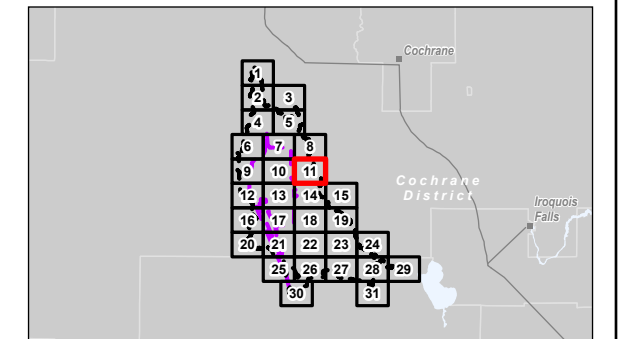


Legend

	Project Area	Ecological Land Classification	
	Local Study Area	Wetland	
	Watercourse (Permanent)		Bog
	Waterbody		Fen
			Meadow Marsh
			Swamp



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

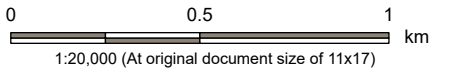
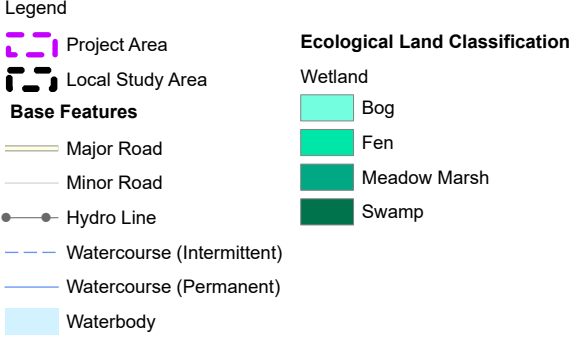
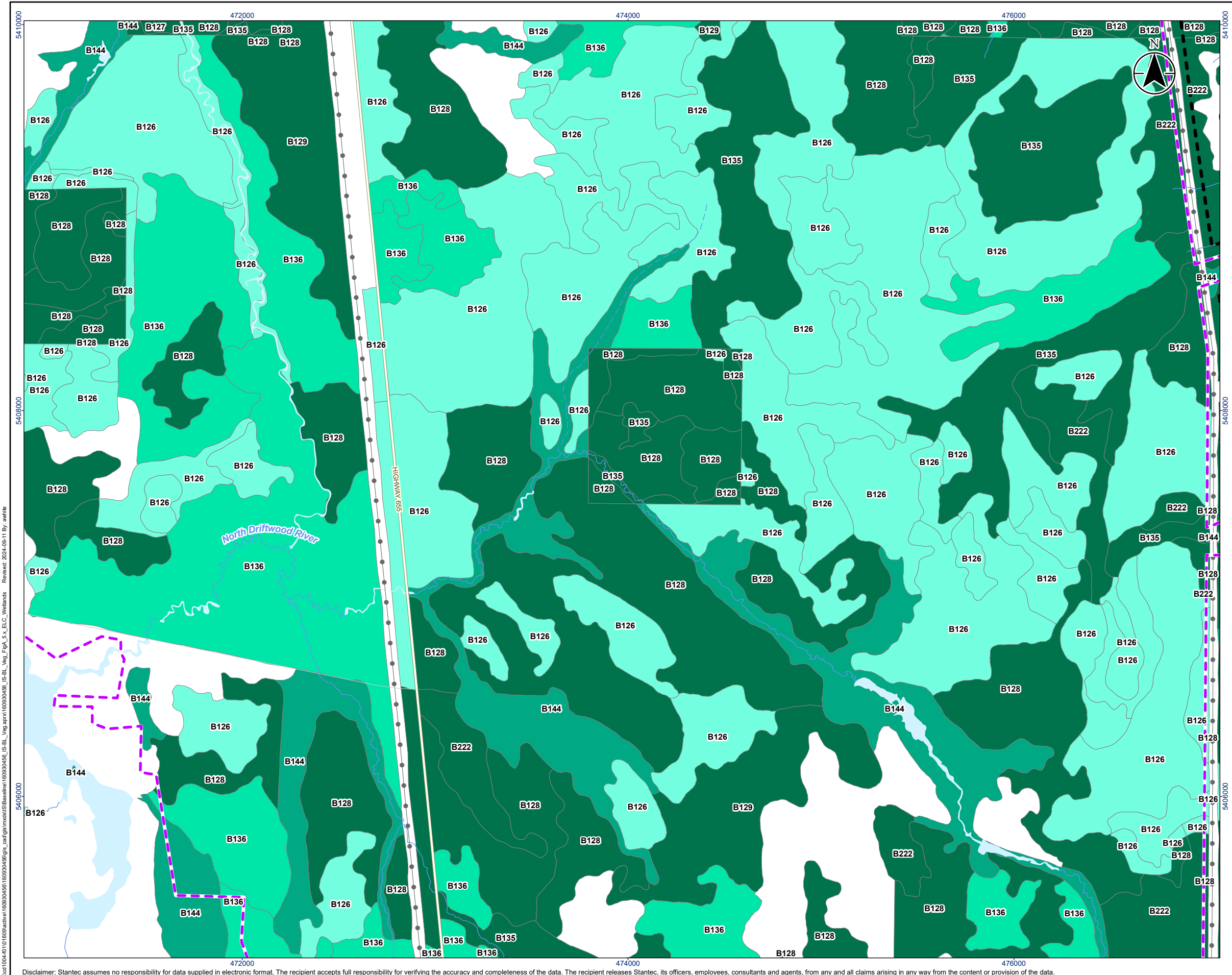


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by: awhite on 2024-09-11

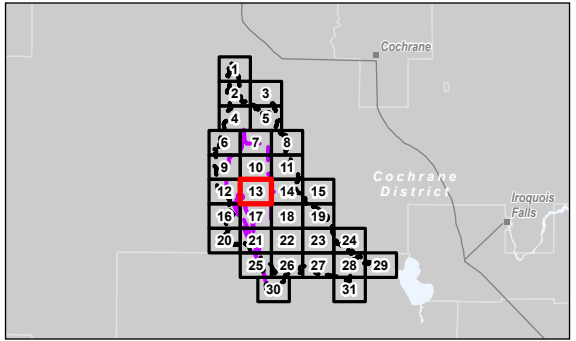
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.5.11**
 Title: **Wetlands in the Local Study Area**

V:\1004-101009\active\160930456\gis_cad\gis_md\sl\B\Bases\160930456_B\sl_Veg\prnt\160930456_B\sl_Veg_Fig_A_5.11_E.L.C.\Wetlands_2024-09-11_By: awhite
 5412000
 5414000



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



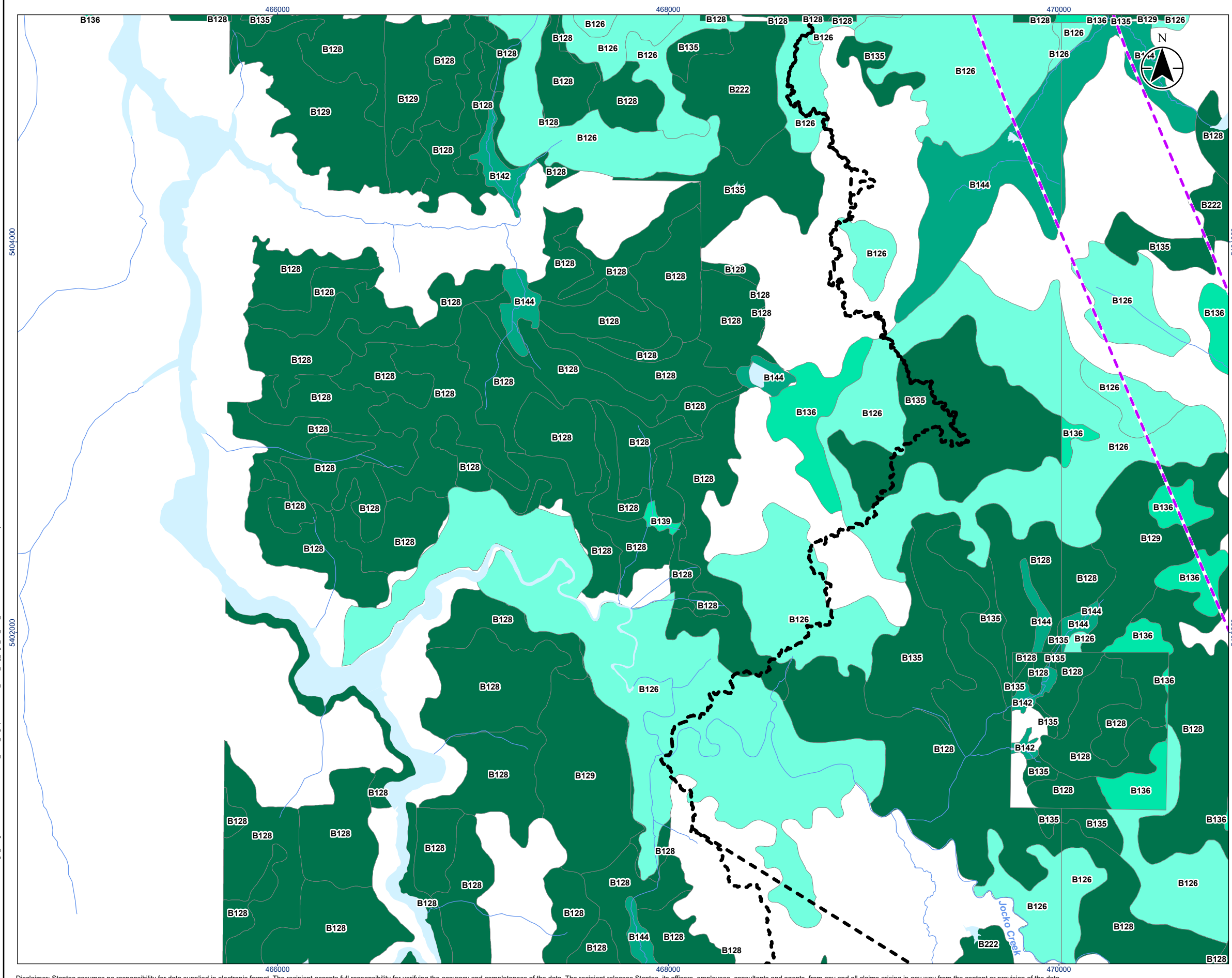
Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: A.5.13

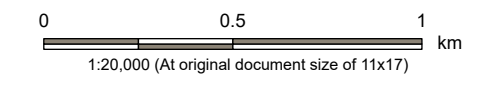
Title: Wetlands in the Local Study Area

V:\1004-1010\160930456\160930456\gis_base\mxd\160930456_gis_base\160930456_ELC_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite
 V:\1004-1010\160930456\160930456\gis_base\mxd\160930456_gis_base\160930456_ELC_Wetlands_2024-09-11_By: awhite



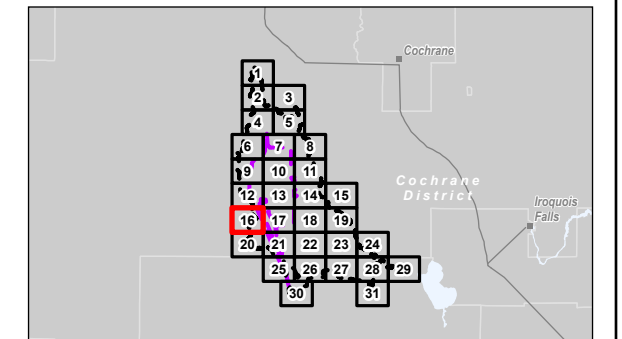
Legend

Project Area	Ecological Land Classification
Local Study Area	
Watercourse (Intermittent)	
Watercourse (Permanent)	
Waterbody	Wetland
	Bog
	Fen
	Meadow Marsh
	Swamp



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

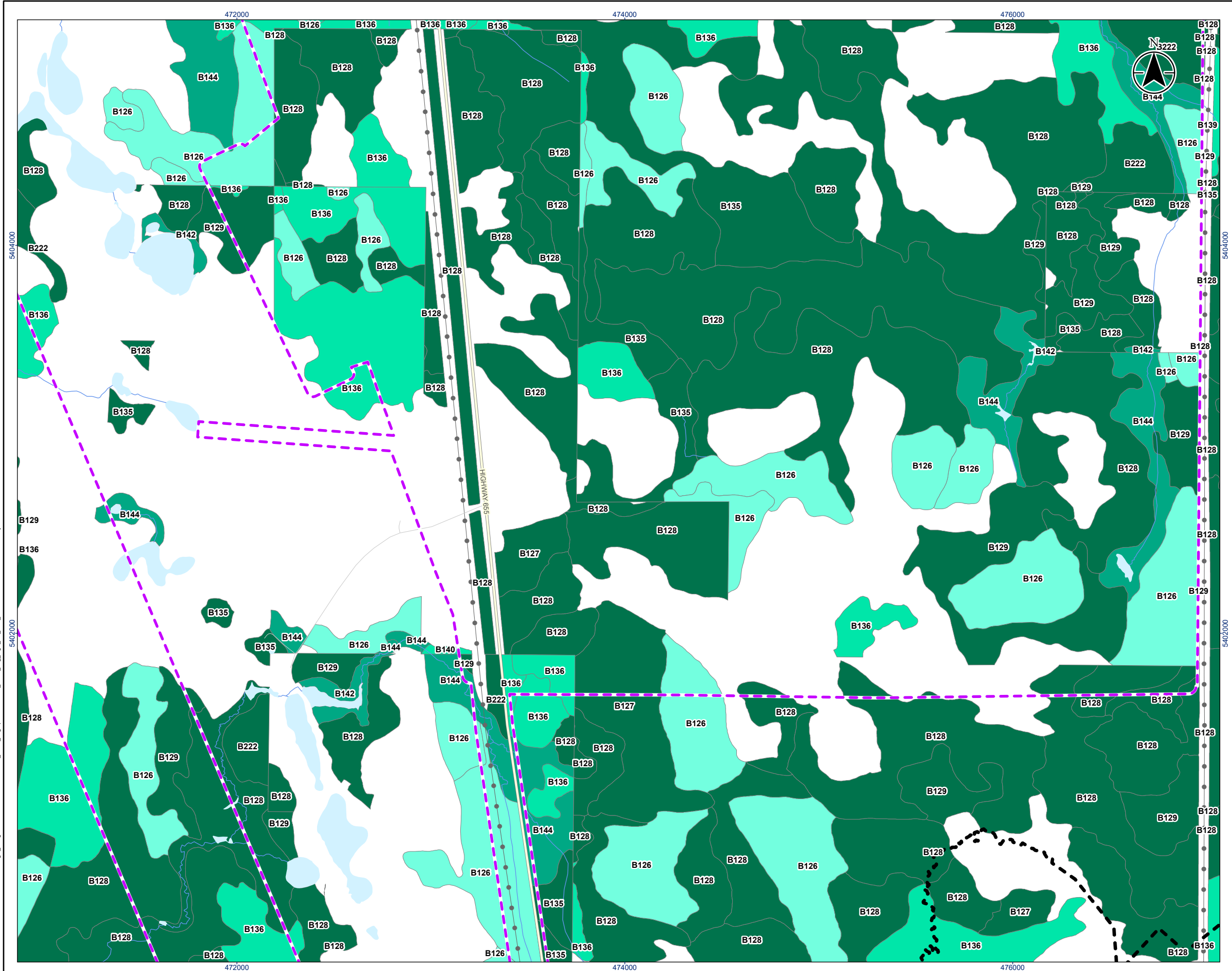


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

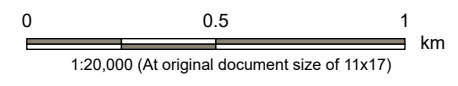
Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No.: **A.5.16**
 Title: **Wetlands in the Local Study Area**

V:\1004-1010\1009\active\160930456\gis_base\mxd\160930456_gis_base\veg_fig_a_5x_elc_wetlands Revised: 2024-09-11 By: awhite
 V:\1004-1010\1009\active\160930456\gis_base\mxd\160930456_gis_base\veg_fig_a_5x_elc_wetlands

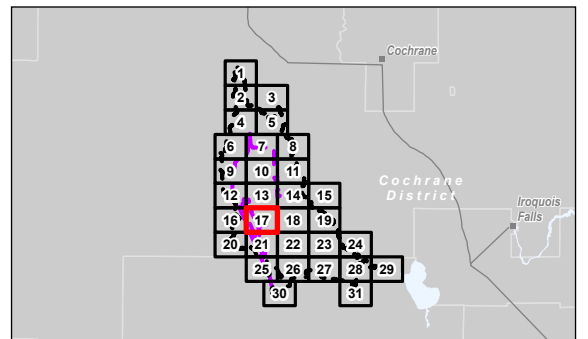


- Legend**
- Project Area
 - Local Study Area
 - Base Features**
 - Major Road
 - Minor Road
 - Hydro Line
 - Watercourse (Permanent)
 - Waterbody
 - Ecological Land Classification**
 - Wetland
 - Bog
 - Fen
 - Meadow Marsh
 - Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

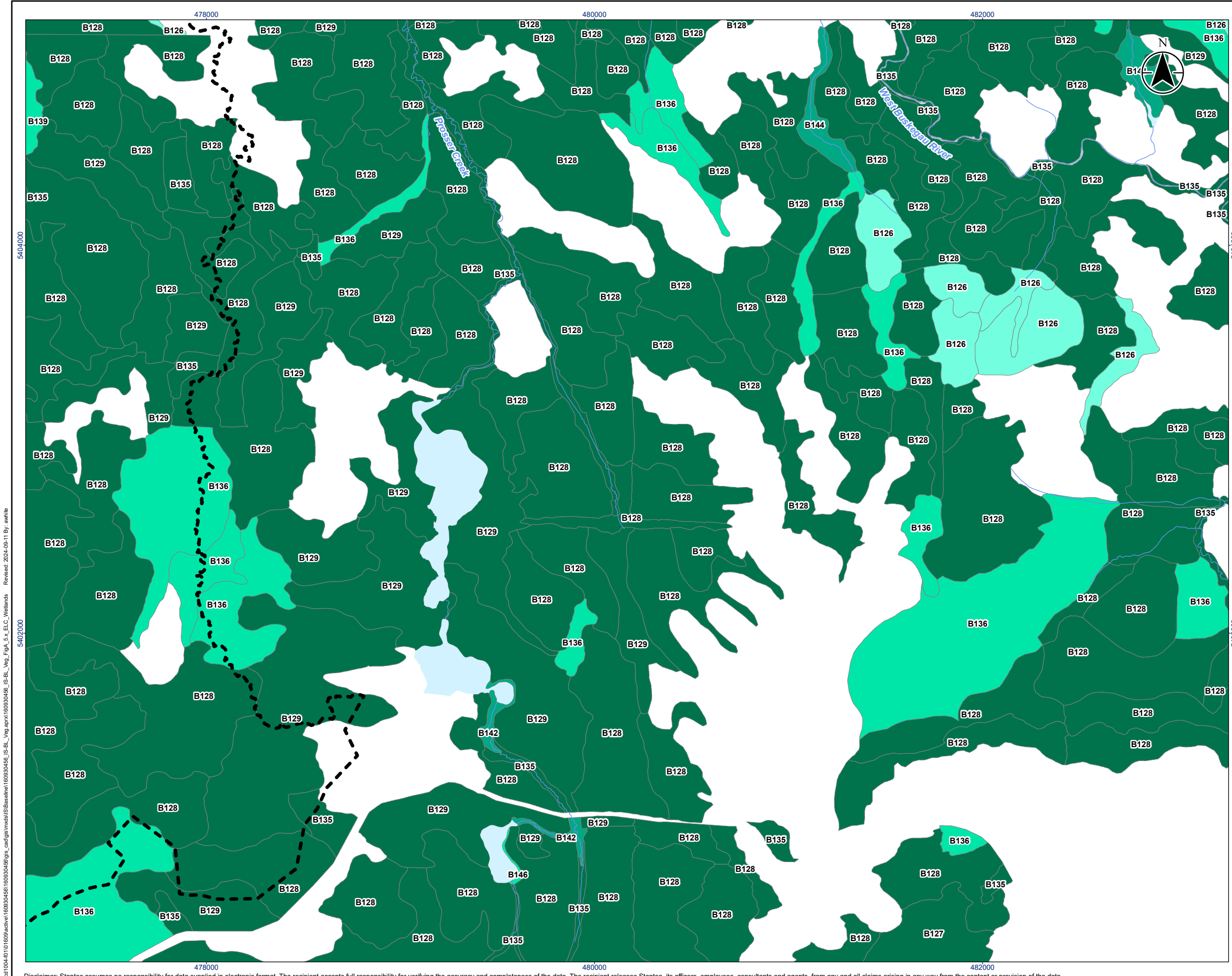


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11
 160930456 REVA


Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project


Figure No.: **A.5.17**
 Title: **Wetlands in the Local Study Area**


V:\1004-10109\active\160930456\gis_data\gis_md\160930456\ls-bl_vg_fig_a_5x_17\fig_a_5x_17.mxd
 Reviser: 2024-09-11 By: awhite
 160930456\160930456\gis_md\160930456\ls-bl_vg_fig_a_5x_17\fig_a_5x_17.mxd




Legend

 Local Study Area





 Hydro Line

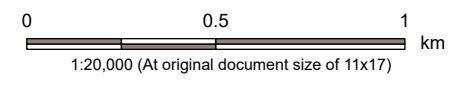
 Watercourse (Permanent)

 Waterbody

Ecological Land Classification

Wetland

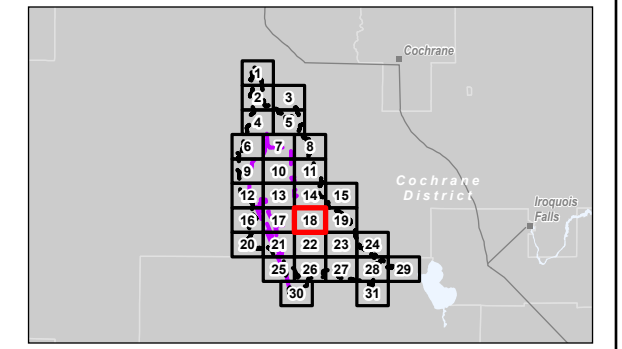
-  Bog
-  Fen
-  Meadow Marsh
-  Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N

2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



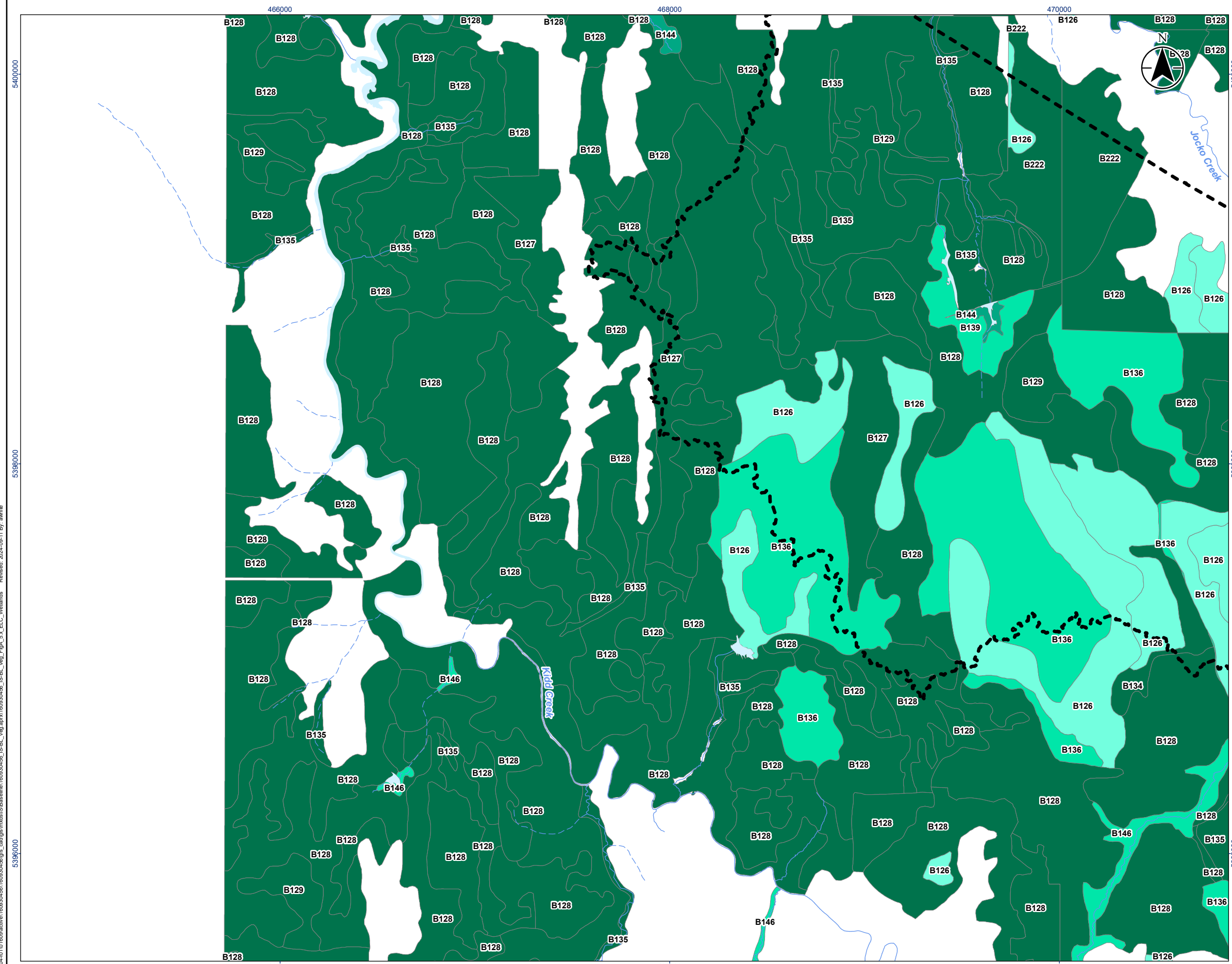
Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11

Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

Figure No. **A.5.18**

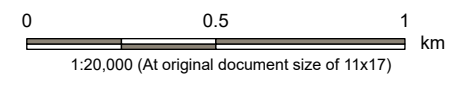
Title **Wetlands in the Local Study Area**

V:\1004-10109\active\160930456\gis_base\160930456\gis_base\160930456\160930456_EI_C_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite
 V:\1004-10109\active\160930456\gis_base\160930456\160930456_EI_C_Wetlands_2024-09-11_By: awhite

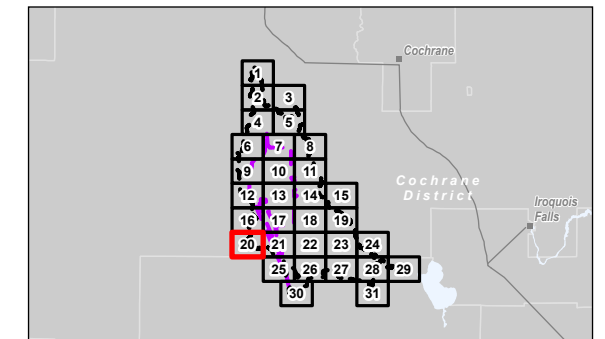


Legend

	Local Study Area		Wetland
	Watercourse (Intermittent)		Bog
	Watercourse (Permanent)		Fen
	Waterbody		Meadow Marsh
			Swamp



Notes
 1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

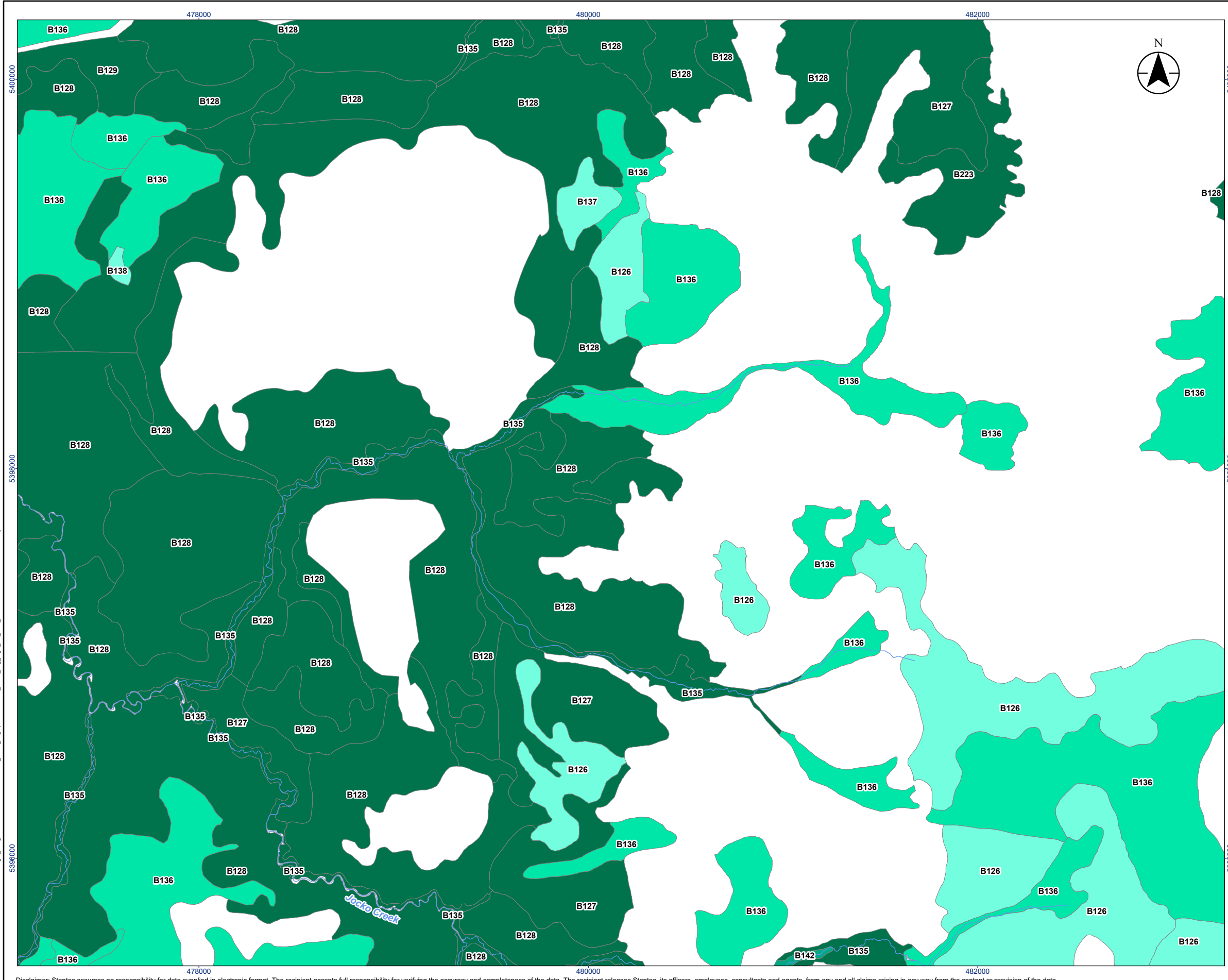


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by: awhite on 2024-09-11


Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project


Figure No.: **A.5.20**

Title: **Wetlands in the Local Study Area**







Legend

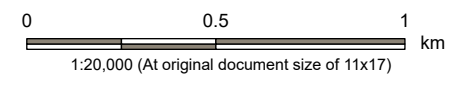
 Local Study Area

 Watercourse (Permanent)

Ecological Land Classification

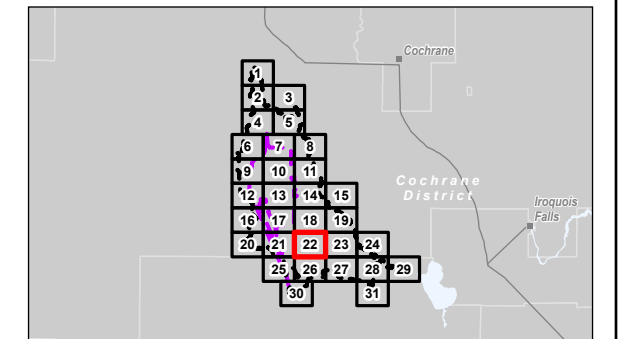
Wetland

-  Bog
-  Fen
-  Meadow Marsh
-  Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

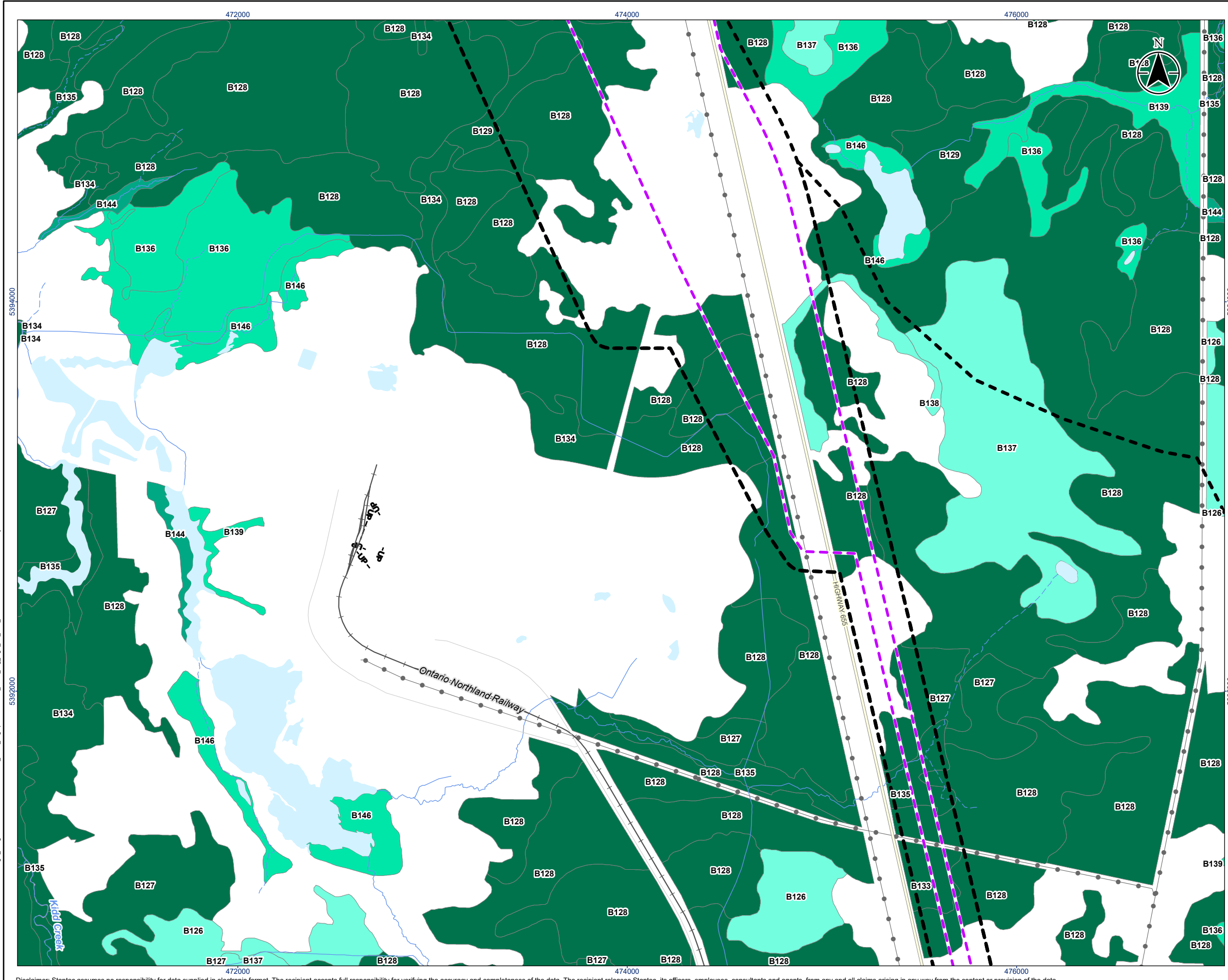


Project Location: Timmins, Ontario
 Prepared by: awhite on 2024-09-11


Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project


Figure No.: **A.5.22**
 Title: **Wetlands in the Local Study Area**

V:\1004-10\1009\active\160930456\gis_data\160930456\gis_data\160930456\160930456_L5-EL_Veg_Fig_A_5x_ELC_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite




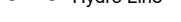


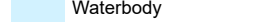



Legend

Project Area
 Project Area



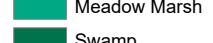

Local Study Area
 Local Study Area

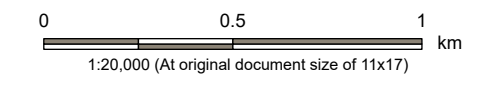
Base Features

-  Major Road
-  Minor Road
-  Railway
-  Hydro Line
-  Unknown Pipeline
-  Watercourse (Intermittent)
-  Watercourse (Permanent)
-  Waterbody

Ecological Land Classification

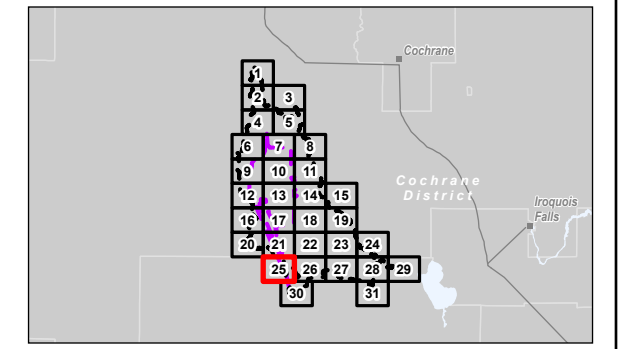
Wetland

-  Bog
-  Fen
-  Meadow Marsh
-  Swamp



Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

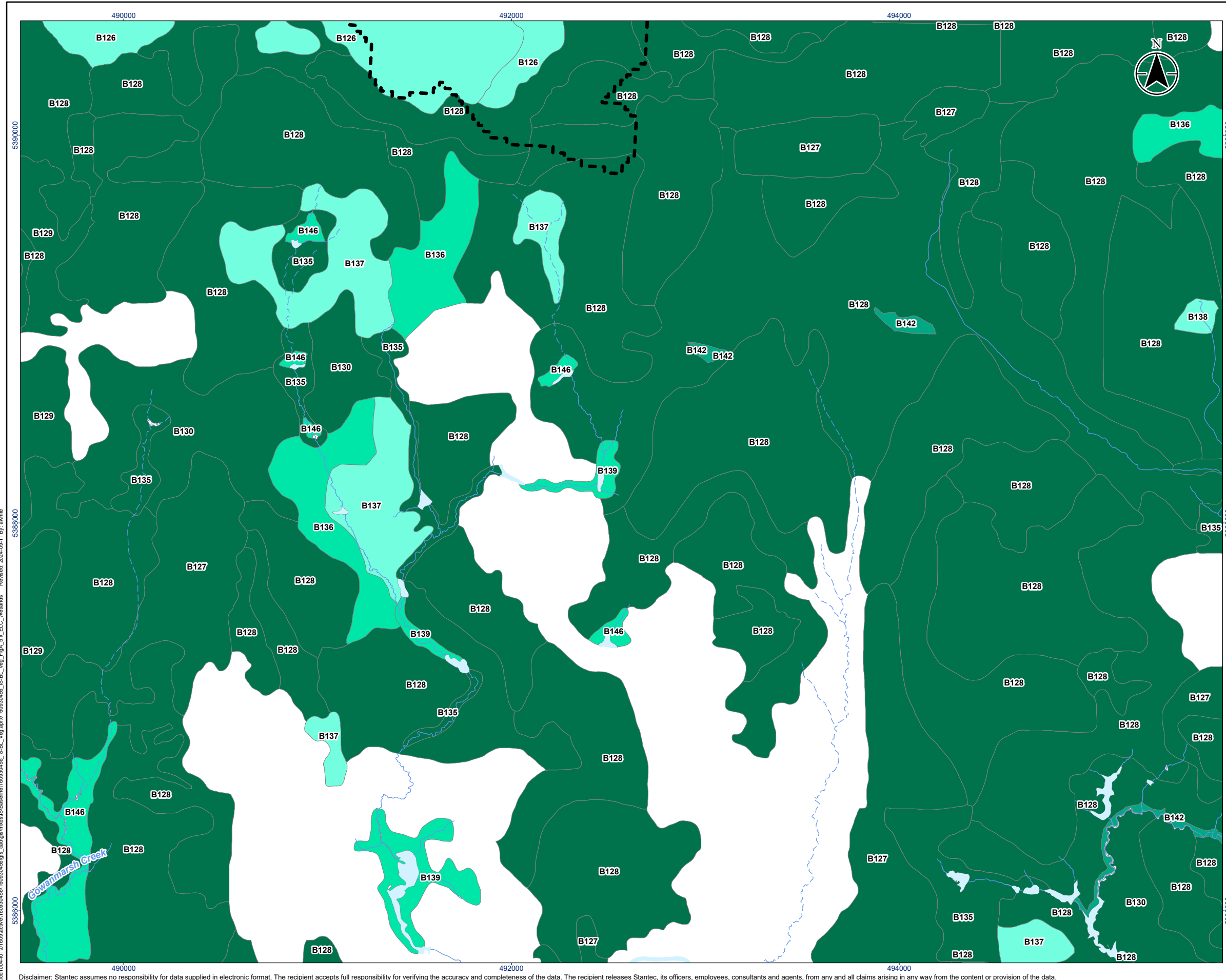


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11









Client/Project: Canada Nickel Company (CNC)
 Crawford Nickel Project

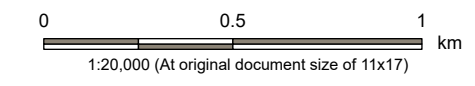
Figure No.: **A.5.25**
 Title: **Wetlands in the Local Study Area**

V:\1004-10\160930456\160930456\gis_data\mxd\160930456\160930456_gis_data\mxd\160930456\160930456_ELC_Wetlands_2024-09-11_By: awhite
 Revised: 2024-09-11 By: awhite



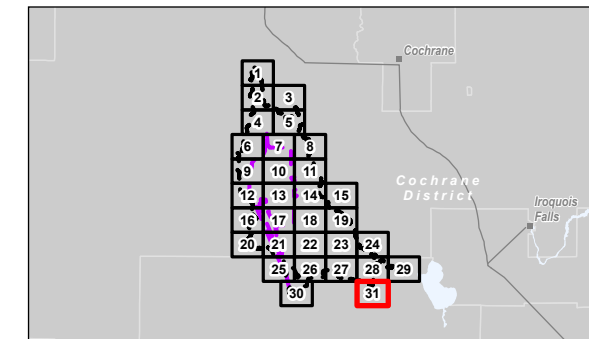
Legend

 Local Study Area	Ecological Land Classification
 Watercourse (Intermittent)	Wetland
 Watercourse (Permanent)	 Bog
 Waterbody	 Fen
	 Meadow Marsh
	 Swamp



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.

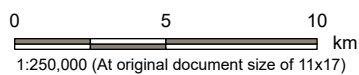
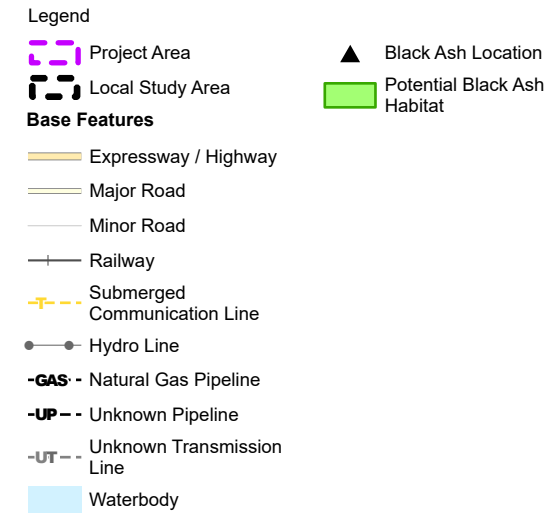
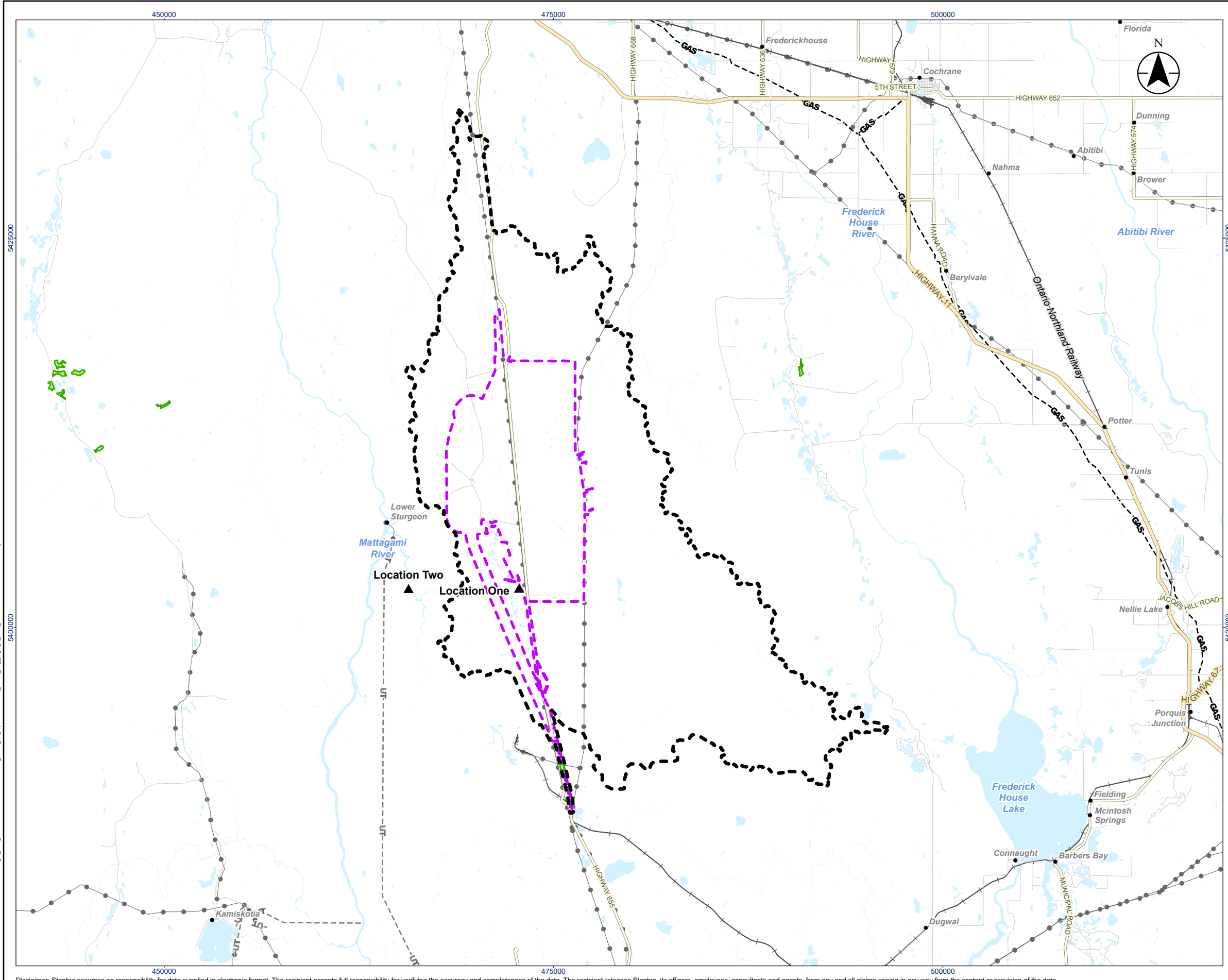


Project Location: Timmins, Ontario
 160930456 REVA
 Prepared by awhite on 2024-09-11

Client/Project:
 Canada Nickel Company (CNC)
 Crawford Nickel Project

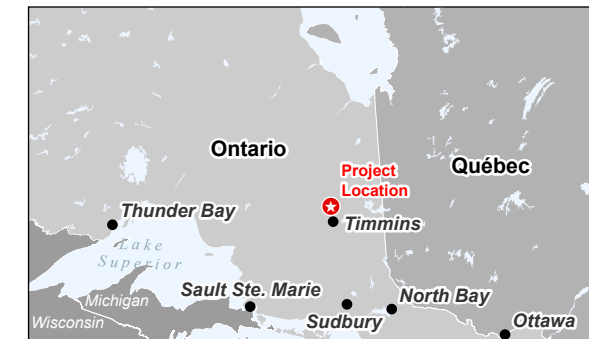
Figure No.
A.5.31
 Title
Wetlands in the Local Study Area

V:\004-10109\active\160930456\gis_cad\gis_md\160930456\160930456_gis_md\160930456\160930456_EI_C_Wetlands_2024-09-11_By: awhite_2024-09-11



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.



Project Location: Timmins, Ontario 160930456 REVA
Prepared by: awhite on 2024-09-23

Client/Project:
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.6
Title
Species at Risk and Species of Conservation Concern in the Local Study Area

Appendix B Photolog



Photo 1 Ecosite: B082. Fresh Clayey, Jack pine and Black spruce dominated.



Photo 2: Ecosite B101. Fresh Silty to Fine. Spruce and Fir Conifer dominated.



Photo 3: Ecosite: B104. Fresh, Silty to Fine Loamy. Aspen and Birch hardwood.



Photo 4: Ecosite: B114. Moist, Fine soil, with mostly Conifer species. Black Spruce dominated.



Photo 5: Ecosite: B119. Tall, treed Birch hardwood.



Photo 6: Ecosite: B126. Treed bog.



Photo 7: Ecosite: B127. Poor Conifer Swamp.



Photo 8: Ecosite: B128. Intermediate Conifer Swamp.



Photo 9: Ecosite: B129. Rich Conifer Swamp.



Photo 10: Ecosite: B135. Organic Thicket Swamp.



Photo 11: Ecosite: B136. Sparse Treed Fen.



Photo 12: Ecosite: B139. Poor Fen.



Photo 13: Ecosite: B140. Rich Fen on either side of an access road.



Photo 14: Ecosite: B223. Mineral Intermediate Conifer Swamp near access road.

Appendix C Description of Ecosites in the Local Study Area

Description of Ecosites in the Local Study Area

Habitat Type	Community Type	Ecosite Code	Ecosite Name	Ecosite Description	
Upland	Coniferous forest	B012	Very Shallow, Dry to Fresh: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B026	Very Shallow, Humid: Conifer	Mixedwood, conifer canopy	
		B034	Dry, Sandy: Jack Pine - Black Spruce Dominated	black spruce, jack pine and white birch >90% total cover	
		B035	Dry, Sandy: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B050	Dry to Fresh, Coarse: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B052	Dry to Fresh, Coarse: Spruce - Fir Conifer	Conifer species mostly spruce species and/or balsam fir	
		B065	Moist, Coarse: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B066	Moist, Coarse: Hemlock - Cedar Conifer	Conifer species mostly cedar and/or Eastern hemlock	
		B067	Moist, Coarse: Spruce - Fir Conifer	Conifer species mostly black spruce and/or spruce species	
		B068	Moist, Coarse: Conifer	Conifer species, moist/ course soil	
		B082	Fresh, Clayey jack Pine - Black Spruce Dominated	black spruce, jack pine and white birch >90% total cover	
		B083	Fresh, Clayey: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or Pine species	
		B085	Fresh, Clayey Spruce - Fir Conifer	Conifer species mostly black spruce and/or pine species	
		B098	Fresh, Silty to Fine Loamy jack Pine - Black Spruce Dominated	black spruce dominated, jack pine and white birch >90% total cover	
		B099	Fresh, Silty to Fine Loamy: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B101	Fresh, Silty to Fine Loamy: Spruce - Fir Conifer	Conifer species mostly black spruce and/or pines	
		B102	Fresh, Silty to Fine Loamy: Conifer	Conifer species with silty/loamy sand	
		B114	Moist, Fine: Pine - Black Spruce Conifer	Conifer species mostly black spruce and/or pines	
		B115	Moist, Fine: Hemlock- Cedar Conifer	Conifer species mostly cedar and/or eastern hemlock	
		B116	Moist, Fine: Spruce - Fir Conifer	Conifer species mostly black spruce and/or pines	
	B117	Moist, Fine: Conifer	Coniferous cover with moist/fine soil		
		Deciduous Forest	B040	Dry, Sandy: Aspen - Birch Hardwood	Hardwood species mostly Birch and/or poplar species
			B055	Dry to Fresh, Coarse: Aspen - Birch Hardwood	
	B070		Moist, Coarse: Aspen - Birch Hardwood		
	B088		Fresh, Clayey: Aspen - Birch Hardwood		
	B104		Fresh, Silty to Fine Loamy Aspen - Birch Hardwood		
	B119		Moist, Fine: Aspen - Birch Hardwood		

Description of Ecosites in the Local Study Area

Habitat Type	Community Type	Ecosite Code	Ecosite Name	Ecosite Description
Wetland	Bog	B126	Treed Bog	Sparse canopy consisting of black spruce, tamarack, and Speckled alder.
		B137	Sparse Treed Bog	tamarack is less than 10% of the canopy
		B138	Open Bog	Hydrologically isolated, absence of fen indicators
	Fen	B136	Sparse Treed Fen	Canopy and subcanopy consisting of black spruce, tamarack, Speckled alder, and willows
		B139	Poor Fen	Subcanopy of black spruce. Ground layer consisting of sedges and bulrush
		B140	Open Moderately Rich Fen	Open canopy, understory layer dominated by Speckled alder
				Extremely rich fen indicators, patterning on the surface of the fen
		B141	Open Extremely Rich Fen	
		B146	Open Shore Fen	Floating mat of sphagnum or sedge
	Marsh			Found near small creeks and around watercourses. Open, and shallow marsh
		B142	Mineral Meadow Marsh	Willows present in low density. Understory consists of sedges and cattails
		B144	Organic Meadow Marsh	
	Swamp	B127	Poor Conifer Swamp	Canopy and subcanopy consisting of black spruce, Balsam fir, and tamarack. Many shrubs present in this ecosite
		B128	Intermediate Conifer Swamp	Dominated by black spruce and tamarack. Pale bog laurel and Small bog cranberry are dominant shrub species
		B129	Rich Conifer Swamp	Mostly white cedar with organic layer >40cm
		B133	Hardwood Swamp	Some hardwood and coniferous species present
		B134	Mineral Thicket Swamp	Tall deciduous shrub cover, mineral substrate present
		B135	Organic Thicket Swamp	Found near small creeks and around watercourses
		B222	Mineral Poor Conifer swamp	Dominated by speckled alder, organic layer is <40cm
		B223	Mineral Intermediate Conifer Swamp	Full canopy of black spruce with stunted tamarack

Appendix D Vascular Plant List

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Balsam Fir	<i>Abies balsamea</i>	conifers	S5	-	-	-
Mountain Maple	<i>Acer spicatum</i>	dicots	S5	-	-	-
Common Yarrow	<i>Achillea millefolium</i>	dicots	SE5?	-	-	-
Red Baneberry	<i>Actaea rubra</i>	dicots	S5	-	-	-
Redtop	<i>Agrostis gigantea</i>	monocots	SE5	-	-	-
Bentgrass sp.	<i>Agrostis sp.</i>	monocots	-	-	-	-
Water Plantain	<i>Alisma plantago-aquatica</i>	monocots	-	-	-	-
Speckled Alder	<i>Alnus incana ssp. rugosa</i>	dicots	S5	-	-	-
Serviceberry sp.	<i>Amelanchier sp.</i>	dicots	-	-	-	-
Pearly Everlasting	<i>Anaphalis margaritacea</i>	dicots	S5	-	-	-
Bog Rosemary	<i>Andromeda polifolia</i>	dicots	S5	-	-	-
Canada Anemone	<i>Anemonastrum canadense</i>	dicots	S5	-	-	-
Wood Anemone	<i>Anemone quinquefolia</i>	dicots	S5	-	-	-
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	dicots	S5	-	-	-
Hemp Dogbane	<i>Apocynum cannabinum</i>	dicots	S5	-	-	-
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	dicots	S5	-	-	-
American Spikenard	<i>Aralia racemosa</i>	dicots	S5	-	-	-
Black Chokeberry	<i>Aronia melanocarpa</i>	dicots	S5	-	-	-
Common Lady Fern	<i>Athyrium filix-femina</i>	apteridophytes	S5	-	-	-
Paper Birch	<i>Betula papyrifera</i>	dicots	S5	-	-	-
Bog Birch	<i>Betula pumila</i>	dicots	S5	-	-	-
Devil's Beggarticks	<i>Bidens frondosa</i>	dicots	S5	-	-	-
Rattlesnake Fern	<i>Botrypus virginianus</i>	apteridophytes	S5	-	-	-
Northern Shorthusk	<i>Brachyelytrum aristosum</i>	monocots	S5?	-	-	-
Watershield	<i>Brasenia schreberi</i>	dicots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Smooth Brome	<i>Bromus inermis</i>	monocots	SE5	-	-	-
Bluejoint Reedgrass	<i>Calamagrostis canadensis</i>	monocots	S5	-	-	-
Wild Calla	<i>Calla palustris</i>	monocots	S5	-	-	-
Marsh Bellflower	<i>Campanula aparinoides</i>	dicots	S5	-	-	-
Brownish Sedge	<i>Carex brunnescens</i>	monocots	S5	-	-	-
Hoary Sedge	<i>Carex canescens</i>	monocots	S5	-	-	-
Lesser Panicked Sedge	<i>Carex diandra</i>	monocots	S5	-	-	-
Two-seeded Sedge	<i>Carex disperma</i>	monocots	S5	-	-	-
Meagre Sedge	<i>Carex exilis</i>	monocots	S5	-	-	-
Heath Sedge	<i>Carex flacca</i>	monocots	SE2	-	-	-
Yellow Sedge	<i>Carex flava</i>	monocots	S5	-	-	-
Limestone Meadow Sedge	<i>Carex granularis</i>	monocots	S5	-	-	-
Bladder Sedge	<i>Carex intumescens</i>	monocots	S5	-	-	-
Lake Sedge	<i>Carex lacustris</i>	monocots	S5	-	-	-
Bristle-stalked Sedge	<i>Carex leptalea</i>	monocots	S5	-	-	-
Boreal Bog Sedge	<i>Carex magellanica</i>	monocots	S5	-	-	-
Sedge sp.	<i>Carex sp.</i>	monocots	-	-	-	-
Awl-fruited Sedge	<i>Carex stipata</i>	monocots	S5	-	-	-
Tussock Sedge	<i>Carex stricta</i>	monocots	S5	-	-	-
Three-seeded Sedge	<i>Carex trisperma</i>	monocots	S5	-	-	-
Northern Beaked Sedge	<i>Carex utriculata</i>	monocots	S5	-	-	-
Greenish Sedge	<i>Carex viridula</i>	monocots	S5	-	-	-
Fox Sedge	<i>Carex vulpinoidea</i>	monocots	S5	-	-	-
Field Chickweed	<i>Cerastium arvense</i>	dicots	SE2	-	-	-
Leatherleaf	<i>Chamaedaphne calyculata</i>	dicots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Fireweed	<i>Chamaenerion angustifolium</i>	dicots	S5	-	-	-
Common Lamb's-quarters	<i>Chenopodium album</i>	dicots	SE5	-	-	-
Bulbous Water-hemlock	<i>Cicuta bulbifera</i>	dicots	S5	-	-	-
Canada Thistle	<i>Cirsium arvense</i>	dicots	SE5	-	-	-
Swamp Thistle	<i>Cirsium muticum</i>	dicots	S5	-	-	-
Bull Thistle	<i>Cirsium vulgare</i>	dicots	SE5	-	-	-
Interrupted Fern	<i>Claytosmunda claytoniana</i>	apteridophytes	S5	-	-	-
Yellow Clintonia	<i>Clintonia borealis</i>	monocots	S5	-	-	-
Marsh Cinquefoil	<i>Comarum palustre</i>	dicots	S5	-	-	-
Goldthread	<i>Coptis trifolia</i>	dicots	S5	-	-	-
Early Coralroot	<i>Corallorhiza trifida</i>	monocots	S5	-	-	-
Bunchberry	<i>Cornus canadensis</i>	dicots	S5	-	-	-
Grey Dogwood	<i>Cornus racemosa</i>	dicots	S5	-	-	-
Round-leaved Dogwood	<i>Cornus rugosa</i>	dicots	S5	-	-	-
Red-osier Dogwood	<i>Cornus sericea</i>	dicots	S5	-	-	-
Beaked Hazelnut	<i>Corylus cornuta</i>	dicots	S5	-	-	-
Wild Carrot	<i>Daucus carota</i>	dicots	SE5	-	-	-
Northern Bush-honeysuckle	<i>Diervilla lonicera</i>	dicots	S5	-	-	-
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	apteridophytes	S5	-	-	-
Crested Wood Fern	<i>Dryopteris cristata</i>	apteridophytes	S5	-	-	-
Quackgrass	<i>Elymus repens</i>	monocots	SE5	-	-	-
Alder-leaved Buckthorn	<i>Endotropis alnifolia</i>	dicots	S5	-	-	-
Marsh Willowherb	<i>Epilobium palustre</i>	dicots	S5	-	-	-
Field Horsetail	<i>Equisetum arvense</i>	apteridophytes	S5	-	-	-
Water Horsetail	<i>Equisetum fluviatile</i>	apteridophytes	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Common Scouring-rush	<i>Equisetum hyemale</i>	apteridophytes	S5	-	-	-
Marsh Horsetail	<i>Equisetum palustre</i>	apteridophytes	S5	-	-	-
Woodland Horsetail	<i>Equisetum sylvaticum</i>	apteridophytes	S5	-	-	-
Variegated Scouring-rush	<i>Equisetum variegatum</i>	apteridophytes	S5	-	-	-
Annual Fleabane	<i>Erigeron annuus</i>	dicots	S5	-	-	-
Philadelphia Fleabane	<i>Erigeron philadelphicus</i>	dicots	S5	-	-	-
Cottongrass sp.	<i>Eriophorum sp.</i>	monocots	-	-	-	-
Large-leaved Aster	<i>Eurybia macrophylla</i>	dicots	S5	-	-	-
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	dicots	S5	-	-	-
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i>	dicots	S5	-	-	-
Wild Strawberry	<i>Fragaria virginiana</i>	dicots	S5	-	-	-
Glossy Buckthorn	<i>Frangula alnus</i>	dicots	SE5	-	-	-
Black Ash	<i>Fraxinus nigra</i>	dicots	S3	-	-	-
Small Round-leaved Orchid	<i>Galearis rotundifolia</i>	dicots	S4	-	-	-
Bifid hemp-nettle	<i>Galeopsis bifida</i>	dicots	SE	-	-	-
Rough Bedstraw	<i>Galium asprellum</i>	dicots	S5	-	-	-
Common Marsh Bedstraw	<i>Galium palustre</i>	dicots	S5	-	-	-
Three-petalled Bedstraw	<i>Galium trifidum</i>	dicots	S5	-	-	-
Creeping Snowberry	<i>Gaultheria hispidula</i>	dicots	S5	-	-	-
Eastern Teaberry	<i>Gaultheria procumbens</i>	dicots	S5	-	-	-
Yellow Avens	<i>Geum aleppicum</i>	dicots	S5	-	-	-
Water Avens	<i>Geum rivale</i>	dicots	S5	-	-	-
Canada Mannagrass	<i>Glyceria canadensis</i>	monocots	S5	-	-	-
Fowl Mannagrass	<i>Glyceria striata</i>	monocots	S5	-	-	-
Dwarf Rattlesnake-plantain	<i>Goodyera repens</i>	monocots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Common Oak Fern	<i>Gymnocarpium dryopteris</i>	apteridophytes	S5	-	-	-
Common Hawkweed	<i>Hieracium vulgatum</i>	dicots	SE2?	-	-	-
Shining Firmoss	<i>Huperzia lucidula</i>	apteridophytes	S5	-	-	-
Common St. John's-wort sp.	<i>Hypericum perforatum</i>	dicots	SE5	-	-	-
Spotted Jewelweed	<i>Impatiens capensis</i>	dicots	S5	-	-	-
Yellow Iris	<i>Iris pseudacorus</i>	monocots	SE4	-	-	-
Harlequin Blue Flag	<i>Iris versicolor</i>	monocots	S5	-	-	-
Rush sp.	<i>Juncus sp.</i>	monocots	-	-	-	-
Sheep Laurel	<i>Kalmia angustifolia</i>	dicots	S5	-	-	-
Pale Bog Laurel	<i>Kalmia polifolia</i>	dicots	S5	-	-	-
Tamarack	<i>Larix laricina</i>	conifers	S5	-	-	-
Oxeye Daisy	<i>Leucanthemum vulgare</i>	dicots	SE5	-	-	-
Twinflower	<i>Linnaea borealis</i>	dicots	S5	-	-	-
Kalm's Lobelia	<i>Lobelia kalmii</i>	dicots	S5	-	-	-
Canada Fly Honeysuckle	<i>Lonicera canadensis</i>	dicots	S5	-	-	-
Hairy Honeysuckle	<i>Lonicera hirsuta</i>	dicots	S5	-	-	-
Swamp Fly-honeysuckle	<i>Lonicera oblongifolia</i>	dicots	S5	-	-	-
Mountain Fly-honeysuckle	<i>Lonicera villosa</i>	dicots	S5	-	-	-
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	dicots	SE5	-	-	-
Club moss sp.	<i>Lycopodium sp.</i>	apteridophytes	-	-	-	-
American Water-horehound	<i>Lycopus americanus</i>	dicots	S5	-	-	-
Northern Water-horehound	<i>Lycopus uniflorus</i>	dicots	S5	-	-	-
Northern Starflower	<i>Lysimachia borealis</i>	dicots	S5	-	-	-
Purple Loosestrife	<i>Lythrum salicaria</i>	dicots	SE5	-	-	-
Wild Lily-of-the-valley	<i>Maianthemum canadense</i>	monocots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Large False Solomon's Seal	<i>Maianthemum racemosum</i>	monocots	S5	-	-	-
Three-leaved False Solomon's Seal	<i>Maianthemum trifolium</i>	monocots	S5	-	-	-
Wild Mint	<i>Mentha arvensis</i>	dicots	-	-	-	-
Bog Buckbean	<i>Menyanthes trifoliata</i>	dicots	S5	-	-	-
Naked Mitrewort	<i>Mitella nuda</i>	dicots	S5	-	-	-
One-flowered Wintergreen	<i>Moneses uniflora</i>	dicots	S5	-	-	-
Indian-Pipe	<i>Monotropa uniflora</i>	dicots	S5	-	-	-
White Mulberry	<i>Morus alba</i>	dicots	SE5	-	-	-
Variegated pond-lily	<i>Nuphar variegata</i>	dicots	S5	-	-	-
Sensitive Fern	<i>Onoclea sensibilis</i>	apteridophytes	S5	-	-	-
One-sided Wintergreen	<i>Orthilia secunda</i>	dicots	S5	-	-	-
Royal Fern	<i>Osmunda regalis</i>	apteridophytes	S5	-	-	-
Golden Groundsel	<i>Packera aurea</i>	dicots	S5	-	-	-
New York Fern	<i>Parathelypteris noveboracensis</i>	apteridophytes	S4S5	-	-	-
Fen Grass-of-Parnassus	<i>Parnassus glauca</i>	dicots	S5	-	-	-
Wild Parsnip	<i>Pastinaca sativa</i>	dicots	SE5	-	-	-
Spotted Lady's-thumb	<i>Persicaria maculosa</i>	dicots	SE5	-	-	-
Arctic Sweet Coltsfoot	<i>Petasites frigidus</i>	dicots	S5	-	-	-
Reed Canarygrass	<i>Phalaris arundinacea</i>	monocots	S5	-	-	-
Northern Beech Fern	<i>Phegopteris connectilis</i>	apteridophytes	S5	-	-	-
Common Timothy	<i>Phleum pratense</i>	monocots	SE5	-	-	-
Norway Spruce	<i>Picea abies</i>	conifers	SE3	-	-	-
White Spruce	<i>Picea glauca</i>	conifers	S5	-	-	-
Black Spruce	<i>Picea mariana</i>	conifers	S5	-	-	-
Eastern White Pine	<i>Pinus strobus</i>	conifers	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Common Plantain	<i>Plantago major</i>	dicots	SE5	-	-	-
Tall Northern Green Orchid	<i>Platanthera aquilonis</i>	monocots	S5	-	-	-
Lake Huron Green Orchid	<i>Platanthera huronensis</i>	monocots	SU	-	-	-
Lesser Round-leaved Orchid	<i>Platanthera orbiculata</i>	monocots	S4	-	-	-
Canada Bluegrass	<i>Poa compressa</i>	monocots	SE5	-	-	-
Fowl Bluegrass	<i>Poa palustris</i>	monocots	S5	-	-	-
Balsam Poplar	<i>Populus balsamifera</i>	dicots	S5	-	-	-
Trembling Aspen	<i>Populus tremuloides</i>	dicots	S5	-	-	-
Rough Cinquefoil	<i>Potentilla norvegica</i>	dicots	S5	-	-	-
Common Self-heal	<i>Prunella vulgaris</i>	dicots	S5	-	-	-
Black Cherry	<i>Prunus serotina</i>	dicots	S5	-	-	-
Chokecherry	<i>Prunus virginiana</i>	dicots	S5	-	-	-
Bracken Fern	<i>Pteridium aquilinum</i>	apteridophytes	S5	-	-	-
Ostrich Plume Moss	<i>Ptilium crista-castrensis</i>	moss	-	-	-	-
Pink Pyrola	<i>Pyrola asarifolia</i>	dicots	S5	-	-	-
Common Buttercup	<i>Ranunculus acris</i>	dicots	SE5	-	-	-
Common Labrador Tea	<i>Rhododendron groenlandicum</i>	dicots	S5	-	-	-
Eastern Prickly Gooseberry	<i>Ribes cynosbati</i>	dicots	S5	-	-	-
Skunk Currant	<i>Ribes glandulosum</i>	dicots	S5	-	-	-
Bristly Black Currant	<i>Ribes lacustre</i>	dicots	S5	-	-	-
European Red Currant	<i>Ribes rubrum</i>	dicots	SE5	-	-	-
Swamp Red Currant	<i>Ribes triste</i>	dicots	S5	-	-	-
Prickly Rose	<i>Rosa acicularis</i>	dicots	S5	-	-	-
Cloudberry	<i>Rubus chamaemorus</i>	dicots	S5	-	-	-
Bristly Dewberry	<i>Rubus hispidus</i>	dicots	S4	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Red Raspberry	<i>Rubus idaeus</i>	dicots	S5	-	-	-
Black Raspberry	<i>Rubus occidentalis</i>	dicots	S5	-	-	-
Dwarf Raspberry	<i>Rubus pubescens</i>	dicots	S5	-	-	-
Curled Dock	<i>Rumex crispus</i>	dicots	SE5	-	-	-
Broad-leaved Arrowhead	<i>Sagittaria latifolia</i>	monocots	S5	-	-	-
Bebb's Willow	<i>Salix bebbiana</i>	dicots	S5	-	-	-
Pussy Willow	<i>Salix discolor</i>	dicots	S5	-	-	-
Shining Willow	<i>Salix lucida</i>	dicots	S5	-	-	-
Bog Willow	<i>Salix pedicellaris</i>	dicots	S5	-	-	-
Tea-leaved Willow	<i>Salix planifolia</i>	dicots	S5	-	-	-
Balsam Willow	<i>Salix pyrifolia</i>	dicots	S5	-	-	-
Autumn Willow	<i>Salix serissima</i>	dicots	S5	-	-	-
Willow sp.	<i>Salix sp.</i>	dicots	-	-	-	-
Red Elderberry	<i>Sambucus racemosa</i>	dicots	S5	-	-	-
Bloodroot	<i>Sanguinaria canadensis</i>	dicots	S5	-	-	-
Northern Pitcher Plant	<i>Sarracenia purpurea</i>	dicots	S5	-	-	-
Purple False Melic	<i>Schizachne purpurascens</i>	monocots	S5	-	-	-
Black-girdled Bulrush	<i>Scirpus atrocinctus</i>	monocots	S5	-	-	-
Dark-green Bulrush	<i>Scirpus atrovirens</i>	monocots	S5	-	-	-
Common Woolly Bulrush	<i>Scirpus cyperinus</i>	monocots	S5	-	-	-
Red-tinged Bulrush	<i>Scirpus microcarpus</i>	monocots	S5	-	-	-
Marsh Skullcap	<i>Scutellaria galericulata</i>	dicots	S5	-	-	-
Common Water-parsnip	<i>Sium suave</i>	dicots	S5	-	-	-
Tall Goldenrod	<i>Solidago altissima</i>	dicots	S5	-	-	-
Canada Goldenrod	<i>Solidago canadensis</i>	dicots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Giant Goldenrod	<i>Solidago gigantea</i>	dicots	S5	-	-	-
Elegant Goldenrod	<i>Solidago lepida</i>	dicots	S4?	-	-	-
Multi-rayed Goldenrod	<i>Solidago multiradiata</i>	dicots	S4S5	-	-	-
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>	dicots	S5	-	-	-
Bog Goldenrod	<i>Solidago uliginosa</i>	dicots	S5	-	-	-
Field Sow-thistle	<i>Sonchus arvensis</i>	dicots	SE5	-	-	-
American Mountain-ash	<i>Sorbus americana</i>	dicots	S5	-	-	-
Showy Mountain-ash	<i>Sorbus decora</i>	dicots	S5	-	-	-
American Burreed	<i>Sparganium americanum</i>	monocots	S5	-	-	-
Sphagnum sp.	<i>Sphagnum sp.</i>	moss	-	-	-	-
Stiff Clubmoss	<i>Spinulum annotinum</i>	apteridophytes	S5	-	-	-
White Meadowsweet	<i>Spiraea alba</i>	dicots	S5	-	-	-
Clasping-leaved Twisted-stalk	<i>Streptopus amplexifolius</i>	monocots	S5	-	-	-
Rose twisted-stalk	<i>Streptopus lanceolatus</i>	monocots	S5	-	-	-
Aster sp.	<i>Symphyotrichum sp.</i>	dicots	S5	-	-	-
Lindley's Aster	<i>Symphyotrichum ciliolatum</i>	dicots	S5	-	-	-
Heart-leaved Aster	<i>Symphyotrichum cordifolium</i>	dicots	S5	-	-	-
Panicled Aster	<i>Symphyotrichum lanceolatum</i>	dicots	S5	-	-	-
Purple-stemmed Aster	<i>Symphyotrichum puniceum</i>	dicots	S5	-	-	-
Common Dandelion	<i>Taraxacum officinale</i>	dicots	SE5	-	-	-
Canada Yew	<i>Taxus canadensis</i>	conifers	S4	-	-	-
Tall Meadow-rue	<i>Thalictrum pubescens</i>	dicots	S5	-	-	-
Eastern White Cedar	<i>Thuja occidentalis</i>	conifers	S5	-	-	-
Virginia St. John's-wort	<i>Triadenum virginicum</i>	dicots	S4	-	-	-
Alpine Clubrush	<i>Trichophorum alpinum</i>	monocots	S5	-	-	-

Crawford Nickel Project: Vegetation, Riparian and Wetland Environments Supplemental Baseline Report
Appendix D Vascular Plant List
 September 30, 2024

Common Name	Scientific Name	Taxon Group	S-Rank	SARO	COSEWIC	SARA
Clubbrush sp.	<i>Trichophorum sp.</i>	monocots	-	-	-	-
Red Clover	<i>Trifolium pratense</i>	dicots	SE5	-	-	-
White Clover	<i>Trifolium repens</i>	dicots	SE5	-	-	-
Nodding Trillium	<i>Trillium cernuum</i>	monocots	S5	-	-	-
Narrow-leaved Cattail	<i>Typha angustifolia</i>	monocots	SE5	-	-	-
Broad-leaved Cattail	<i>Typha latifolia</i>	monocots	S5	-	-	-
(Typha angustifolia X Typha latifolia)	<i>Typha x glauca</i>	monocots	SNA	-	-	-
Early Lowbush Blueberry	<i>Vaccinium angustifolium</i>	dicots	S5	-	-	-
Velvet-leaved Blueberry	<i>Vaccinium myrtilloides</i>	dicots	S5	-	-	-
Small Cranberry	<i>Vaccinium oxycoccos</i>	dicots	S5	-	-	-
Squashberry	<i>Viburnum edule</i>	dicots	S5	-	-	-
Tufted Vetch	<i>Vicia cracca</i>	dicots	SE5	-	-	-
Violet Sp.	<i>Viola sp.</i>	dicots	-	-	-	-
Notes: S4 - Apparently Secure S5 - Secure SE - Exotic Species SU - Unrankable SNA - Not Applicable						