Appendix B.7.2

Birds and Bird Habitat Supplemental Baseline Report

Crawford Nickel Project: Birds and Bird Habitat Supplemental Baseline Report

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Prepared for:

Canada Nickel Company

Prepared by:

Stantec Consulting Ltd.

Limitations and Sign-off

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Table of Contents

List of Tables

List of Appendices

Acronyms and Abbreviations

ARU	Autonomous Recording Unit
BBS	Breeding Bird Survey
BC	Birds Canada
BCR	Bird Conservation Region
CBC	Christmas Bird Count
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EC	Environment Canada
ECCC	Environment and Climate Change Canada
END	endangered
ESA	*Endangered Species Act,* 2007
FRI	Forest Resources Inventory
GOC	Government of Canada
LIO	Land Information Ontario
LSA	Local Study Area
MECP	Ministry of the Environment, Conservation and Parks
MNR	Ministry of Natural Resources (formerly Ministry of Natural Resources and Forestry [MNRF])
NHIC	Natural Heritage Information Centre
OBBA	Ontario Breeding Bird Atlas
PA	Project Area
RSA	Regional Study Area

SAR	species at risk
SARA	*Species at Risk Act*
SC	special concern
SOCC	Species of Conservation Concern
S-rank	provincial sub-national rank
SWH	Significant Wildlife Habitat
THR	threatened

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 that would be located 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 assess the potential effects of the Project on various biophysical and socio-economic Valued Components, including an assessment of birds and bird habitat. This Birds and Bird Habitat Supplemental Baseline Report was prepared inform the Impact Statement for the Project. It has been prepared pursuant to the *Impact Assessment Act,* 2019 and in consideration of the Tailored Impact Statement Guidelines: Crawford Nickel Project (Appendix A.1 of the Impact Statement [TIS Guidelines]).

This report provides supplemental information to the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement), which summarizes the methods and results for field studies completed 2021 and 2023. The report uses background data from published literature, wildlife databases and websites, to supplement the field study results to report on the bird community and the habitat present to support various bird species guilds.

1.1 Objectives

The purpose of this Birds and Bird Habitat Supplemental Baseline Report is to summarize existing information about the baseline (i.e., pre-mine) condition of the bird community, including the diversity of species present, and habitat that is available to support the bird community near the Project. Information provided in this supplemental baseline report will be used to assess potential effects of Project components and activities on birds and bird habitat and develop appropriate mitigation in accordance with the TIS Guidelines. The objectives of this report are to:

- Describe the biodiversity of bird species and their habitats in the Project Area (PA), Local Study Area (LSA) and Regional Study Area (RSA) based on a desktop review of background data, reports and field results including:
  - Species occurrence and diversity, population status and distribution
  - Life cycle, seasonal presence, migration
  - Frequency and timing of occurrence
  - Seasonal distribution
  - Habitat associations
- Identify bird species of importance to Indigenous nations and important habitats associated with the species
- Identify bird species at risk (SAR) and species of conservation concern (SOCC) that may be present including important habitats associated with bird SAR and SOCC

- Identify applicable Bird Conservation Regions (BCR) and BCR strategies

1.2 Species at Risk

For this Project, SAR are defined as species that are:

- Listed on Schedule 1 of the *Species at Risk Act* (SARA) as extirpated, endangered or threatened
- Listed as extirpated, endangered or threatened under the Ontario *Endangered Species Act, 2007* (ESA)

1.3 Species of Conservation Concern

SOCC are defined as species that are:

- Assessed as extirpated, endangered, threatened, or special concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but have not yet been added to Schedule 1 of SARA
- Listed as special concern on the Species at Risk in Ontario List (Ontario Regulation 230/08) or as Special Concern on Schedule 1 of SARA
- Ranked as provincially rare in Ontario including species with provincial subnational ranks (S-ranks) of S1 (Critically Imperiled), S2 (Imperiled) or combinations thereof (e.g., S1S2)

Provincial ranks (S-ranks) are defined as follows:

- S1 - critically imperiled; usually fewer than 5 occurrences
- S2 - imperiled; usually fewer than 20 occurrences
- S3 - vulnerable; usually fewer than 100 occurrences
- S4 - apparently secure; uncommon but not rare, usually more than 100 occurrences
- S5 - secure; common, widespread, and abundant
- ? - S-rank followed by a “?” indicates the rank is uncertain

2 Spatial Boundaries

The following spatial boundaries were used to assess birds and bird habitat in the vicinity of the Project.

The **Project Area (PA)** encompasses the Project footprint and is the anticipated area of physical disturbance associated with the construction, operations and decommissioning/closure of the Project. The PA covers an area of 11,785 hectares (ha) (118 square kilometres [km^2]) and includes the following key Project components: the relocated 500 kV transmission lines, future Highway 655 Right-of-Way, rail line, site roads, Ore Stockpiles (West and East), Open Pit (Main and East Zones), Ponds (for collection and storage), Tailings Management Facility (TMF), and Impoundment Facility. The extent of the PA for the Project is shown on Figure A.1.

The **Local Study Area (LSA)** includes the area in which Project-related effects (direct or indirect) can be predicted or measured with a reasonable level of accuracy and confidence. The LSA for birds and bird habitat is identical to the Vegetation, Riparian and Wetland Environments LSA because changes in vegetation and wetlands may result in changes to birds and bird habitat. The LSA includes the 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 for birds and bird habitat is shown on Figure A.1.

The **Regional Study Area (RSA)** includes the area within which cumulative effects on birds and bird habitats are likely to occur, depending on the location of other past, present or reasonably foreseeable future projects or activities. The RSA for birds and bird habitat encompasses the PA and the LSA and was primarily based on major road networks that could be perceived as deterrents or impediments to movement. The extent of the RSA for birds and bird habitats is shown on Figure A.1.

3 Methods

Methods that were followed during the completion of the supplemental baseline report are summarized below.

3.1 Background Review

Background data sources from government agencies, non-governmental organizations and from background reports and published literature were reviewed to compile information on the occurrence, abundance, distribution, and habitat associations of birds in the LSA and RSA. This included a review of bird species of management concern that are known to occur or have potential to occur in the LSA and interact with the Project. Sensitive habitats and areas where birds may congregate during key time periods (i.e., nesting, migration, winter) were also identified. The following data sources that were reviewed for birds include:

- Christmas Bird Count (CBC; National Audubon Society 2023)
- eBird Canada (eBird 2024)
- Ontario Breeding Bird Atlas (BC et al. 2024)
- Ontario Nocturnal Owl Survey (BC and MNR 2024)
- North American Breeding Bird Survey (Ziolkowski et al. 2023)
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) online database (MNR 2024a)
- Natural Heritage Areas Make-a-Map Application (MNR 2024b)
- Critical Habitat for Species at Risk National Dataset – Canada (Government of Canada [GOC] 2024a)
- *Species at Risk Act* (SARA), Schedule 1 (GOC 2024b)
- Species at Risk in Ontario List (Ministry of the Environment, Conservation and Parks [MECP] 2024)
- Federal and provincial recovery strategies and management plans

3.1.1 Christmas Bird Count

Christmas Bird Count (CBC) data were reviewed to characterize the winter bird population near the Project. The CBC is North America's longest-running Citizen Science project (National Audubon Society 2023). Information is collected by volunteers on one day between December 14 and January 5 within a standard 24- km diameter count circle. All birds counted during the one-day period are recorded. Data from the Timmins CBC circle (2004, 2007, 2009-2023), the Iroquois Falls CBC circle (2003-2008, 2016-2021, 2023) and the Smooth Rock Falls CBC circle (2019- 2023) were reviewed for information on the presence and relative abundance of wintering birds, including SAR and SOCC. The location of these

CBC circles are shown on Figure A.2. Across all survey years, 52 bird species were recorded within the Timmins CBC count circle, 53 species were recorded within the Iroquois Falls CBC count circle, and 32 species were recorded within the Smooth Rock Falls CBC count circle (Table 3.1).

Table 3.1 Number of Species and Level of Effort during the Timmins, Iroquois Falls and Smooth Rock Falls Christmas Bird Counts from 2003-2023

Year Surveyed	Timmins		Iroquois Falls		Smooth Rock Falls[2]	
	Number of Species	Level of Effort (hours)	Number of Species	Level of Effort (hours)	Number of Species	Level of Effort (hours)
2003	-	-	22	21	-	-
2004	18	19	22	20	-	-
2005	-	-	24	27	-	-
2006	-	-	24	26	-	-
2007	11	16	19	21	-	-
2008	-	-	27	28	-	-
2009	15	6	-	-	-	-
2010	17	0	-	-	-	-
2011	20	21	-	-	-	-
2012	16	19	-	-	-	-
2013	20	22	-	-	-	-
2014	20	19	-	-	-	-
2015	22	32	-	-	-	-
2016	22	25	18	10	-	-
2017	24	24	19	25	-	-
2018	22	31	19	31	-	-
2019	30	33	26	19	14	12
2020	25	18	23	33	20	18
2021	22	27	20	18	19	19
2022	21	30	-	-	15,16	11, 13
2023	23	35	25	25	19	22

Notes
1. Survey effort was rounded to the nearest whole number
2. Smooth Rock Falls had two counts in 2022.

3.1.2 eBird Canada

Data from eBird Canada (2024) were reviewed to identify records of SAR or SOCC that were observed in the LSA or RSA. eBird Canada is managed by Birds Canada (BC) in collaboration with Cornell Lab of Ornithology and Québec Oiseaux. eBird is a program that allows volunteers to track the birds that they observe and submit their observations through an online portal. eBird is a global database that contains data on bird abundance and distribution at a variety of spatial and temporal scales. eBird data for the RSA from 2013-2023 were reviewed; the dataset included 51,641 records of 284 different species (eBird 2024). Table 3.2 below summarizes the number of species and number of records (i.e. observations) that were reported for the RSA from 2013-2023 (eBird 2024).

Table 3.2 Summary eBird Records within the RSA (2012-2023)

Year Surveyed	Number of Species	Number of Records
2013	114	843
2014	143	2,013
2015	166	2,447
2016	167	2,924
2017	188	2,832
2018	192	3,994
2019	201	6,013
2020	204	7,380
2021	197	6,627
2022	192	5,553
2023	184	7,193

3.1.3 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) is a five-year project that maps the distribution and relative abundance of breeding birds across the province. The OBBA follow a standardized methodology and is designed to be repeated at 20-year intervals, which allows changes in bird populations to be tracked over time. Data collection for the third OBBA began in 2021 and will continue for five years. The datasets that were reviewed for the supplemental baseline study included five years of data from the second OBBA (2001-2005) and three years of data from the third OBAA (2021-2023). Twenty-nine 10 x 10 km atlas squares were included in the RSA. There were records of 133 bird species from the second OBBA (BC et al. 2024). Data from the first three years of the third OBBA (2021-2023) included records of 204 different species (BC et al. 2024).

3.1.4 Ontario Nocturnal Owl Survey

Data from the Ontario Nocturnal Owl Survey (BC 2024) were reviewed for information on the distribution of breeding owls and other crepuscular species near the Project. The Ontario Nocturnal Owl Survey (BC 2024) is a citizen science project that uses volunteers to survey standardized roadside routes in forested areas in central and northern Ontario. Volunteers stop at fixed intervals along pre-determined routes. At each stop, surveyors play a call broadcast that consists of a standardized two-minute period of silence followed by pre-recorded calls of two owl species (Great Gray Owl (*Strix nebulosa*) and Boreal Owl (*Aegolius funereus*) in northern Ontario), followed by additional alternating listening periods and pre-recorded callbacks. Volunteers identify and record all owls heard or seen and any incidental observations of crepuscular birds (e.g., Ruffed Grouse (*Bonasa umbellus*), Wilson's Snipe (*Gallinago delicata*), American Woodcock (*Scolopax minor*)).

There are four owl survey routes that have been surveyed over the past twenty-two years within the RSA. At least one of the three routes was surveyed in: 1999-2001, 2003-2013, 2015-2019 and 2021-2023 (Table 3.3). No surveys were completed in 2002, 2014 or 2020. In 2023, one new route was added in the RSA.

Five owl species were documented on the owl survey routes: Boreal Owl, Great Gray Owl, Great Horned Owl (*Bubo virginianus*), Long-eared Owl (*Asio otus*), and Northern Saw-whet Owl (*Aegolius acadicus*). Ruffed Grouse, Wilson's Snipe and American Woodcock were also observed. Table 3.3 below summarizes the results for the four Ontario Nocturnal Owl Survey routes within the RSA between 1999-2001, 2003-2013, 2015-2019 and 2021-2023.

Table 3.3 Ontario Nocturnal Owl Survey Results from Four Pre-determined Routes within the RSA between 1999 and 2023

Year Recorded	Common Name	Count
1999	No Observations	No Observations
2000	No Observations	No Observations
2001	Northern Saw-whet Owl	1
	Wilson's Snipe	4
2003	No Observations	No Observations
2004	American Woodcock	3
	Wilson's Snipe	1
2005	American Woodcock	6
	Great Horned Owl	1
	Northern Saw-whet Owl	1
	Ruffed Grouse	1
	Wilson's Snipe	1
2006	American Woodcock	6

Year Recorded	Common Name	Count
	Northern Saw-whet Owl	1
2007	Northern Saw-whet Owl	1
2008	Great Horned Owl	8
2009	No Observations	No Observations
2010	American Woodcock	4
	Boreal Owl	1
	Great Gray Owl	1
	Long-eared Owl	1
2010	Northern Saw-whet Owl	5
	Wilson's Snipe	1
2011	Northern Saw-whet Owl	1
2012	No Observations	No Observations
2013	No Observations	No Observations
2015	No Observations	No Observations
2016	Long-Eared Owl	1
	Northern Saw-whet Owl	1
2017	No Observations	No Observations
2018	No Observations	No Observations
2019	No Observations	No Observations
2021	American Woodcock	2
	Wilson's Snipe	4
2022	No Observations	No Observations
2023	American Woodcock	5
	Boreal Owl	3
	Northern Saw-whet Owl	3
	Wilson's Snipe	3

3.1.5 North American Breeding Bird Survey

The North American Breeding Bird Survey (BBS) is a long-term monitoring program that has been tracking bird population trends for over 50 years. These surveys are conducted at standardized roadside routes on one day a year during the peak breeding season. Each survey consists of 50 stops, during each of which a 3-minute count is conducted. There is one BBS route (BBS 68080 (Cochrane, ON) in the RSA; this route begins just east of Cochrane, along Highway 652 at the Abitibi River. This route has been surveyed 21 times between 1976 and 2022 and a total of 95 species have been recorded.

3.1.6 Species at Risk and Species of Conservation Concern

In addition to the sources listed above, the following data sources were reviewed to identify SOCC and SAR that may be present in the LSA:

- MNR NHIC online database (MNR 2024a)
- *Species at Risk Act* (SARA), Schedule 1 (GOC 2024)
- Species at Risk in Ontario List (MECP 2024)
- Federal and provincial recovery strategies and management plans

3.2 Indigenous Knowledge and Birds of Importance

Birds of importance to each of the Indigenous nations with traditional territories and/or hunting areas in proximity to the Project were identified based on information made available by Indigenous nations through engagement, information gathering, and voluntary information sharing about species of importance to the Indigenous nations engaged on the Project. In some instances, only bird groups (and not species) were identified by Indigenous nations. Where this occurs, all species within the wildlife group were recognized as important.

The list of birds of importance is preliminary, based on initial Indigenous engagement, and may be further refined, as needed, as part of ongoing engagement.

3.3 Field Studies

Field surveys were completed between 2021-2023 and are summarized in Table 3.4 below. Details on survey methodology and results are included in baseline reports (2023 Terrestrial Ecology Baseline Study [Appendix B.7.4 of the Impact Statement]).

Table 3.4 Bird Field Surveys Completed During Baseline Studies

Survey Type	Date	Summary
Breeding Bird Point Count Surveys	June 7, 12-18; July 5-9, 2021	90 point count stations
	June 1-8; June 27-July 2, 2022	50 point count stations
	May 23-31; June 3-4, June 19-21; July 4-8 2023	42 point counts
Breeding Bird Surveys using Autonomous Recording Units (ARUs)	June-August 2021	19 ARUs (6 between June 12-13 and moved to new locations June 17-18
	May- August 2, 2022	10 ARUs deployed
	May-September, 2023	8 ARUs (2 removed/damaged)
Aerial Surveys	March 17-19, 2021; March 12-13, 2022	Aerial survey concurrent with ungulate survey
Spring Migration Surveys for Waterfowl and Shorebirds	May 13-17, 2022	17 area searches

Survey Type	Date	Summary
Fall Bird Migration Surveys	September 11-15, 2023	29 area searches
Marsh Bird Survey	June 14 and July 5, 2021	1 survey station using call playback
	May 16 and 18; June 1 and 3; June 27 and 29, 2022	8 survey stations using call playback
Nocturnal Owl Surveys	March 12, 2022; May 14-18, 2022	20 roadside survey stations using call broadcast
Crepuscular Bird Surveys using ARUs	June-August 2021	19 ARUs were deployed to target crepuscular species
	May- August 2, 2022	9 ARUs were deployed to target crepuscular species
	May-September, 2023	10 ARUs were deployed to target crepuscular species
Lesser Yellowlegs Surveys	May 23-31, 2023	83 point counts
	May 23-31, 2023	10 ARUs were deployed to target Lesser Yellowlegs
Short-eared Owls	June 2-4, 2023	Three survey routes with total of 30 survey stations

3.4 Bird Habitat Assessment

Desktop mapping and land classification for areas of the RSA outside of the LSA was accomplished by using Ontario Land Cover Data Base, 2nd Edition (LIO 2002). Ontario Land Cover Classification v2 and the Ontario Wetland Evaluation System (obtained from Land Information Ontario; LIO) were used to categorize the RSA because FRI data were not available for the entire RSA (LIO 2023).

Vegetation communities within the LSA were delineated and described according to the Ontario Ecosite Classification system (Banton et al. 2009). Forest Resources Inventory (FRI) Versions 1 and 2 were used as a baseline for vegetation boundaries between wetlands, forests, and vegetation communities (LIO 2007, 2023). FRI from the Abitibi River Forest, Romeo Malette Forest, and Gordon Cousen'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. Because FRI was not available for all areas of the RSA, land cover between the RSA and LSA is not comparable.

To characterize bird habitat with the LSA, bird species were divided into the following categories:

- Forest birds
- Other landbirds
- Marshbirds
- Raptors
- Waterfowl
- Waterbirds
- Shorebirds
- Upland Gamebirds
- Species at Risk
- Species of Conservation Concern

Species of importance to Indigenous nations were assessed within the following categories: Upland Gamebirds, Waterfowl, and Raptors.

Land cover classes (using Ontario Land Cover Data Base for the RSA) that were considered habitat for each bird SAR/SOCC or species group are summarized in Table 3.5 and shown on Figures A.3.1 - A.3.16. Habitat associations were established using relevant scientific literature, life history information, and professional judgement.

Direct habitat associations were not established for “other landbirds” because this group includes bird species that are associated with a variety of habitat types. Habitat associations were also not established for the following SAR and SOCC either because they were not documented in the LSA or because their preferred habitat could not be accurately mapped with available land cover datasets:

- Bank Swallow (*Riparia riparia*)
- Barn Swallow (*Hirundo rustica*)
- Eastern Whip-poor-will (*Antrostomus vociferus*)

Table 3.5 Land Cover Classes used to Quantify Breeding Habitat for Bird Species Groups, Species at Risk and Species of Conservation Concern

Landcover Class	All Birds	Forest Birds	Other Landbirds	Raptors	Upland Gamebirds	Marshbirds	Shorebirds	Waterbirds	Waterfowl	Canada Warbler	Lesser Yellowlegs	Short-eared Owl	Common Nighthawk	Evening Grosbeak	Olive-sided Flycatcher	Yellow Rail	Rusty Blackbird
Upland Forest																	
Coniferous Forest	✓	✓		✓	✓					✓			✓	✓	✓		✓
Deciduous Forest	✓	✓		✓	✓					✓			✓				
Mixed Forest	✓	✓		✓	✓					✓			✓	✓	✓		
Sparse Forest	✓	✓	✓	✓	✓		✓						✓				
Wetland																	
Open Bog	✓			✓	✓		✓				✓	✓				✓	
Treed Bog	✓		✓	✓	✓		✓	✓	✓	✓	✓		✓		✓		✓
Open Fen	✓		✓	✓	✓		✓		✓		✓	✓				✓	
Treed Fen	✓		✓	✓	✓		✓	✓	✓	✓	✓		✓		✓		✓
Marsh	✓			✓		✓	✓	✓	✓		✓	✓				✓	
Swamp	✓	✓	✓	✓			✓	✓	✓	✓					✓		✓
Water																	
Open Water	✓			✓			✓	✓	✓								
Bedrock																	
Bedrock	✓												✓				
Cuts																	
Cuts	✓		✓	✓	✓		✓						✓				

Landcover Class	All Birds	Forest Birds	Other Landbirds	Raptors	Upland Gamebirds	Marshbirds	Shorebirds	Waterbirds	Waterfowl	Canada Warbler	Lesser Yellowlegs	Short-eared Owl	Common Nighthawk	Evening Grosbeak	Olive-sided Flycatcher	Yellow Rail	Rusty Blackbird
Agriculture																	
Cropland	✓																
Pasture	✓		✓	✓					✓			✓	✓			✓	✓
Anthropogenic																	
Sand/Gravel/Mine Tailings	✓							✓					✓				
Settlement, Infrastructure	✓		✓													✓	

3.4.1 Bird Significant Wildlife Habitat Features

Significant Wildlife Habitat (SWH), as defined by provincial policy (MNRF 2005), features that may be important to birds within the LSA were identified and mapped using results from 2021- 2023 field surveys (2023 Terrestrial Ecology Baseline Study [Appendix B.7.4 of the Impact Statement]). Bird SWH features were mapped following methodology used during baseline studies and following the SWH Criteria Schedule for Ecoregion 3E (MNR 2015). These criteria include ecosite codes for identifying candidate habitat, and criteria for confirming features with field studies (e.g., species presence and abundance criteria). The bird SWH that were identified during baseline studies were carried forward to this assessment and mapping was expanded to the extent of the LSA.

Each bird SWH was categorized as either candidate (meaning that the SWH may occur based on habitat presence, but the defining criteria have not been confirmed through field studies) or confirmed (meaning that the defining criteria have been met). The SWH features that were identified in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement) as candidate or confirmed are listed below in Table 3.6.

Table 3.6 Bird Significant Wildlife Habitat Features Included in the Assessment

Bird Significant Wildlife Habitat Feature	Description
Waterfowl Nesting Area	Upland habitats adjacent to wetlands
Bald Eagle and Osprey Nesting Habitat	Bald Eagle or Bald Eagle nests, which are typically associated with lakes, ponds, rivers or wetlands along treed shorelines, islands or on structures over water
Woodland Raptor Nesting Habitat	Stick nests in forested Ecological Land Classification (ELC) communities >30 ha with 10 ha of interior habitat
Sharp-tailed Grouse Lek Habitat	Fields, meadows or other grassy areas where Sharp-tailed Grouse engage in courtship activities
Marsh Breeding Bird Habitat	Wetlands with shallow water with emergent aquatic vegetation with American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan, Black Tern, and/or Yellow Rail
Shrub/Early Successional Breeding Bird Habitat	Large natural field areas succeeding to shrub and thicket habitats >30 ha in size that may support Clay-colored Sparrow, Field Sparrow, Ruffed Grouse, Eastern Kingbird, American Woodcock

4 Results

This Section summarizes supplemental baseline data on birds within the PA and LSA, including areas of conservation concern presence of SAR and SOCC and availability of bird habitat. Please refer to the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement) for details on field study results.

4.1 Areas of Conservation Concern

4.1.1 Atlantic and Mississippi Flyways

The province of Ontario has two major flyways – the Atlantic and Mississippi. These migration "flyways" provide a corridor and staging habitats for landbirds and shorebirds migrating to and from all areas of North America (ABC 2022, Kirby et al. 2008). Birds migrating to and from breeding grounds typically follow natural features, such as shorelines, ridges and river systems and stop to rest and refuel in areas of suitable habitat. Baseline studies did not find any large concentrations of migrating birds within the LSA or RSA and no geographic features that would concentrate migrants were noted.

4.1.2 Bird Conservation Regions

To plan, implement and evaluate conservation actions across North America, partners from the United States, Mexico, and Canada developed a common, ecologically based set of ecoregions appropriate to birds throughout North America, called Bird Conservation Regions (BCRs) (BSC and NABCI 2014). Plans were developed for each BCR (BCR Plan) to support Canada's commitments under the Migratory Birds Convention, help identify priority projects for biodiversity and ecosystem conservation, help assess project effects under the *Canadian Environmental Assessment Act* (now *Impact Assessment Act*), identify potential areas for acquisition or protection, and to guide conservation actions outside of Canada (EC 2017).

BCR Plans identify priority species from all regularly occurring bird species in each BCR subregion. Species may be identified as priorities because they are vulnerable due to population size, distribution, population trend, abundance and threats (EC 2017). However, widely distributed and abundant species may also be included because they are representative of the national or regional avifauna and/or because they have a large proportion of their range and/or continental population in the subregion (EC 2017).

4.1.2.1 Boreal Softwood Shield

The Project falls within BCR 8 – the Boreal Softwood Shield. BCR 8 is more than 1,470,000 km^2 and spans six provinces; 30% of BCR 8 is within Ontario (Environment Canada [EC] 2014). BCR 8 covers approximately 48% of the province (EC 2014). The Boreal Softwood Shield is dominated by coniferous forest interspersed with numerous lakes, rivers and wetlands. Tree species diversity in BCR 8 is low, and bird diversity is also lower compared to more southerly BCRs in Ontario (EC 2014). However, BCR 8 supports a high abundance of birds; more than 10% of the global population of at least 20 species are present in Ontario's BCR 8 (BCR 8 ON) during the breeding season (EC 2014).

There are 71 bird species identified as priorities in Ontario's BCR 8. Sixty-five percent of the priority species are landbirds, followed by waterfowl (17%), waterbirds (12%), and shorebirds (6%). Priority species in Ontario's BCR 8 are associated with 10 habitat types. Forested habitat is associated with more than 60% of the priority species; 31% use coniferous, and 32% use mixed wood. Wetlands are also important and are used by 31% of priority species (EC 2014). Shrub and early successional habitats as well as riparian habitats are used by 14% and 13% of priority species respectively (EC 2014). Priority species in BCR 8 in Ontario are shown in Table 4.1.

Table 4.1 Bird Species Identified as Priority Species in BCR 8 in Ontario

Species	Scientific Name	Population Objective	Provincial Status (ESA)	Federal Status (SARA)
Landbirds				
Alder Flycatcher	*Empidonax alnorum*	Maintain Current		
Bald Eagle	*Haliaeetus leucocephalus*	Recovery Objective		
Bank Swallow	*Riparia riparia*	Assess/Maintain	THR	THR
Barn Swallow	*Hirundo rustica*	Recovery Objective	SC	THR
Bay-breasted Warbler	*Setophaga castanea*	Maintain Current		
Belted Kingfisher	*Megaceryle alcyon*	Maintain Current		
Black-and-white Warbler	*Mniotilta varia*	Maintain Current		
Black-backed Woodpecker	*Picoides arcticus*	Assess/Maintain		
Blackburnian Warbler	*Setophaga fusca*	Maintain Current		
Black-throated Green Warbler	*Setophaga virens*	Maintain Current		
Blue-headed Vireo	*Vireo solitarius*	Maintain Current		
Bobolink	*Dolichonyx oryzivorus*	Recovery Objective	THR	THR
Boreal Owl	*Aegolius funereus*	Assess/Maintain		
Canada Warbler	*Cardellina canadensis*	Recovery Objective	SC	THR
Cape May Warbler	*Setophaga tigrina*	Maintain Current		
Chestnut-sided Warbler	*Setophaga pensylvanica*	Maintain Current		
Cliff Swallow	*Petrochelidon pyrrhonota*	Increase		
Common Nighthawk	*Chordeiles minor*	Recovery Objective	SC	SC
Connecticut Warbler	*Oporornis agilis*	Maintain Current		
Eastern Kingbird	*Tyrannus tyrannus*	Assess/Maintain		

Species	Scientific Name	Population Objective	Provincial Status (ESA)	Federal Status (SARA)
Eastern Whip-poor-will	*Antrostomus vociferus*	Recovery Objective	THR	THR
Evening Grosbeak	*Coccothraustes vespertinus*	Assess/Maintain	SC	SC
Golden Eagle	*Aquila chrysaetos*	Recovery Objective	END	
Magnolia Warbler	*Setophaga magnolia*	Maintain Current		
Mourning Warbler	*Geothlypis philadelphia*	Maintain Current		
Nashville Warbler	*Oreothlypis ruficapilla*	Maintain Current		
Northern Flicker	*Colaptes auratus*	Maintain Current		
Northern Goshawk	*Accipiter atricapillus*	Assess/Maintain		
Olive-sided Flycatcher	*Contopus cooperi*	Recovery Objective	SC	SC
Ovenbird	*Seiurus aurocapilla*	Maintain Current		
Peregrine Falcon (anatum/tundrius)	*Falco peregrinus*	Recovery Objective	SC	
Philadelphia Vireo	*Vireo philadelphicus*	Maintain Current		
Pine Grosbeak	*Pinicola enucleator*	Assess/Maintain		
Purple Finch	*Haemorhous purpureus*	Maintain Current		
Ruby-crowned Kinglet	*Regulus calendula*	Maintain Current		
Ruffed Grouse	*Bonasa umbellus*	Assess/Maintain		
Rusty Blackbird	*Euphagus carolinus*	Recovery Objective	SC	SC
Sharp-shinned Hawk	*Accipiter striatus*	Assess/Maintain		
Short-eared Owl	*Asio flammeus*	Recovery Objective	THR	SC
Swamp Sparrow	*Melospiza georgiana*	Maintain Current		
Tennessee Warbler	*Oreothlypis peregrina*	Assess/Maintain		
Tree Swallow	*Tachycineta bicolor*	Increase		
White-throated Sparrow	*Zonotrichia albicollis*	Maintain Current		
Winter Wren	*Troglodytes hiemalis*	Maintain Current		

Species	Scientific Name	Population Objective	Provincial Status (ESA)	Federal Status (SARA)
Yellow-bellied Flycatcher	*Empidonax flaviventris*	Maintain Current		
Yellow-bellied Sapsucker	*Sphyrapicus varius*	Maintain Current		
Shorebirds				
Greater Yellowlegs	*Tringa melanoleuca*	Assess/Maintain		
Lesser Yellowlegs	*Tringa flavipes*	Assess/Maintain	THR	
Solitary Sandpiper	*Tringa solitaria*	Assess/Maintain		
Wilson's Snipe	*Gallinago delicata*	Assess/Maintain		
Waterbirds				
American Bittern	*Botaurus lentiginosus*	Maintain Current		
American White Pelican	*Pelecanus erythrorhynchos*	Recovery Objective	THR	
Black Tern	*Chlidonias niger*	Recovery Objective	SC	
Common Loon	*Gavia immer*	Maintain Current		
Common Tern	*Sterna hirundo*	Assess/Maintain		
Herring Gull	*Larus argentatus*	Assess/Maintain		
Horned Grebe	*Podiceps auritus*	Recovery Objective	SC	SC
Red-necked Grebe	*Podiceps grisegena*	Assess/Maintain		
Yellow Rail	*Coturnicops noveboracensis*	Recovery Objective	SC	SC
Waterfowl				
American Black Duck	*Anas rubripes*	Increase		
American Wigeon	*Mareca americana*	Maintain Current		
Black Scoter	*Melanitta americana*	Migrant (no BCR 8-ON population objective)		
Bufflehead	*Bucephala albeola*	Maintain Current		
Common Goldeneye	*Bucephala clangula*	Maintain Current		
Common Merganser	*Mergus merganser*	Maintain Current		
Green-winged Teal	*Anas crecca*	Maintain Current		
Lesser Scaup	*Aythya affinis*	Assess/Maintain		
Long-tailed Duck	*Clangula hyemalis*	Migrant (no BCR 8-ON population objective)		

Species	Scientific Name	Population Objective	Provincial Status (ESA)	Federal Status (SARA)
Mallard	*Anas platyrhynchos*	Maintain Current		
Ring-necked Duck	*Aythya collaris*	Maintain Current		
Surf Scoter	*Melanitta perspicillata*	Migrant (no BCR 8-ON population objective)		

Notes:
ESA – Ontario *Endangered Species Act*
SARA – *Species at Risk Act*
SC – Special Concern
THR – Threatened
END – Endangered

There are no Important Bird and Biodiversity Areas present within the RSA.

4.2 Bird Community

The LSA and RSA support a variety of bird groups including forest birds, waterfowl, waterbirds, shorebirds, raptors, upland gamebirds, other landbirds, SAR and SOCC. Forest landbirds are the most common and abundant species group present within the LSA and RSA.

The number and diversity of bird species that are present in the LSA and RSA varies according to season. Species diversity and abundance is highest during the breeding season, followed by spring and fall migration seasons. Many species that winter in the southern US, Mexico, Central or South America return to boreal forests in Ontario to breed (EC 2014). Many of the bird species that breed in the LSA may also be present during migration, while species that breed in areas further north (e.g., Long-tailed Duck [*Clangula hyemalis*], Semipalmated Plover [*Charadrius semipalmatus*)) may only be present during migration (Nol and Blanken 2020, Robertson and Savard 2020). During bird migration / waterfowl surveys, 66 bird species were observed, most of which were believed to be migrating through the area.

The winter season has the lowest bird species abundance and diversity. Birds present in the RSA in winter includes year-round residents such as Black-capped Chickadee (*Poecile atricapillus*), Ruffed Grouse (*Bonasa umbellus*) and Evening Grosbeak (*Coccothraustes vespertinus*) (Foote et al. 2020; Rusch et al. 2020, eBird 2024). One species (Rough-legged Hawk [*Buteo lagopus*]) is only present in the LSA during the winter; this species breeds in the Arctic (Bechard et al. 2020).

Winter field surveys have not been completed, but data from the CBC were used to assess which bird species are present during winter. Between 2003 and 2023, at total of 51 species of birds have been observed in the Timmins CBC, and 52 species have been observed at the Iroquois Falls CBC (National Audubon Society 2023). The Timmins CBC circle is located approximately 7 km from the PA, and the Iroquois Falls CBC is approximately 34 km away. Some of the species that were most commonly recorded in both count circles include Common Raven (*Corvus corax*), Black-capped Chickadee, Rock Pigeon (*Columba livia*), Evening Grosbeak, European Starling (*Sturnus vulgaris*), Pine Grosbeak (*Pinicola enucleator*), Common Redpoll (*Acanthis flammea*), Snow Bunting (*Plectrophenax nivalis*),

American Crow (*Corvus brachyrhynchos*) and Blue Jay (*Cyanocitta cristata*). Species observed during CBC surveys that only occur during winter include Snowy Owl (*Bubo scandiacus*), Snow Bunting, and Rough-legged Hawk.

The occurrence, seasonal distribution and general life history of each of the bird groups is discussed below.

4.2.1 Species at Risk

Seven bird SAR have the potential to occur, or have been confirmed as occurring, in the PA and/or LSA (Table 4.2). The life history, habitat and seasonal occurrence of each SAR is discussed below.

Table 4.2 Species at Risk Birds Assessed within the LSA

Species / Conservation Status	Habitat Description	Presence in LSA
Bank Swallow (*Riparia riparia*) SARA: THR ESA: THR COSEWIC: THR S-Rank: S4B Source: NHIC, eBird	An aerial insectivore that constructs nests in vertical banks, typically along watercourses and in coastal areas. Forages in open habitats including open water, wetlands, grasslands, agricultural areas, shrublands, and occasionally over wooded areas (COSEWIC 2013).	**Potential** – Species was not observed during breeding bird surveys and not detected on ARUs. Suitable habitat was not observed during field surveys but may be present in areas that were not surveyed.
Barn Swallow (*Hirundo rustica*) SARA: THR ESA: SC COSEWIC: SC S-Rank: S4B Source: field observations	The Barn Swallow is an aerial insectivore that attaches its nests to structures such as barns, bridges and culverts. Before European colonization of North America, Barn Swallows nested on cliffs, rock overhangs, and caves (COSEWIC 2021a). They forage over open areas.	**Confirmed** – There are numerous background records of Barn Swallow in the LSA (eBird 2024) and this species was documented during field surveys completed by WSP.
Bobolink (*Dolichonyx oryzivorus*) SARA: THR ESA: THR COSEWIC: SC S-Rank: S4B Source: eBird 2024	The Bobolink is nests primarily in forage crops with a mixture of grasses and broad-leaved forbs, predominantly hayfields and pastures. Preferred ground cover species include grasses such as Timothy and Kentucky bluegrass and forbs such as clover and dandelion (COSEWIC 2022a).	**Absent** – There are eBird records of this species within the RSA. Bobolink was not documented during field surveys and suitable habitat was not identified within the LSA.
Chimney Swift (*Chaetura pelagica*) SARA: THR ESA: THR COSEWIC: THR S-Rank: S3B Source: ARU field recordings	Chimney Swift use chimneys for roosting and breeding, as well as walls, rafters, or gables of buildings and, less frequently, natural structures such as hollow trees, tree cavities and cracks in cliffs (MECP 2022).	**Potential** – This species is uncommon in this part of Ontario, there is one record of the species within the RSA at the Timmins Airport (eBird 2024). Chimney Swift was not recorded during field surveys.

Species / Conservation Status	Habitat Description	Presence in LSA
Canada Warbler (*Cardellina canadensis*) SARA: THR ESA: SC COSEWIC: SC S-Rank: S5B Source: field observations	The Canada Warbler is usually found in moist mixed deciduous-coniferous forests with a well-developed understorey. It may also occur in shrub marshes, red maple stands, coniferous riparian woodlands, ravines and steep brushy slopes, and regenerating forests (COSEWIC 2008).	**Confirmed** – Observed during breeding bird surveys at and recorded on ARUs.
Eastern Meadowlark (*Sturnella magna*) SARA: THR ESA: THR COSEWIC: THR S-Rank: S4B,S3N Source: identified by agency for consideration	Eastern Meadowlark typically occurs in meadows, hayfields and pastures. However, it will use a wider range of habitat than most grassland species, including mown lawn (e.g. golf course, parks), wooded city ravines, young conifer plantations and orchards (COSEWIC 2011).	**Absent** – There are no records of this species in the LSA or RSA. The species was not observed during field surveys and suitable habitat was not identified in the LSA.
Eastern Whip-poor-will (*Antrostomus vociferus*) SARA: THR ESA: THR COSEWIC: SC S-Rank: S4B Source: background information	The Eastern Whip-poor-will is typically found in areas with a mixture of open and forested habitats such as savannahs, open woodlands or openings in mature forests (COSEWIC 2022). Semi-open and patchy forests are preferred, as are areas with little ground cover such as rock barrens (COSEWIC 2022b)	**Potential** – This species was not recorded during targeted surveys, but the LSA is within the species' range and suitable habitat is present.
Lesser Yellowlegs (*Tringa flavipes*) SARA: Not listed ESA: THR COSEWIC: THR S-Rank: S3S4B, S5M Source: field observations	Lesser Yellowlegs is a medium sized shorebird that breeds primarily in boreal and taiga wetlands. Its breeding range in Canada extends from northern Yukon to western Labrador and it winters in South America (COSEWIC 2020).	**Confirmed** – Lesser Yellowlegs was documented during field investigations and there are species records in eBird. Targeted surveys for Lesser Yellowlegs were conducted in areas with suitable habitat. Three individuals were observed in June 2021. In addition, Lesser Yellowlegs was recorded on an ARU in 2023.
Red-headed Woodpecker (*Melanerpes erythrocephalus*) SARA: END ESA: END COSEWIC: END S-Rank: S4B,S3N Source: identified by agency for consideration	The Red-headed Woodpecker prefer open deciduous woodland and woodland edges and is often found in parks, golf courses and cemeteries (MECP 2023). This species breeds across southern Ontario	**Absent** – Outside of species' Ontario range. There are no background records, the species was not observed during field studies and suitable habitat was not identified in the LSA.

Species / Conservation Status	Habitat Description	Presence in LSA
Short-eared Owl (*Asio flammeus*) SARA: SC ESA: THR COSEWIC: THR S-Rank: S4?B,S2S3N Source: eBird 2024	Short-eared Owls are medium sized owls that are most often active at dawn and dusk. They are found in open habitats including tundra, grasslands, wetlands and pastures (COSEWIC 2021b).	**Potential** - Targeted surveys for Short-eared Owl were conducted in suitable habitat during the 2023 breeding season. This species was not observed in the LSA. There are eBird records within the RSA and suitable habitat is present within the LSA.
Notes: SC – Special Concern THR – Threatened END – Endangered S-ranks: S1 – Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province. S2 – Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province. S3 – Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. S4 – Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors. S#S# Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4). Qualifiers: B – Breeding – Conservation status refers to the breeding population of the species in the province. SU – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. N – Conservation status refers to the non-breeding population of the species in the province. M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province. ? – Denotes inexact or uncertain numeric rank (? Qualifies the character immediately preceding it in the S-rank).		

4.2.1.1 Bank Swallow

Bank Swallow is a widespread, insectivorous bird with an extensive distribution in Canada where it breeds in all provinces and territories except perhaps Nunavut. This species is present in Ontario during spring and fall migration and in the breeding season; it winters primarily in South America (COSEWIC 2013). Bank Swallow was assessed by COSEWIC as threatened in 2013 and listed as threatened on Schedule 1 of SARA in 2017. Bank Swallow is also listed as Threatened under the ESA. Declines in aerial insect-prey is identified in the recovery strategy as the most likely primary threat to the Bank Swallow population in Canada (ECCC 2022)

Bank Swallows breed colonially, and a wide variety of sites may be used for constructing nest burrows including natural and artificial sites with vertical banks. These include riverbanks, lake and ocean bluffs, aggregate pits, road cuts and stockpiles of soil. The preferred substrate for nest burrows appears to be a sand-silt mixture. Burrows are often situated near open terrestrial habitat, which is used for aerial foraging, including grasslands, meadows, pastures and croplands. Large wetlands may be used as communal nocturnal roost sites during the non-breeding periods (COSEWIC 2013).

Bank Swallow was not confirmed in the LSA during field surveys and no suitable habitat was documented during field surveys. However, there are eBird records of the species within the RSA (eBird 2024) and the species may be present in parts of the LSA that were not surveyed (Figures A.4.1 to A.4.10).

4.2.1.2 Barn Swallow

Barn Swallow is an aerial insectivore that attaches its nests to structures such as barns, bridges and culverts (COSEWIC 2021a). Barn Swallow was designated as threatened in 2011 and reassessed as special concern by COSEWIC in 2021(COSEWIC 2021a). Barn Swallow is listed as threatened on Schedule 1 of SARA but is under consideration for a status change to special concern. Barn Swallow is listed as special concern under the ESA.

Barn Swallows are open country species, which forage over meadows, hay, pasture or even mown lawn. They will also frequently forage in woodland clearings, over wetland habitats or open water where insect prey is abundant. Barn Swallows experienced population declines throughout North America beginning in the 1980s, likely due to decreases in insect prey, increasing frequency of severe temperature fluctuations during migration and breeding season, and loss of nesting sites (COSEWIC 2021a). However, the Canadian population has stabilized over the last 10 years.

There are numerous background records of Barn Swallow in the LSA (eBird 2024), and this species was documented during field surveys (Figures A.4.1 to A.4.10).

4.2.1.3 Canada Warbler

Canada Warbler (*Cardellina canadensis*) is long-distant migrant found in Ontario during migration and in the breeding season. Canada Warbler is usually found in moist mixed deciduous-coniferous forests with a well-developed understory. It may also occur in shrub marshes, red maple (*Acer rubrum*) stands, coniferous riparian woodlands, ravines and steep brushy slopes, and regenerating forests (COSEWIC 2020a).

Canada Warbler was listed as threatened on Schedule 1 of SARA in 2010; it was reassessed as special concern by COSEWIC in 2020 (COSEWIC 2020a). It is now under consideration for a change in status to special concern on Schedule 1 of SARA. Canada Warbler is listed as special concern under the ESA.

The Canada Warbler population in Canada has been experiencing a long-term decline; but the trend has reversed in the past decade and numbers have been increasing. The largest threat to this species appears to be loss of wintering habitat in South America (COSEWIC 2020a).

Canada Warbler was observed during breeding bird surveys at two stations and was recorded on seven ARUs (Figures A.4.1 to A.4.10).

4.2.1.4 Chimney Swift

Chimney Swifts (*Chaetura pelagica)* are aerial insectivorous birds that spend most of their time in flight, except when nesting or roosting overnight. Chimney Swift was listed as threatened on Schedule 1 of SARA in 2009; its status was reassessed and confirmed as threatened in 2018 by COSEWIC. Chimney Swift is listed as threatened under the ESA.

Chimney Swift use chimneys for roosting and breeding, as well as walls, rafters, or gables of buildings. Natural structures such as hollow trees, tree cavities and cracks in cliffs may also be used, but less frequently (Zanchetta et al. 2014). Chimney Swifts forage over a wide variety of habitats during the day, wherever aerial insects occur. The population of this species has declined steeply since the 1970s, likely because of a variety of factors that include a decline in insect prey availability and a reduction of available habitat (including chimneys) (ECCC 2023).

The LSA is at the northern limit of the Chimney Swifts range, and the species is uncommon in this area. There is only one Chimney Swift record within the RSA from the Timmins Airport (eBird 2024). Chimney Swifts only rarely nest in trees, and it is particularly rare in logged areas (Zanchetta et al 2014) such as the LSA where large hollow trees are uncommon.

Chimney Swift was initially identified as present based on analysis of ARU recordings using artificial intelligence software BirdNET version 2.2 (BirdNET_GLOBAL_3K_V2.2_Model_FP32.tflite), but the species was not visually confirmed to be present. In 2024, the recordings were run through a newer version of BirdNET (version 2.4, BirdNET_GLOBAL_6K_V2.4), and Chimney Swift was not detected. Stantec Biologists with experience identifying Chimney Swift also listened to a subset of recordings that were identified by BirdNET as Chimney Swifts and none of the calls that were examined further were confirmed as Chimney Swifts. For these reasons, Chimney Swift is unlikely to be present as a breeding bird in the LSA so is not discussed further in this assessment.

4.2.1.5 Eastern Whip-poor-will

Eastern Whip-poor-will is a crepuscular aerial insectivore that is typically found in areas with a mixture of open and forested habitats such as savannahs, open woodlands or openings in mature forests (ECCC 2018). Eastern Whip-poor-will are ground nesters and lay their eggs on leaf litter.

Eastern Whip-poor-will was listed as threatened on Schedule 1 of SARA in 2011; it was reassessed as special concern by COSEWIC in 2022 (COSEWIC 2022b). It is now under consideration for a change in status to special concern on Schedule 1 of SARA. Easten Whip-poor-will is listed as threatened under the ESA.

Eastern Whip-poor-will has experienced long-term population declines in Canada. Like other aerial insectivores, Eastern Whip-poor-will is likely threatened by a decline in insect prey availability because of pesticide use (COSEWIC 2022b).

This species was not recorded during targeted surveys, but the LSA is within the species' range and suitable breeding habitat may be present.

4.2.1.6 Lesser Yellowlegs

Lesser Yellowlegs (*Tringa flavipes*) is a medium-sized shorebird that breeds primarily in boreal and taiga wetlands including peatlands, marshes, fens, and ponds (COSEWIC 2020). Nests are built on the ground near water and are well concealed. Its breeding range in Canada extends from northern Yukon to western Labrador and it winters in South America (COSEWIC 2020).

Lesser Yellowlegs was assessed by COSEWIC as threatened in 2020 (COSEWIC 2020) and is currently under consideration for addition to Schedule 1 of SARA. Lesser Yellowlegs is listed as threatened under the ESA. This species has experienced substantial population declines; threats include loss of wetland and intertidal habitat in the migration and wintering range, hunting, and climate change (COSEWIC 2020).

This species may be found in the LSA during the breeding season and during migration. Four Lesser Yellowlegs were observed during breeding bird surveys in June 2021, and the species was recorded at three ARU stations (one in 2023, and three in 2022). There are also eBird records of this species in the area (eBird 2024; Figures A.4.1 to A.4.10).

4.2.1.7 Short-eared Owl

Short-eared Owls (*Asio flammeus*) are medium-sized owls that are most active at dawn and dusk. They are found in open habitats including tundra, grasslands, wetlands, and pastures (COSEWIC 2021b). Nests are typically built on the ground near clumps of tall vegetation. This species may be present in the LSA during the breeding season.

Short-eared Owl was listed as special concern on Schedule 1 of SARA in 2012. It was reassessed as threatened in 2021 and is under consideration for a status change to threatened on Schedule 1 of SARA. The Short-eared Owl population has declined by approximately 70% between 1970 and 2019. Threats to this species include loss of suitable grassland habitat, climate change, and severe weather (COSEWIC 2021b).

Targeted surveys for Short-eared Owl were conducted in suitable habitat during the 2023 breeding season and the species was not observed. However, this species is nomadic, moving large distances between years in response to changing prey abundance (COSEWIC 2021c). There are eBird records for Short-eared Owl from within the RSA and suitable habitat is present within the LSA (eBird 2024; Figures A.4.1 to A.4.10).

4.2.2 Species of Conservation Concern

Six bird SOCC have the potential to occur or have been confirmed present in the LSA (Table 4.3).

Table 4.3 Bird Species of Conservation Concern Assessed within the LSA

Species / Conservation Status	Habitat Description	Presence in LSA
Redhead (*Aythya americana)* SARA: Not listed ESA: Not listed Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Not listed S-Rank: S2B,S4N Source: eBird, field observations	Redhead is a diving duck that feeds on marshy freshwater ponds and lakes and winters in flocks on any large body of water, often mixed with other diving ducks. Redheads mainly breed in seasonal ponds and other wetlands in the prairies.	**Confirmed** – There are eBird records for this species and one individual was noted during field surveys. The LSA is located outside of the main breeding range and not within suitable habitat. Therefore, it is likely that the individual was using the area for resting or moulting.
Peregrine Falcon (*Falco peregrinus)* SARA: Not listed ESA: SC COSEWIC: Not listed S-Rank: S4 Source: eBird	Most Peregrine Falcons nest on cliff ledges or crevices, but some will also use tall buildings and bridges near good foraging areas (COSEWIC 2017a). Habitat for Peregrine Falcons has three scales: a nest site with associated perching sites, a nesting territory, and a home range (Ontario Peregrine Falcon Recovery Team 2010).	**Absent –** Suitable nesting habitat was not identified within the LSA and it was not recorded during field surveys. Peregrine Falcon may be present during migration.
Common Nighthawk (*Chordeiles minor)* SARA: SC ESA: SC COSEWIC: SC S-Rank: S4B Source: eBird, Field observations	Common Nighthawk breeds in a wide range of open habitats, such as recently logged or burned-over areas, beaches, forest clearings, short-grass prairies, pastures, open forests, marshes, lakeshores, gravel roads, riverbanks, rocky outcrops or barrens, railways, and urban parks. Common Nighthawks may forage in most habitat types (COSEWIC 2018a).	**Confirmed** – Common Nighthawks were heard at 28 ARUs. The LSA contains forested areas, wetlands, and recently logged areas, which is considered suitable habitat for the species.
Olive-sided Flycatcher (*Contopus cooperi)* SARA: SC ESA: SC COSEWIC: SC S-Rank: S4B Source: field observations, NHIC	Olive-sided Flycatcher is a medium sized migratory songbird that breeds throughout most of forested Canada (COSEWIC 2018b). Olive-sided Flycatchers breed in edge habitats, such as coniferous forests with open habitats, wetlands or disturbed forest (COSEWIC 2018b).	**Confirmed** – Olive-sided Flycatcher was observed incidentally during field observations and recorded on ARUs. The ARU automated classification analyses found nine (9) stations with audio recordings of Olive-sided Flycatcher.
Rusty Blackbird (*Euphagus carolinus)* SARA: SC ESA: SC COSEWIC: SC S-Rank: S4B,S3N Source: field observations	The Rusty Blackbird breeds in habitats that are dominated by coniferous forests with wetlands nearby including bogs, marshes and beaver ponds. The Rusty Blackbird is only found in North America. It breeds in every province and territory in Canada and migrates to most of the central and eastern United States for winter. In Ontario, the breeding range is found in the Hudson Bay Lowlands and northern Boreal Shield ecosites (MECP 2021).	**Confirmed** – Confirmed at two ARU stations in 2023, one in 2022, and two in 2021. One Rusty Blackbird was also documented during breeding bird point count surveys and eight were observed during fall migration surveys.

Species / Conservation Status	Habitat Description	Presence in LSA
Evening Grosbeak (*Coccothraustes vespertinus)* SARA: SC ESA: SC COSEWIC: SC S-Rank: S4 Source: field observations	Evening Grosbeak breeding habitat generally includes open, mature mixedwood forests, where fir species and/or white spruce are dominant, and Spruce Budworm is abundant. Outside the breeding season, the species depends on seed crops from trees such as firs and spruces in the boreal forest but is also attracted to ornamental trees that produce seeds or fruit, and bird feeders stocked with sunflower seeds (COSEWIC 2016). Evening Grosbeaks are found in a variety of forested areas, most typically mature mixed forests with an open canopy and high proportions of Balsam Fir, White Spruce and/or Trembling Aspen (COSEWIC 2016).	**Confirmed** – Two Evening Grosbeak were recorded during breeding bird surveys at one station.
Yellow Rail (*Coturnicops noveboracensis)* SARA: SC ESA: SC COSEWIC: SC S-Rank: S4 Source: field observations	Nesting Yellow Rails are typically found in marshes dominated by sedges, true grasses, and rushes, where there is little or no standing water (generally 0-12 cm water depth), and where the substrate remains saturated throughout the summer. They can be found in damp fields and meadows, on the floodplains of rivers and streams, in the herbaceous vegetation of bogs, and at the upper levels (drier margins) of estuarine and salt marshes. Nesting habitats usually have a dry mat of dead vegetation from previous growing seasons. A greater diversity of habitat types is used during migration and winter than during the breeding season. In winter, the rails are known to use coastal wetlands and rice fields (COSEWIC 2009). In Ontario, it is mainly found in the Hudson Bay Lowlands. The breeding status of Yellow Rail in boreal regions south of the Hudson Bay Lowlands is uncertain (MECP 2024).	**Potential** – There is suitable habitat in wetlands within the LSA. A possible Yellow Rail was heard in 2021 at one marsh bird station but could not be confirmed.

Notes:
SC – Special Concern

S-ranks:

S2 – Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 – Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 – Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

Qualifiers:

B – Breeding – Conservation status refers to the breeding population of the species in the province.

N – Conservation status refers to the non-breeding population of the species in the province.

4.2.2.1 Common Nighthawk

Common Nighthawk (*Chordeiles minor*) is listed as special concern under SARA and the ESA. It nests on bare ground, such as sand dunes, beaches, forest clearings, burned areas and barrens but forages in most habitat types (COSEWIC 2007). It is a well-camouflaged bird and is most often seen in flight, where it pursues and catches flying insects (COSEWIC 2018a). The Common Nighthawk population in Canada has been experiencing a long-term population decline. The main threat to this species is thought to be a declining abundance of aerial insects due to pesticides, changes in precipitation and hydrological regimes, and changes in temperature regimes (COSEWIC 2018a).

During field surveys, Common Nighthawk was recorded on 28 ARUs in the LSA and was also recorded incidentally (Figures A.4.1 to A.4.10). There are also many eBird records of Common Nighthawk within the LSA and RSA (Figures A.4.1 to A.4.10).

4.2.2.2 Evening Grosbeak

The Evening Grosbeak is a stocky, boldly colored songbird with a large, distinctive bill. The species is listed as special concern under SARA and the ESA; its distribution includes all Canadian provinces and territories except for Nunavut (COSEWIC 2016). Distribution of Evening Grosbeak ranges widely in winter, and its distribution is dependent upon the quantity of seeds produced in the boreal forest. Optimal breeding habitat for this species includes open mature mixedwood forests, where fir or white spruce (*Picea glauca*) are dominant, and Spruce Budworm Moth (*Choristoneura fumiferana*) is abundant (COSEWIC 2016).

Evening Grosbeaks were documented two times during breeding bird surveys, at one survey station. This species is a year-round resident; there are many eBird records of this species throughout the RSA (Figures A.4.1 to A.4.10).

4.2.2.3 Olive-sided Flycatcher

The Olive-sided Flycatcher (*Contopus cooperi*) is a medium-sized passerine that breeds in scattered locations throughout most of forested Canada (COSEWIC 2018b). Olive-sided Flycatcher was designated as threatened under SARA in 2007 but was reassessed as special concern in 2018 and its status on Schedule 1 of SARA was changed in special concern in 2023. It is also listed as special concern on the ESA.

The population of this species is in decline in Canada, and the main factors thought to be associated with its decline include habitat loss on the wintering grounds and breeding grounds to a lesser extent (COSEWIC 2018b). Declining insect populations on breeding and wintering grounds is also believed to be a driving factor in this species decline.

Olive-sided Flycatchers are most often associated with open areas, where they perch in tall live trees or snags and forage for flying insects (COSEWIC 2018b). Suitable habitat for this species is present in the LSA. Olive-sided Flycatchers are typically found in areas where there is an interspersion of small to medium-sized coniferous forest stands and bogs or fens. These areas provide a combination of suitable

nesting sites (islands of coniferous forest), open foraging areas (small to medium sized bogs and fens) and perch sites (tall trees and snags).

Olive-sided Flycatcher was observed incidentally during field studies and was identified on nine (9) ARUs using automated identification software (Figures A.4.1 to A.4.10). There are also many eBird records of this species within the LSA and RSA (Figures A.4.1 to A.4.10).

4.2.2.4 Redhead

Redhead (*Aythya americana*) is a diving duck that feeds in marshy freshwater ponds and lakes and winters in flocks on any large body of water, often mixed with other diving ducks. Redheads mainly breed in seasonal ponds and other wetlands in the prairies (Woodin and Michot 2020). Redhead has an S-rank of S2B in Ontario.

There are a small number of eBird records for this species within the LSA and a single individual was observed during field surveys (eBird 2024; Figure A.4.3). The LSA is located outside of the main breeding range and not within suitable habitat. Therefore, it is likely that the individual was using the area for resting or moulting. For these reasons, Redhead is not discussed further in this assessment.

4.2.2.5 Rusty Blackbird

Rusty Blackbird (*Euphagus carolinus*) is associated with forested wetlands; it breeds in habitats that are dominated by coniferous forests with wetlands nearby including bogs, marshes and beaver ponds (COSEWIC 2017b). It is also found in peat bogs, sedge meadows, marshes and scrub edges. Rusty Blackbird is listed as special concern under SARA and the ESA.

The Rusty Blackbird is only found in North America. It breeds in every province and territory in Canada and migrates to most of the central and eastern United States for winter. In Ontario, the breeding range is found in the Hudson Bay Lowlands and northern Boreal Shield ecosites (MECP 2021).

During field surveys, Rusty Blackbird was confirmed at two ARU stations in 2023, one in 2022, and two in 2021. One Rusty Blackbird was also documented during breeding bird point count surveys and eight were observed during fall migration surveys. Observations were recorded in both the PA and LSA.

4.2.2.6 Yellow Rail

During the breeding season, Yellow Rails (*Coturnicops noveboracensis*) are typically found in marshes dominated by sedges, true grasses, and rushes, which remain saturated though the summer with little standing water. They can be found in damp fields and meadows, floodplains of rivers and streams, and in bogs (COSEWIC 2001). Yellow Rail is listed as special concern under SARA and the ESA.

There is suitable Yellow Rail habitat in wetlands within the LSA and RSA. A possible Yellow Rail was heard in 2021 at one marsh bird station in the PA but could not be confirmed.

4.2.3 Birds of Importance to Indigenous Nations

Birds of importance to each of the Indigenous nations with traditional territories and/or hunting areas in proximity to the Project are summarized in Table 4.4.

Table 4.4 Birds of Importance Considered within the LSA and RSA

Species of Importance	Indigenous Nation					
	Métis Nation of Ontario	Apitipi Anicinapek Nation	Flying Post First Nation	Matachewan First Nation	Mattagami First Nation	Taykwa Tagamou Nation
Bald Eagle	✓	✓	✓	✓	✓	✓
Bank Swallow	✓					
Barn Swallow	✓					
Bobolink	✓					
Canada Warbler	✓					
Common Nighthawk	✓					
Eastern Whip-poor-will	✓				✓	
Evening Grosbeak	✓					
Grouse species (partridge)	✓	✓	✓	✓	✓	✓
Migratory Birds			✓	✓	✓	✓
Olive-sided Flycatcher	✓					
Osprey	✓	✓	✓	✓	✓	✓
Rusty Blackbird	✓					
Sandhill Crane	✓	✓	✓	✓	✓	✓
Waterfowl (ducks and geese)	✓	✓	✓	✓	✓	✓
Wild Turkey				✓		
Yellow Rail	✓					

With the exception of Wild Turkey (*Meleagris gallopavo*) and Bobolink (*Dolichonyx oryzivorus*), which are not present in the LSA based on a review of background data sources, these species are discussed below within their respective bird species groups (i.e. raptors, waterfowl, upland gamebirds, marshbirds, SAR and SOCC).

4.2.4 Forest Birds

A total of 70 species of forest birds have been observed in the LSA (Table 4.5). This group includes a variety of species that inhabit forested habitats, including warblers, flycatchers, woodpeckers, sparrows, kinglets thrushes, vireos, jays, nuthatches, finches, mockingbird and thrashers. Forest birds are abundant throughout the RSA in all forest types (hardwood, softwood and mixed wood) and ages. Some species, such as Pileated Woodpecker (*Dryocopus pileatus*), Blackburnian Warbler (*Setophaga fusca*), and Winter Wren (*Troglodytes hiemalis*) prefer mature forests as breeding habitat (Bull 2020, Hejl 2020, Morse 2020). Other species, including Magnolia Warbler (*Setophaga magnolia*) and Mourning Warbler (*Geothlypis philadelphia*), prefer younger and/or disturbed forests and regrowth (Dunn 2020, Pitocchelli 2020). Other forest birds such as White-throated Sparrow (*Zonotrichia albicollis*), and American Robin (*Turdus migratorius*) prefer edge habitats (Falls and Kopachena 2020, Vanderhoff et al. 2020). Most forest birds including warblers, sparrows and flycatchers eat insects and/or seeds. Blue Jays (*Cyanocitta cristata*) and Canada Jays (*Perisoreus canadensis*) are both omnivores, and in addition to insects, seeds and berries, may feed on bird eggs, small rodents, frogs or carrion (Smith et al. 2020a, Strickland and Ouellet 2020).

Based on results of field surveys presented in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement), the most common forest birds within the LSA were White-throated Sparrow, Ruby-crowned Kinglet (*Corthylio calendula*), Swainson's Thrush (*Catharus ustulatus*), Tennessee Warbler (*Leiothlypis peregrina*), Common Yellowthroat (*Geothlypis trichas*), Magnolia Warber, Red-eyed Vireo (*Vireo olivaceus*), and American Robin. Species that were not commonly observed included Rusty Blackbird, Brown Thrasher (*Toxostoma rufum*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*) and Canada Jay.

Most forest birds present in the LSA and RSA are migrants and are only present during the breeding season. For example, all warblers, vireos, and flycatchers migrate to warmer, more southern locations during the winter, and are present in the LSA only from spring to late summer or fall. However, some forest birds are present in the LSA year-round, including Black-capped Chickadee, Black-backed Woodpecker (*Picoides arcticus*), Red-breasted Nuthatch (*Sitta canadensis*), Pine Siskin (*Spinus pinus*), Evening Grosbeak (*Coccothraustes vespertinus*), Blue Jay and Canada Jay. These species tend to be some of the first forest birds to start nesting in the spring (Dawson 2020, Ghalambor and Martin 2020, Gillihan and Byers 2020, Foote et al. 2020, Smith et al. 2020a, Strickland and Ouellet 2020, Tremblay et al. 2020).

The forest bird group includes three SOCC: Common Nighthawk, Evening Grosbeak, and Olive-sided Flycatcher and two SAR: Canada Warbler, Eastern Whip-poor-will. These birds are discussed in further detail in Sections 4.2.1 and 4.2.2, and records of SOCC are shown on Figures A.4.1 to A.4.10. This group also contains 21 BCR 8 Priority Species.

Table 4.5 Forest Bird Species Observed in the Local Study Area

Common Name	Scientific Name	BCR 8 Priority Species	Occurrence
American Redstart	*Setophaga ruticilla*		Breeding/Migration
American Robin	*Turdus migratorius*		Breeding/Migration
American Tree Sparrow	*Spizelloides arborea*		Migration
Bay-breasted Warbler	*Setophaga castanea*	x	Breeding/Migration
Black-and-white Warbler	*Mniotilta varia*	x	Breeding/Migration
Black-backed Woodpecker	*Picoides arcticus*	x	Year-round
Black-billed Cuckoo	*Coccyzus erythropthalmus*		Breeding/Migration
Blackburnian Warbler	*Setophaga fusca*	x	Breeding/Migration
Black-capped Chickadee	*Poecile atricapillus*		Year-round
Blackpoll Warbler	*Setophaga striata*		Possible breeder/migration
Black-throated Green Warbler	*Setophaga virens*	x	Breeding/Migration
Blue Jay	*Cyanocitta cristata*		Year-round
Blue-headed Vireo	*Vireo solitarius*	x	Breeding/Migration
Blue-winged Warbler	*Vermivora cyanoptera*		Breeding/Migration
Boreal Chickadee	*Poecile hudsonicus*		Year-round
Brown Creeper	*Certhia americana*		Year-round
Brown Thrasher	*Toxostoma rufum*		Breeding/Migration
Canada Jay	*Perisoreus canadensis*		Year-round
Canada Warbler	*Cardellina canadensis*	x	Breeding/Migration
Cape May Warbler	*Setophaga tigrina*	x	Breeding/Migration
Cedar Waxwing	*Bombycilla cedrorum*		Breeding/Migration
Chestnut-sided Warbler	*Setophaga pensylvanica*	x	Breeding/Migration
Chipping Sparrow	*Spizella passerina*		Breeding/Migration
Common Nighthawk*	*Chordeiles minor*	x	Breeding/Migration
Common Yellowthroat	*Geothlypis trichas*		Breeding/Migration
Connecticut Warbler	*Oporornis agilis*	x	Breeding/Migration
Dark-eyed Junco	*Junco hyemalis*		Breeding/Migration
Downy Woodpecker	*Dryobates pubescens*		Year-round
Eastern Phoebe	*Sayornis phoebe*		Breeding/Migration
Evening Grosbeak*	*Coccothraustes vespertinus*	x	Year-round
Golden-crowned Kinglet	*Regulus satrapa*		Breeding/Migration
Gray Catbird	*Dumetella carolinensis*		Breeding/Migration
Hairy Woodpecker	*Dryobates villosus*		Year-round
Hermit Thrush	*Catharus guttatus*		Breeding/Migration
Least Flycatcher	*Empidonax minimus*		Breeding/Migration

Common Name	Scientific Name	BCR 8 Priority Species	Occurrence
Magnolia Warbler	*Setophaga magnolia*	x	Breeding/Migration
Mourning Warbler	*Geothlypis philadelphia*	x	Breeding/Migration
Nashville Warbler	*Leiothlypis ruficapilla*	x	Breeding/Migration
Northern Flicker	*Colaptes auratus*	x	Breeding/Migration
Northern Parula	*Setophaga americana*		Breeding/Migration
Northern Waterthrush	*Parkesia noveboracensis*		Breeding/Migration
Olive-sided Flycatcher*	*Contopus cooperi*	x	Breeding/Migration
Orange-crowned Warbler	*Leiothlypis celata*		Breeding/Migration
Ovenbird	*Seiurus aurocapilla*	x	Breeding/Migration
Palm Warbler	*Setophaga palmarum*		Breeding/Migration
Philadelphia Vireo	*Vireo philadelphicus*	x	Breeding/Migration
Pileated Woodpecker	*Dryocopus pileatus*		Year-round
Pine Siskin	*Spinus pinus*		Year-round
Pine Warbler	*Setophaga pinus*		Breeding/Migration
Purple Finch	*Haemorhous purpureus*	x	on the cusp of year-round/breeding
Red-breasted Nuthatch	*Sitta canadensis*		Year-round
Red-eyed Vireo	*Vireo olivaceus*		Breeding/Migration
Rose-breasted Grosbeak	*Pheucticus ludovicianus*		Breeding/Migration
Ruby-crowned Kinglet	*Corthylio calendula*	x	Breeding/Migration
Ruby-throated Hummingbird	*Archilochus colubris*		Breeding/Migration
Rusty Blackbird*	*Euphagus carolinus*	x	Breeding/Migration
Song Sparrow	*Melospiza melodia*		Breeding/Migration
Swainson's Thrush	*Catharus ustulatus*		Breeding/Migration
Tennessee Warbler	*Leiothlypis peregrina*	x	Breeding/Migration
Veery	*Catharus fuscescens*		Breeding/Migration
Whip-poor-will	*Antrostomus vociferus*	x	Breeding/Migration
White-crowned Sparrow	*Zonotrichia leucophrys*		Migration
White-throated Sparrow	*Zonotrichia albicollis*	x	Breeding/Migration
White-winged Crossbill	*Loxia leucoptera*		Year-round
Wilson's Warbler	*Cardellina pusilla*		Breeding/Migration
Winter Wren	*Troglodytes hiemalis*	x	Breeding/Migration
Yellow Warbler	*Setophaga petechia*		Breeding/Migration
Yellow-bellied Flycatcher	*Empidonax flaviventris*	x	Breeding/Migration

Common Name	Scientific Name	BCR 8 Priority Species	Occurrence
Yellow-bellied Sapsucker	*Sphyrapicus varius*	x	Breeding/Migration
Yellow-rumped Warbler	*Setophaga coronata*		Breeding/Migration

Notes:
Species with an asterisk (*) indicate a SOCC
Species in bold indicate a SAR
Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023

4.2.5 Other Landbirds

Seventeen bird species reported within the LSA were classified as other landbirds (Table 4.6). This group is a diverse mix of landbirds that are mostly found outside of forested habitats. Some of these such as American Crow (*Corvus brachyrhynchos*), Common Grackle (*Quiscalus quiscula*), and Common Raven (*Corvus corax*) are habitat generalists that occupy a wide variety of habitat types (Boarman and Heinrich 2020, Peer and Bollinger 2020, Verbeek and Caffrey 2021). Many of the species in this group use shrub or early successional habitats, including Alder Flycatcher (*Empidonax alnorum*), American Goldfinch (*Spinus tristis*), and Lincoln's Sparrow (*Melospiza lincolnii*) (Lowther 2020a, McGraw and Middleton 2020, Pandolfino et al. 2023). Alder Flycatcher and Red-winged Blackbirds (*Agelaius phoeniceus*) are often found in wet thickets and riparian areas, or around wetland habitats (Lowther 2020a, Yasukawa and Searcy 2020). Belted Kingfisher (*Megaceryle alcyon*) and Tree Swallows (*Tachycineta bicolor*) are also found near water, including lakes, ponds, streams and rivers (Kelly et al. 2020, Winkler 2020). Tree Swallows can also be found in fields or marshes (Winkler 2020). Open habitats are important for many of the other landbird species, including Eastern Bluebird (*Sialia sialis*), LeConte's Sparrow (*Ammospiza leconteii*), Savannah Sparrow (*Passerculus sandwichensis*), Eastern Kingbird (*Tyrannus tyrannus*) and Mourning Dove (*Zenaida macroura*). These species use grasslands, open pasture and in some cases, open woodland habitats (Gowaty and Plissner 2020, Lowther 2020b, Murphy and Pyle 2020, Otis et al. 2020, Wheelwright and Rising 2020).

During field surveys, American Goldfinch, Alder Flycatcher, Common Raven, Red-winged Blackbird, and American Crow were the most common bird species in the other landbird group. American Pipit (*Anthus rubescens*) was commonly observed during the migration surveys.

Most species in the other landbirds group are present only during the breeding season. However, American Pipit is only present during migration because it breeds in northern and western Canada, and overwinters in the southern US, Mexico and Central America. Common Raven is a year-round resident.

Two other landbird species are SAR - Barn Swallow and Chimney Swift. These species are discussed in Section 4.2.1.2 and 4.2.1.4, respectively. Five other landbird species are BCR 8 Priority Species: Alder Flycatcher, Barn Swallow, Chimney Swift, Eastern Kingbird, and Tree Swallow.

Table 4.6 Other Landbird Species Observed in the Local Study Area

Common Name	*Scientific Name*	BCR 8 Priority Species	Seasonal Occurrence
Alder Flycatcher	*Empidonax alnorum*	x	Breeding/Migration
American Crow	*Corvus brachyrhynchos*		Breeding/Migration
American Goldfinch	*Spinus tristis*		Breeding/Migration
American Pipit	*Anthus rubescens*		Migration
Barn Swallow	***Hirundo rustica***	x	Breeding/Migration
Belted Kingfisher	*Megaceryle alcyon*	x	Breeding/Migration
Chimney Swift	***Chaetura pelagica***		Breeding/Migration
Common Grackle	*Quiscalus quiscula*		Breeding/Migration
Common Raven	*Corvus corax*		Year-round
Eastern Bluebird	*Sialia sialis*		Breeding/Migration
Eastern Kingbird	*Tyrannus tyrannus*	x	Breeding/Migration
Le Conte's Sparrow	*Ammospiza leconteii*		Breeding/Migration
Lincoln's Sparrow	*Melospiza lincolnii*		Breeding/Migration
Mourning Dove	*Zenaida macroura*		Breeding/Migration
Red-winged Blackbird	*Agelaius phoeniceus*		Breeding/Migration
Savannah Sparrow	*Passerculus sandwichensis*		Breeding/Migration
Tree Swallow	*Tachycineta bicolor*	x	Breeding/Migration

Notes:
Species in bold indicate a SAR
Sources:
BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023

4.2.6 Raptors

Thirteen species of raptors have been observed in the LSA, including hawks, falcons, owls, Bald Eagle (*Haliaeetus leucocephalus*), Northern Harrier (*Circus hudsonius*) and Osprey (*Pandion haliaetus*) (Table 4.7). The habitat requirements for these raptors vary by species. American Goshawk (*Accipiter gentilis*), Barred Owl (*Strix varia*), Boreal Owl (*Aegolius funereus*), and Broad-winged Hawk (*Buteo platypterus*) are interior forest species that prefer older forests with large trees (Goodrich et al. 2020, Hayward and Hayward 2020. Mazur and James 2021, Squires and Reynolds 2023). Sharp-shinned Hawk (*Accipiter striatus*) and Cooper's Hawk (*Accipiter cooperii*) also use forests but are also be found along forest edges or in suburban areas (Bildstein et al. 2020, Rosenfield et al. 2020). Merlin (*Falco columbarius*) prefers open and semi-open forest habitat (Warkentin et al. 2020). Northern Harrier, Rough-legged Hawk and American Kestrel (*Falco sparverius*) all prefer open habitats, including grasslands and farm fields (Bechard et al. 2020, Smallwood and Bird 2020, Smith et al. 2020b). Northern Harrier often occurs in large open wetlands (Smith et al. 2020b). Red-tailed Hawks (*Buteo jamaicensis*) occupy both open and forest habitats, including pastures and parks (Preston and Beane 2020). All the raptor species

listed in Table 4.7 except for Northern Harrier, nest in trees. Northern Harrier is a ground nester and typically build nests in dense vegetation in a field or marsh (Smith et al. 2020b).

Osprey and Bald Eagle are species of importance to Indigenous nations, which are typically found near water, as they feed on fish (Bierregaard et al. 2020, Buehler 2022). Bald Eagle nests in forests relatively close (usually <2 km) to large waterbodies or rivers with suitable foraging resources. These forests are often characterized by open canopies and tall, super-canopy trees for nesting and/or perching sites (Buehler 2022). Bald Eagles tend to nest in areas with low levels of human disturbance but have high fidelity and typically use the same nest in successive years (Armstrong 2014). Osprey also nest near water, including lakes or coastlines. Large stick nests are built in the tops of trees, rocky cliffs, or on artificial structures such as utility lines and nesting platforms (Bierregaard et al. 2020).

Two Bald Eagle nests and two adult eagles were recorded during aerial surveys in 2021 and 2022, only one of which was in the LSA (Figure A.5.2). Osprey was only detected on ARUs; no evidence of nesting has been noted in the LSA.

Most species of raptors that occur in the LSA occur during the breeding season. The exception is Rough-legged Hawk, which occurs only in the winter, and breeds in the Arctic (Bechard et al. 2020). Four of the species observed in the LSA, are present year-round: American Goshawk, Bald Eagle, Barred Owl, and Boreal Owl (Buehler 2022, Hayward and Hayward 2020, Mazur and James 2021, Squires and Reynolds 2023).

Northern Harrier, Broad-winged hawk, American Kestrel and Boreal Owl are relatively common in the RSA and were each observed several times during field surveys. American Goshawk appear to be relatively uncommon and was only observed during the 2021 aerial surveys. Osprey and Barred Owl were only detected on ARUs.

There is one raptor SAR (Short-eared Owl), which is discussed in Section 4.2.1.7. In addition, three raptor species are BCR 8 Priority Species: Bald Eagle, Boreal Owl and Sharp-shinned Hawk.

Table 4.7 Raptor Species Observed in the Local Study Area

Common Name	*Scientific Name*	BCR 8 Priority Species	Seasonal Presence
American Goshawk	*Accipiter gentilis*		Year-round
American Kestrel	*Falco sparverius*		Breeding/Migration
Bald Eagle	*Haliaeetus leucocephalus*	x	Year-round
Barred Owl	*Strix varia*		Year-round
Boreal Owl	*Aegolius funereus*	x	Year-round
Broad-winged Hawk	*Buteo platypterus*		Breeding/Migration
Cooper's Hawk	*Accipiter cooperii*		Breeding/Migration
Merlin	*Falco columbarius*		Breeding/Migration
Northern Harrier	*Circus hudsonius*		Breeding/Migration
Osprey	*Pandion haliaetus*		Breeding/Migration

Common Name	*Scientific Name*	BCR 8 Priority Species	Seasonal Presence
Red-tailed Hawk	*Buteo jamaicensis*		Breeding/Migration
Rough-legged Hawk	*Buteo lagopus*		Winter
Sharp-shinned Hawk	*Accipiter striatus*	x	Breeding/Migration
Short-eared Owl	*Asio flammeus*		Breeding/Migration
Notes: Species in bold indicate a SAR Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023			

4.2.7 Upland Gamebirds

Three upland gamebird species were recorded in the LSA - Ruffed Grouse (*Bonasa umbellus*), Sharp-tailed Grouse (*Tympanuchus phasianellus*) and Spruce Grouse (*Canachites canadensis*) (Table 4.8). These species are year-round residents that likely nest in the LSA. Ruffed Grouse and Spruce Grouse are both forest species, but Spruce Grouse is only found in coniferous forests, whereas Ruffed Grouse prefers mixed-aged mixed wood forests (Rusch et al. 2020, Schroeder et al. 2021).

Sharp-tailed Grouse are typically found in grasslands or bogs with shrubby areas present to provide cover. In winter, Sharp-tailed Grouse use woodlands more, because they provide greater protection from the elements (Connelly et al. 2020). All three upland gamebird species are ground nesters (Connelly et al. 2020, Rusch et al. 2020, Schroeder et al. 2021). A total of 13,022 ha of candidate Sharp-tailed Grouse habitat was identified in the LSA following SWH criteria (Table 4.15, Figure A.5.4). During aerial surveys, Sharp-tailed Grouse were observed in six locations within the LSA, including potential lek sites.

Ruffed Grouse was frequently observed during breeding bird and bird migration surveys and the most common of the three upland gamebird species. Ruffed Grouse is a BCR 8 Priority Species; there are no upland gamebird species SAR or SOCC. Grouse species were identified as species of importance to Indigenous nations.

Table 4.8 Upland Gamebird Species Observed in the Local Study Area

Common Name	*Scientific Name*	BCR 8 Priority Species	Seasonal Occurrence
Ruffed Grouse	*Bonasa umbellus*	x	Year-round
Sharp-tailed Grouse	*Tympanuchus phasianellus*		Year-round
Spruce Grouse	*Canachites canadensis*		Year-round
Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023			

4.2.8 Marshbirds

Six marshbird species have been observed in the LSA (Table 4.9), all of which breed in freshwater marsh habitats. American Bittern (*Botaurus lentiginosus*), Sora (*Porzana carolina*), Yellow Rail (*Coturnicops noveboracensis*) and Virginia Rail (*Rallus limicola*) prefer marshes with cattails, bulrushes and sedges (Conway 2020, Leston and Bookhout 2020. Lowther et al. 2020, Melvin and Gibbs 2020). Swamp Sparrow (*Melospiza georgiana*) and Sandhill Crane (*Antigone canadensis*) use cattail marshes but will also nest in fens and bogs with open water (Gerber et al. 2020, Herbert and Mowbray 2020).

Swamp Sparrow is very common throughout the LSA and Sandhill Cranes are also relatively common. Swamp Sparrow was frequently recorded during breeding and migration surveys. Sandhill Crane and American Bittern were both recorded numerous times during breeding bird surveys; American Bittern are present in low abundance where suitable habitat exists. Sora, Yellow Rail, and Virgina Rail are uncommon within the RSA. Sandhill Crane, American Bittern, Yellow Rail, and Virginia Rail are ground nesters, whereas Swamp Sparrow nests in shrubs (Conway 2020, Gerber et al. 2020, Herbert and Mowbray 2020, Leston and Bookhout 2020, Lowther et al. 2020). Sora typically builds nests a few inches above water in dense vegetation or attached to plant stems (Melvin and Gibbs 2020).

All six marshbird species are present in the LSA only during breeding season. These species migrate to warmer, more southern areas to over-winter. Three marshbird species are BCR 8 Priority Species: American Bittern, Yellow Rail, and Swamp Sparrow.

Table 4.9 Marshbird Species Observed in the Local Study Area

Common Name	*Scientific Name*	BCR 8 Priority Species	Seasonal Occurrence
American Bittern	*Botaurus lentiginosus*	x	Breeding/Migration
Sandhill Crane	*Antigone canadensis*		Breeding/Migration
Sora	*Porzana carolina*		Breeding/Migration
Swamp Sparrow	*Melospiza georgiana*	x	Breeding/Migration
Virginia Rail	*Rallus limicola*		Breeding/Migration
Yellow Rail*	*Coturnicops noveboracensis*	x	Breeding/Migration
Notes: Species with an asterisk (*) indicate a SOCC Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023			

4.2.9 Shorebirds

Eight shorebird species were recorded during field surveys, seven of which breed in the LSA: American Woodcock (*Scolopax minor*), Killdeer (*Charadrius vociferus*), Solitary Sandpiper (*Tringa solitaria*), Spotted Sandpiper (*Actitis macularius*), Wilson's Snipe (*Gallinago delicata*), Greater Yellowlegs (*Tringa melanoleuca*) and Lesser Yellowlegs (*Tringa flavipes*). All these species are ground nesters but have different habitat requirements. American Woodcock nest in young forests, shrubby areas, or old fields

(McAuley et al. 2020). Killdeer nest in open areas, such as grazed fields, lawns, parking lots, airports, or mudflats (Jackson and Jackson 2020). Spotted Sandpiper and Solitary Sandpiper typically nest along freshwater waterbodies or watercourses, and Solitary Sandpiper also nest in areas with bogs and spruce trees (Moskoff 2020, Reed et al. 2020). Wilson's Snipe, Lesser and Greater Yellowlegs typically nest in wetlands such as peatlands (bogs and fens), marshes or wet meadows, or near ponds (Elphick and Tibbitts 2020, Mueller 2020; Tibbitts and Moskoff 2020). Except for Lesser Yellowlegs, all these species are relatively common breeders in the LSA and occur where suitable habitat exists

One additional shorebird species (Semipalmated Plover) is only present during migration. Semipalmated Plovers breed in subarctic and arctic regions but may stopover in the LSA or RSA during the spring and fall migration (Nol and Blanken 2020).

Of the shorebirds listed in Table 4.10, Wilson's Snipe and Spotted Sandpiper were most common during field surveys. Greater Yellowlegs and Killdeer were all observed at multiple survey stations whereas Semipalmated Plover and Solitary Sandpiper were uncommon. Lesser Yellowlegs are also relatively uncommon, but were recorded during breeding bird surveys in 2021, and on ARU in 2023. The observations were within the PA and LSA

Lesser Yellowlegs is a SAR and is discussed in Section 4.2.1.6. Four species of shorebirds are BCR 8 priority species: Greater Yellowlegs, Lesser Yellowlegs, Solitary Sandpiper, and Wilson's Snipe.

Table 4.10 Shorebird Species Observed in the Local Study Area

Common Name	***Scientific Name***	**BCR 8 Priority Species**	**Seasonal Occurrence**
American Woodcock	*Scolopax minor*		Breeding/Migration
Greater Yellowlegs	*Tringa melanoleuca*	x	Breeding/Migration
Killdeer	*Charadrius vociferus*		Breeding/Migration
Lesser Yellowlegs	***Tringa flavipes***	x	Breeding/Migration
Semipalmated Plover	*Charadrius semipalmatus*		Migration
Solitary Sandpiper	*Tringa solitaria*	x	Breeding/Migration
Spotted Sandpiper	*Actitis macularius*		Breeding/Migration
Wilson's Snipe	*Gallinago delicata*	x	Breeding/Migration
Notes: Species in bold indicate a SAR Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023			

4.2.10 Waterbirds

Five waterbird species were recorded in the LSA, including two gulls, one heron, one loon, and one grebe (Table 4.11). All species require open water habitat. Common Loon (*Gavia immer*) is the only waterbird that was confirmed as breeding during field surveys but all others except Herring Gull are likely nesting within the LSA.

Bonaparte's Gull (*Chroicocephalus philadelphia*) breeding habitat is found in the boreal forest near lakes, ponds or marshy areas, where they nest in conifer trees (Burger and Gochfeld 2020). Great Blue Heron (*Ardea herodias*) nest colonially, and typically make their nests in trees, although they sometimes nest in bushes or on the ground (Vennesland and Butler 2020). Common Loons occur on lakes and are only found on land during nesting. Nests are built on islands or along the shoreline adjacent to the water (Paruk et al. 2021). Pied-billed Grebe (*Podilymbus podiceps*) occur on lakes or ponds, where they construct floating nests among emergent vegetation (Muller and Storer 2020). Both Common Loons and Pied-billed Grebes are diving birds that dive for their food (Muller and Storer 2020, Paruk et al. 2021). Herring Gulls (*Larus argentatus*) are widespread through North America and occur in the LSA only during migration. They occupy a wide variety of habitats, including shorelines, fields, landfills, and other areas of human development (e.g. parks, parking lots). Herring Gulls nest colonially on isolated islands, or other areas free of predators (Weseloh et al. 2020).

Of the waterbirds, Common Loon was most common during field surveys and was present during both breeding and migration surveys in the LSA. Great Blue Heron was observed several times during the breeding season in the LSA and the remaining species were all relatively uncommon.

Two waterbird species (Common Loon and Herring Gull) are BCR 8 priority species; there are no waterbird SAR or SOCC.

Table 4.11 Waterbird Species Observed in the Local Study Area

Common Name	Scientific Name	BCR 8 Priority Species	Seasonal presence
Bonaparte's Gull	*Chroicocephalus Philadelphia*		Possible breeder/migration
Common Loon	*Gavia immer*	x	Breeding/Migration
Great Blue Heron	*Ardea Herodias*		Breeding/Migration
Herring Gull	*Larus argentatus*	x	Migration
Pied-billed Grebe	*Podilymbus Podiceps*		Breeding/Migration
Sources: BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023			

4.2.11 Waterfowl

Thirteen waterfowl species have been observed in the LSA (Table 4.12). All these species require open water habitats such as ponds and lakes. Three of the species are only present during migration, and do not breed in the LSA: Gadwall (*Mareca strepera*), Long-tailed Duck (*Clangula hyemalis*) and Redhead (*Aythya americana*) (Leschack et al. 2020, Robertson and Savard 2020, Woodin and Michot 2020). The remaining species are present during the breeding season, however not all have been confirmed breeding. For example, American Wigeon (*Mareca americana*) and Gadwall were observed during the breeding season, but no evidence of breeding was observed.

Most waterfowl are ground nesters and build their nests near water or in wetlands. However, there are some exceptions, including Hooded Merganser (*Lophodytes cucullatus*) and Wood Duck (*Aix sponsa*), which nest in tree cavities near water (Dugger et al. 2020, Hepp and Bellrose 2020).

Although there is some suitable habitat for aquatic or terrestrial waterfowl stopover and staging areas in the LSA, field surveys found only small numbers of waterfowl using these, and thus the habitats did not qualify as SWH.

Six waterfowl species are BCR 8 priority species: American Black Duck, American Wigeon, Green-winged Teal, Long-tailed Duck, Mallard, and Ring-necked Duck; Redhead is a SOCC and is discussed in Section 4.2.2.4.

Table 4.12 Waterfowl Species Observed in the Local Study Area

Common Name	Scientific Name	BCR 8 Priority Species	Seasonal presence
American Black Duck	*Anas rubripes*	x	Breeding/Migration
American Wigeon	*Mareca americana*	x	Possible breeder/migration
Blue-winged Teal	*Spatula discors*		Breeding/Migration
Canada Goose	*Branta canadensis*		Breeding/Migration
Gadwall	*Mareca strepera*		Migration
Green-winged Teal	*Anas crecca*	x	Breeding/Migration
Hooded Merganser	*Lophodytes cucullatus*		Breeding/Migration
Long-tailed Duck	*Clangula hyemalis*	x	Migration
Mallard	*Anas platyrhynchos*	x	Breeding/Migration
Redhead*	*Aythya americana*		Migration
Ring-necked Duck	*Aythya collaris*	x	Breeding/Migration
Trumpeter Swan	*Cygnus buccinator*		Possible breeder/migration
Wood Duck	*Aix sponsa*		Breeding/Migration

Notes:
Species with an asterisk (*) indicate a SOCC
Sources:
BC et al. 2023, eBird 2024, BC and MNR 2023, Wood 2022, National Audubon Society 2023, Ziolkowski et al. 2023

4.3 Bird Habitat

Within the RSA, upland treed habitat covers 39% (169,993 ha); mixed forests and coniferous treed forests are the most common upland forest types (Table 4.13). Wetlands are the largest ecosystem category in the RSA, covering 49% (217,459 ha) of the RSA. Swamps are the most common wetland class in the RSA (167,358 ha, 38%), followed by bogs (18,625 ha, 4%). Open water, such as lakes, rivers, and ponds, covers a relatively small area of the RSA (12,427.8 ha, 3%). The RSA is in a relatively undisturbed state; anthropogenic and sparsely vegetated areas cover 9% (38,681 ha) of the RSA. Cuts (harvested areas) are the largest anthropogenic or sparsely vegetated areas, reflecting the history of logging in the RSA, followed closely by settlement and infrastructure areas.

Table 4.13 Summary of Land Cover in the Regional Study Area

Ecosystem Category	Land Cover Class	RSA	
		Area (ha)	Area[1] (%)
Upland - Treed	Coniferous Forest	49,883	11
	Deciduous Forest	10,485	2
	Mixed Forest	86,740	20
	Sparse Forest	22,885	5
	Total Upland - Treed	**169,993**	**38**
Wetland	Unclassified Bog	15,218	3
	Open Bog	500	0.1
	Treed Bog	2,906	1
	Subtotal Bog	**18,624**	**4**
	Unclassified Fen	21,037	5
	Open Fen	71	0.0
	Treed Fen	870	0.2
	Subtotal Fen	**21,978**	**5**
	Unclassified Marsh	4,760	1
	Swamp	167,358	38
	Other Wetland	4,739	1
	Total Wetland	**217,459**	**49**
Water	Water - Deep or Clear	12,428	3
Sparsely Vegetated or Anthropogenic	Bedrock	115	0.0
	Cropland	794	0.2
	Cuts	18,280	4
	Pasture	5,756	1
	Sand/Gravel/Mine Tailings	5,603	1
	Settlement, Infrastructure	8,133	2
	Total Sparsely Vegetated or Anthropogenic	**38,681**	**8**
	Grand Total	**438,561**	**103**

Note:
1. Total exceeds 100% due to rounding.

Most of the LSA and PA are in a relatively natural condition. Wetlands cover most of the LSA and PA, occupying 71% (39,175 ha) and 73% (8,667 ha), respectively (Table 4.14). Upland forests cover 24% (2,837 ha) of the PA and 26% (14,273 ha) of the LSA (Table 4.14). Conifer forests are the dominant upland forest type, covering 21% (2,521 ha) of the PA and 23% (12,386 ha) of the LSA (Table 4.14). Open water is relatively uncommon in the LSA (288 ha, <1%) and occurs as scattered ponds, small lakes, rivers and (Table 4.14).

Anthropogenic and other poorly vegetated areas cover 2.1% (254 ha) of the PA and 1% (576 ha) of the LSA (Table 4.14). Utility corridors account for the largest anthropogenic areas, covering 1% (167 ha) of the PA and 1% (360 ha) of the LSA.

Table 4.14 Summary of Habitat Categories within the Project Area and Local Study Area

Land Cover Class	PA		LSA	
	Area (ha)[1]	Area[2] (%)	Area (ha)	Area[2] (%)
Upland - Treed				
Coniferous Forest	2,521	21	12,386	23
Deciduous Forest	316	3	1,887	3
Total Upland - Treed	**2,837**	**24**	**14,273**	**26**
Wetland				
Open Bog	5	0	32	0.1
Treed Bog	2,353	20	7,860	14
Subtotal Bog	**2,358.0**	**20.0**	**7,892**	**14**
Open Fen	7	0.1	233	0.4
Treed Fen	781	7	4,465	8
Subtotal Fen	**788**	**7**	**4,698**	**8**
Marsh	752	6	1,295	2
Swamp	4,768	40	25,290	47
Total Wetland	**8,666**	**73**	**39,175**	**71**
Barren				
Active Mineral Barren	0.4	0.0	12	0.0
Water				
Lakes, Rivers, Ponds	26	0.2	288	0.5
Anthropogenic				
Commercial/Residential	13	0.1	20	0.0
Utilities	167	1	360	1
Pavement/Concrete	74	1	196	0.4
Total Anthropogenic	**254**	**2**	**576**	**1**
Grand Total	**11,783**	106	**54,324**	107

Notes:
1. Total is under 11,785 due to rounding.
2. Total exceeds 100% due to rounding.

4.3.1 Bird Significant Wildlife Habitat Features

The following bird habitat features of conservation interest were identified and mapped following Significant Wildlife Habitat Criteria for Ecoregion 3E (MNR 2015) during baseline studies (2023 Terrestrial Ecology Baseline Study [Appendix B.7.4 of the Impact Statement]):

- Waterfowl Nesting Area
- Bald Eagle and Osprey Nesting Habitat
- Woodland Raptor Nesting Habitat
- Sharp-tailed Grouse Lek Habitat
- Marsh Breeding Bird Habitat
- Shrub/Early Successional Breeding Bird Habitat
- Habitat for Special Concern and Rare Species

A description of each bird SWH, including the ecosites included, can be found in the 2023 Terrestrial Ecology Baseline Study (Appendix B.7.4 of the Impact Statement). The area of each SWH feature in the PA and LSA is presented in Table 4.15, and is shown in Figures A.5.1 to A.5.7.

Bald Eagle nesting habitat was confirmed, and a Bald Eagle nest was observed in the southeast corner of the PA (Figure A.5.2). Habitat for Special Concern and Rare Species were also confirmed, based on the presence of SAR and SOCC (including Barn Swallow, Canada Warbler, Common Nighthawk, Evening Grosbeak, Olive-sided Flycatcher, Redhead, and Rusty Blackbird). The remaining identified SWH are considered candidate, which means that suitable habitat is present, but field studies to determine whether the SWH ecoregion criteria have been met were not completed (MNRF 2015).

Table 4.15 Area of Each Bird Significant Wildlife Habitat Feature in the Project Area and Local Study Area

Significant Wildlife Habitat Features	Area (ha)	
	Project Area	Local Study Area
Candidate Waterfowl Nesting Area	3,186	7,880
Candidate Woodland Raptor Nesting Habitat	2,837	14,273
Candidate Sharp-tailed Grouse Habitat	3,246	13,021
Candidate Marsh Breeding Bird Habitat	2,483	8,256
Candidate Shrub/Early Successional Bird Breeding Habitat	936	2,032
Confirmed Bald Eagle Nesting Habitat	149	201
Confirmed Habitat for Special Concern and Rare Species	350	937

5 Discussion

The PA and LSA support a diverse assemblage of bird species during the breeding season, particularly forest birds that return to the boreal forest every year for nesting. The Project falls within BCR 8 – the Boreal Softwood Shield. BCR 8 supports a high abundance of birds; more than 10% of the global population of at least 20 species are present in Ontario's BCR 8 (BCR 8 ON) during the breeding season (EC 2014).

There were seven SAR identified in the background review or during field surveys that may be present within the PA or LSA during the breeding season: Bank Swallow, Barn Swallow, Canada Warbler, Chimney Swift, Eastern Whip-poor-will, Lesser Yellowlegs and Short-eared Owl. Only Lesser Yellowlegs and Canada Warbler were confirmed present during baseline surveys (2023 Terrestrial Ecology Baseline Study [Appendix B.7.4 of the Impact Statement]). No Critical Habitat has been identified within the LSA or RSA.

An additional six SOCC were identified as potentially being present within the PA or LSA: Common Nighthawk, Evening Grosbeak, Olive-sided Flycatcher, Redhead, Rusty Blackbird and Yellow Rail. Redhead was only observed once and was likely a moulting or migrating individual. A single possible Yellow Rail call was recorded during baseline surveys, but the species has not been confirmed as present. All other SOCC were confirmed as breeding within the LSA.

Wetlands are the largest ecosystem category in the RSA, covering 49% (217,459 ha) of the RSA. Swamps are the most common wetland class in the RSA (167,358 ha, 38%), followed by bogs (18,625 ha, 4%). Wetland habitats within the LSA support waterfowl, shorebirds, waterbirds, marshbirds, forest birds (swamps) and raptors. Within the RSA, upland treed habitat covers 39% (169,993 ha); mixed forests and coniferous treed forests are the most common upland forest types. Forest birds are the most common species guild in this habitat, but forests also provide habitat for raptors and upland gamebirds.

Seven types of bird SWH features were identified within the LSA during baseline studies (2023 Terrestrial Ecology Baseline Study [Appendix B.7.4 of the Impact Statement]):

- Waterfowl Nesting Area
- Bald Eagle and Osprey Nesting Habitat
- Woodland Raptor Nesting Habitat
- Sharp-tailed Grouse Lek Habitat
- Marsh Breeding Bird Habitat
- Shrub/Early Successional Breeding Bird Habitat
- Habitat for Special Concern and Rare Species

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Appendices

Appendix A Figures

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody
- Wetland, Provincially Significant
- Wetland, Other Evaluated

0 10 20 km

1:400,000 (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 2024-09-12

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

Figure No.
A.1

Title
Local and Regional Study Areas

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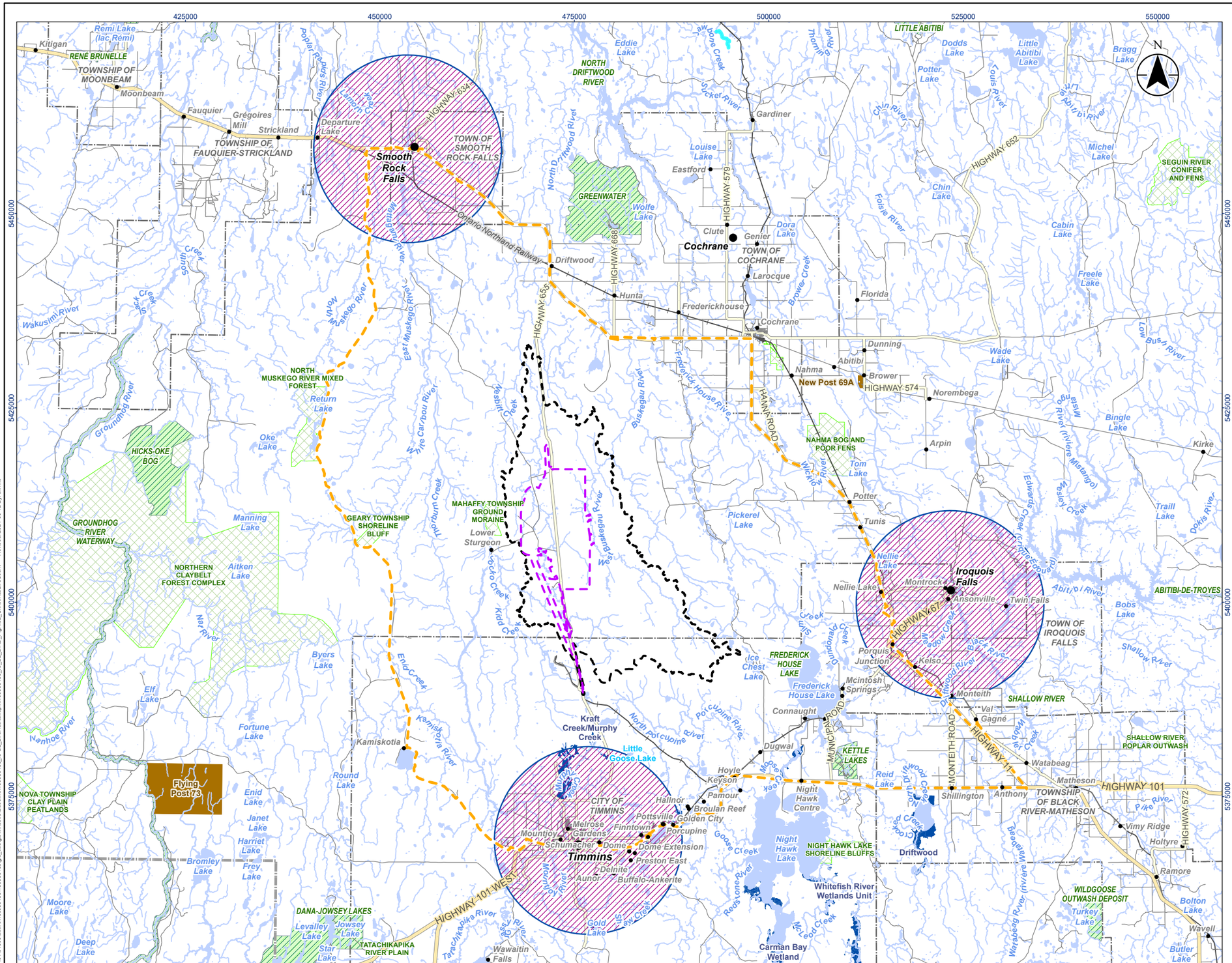

Legend

- ⬚ Project Area
- ⬚ Local Study Area
- ⬚ Regional Study Area
- ▨ Christmas Bird Count Circles (2023)

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- ▨ Conservation Reserve (Regulated)
- ■ First Nation Reserve
- ⬚ Municipal Boundary - Lower Tier
- ⬚ Municipal Boundary - Upper Tier
- ▨ Provincial Park
- ■ Waterbody
- ■ Wetland, Provincially Significant
- ■ Wetland, Other Evaluated

0 10 20 km
1:500,000 (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.
3. 124th Christmas Bird Count Circles from: https://www.arcgis.com/apps/View/index.html?appid=ac275eeb01434cedb1c5dcd0fd3fc7b4

Project Location
Timmins, Ontario

160930456 REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.2

Title
Christmas Bird Count Circles (2023)

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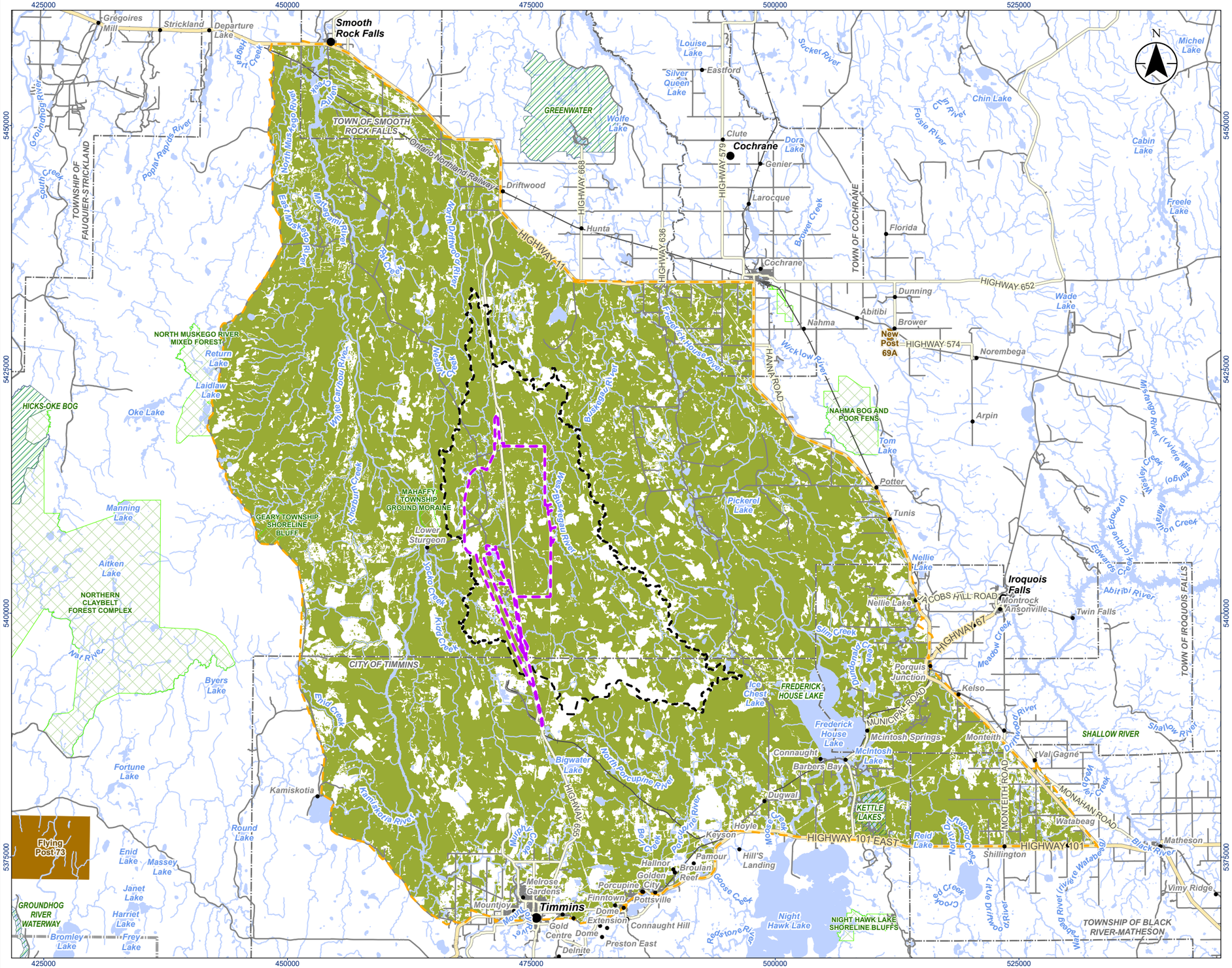

Legend

- ▭ Project Area
- ▭ Local Study Area
- ▭ Regional Study Area
- 🟩 Forest Birds

Base Features

- ═ Expressway / Highway
- ═ Major Road
- ─ Minor Road
- ┼ Railway
- ─ Watercourse
- ▨ Conservation Reserve (Regulated)
- 🟫 First Nation Reserve
- ▭ Municipal Boundary - Lower Tier
- ▭ Municipal Boundary - Upper Tier
- ▨ Provincial Park
- 🟦 Waterbody

0 5 10 km

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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.3.1

Title
Species Groups: Forest Birds

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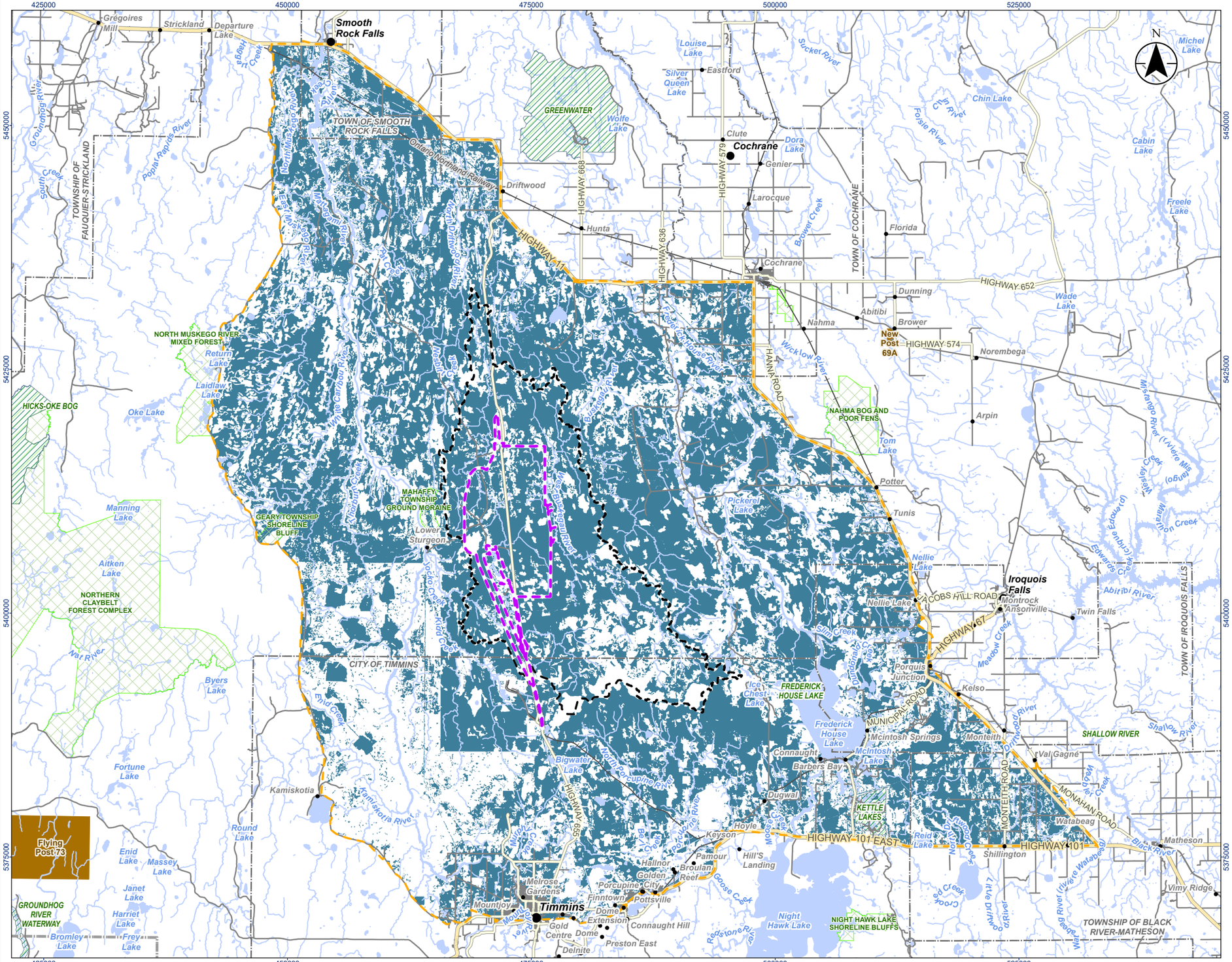

Stantec

CANADA NICKEL COMPANY

Legend

- ▭ Project Area
- ▭ Local Study Area
- ▭ Regional Study Area
- ■ Other Landbirds

Base Features

- ━ Expressway / Highway
- ━ Major Road
- ━ Minor Road
- ┼ Railway
- ━ Watercourse
- ▨ Conservation Reserve (Regulated)
- ■ First Nation Reserve
- ▭ Municipal Boundary - Lower Tier
- ▭ Municipal Boundary - Upper Tier
- ▨ Provincial Park
- ■ Waterbody

0 5 10 km

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Notes

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Project Location	REVA
Timmins, Ontario	Prepared by awhite on 2024-09-12

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

Figure No.
A.3.2

Title
Species Groups: Other Landbirds

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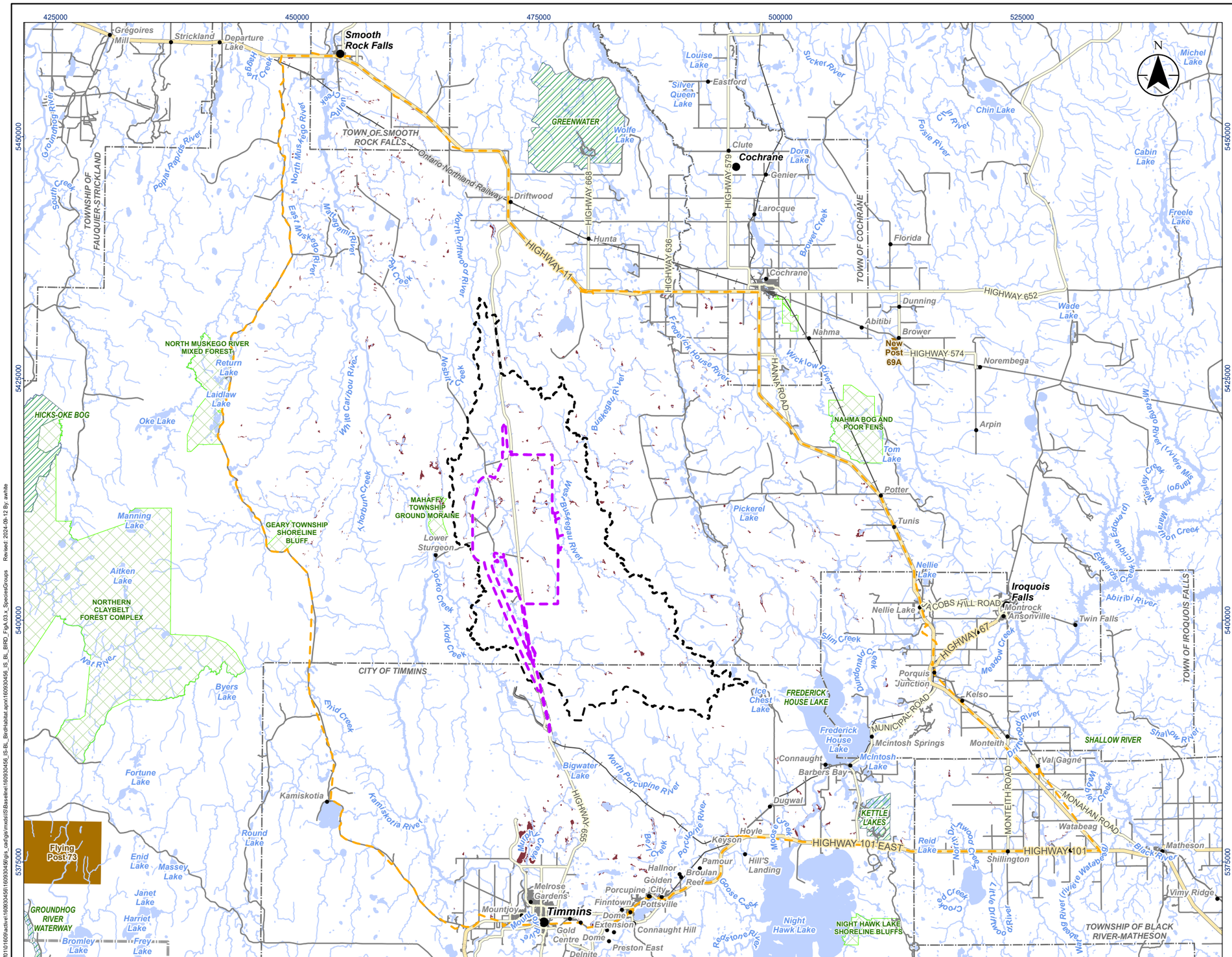

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Marshbirds

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10
km
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Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.3.3

Title
Species Groups: Marshbirds

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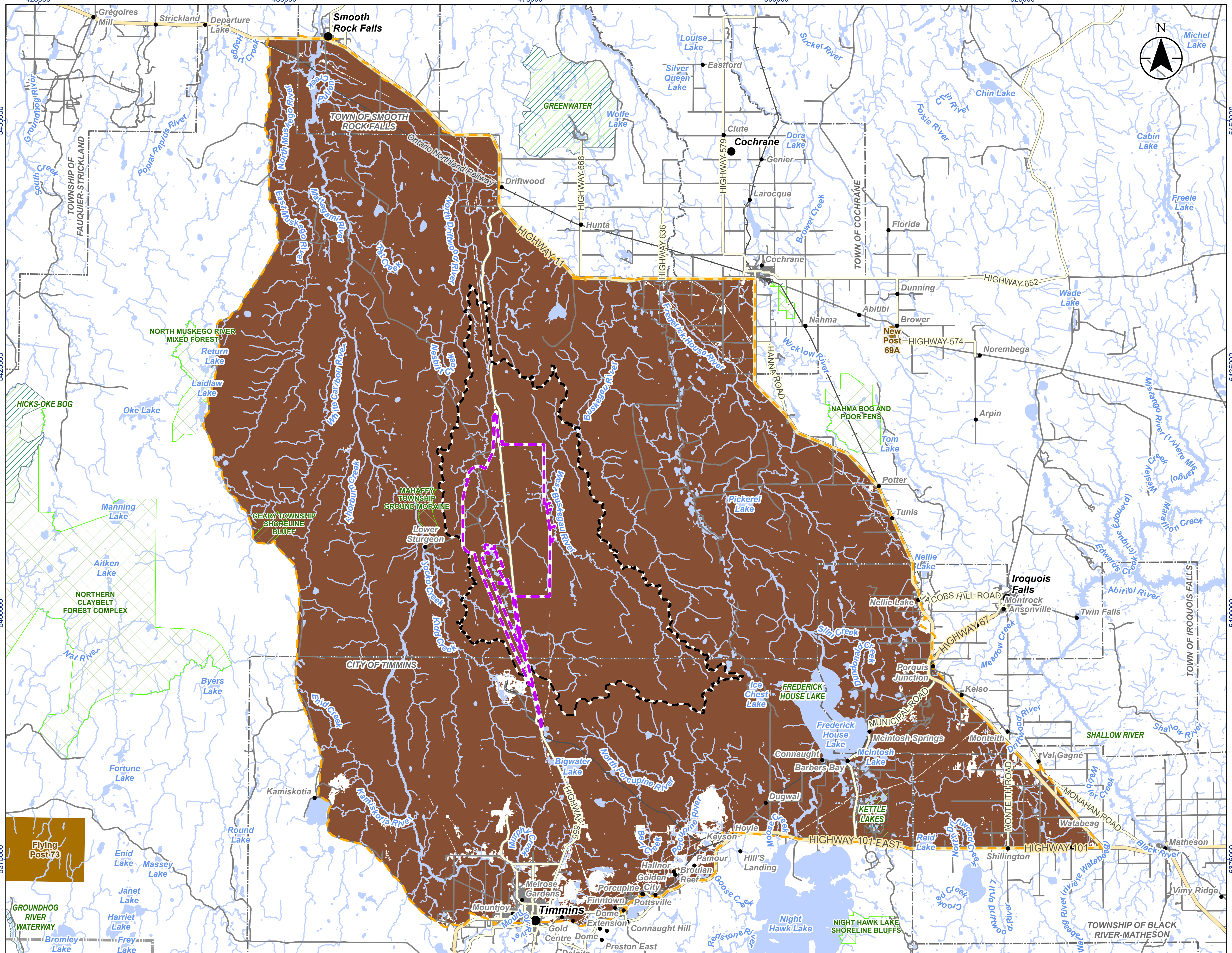

Stantec | **CANADA NICKEL COMPANY**

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Raptors

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km
1:400,000 (At original document size of 11x17)

Notes

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Project Location: Timmins, Ontario

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

Figure No.
A.3.4

Title
Species Groups: Raptors

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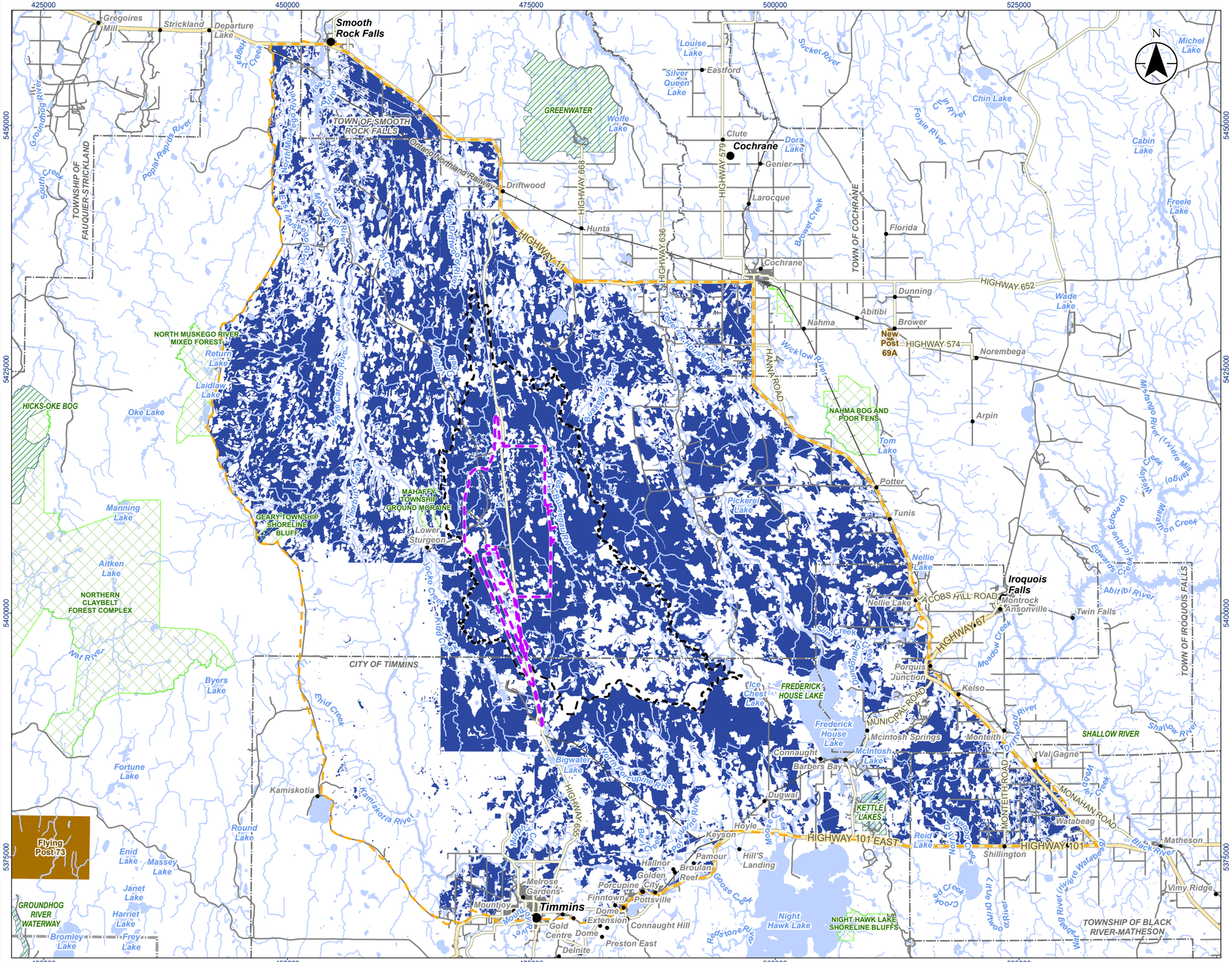

Legend

- ▭ Project Area
- ▭ Local Study Area
- ▭ Regional Study Area
- ■ Waterfowl

Base Features

- ━ Expressway / Highway
- ━ Major Road
- ━ Minor Road
- ┼ Railway
- ━ Watercourse
- ▨ Conservation Reserve (Regulated)
- ■ First Nation Reserve
- ▭ Municipal Boundary - Lower Tier
- ▭ Municipal Boundary - Upper Tier
- ▨ Provincial Park
- ■ Waterbody

0 5 10 km

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Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.3.5

Title
Species Groups: Waterfowl

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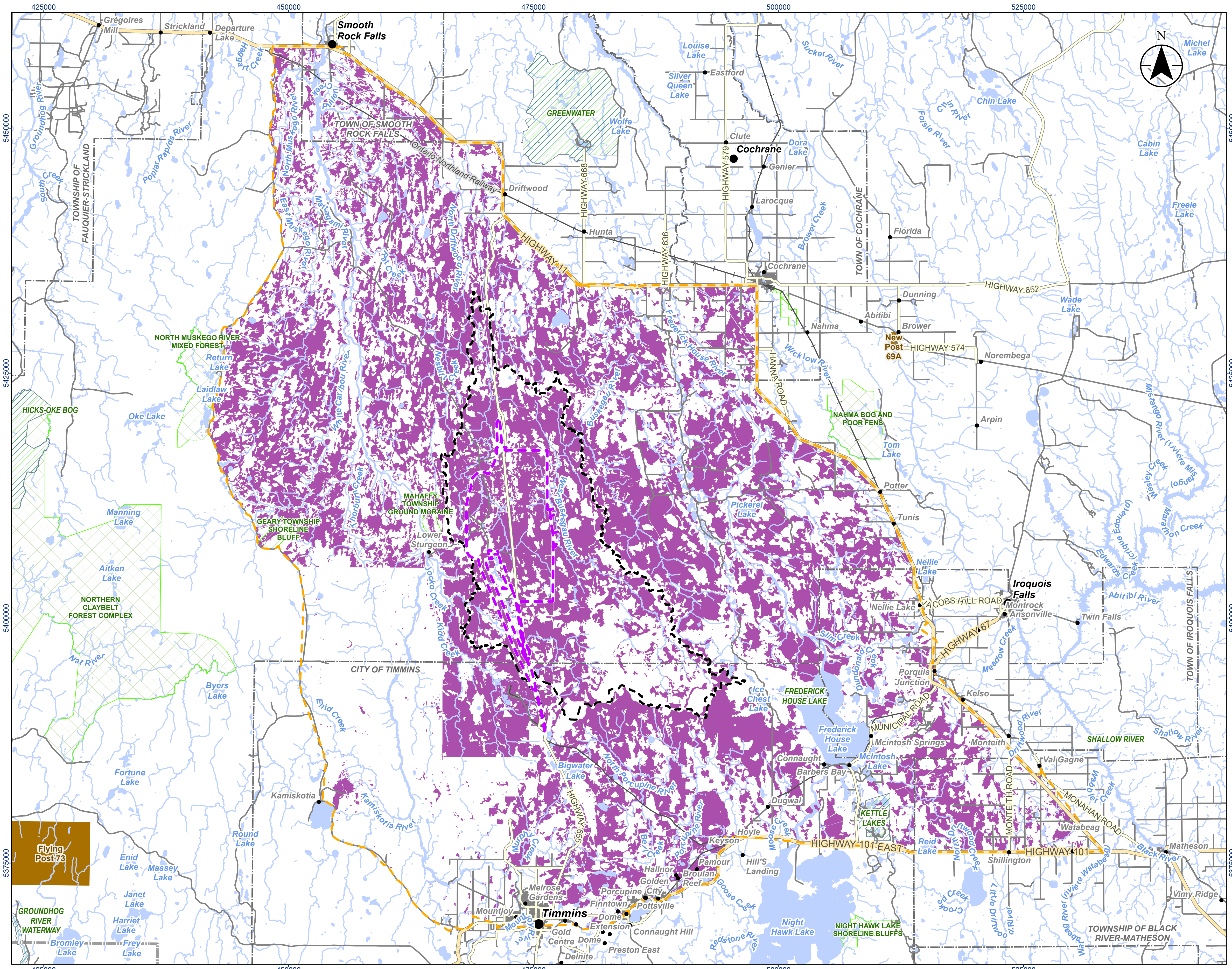

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Waterbirds

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Notes

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

Figure No.
A.3.6

Title
Species Groups: Waterbirds

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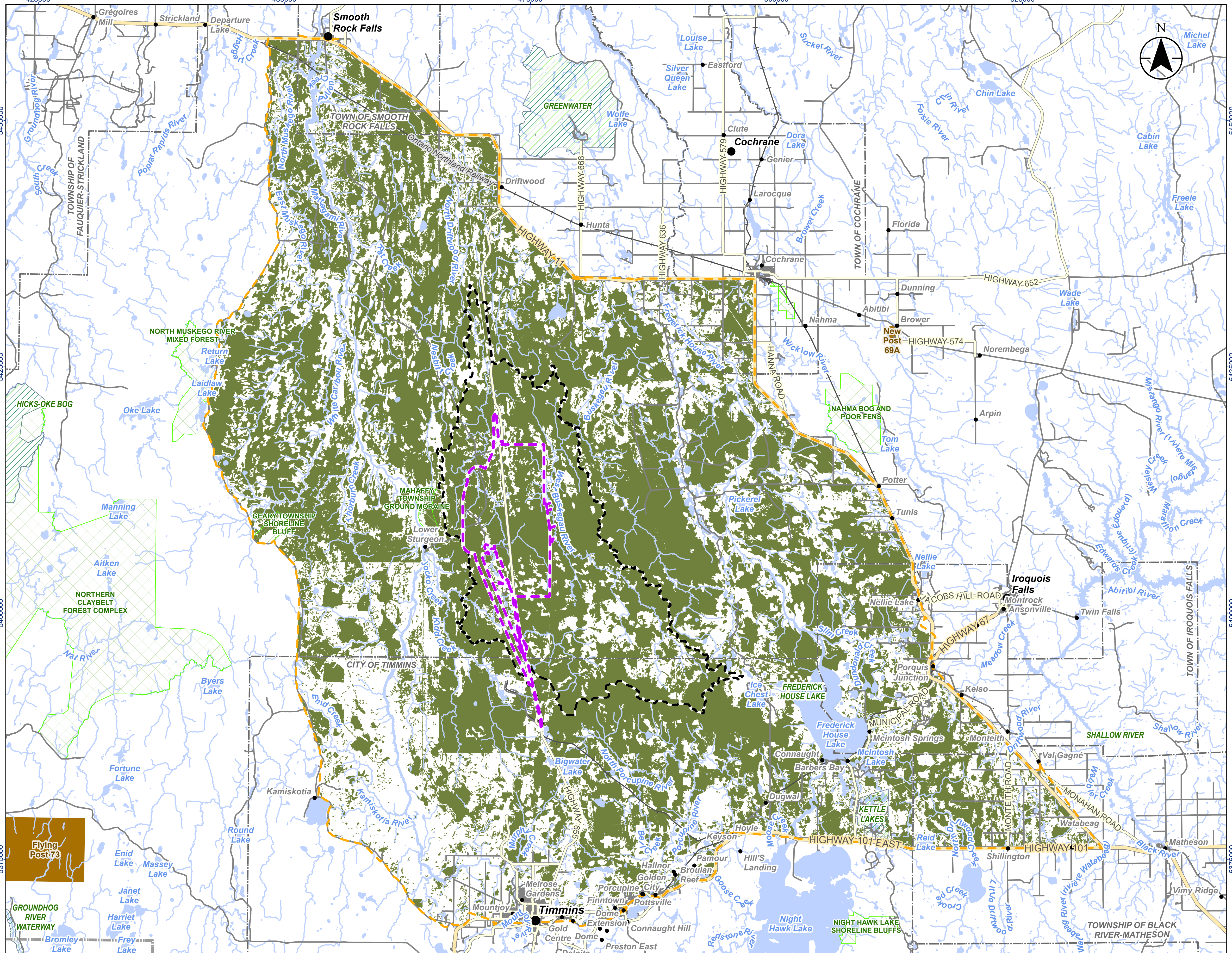

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Shorebirds

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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

Figure No.
A.3.7

Title
Species Groups: Shorebirds

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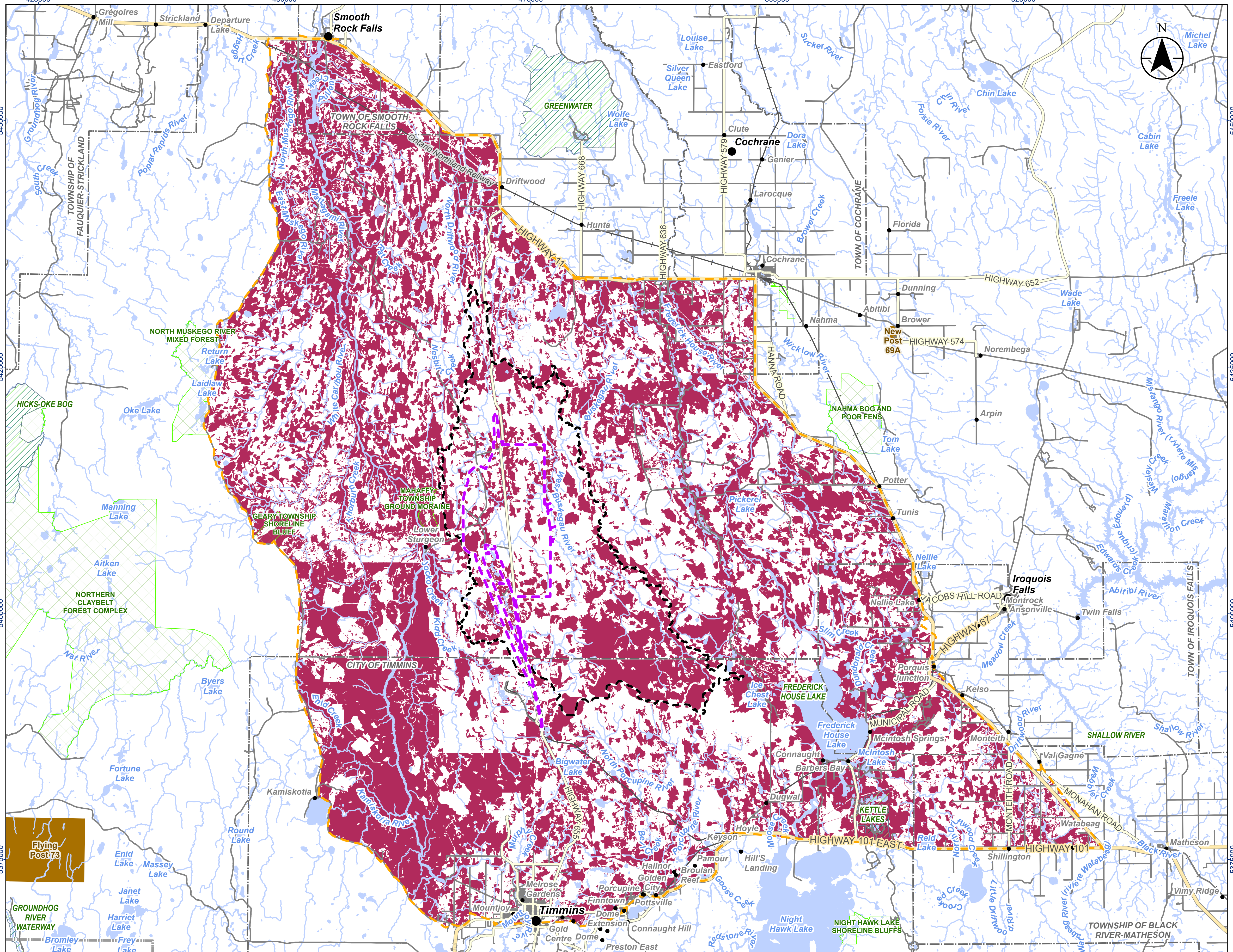

N

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Upland Gamebirds

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Project Location
Timmins, Ontario

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

Figure No.
A.3.8

Title
Species Groups: Upland Gamebirds

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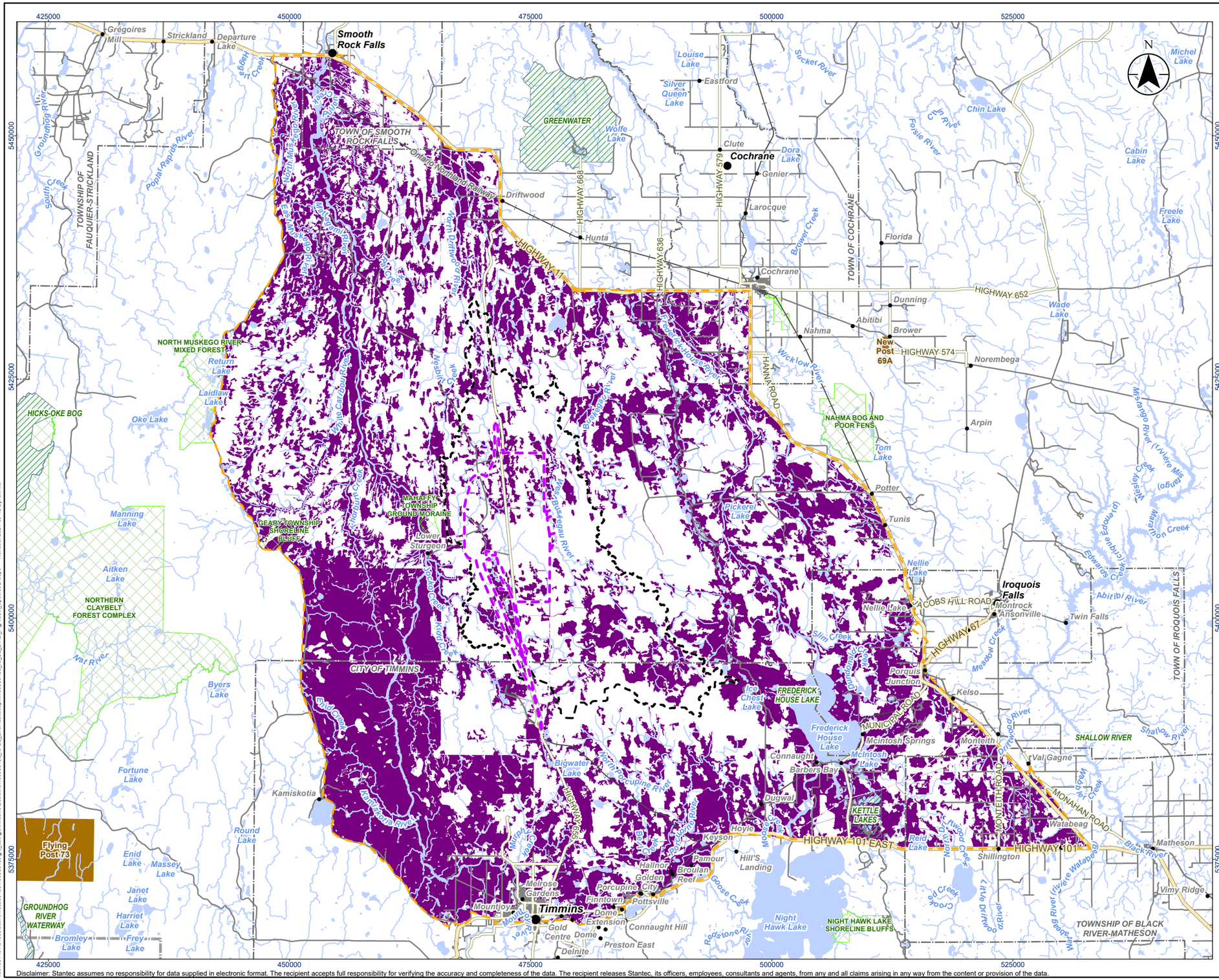

Stantec

CANADA NICKEL COMPANY

Legend

▭	Project Area
▭	Local Study Area
▭	Regional Study Area
■	Common Nighthawk

Base Features

═	Expressway / Highway
═	Major Road
—	Minor Road
┼	Railway
—	Watercourse
▨	Conservation Reserve (Regulated)
■	First Nation Reserve
▭	Municipal Boundary - Lower Tier
▭	Municipal Boundary - Upper Tier
▨	Provincial Park
■	Waterbody

0 5 10 km
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Project Location	REVA
Timmins, Ontario	Prepared by awhite on 2024-09-12

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

Figure No.
A.3.9

Title
Species Groups: Common Nighthawk

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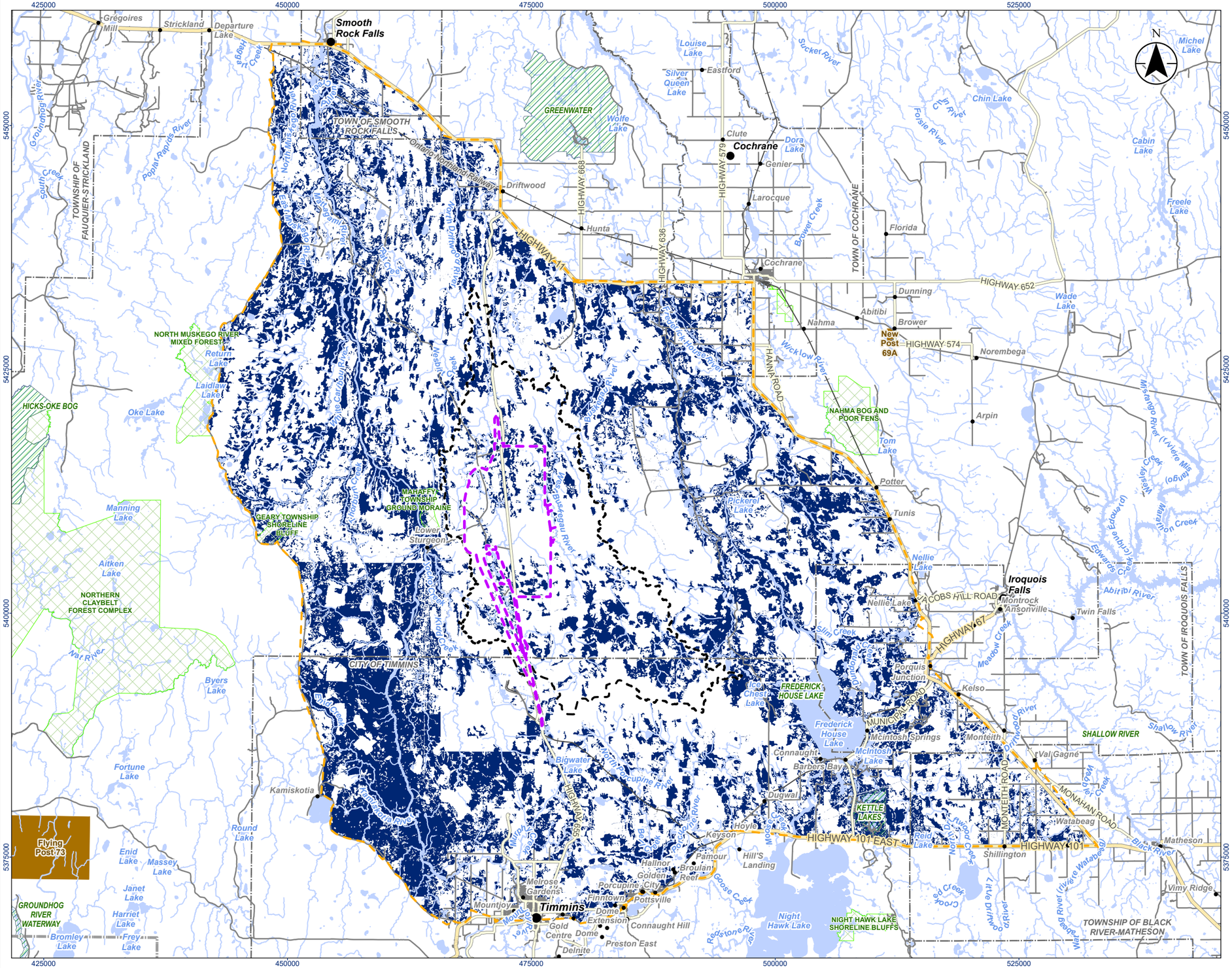

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Evening Grosbeak

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.3.10

Title
Species Groups: Evening Grosbeak

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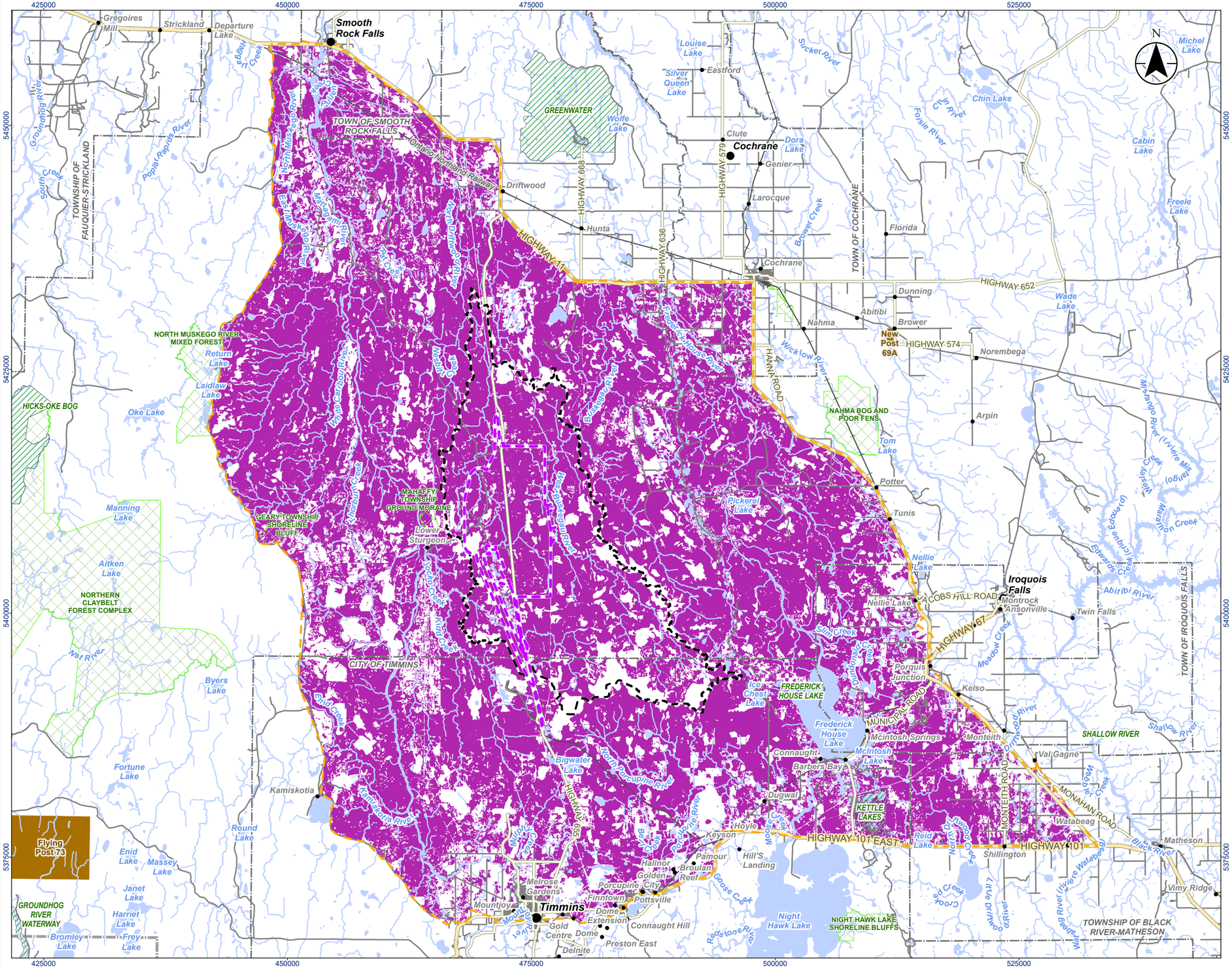

Stantec

CANADA NICKEL COMPANY

Legend

- ▭ Project Area
- ▭ Local Study Area
- ▭ Regional Study Area
- ■ Olive-sided Flycatcher

Base Features

- ━ Expressway / Highway
- ━ Major Road
- ━ Minor Road
- ┼ Railway
- ━ Watercourse
- ▨ Conservation Reserve (Regulated)
- ■ First Nation Reserve
- ▭ Municipal Boundary - Lower Tier
- ▭ Municipal Boundary - Upper Tier
- ▨ Provincial Park
- ■ Waterbody

0 5 10 km

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Project Location
Timmins, Ontario

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

Figure No.
A.3.11

Title
Species Groups: Olive-sided Flycatcher

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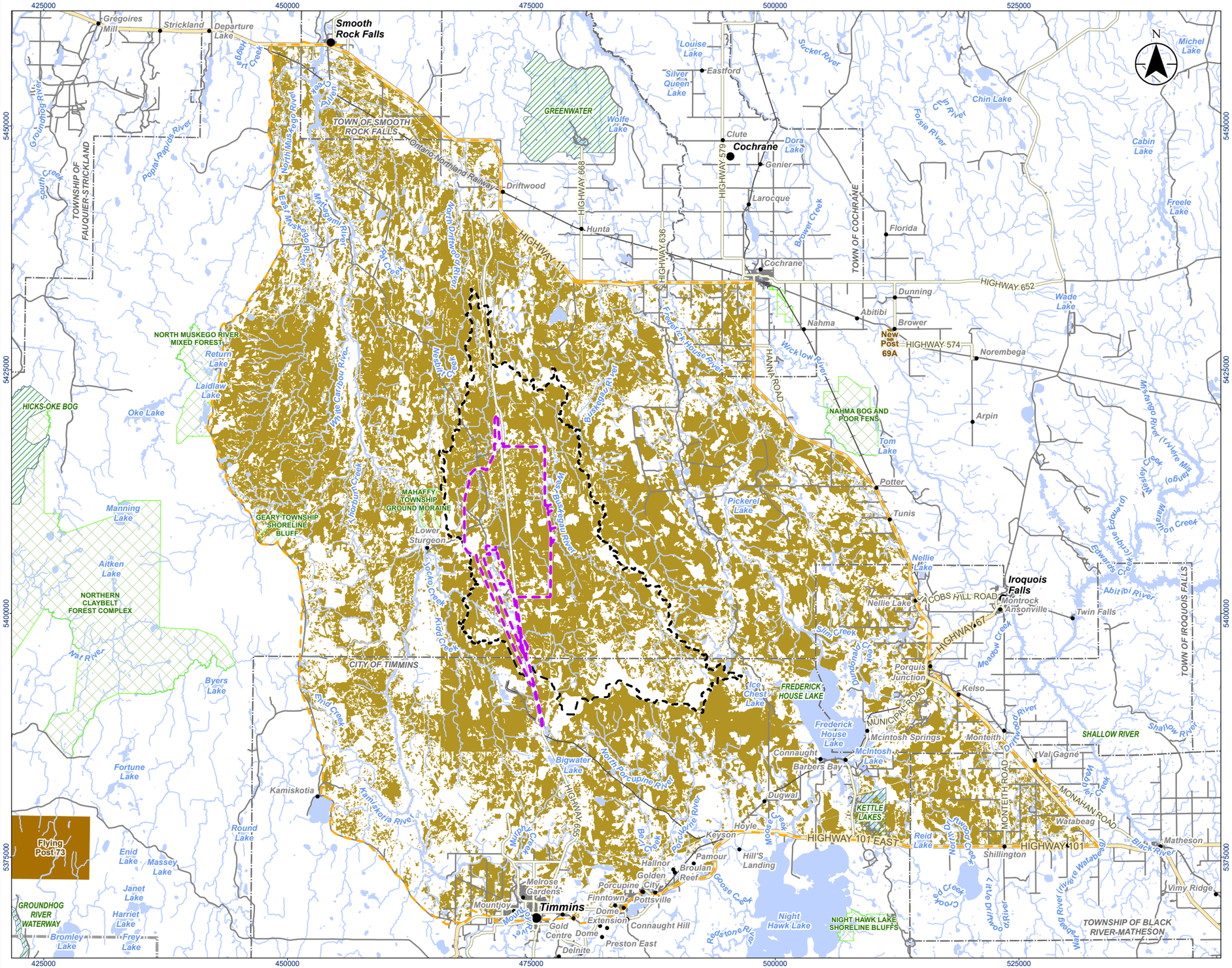

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Rusty Blackbird

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.3.12

Title
Species Groups: Rusty Blackbird

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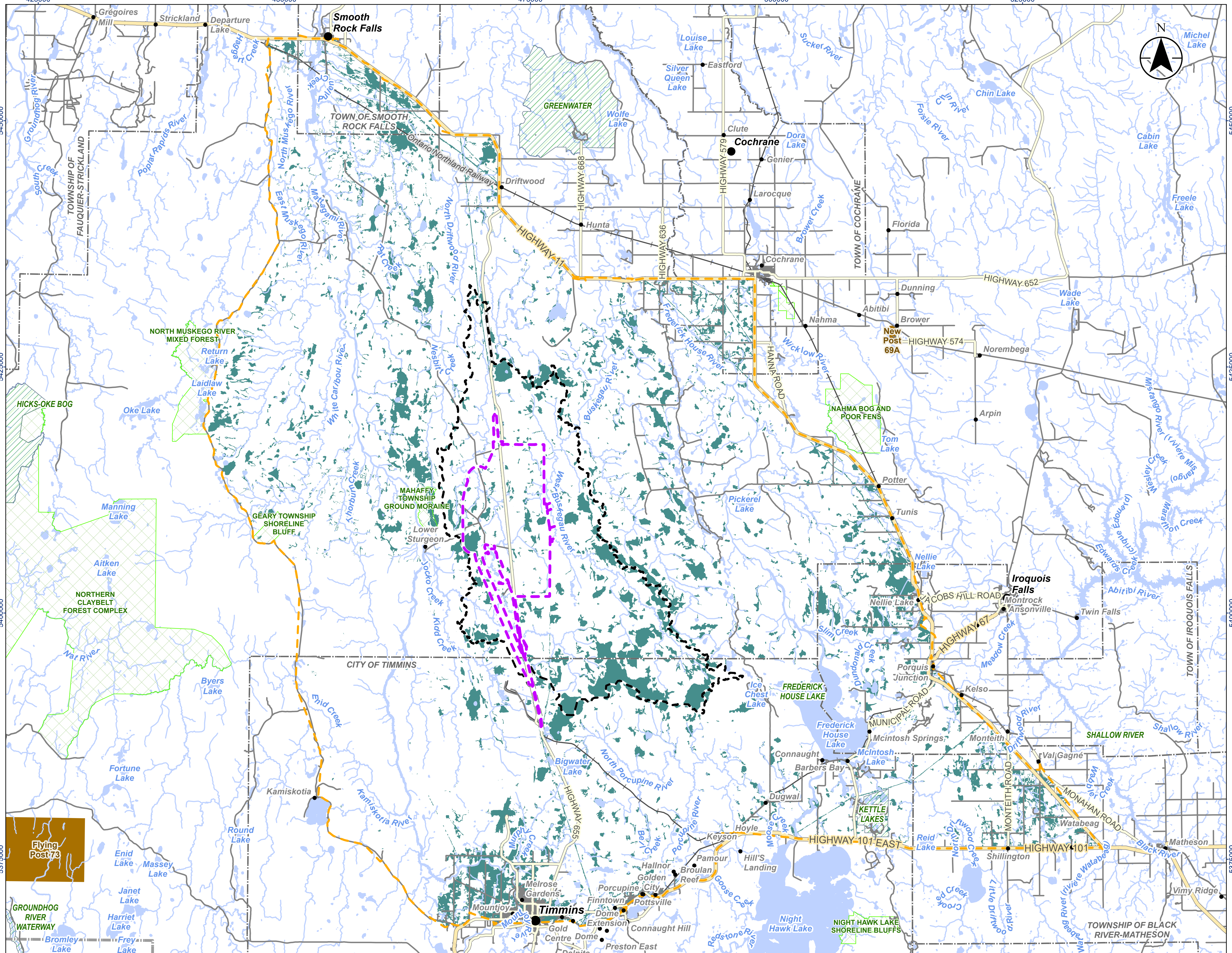

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Yellow Rail

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Notes

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Project Location: Timmins, Ontario

REVA

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

Figure No. A.3.13

Title: **Species Groups: Yellow Rail**

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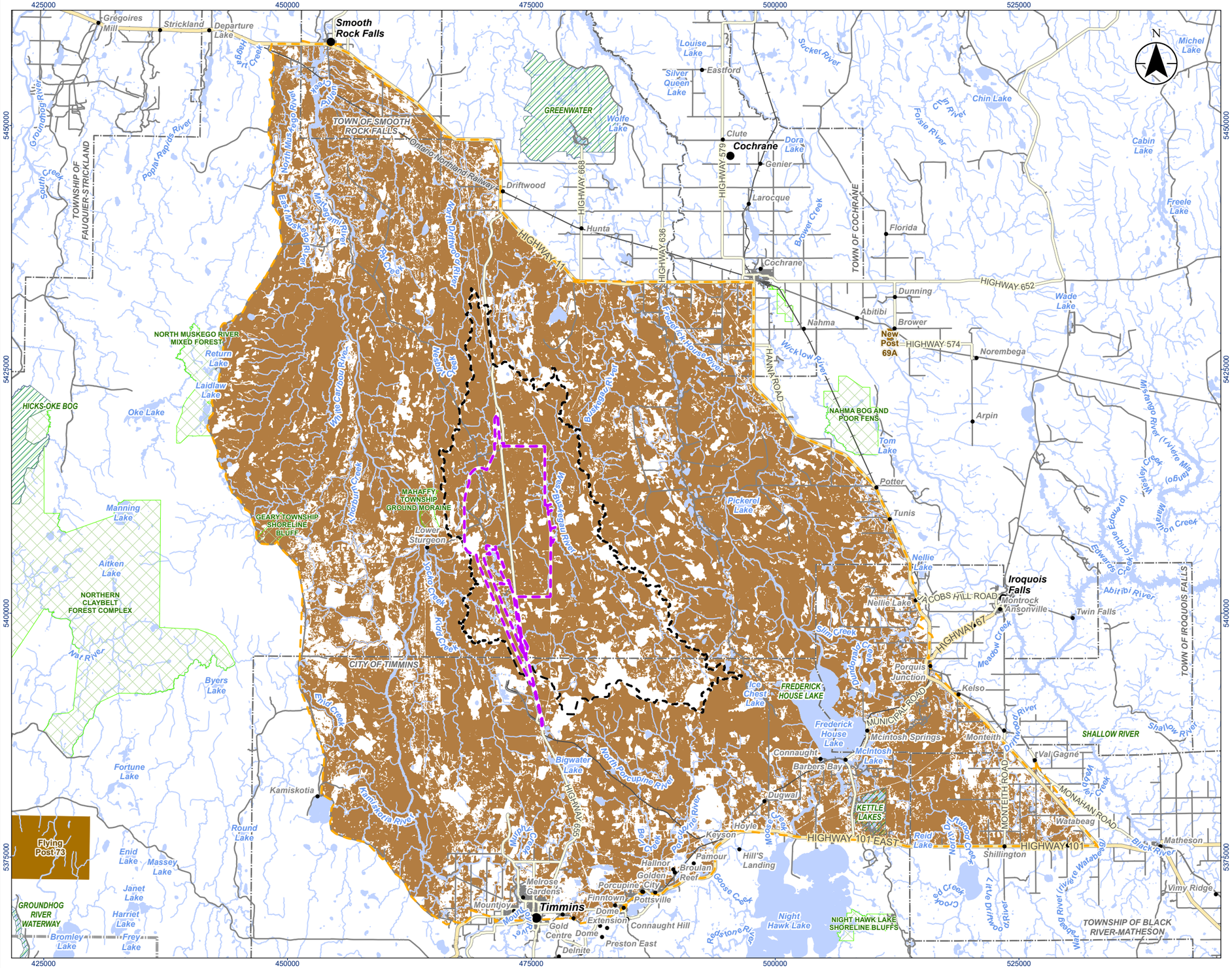

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Canada Warbler

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.3.14

Title
Species Groups: Canada Warbler

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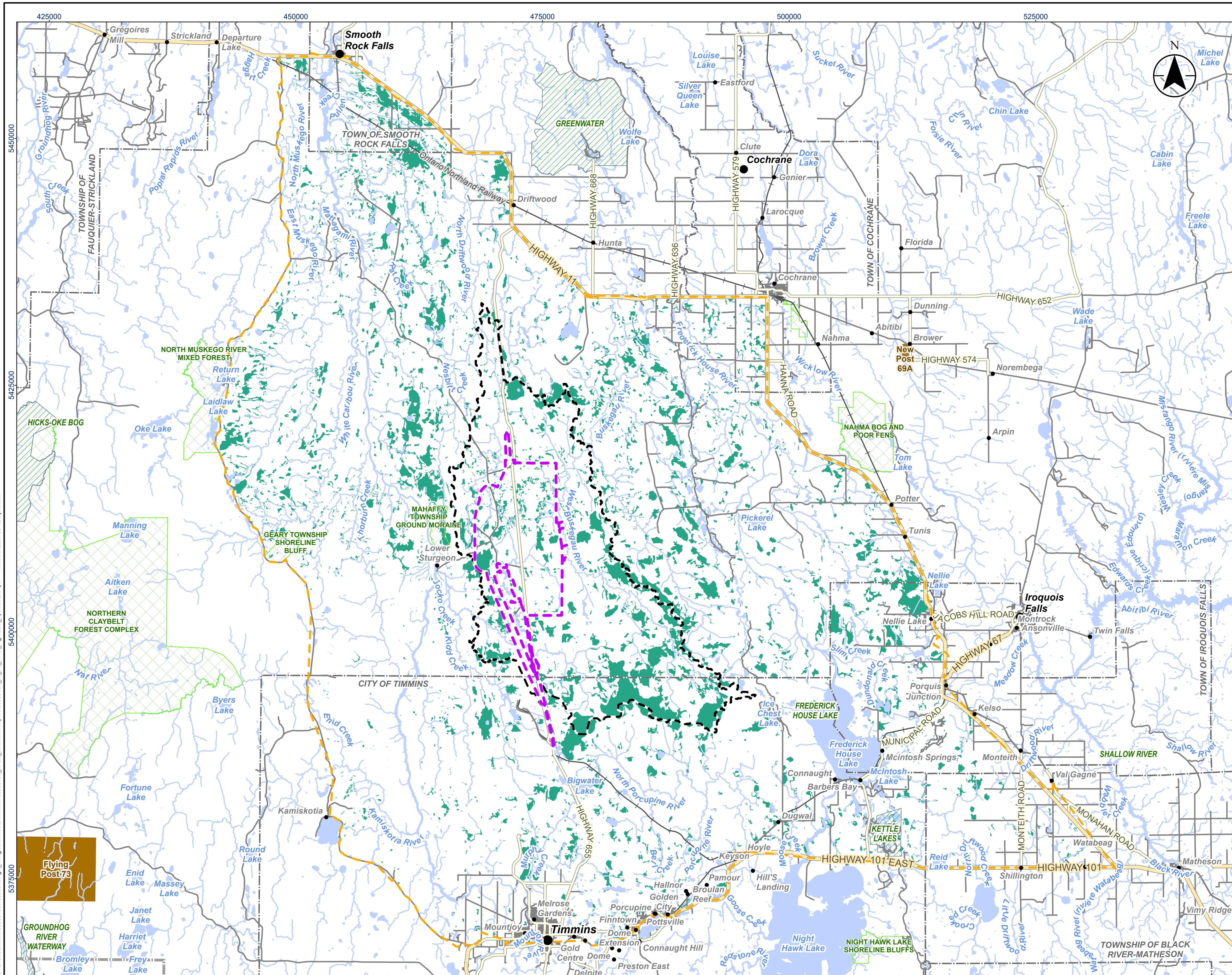

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Lesser Yellowlegs

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

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Notes

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Project Location: Timmins, Ontario

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

Figure No.
A.3.15

Title
Species Groups: Lesser Yellowlegs

\\cd1004-f01\01609\active\160930456\gis_cad\gis\mxds\IS\Baseline\160930456_IS-BL_BirdHabitat.aprx\160930456_IS_BL_BIRD_FigA.03.x_SpeciesGroups Revised: 2024-09-12 By: awhite

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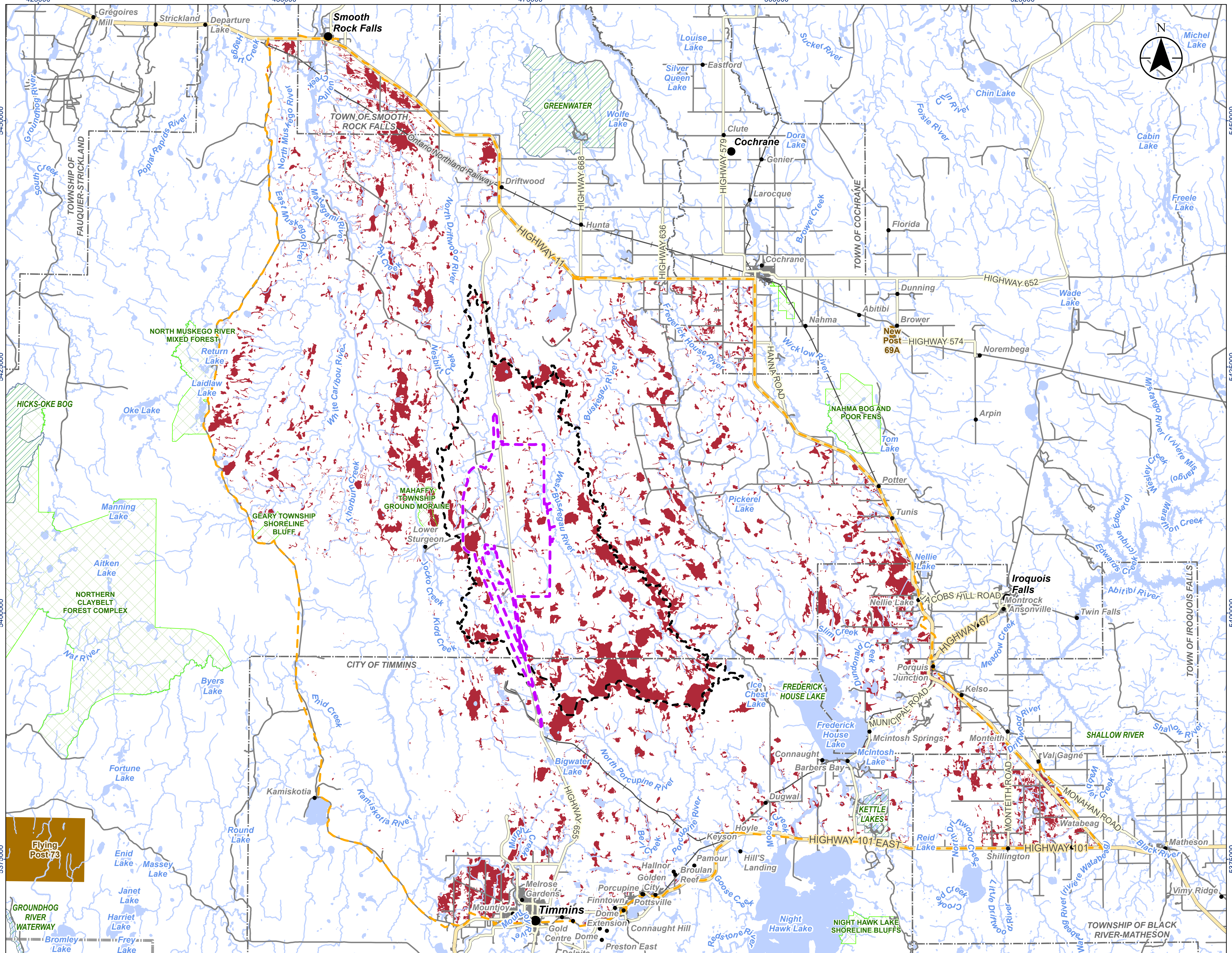

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Shorteared Owl

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Provincial Park
- Waterbody

0 5 10 km

1:400,000 (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.
3. Ontario Land Cover Data Base, 2nd ed. (MNR 2000) modified with Ontario Wetland Evaluation System (MNRF 2023).

Project Location: Timmins, Ontario

REVA

Prepared by awhite on 2024-09-12

Client/Project

Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.

A.3.16

Title

Species Groups: Shorteared Owl

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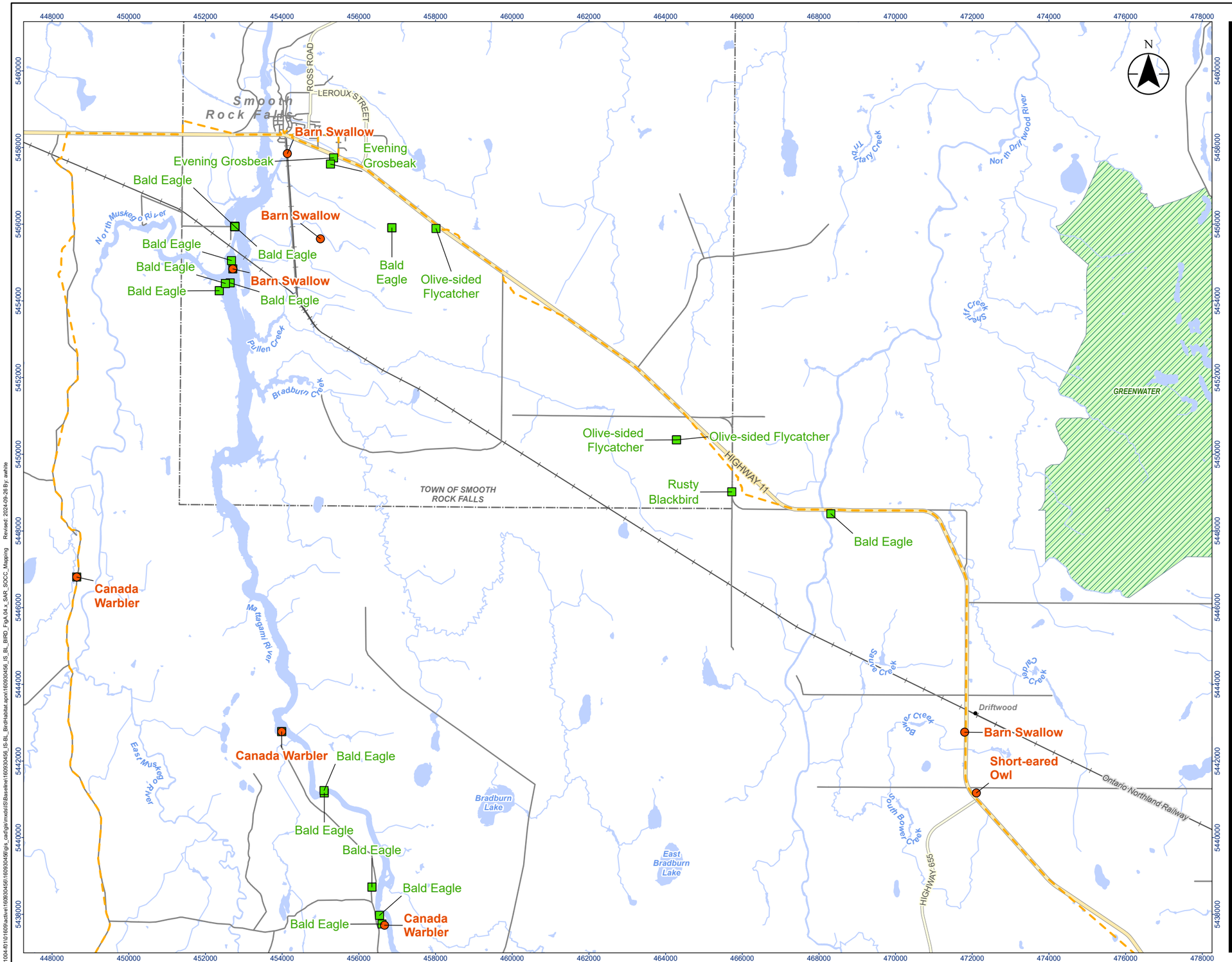

Legend

- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Waterbody

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
Timmins, Ontario

160930456 REVB
Prepared by awhite on 2024-09-26

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

Figure No.
A.4.1

Title
Species at Risk and Species of Concern Observations within the RSA

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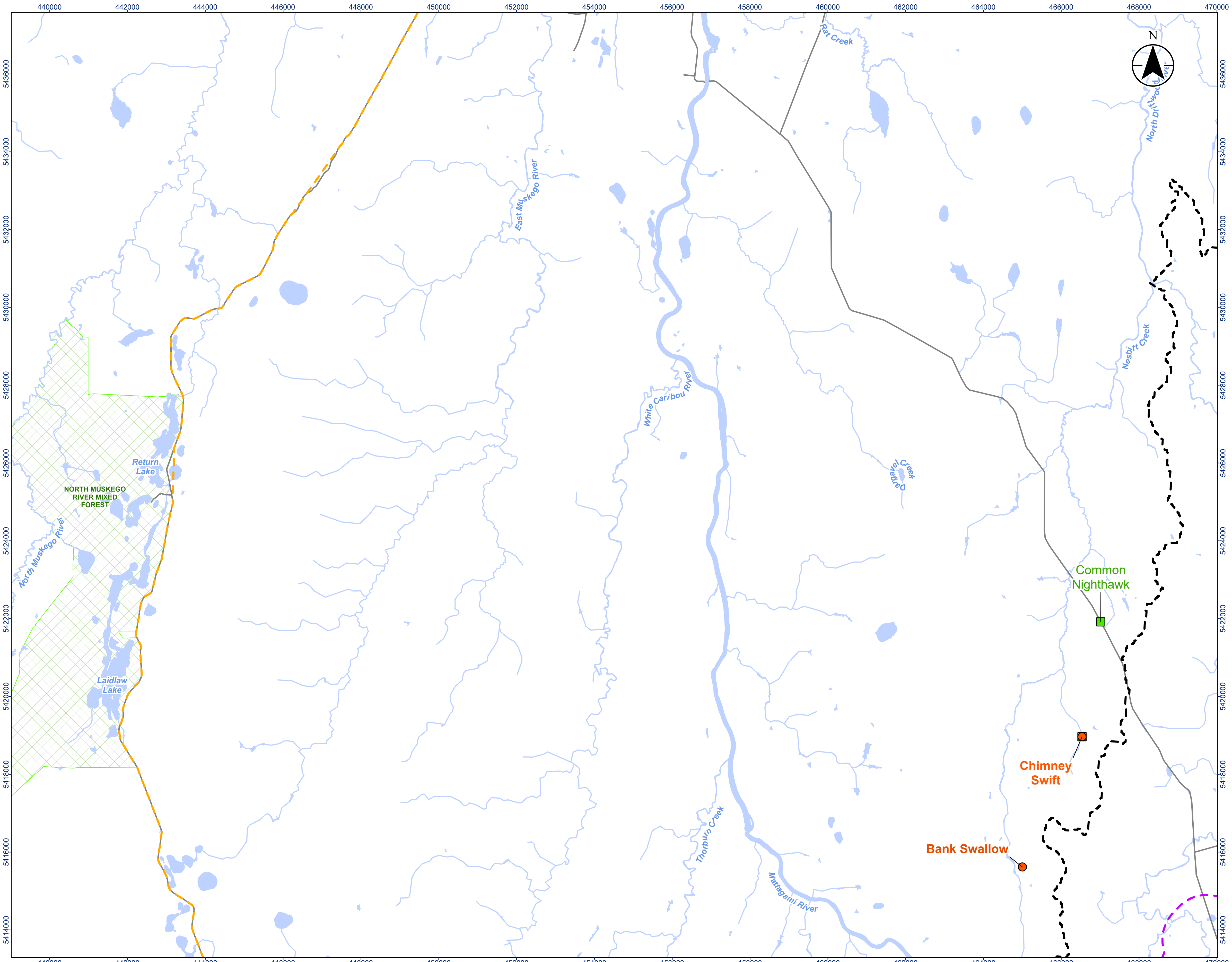
\\cd1004-f01\01609\active\160930456\160930456\gis_cad\gis\mxds\ISBaseline\160930456_IS-BL_BirdHabitat.aprx\160930456_IS_BL_BIRD_FigA.04.x_SAR_SOCC_Mapping Revised: 2024-09-26 By: awhite



Legend

- Project Area
- Local Study Area
- Regional Study Area
- Bird Observation - Species at Risk
- Minor Road
- Watercourse
- Conservation Reserve (Regulated)
- Waterbody

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

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

Figure No.
A.4.2

Title
Species at Risk and Species of Concern Observations within the RSA

\\cd1004-f01\01609\active\160930456\160930456\gis_cad\gis\mxds\IS\Baseline\160930456_IS-BL_BirdHabitat.aprx\160930456_IS_BL_BIRD_FigA.04.x_SAR_SOCC_Mapping Revised: 2024-09-26 By: awhite

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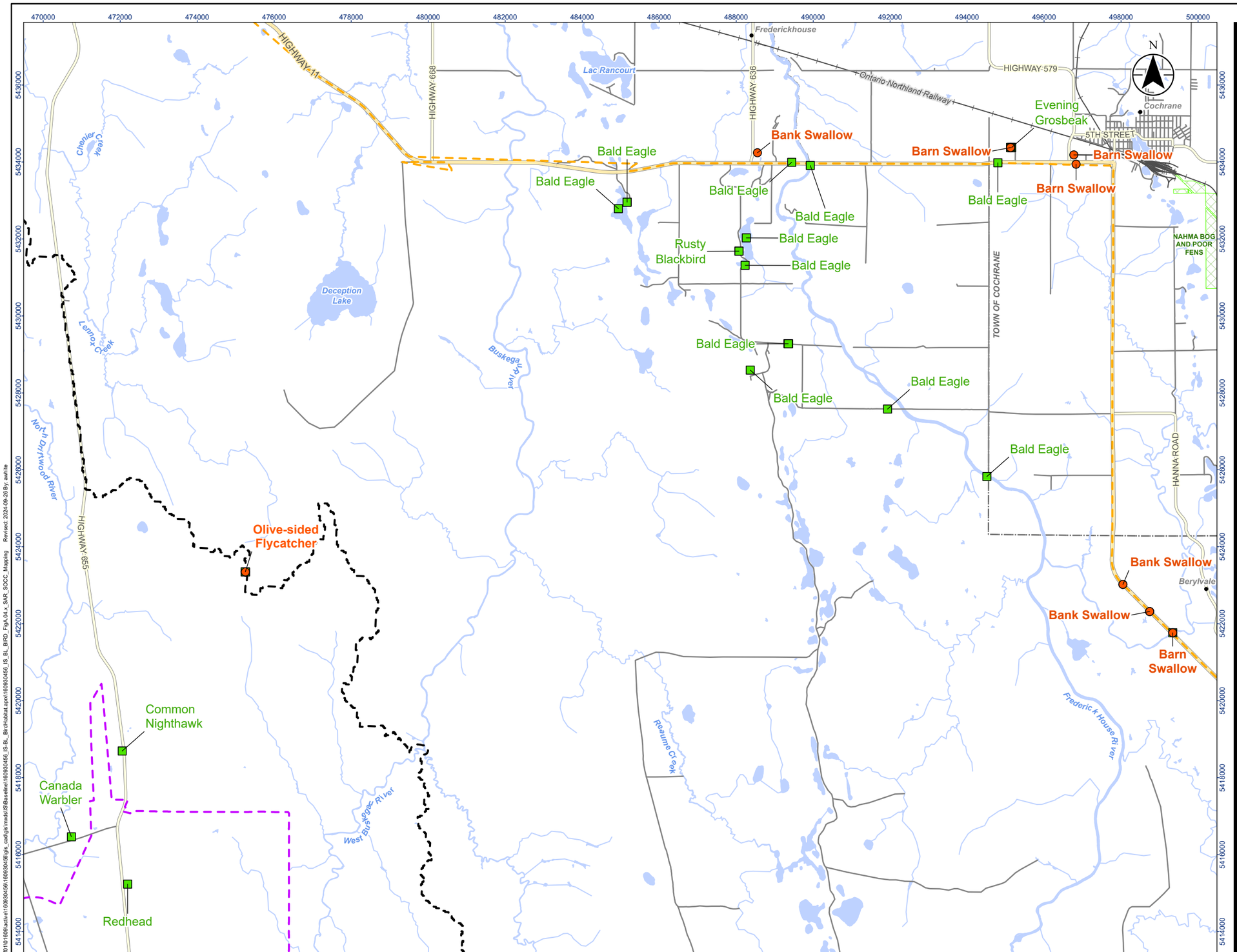

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- Municipal Boundary - Lower Tier
- Waterbody

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
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Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.4.3

Title
Species at Risk and Species of Concern Observations within the RSA

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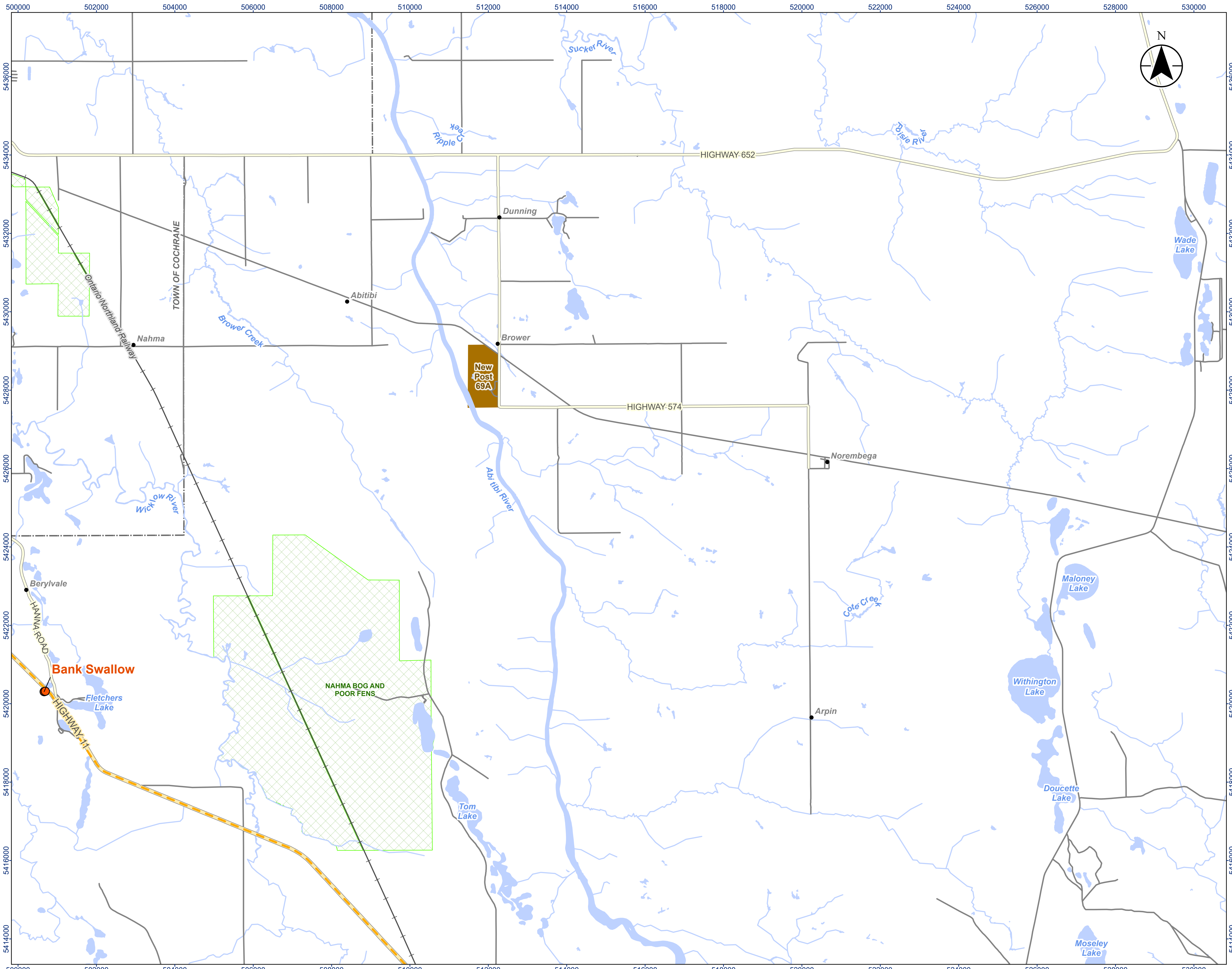

Stantec

CANADA NICKEL COMPANY

Legend

- Regional Study Area
- Bird Observation - Species at Risk
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- First Nation Reserve
- Municipal Boundary - Lower Tier
- Waterbody

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.4.4

Title
Species at Risk and Species of Concern Observations within the RSA

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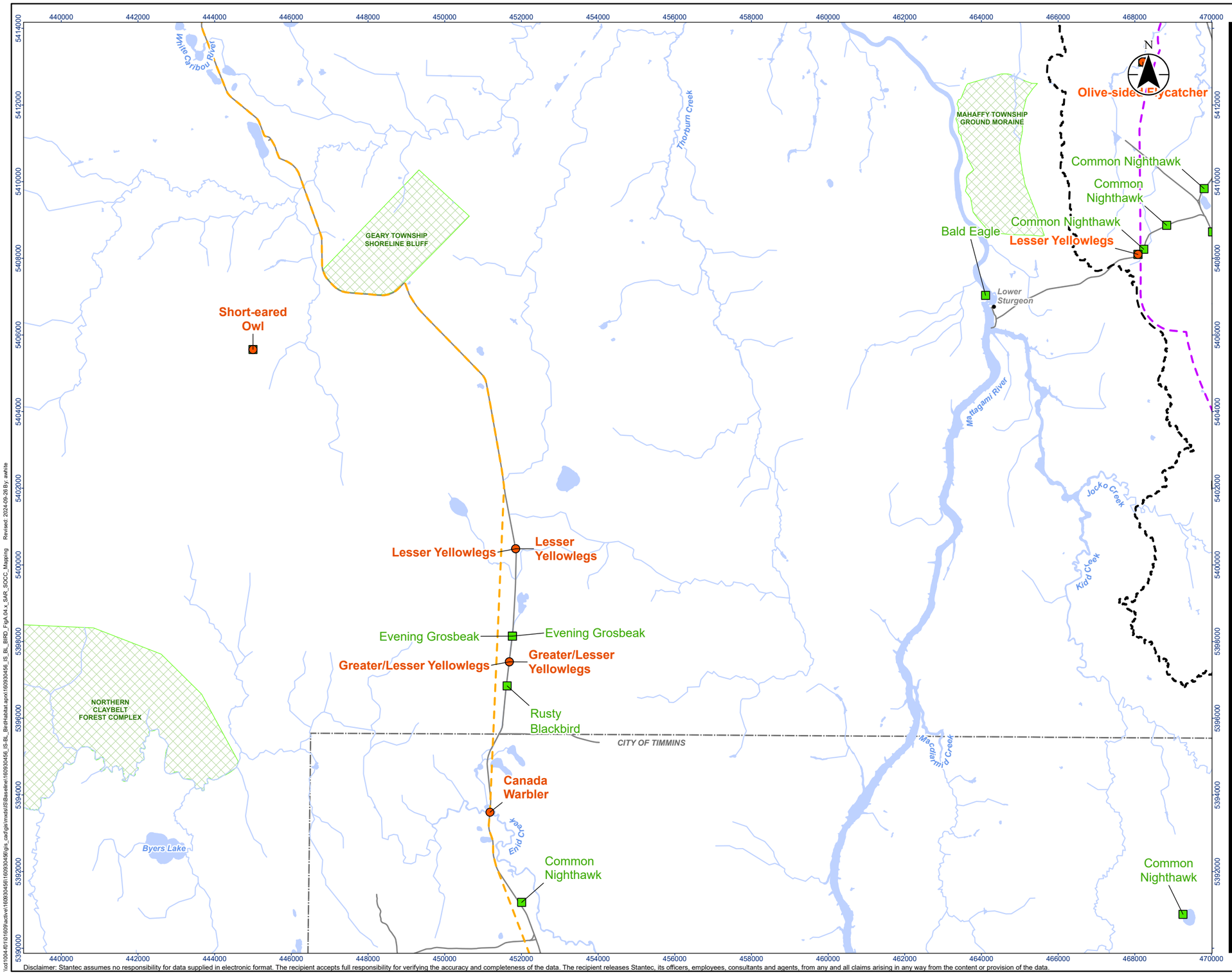

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Minor Road
- Watercourse
- Conservation Reserve (Regulated)
- Municipal Boundary - Lower Tier
- Waterbody

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
Timmins, Ontario

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

Figure No.
A.4.5

Title
Species at Risk and Species of Concern Observations within the RSA

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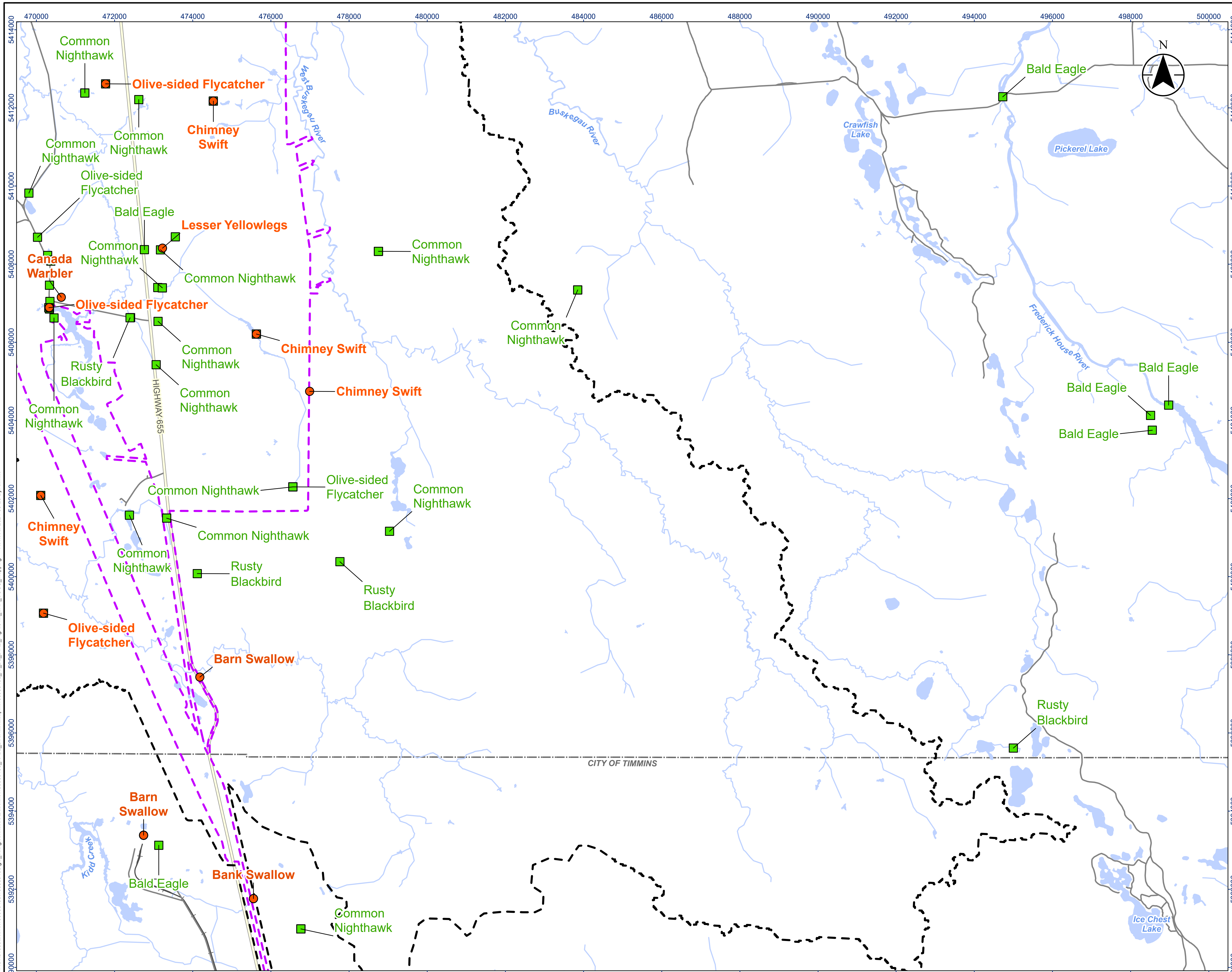

Stantec

CANADA NICKEL COMPANY

Legend
- Project Area
- Local Study Area
- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Major Road
- Minor Road
- Railway
- Watercourse
- Municipal Boundary - Lower Tier
- Waterbody

0 2 4 km
1:100,000 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
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Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.4.6

Title
Species at Risk and Species of Concern Observations within the RSA

Revised: 2024-09-26 By: awhite

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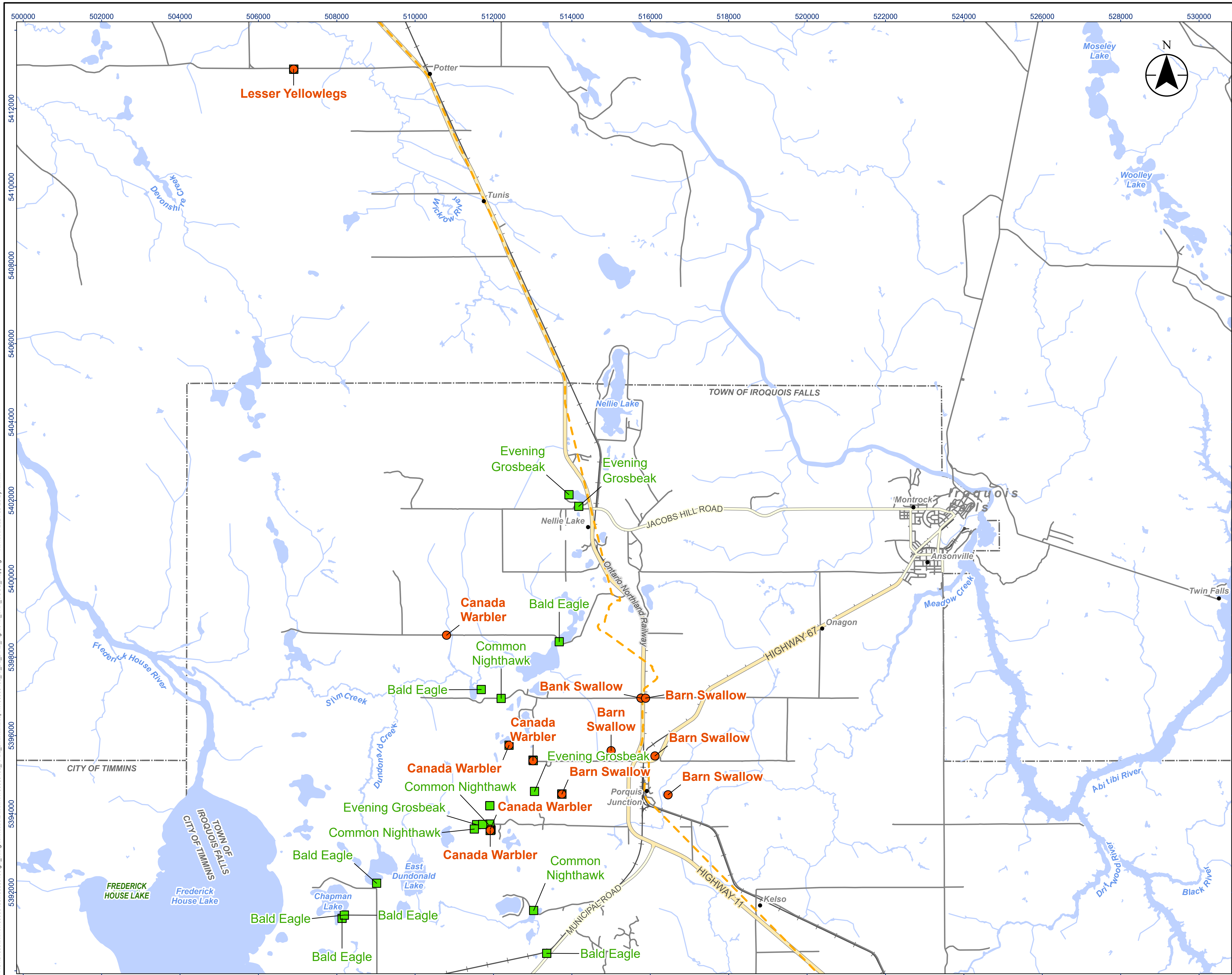

Lesser Yellowlegs
Potter
Tunis
Devonshire Creek
Wicklow River
Moseley Lake
Woolley Lake
TOWN OF IROQUOIS FALLS
Nellie Lake
Evening Grosbeak
Evening Grosbeak
JACOBS HILL ROAD
Montrock
Iroquois Falls
Ansonville
Twin Falls
Meadow Creek
Ontario Northland Railway
Canada Warbler
Bald Eagle
Common Nighthawk
Onagon
HIGHWAY 67
Frederick House River
Slim Creek
Bald Eagle
Bank Swallow
Barn Swallow
Barn Swallow
Canada Warbler
Barn Swallow
Dundonald Creek
CITY OF TIMMINS
Canada Warbler
Evening Grosbeak
Common Nighthawk
Barn Swallow
Barn Swallow
Porquis Junction
Evening Grosbeak
Canada Warbler
Abitibi River
Common Nighthawk
Canada Warbler
TOWN OF IROQUOIS FALLS
CITY OF TIMMINS
Bald Eagle
East Dundonald Lake
Common Nighthawk
Driftwood River
Black River
FREDERICK HOUSE LAKE
Frederick House Lake
Chapman Lake
Kelso
HIGHWAY 11
MUNICIPAL ROAD
Bald Eagle
Bald Eagle
Bald Eagle
Bald Eagle
N

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Stantec

CANADA NICKEL COMPANY

Legend

- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Waterbody

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

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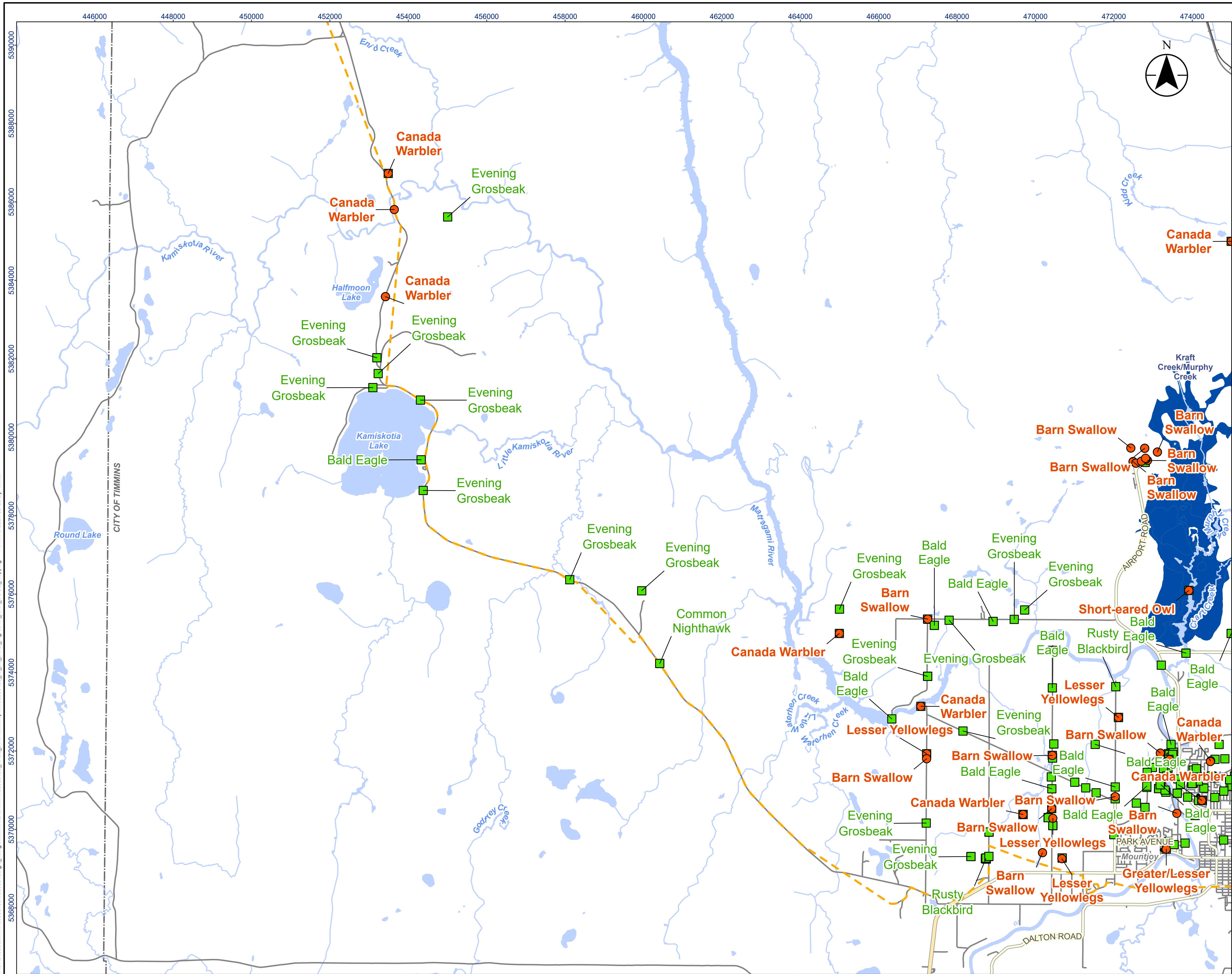
Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.4.7

Title
Species at Risk and Species of Concern Observations within the RSA



Stantec

CANADA NICKEL COMPANY

Legend

- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Municipal Boundary - Lower Tier
- Waterbody
- Wetland, Provincially Significant

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

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Timmins, Ontario Prepared by awhite on 2024-09-26

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

Figure No.
A.4.8

Title
Species at Risk and Species of Concern Observations within the RSA

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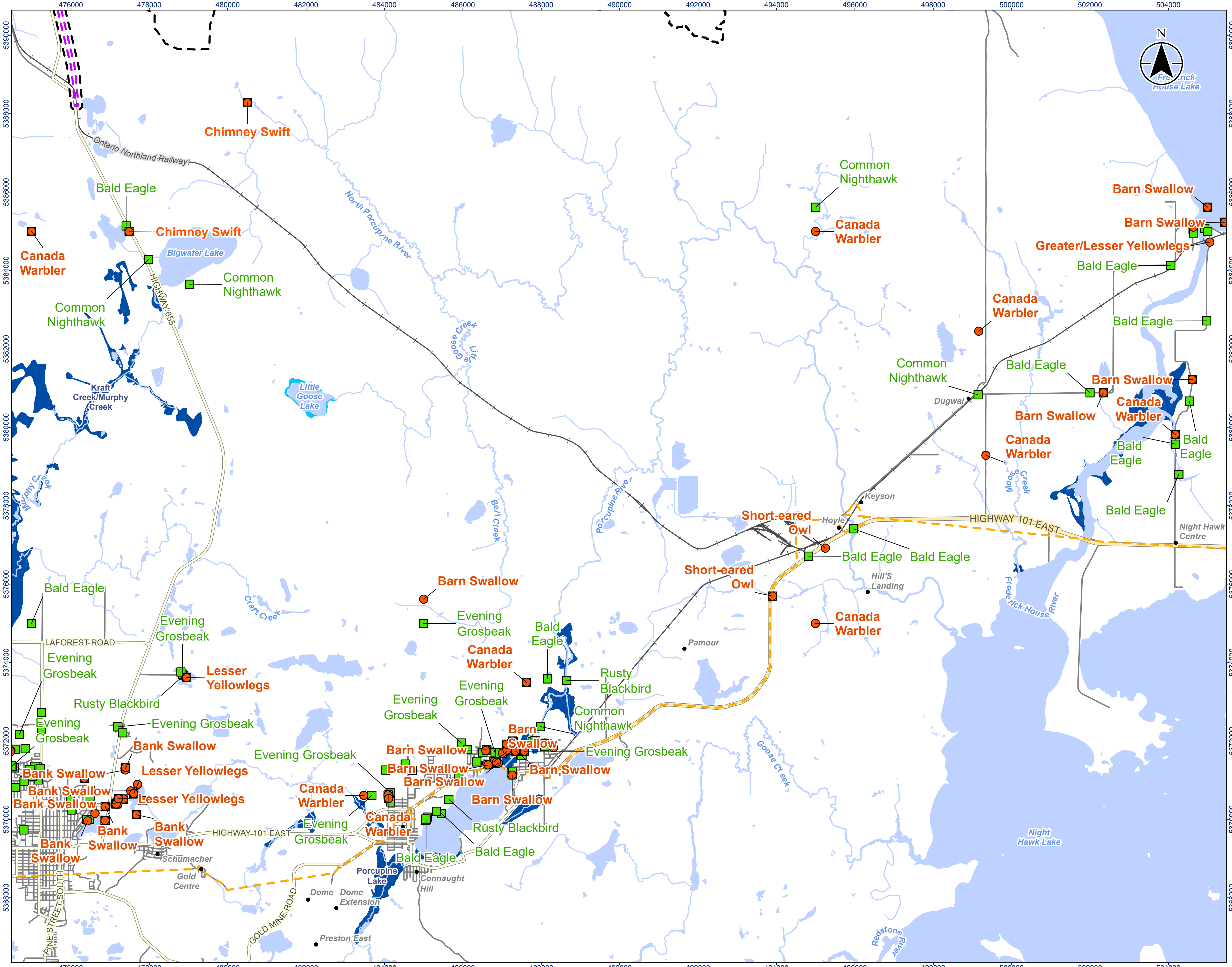

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Municipal Boundary - Lower Tier
- Waterbody
- Wetland, Provincially Significant
- Wetland, Other Evaluated

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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Timmins, Ontario Prepared by awhite on 2024-09-26

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

Figure No.
A.4.9

Title
Species at Risk and Species of Concern Observations within the RSA

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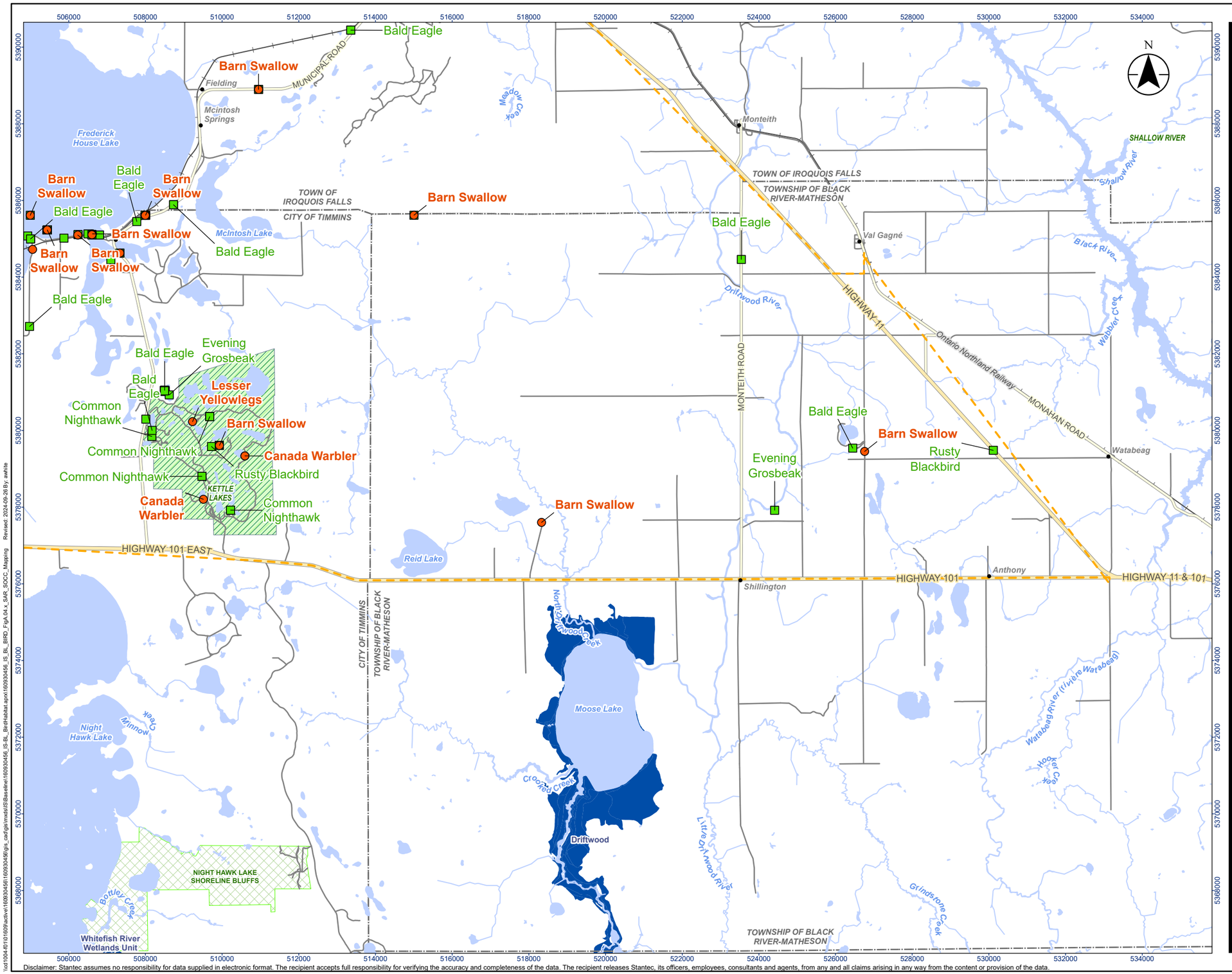

Stantec

CANADA NICKEL COMPANY

Legend

- Regional Study Area
- Bird Observation - Species at Risk
- Bird Observation - Species of Conservation Concern
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Conservation Reserve (Regulated)
- Municipal Boundary - Lower Tier
- Provincial Park
- Waterbody
- Wetland, Provincially Significant

0 2 4 km

1:100,000 (At original document size of 11x17)

Notes

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

Figure No.
A.4.10

Title
Species at Risk and Species of Concern Observations within the RSA

Revised: 2024-09-26 By: awhite

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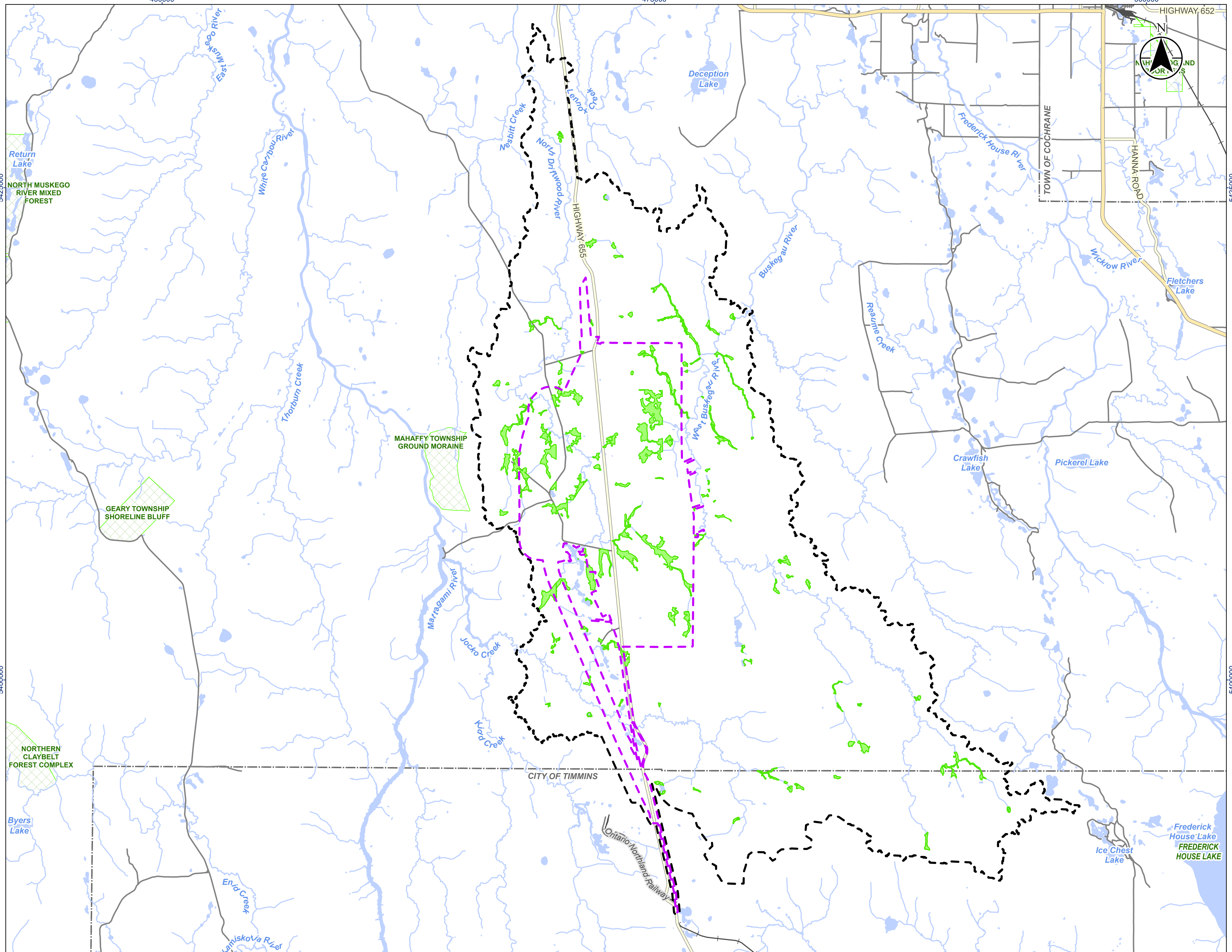

Legend

- Project Area
- Local Study Area
- Candidate Waterfowl Stopover Staging Area

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.1

Title
Bird Habitat Mapping
Candidate Waterfowl Stopover Staging Area

Revised: 2024-09-12 By: awhite

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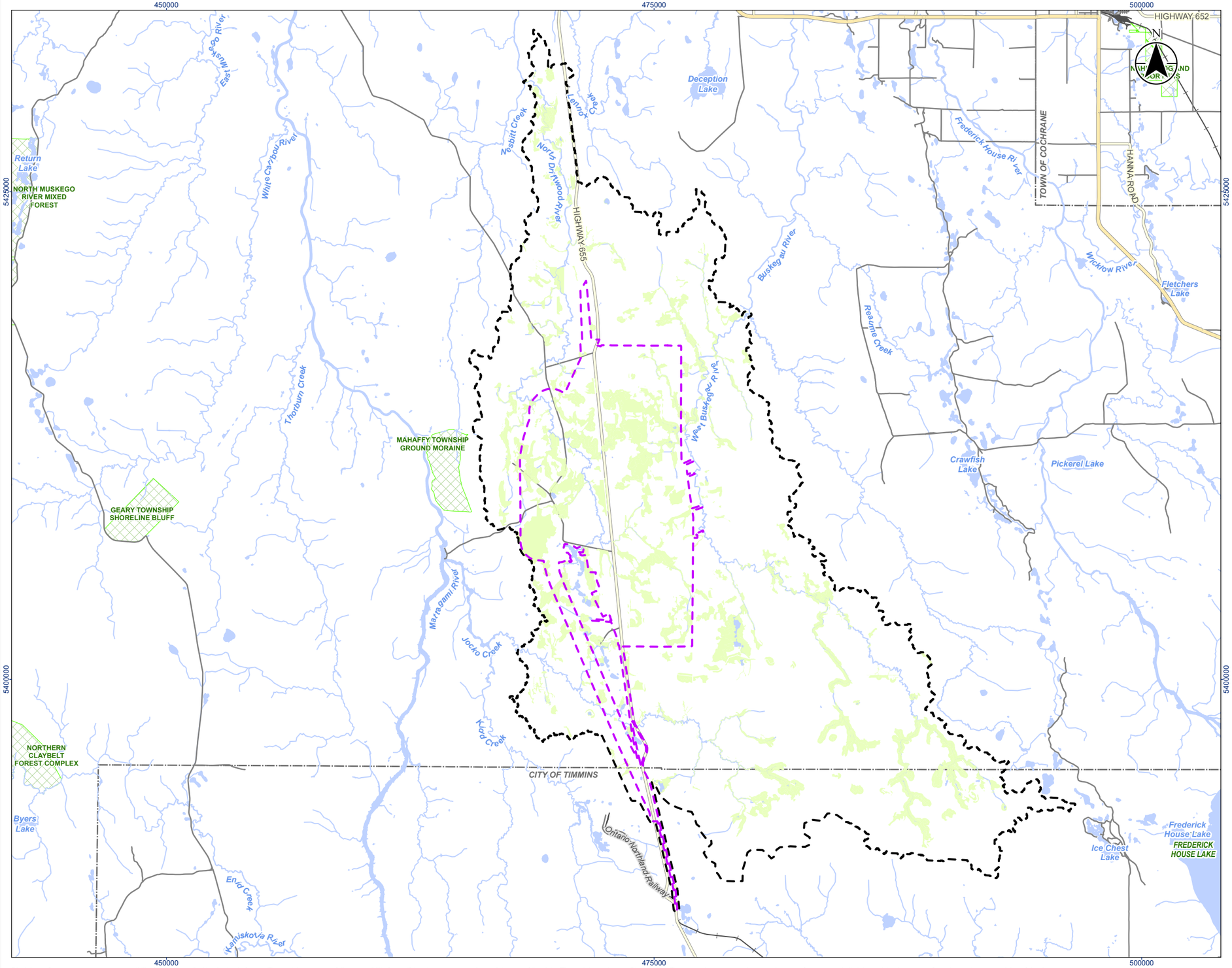

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Candidate Waterfowl Nesting Area

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.2

Title
Bird Habitat Mapping
Candidate Waterfowl Nesting Area

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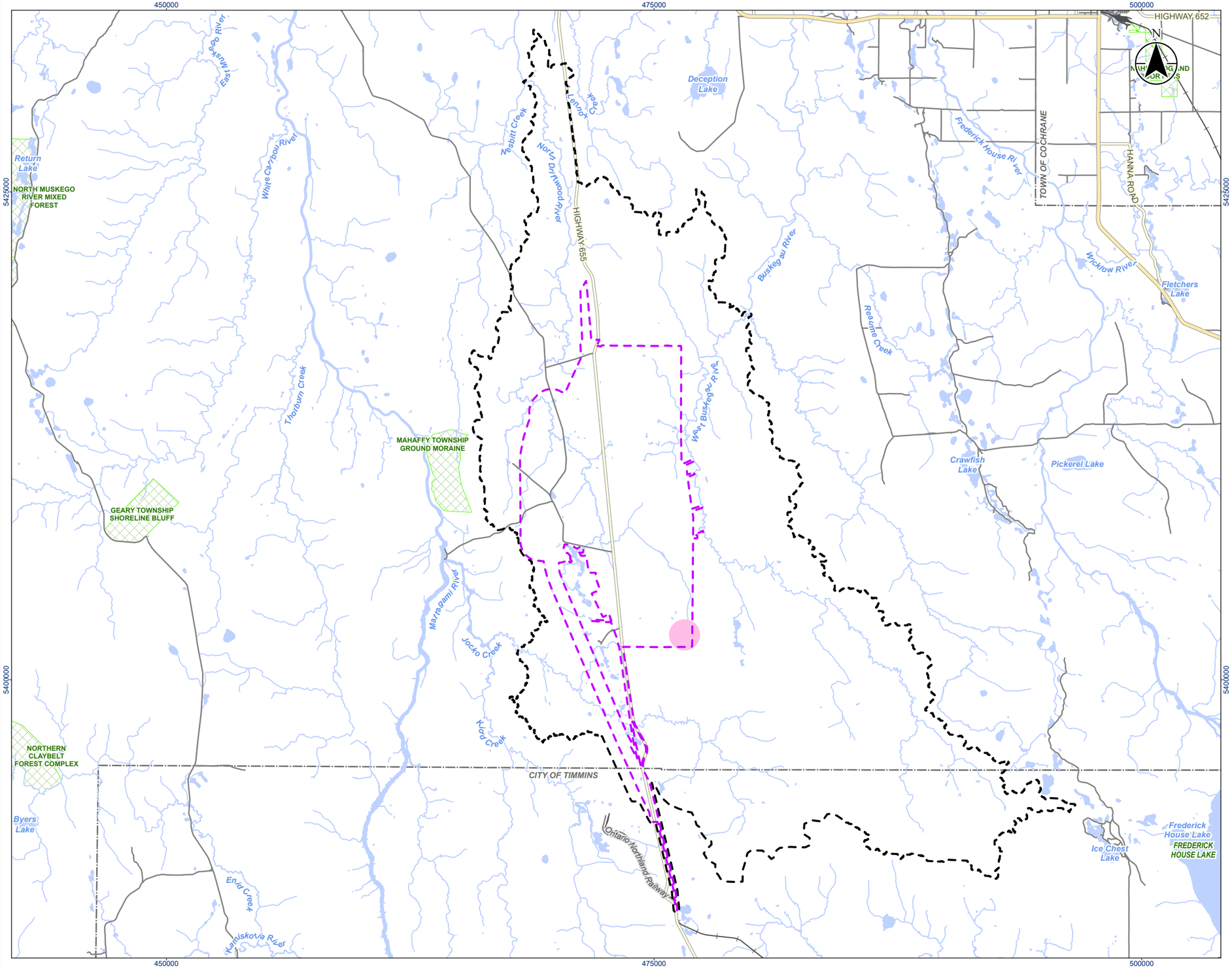

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Confirmed Bald Eagle Nesting Habitat

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.3

Title
Bird Habitat Mapping
Confirmed Bald Eagle Nesting Habitat

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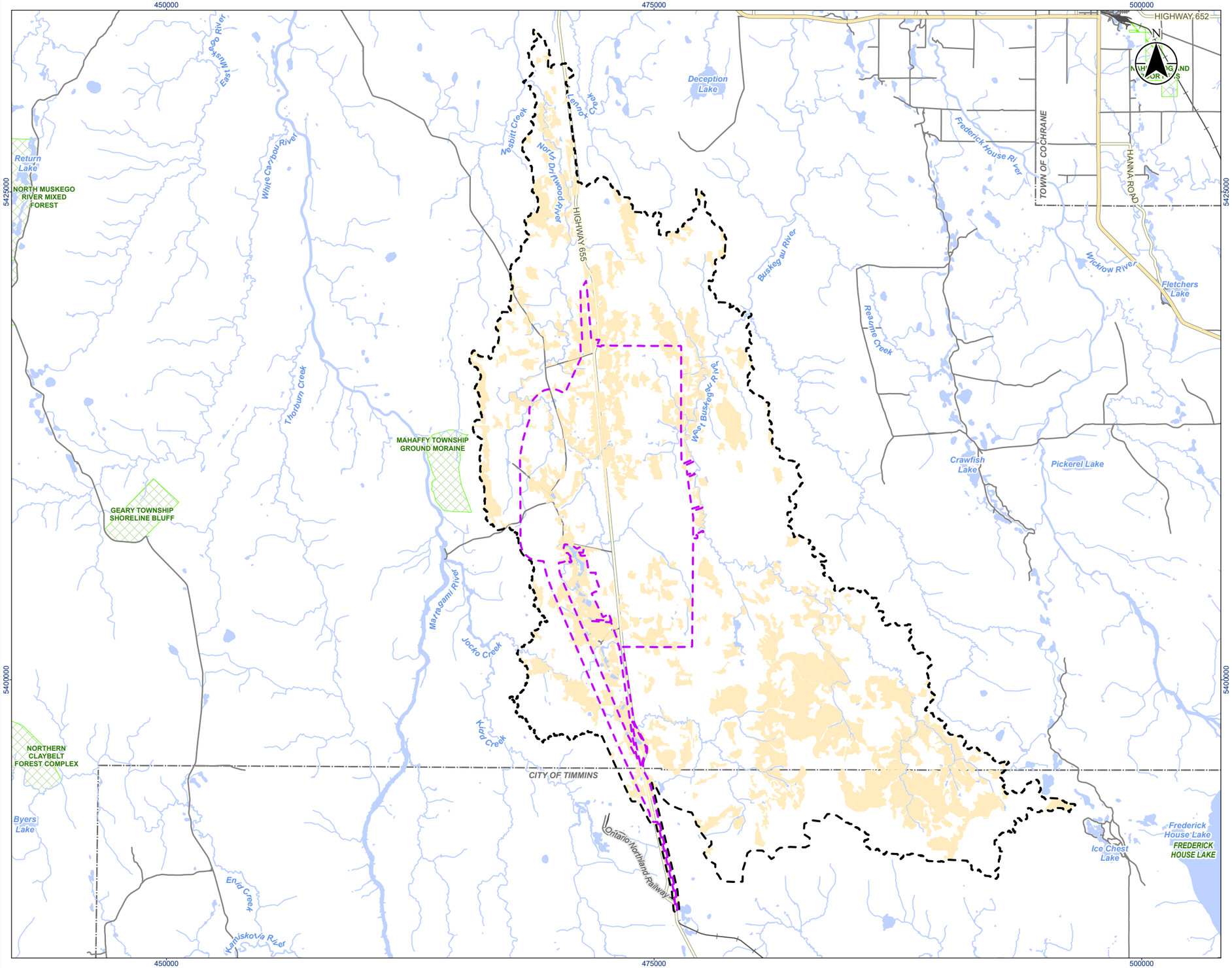

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Candidate Woodland Raptor Nesting Habitat

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.4

Title
Bird Habitat Mapping
Candidate Woodland Raptor Nesting Habitat

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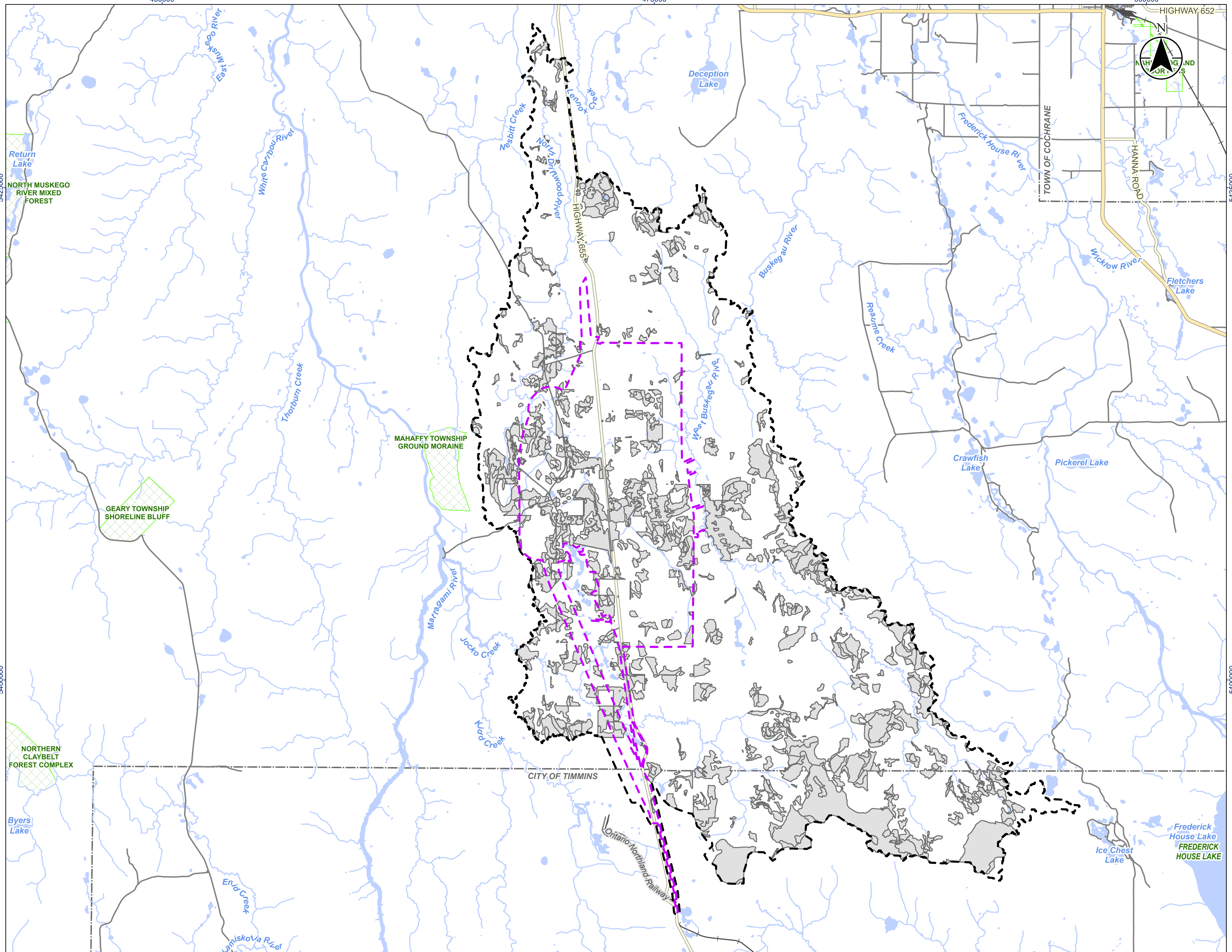

Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Candidate Sharptailed Grouse Habitat

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

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Project Location
Timmins, Ontario

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

Figure No.
A.5.5

Title
Bird Habitat Mapping
Candidate Sharp-tailed Grouse Lek Habitat

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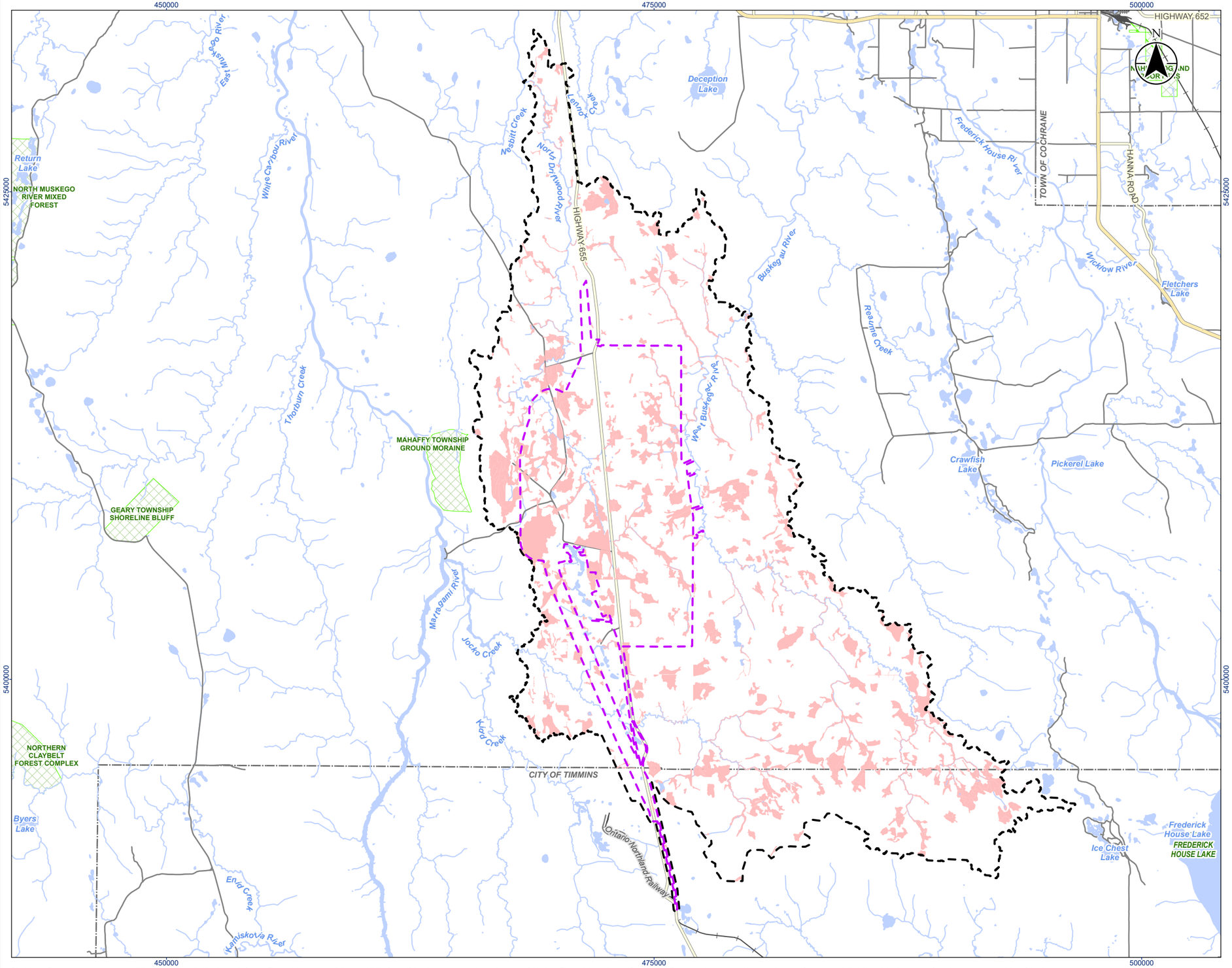

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CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Candidate Marsh Bird Breeding Habitat

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (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

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.6

Title
Bird Habitat Mapping
Candidate Marsh Bird Breeding Habitat

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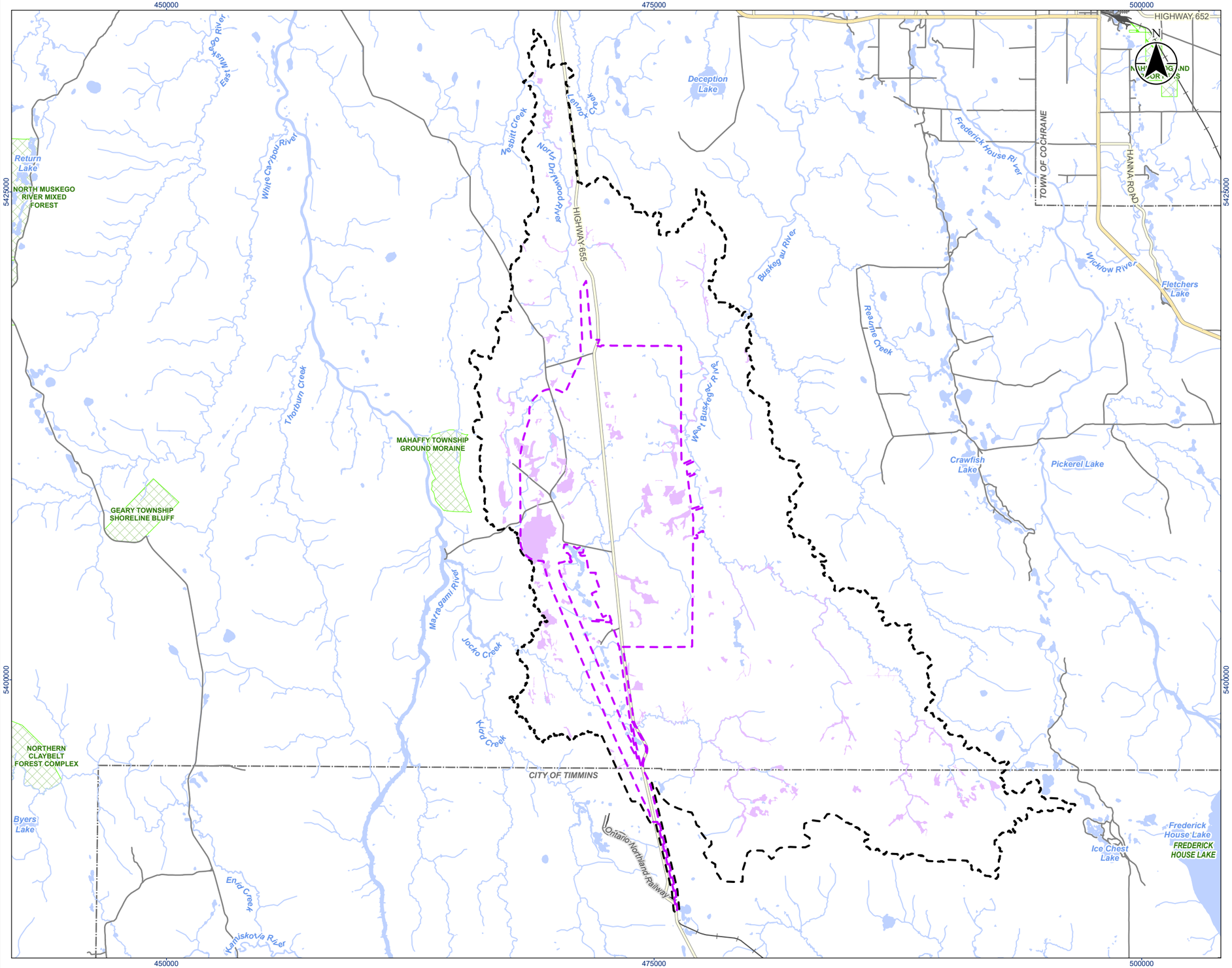

Revised: 2024-09-12 By: awhite

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Stantec

CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Successional Bird Breeding Habitat

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
Timmins, Ontario

REVA
Prepared by awhite on 2024-09-12

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

Figure No.
A.5.7

Title
Bird Habitat Mapping
Shrub/Early Successional Bird Breeding Habitat

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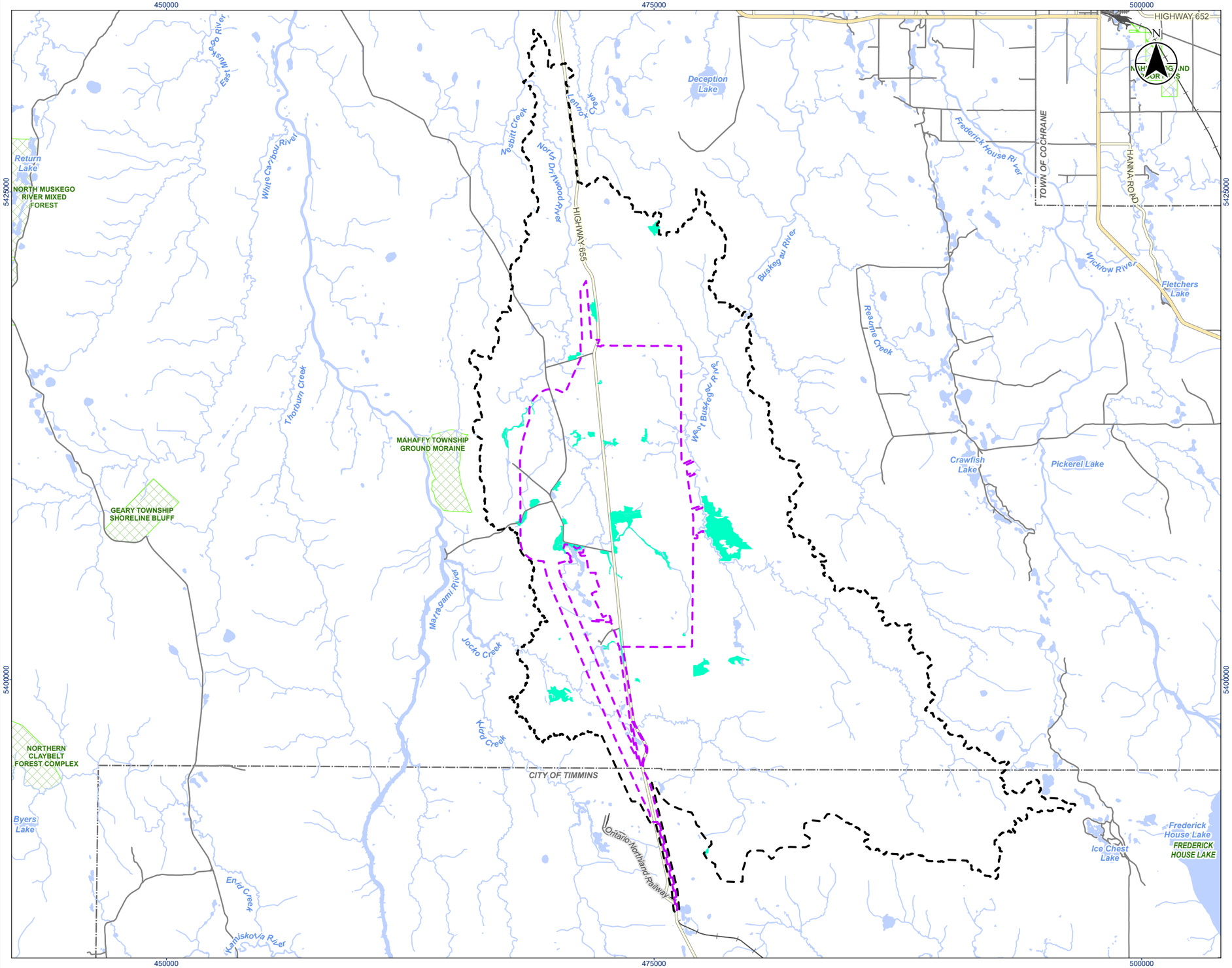

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CANADA NICKEL COMPANY

Legend

- Project Area
- Local Study Area
- Confirmed_Habitat for Special Concern and Rare Species

Base Features

- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Waterbody
- Watercourse
- Municipal Boundary - Lower Tier
- Provincial Park
- Conservation Reserve (Regulated)

0 5 10 km

1:200,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
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Client/Project
Canada Nickel Company (CNC)
Crawford Nickel Project

Figure No.
A.5.8

Title
Bird Habitat Mapping
Confirmed Habitat for Special Concern and Rare Species

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