

Cando Sturgeon Terminal

Summary of the Project Description under CEAA 2012

**NW and NE 35-055-22 W4M
Sturgeon County, Alberta**

Cando Rail Services Project No: 17M-01224-07



SLR Project No: 203.50152.00000

February 2019



**CANDO STURGEON TERMINAL
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Sturgeon County, Alberta**

SLR Project No: 203.50152.00000

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February 28, 2019

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ACRONYMS AND ABBREVIATIONS

ACIMS	Alberta Conservation Information Management System
AEP	Alberta Environment and Parks
AER	Alberta Energy Regulator
AIHA	Alberta’s Industrial Heartland Association
ABWRET-A	Alberta Wetland Rapid Evaluation Tool - Actual
CN Rail	Canadian National Railway Company
Cando	Cando Rail Services Ltd.
CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CEA Agency	Canadian Environmental Assessment Agency
CEMS	Cumulative Effects Management System
EPA	(U.S.) Environmental Protection Agency
EPEA	<i>Environmental Protection and Enhancement Act</i>
ESA	Environmentally Sensitive Area
ESRD	(Alberta) Environment and Sustainable Resource Development
FWMIS	Fisheries and Wildlife Management Information System
FWIMT	Fish and Wildlife Internet Mapping Tool
ha	hectare(s)
km	kilometre(s)
MBCA	<i>Migratory Birds Convention Act, 1994</i>
NCIA	Northeast Capital Industrial Association
Pembina	Pembina Pipelines Corporation
Pers. Comm.	Personal Communication
PPE	personal protective equipment
QWSP	Qualified Wetland Science Practitioners
SLR	SLR Consulting (Canada) Ltd.
SARA	<i>Species At Risk Act</i>
WSP	WSP Canada Inc.

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INTRODUCTION

Cando Rail Services Ltd. (Cando) is an integrated solutions provider for the railway sector and bulk handling industries. Cando's business focusses on industrial switching, material handling, logistics, terminal transload services, engineering and track services, rail car storage, rail car repair and short line operations. As the largest independent rail car storage and staging company in Canada, Cando has more than 5,000 car spots located in yards and sidings across the country. Cando is proposing to develop a rail yard in Sturgeon County, in Alberta's Industrial Heartland.

The proposed project, Cando Sturgeon Terminal (the Project), will consist of the construction and operation of a rail car storage yard, including the following activities:

- Construction of a loop track and 32 storage tracks (south yard);
- Connection to the Canadian National Railway Company (CN Rail) line;
- Construction of the onsite stormwater management system; and
- Construction of up to 32 additional rail tracks (north yard) to increase the storage capacity of the rail yard.

Designated physical activities are subject to a screening under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) (Government of Canada 2012a) to determine whether a federal environmental assessment is required. Physical activities subject to CEAA 2012 are defined under the *Regulations Designating Physical Activities (SOR/2012-1471)* established under CEAA 2012. According to section 2, subsection 25(b) of these regulations, CEAA 2012 applies to:

“The construction, operation, decommissioning and abandonment of a new [...] (b) railway yard with seven or more yard tracks or a total track length of 20 km or more.”

The proposed project includes the construction and operation of more than seven rail yard tracks and, therefore, is considered a designated project. The Project is being developed to operate independently of other industrial facilities; it is not an expansion of an existing facility or a component of a larger project that is not listed in the *Regulations Designating Physical Activities*.

A Project Description has been prepared for submission to the Canadian Environmental Assessment Agency (CEA Agency) to support the screening process. The Project Description document has been prepared pursuant to CEAA 2012 to conform with requirements under CEAA 2012 and the associated *Prescribed Information for a Description of a Designated Project Regulations* (Government of Canada 2012b). It also follows the Guide to Preparing a Description of a Designated Project under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2015).

This document is a summary of the Project Description and will be made available for public review.

1. KEY PROJECT AND PROPONENT INFORMATION

1.1 PROJECT NAME AND PROPONENT CONTACT

The Project name and key proponent information is provided in Table 1-1.

Table 1-1: Project Name and Proponent Information

Name of the Designated Project	Cando Sturgeon Terminal
Name of the Project Proponent	Cando Rail Services Ltd. (Cando)
Proponent Contact Information	Cando Rail Services Unit 400 – 740 Rosser Avenue Brandon, Manitoba R7A 0K9
Proponent Representative and Contact Person for the Project Description	Terry Carlisle, BA, CGA Chief Financial Officer Terry.Carlisle@candorail.com Phone: 204-725-2627 Cell: 204-725-6464

1.2 PROJECT PURPOSE

The purpose of the Project is to provide a transportation support facility, providing options and flexibility, for industry directly within Sturgeon County, Strathcona County, and other adjacent municipalities where needed. Due to the growth of industry within Alberta’s Industrial Heartland, additional rail capacity is required for industry to prosper and grow.

A rail yard facility requires connection to existing railway infrastructure to be functional; limited opportunities are available for development of this type of facility. Cando has identified this site within Sturgeon County as a best fit considering industry requirements, railway connections, and Sturgeon County zoning and infrastructure. The Project location is adjacent to an existing CN Rail line; a spur line providing frequent train service to industry in the area.

1.3 PROJECT LOCATION

The Project will be located in Sturgeon County, Alberta on private land in the North half of Section 35, Township 55, Range 22, West of the Fourth Meridian (N½ 35-55-22 W4M) owned by Cando, pending final land acquisition. The Project site is approximately 17 kilometres (km) south of the town of Redwater; and across the North Saskatchewan River and 2.5 km north of Fort Saskatchewan, Strathcona County.

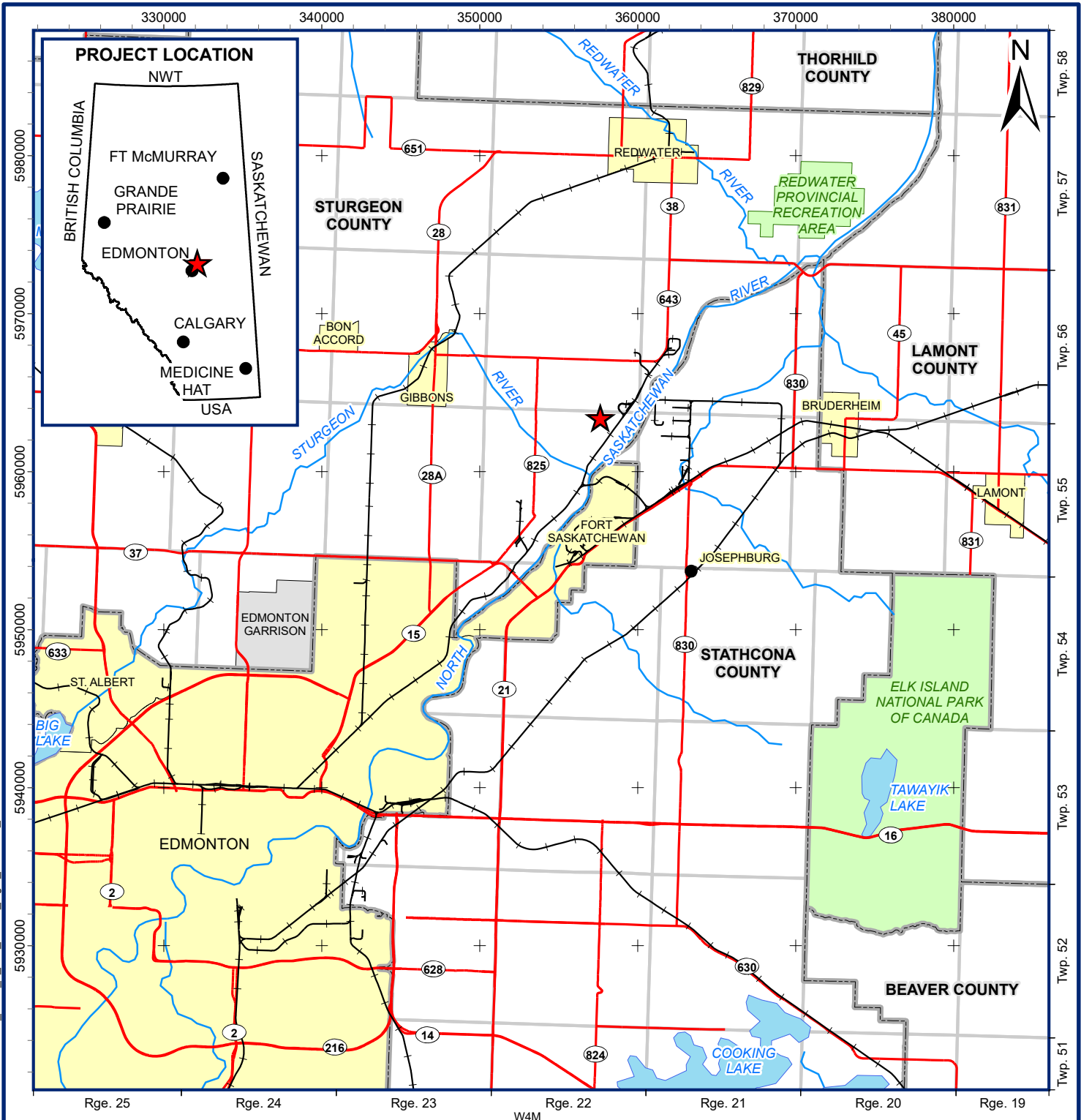
The regional setting of the Project is shown on Figure 1-1 (Regional Location) and the Project site is shown in Figure 1-2 (Project Location).

The Project site comprises most of two quarter sections and is approximately 123 hectares (ha) in area. The site is bounded by Township Road 560 to the north, Range Road 222 to the west, a CN Rail line and rail yard to the east, and arable land to the south. The southern boundary of the site coincides with a CN Rail right-of-way.




The geographic coordinates for the Project (from the centre of the Project site) are as follows:

- Latitude 53°47'58.54"N
- Longitude 113° 9'43.55"W.

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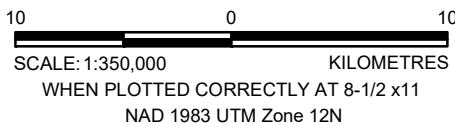


LEGEND

-  PROJECT LOCATION
-  HIGHWAY
-  RAILWAY

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.
 Basedata: AltaLIS Government of Alberta under the Alberta Open Data License.

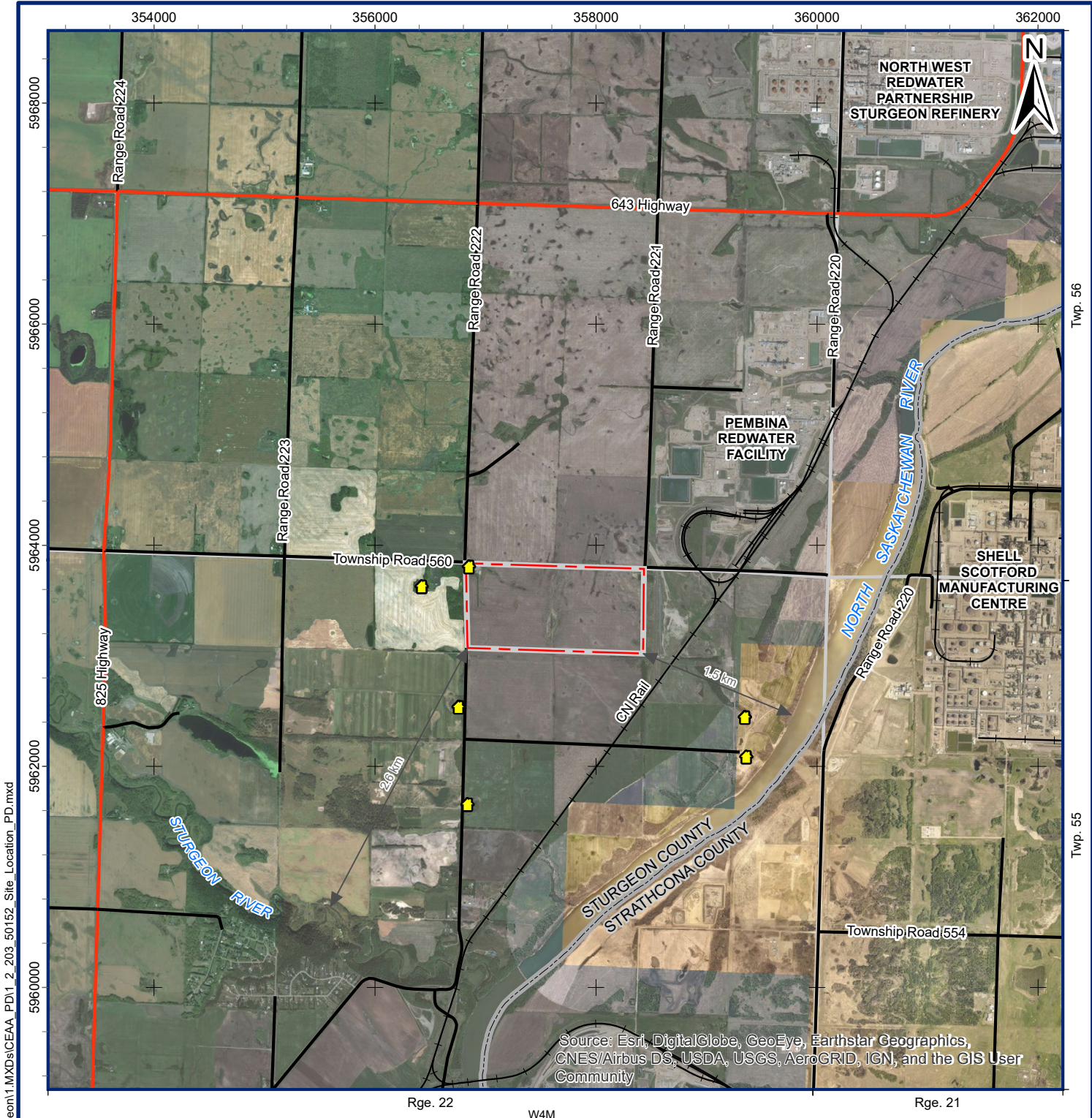


CANDO STURGEON TERMINAL
 STURGEON COUNTY, AB

REGIONAL LOCATION

February 14, 2019	Rev 0.0	Figure No.
Project No.	203.50152.00000	1-1





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

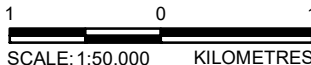
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LEGEND

- Residence
- HIGHWAY
- LOCAL ROAD
- PROJECT SITE (NW & NE 35-55-22 W4M)
- RAILWAY

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.
 Basedata: AltaLIS Government of Alberta under the Alberta Open Data License.



SCALE: 1:50,000 KILOMETRES
 WHEN PLOTTED CORRECTLY AT 8-1/2 x 11
 NAD 1983 UTM Zone 12N



CANDO STURGEON TERMINAL
 STURGEON COUNTY, AB

PROJECT LOCATION

February 15, 2019	Rev 0.0	Figure No.
Project No.	203.50152.00000	1-2



2. SUMMARY OF ENGAGEMENT CONDUCTED TO DATE

2.1 ENGAGEMENT WITH INDIGENOUS GROUPS

Early engagement with Indigenous groups is recognized as beneficial to both the project proponent and Indigenous groups. Cando has initiated engagement to provide information about the Project, identify community concerns and potential impacts to traditional land use activities and Aboriginal and Treaty Rights, as well as to consider integrating appropriate measures in Project design and development to address identified concerns.

The Indigenous groups listed in Table 2-1 were identified, as recommended by the CEA Agency, as those who may have asserted Traditional territory in the Project area, or whose traditional land use activities or Aboriginal and Treaty Rights may be affected by the Project.

Table 2-1: Indigenous Groups Potentially Affected by the Project

<ul style="list-style-type: none"> • Alexander First Nation • Alexis Nakoda Sioux Nation • Blood Tribe • Buffalo Lake Métis Settlement • Enoch Cree Nation • Ermineskin Cree Nation • Foothills Ojibway First Nation • Gunn Métis Local #55 (Lac Ste Anne Métis) • Kikino Métis Settlement • Louis Bull Tribe • Métis Nation of Alberta – Region 1 	<ul style="list-style-type: none"> • Métis Nation of Alberta – Region 2 • Métis Nation of Alberta – Region 4 • Montana First Nation • Paul First Nation • Piikani Nation • Saddle Lake Cree Nation • Samson Cree Nation • Siksika Nation • Stoney Nakoda Nation (Bears paw First Nation, Chiniki First Nation, and Wesley First Nation) • Tsuut’ina Nation • Whitefish Lake First Nation #128
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A Project notification letter was sent to each identified Indigenous group by either e-mail with read receipt or by registered mail in late January and early February 2019. The Project notification letter provided the following information:

- Project rationale;
- General description of the Project;
- Location map;
- Approach to environmental planning;
- Project schedule;
- Request to share the information with community members; and
- Contact information for Cando.

Communication and engagement activities and responses are being documented in a Record of Communication.

2.1.1 KEY COMMENTS AND CONCERNS (AND CLIENT RESPONSES)

Communication undertaken to date between Cando and Indigenous Groups is provided in Table 2-2.

Table 2-2: Indigenous Engagement - Key Comments and Client Responses

INDIGENOUS GROUP	KEY COMMENTS AND RESPONSES
Paul First Nation	The Paul First Nation identified the potential for the discovery of unknown historic resources of cultural or historic relevance to Indigenous groups. The Industrial Relations Manager indicated band members have met with federal and provincial regulators to discuss historic resources of significance to Indigenous peoples. On request, an in-person meeting is being organized to discuss the Project and the band’s interest in the Project.
Blood Tribe	The Blood Tribe’s Consultation Coordinator requested a meeting to discuss the Project. Cando is organizing a meeting.
Stoney Nakoda First Nation	The Stoney Consultation Manager has indicated interest in the Project in relation to impacts on Stoney Treaty Rights and Traditional Uses in the proposed project area. Cando is arranging a meeting to discuss the Project.
Louis Bull Tribe	The Consultation Coordinator identified concern about cumulative effects (especially on culturally significant flora and fauna) related to industrial activity in the region, and the potential for reduced ability to practice rights, and would like the CEA Agency to be aware of this concern. Cando acknowledged the concern and the Louis Bull Tribe will be contacted to discuss these concerns. These discussions will seek to identify if any species of cultural importance are likely to occur on site and consider relevant management measures to address these concerns.
<p>Ongoing Engagement</p> <p>Cando will continue to communicate with Indigenous groups with the aim to have meaningful engagement and provide additional information regarding the Project, as requested. Cando will continue to respond to requests for further engagement and consider appropriate measures to support the Project in respect of Project-related concerns identified by Indigenous groups.</p>	

2.2 ENGAGEMENT WITH REGULATORS AND PUBLIC STAKEHOLDERS

Cando has also initiated early engagement with regulators and other public stakeholders to provide information about the Project, identify requirements of regulators, concerns of stakeholders, and consider integrating appropriate measures in Project design and development to address identified concerns.

The regulatory and public stakeholders listed in Table 2-3 were identified as those who may have an interest in or be affected by the Project.

Table 2-3: Regulatory and Public Stakeholders

REGULATORY AND PUBLIC STAKEHOLDERS
Government and Municipal Regulators
<ul style="list-style-type: none"> • Canadian Environmental Assessment Agency (CEA Agency)
<ul style="list-style-type: none"> • Alberta Environment and Parks (AEP)
<ul style="list-style-type: none"> • Alberta Culture and Tourism

REGULATORY AND PUBLIC STAKEHOLDERS
<ul style="list-style-type: none"> • Alberta Transportation
<ul style="list-style-type: none"> • Sturgeon County
Industry and Individual Stakeholders
<ul style="list-style-type: none"> • Canadian National Railway Company (CN Rail)
<ul style="list-style-type: none"> • Pembina Pipelines Corporation (Pembina)
<ul style="list-style-type: none"> • Adjacent landowners - Residents, lessees (occupants) and landowners within 1.6 km^(a) of the Project boundary
<ul style="list-style-type: none"> • Alberta’s Industrial Heartland Association (AIHA)
<ul style="list-style-type: none"> • Northeast Capital Industrial Association (NCIA)
<p>^(a) This radius was chosen to align with the notification requirements of the Alberta Energy Regulator (AER) under Directive 56 (AER 2018), a directive to which many other industrial developments in the Alberta’s Industrial Heartland are subject.</p>

A Project notification letter as described in Section 2.1 was sent to the identified regulatory and public stakeholders by either e-mail with read receipt or by regular or registered mail in late January and early February 2019. Personal engagement has been initiated with all residents, lessees (occupants) and landowners within 800 m of the Project boundary, and others as relevant. Communication and engagement activities and responses are being documented in a Record of Communication.

2.2.1 KEY COMMENTS AND CONCERNS

Communication undertaken to date between Cando and key regulatory and public stakeholders is provided in Table 2-4.

Table 2-4: Regulatory and Public Engagement -Key Stakeholder Comments and Client Responses

STAKEHOLDER	KEY COMMENTS AND RESPONSES
Government and Municipal Regulators	
CEA Agency	Cando initiated engagement with the CEA Agency regarding the proposal to construct and operate a rail car storage yard in the region in fall of 2017. Communication with the CEA Agency continued during the confirmation of the proposed Project site. The CEA Agency provided a list of Indigenous communities with potential interest in the Project and has provided guidance during development of this Project Description.

STAKEHOLDER	KEY COMMENTS AND RESPONSES
<p>Alberta Environment and Parks</p>	<p>Communication with Alberta Environment and Parks (AEP) was initiated regarding the Project during completion of the biophysical and wetland assessment for the Project site. Although not direct engagement, correspondence included submission of the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) files in October 2018, and subsequent submission of the <i>Water Act</i> approval application, including a Wetland Assessment and Impact Report, for wetland removal and compensation. Cando submitted the application using the designated AEP online portal on December 21, 2018, and the application is currently under review.</p> <p>On behalf of Cando, the Professional Biologist leading the biophysical assessment for the Project consulted with AEP in relation to a large stick nest that was being monitored for presence of a raptor and the potential need to clear trees for Project development. Alberta Environment and Parks provided guidance in the event that tree clearing is required.</p> <p>Cando has initiated discussion with the Regional Approvals Engineer regarding development of the onsite stormwater management system and requirement for a Registration under the <i>Environmental Protection and Enhancement Act</i>.</p>
<p>Alberta Culture and Tourism</p>	<p>On behalf of Cando, the Project Archaeologist conducting the historical resource investigation for the Project corresponded with Alberta Culture and Tourism in relation to clearance for the Project under the <i>Historical Resources Act</i>. No concerns have been raised by Alberta Culture and Tourism and a formal request for additional clearance was made based on the final infrastructure footprint for the Project. <i>Historical Resources Act</i> Approval was granted on December 19, 2018.</p>
<p>Alberta Transport</p>	<p>Cando spoke with Alberta Transportation in early January to confirm requirements for a ‘Notice to Construct New Railway Works’ for the Project under the <i>Railway (Alberta) Act</i>. Based on previous experience, Alberta Transportation is confident that Cando will construct the facility in an acceptable manner. The regulator requires that Cando provide the site plans and confirmation that Cando has retained a reputable engineering company(s) for facility design and specifications; confirmation was provided.</p>
<p>Sturgeon County</p>	<p>Cando initiated engagement with Sturgeon County in September 2018 with a meeting to present the proposed rail car storage yard and get an understanding of the county’s development and review process. Appropriate land use zoning was confirmed, Development Permit application requirements were discussed, as well as other municipal requirements relating to the Project.</p> <p>A second formal meeting was held in December 2018, and informal communication continues between Cando and Cando’s design engineers, WSP, as needed regarding information required for the Development Permit application. Topics discussed include road use agreements and site access, earthworks and drainage management, and involvement in emergency response planning. The Project- specific Emergency Response Plan is currently being reviewed by the Fire Chief of Sturgeon County.</p> <p>The Mayor of Sturgeon County expressed support for the Project in response to receiving the Project notification letter.</p>
<p>Industry and Individual Stakeholders</p>	
<p>Landowners</p>	<p>In early January, Cando directly engaged with two of the three landowners within 800 m of the Project site, as well as the landowner of the fourth residence located within 1.6 km. The third landowner within 800 m was provided a voice message, and Cando will continue to reach out to advise of the Project.</p>

STAKEHOLDER	KEY COMMENTS AND RESPONSES
CN Rail	Cando initiated communication with CN Rail in late 2016. Ongoing communication from late October 2018 to present has provided Cando with information on rail design and the suitable location for connection with the CN Rail line to Cando’s proposed rail yard. In addition, Cando discussed business opportunities between CN Rail and the rail yard. CN identified the need for the rail yard in the Alberta’s Industrial Heartland.
Pembina Pipelines Corporation	In late December 2018, WSP Canada Inc. (WSP), on behalf of Cando, requested information regarding Pembina’s surface water management system for downstream drainage infrastructure to allow for integration design of Cando’s rail yard surface water management plan. WSP has received all required information from Pembina. WSP also contacted Pembina to discuss a pipeline crossing agreement. A crossing application will be submitted once all track design is finalized.
Alberta’s Industrial Heartland Association	Cando communicated with the Association in late October 2018 to discuss property and business opportunities for the proposed rail yard. The AIHA identified that there would be good opportunity and that a rail yard is needed in the Industrial Heartland.
Northeast Capital Industrial Association	Cando communicated with the Executive Director of the Association in December 2018 to present the description, rationale and location for the proposed rail car storage facility. No concerns about the Project were raised, and the potential benefits of the Project to support industry in the region were discussed. Since receiving the Project notification letter, the Executive Director advised that it would be forwarded to NCIA members.
<p>Ongoing Engagement</p> <p>Cando will continue to communicate with regulators, industry associations and neighbours to provide additional information and obtain relevant guidance regarding the Project. Cando will collect feedback and evaluate requests of other public stakeholders, and all concerns expressed in writing or during discussion will be considered throughout Project planning and the regulatory review process.</p>	

3. REGULATORY FRAMEWORK AND REQUIREMENTS

3.1 APPLICABLE REGULATORY REQUIREMENTS

In addition to CEEA 2012, environmental assessment and regulatory requirements relevant to the Project may fall under the jurisdiction of other federal or provincial regulators, municipal authorities, and regional associations. These are described in Table 3-1.

Table 3-1: Regulatory Framework

LEGISLATION	RELEVANCE TO THE PROJECT
Federal Jurisdiction	
<i>Fisheries Act</i> (1985)	Protects fish including freshwater and marine species and fish habitat through the prohibition of serious harm to fish, and pollution prevention provisions. The Project site does not provide habitat for fish and therefore the provisions of the <i>Fisheries Act</i> are not triggered.
<i>Migratory Birds Convention Act</i> , 1994	Prohibits the harming of migratory birds and the disturbance and destruction of their nests and eggs. Potential exists for migratory birds to be present in the Project area. To avoid contravening this Act, vegetation clearing activities will be scheduled to avoid potential nesting of migratory birds (Government of Canada 2019b). Cando will comply with the prohibitions described in this Act.

LEGISLATION	RELEVANCE TO THE PROJECT
<i>Species at Risk Act (2002)</i>	<p>Prohibits killing, harming, harassing, capturing and the take of species listed under this Act, with some exceptions.</p> <p>Species at risk that may occur near the Project are discussed in Section 7.1.8. Due to heavy industrial and agricultural land use in the Project area, it is not expected that species at risk are present. Cando will comply with the prohibitions described in this Act.</p>
<i>Railway Safety Act</i>	Refer to the provincial <i>Railway (Alberta) Act</i> .
Provincial Jurisdiction	
<i>Historical Resources Act</i>	<p>Clearance under this Act is required to acknowledge that the potential for historical and archaeological finds has been adequately assessed.</p> <p>An application for clearance approval involves a review of the relationship between the Project footprint and known historical resources, as defined under the Act, or areas of potential for discovery of historical resources.</p> <p><i>Historical Resources Act</i> clearance for the Project was granted on December 19, 2018.</p>
<i>Environmental Protection and Enhancement Act</i>	<p>Alberta Environment and Parks is the provincial authority responsible for environmental assessment of non-energy resource related projects, pursuant to the <i>Environmental Protection and Enhancement Act</i> (EPEA). No specific operating ‘Approval’ or ‘Registration’ for the Project is required under EPEA.</p> <p>The Project is not subject to an environmental assessment under provincial jurisdiction. The development of an industrial rail yard is not considered an activity for which an Environmental Impact Assessment must be conducted, pursuant to Schedule 1 of the <i>Environmental Assessment (Mandatory and Exempted Activities) Regulation</i> under EPEA, to receive provincial approval.</p> <p>The Project does not constitute an activity identified in the <i>Activities Designation Regulation</i> under EPEA for which an approval, registration or notice is required.</p>
<i>Wildlife Act</i>	The <i>Alberta Wildlife Act</i> , section 36 (1) states that “A person shall not wilfully molest, disturb or destroy a house, nest or den of prescribed wildlife...” Cando will comply with this Act throughout all Project phases.
<i>Water Act</i>	The Alberta Wetland Policy requires that an approval under the <i>Water Act</i> be obtained to modify or remove wetlands. Cando has submitted a <i>Water Act</i> application, to allow the removal of wetlands on the Project site.
<i>Railway (Alberta) Act – Railway Regulations</i>	<p>An industrial rail yard must complete a ‘Notice to Construct New Railway Works’; this notice includes preliminary design information and must be submitted to the Alberta Transportation Railway Administrator to comply with the Act. Following receipt of a letter from Alberta Transportation accepting the proposed new works Cando must prepare an ‘Operating Approval Application’, which includes information on Project design, and Cando’s safety management system and security management program for the Project. The Operating Approval is granted for a three-year term.</p> <p>The <i>Railway (Alberta) Act</i> also requires compliance with the federal requirements identified in the <i>Rail Safety Act</i> and the <i>Transportation of Dangerous Goods Act</i>. Cando complies with provisions under these Acts, and will continue to do so in relation to the Project.</p> <ul style="list-style-type: none"> - Under the federal <i>Rail Safety Act</i>, Cando must operate in a manner that provides for the safety and security of the public and personnel, and the protection of property and the environment. - Under the federal <i>Transportation of Dangerous Goods Act</i>, Cando must operate in a manner that promotes public safety when dangerous goods are being handled, offered for transport, or transported.

LEGISLATION	RELEVANCE TO THE PROJECT
Municipal Jurisdiction	
Relevant plans and bylaws - Sturgeon County	<p>The Project is subject to the following management entities under the jurisdiction of Sturgeon County:</p> <ul style="list-style-type: none"> • Alberta’s Industrial Heartland Area Structure Plan Bylaw No. 1118/07 (Sturgeon County 2007); • Capital Region Land Use Plan (Capital Region Board 2009); • Sturgeon County Municipal Development Plan Bylaw 1313/13 (Sturgeon County 2014); and • Sturgeon County Land Use Bylaw 1385/17 (Sturgeon County 2017). <p>The Sturgeon County Land Use Bylaw 1385/17 regulates and controls the use and development of land within Sturgeon County. The Project is located on land designated “I5 – Heavy Industrial District” under the Land Use Bylaw. This zoning district has been reserved under the Sturgeon County Municipal Development Plan and Alberta’s Industrial Heartland Area Structure Plan for major industrial uses likely to have significant impact on non-industrial users. No future residential development is planned for this district due to potential effects from appearance, noise, odour, risk of toxic emissions, and explosion hazards associated with heavy industrial operations (Sturgeon County 2017).</p> <p>The proposed rail yard land use is an allowable activity under the County plans and bylaws. In accordance with the Land Use Bylaw, Cando will obtain a Development Permit from Sturgeon County to develop the Project.</p>

3.2 OTHER JURISDICTIONS

No other jurisdictions are known to have environmental assessment or regulatory decisions to be made in relation to the Project. As described in Table 3-1, the Project is not subject to a provincial environmental impact assessment or an industrial approval under EPEA based on the activity (rail car storage yard, or rail yard) not being an identified activity under EPEA regulations for either level of assessment.

3.3 RELEVANT ENVIRONMENTAL STUDIES

The Project is not located in a region that is the subject of a regional environmental study as defined in CEAA 2012, section 73 or section 74 (CEA Agency 2019 Pers. Comm.).

The Project is located within Alberta’s Industrial Heartland where provincial studies and initiatives are being carried out under regional environmental frameworks.

4. PROJECT DESCRIPTION

4.1 PROJECT CONTEXT AND OBJECTIVES

The petrochemical industry located in Sturgeon and adjacent Strathcona County largely uses rail - predominantly tank and hopper cars – to transport products to customers. Tank cars are privately owned and require rail facilities to keep cars when they are not actively in use at either a production facility or a user’s facility. The Project will facilitate the storage and grouping of rail cars from various industries to consolidate rail staging operations in one area; thereby, removing the need for each individual industry to provide its own staging facility.

The primary purpose of the Project is to provide temporary storage for rail cars for industry and railways in the Sturgeon County and Fort Saskatchewan areas. The facility will also be used for switching cars and

assembling trains to meet customer needs. Empty rail cars will be stored and staged for delivery to industrial users and loaded rail cars will be staged and inspected as required before leaving the yard.

4.2 PHYSICAL WORKS

The Project will be developed in two stages, with the timing of staging dependent on market conditions and customer demand. An overall site plan provided in Figure 4-1, with more detail shown in the engineering drawing in Figure 4-2. These figures present the layout for the first stage of development (south yard) including the construction of the loop track, the wye, lead and 32 storage rail tracks. A conceptual plan is also presented for the second stage of development (north yard), which includes development of up to 32 additional storage rail tracks on the north portion of the property. The main Project components, and anticipated size and capacity are described in Table 4-1.

Table 4-1: Main Project Components

PROJECT COMPONENT	DESCRIPTION
Rail yards	<p>A loop track will be constructed inside and close to the property boundaries. A series of parallel storage tracks will be constructed within the loop track. The loop track is designed for a capacity of 255 cars (each 60-foot long) over its 4.2 km length.</p> <p>The south yard will consist of 41.6 km of track over 32 parallel tracks with the capacity to store 1,879 cars. Thirty-eight switches are required to operate the loop track and south yard.</p> <p>The north yard, when developed as part of the second development stage, will consist of an addition of up to 41.8 km of track over 32 tracks with a capacity to handle up to 1,935 additional cars.</p> <p>At full design capacity, with development of south and north rail yards, the total length of track will be 83.4 km, and the Project will be able to store up to 3,814 rail cars.</p> <p>Cando will build, operate, maintain and eventually decommission all tracks within the Project site, including the departure and receiving tracks within the Project site that connect to the CN Rail line.</p>
Rail connection	<p>Rail connection will be constructed from the Project site to an existing CN Rail spur southeast of the site. The departure and receiving tracks are designed to allow for easy ingress and egress by locomotives, and will consist of two tracks (wye and lead) over a total distance of 1.4 km.</p> <p>CN Rail’s existing right-of-way will be used as much as possible to limit the need for added land.</p> <p>Cando will build, operate and decommission the departure and receiving tracks within the Project site</p>
Access roads	<p>Roadway access will be constructed for crews to access the site by personal vehicle, for truck traffic to enter to refuel locomotives, and for service vehicles to provide water and remove waste products. An existing access (approximately 55 m in length) from Range Road 222 to the office trailer will be re-purposed to accommodate Project traffic, and a second (emergency) access will be constructed from Township Road 560, approximately 154 m to the loop track and an additional 1744 m to the office trailer to meet the requirements of Sturgeon County to meet the requirements of Sturgeon County.</p>
Internal roads	<p>Internal gravel service roads will be constructed beside the tracks to allow for inspections and light maintenance of rail cars. The service roads will be reverse-crowned to provide positive drainage away from the rail tracks.</p>

PROJECT COMPONENT	DESCRIPTION
Water management infrastructure	Drainage ditches and culverts will be placed strategically in accordance with the stormwater management design to collect and direct surface runoff and stormwater to the onsite stormwater management pond and into the County’s stormwater management system off the Project site. The stormwater management system is described in Section 4.4.2.5 and Table 7-2.
Temporary offices	Offices used during Project construction will be housed in a trailer brought onto site during pre-construction set-up. An office trailer, approximate dimensions of 18.3 m by 3.7 m (60 feet by 12 feet) will be installed in the northwest corner of the site for use during Project operation, and vehicle parking will be in an area approximately 20 m by 40 m, located at the south side of the office trailer.
Storage tanks	Storage or holding containers for potable water, liquid waste including domestic wastewater, and solid waste will be located in the northwest corner of the site, where access is available for delivery and removal of materials and waste.
Services	<p>Services including electrical power and internet will be connected to the Project site from existing sources to support the Project. Electrical power for the Project will come from the existing power line along Range Road 222; a transformer will be installed to decrease the power voltage and provide power to a new onsite power line from the county road to the northwest portion of the site, where the office will be located. The connection and new power line will be constructed and operated in accordance with an arrangement between Cando and the electrical service provider.</p> <p>Similarly, the internet connections will be installed and operated in agreement with a third party provider.</p>
Fencing	A fence (standard 6 feet high chain link) will be installed around the perimeter of the Project site along the property line.
<p>During the second development stage, additional infrastructure may include the following:</p> <ul style="list-style-type: none"> - Permanent office facility to replace the office trailer; and - Locomotive storage building to provide sheltered overnight storage, maintenance and light repairs. <p>The design and details (e.g., dimensions, location on the site) of this infrastructure will be developed at that time.</p>	

4.2.1 PHYSICAL ACTIVITIES INCIDENTAL TO THE PROJECT

One activity has been identified as incidental to the Project. This is described below.

Sturgeon County Master Stormwater Management Plan has recently upgraded the stormwater infrastructure downstream of the Project site, including an outfall into the North Saskatchewan River. The upgrades are intended to facilitate development with the Industrial Heartland. The County’s stormwater management plan includes a county stormwater ditch, identified as “Line 1” (WSP 2019). Cando will be required to construct the portions of the County Line 1 stormwater ditch adjacent to the north and east boundaries of the Project site since the Project is the first development that requires it. The County Line 1 ditch is shown in Figure 4-1. More information on this incidental activity is provided in the table below.

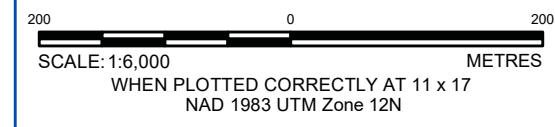
Table 4-2: Incidental Activity Information

Activity description/ nature	Construction of the County Line 1 stormwater ditch.
Subordinate or complementary to the Project	Complementary to the Project.
Care and control of the activity	Cando will construct the County Line 1 ditch, but it will be owned and operated by the County.
Activity solely for the benefit of the proponent or available for other proponents as well	Initially the ditch is being constructed for the benefit of the Project. Once constructed and operational, the ditch will be available to other users within the Industrial Heartland upon approval by the County.
Federal and/or provincial regulatory requirements for the activities	The County stormwater management infrastructure is provincially regulated under the <i>Environmental Protection and Enhancement Act</i> .



LEGEND

- COUNTY LINE 1 STORMWATER DITCH (APPROXIMATE POSITION MAPPED USING THE COUNTY STORMWATER MANAGEMENT PLAN, SAMENG 2016)
- PROJECT SITE
- PROPOSED INFRASTRUCTURE (SEE FIGURE 4-2 FOR DETAILED SITE LAYOUT)



NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

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Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community (2016)

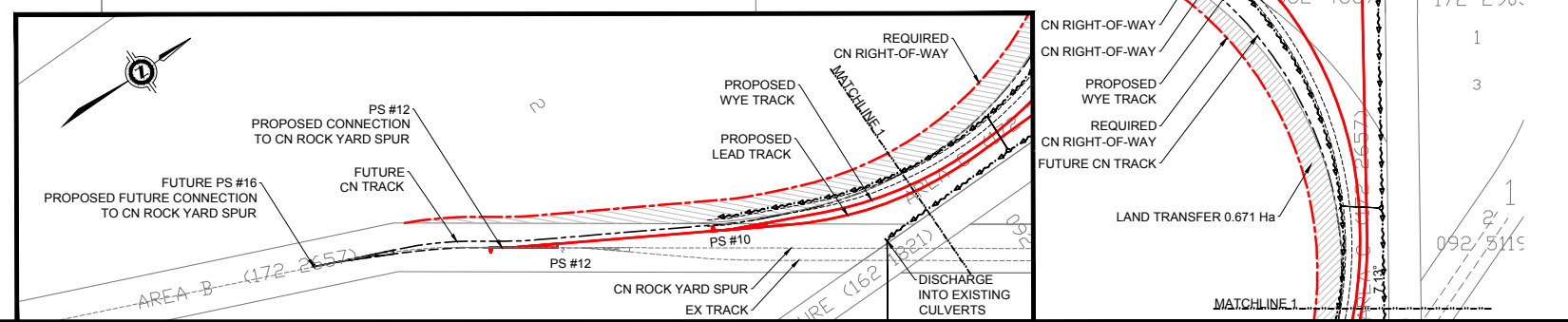
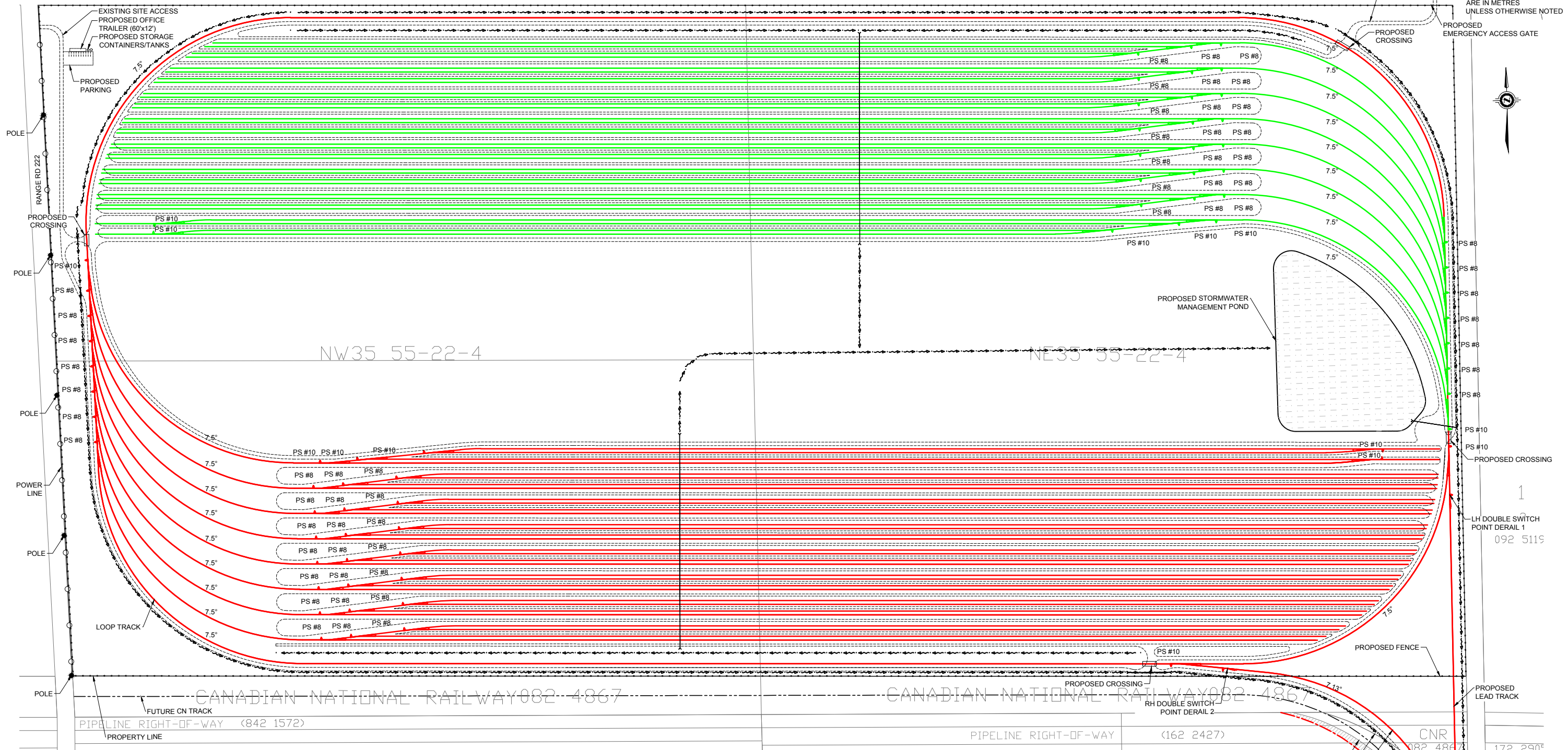


CANDO STURGEON TERMINAL
STURGEON COUNTY, AB

SITE LAYOUT		
March 8, 2019	Rev 0.0	Figure No.
Project No. 203.50152.00000		4-1



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LEGEND	
	EXISTING TRACK
	PROPOSED FIRST STAGE TRACKS
	PROPOSED SECOND STAGE TRACKS
	FUTURE TRACK
	REQUIRED CN RIGHT-OF-WAY
	GRAVEL ROAD
	PROPERTY LINE
	REQUIRED PROPERTY ACQUISITION
	DITCH ARROW
	CULVERT
	LIGHT / UTILITY POLE
	PROPERTY FENCE
	POINT OF SWITCH

REVISIONS				
No.	REVISIONS TO DRAWING	BY	DATE	APPR.
B	ISSUED FOR CLIENT REVIEW	JK	01/11/2019	AP
A	ISSUED FOR CLIENT REVIEW	CC	12/22/2018	AP



DESIGNED BY: A. LAIDLAW	DESIGNED BY: A. LAIDLAW
CHECKED BY: J. SIGURDSON	APPROVED BY: A. PERRY
SCALE: 25 0 25 Scale: 1:2,250 FOR 22x34 PLOT SIZE	

CANDO STURGEON TERMINAL STURGEON COUNTY, AB DETAILED SITE LAYOUT			
PROJECT NO. 17M-01224-12	DWG. NO. FIGURE 4-2	REV. B	SHEET 001/001

FILENAME: 17M-01224-12-RV-SK-001 Detailed Site Layout.dwg
PROJECT: CANDO STURGEON TERMINAL
DATE: 01/11/2019 11:23am

4.3 EMISSIONS, DISCHARGES AND WASTE

This section describes emissions, discharges and waste that are likely to be generated as a result of Project construction and decommissioning and Project operation, plans to manage them, and the expected residual effect on the environment.

4.3.1 ATMOSPHERIC EMISSIONS

4.3.1.1 Project Construction and Decommissioning

During the Project construction phase, the major sources of atmospheric emissions are expected to be exhausts from the onsite mobile equipment and fugitive dust. The key contaminants from mobile equipment exhaust are sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), hydrocarbons (HC), and particulate matter (PM). The construction phase is planned to extend for a period of seven months (14 hours/day, 6 days/week). Air emissions were estimated for the entire construction period for the onsite mobile exhausts, and are presented in Table 4-3. Diesel fuel is assumed to be used in the mobile equipment. The emissions estimation was based on the Canadian emission standards for mobile diesel engines, which align with the U.S. Environmental Protection Agency (EPA) standards and Canada’s Sulphur in Diesel Fuel Regulations (Government of Canada 2012c, 2017, 2018).

Dust emissions from onsite roads will be controlled through the application of water using water trucks. Onsite speed limits will be enforced to further control road dust.

Estimates of greenhouse gas (GHG) emissions using emission factors and global warming potentials from Environment and Climate Change Canada (ECCC) (ECCC 2018) are presented in Table 4-3. The total amount of GHG emissions during the construction phase is estimated to be approximately 6,767 tonnes of CO₂Equivalent¹ (CO₂E).

Table 4-3: Estimated Air and GHG Emissions during the Construction Phase

Equipment ^(a)	# of Units	Assumed Horsepower (HP)	Total Fuel Consumption (L)	Air Emissions					GHG Emissions
				SO ₂ (kg)	NO _x (kg)	CO (kg)	HC (kg)	PM (kg)	(tonnes CO ₂ E)
Excavator (with thumb, grapple and magnet)	8	290	483,140	12.7	3,342	1,773	682	102	1,329
Loader	8	217	361,522	9.5	2,501	1,888	510	112	994
Bulldozer	4	121	71,995	1.9	1,395	740	285	43	198
Compactor	2	150	44,625	1.2	1,729	917	353	53	123
Truck (10-ton/BTMT with hydraulics)	2	600	209,304	5.5	6,915	5,221	1,411	310	567

¹ GHG emissions are expressed in tonnes of CO₂ equivalent (CO₂E). This is because GHGs from the combustion include CO₂, CH₄ and N₂O, and CO₂E is used to represent all these GHG substances. Global warming potentials (1 for CO₂, 25 for CH₄ and 98 for N₂O) are used for the CO₂E calculation. This is a standard method.

Equipment ^(a)	# of Units	Assumed Horsepower (HP)	Total Fuel Consumption (L)	Air Emissions					GHG Emissions
				SO ₂ (kg)	NO _x (kg)	CO (kg)	HC (kg)	PM (kg)	(tonnes CO ₂ E)
Tie spiker gauger	2	140	15,422	0.4	1,613	1,218	329	72	42
Track regulator	2	240	26,438	0.7	2,822	8,749	734	56	73
Track tamper	2	250	27,540	0.7	2,881	2,176	588	129	76
Pick-up Truck	5	410	176,164	4.6	4,725	2,507	964	145	484
Speed Swing	2	160	17,626	0.5	1,844	978	376	56	48
Material Trucks(b)	N/A	600	1,046,520	27.5	7,056	21,874	1,835	141	2,833
Total Emissions				65	36,823	48,043	8,067	1,219	6,767
(a) Fuel type is assumed to be diesel for all equipment. (b) Assumed 10 material trucks will be on site at a time for an average of 20 minutes each throughout the construction.									

4.3.1.2 Project Operation

During Project operation, the main source of air emissions is the combustion of diesel fuel in the locomotives and refueling or supply trucks. These emissions are expected to be SO₂, NO_x, CO, HC and PM from the locomotive exhaust. Two GP-9 locomotives will be in use during stage one of the Project development. Each locomotive will operate 260 days per year, assuming an average second throttle position over the period of an eight (8) hour day.

Air emissions from the two locomotives were estimated based on the U.S. EPA fleet average emission factors (EPA 2009). Table 4-4 presents the preliminary expected air and GHG emissions from the Project during operation over the course of one year. The air emissions presented in the table are below the National Pollutant Release Inventory (NPRI) reporting thresholds² (ECCC 2019). The total amount of GHG emissions during the operation is estimated to be approximately 549 tonnes of CO₂E annually. This amount is below the provincial and federal reporting thresholds. Compared to the 2016 total GHG emissions for the province of Alberta (262.9 Mega-tonnes) (ECCC 2019), the GHG emissions from the facility are minimal (approximately 0.0002% of the total provincial emissions). Should the number of locomotives be doubled in the future, this could result in approximately 1001 tonnes of CO₂E annually for the Project, and approximately 0.0004 percent of the total provincial emissions.

² The NPRI reporting thresholds for SO₂, NO_x, and CO are 20 tonnes/year; PM2.5 is 0.3 tonne; PM10 is 0.5 tonne. There is no threshold for HC.

Table 4-4: Estimated Air and GHG Emissions during the Operation Phase

Emission Sources	Total Annual Fuel Consumption (L)	Air Emissions (tonnes/year)						GHG Emissions (tonnes CO ₂ E/year)
		SO ₂	NO _x	CO	HC	PM ₁₀	PM _{2.5} ^(a)	
2 Locomotives	151,424	0.004	6.120	1.113	0.304	0.173	0.173	452
6 refuelling/supply trucks	36,000	0.001	2.340	7.254	0.608	0.047	0.047	97
Total		0.005	8.460	8.367	0.912	0.220	0.220	549
(a) Assumes all PM ₁₀ is PM _{2.5} .								

4.3.2 LIQUID DISCHARGE

Anticipated liquid discharges generated by the Project, the planned method of disposal and expected residual effect on the environment are presented in Table 4-5. Significant adverse residual effects on the environment from Project liquid discharges are not expected to occur.

No fuel or hazardous substances will be kept onsite. Refueling of equipment during construction will be conducted in a designated area by a qualified third party provider with spill prevention and containment measures in place. Measures include placement of an impermeable barrier or berm around the graveled refueling area, and automatic shutoff valves during the fuel transfer operation to prevent fuel release onto the ground. Similarly, fueling of locomotives during operation will be completed in a designated location by a qualified third party provider with similar spill prevention and containment measures in place. Any associated liquid waste (e.g., oil, solvents or other liquid discharges) will be collected by the service provider and disposed of in an approved licensed facility.

To meet recommendations of the Railway Association of Canada and industry standard, rail cars will be visually inspected before being placed on the track and periodically (every 48 hours after the first five days) until their departure from the facility (within 30 days). Cars with hazardous goods will be placarded while on the facility. If rail cars require cleaning, Cando will engage a third party such as Clean Harbours or Water X to employ a Gama Jet cleaning system and arrange for appropriate disposal of the contaminated solutions.

In the event that a potentially contaminating liquid substance (e.g., fuel, used oil or solvents) is temporarily stored onsite, it will be stored in a storage tank that will conform to the *Guidelines for Secondary Containment for Above Ground Storage Tanks* (Alberta Environmental Protection 1997, as amended).

In the event an unplanned incident occurs, spill response and containment measures as identified in the Emergency Response Plan for the Project will be implemented to prevent the liquid discharge from entering the stormwater system. Measures include using readily available spill kits, booms for containment, personal protective equipment (PPE) deemed necessary to safely handle specific products, and reporting in accordance with the established protocol. A spill kit includes materials designed to contain and absorb spills, and cover drains, and PPE (Cando 2019).

During Project construction, erosion and sediment control measures (e.g., rip rap) will be implemented where warranted, with the goal to prevent sediment laden or contaminated water resulting from construction activities from entering low lying or wet areas or leaving the Project site.

Table 4-5: Liquid Discharges Generated by the Project

Liquid Waste	Containment	Disposal Method	Expected Residual Effects on the Environment
Surface runoff water	Ditches and clay-lined stormwater management pond	On site stormwater management system, and drainage via culvert to County stormwater management system off the Project site. The system will be operated in accordance with the County Development Permit conditions and an EPEA Registration (if required). In addition, AEP expects that a stormwater system will be constructed and operated in a manner that meets the Environmental Quality Guidelines for Alberta Surface Water (AEP 2018a).	None
Domestic sewage	Above ground concrete holding tank	Pumped out by qualified contractor for disposal at an approved licensed facility	None
Used oil and other solvents (hazardous waste)	Oil containment area established by third party provider.	Removed by qualified contractor for disposal or recycling at an approved licensed waste facility	None

4.3.3 SOLID WASTE

During all Project phases, the Project will generate solid waste – both recyclable and non-recyclable. All solid waste materials will be contained on site and removed from the site by a licensed contractor and transported for disposal at an approved, licensed facility. Wherever possible, waste will be diverted from disposal at a municipal landfill to a waste recycling stream. Waste streams will be disposed of in accordance with provincial Waste Control Regulations (EPEA Regulation 192/1996) and requirements for each specific waste as classified in the *Alberta User Guide for Waste Managers* (ESRD 1996).

The types of solid waste expected to be generated by the Project, method of waste disposal and expected residual effect on the environment are presented in Table 4-6. Adverse residual effects on the environment from Project solid waste generation are not expected to occur.

Table 4-6: Solid Waste Generated by the Project

Waste	Containment	Disposal Method	Expected Residual Effect on the Environment
Non-recyclable material (domestic garbage, non-recyclable material packaging)	Dedicated covered containers	Removal by construction contractor or third party for disposal, in accordance with existing legislation, at an approved facility	None
Metal and recyclable material	Separated and stored in dedicated marked containers	Removal by third party for recycling at an approved recycling facility	None

Waste	Containment	Disposal Method	Expected Residual Effect on the Environment
Oil filters (hazardous waste)	Oil containment area established by third party provider.	Removal by third party for disposal or recycling by a qualified contractor at an approved licensed facility	None

4.4 PROJECT PHASES AND SCHEDULING

This section provides a description of the timeframe in which the Project is to be developed and identifies the primary activities to be undertaken during key Project phases.

4.4.1 PLANNED SCHEDULE

Project development consists of the following phases: Site Preparation, Construction, Operation, Decommissioning and Reclamation, and Abandonment. Project phases and their planned duration are presented in Table 4-7. The planned dates are, however, dependent on the timing of regulatory approvals, procurement of materials, and ongoing stakeholder engagement. The construction schedule (e.g., for the north yard) may also be accelerated based on customer demand.

Table 4-7: Planned Project Development Schedule

Project Phase	Planned Timeframe
Tree clearing (currently being conducted with landowner approval prior to the migratory bird breeding season)	March 2019
Site Preparation (includes earthworks)	Mid-May to mid-July 2019
Construction of south yard and associated tracks	Late May to end of November 2019
Construction of north yard	To be determined based on market conditions
Operations	40 years ^(a)
(a) The Decommissioning and Reclamation, and Abandonment phases will be conducted over the period necessary to meet standards and requirements at the time.	

4.4.1.1 Vegetation Clearing

Limited clearing is required on the Project site since the majority of the site has been cultivated. Trees will be cleared from the windbreaks around the farmyard in the northwest corner of the site and along the eastern and southeastern border of the site. Trees will be cleared only as needed to allow for construction of infrastructure.

4.4.2 SITE PREPARATION

Site preparation will be initiated upon receiving the required Project approvals. The primary site preparation activities are described below.

4.4.2.1 Removal of Existing Structures

The existing residence, foundations for grain bins and other existing structures and their contents will be removed and materials disposed of by a qualified third party contractor at a waste disposal facility certified to handle the specific type of waste.

Based on the Phase 1 Environmental Site Assessment completed for the Project site (SLR 2018a), minor remedial action may be necessary in the farm yard area (i.e., shallow excavation or scraping of surface soils with subsequent confirmatory soil sampling) in locations identified as having the potential for contaminated soils.

4.4.2.2 Utility Locates

The location of any existing utilities will be identified by flagging to alert all workers to avoid, thereby avoiding damage or interruption of utility service delivery during Project construction.

4.4.2.3 Soil Salvage

During site preparation, soil salvage activities will be conducted in accordance with applicable regulatory requirements including the separate salvaging and storage of topsoil and subsoil, as appropriate. Topsoil will be separated from subsoil via scraping using dozers and the salvaged topsoil will be stockpiled as needed for use during construction or, potentially, removed from the site as part of the construction contract to be used as a productive growing medium elsewhere.

Provincial requirements for topsoil storage for later replacement do not apply to private land; however provincial approval may be required to remove topsoil from the site. Cando will obtain the necessary authorization before removing topsoil, in accordance with provincial requirements and to meet expectations of Sturgeon County.

If deemed necessary during construction of the first stage, topsoil will be stored on the north half of the Project site until it can be removed from the site. However, Cando does not plan to stockpile topsoil on site for future use in site reclamation as the eventual future use is expected to be industrial also.

4.4.2.4 Grading

The site will be graded as necessary to provide level ground for track installation, positive drainage away from the proposed tracks, and a safe work site. Grading will be completed to meet design requirements. Initial excavation of surface water control ditches will also be undertaken.

Access roads, including primary and internal access will be constructed by surfacing the routes with gravel during site grading. Aggregate will be sourced from an approved site.

4.4.2.5 Fence and Security Installation

Site access control will be developed. A standard 6 foot high chain-link fence will be installed around the perimeter of the Project site to limit access to the rail yard. Locking gates will be installed at the points of road access as well as at points of rail access.

In Cando's experience, the perimeter fence has deterred most terrestrial wildlife from accessing the rail yard at other sites, and Cando is not aware of incidents involving wildlife in their rail yards.

4.4.3 PROJECT CONSTRUCTION

The primary construction activities are described below.

4.4.3.1 Construction Infrastructure

Staging and laydown areas will be developed for the delivery, storage and deployment of equipment and materials:

- Tracks and associated components will be stored and sorted throughout the construction period;
- Holding tanks and containers for storage of liquid and solid waste will be placed; and
- Office trailer(s) for engineering and construction management, construction contractors, and security will be installed. These offices will also be used during Project operation. No permanent buildings are being constructed for the first stage.

The following services will be tied in to support the Project:

- Standard 120 volt electrical power for yard and office lighting and services;
- 675 volt 3-phase power drawing about 100 amps for locomotive heating requirements; and
- Internet access to connect the site for data exchange and security measures.

Some construction infrastructure will be temporary (i.e., staging and laydown areas), while other infrastructure will remain on site during Project operation (i.e., office trailers, holding tanks).

4.4.3.2 Track Subgrade Preparation

- Survey for track alignment will be conducted prior to installation of subsurface infrastructure.
- Existing subgrade material will be used where possible and graded to the required elevation and slope for sub-ballast placement. A geotechnical investigation will be carried out to determine the suitability of subgrade material and the cut depth required to remove unsuitable material.
- Sub-ballast consisting of 12" depth of crushed or screened pit run gravel containing no more than 3% organics will be placed and compacted.
- Sub-ballast will be graded, compacted and surveyed.

4.4.3.3 Track Installation

- Track materials will be delivered to the laydown area(s) throughout the construction period.
- Track will be laid and connected immediately on the sub-ballast to create the skeleton track.
- The skeleton track will be flooded with railway ballast (2" crushed rock ballast) meeting or exceeding the CN Class 2 Crushed Rock Ballast Specification (Canadian National Railway Specification 12-20C), then lifted, lined and tamped to final alignment and elevation.

4.4.3.4 Surface Water Management

- A conceptual stormwater management plan is currently under review by the County, and provincial requirements are being discussed with the AEP Approvals Engineer as described under Primary Activities above. The design will be completed, and the system constructed according to the approvals received. More detail is provided in Table 7-2.
- Development of the onsite system will require construction of a portion of the County's proposed Line 1 ditch which will extend along the north and east borders of the Project site (WSP 2019). Cando will be responsible to construct the required portion of the Line 1 ditch since the Project is the first development that requires the ditch.

- The dugout in the northwest corner of the Project site will be drained following grading work on the property. Draining of the dugout is planned to occur between May and August and will be conducted based on discussion with AEP.

4.4.3.5 Vegetation Management

- Throughout Project construction, Cando will comply with the Alberta Weed Control Act; all construction equipment arriving on the Project site will be cleaned to be free of vegetation, seeds and debris to limit the establishment and spread of noxious weeds within and off the Project site.
- Undeveloped portions of the site (i.e., ground surface not covered with ballast for track installation or road) will be re-seeded as necessary using an approved weed-free seed mix following track installation.

4.4.3.6 Emergency Response

Based on its corporate Emergency Response Plan, Cando has prepared a preliminary Project-specific Emergency Response Plan for use, if necessary, during construction. The preliminary plan has been presented to Sturgeon County for review and discussion.

4.4.4 PROJECT OPERATION

4.4.4.1 General

The Project will come into service following staged construction, commissioning, testing, and operation. The expected operational life of the Project is 40 years. An operating and maintenance plan will be completed for each operational stage. Operation of the rail yard will be coordinated between Cando and CN Rail.

The onsite stormwater management system will be constructed, operated and maintained by Cando. The offsite planned County regional stormwater management ditch (Line 1) will be constructed by Cando, and managed by the County.

Two locomotives will initially operate in the south yard, with additional locomotives assigned, as required. Equipment refueling trucks and miscellaneous supply vehicles will access the site as required. During the first development stage, traffic is not expected to exceed six trucks per day.

Cando has prepared a preliminary Project-specific Emergency Response Plan (Cando 2019) for use, as necessary, during operations. The plan is currently being reviewed by the County emergency service team and will be finalized before Project development. The plan includes emergency notification, communication and evacuation procedures; as well as protocols and measures to be implemented in response to unplanned incidents; and incident reporting procedures. Environment related events addressed in the plan include spill response and containment and incidents involving dangerous goods.

4.4.4.2 Personnel

Staff employed at the site will include a supervisor and two-person train crews. At start-up, one crew working eight hours per day and five days per week will be required. As Project operational demand increases, additional crews could potentially be working at any time and the number of people working at any one time will be dependent upon customer demands for service.

4.4.4.3 Commodities and Environmental Risk

Cando is conducting an overall risk assessment that will determine what type of commodities will be accepted. Commodities that the cars may carry include bio-diesel, hydrocarbons (e.g., crude oil, diesel, ethanol, propylene), and minerals (e.g., phosphate rock) or fertilizers (e.g., ammonium nitrate, monoammonium phosphate).

Rail cars, whether empty or loaded, may contain petroleum based products that will carry an environmental risk if the rail cars suffer an uncontrolled vessel release. Locomotives will be refuelled on site by a third party service provider, and any fuel spills will be managed. The following measures will be implemented to avoid such a release, and prevent soil and water contamination:

- Rail cars will be visually inspected before being placed on the track; cars with hazardous goods will be placarded while on the rail yard.
- Regular inspections of the rail cars staged or stored at the facility;
- Training in safe handling of loaded dangerous goods storage rail cars;
- Refuelling procedures will be followed, including using containment berms around the locomotive and automatic shut-off valves to prevent spills;
- A Safety Management System for the safe handling of dangerous goods; and
- Individual risk assessment for each new commodity to be stored at the facility.

If rail cars require cleaning, Cando will engage a third party such as Clean Harbours or Water X to employ a Gama Jet cleaning system and arrange for appropriate disposal of the contaminated solutions.

An empty rail car is generally not purged unless a different commodity will be loaded into it on next loading. Rail car customers may purge rail cars which would then be clear of any contaminants, or cars may not be purged.

4.4.5 DECOMMISSIONING AND RECLAMATION

Decommissioning and reclamation will be completed in accordance to requirements at that time. During decommissioning, it is anticipated that utilities will be disconnected and surface infrastructure will be removed or recycled to various approved third party licensed facilities. The preferred decommissioning method, if the option exists, is to salvage and recycle or re-use materials where possible. Following the removal of surface infrastructure, subsurface infrastructure will be removed and disposed of appropriately.

Site remediation activities will be undertaken as needed to remove contaminated materials. The rail yard will then be graded as necessary to allow for natural drainage and to accommodate the future designated end land use. It is anticipated that the yard and infrastructure and materials will be re-purposed for other industrial activity; that the end land zoning and use will remain as heavy industrial use unless amended by Sturgeon County.

5. PROJECT SITE

5.1 SITE MAPS

The following map figures are provided in the summary of the Project Description:

- Figure 1-1: Regional Location (Section 1.3) – shows the regional setting of the Project, including the relationship to federal lands (Elk Island National Park, Edmonton Garrison), North Saskatchewan and Sturgeon rivers and nearby communities.

- Figure 1-2: Project Location (Section 1.3) – shows the local Project setting, including the proximity of the North Saskatchewan and Sturgeon rivers and adjacent native vegetation (Environmentally Sensitive Areas), transportation infrastructure (highways, local roads and the adjacent CN Rail line), the extent of industrial facilities in the immediate vicinity, and nearby residences.
- Figure 4-1: Site Layout (Section 4.2) – shows the spatial relationship of the Project components.
- Figure 4-2: Detailed Site Layout, which shows more detail of the proposed infrastructure.
- Figure 5-1: Location of Indigenous Communities (Section 5.4.3) – shows the locations of Indigenous communities and organizations relative to the Project.
- Figure 7-1: Biophysical Features and Wildlife Observations (Section 7.1) – shows the location of water features (dugouts, wetlands, the enhanced drainage), vegetation, signs of wildlife activity on the Project site, and nearby residences on an aerial image.

5.2 PHOTOGRAPHS OF THE PROJECT SITE

An aerial view of the Project site is provided in Figure 7-1. Photographs taken during a site visit in September 2018 are included in Appendix A of this document. The following features are noted:

- Area of cultivated fields throughout (Photo 1);
- Farm yard with residence and out buildings in the northwest corner (Photo 2);
- Fringe wetland associated with the excavated dugout (northeast corner) (Photos 6 and 7);
- Enhanced north–south drainage and central wetland (Photos 3, 8 and 9); and
- Tree windbreaks extending south of the farm yard and along the east site boundary (Photo 4).

5.3 NEARBY RESIDENCES, TRADITIONAL TERRITORIES AND FEDERAL LANDS

5.3.1 ZONING DESIGNATION

The Project is located on land designated “I5 – Heavy Industrial District” under the Land Use Bylaw. This zoning district has been reserved under the Sturgeon County Municipal Development Plan and Alberta’s Industrial Heartland Area Structure Plan for major industrial uses likely to have significant impact on non-industrial users. No future residential development is planned for this district due to potential effects from appearance, noise, odour, risk of toxic emissions, and explosion hazards associated with heavy industrial operations (Sturgeon County 2017).

5.3.2 PERMANENT SEASONAL OR TEMPORARY RESIDENCES

The farm house on the far northwest corner of the property is being leased by the current owner and is occupied full-time by the lessee. The residence will be vacated prior to Project development. Cando has initiated engagement with the occupant regarding the proposed development by way of direct contact (January 9, 2019) and the Project notification letter.

Three (3) other residences are located within 1.6 km of the Project site. Cando has initiated engagement with the residents of these nearby properties by way of direct contact (January 9, 2019) and the Project notification letter.

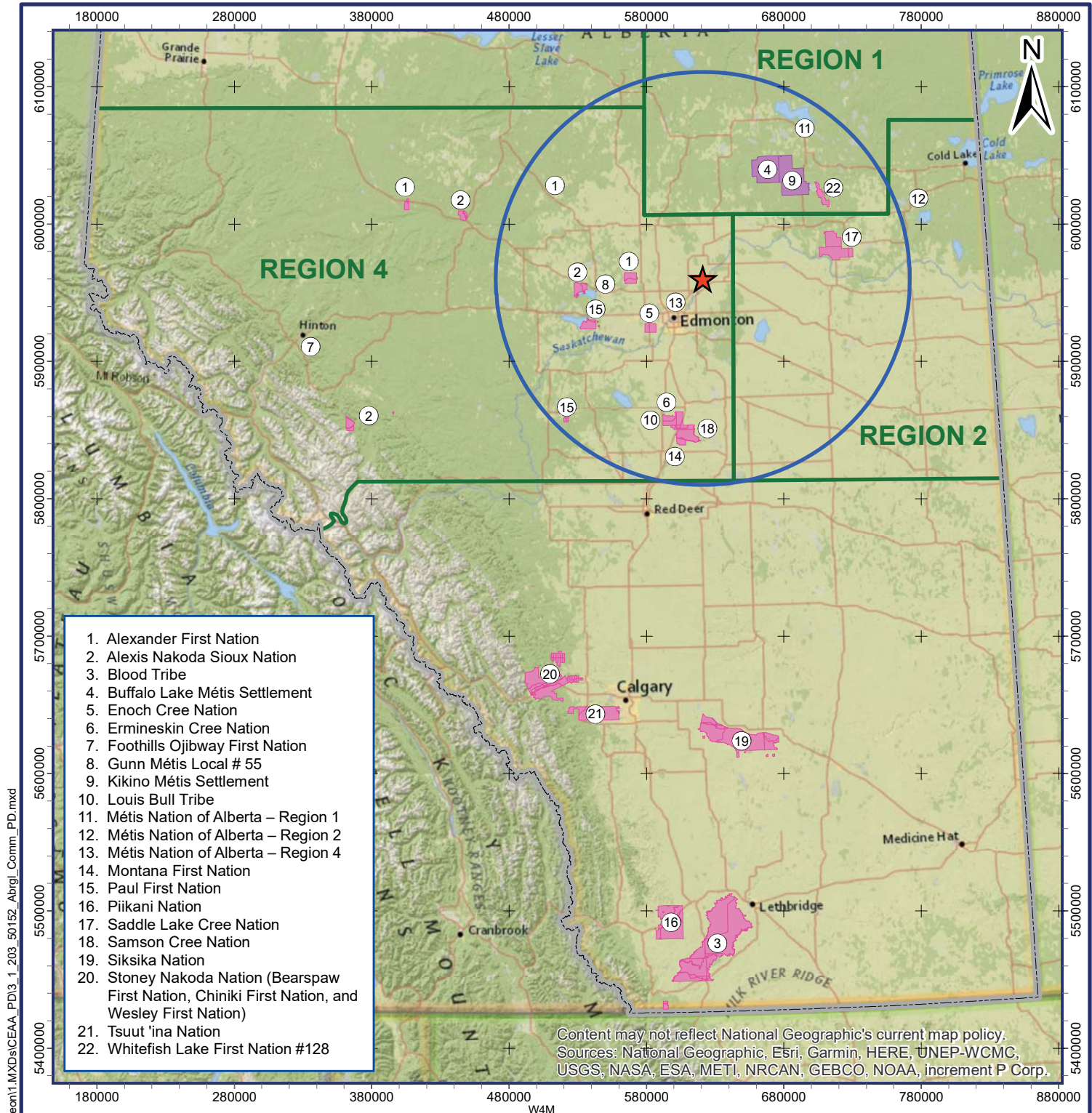
5.3.3 CITIES, TOWNS AND HAMLETS

The Project site is located approximately 20 km northeast of the Edmonton city limits. The following municipalities are closest to the Project site; all except the hamlet are shown on Figure 1-2.

- The city of Fort Saskatchewan is approximately 2.5 km south of the Project, on the east side of the North Saskatchewan River;
- The town of Gibbons is approximately 9 km west of the Project;
- The town of Bruderheim is approximately 13 km east of the Project, on the east side of the North Saskatchewan River;
- The town of Redwater is approximately 15 km north of the Project; and
- The hamlet of Josephburg is approximately 11 km southeast of the Project, east of the North Saskatchewan River.

5.3.4 TRADITIONAL TERRITORY OF INDIGENOUS GROUPS

The Project is located within the Treaty 6 First Nations area and within the Métis Nation of Alberta Region 4. The locations of Indigenous communities and organizations listed in Section 2.1 (Table 2-1) relative to the Project are shown in Figure 5-1.



1. Alexander First Nation
2. Alexis Nakoda Sioux Nation
3. Blood Tribe
4. Buffalo Lake Métis Settlement
5. Enoch Cree Nation
6. Ermineskin Cree Nation
7. Foothills Ojibway First Nation
8. Gunn Métis Local # 55
9. Kikino Métis Settlement
10. Louis Bull Tribe
11. Métis Nation of Alberta – Region 1
12. Métis Nation of Alberta – Region 2
13. Métis Nation of Alberta – Region 4
14. Montana First Nation
15. Paul First Nation
16. Piikani Nation
17. Saddle Lake Cree Nation
18. Samson Cree Nation
19. Siksika Nation
20. Stoney Nakoda Nation (Bears paw First Nation, Chiniki First Nation, and Wesley First Nation)
21. Tsuut'ina Nation
22. Whitefish Lake First Nation #128

Content may not reflect National Geographic's current map policy.
 Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

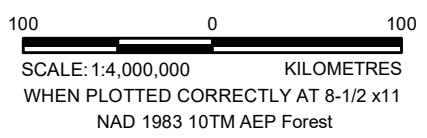
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LEGEND

- PROJECT LOCATION
- PROJECT BUFFER - 150 KM
- METIS NATION OF ALBERTA REGION BOUNDARY
- INDIAN RESERVE
- METIS SETTLEMENT

NOTES

The North Saskatchewan River is identified by the word 'Saskatchewan'.
 This map is for conceptual purposes only and should not be used for navigational purposes.
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CANDO RAIL SERVICES LTD.

CANDO STURGEON TERMINAL
STURGEON COUNTY, AB

LOCATION OF INDIGENOUS COMMUNITIES

February 25, 2019	Rev 0.0	Figure No.
Project No.	203.50152.00000	5-1

SLR
SLR Consulting (Canada) Ltd.

The closest First Nation reserves are:

- Reserve 135 (Enoch Cree Nation) located approximately 47 km southwest the Project;
- Reserve 134 (Alexander First Nation) located approximately 47 km west the Project; and
- Reserve 125 (Saddle Lake Cree Nation) located approximately 86 km northeast the Project.

The closest Métis Settlement Areas are:

- Gunn Métis Local 55 (Lac Ste Anne Métis) located approximately 78 km west of the Project;
- Buffalo Lake Métis Settlement located approximately 79 km northeast the Project; and
- Kikino Métis Settlement located approximately 83 km northeast the Project.

5.3.5 FEDERAL LANDS

The Project is not located on federally designated lands. In addition to the Indigenous communities indicated above, the closest federal lands are as follows:

- Canadian Forces Base (Edmonton Garrison) is located approximately 25 km southwest of the Project; and
- Elk Island National Park is located approximately 26 km southeast of the Project, east of the North Saskatchewan River. This park is within the Beaver Hills Dark Sky Preserve and the newly designated Beaver Hills Biosphere Reserve (Parks Canada 2018). The closest boundary of the Beaver Hills Dark Sky Preserve is approximately 20 km from the Project site.

5.3.6 TRADITIONAL LANDS

The Project site is located in Treaty 6 territory and within an area with asserted rights by Métis groups and the Métis Nation of Alberta (Government of Canada 2019). Treaties 7 and 8 First Nations groups may also have traditional territories or potential or established Aboriginal or Treaty rights that overlap the Project site. All First Nation groups may have an interest in traditional land use activities in the vicinity of the Project site on unoccupied Crown land, in accordance with the *Alberta Natural Resources Act* in the respect of the *Natural Resources Transfer Acts, 1930* (Government of Canada 1930).

The Project site has been privately owned and under agricultural operation for several decades. Similarly, land immediately surrounding the Project has been cultivated over several decades; however, the area is experiencing an increasing level of industrial development. Currently, most land surrounding the Project site has been or is being developed for long term industrial use or is owned by industrial entities. Based on the agricultural and industrial uses in the Project area, the land is not likely to be used currently for traditional activities such as hunting, trapping, and plant harvesting.

5.4 LAND AND WATER – REGIONAL ZONING DESIGNATIONS

5.4.1 LEGAL LAND TITLE

The Project site will be owned by Cando, pending final acquisition. Two land titles are currently registered for the property:

- North half of NW 35-55-22 W4M and NE 35-55-22 W4M; and
- South half of NW 35-55-22 W4M.

The property title excludes all mines and minerals, and a rail right-of-way adjacent to the south boundary.

5.4.2 LAND USE AND MANAGEMENT PLANS

The Project is located in Sturgeon County on land within the Capital Region and Alberta's Industrial Heartland; and is subject to land use and resource management plans, policies and initiatives under a range of regulatory jurisdictions and non-regulatory organizations. The Project falls within the boundaries of the North Saskatchewan land use planning region (AEP 2018b).

A description of each land use or management plan and initiative, and its relevance to the Project, are provided in the following subsections. Unless specifically indicated, it is not known whether a plan or initiative described below was subject to public engagement. Relevant County plans and zoning designation are described in Table 3-1. The Project falls within the County's heavy industrial zone.

5.4.3 REGIONAL CUMULATIVE EFFECTS MANAGEMENT

The Government of Alberta adopted the cumulative effects management system (CEMS) in 2007; CEMS uses an approach to manage cumulative environmental effects in a comprehensive regional, integrated and collaborative manner, and thereby protect water, air, land and biodiversity in Alberta (AEP 2018a). Within the province, Alberta's Industrial Heartland was identified as a key focus area because of the intensive industrial and municipal development pressure in the region.

The following environmental frameworks and monitoring initiatives have been or are being developed in Alberta's Industrial Heartland. They are described below and their relevance to the Project indicated.

- Regional Noise Management Plan (NCIA 2018b);
- Water Management Framework for the Industrial Heartland (ESRD 2008);
- Air Quality Management Framework for the Capital Region and Industrial Heartland (NCIA 2018c);
- Elemental Sulphur Management Framework for the Industrial Heartland (ESRD 2009, update AEP 2016); and
- Regional Groundwater Management Framework (AEP 2012).

5.4.3.1 Regional Noise Management Plan

The NCIA Regional Noise Management Plan (NCIA 2018c) and associated Regional Noise Model represent the collaborative effort of the NCIA membership and the Alberta Energy Regulator (AER); the plan covers an area of approximately 700 km² and uses a regional approach to address environmental noise management. The plan is used as a regulatory approved tool to assist in assessing compliance with the AER Noise Control Directive 038 (for regulated NCIA members), and to report publicly on noise, trends and model updates on an annual basis (NCIA 2017). Data from about a dozen large industrial facilities are incorporated into the model. The model is based on predicted noise outputs from industrial facilities, regional road networks, and rail traffic. The facilities that have adopted the plan implement best practices for noise management to address various noise fluctuating scenarios. Model validation measurements are performed on an annual basis to compare model predictions to measured noise levels. Results are reported publicly on the NCIA website. Current model results are expected to be published in the first quarter of 2019.

Rail noise (train shunting and locomotive operational noise) is not regulated by the AER, and Cando's facility is not regulated by the AER. Consequently, the Project will not be subject to the AER Noise Control Directive 038. The interaction between the Project and noise is discussed in Section 7.1.10.

Cando has discussed the Project with the NCIA and received positive feedback. No comments have been received to date with regard to noise effects of the proposed rail facility on regional noise levels.

5.4.3.2 Water Management Framework for the Industrial Heartland

The Water Management Framework for the AIH and Capital Region (ESRD 2015) was developed to manage industrial water use and water quality and the cumulative effects of various individually regulated projects within the Devon to Pakan reach (includes the AIH) of the North Saskatchewan River. Goals of the framework are to improve water quality from fair to good, minimizing load discharge, and minimizing the impacts on the North Saskatchewan River, and to maintain sufficient water quantities in the river to maintain aquatic life and support current and proposed industrial development (ESRD 2015).

The Project site is near the reach of the North Saskatchewan River that is subject to management and study under the Water Management Framework, a component of the Capital Region Cumulative Effects Management Framework. Water quality is monitored at four long-term river network monitoring sites (Government of Alberta 2018a). The most recent investigation of water quality trends (1977-2002) measured at the northern (Pakan) and southern (Devon) monitoring locations indicates improvement in water quality due to upgrades in municipal waste water discharges, progressive elimination of combined sewers and improved handling of storm water runoff (Government of Alberta 2012).

Cando has considered the Water Management Framework. The interaction between the Project and surface water is discussed in Section 7.1.2. No significant effects on the aquatic environment as a result of the Project are expected to occur.

5.4.3.3 Capital Region Air Quality Management Framework

The objective of the Capital Region Air Quality Management Framework (ESRD 2010) is to regulate air emissions on a regional basis, rather than regulating emissions from individual facilities. Limits have been established for four contaminants of concern: nitrogen dioxide (NO₂), sulphur dioxide (SO₂), PM_{2.5} and ozone (O₃). These limits are based on Alberta's Ambient Air Quality Objectives (AAAQO) for NO₂ and SO₂ (ESRD 2012), and Canada Wide Standards for PM_{2.5} and O₃ (CCME 2012). There are four (4) proactive ambient air quality levels for each contaminant of concern. Triggers at each level lead to management actions that range from baseline monitoring and data gathering to a mandatory plan to reduce the ambient levels below the applicable air quality standard (ESRD 2012).

Air quality in the region is monitored by the Fort Air Partnership, which currently operates nine (9) continuous and fifty-five (55) passive air monitoring stations (Fort Air Partnership 2018).

Cando has considered the Air Quality Management Framework. The interaction between the Project and air quality is discussed in Section 7.1.9. Both air contaminant and GHG emissions are expected to be negligible/minimal during all Project phases. Emissions during the construction phase will be temporary.

5.4.3.4 Elemental Sulphur Management Framework for the Industrial Heartland

The Elemental Sulphur Management Framework is a collaborative initiative involving representatives from government, municipalities and industries. The purpose of the framework is to establish 'world-class' elemental sulphur management in the AIH for regional consumers, handlers and producers. The framework consists of a vision, principles and strategies to improve the management of elemental sulphur (Government of Alberta 2016).

Cando is conducting a risk assessment for all potential commodities to determine the products to be accepted. Cando has considered the Elemental Sulphur Management Framework as sulphur is a potential commodity to be transported.

5.4.3.5 Regional Groundwater Management

The NCIA is currently developing the Regional Groundwater Monitoring Framework in conjunction with AEP, as part of the North Saskatchewan Regional Planning process (AEP 2012; NCIA 2018d). The framework establishes a groundwater monitoring program with the objective of monitoring for changes in groundwater flow and quality from the established baseline in the Beverly Channel (Strathcona and Sturgeon Counties) Study Area (NCIA 2017).

The monitoring network includes 14 monitoring wells within the NCIA Beverly Channel Study Area (within Sturgeon and Strathcona counties), where surface drainage is generally towards the North Saskatchewan River or Astotin Creek (east of the North Saskatchewan River). Land uses in the study area are agricultural, residential and industrial (NCIA 2018e).

The NCIA has been maintaining a groundwater monitoring program since 2005 (baseline year) to monitor for changes in groundwater flow and quality from the established baseline. The NCIA continues to work with the provincial government to finalize a Groundwater Monitoring Directive for Alberta's Industrial Heartland.

Cando has considered the Regional Groundwater Management initiative, and determined that it is not relevant to the Project. The interaction between the Project and groundwater is discussed in Section 7.1.3. No adverse effects on groundwater quality or quantity as a result of the Project are expected to occur.

5.4.4 NORTH SASKATCHEWAN REGIONAL PLAN

In addition to the regional environmental frameworks, the Project falls within the boundaries of the North Saskatchewan land use planning region (AEP 2018b). The North Saskatchewan Regional Plan (NSRP) is currently under development. The NSRP Regional Advisory Council has provided their advice to the Government of Alberta on the development of the plan.

The Regional Advisory Council document identifies the North Saskatchewan Region as having sustainable economic development to the east and west in industries such as agriculture and energy development. The effect of the North Saskatchewan Region being the central dispatch for exports heading south has resulted in the region becoming a hub where pipelines, roadways and railways filled with raw or manufactured product is either shipped south for export markets for north for inputs into further natural resource development (AEP 2018b).

As the plan is currently under development, key recommendations provided by the Regional Advisory Council were reviewed to determine where the proposed project can align with the recommendations. Two key recommendations included (AEP 2018b):

- Wetlands – “implement the full suite of tools it has within the *Water Act* and Alberta Wetland Policy, including addressing the incentives and offsets that are needed to address the economic benefits and challenges of maintaining and restoring wetlands”.
- Explore the concept of various wetland creations (e.g., urban stormwater catchments, industrial borough pits) and the possible role they could play in supporting biodiversity and wetland values in a variety of settings.

Understanding that the parcel of land selected for Project development had two smaller wetlands and a number of low areas where water is retained following snowmelt and heavy rainfall, a relative wetland value was applied to the wetlands that will be removed to accommodate the development. This monetary value will be applied to development of wetlands in another area of the province.

5.4.5 LANDS AND RESOURCES USED FOR TRADITIONAL PURPOSES

The Project falls within lands identified as Traditional Territories for many Indigenous groups and communities as listed in Table 2-1 (Indigenous Communities). Locations of Indigenous groups and organizations with potential interest in the Project and with whom Cando has initiated engagement in relation to the Project are shown in Figure 5-1.

Due to agricultural use of the Project site, and surrounding residential and industrial land uses in Alberta's Industrial Heartland, it is not anticipated that the Project will require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal peoples.

To date during engagement, no Indigenous communities have identified specific sites or areas in the Project vicinity that are currently used for traditional use purposes.

6. FEDERAL INVOLVEMENT – FINANCIAL SUPPORT, LANDS AND LEGISLATIVE REQUIREMENTS

No federal financial support to carry out the Project has been proposed by any federal authority, and none is anticipated.

No federally designated lands, including any interest in easements, rights-of-way, or transfers of ownership, will be used for the purpose of carrying out the Project.

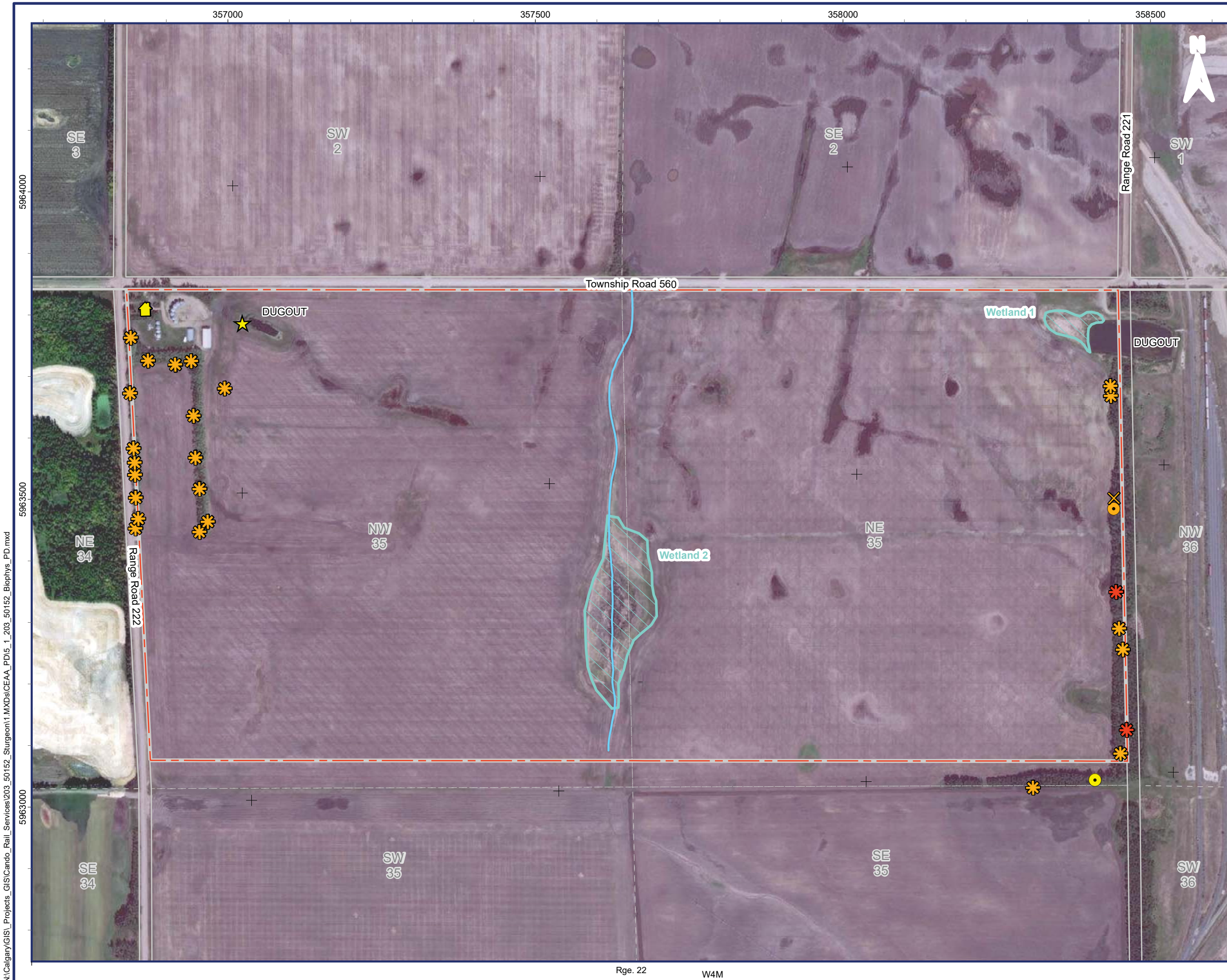
Federal acts which must be complied with are identified in Section 3, and the reporting requirements for a designated project as defined under the *Canadian Environmental Assessment Act, 2012* are met by this summary of the Project Description. No other federal legislative or regulatory requirement (including any federal license, permit or authorization) is required to carry out the Project.

7. ENVIRONMENTAL EFFECTS

Cando has assessed the baseline physical and biological setting of the Project site; consulted with regulators and others as described in this document; and identified environmental management practices and mitigation measures to support Project development in an environmentally acceptable manner and in compliance with regulatory requirements and environmental commitments.

This section presents the baseline environmental data collected and assessed to characterize the biophysical setting of the Project, a brief assessment of the Project-environmental interactions, and management measures to be implemented to avoid or minimize adverse environmental effects.

The assessment included desk-based review of relevant and available databases and secondary source material; followed by a field investigation conducted by two professional biologists on September 25 and 26, 2018 (SLR 2018b); and consideration of the Project description (components and activities). Key biophysical features on the Project site are shown on Figure 7-1. Photographs, taken to show the condition of the Project site, are included in Appendix A.



LEGEND

- GRASS NEST
- LARGE STICK NEST
- NEST CAVITY
- SKUNK LATRINE
- STICK NEST
- WILDLIFE TREES - WITH CAVITIES
- RESIDENCE
- ENHANCED DRAINAGE DITCH
- PROJECT SITE
- DOCUMENTED WETLAND

200 0 200
 SCALE: 1:6,000 METRES
 WHEN PLOTTED CORRECTLY AT 11 x 17
 NAD 1983 UTM Zone 12N

NOTES
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 Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community (2016)



CANDO STURGEON TERMINAL
 STURGEON COUNTY, AB

BIOPHYSICAL FEATURES AND WILDLIFE OBSERVATIONS

February 15, 2019	Rev 0.0	Figure No.
Project No. 203.50152.00000		7-1



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7.1 PHYSICAL AND BIOLOGICAL SETTING OF THE PROJECT

The Project is located in Alberta's Industrial Heartland within an area zoned for heavy industry and increasingly dominated by industrial land uses. The Project site is on agricultural land with wetlands and low wet areas and limited natural vegetation. It is surrounded by arable land to the north, west and south; and heavy industrial facilities to the east and northeast (CN Rail line, Pembina Redwater Fractionation Facility and Rail Yard, North West Redwater Partnership Sturgeon Refinery) and southeast (Shell Scotford Manufacturing Centre, east of the North Saskatchewan River). Immediately adjacent to the southern boundary of the Project site is a right-of-way owned by CN Rail, within which a pipeline right-of-way extends within an east-west aligned easement.

7.1.1 SOIL AND TERRAIN

The Project falls within the Central Parkland Natural Subregion which is usually associated with hummocky till or eolian materials (Natural Resources Committee 2006). The underlying parent material in the Project area is classed as Cretaceous shale, with significant areas of lacustrine and fluvio-glacial deposits.

The Project area is comprised of a variety of cultivated agricultural fields and heavily disturbed industrial properties. On undisturbed land, fertile loamy Black Chernozemic soils are extensive, with Gleysolic soils present in poorly drained and lower slope positions (Alberta Agriculture and Forestry 2017). The Hobbema soil series, a fertile Eluviated Black Chernozem formed on Glaciolacustrine over till parent material was identified for the majority of the Project site (Alberta Soil Information Centre 2016).

The field investigation confirmed fertile agricultural soil with topsoil 20 to 30 centimetres (cm) deep over much of the Project site. Soil saturation was variable across the site due to the number of low areas present. Sensitive soils (e.g., acid, saline, solonchic) that pose potential management issues when handled were not observed.

Potential Project effects on soils include:

- Loss of soil as a result of wind and water erosion;
- Reduced productivity due to compaction and rutting; and
- Reduced productivity due to contamination.

Cando plans to remove topsoil salvaged from the site during earthworks for use as a productive medium offsite as the Project site is expected to continue to be used for a heavy industrial use following Project decommissioning. Management measures outlined in Table 7-1 will be implemented to mitigate potential effects on soil resources. Based on the implementation of these measures, the Project is not expected to cause adverse effects on soil resources.

Table 7-1: Soil Management Measures

ASPECT	MANAGEMENT MEASURE
Soil stripping and management	<p>Limit the area of disturbance as far as practically possible.</p> <p>Strip topsoil and subsoil separately and store in clearly marked stockpiles in accordance with regulatory requirements.</p> <p>Salvaged soil may be used during construction if needed, or removed from the site under the construction contract. Obtain the appropriate authorization before removing any topsoil from the Project site.</p> <p>Stockpiles, if required, will be placed away from natural drainage channels or low lying areas to reduce the potential for sediment deposition into a surface waterbody. Manage stockpiles to prevent erosion and the establishment of invasive plant species by covering with a tarp or seeding with a fast-growing accepted seed.</p> <p>Install erosion and sediment protection measures (e.g., earthen berms, silt fences) as needed during construction to prevent loss of soil and prevent silt from entering wetlands. Erosion and sedimentation control devices will be inspected regularly to ensure proper functioning.</p> <p>Do not allow dumping of waste on stockpiled soil.</p> <p>Whether stored onsite or removed, handle all soils in a manner that conserves soil quality for future productive use.</p>
Contamination	<p>Handle, use, and dispose of all potentially contaminating substances and waste in a manner to prevent surface soil contamination.</p> <p>Maintain all vehicles, equipment, and locomotives onsite in good working order to prevent spills and leaks; inspect regularly.</p> <p>Contain and clean up spills and leaks immediately. Maintain spill kits (containing absorbent material) on site and train personnel how to use these kits. As necessary, implement spill response and containment measures outlined in the Project-specific Emergency Response Plan.</p> <p>Visually inspect rail cars before they are placed on yard track, placard those with hazardous goods, and periodically inspect rail cars staged or stored until their departure from the yard.</p> <p>Maintain a Safety Management System for the safe handling of dangerous goods, and train yard personnel in safe handling of dangerous goods in loaded storage rail cars.</p> <p>Use a third party service provider to treat contaminated soil in-situ where practical or remove from site and dispose of as hazardous materials.</p>
Reclamation	<p>Remove surface infrastructure and grade the ground surface as appropriate in accordance with the end land use and requirements at the time.</p> <p>Ameliorate soil if needed to meet end land use requirements.</p> <p>Monitor re-vegetation of the Project site to prevent soil erosion.</p>

7.1.2 SURFACE WATER (WATER BODIES AND DRAINAGE)

The Project site is regionally situated within the North Saskatchewan River watershed (See Figure 1-1). The North Saskatchewan River flows north approximately 1.5 km east of the Project. The Sturgeon River, located approximately 2.6 km south of Project site, flows eastward into the North Saskatchewan River. Both river reaches are designated ‘Environmentally Sensitive Areas’ (ESAs) by Sturgeon County (Sturgeon County, 2014). ESAs are defined as:

Landscape elements/areas within Sturgeon County that have important and/or unique environmental characteristics that are essential to the long-term maintenance of biological diversity, soil, water or other natural processes, both within the ESA and in a regional context (Sturgeon County, 2014).

Proponents of developments in the county are encouraged to use ecologically sound design principles (e.g., maintaining tree stands, protecting wildlife corridors, and using innovative stormwater management techniques) when planning land developments within an ESA. The Project site is located more than 1 km from the boundary of the ESA along the North Saskatchewan River and more than two kilometres from the Sturgeon River ESA. The Project site is separated from these ESAs by land under agriculture and industrial land uses.

A desktop watercourse assessment was conducted at the Project site prior to visiting the property. This was accomplished through a review of the AEP Fisheries and Wildlife Management Information System (FWMIS) Fish and Wildlife Internet Mapping Tool (FWIMT) (Government of Alberta 2018c). It was determined that there are no mapped or unmapped watercourses crossing the Project site. The nearest unnamed watercourses that could be identified from a hydrology mapping dataset (Government of Alberta 2019) are not hydraulically linked to the Project site; one is located approximately 433 m southwest of the Project site and appears to be affected by farming activities, and the other is approximately 1,356 m north of the Project site.

A man-made drainage channel aligned north-south along the NW/NE quarter boundary (Figure 7-1, Photo 3 in Appendix A) was identified during the site visit. This drainage channel was observed to have a consistent width (approximately 5 m) for the length of the quarter section and was likely a natural drainage channel enhanced historically or by the current landowner. Based on examination of current and historical aerial photographs, water is present for longer periods within low lying areas on the Project site. No water was present in the enhanced drainage channel during the site assessment, however the flow is expected to follow topography in a general south-east direction and may allow for improved drainage overall in the cultivated field, thereby reducing the amount of water stored seasonally within the Project site.

Two dugouts are also present on the site, one in each quarter section. No inlet or outlet was observed at either dugout during the field visit; however, metal piping into the larger dugout in the NE quarter suggests that water is taken from the dugout.

Potential Project effects on surface water include:

- Contamination as a result of spills and leaks;
- Sedimentation as a result of uncontrolled runoff during earthworks; and
- Change in flow path as result of earthworks during construction.

Management measures outlined in Table 7-2 will be implemented to eliminate or reduce the potential for reduced surface water quality. Based on the implementation of these measures, the Project is not expected to cause adverse effects on surface water resources.

Table 7-2: Surface Water Management Measures

ASPECT	MANAGEMENT MEASURE
Surface runoff	<p>Design and implement the stormwater management system to contain all surface runoff and allow clean water to be diverted away from the Project site. The conceptual stormwater management plan is currently under review by the County, and provincial requirements are being discussed with AEP. According to the conceptual plan, the system will include (WSP 2019):</p> <ul style="list-style-type: none"> - Surface runoff will be contained within the outer loop track of the site and runoff outside the loop track will be directed around the catchment area through ditches toward a proposed County ditch along the east side of the property. - An overland drainage network will convey runoff from the developed portions of the property as follows: <ul style="list-style-type: none"> o Runoff from the rail tracks will be conveyed along adjacent gravel roads with inverted crowns. o Runoff from the south and north yards will be conveyed towards a stormwater management pond to be located in the center-east of the Project site through culverts with drop inlets. o Runoff from the south and north yard culverts will be conveyed overland to the pond through the ditch within the middle portion of the Project site. - Drainage ditches will be lined using in-situ clay material and have slopes flat enough to prevent erosion. Erosion protection will be used where required to manage steeper slopes and water moving at higher velocities. - Culverts will likely be steel pipes. - The stormwater management pond will be lined using in-situ clay to reduce infiltration and minimize erosion. Before each release, the pond will be visually inspected for signs of floating debris and oily sheen. - Use of oil skimmers and temporary booms will be considered should it become necessary to remove visible sheen from the pond. - Periodic water quality testing will be conducted by a qualified third-party provider at the pond discharge point. If water quality in the stormwater pond is deemed unsuitable for release (i.e., exceeds release limits), a qualified service provider will be brought in to collect, handle and dispose of the water at a licensed waste water facility. - Water will be released from the pond through a control manhole to a proposed County ditch at the eastern edge of the site according to release rates and qualities to meet County and AEP approval requirements. The control manhole will be equipped with a gate to prevent releases in the event that the water quality exceeds release requirements. - From the Project site, drainage will be southward through the proposed County ditch, and into the existing County ditch system which has an authorized discharge into the North Saskatchewan River. <p>Obtain the relevant County Development Permit and <i>Environmental Protection Enhancement Act</i> (EPEA) registration, if required, and comply with the water release quality standards, volume limits, and any monitoring requirements (to be confirmed by Alberta Environment and Parks (AEP) as part of the application process).</p>
Wetland and dugouts	<p>Obtain a <i>Water Act</i> approval to remove the wetlands.</p> <p>Consult AEP prior to draining the dugouts and implement any required action.</p> <p>Discharge any water removed from the wetland and dugouts onto vegetated ground or onto a tarpaulin to prevent erosion.</p>

ASPECT	MANAGEMENT MEASURE
Contamination	<p>Use a qualified provider to conduct locomotive refueling, implementing spill prevention procedures including installing a containment berm around the locomotive and use of automatic shut-off valves to prevent spills.</p> <p>Provide sufficient sanitation facilities with appropriate concrete holding tanks. Regularly empty the tanks using a qualified contractor to dispose of waste at an approved licensed facility.</p> <p>Maintain all vehicles, equipment, and locomotives to function properly and efficiently to prevent spills and leaks; and inspect regularly.</p> <p>Visually inspect rail cars before they are placed on yard track, placard those with hazardous goods, and periodically inspect rail cars staged or stored until their departure from the yard.</p> <p>Maintain a Safety Management System for the safe handling of dangerous goods, and train yard personnel in safe handling of dangerous goods in loaded storage rail cars.</p> <p>Handle, use and dispose of all potentially contaminating substances and waste in a manner to prevent contamination of surface water.</p> <p>Implement spill and leak prevention management procedures during construction and normal operation. Contain and clean up spills and leaks immediately. Maintain spill kits on site and train personnel how to use these kits.</p> <p>In the event rail cars require cleaning, engage a qualified third party provider (e.g., Clean Harbours or Water X) to employ a Gama Jet cleaning system and disposal of the contaminated solutions at an approved facility.</p>
Emergencies	<p>Identify potential emergency situations that could pollute surface water resources; train personnel on appropriate prevention and response measures.</p> <p>As necessary, implement spill response and containment measures outlined in the Project-specific Emergency Response Plan.</p>

7.1.3 GROUNDWATER

A desk-based review of available information for the Project area including reports, maps and water well data was completed to describe the groundwater regime in the Project area and Project site. Regionally, the uppermost bedrock unit consists of sandstone, siltstone and coals of the Upper Cretaceous Belly River Group (Prior et al. 2013). Saskatchewan Sand and Gravel units as part of the Buried Beverly Valley / Sturgeon Buried Valley system are absent beneath the Project site (Andriashek 1987) with bedrock logged as shale and sandstone lying directly beneath clay and clay till. Fine-grained glaciolacustrine deposits composed of silt and clay comprise the upper surficial soils at the site and may contain debris released by the melting of floating ice (Shetsen 1990; Fenton et al. 2013). Water well drillers logs in the Project area indicate clay or till (clay and rocks) to a depth of approximately 9 to 12 metres below ground (mbg) (AEP 2019a).

A regional groundwater assessment was conducted by Hydrogeological Consultants Ltd. for Sturgeon County, including parts of Township 053 to 058, Range 20 to 28, W4M & Township 054 to 057, Range 01, W5M (Hydrogeological Consultants Ltd 2001). The uppermost aquifer located beneath the Project site is the Oldman Aquifer which comprises the permeable parts of the Oldman Formation and is part of the Belly River Group. According to the study, ground water chemistries from the Oldman Aquifer are mainly a sodium-bicarbonate-type. Total dissolved solids concentrations are expected to range mainly from 500 to 1,500 mg/L, with higher concentrations expected between Gibbons and Morinville. The sulfate concentrations are mainly below 500 mg/L. The indications are that chloride concentrations in the Oldman Aquifer are expected to be mainly greater than 250 mg/L. There are 128

out of 487 analyses where fluoride concentrations exceed 1.5 mg/L. A higher percentage of fluoride exceedances is evident in the Oldman Aquifer than in the other bedrock aquifers within the County (Hydrogeological Consultants 2001). Review of the water well drillers records (AEP 2019a) shows that most wells in the vicinity of the site are completed between 23 mbg and 52 mbg and are therefore likely to be completed within the bedrock Oldman Aquifer. Static, non-pumping groundwater levels in the water wells were measured between 4.6 mbg and 36.6 mbg at the time of drilling. Shallow groundwater levels within the surficial deposits are likely to be within a few metres of surface and influenced by the presence of sloughs, dugouts and wetlands on and in the vicinity of site.

The Project will not require groundwater withdrawals. Water will be supplied by truck as needed for potable reserves, construction activities and operational needs. The Project does not require major subsurface work to install the tracks; and the rail subgrade will not be paved, promoting groundwater recharge by infiltration.

Potential Project effects on groundwater include:

- Contamination as a result of spills and leaks and contaminant infiltration into groundwater; and
- Reduction in groundwater quantity.

Management measures outlined in Table 7-3 will be implemented to mitigate potential effects on groundwater. Based on the implementation of these measures, the Project is not expected to cause adverse effects on the local or regional groundwater regime.

Table 7-3: Groundwater Management Measures

ASPECT	MANAGEMENT MEASURE
Contamination	<p>Design and implement a stormwater management system to contain all surface water runoff and allow clean water to be diverted away from the Project site (refer to Table 7-2: for more detail).</p> <p>Handle, use and dispose of all potentially contaminating substances and waste in a manner to prevent contamination of groundwater.</p> <p>Maintain all vehicles, equipment, and locomotives to function properly and efficiently to prevent spills and leaks; and inspect regularly.</p> <p>Implement spill and leak prevention management procedures during construction and normal operation. Contain and clean up spills and leaks immediately. Maintain spill kits on site and train personnel how to use these kits. (It should be noted that if leaks or spills do occur on the site, the fine-grained surficial materials are expected to be of sufficient thickness and low permeability to provide protection to the underlying groundwater resources.)</p> <p>Groundwater information will be obtained during the geotechnical field investigation program to be conducted in spring 2019.</p>
Emergencies	<p>Identify potential emergency situations that could pollute groundwater resources; train personnel on appropriate prevention and response measures.</p> <p>As necessary, implement spill response and containment measures outlined in the Project-specific Emergency Response Plan.</p>

7.1.4 VEGETATION

The Central Parkland Natural Subregion is characterized mostly by cultivated land interspersed with a mosaic of aspen and prairie vegetation on remnant native parkland areas, and vegetation representative of a transitional grassland ecoclimate (Natural Resources Committee 2006, Alberta Agriculture and Forestry 2017).

Outside of the low areas, most of the Project site was cultivated in wheat at the time of the field visit. Planted treed windbreaks border the eastern boundary of the site and are present in the vicinity of the farm yard and residence located in the northwest corner of the property (4). The treed windbreaks are typical of parkland vegetation, and include balsam poplar (*Populus balsamifera*) and aspen (*Populus tremuloides*) with an understory of wild rose (*Rosa woodsii*), saskatoon (*Amelanchier alnifolia*), choke cherry (*Prunus virginiana*), red-osier dogwood (*Cornus stolonifera*), and low bush cranberry (*Viburnum edule*) (Photo 4 in Appendix A).

No federally or provincially listed vegetation species were documented in the Project area (Alberta Conservation Information Management System [ACIMS] 2017) and none were observed in the field. Rare plants are not expected to occur since the windbreak trees were likely planted to protect the ploughed land and farm yard.

Wetland type vegetation was observed in several low areas on the site where water likely persists longer within the year, thereby reducing the potential for wheat to grow successfully. Wetland species such as slough grass (*Beckmannia syzigachne*), foxtail barley (*Hordeum jubatum*), stinkweed (*Thlaspi arvense*), and Shepherd’s purse (*Capsella bursa-pastoris*) were documented in these areas (Photo 5 in Appendix A).

Invasive species, including Canada thistle (*Cirsium arvense*) and sow thistle (*Sonchus arvensis*) which are both designated as noxious weeds under the Alberta *Weed Control Act – Regulation 19/2010*, were observed generally outside of the cultivated area.

Potential Project effects on vegetation include:

- Loss of native vegetation communities due to clearing; and
- Introduction and spread of invasive species.

Management measures outlined in Table 7-4 will be implemented to mitigate potential effects on vegetation. Based on the implementation of these measures, the Project is not expected to cause significant adverse effects on native vegetation resource.

Table 7-4: Vegetation Management Measures

ASPECT	MANAGEMENT MEASURE
Vegetation clearing	Limit the area of disturbance and avoid removing trees as far as practically possible. Clear trees during mid to late winter to avoid the likelihood of encountering nesting birds, in accordance with direction from Alberta Environment and Parks. Conduct a nest sweep immediately before removing trees and do not remove any trees with occupied nests to comply with the Alberta <i>Wildlife Act</i> and the <i>Migratory Birds Convention Act, 1994</i> . Locate construction staging and material laydown areas on previously cultivated land as much as feasible to avoid the need to remove native vegetation.
Harvesting	Prohibit the harvesting of any natural vegetation on the Project site by workers.

ASPECT	MANAGEMENT MEASURE
Invasive species	Implement weed control measures as necessary and appropriate to prevent the spread of noxious weed species and to comply with the requirements of Sturgeon County and the Alberta <i>Weed Control Act</i> . If chemical weed control is used, chemicals must be applied only by a certified individual and must not be applied by spraying within 30 m of surface water.
Traditional land use	Determine if any culturally significant flora occurs on site through engaging with relevant Indigenous Groups who have identified traditional land use activities as a potential concern. Should culturally significant plant species occur on site, Cando will develop a management plan to address traditional land use.
Reclamation	Use only certified weed free seed mix where seeding is required. Monitor re-vegetation of the Project site.

7.1.5 WETLANDS

A wetland assessment, including desk-based and field evaluation, was conducted on the Project site by Qualified Wetland Science Practitioners (QWSP) in accordance with the Alberta Wetland Policy (Government of Alberta 2013) and its associated directives and tools (Government of Alberta 2018a). The wetland assessment process and results are documented in the Biophysical Assessment Report (SLR 2018b).

Two wetlands – both classified as marsh wetlands under the Alberta Wetland Classification System (Government of Alberta 2013) – were confirmed on the Project site. The first wetland area (Wetland 1 on Figure 7-1), approximately 0.31 ha (0.77 acre) in size, is present as a fringe surrounding the large excavated dugout present in the northeast corner of the Project site (Photos 6 and 7 in Appendix A). The second wetland (Wetland 2 on Figure 7-1), approximately 2.22 ha (5.48 acres) in size, is present where water collection had been occurring along a drainage running between the NW and NE quarters of the site (Photos 8 and 9 in Appendix A). Wetland vegetation was also documented along this north-south drainage (Photo 3 in Appendix A). Together, these wetlands represent 2.53 ha or approximately 0.02% of the Project site.

Potential Project effect on wetlands is:

- Loss of wetlands on the Project site and within in the region.

Under the Alberta Wetland Mitigation Directive (Government of Alberta 2018b), a Wetland Mitigation Hierarchy outlines the management approach to wetland impacts in Alberta. The primary preferred wetland response is to avoid and, secondarily, to minimize impacts to a wetland. Based on the conceptual Project footprint options, Wetland 1 and Wetland 2 will be removed entirely during Project development.

In accordance with the Alberta Wetland Policy (Government of Alberta 2013), Cando has submitted an application to AEP for *Water Act* approval to provide compensation for loss of both wetlands as a result of Project development. The application was supported by the required Wetland Assessment and Impact Report, and a Mitigation (Replacement) Proposal (SLR 2018c). Wetlands will not be disturbed and vegetation clearing in the vicinity of the wetland will not be conducted until *Water Act* approval for wetland removal has been received. Mitigation will include the applicable compensation for the affected wetlands.

7.1.6 FISH AND FISH HABITAT

The nearest unnamed watercourses that could be identified from a hydrology mapping dataset lie approximately 433 m to the southwest of the Project site (this watercourse appears to be affected by farming activities) and approximately 1,356 m to the north of the Project site. These watercourses are not hydraulically linked to the Project site. The closest larger waterbodies to the Project site are the North Saskatchewan River (1.5 km east) and the Sturgeon River (2.6 km south), and there are no watercourses that could connect surface drainage from the Project site to either river.

The AEP Fisheries and Wildlife Management Information System (FWMIS) Fish and Wildlife Internet Mapping Tool (FWIMT) (Government of Alberta 2018c) was accessed prior to conducting the field assessment to determine if any information was available on the presence of fish associated with the enhanced drainage located between the NW and NE quarters.

The FWMIS database resulted in no data identifying sensitive or species at risk, including fish, within the onsite drainage or any associated drainages connecting to this drainage (Government of Alberta 2018c). It was also identified that the drainage channel on the Project site is not a mapped watercourse (Government of Alberta 2019) and is not connected to a watercourse or waterbody off-site that would provide fish habitat.

The Project is not expected to result in any adverse effects on fish or fish habitat as there is no fish habitat on or connected to the Project site. The existing, mechanically widened drainage within the Project site will be removed to allow for development of the rail yard.

Cando will implement standard practices during construction to avoid adversely affecting surface water quality, including spill and leak management procedures, and erosion and sediment control as needed; as well as implementation of an Emergency Response Plan when needed. The goal of these measures is to prevent adversely affected surface water runoff from entering the County stormwater management system or any watercourse that may flow towards the North Saskatchewan River. Cando's planned operational waste and waste water collection, handling and disposal practices are designed to prevent adverse effects on water quality.

Implementation of management measures outlined in Table 7-2 to mitigate potential adverse effects on surface water are expected to prevent adverse effects from the Project on fish and fish habitat.

7.1.7 WILDLIFE AND WILDLIFE HABITAT

The Project site is located on primarily agricultural land. A review of available air photos, the provincial references (Natural Resources Committee 2006, Government of Alberta 2018c), and other available information (Sturgeon County 2007) was conducted to understand potential habitat types (vegetation communities) present within the Project area. The Project does not overlap any federal wildlife areas or reserves, or provincial wildlife areas (ACIMS 2017).

A preliminary wildlife and wildlife habitat assessment was completed in the field in September 2018 to determine potential for reduction or loss of habitat as a result of the Project. The assessment was reconnaissance level based on the time of year, which was outside the breeding season for most species of wildlife and many species (e.g., migratory birds) may be absent from the Project area. The assessment relied on incidental wildlife observations, habitat assessment and evidence of habitat use, including scat, track and other signs. Field maps prepared before the site visit were reviewed in the field and confirmation of suitable habitat was documented from identification of wildlife use.

Woodpecker activity, deer scat and deer beds, a canid scat and track (Photos 10 to 12 in Appendix A), and skunk track and other sign (Figure 7-1; Photos 13 and 14 in Appendix A) were observed within the

Project site. A total of 30 nests including stick nests (raven, crow and black-billed magpie), nest cavities and a grass nest were observed during the field investigation (Figure 7-1; Photos 15 and 16 in Appendix A). One stick nest, much larger than the crow/raven and magpie nests, was observed in the southeast corner of the Project site (See Figure 7-1). This stick nest was identified as potentially providing nesting for larger birds including raptors or owls. There were no species at risk observed in or near the Project area. Habitat is limited within the Project area since most land is cultivated.

Potential Project effects on wildlife include:

- Loss of habitat in the wetland and trees to be removed;
- Disturbance of nesting birds;
- The stormwater management pond may provide habitat for birds if allowed to naturalize over time. The pond will contain runoff from the Project site and could contain elevated suspended solids, and contaminants such as oil from leaks and spills. In addition, the pond can pose a drowning hazard;
- Workers may kill various types of species for food or for sport;
- An increased presence of vehicles in the area, especially during Project construction, can cause road kills especially if drivers speed; and
- Dust and noise generated on site, especially during the construction phase, may disturb wildlife.

An SLR biologist initially consulted with AEP regarding appropriate setback or timing for removal of the nests if required. AEP responded that the large stick nest was not protected under provincial legislation unless currently occupied. The AEP biologist recommended that Cando avoid removing trees and nests if possible. Where removal of the trees is necessary, Cando plans to conduct clearing in the winter, outside of any restricted activity periods as identified by Environment Canada (2011) and the Government of Alberta (2018d).

Management measures outlined in Table 7-5 will be implemented to mitigate potential effects on wildlife and wildlife habitat. Based on the implementation of these measures and the small amount of habitat to be affected, the Project is not expected to cause significant adverse effects on wildlife.

Table 7-5: Wildlife and Wildlife Habitat Management Measures

ASPECT	MANAGEMENT MEASURE
Vegetation clearing	Limit the area of disturbance and avoid removing trees where practical. Clear trees during mid to late winter to avoid the likelihood of encountering nesting birds – refer to Table 7-4 (Vegetation) for more detail. Locate construction staging and material laydown areas on previously cultivated land as much as feasible to avoid the need to remove native vegetation.
Site access	Install a perimeter fence (6 foot chain link) to deter wildlife accessing the Project site and the stormwater pond.

ASPECT	MANAGEMENT MEASURE
Migratory birds	<p>Avoid clearing from March 15 through August 31 (Government of Alberta 2018), in suitable habitat, to avoid disturbing early nesting birds such as raptors, owls, and woodpeckers and bird species at risk. Avoid clearing from late-April to end of August to avoid potential nesting of migratory birds (Government of Canada 2019a).</p> <p>Prevent vegetation from becoming established around the edges and perimeter of the stormwater pond. This will prevent the development of suitable habitat for birds and other wildlife.</p> <p>A protocol for water quality management will be prepared, including periodic testing in the stormwater management pond that will consider relevant guidelines.</p> <p>Should it be determined that potential risk to migratory birds exists on and around the pond during operations, Cando will work with AEP to identify appropriate measures to further limit risk to these wildlife.</p> <p>Cando will comply with federal and provincial legislation relating to migratory birds and designated species at risk (if presence is identified on site) during project construction and operation.</p>
Traditional land use	<p>Determine if any culturally significant fauna occurs on site through engaging with relevant Indigenous Groups who have identified traditional land use activities as a potential concern. Should culturally significant wildlife species occur on site, Cando will develop a management plan to address traditional land use.</p>
Wildlife occurrence	<p>Train workers to report wildlife incidents such as presence of wildlife on the construction site or during Project operation, or wildlife mortality via collision with a vehicle.</p> <p>Do not harass, hunt, trap or feed wildlife or livestock on the Project site and surroundings.</p> <p>Manage dust and noise emissions to minimize disturbance to wildlife around the Project site.</p>

7.1.8 SPECIES AT RISK

Species at risk that may occur within or near the Project area were identified during the desk-based review including a review of FWMIS (Government of Alberta 2018b) and Species at Risk Public Registry (Government of Canada. 2012d), and subsequently refined following field work. The Project site is primarily cultivated and provides limited habitat for wildlife. Given the habitat available, wildlife species at risk that may potentially occur within the Project area are identified in Table 7-6.

Table 7-6: Wildlife Species at Risk that May Potentially Use Habitat Within the Project Area.

SPECIES	SCIENTIFIC NAME	COSEWIC STATUS ¹	SARA SCHEDULE ¹	SARA STATUS ¹	ALBERTA STATUS ²
Western tiger salamander	<i>Ambystoma mavortium</i>	Special Concern	Schedule 1	Special Concern	Secure
Western toad	<i>Anaxyrus boreas</i>	Special Concern	Schedule 1	Special Concern	Sensitive
Canadian toad	<i>Anaxyrus hemiophrys</i>	Not at Risk	Not applicable (N/A)	N/A	May Be At Risk
Common nighthawk	<i>Chordeiles minor</i>	Special Concern	Schedule 1	Threatened	Sensitive
Short-eared owl	<i>Asio flammeus</i>	Special Concern	Schedule 1	Special Concern	May Be At Risk
Barn swallow	<i>Hirundo rustica</i>	Threatened	Schedule 1	Threatened	Sensitive
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Schedule 1	Threatened	Sensitive

SPECIES	SCIENTIFIC NAME	COSEWIC STATUS ¹	SARA SCHEDULE ¹	SARA STATUS ¹	ALBERTA STATUS ²
Little brown myotis	<i>Myotis lucifugus</i>	Endangered	Schedule 1	Endangered	May Be At Risk
Northern myotis	<i>Myotis septentrionalis</i>	Endangered	Schedule 1	Endangered	May Be At Risk
Long-tailed weasel	<i>Mustela frenata</i>	N/A	N/A	N/A	May Be At Risk
American badger	<i>Taxidea taxus taxus</i>	Special Concern	Schedule 1	Special Concern	Sensitive
<p>1 Government of Canada 2019b</p> <p>2 AEP 2019</p>					

No wildlife or plant species at risk were observed during the field investigation; however, the field investigation was reconnaissance level because the survey was completed outside of recommended survey periods (e.g. during the breeding season). Despite the seasonal timing of the survey, the Project area is primarily cultivated land with limited habitat available for species at risk or other wildlife species.

Based on limited habitat available, existing land use, existing anthropogenic disturbances, and implementing the standard practices and mitigation measures outlined in Table 7-2 (surface water), Table 7-4 (vegetation) and Table 7-5 (wildlife), the Project is not expected to adversely affect species at risk.

7.1.9 AIR QUALITY

Air quality in Alberta’s Industrial Heartland is managed on a regional basis. The purpose of the Capital Region Air Quality Management Framework is to regulate air emissions on a regional basis, rather than regulating emissions from individual facilities. Four concentration level limits have been established for four contaminants of concern: nitrogen dioxide (NO₂), sulphur dioxide (SO₂) fine particulate matter (PM_{2.5}) and ozone (O₃). These limits are based on the Alberta Ambient Air Quality Objectives (AAQO) for NO₂ and SO₂, (ESRD 2012) and Canada Wide Standards for PM_{2.5} and O₃ (CCME 2012) and are reviewed on an annual basis. Mitigative management actions are to be implemented as needed in response to triggering of limit thresholds.

Air quality in the region of the Project is monitored by the Fort Air Partnership, which currently operates ten (10) continuous and sixty-three (63) passive air monitoring stations in the Capital Region (Fort Air Partnership 2018). Data is compared to provincial AAQOs by the Government of Alberta, and used to calculate the Air Quality Health Index. The Air Quality Health Index is a publicly-accessible report which provides daily risk ratings (on a scale from low to very high risk) related to outdoor activity. The closest continuous monitor to the Project site is located southeast of the Project at Scotford. The closest passive monitor lies approximately 65 km east of the Project site. The Air Quality Trend Health Index for 2013-2017 indicates that hourly readings are in the low risk range for 85 to 90 percent of monitoring period.

Project atmospheric emissions were estimated and discussed in Section 4.3.1 (Atmospheric Emissions). The key contaminants of concern associated with the Project were identified to be SO₂, NO_x, CO, HC, and particulate matter during Project construction and operation, and GHG during operations. The air emissions were predicted to be below the National Pollutant Release Inventory (NPRI) reporting thresholds (ECCC 2019), and the GHG emissions were predicted to be minimal compared to the total GHG emissions for the province of Alberta.

Management measures outlined in Table 7-7 will be implemented to minimize increased dust and air emissions during construction and operation. Based on the implementation of these measures, Project air emissions are not expected to adversely affect current ambient air quality conditions.

Table 7-7: Air Quality Management Measures

ASPECT	MANAGEMENT MEASURE
Dust	Limit the area of disturbance by earthworks as far as practically possible. Implement reduced vehicle speed limits or other speed control measures on the Project site. Suppress dust as necessary using water trucks. Conduct visual monitoring of dust to determine when suppression is needed.
Air emissions	Avoiding unnecessary vehicle and equipment idling. Maintenance of vehicles and equipment regularly to reduce combustion emissions and maximize fuel efficiency.

7.1.10 NOISE

Noise levels in the Project area are managed for member companies under the NCIA Regional Noise Management Plan (NCIA 2018b). The development of the Regional Noise Management Plan was based on a predictive computer noise model (NCIA Regional Noise Model) which incorporated noise models from various facilities in the region, as well as road and rail traffic noise levels. The model is publicly accessible via Google Earth and displays four (4) modelled cases. Case 3D shows ‘Existing Facilities plus main Road and Rail Contributions’ using 2013 roadway traffic data and estimated rail traffic volume on the main lines over a 24-hour period in 2010 (NCIA 2018f). The industrial facilities model assumes all equipment is running at 100% capacity 100% of the time. The regional model is updated every few years and takes into account significant changes in noise levels at industrial facilities and new data provided by Alberta Transportation / Alberta Infrastructure and Rail Companies (if available). The model predicts sound levels at the Project site (pre-development) to be 39 to 42 dBA Leq.

The most recent results for measured versus modeled data are available in the RNMP 2017 Annual Report (NCIA 2017). The next model update is planned for 2018. The most recent noise survey was conducted in July and August 2016 at thirteen (13) locations throughout the Alberta’s Industrial Heartland.

The nearest monitoring stations to the Project site is located at the southwest fence line of the Pembina Redwater Fractionation facility to the east of the Project, with other located more than 1,500 m from the Project site. Measured noise levels at most locations were shown to be generally consistent with model predictions. The field validation annual report also indicated that noise levels at most locations consisted of low frequency components with occasional mid/high frequency components. Trend analysis indicated no significant increasing or decreasing trends over baseline sound levels. Regarding rail transport activities, noise from train passages through the monitoring regions dominated the noise climate, although there had not been an increase of rail passages over 2015 observations.

During Project construction, noise will result from vehicles and equipment conducting activities including earthworks, material deliveries, and rail installation. Construction noise will be temporary, during the seven-month construction phase. The primary noise sources during Project operation will be from train shunting, coupling of rail cars and the operation of locomotives. These activities will continue daily over the life of the Project. The Project will result in increased noise levels in the vicinity of the

Project; however, the increased noise during either construction or operation is not expected to contribute significantly to increasing trends at a regional level.

Noise receptors are expected to be occupied residences within a 5 km radius of the Project site. It is not expected that increased noise levels from the Project will adversely affect these receptors as the overall increase in noise levels over background is expected to be minor. Cando will implement management measures outlined in Table 7-8 to reduce noise and limit its potential effects on nearby residents and their activities to the extent possible.

Table 7-8: Noise Management Measures

ASPECT	MANAGEMENT MEASURE
Disturbing noise	Notify nearby residents (landowners and lessees) of the intended Project schedule before the start of construction to prevent or reduce the impact on their operations or activities. Maintain equipment, machinery and locomotives in good working order, including noise abatement equipment, to limit noise. Schedule operations to occur during daytime hours, whenever practical. Reduce the number of switchers used at nighttime if nighttime operations are unavoidable. Reduce the amount of time that switchers are left idling at the yard.

7.1.11 HISTORICAL RESOURCES

A historic resource is defined under the provincial *Historic Resources Act* as “any work of nature or of humans that is primarily of value for its palaeontological, archaeological, prehistoric, historic, cultural, natural, scientific or esthetic interest including, but not limited to, a palaeontological, archaeological, prehistoric, historic or natural site, structure or object” (Government of Alberta 2000).

A Project Archaeologist from WSP Canada Inc. (WSP) conducted a desktop review of the provincial *Listing of Historic Resources* (Alberta Culture and Tourism 2018) for the Project, and determined that no known historic resources requiring avoidance or additional assessment are recorded on the Project site. The application indicates that “Given that the Project site has already been impacted by cultivation, and deep deposits are not anticipated in this environment, there is limited potential for encountering intact archaeological components.” In accordance with the *Historic Resources Act*, an application for *Historic Resources Act* Approval was submitted to the Historic Resources Management Branch of Alberta Culture and Tourism.

Historic Resources Act Approval was granted for the Project activities on the entire Project footprint on December 19, 2018 (HRA Number 4715-18-0102-001). The approval is subject to the requirements under section 31 of the *Historic Resources Act* that relate to a chance discovery of a historic resource. The Standard Requirements for reporting historic resources associated with approval indicate that Aboriginal traditional use sites to be considered under the Act include unoccupied historic cabins and historic cabin remains.

Alberta Culture and Tourism was notified of the unoccupied log cabin present on the site. Alberta Culture and Tourism was unable to verify the historic status of the structure, and no further conditions regarding the cabin were attached to the *Historic Resources Act* Approval. It has been determined that the cabin has no connection to Indigenous communities. The current landowner has indicated that the cabin was originally constructed in 1956 on another property farmed by the landowner’s family. The

cabin was later moved to the Project site for recreation purposes, remains on the skid on which it was moved, and will be removed from the Project site upon closure of the land sale.

Cando acknowledges that sites of importance to Indigenous communities are not limited to historic resources recognized under the *Historic Resources Act*; that is, historic resources may include any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance to Indigenous peoples. The potential to encounter unknown historic resources of importance to Indigenous peoples is described in Section 5.4.5 (Indigenous Peoples) and referenced in Section 2.1.1 (Key Comments and Concerns) in response to Cando’s Project notification letter.

Potential Project effects on historical resources include:

- Disturbance or loss of historical resources not registered under the *Historic Resources Act*; and
- Disturbance or loss of undiscovered historical or cultural resources or sites important to Indigenous peoples.

The management measures provided in Table 7-9 will be implemented to address the potential for undiscovered historic resources.

Table 7-9: Historical Resources Management Measures

ASPECT	MANAGEMENT MEASURE
Chance discovery of a historic resource	Train workers on the tell-tale signs of historical or archaeological resources to enable the identification of a chance discovery. In the event that an unknown historic resource is found during the construction or operation of the Project, follow the requirements included in the Approval: - Stop all work in the location of the find and contract Alberta Culture and Tourism; - Take appropriate action in accordance with regulatory guidance; - Recommence work upon direction of the regulator. A plan will be developed to notify Indigenous communities that have indicated an interest in the event an unknown historical resource is discovered during construction or operation.

7.2 CHANGES PREDICTED AS A RESULT OF THE PROJECT

This section provides a description of the potential effects of changes resulting from the Project on fish and fish habitat as defined in the *Fisheries Act*; marine plants as defined in the *Fisheries Act*; migratory birds as defined in the *MBCA*; as well as on federal lands, and Indigenous peoples.

7.2.1 FISH AND FISH HABITAT, AS DEFINED IN THE FISHERIES ACT

The *Fisheries Act* protects fisheries and fish habitat through the prohibition of serious harm to fish and pollution prevention provisions. The desk-based review of occurrence records and the field investigation resulted in the determination that the Project site does not include habitat that supports fish. Furthermore, no Project activities will be undertaken in habitat that supports fish.

Management measures presented in Table 7-2 (surface water) will be implemented to eliminate or reduce the potential for reduced surface water quality. Surface water drainage will be managed on the Project site, and the Project’s onsite stormwater management system will be tied into the County surface water management system via the offsite proposed County ditch along the east side of the Project site, and through existing County ditches which eventually outflow to the North Saskatchewan River. Cando will be required to meet water quality release limits to discharge into the County

stormwater management system. Based on the County and Cando systems being well managed, the Project is not expected to affect water quality in the North Saskatchewan River, 1.5 km east of the Project site.

Further, the Project does not require water from the North Saskatchewan River for project activities. Water for accessory activities will be trucked in to the site. Waste water will be removed and disposed of by an accredited waste water removal professional.

Changes to the environment as a result of the Project are not expected to affect fish and fish habitat, as defined in the *Fisheries Act*. The Project is not likely to cause adverse effects on fish or fish habitat through either habitat loss, or reduced water quality as a result of release of deleterious substances to water inhabited by fish.

7.2.2 MARINE PLANTS, AS DEFINED IN THE FISHERIES ACT

As defined in section 47 of the *Fisheries Act*, marine plant includes all benthic and detached algae, marine flowering plants, brown algae, red algae, green algae and phytoplankton. No marine plants are present on or near the Project site; consequently, changes as a result of the Project are not expected to affect marine plants.

7.2.3 MIGRATORY BIRDS, AS DEFINED IN THE MIGRATORY BIRDS CONVENTION ACT, 1994

The MBCA prohibits the harming of migratory birds and the disturbance and destruction of their nests and eggs. Under subsection 2 (1) of the MBCA, migratory bird means a migratory bird referred to in the Convention [i.e., exceptions include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds], and includes the sperm, eggs, embryos, tissue cultures and parts of the bird. The bird nesting period for the zone in which the Project is located is categorized as 'Bird Nesting Zone B4' by Environment Canada (Government of Canada 2018). The general breeding period for this zone is mid-April to the end of August. Raptors and some other non-migratory birds, however, may be nesting prior to mid-April.

If it is determined that trees and vegetation on the Project site currently provide nesting, breeding, and foraging life requisites for migratory birds, the Project could result in a direct small loss of habitat where vegetation is cleared. Migratory birds nesting in adjacent treed areas may be affected by sensory disturbances associated with the Project construction and operation activities such as noise. However, considering the presence of industrial activity and associated noise in the immediate area, species using the habitat are expected to be tolerant to the level of sensory disturbance.

Management measures presented in Table 7-5 (wildlife and wildlife habitat) will be implemented to eliminate or reduce the potential for harm or disturbance of migratory birds. For example, tree and vegetation clearing activities will be scheduled outside of the bird nesting period to prevent the clearing of occupied nests and reduce the potential to disturb nesting birds. The stormwater pond will be developed to discourage its use as habitat by migratory waterfowl and shore birds and, if necessary Cando will work with AEP to identify measure to limit risk to migratory birds and other wildlife species. Cando will comply with federal and provincial legislation relating to migratory birds and designated species at risk (if presence is identified on site) during project construction and operation.

Given the limited habitat on the Project site and implementation of the identified management measures, the Project is not likely to make a significant contribution to disturbance and habitat loss of migratory birds.

7.2.4 FEDERAL LANDS

Changes to the environment as a result of the Project are not expected to affect lands in a province other than Alberta or outside of Canada, or designated federal lands.

The Project is not located near a provincial or international border, as shown in Figure 1-1. The Project location in relation to these boundaries is as follows:

- Alberta-Saskatchewan border is approximately 207 km east of the Project;
- Alberta-British Columbia border is approximately 323 km west of the Project;
- Alberta-Northwest Territories border is approximately 690 km north of the Project; and
- Canada-USA international border is approximately 534 km south of the Project.

The federal lands closest to the Project are described in Section 5.3.5 (Federal Lands): Edmonton Garrison (Canadian Forces Base) approximately 25 km to the southwest; and Elk Island National Park, approximately 26 km to the southeast (Figure 1-1). The nearest First Nation reserve lands are the Enoch Cree Nation, located approximately 47 km southwest the Project, and the Alexander First Nation approximately 47 km west of the Project (Figure 5-1). The Project is not likely to have any adverse environmental effects on these federal lands due to their distance from the Project.

The entirety of Elk Island National Park and the provincial Cooking Lake-Blackfoot Provincial Recreation Area are located within the 'Beaver Hills Dark Sky Preserve', the closest boundary of which is approximately 20 km from the Project site. The dark sky preserve, which covers an area of 293 km², is subject to a 'dark sky' policy and protected from light pollution to preserve astronomical observation and star gazing activities (Parks Canada 2018). The Project will not have an effect on astronomical observing activities in Elk Island National Park, based on the Project size and its location far from the 'dark sky' preserve.

7.2.5 INDIGENOUS PEOPLES

The list of Indigenous groups identified as having potential interest in the Project and with whom Cando has initiated engagement is provided in Table 2-1, and their locations relative to the Project are shown in Figure 5-1. No potential has been identified for the Project to result in changes to the environment that would adversely affect Indigenous peoples, including in relation to health and socio-economic conditions; physical and cultural heritage; or use of the Project site or vicinity for traditional land use purposes.

There is no identified pathway by which the Project has the potential to adversely affect the health or socio-economic conditions of Indigenous peoples. The Project will be constructed and operated on land that has been privately owned and farmed for many decades; and zoned for heavy industrial activity in a region experiencing increasing industrial development; and the closest Indigenous communities are located 47 km from the Project. Air emissions and noise as a result of the Project will be local and or temporary as described in Section 7.1.9 (air) and Section 7.1.10 (noise), and surface water runoff will be managed to prevent impairment of nearby water bodies as described in Section 7.1.2. The Project is located 1.5 km from the North Saskatchewan River and 2.6 km from the Sturgeon River (Figure 1-1), and its development is not expected to impede access to either river.

Cando is not aware of specific traditional land use activities potentially affected by the Project, and it is not anticipated that the Project will affect Traditional lands, or land or water currently used for traditional purposes. However, the CEA Agency indicated that some Indigenous groups have recently expressed interest in agricultural land that may have been used previously for traditional purposes (CEA Agency 2018 Pers. Comm.). Through the Project engagement program, Indigenous groups that may be

affected by the Project have been notified of the Project. Cando has been made aware that the region in which the Project is located has been used for traditional land use activities by Indigenous groups historically for the past 500 years and, therefore, the possibility exists for the discovery of unknown historic resources of historic or cultural importance to Indigenous groups (Paul First Nation 2019 Pers. Comm.).

Cando obtained clearance under the provincial *Historical Resources Act* for the entire Project site on December 19, 2018 (HRA Number 4715-18-0102-001). Based on implementation of management measures (refer to Section 7.1.11 Historical Resources) and continuing to address feedback about the Project from Indigenous groups, changes as a result of the Project are not expected to adversely affect Indigenous peoples.

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 **APPENDIX A**
Project Site Photographs

Cando Rail Services

Summary of the Project Description Under CEAA 2012

SLR Project No.: 203.50152.00000



Photo 1: Majority of NW and NE quarters are cultivated in wheat (September 25, 2018).



Photo 2: Low area holding water seasonally, farm yard and buildings in the background – NW quarter (September 25, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
Project Description Under CEAA 2012
Sturgeon County, Alberta

Project No: 203.50152.00000



Photo 3: North-south drainage along the boundary between NW and NE, looking south (September 25, 2018).



Photo 4: Typical vegetation within windbreaks on the property (September 25, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
Project Description Under CEAA 2012
Sturgeon County, Alberta

Project No: 203.50152.00000



Photo 5: Smaller low areas observed with barnyard grass, sow thistle and foxtail barley (September 25, 2018).



Photo 6: Wetland 1 - Fringe wetland west of dugout in NE quarter (September 25, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
Project Description Under CEAA 2012
Sturgeon County, Alberta

Project No: 203.50152.00000

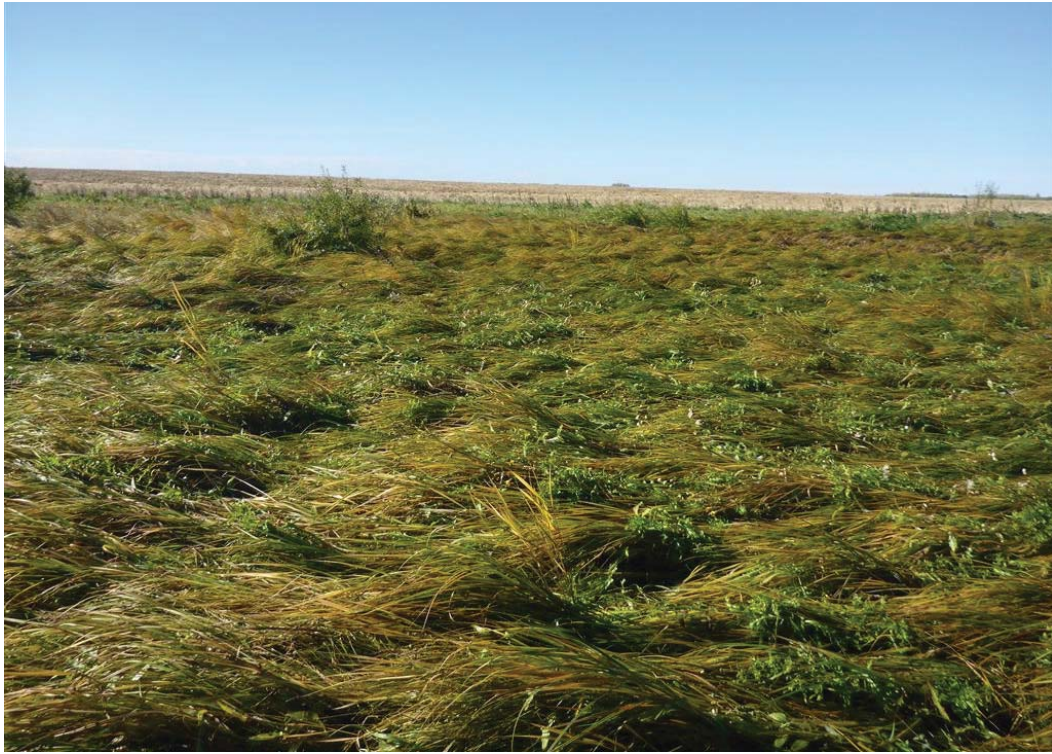


Photo 7: Wetland 1 - Vegetation in fringe wetland west of the dugout (September 25, 2018).



Photo 8: Wetland 2 at centre of NE and NW quarters (September 25, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
Project Description Under CEAA 2012
Sturgeon County, Alberta

Project No: 203.50152.00000



Photo 9: Wetland 2 at centre of NE and NW quarters (September 25, 2018).



Photo 10: Canid scat observed within Wetland 2 (September 25, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
Project Description Under CEAA 2012
Sturgeon County, Alberta

Project No: 203.50152.00000



Photo 11: Deer scat observed on the east side of the windbreak in the NW quarter (September 25, 2018).



Photo 12: Unknown scat with fruit seeds observed along windbreak near farm yard (September 26, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
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Photo 13: Skunk track observed on Range Road 222 adjacent to farm residence driveway (September 26, 2018).



Photo 14: Skunk latrine at stairs of cabin located near dugout in NW quarter (September 26, 2018).



SITE PHOTOGRAPHS

Cando Rail Services
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Sturgeon County, Alberta

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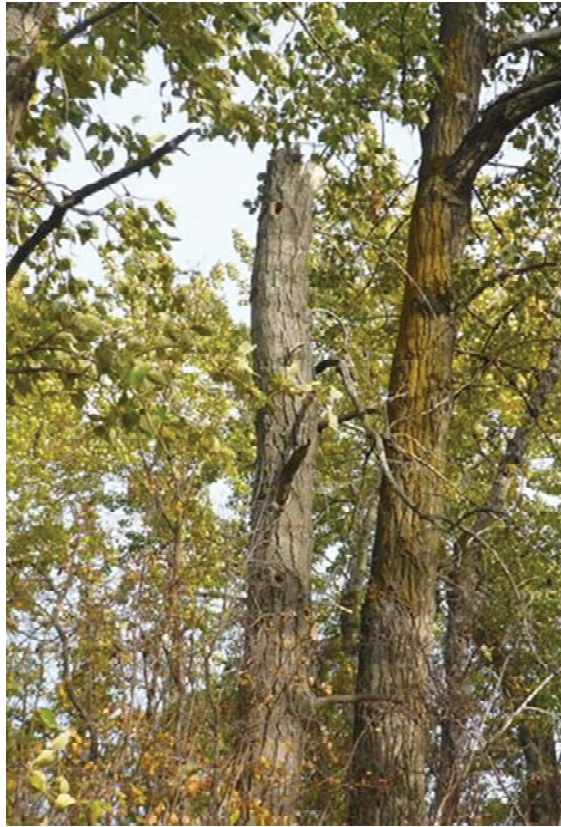


Photo 15: Nest cavity at top of dead poplar tree observed along west side of NE quarter (September 25, 2018).



Photo 16: Typical stick nest (crow or raven) observed throughout windbreaks (September 26, 2018)



SITE PHOTOGRAPHS

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