

SE-03-033-01 W5M

Biophysical Impact Assessment (BIA) Report

Final



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1.0 Introduction

Tannas Conservation Services Ltd. (TCS) was contracted by 1273927 Alberta Ltd through Greg Brown to complete a Biophysical Impact Assessment (BIA) for their proposed development in SE-03-033-01 W5M near Olds, Alberta (the Project Area; Appendix A, Figure A1). This BIA will document all biophysical resources intersected by the Project, outline Project impacts to these biophysical resources, and ensure the Project abides by all applicable municipal, provincial, and federal environmental regulations. This BIA has been completed using the City of Calgary standards (BIA Framework) as a framework, and adapted for Mountain View County, as the county does not have a defined BIA framework.

1.1 Project Overview

At this preliminary Project stage, the proponent is proposing 45 two-acre lots and approximately 38 acres of Commercial/Industrial space (Appendix B). Amendments to the current Project layout may be forthcoming. Currently, the development will feature a stormwater pond occupying 5.08 acres in the southwest corner of the Project Area.

The construction timeline will be determined following approval of the concept plan. The application for development with Mountain View County is anticipated to be submitted in Q3 of 2024. A hearing with Council is anticipated in the winter of 2024/ 2025.

1.2 Environmental and Land Use Overview

The Project is located within the Central Parkland Natural Subregion of Alberta (Natural Regions Committee 2006a). Undulating till plains and hummocky uplands are the dominant landforms in the Central Parkland. Lacustrine and fluvial deposits are locally common in the northern and eastern parts of the Natural Subregion, and there are some significant eolian deposits. Almost all the area is cultivated, but a mosaic of aspen and prairie vegetation occupies remnant native parkland areas. In the southern and eastern parts of the Natural Subregion, plains rough fescue prairie (*Festuca hallii*) is the dominant vegetation, with clumps of aspen (*Populus tremuloides*) present but restricted to moist sites. In the northern and western parts, aspen forest is dominant and grasslands are restricted to drier areas. The soils include Black Chernozems that usually occur under grasslands, and Dark Gray Chernozems and Luvisols, which usually occur under aspen forests.

1.3 Regulatory Information Requirements

The requirement for Biophysical Impact Assessments (BIAs) for plans and Projects in Mountain View County were established in 2023 in the Land Use Bylaw (Bylaw No. 21/21; Mountain View County 2023). The Bylaw defines a Biophysical Assessment as a report “Prepared by a qualified professional biologist accredited by the Alberta Professional Biologists (ASPB), the assessment will identify the broad impact of a proposed planning application on the plant and wildlife species/communities, as identified by Alberta Conservation Information Management System (ACIMS) and/or Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The findings of this report shall assist in the preparation of the Environmental Management Plan (where required), Redesignation proposals and/or Concept Plan.



1.4 Environmental Assessment Scope

The BIA provides an assessment of potential impacts to the existing environment in the Project Area. The BIA includes a review of the potential Project impacts, and recommended mitigation measures. All BIAs should review the Valued Ecosystem Components (VECs) that the project may interact with. The items below have been included in this BIA:

- Description of the proposed activity and provide rationale, including alternatives considered;
- Description of the existing environment, including:
 - Physical landscape – land use, topography, soil, and geology
 - Hydrology and water quality
 - Wetlands
 - Fish and fish habitat (not applicable)
 - Wildlife and wildlife habitat types
 - Vegetation (rare plant potential, weed species)
 - Historical Resources
- Predict and analyze the possible effects of the Project on the environment;
- Recommend mitigation measures that would avoid, minimize, or compensate for the environmental impacts of the activity, and;
- Describe how mitigation measures will be monitored over time to ensure effectiveness.

1.5 Related Documents and Plans

The preliminary Project design is attached in Appendix B. Project design to date has yet to incorporate the results of the BIA or response from council.

2.0 Project Description

2.1 Project Need

The Project will help increase the residential, and non-residential tax base and promote industrial jobs within the region.

2.2 Project Setting/Site Description

Much of the Project Area has already been heavily altered by agriculture. Despite these limitations, local environmental values are still present, including wetlands. The Project is adjacent to Highway 27 to the south, and Range Road 12 to the east. Lands to the north of the Project Area are used for a golf course and lands to the west, east, and south are used for agricultural purposes.

2.3 Scope of Work

Project activities include full stripping and grading prior to construction of commercial, industrial, and residential units. The timeline for construction has yet to be determined but will be provided in the subsequent update to this BIA with field data.



2.4 Environmental Constraints

Potential environmental and planning constraints for the proposed Project include:

- Wetlands present in the Project Area (Section 4.3.2) will require *Water Act* Approval and compensation (in-lieu fee payment or wetland replacement) under the Alberta Wetland Policy.
- Peyto Exploration and Development Corp 07-03-033-01 W5 former wellsite. Although a Reclamation Certificate has been provided for this former wellsite, associated wellsite infrastructure may remain within the Project Area.

3.0 Regulatory Approvals

Many different levels of regulatory approvals, permits, and applications will be triggered based on the size and scope of the Project. They are outlined in the following sections.

3.1 Provincial – Water Act

All water resources located within the province of Alberta are owned by the Provincial Government. Alberta Environment and Protected Areas (Alberta EPA) administers the Alberta *Water Act* (Government of Alberta 2000a), which is the primary legislation governing the use and management of Alberta's water resources, including watercourses and wetlands. Alberta's *Water Act* requires approval, code of practice notification, and/or attainment of a license before undertaking construction in a surface water body or activities related to a water body which have the potential to impact the aquatic environment.

A *Water Act* Code of Practice Notification is required for specific activities that adhere to the Codes of Practice. There are four types of activities that have an associated Code of Practice:

- Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body
- Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines
- Code of Practice for Watercourse Crossings
- Code of Practice for Outfall Structures on Water Bodies

Specific construction and mitigation standards/conditions are outlined within the codes of practice that vary depending on the type of activity and the class of the waterbody being impacted. There are no watercourses within the Project Area that are anticipated to be impacted.

Wetland management in Alberta is regulated through Section 36 of Alberta's *Water Act*; therefore, a *Water Act* approval is required prior to any works that may impact a wetland. Alberta EPA released Alberta's new Wetland Policy in September 2013 (Government of Alberta 2013), which applies to all wetlands in the province. Applicants proposing an activity in a wetland must submit a wetland assessment to the regulatory body with the application and other required plans. Most activities will require an Wetland Assessment and Impact Report (WAIR) to be prepared by an authenticating professional to be submitted with the application. Certain low risk activities allow an Alberta Wetland Assessment and Impact Form (WAIF) to be submitted in place of a WAIR. The Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) must be used when a WAIR is required to determine the relative value of the wetland, which is then used to inform decisions about avoiding high-value wetlands, and determines cost and replacement ratios for wetland replacement when avoidance is not possible. The Alberta Wetland Rapid Evaluation Tool – Desktop (ABWRET-D) can be used when a WAIF is required.



The Project Area contains wetlands which will be removed during Project construction. Their removal will require *Water Act* approval and the completion of a WAIR. Specific impacts to wetlands will be discussed in (Section 4.3.2).

3.2 Provincial – Public Lands Act

All Crown land, including the bed and shores of all permanent watercourses and water bodies, are considered Alberta public lands unless they are owned by the Government of Canada. As such, approvals from Alberta EPA under the *Public Lands Act* (Government of Alberta 2000b) are required for any activity on Public Lands or the bed or shore of Crown owned rivers, streams, or lakes. A list of activities that require a *Public Lands Act* approval is available from the Alberta EPA website.

This Project is located on privately owned land and will not impact Crown owned water bodies, therefore, no approvals under the *Public Lands Act* or formal dispositions are required.

3.3 Provincial – Historical Resources Act

The *Historical Resources Act* (Government of Alberta 2000c) is administered by the Historic Resources Management Branch (HRMB) of Alberta Culture and Status of Women. The *Act* protects all historical resources in Alberta, including paleontological, prehistoric, historic, archaeological, and certain cultural or natural objects, sites, or structures. Most development activities in Alberta are required to obtain formal approval under the *Act* prior to development. The Land Use Procedures bulletins published on the Alberta Government website, combined with a lands Historic Resource Value (HRV) are both used to determine if a project requires approval under the *Act*.

According to the Land Use Procedures Bulletin for Subdivision *Historical Resources Act* Compliance, if the Project Area does not overlap with areas identified in the Listing of Historical Resources *Historical Resource Act*, Approval is not required. Based on a review of the Historical Resources Listing, the Project Area does not intersect with lands having the potential to contain historical resources (Appendix A, Figure A7). Despite this, the provisions of Section 31 of the *Historical Resources Act* still apply. These provisions include the requirement for chance find procedures during the construction phase of the Project.

The discovery of archaeological resources is to be reported to Darryl Bereziuk, Director, Archaeological Survey, at 780-431-2316 (toll-free by first dialing 310-0000) or darryl.bereziuk@gov.ab.ca. The discovery of palaeontological resources is to be reported to Dan Spivak, Head, Resource Management, Royal Tyrrell Museum of Palaeontology, at 403-820-6210 (tollfree by first dialing 310-0000) or dan.spivak@gov.ab.ca.

3.4 Provincial – Wildlife Act

Alberta's *Wildlife Act* (Government of Alberta 2000d) protects the residences of wildlife on private and public lands. More specifically, a person must not wilfully molest, disturb or destroy a house, nest, or den of prescribed species. Section 96 of the Wildlife Regulation (Government of Alberta 1997) outlines the wildlife species, areas, and time of year when the *Act* applies. All endangered wildlife, upland game birds, some migratory birds, snake and bat dens, and beavers (in some instances) are a short species list of which Section 36 of the *Act* applies to. For most wildlife, disturbing the habitat of these animals is prohibited year-round throughout Alberta. Alberta EPA staff may recommend timing restrictions on activities to minimize disturbance to the nest of breeding



wildlife and birds. The *Wildlife Act* also protects endangered plant species (both vascular and non-vascular) listed in the Wildlife Regulation.

In the Project Area, habitat disturbances or destruction activities (e.g. vegetation clearing, flooding, etc.) should avoid clearing activities from April 14 to August 28 at a minimum to reduce disturbance to early nesting species. Timing may be adjusted dependent upon sensitivity of the species in question. Surveys to determine nesting may be required prior to activity commencing. No formal approval or permit is required under the Act at this time.

3.5 Provincial – Environmental Protection and Enhancement Act (EPEA)

The *Environmental Protection and Enhancement Act* (EPEA) (Government of Alberta 2000e) supports and promotes the protection, enhancement and wise use of Alberta's environment. The development of certain Projects requires either an Environmental Impact Assessment (EIA) report, approval, registration, or notification under EPEA. A list of mandatory activities that require an EIA is located in the Environmental Assessment (Mandatory and Exempted Activities) Regulation Government of Alberta 1993. This regulation also lists activities which are exempt from an EIA, or are discretionary (not on either list and require a decision by the Director). The Activities Designation Regulation (Government of Alberta 2003) lists activities that require an approval, registration, or notification under EPEA. Whether or not activities on the subject property will need an application under EPEA will depend on the specifics of the development.

EPEA authorization is required to ensure the stormwater management facility for the Project meets provincial standards for the timing and quality of storm water runoff released to the environment.

3.6 Provincial – Weed Control Act

The Alberta *Weed Control Act* (Government of Alberta 2008) regulates noxious weeds, prohibited noxious weeds, and weed seeds through inspection and enforcement measures, as well as outlines provisions for cases of non-compliance. The Act requires that a person must control noxious weeds and destroy prohibited noxious weeds that are on a property they own or occupy, as well as not facilitate the spread of weeds or weed seeds. The plant species listed in Schedule 1 of the Weed Control Regulation (Government of Alberta 2010a) are designated as prohibited noxious weeds in Alberta, and those listed under Schedule 2 are listed as noxious weeds in Alberta.

No formal approval or permit is required for the Alberta *Weed Control Act*, compliance through control of noxious weeds and destruction of prohibited noxious weeds in the Project Area is required.

3.7 Provincial – Municipal Government Act

Under the *Municipal Government Act* (Government of Alberta 2000f) section 664(1), a municipality may require a portion land subject to a proposed subdivision to be retained in its natural state as environmental reserve if it consists of:

- a) a swamp, gully, ravine, coulee, a natural drainage course
- b) land that is unstable or subject to flooding
- c) a strip of land adjacent to the bed and shore of any water body, no less than 6 m in width. This includes any lake, river, stream or other body of water.



A municipal government can designate land as environmental reserve for the purpose of preserving natural land features, to prevent pollution of the land or body of water, to endure public access to the waterbody, or to prevent development where natural features may pose a risk to personal safety or property.

3.8 Federal – Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) (Government of Canada 1994) prohibits the harm of migratory birds, their nests, eggs, and habitat. Environment Canada recommends timing restrictions and setbacks to help identify when the risk of contravening the MBCA is particularly high. According to the Map of Nesting Zones in Canada (Government of Canada 2017), the Project Area is located in Nesting Zone B4 within the Prairie Bird Conservation Region. In this nesting zone, birds are actively nesting between April 14 and August 28, with some variation between different bird species and habitat types.

Environment Canada advises that habitat destruction activities (e.g., vegetation clearing, flooding, draining, construction, etc.) in areas attractive to migratory birds are prohibited during the active nesting period to reduce the risk of contravening the MBCA. In select cases where vegetation is open and nests can be readily identified (e.g., a few trees in a city park or isolated patch of trees), a wildlife sweep can be conducted by a qualified biologist prior to beginning activities to ensure no nests are within the area to be disturbed, and no contraventions under the MBCA occur.

The MBCA and its associated regulation specify that efforts should be made to preserve and protect habitat necessary for the conservation of migratory birds. This includes nesting and wintering grounds, migratory bird corridors, and encompasses such activities as tree clearing, wetland consolidation, and temporary and permanent disturbances occurring in proximity to migratory bird habitat.

No approvals and permits are required for the MBCA. Due diligence to show the Project has limited its risk to wildlife through appropriate wildlife survey and pre-construction sweeps is required during seasonally appropriate time periods.

3.9 Federal – Fisheries Act

The *Fisheries Act* (R.S.C., 1985, c. F-14; Government of Canada 2019) applies to all Canadian fisheries waters and Fisheries and Oceans Canada (DFO) has the responsibility to administer and enforce the conservation and protection of fish habitat on private property, as well as on provincial and federal lands. Section 36(3) of the *Fisheries Act* prohibits the discharge of deleterious substances into a water body frequented by fish; Section 35(1) prohibits any work or activity that results in harmful alteration, disruption, or destruction of fish habitat; and Section 34.4(1) states that no person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

The Project will not interact with any watercourses or ephemeral drainages connecting to watercourses and therefore will not have any anticipated impacts to fish or fish habitat. The Project will not require approval or permits under the *Fisheries Act* or review by the DFO.

3.10 Federal – Species at Risk Act

The *Species at Risk Act* (SARA) (Government of Canada 2002) provides protection for species listed as “Endangered” or “Threatened” under the Act, as well as bird species listed under the MBCA and fish species



listed under the *Fisheries Act*. Protections for these species under SARA only apply on federal lands (oceans and waterways; national parks; military training areas; national wildlife areas; some migratory bird sanctuaries; and First Nations reserve lands). The Act does not apply to lands held by the Province of Alberta or its private citizens unless “the laws of Alberta do not effectively protect the species or the residences of its individuals”. The Minister may issue an order in council to protect federally listed species that occur on provincial or private lands, but this has not occurred within the Project Area.

No approval or permit is required under the Federal *Species at Risk Act*.

4.0 Biophysical Impact Assessment

4.1 Ecological Background

The Project is located within the Central Parkland Natural Subregion of Alberta (Natural Regions Committee 2006). The Central Parkland Natural Subregion includes over 50,000 km², much of it under cultivation. It includes all or parts of Alberta’s three largest cities, and arches north from Calgary through Edmonton and east to the Alberta–Saskatchewan border. It meets the Dry Mixedwood Natural Subregion to the west and north, and the Foothills Fescue, Foothills Parkland, and Northern Fescue Natural Subregions to the south. Elevations range from 500 m near the Alberta–Saskatchewan border to 1250 m near Calgary. The proposed Project Area is predominantly agricultural land with small wetlands and complexes typical of the prairie pothole landscape. Most of the Project Area is currently or has been historically used for cropland production or grazed pasture. Based on the annual climate conditions, the wetlands on-site have been cultivated, either fully or avoided depending on the season precipitation. In more recent years, development has been established to the west of the Project Area in the town of Olds.

4.1.1 Environmentally Significant Areas

ESAs have been defined as places that are vital to the long-term maintenance of biological diversity, soil, water, or other natural processes at multiple scales, that can be used as a strategic conservation tool for land use planning and policy (Fiera Biological Consulting Ltd. 2014). The Project Area was reviewed to determine if it contains any provincial, regional, or local Environmentally Significant Areas (ESAs) using *Environmentally Significant Areas in Alberta* (Fiera Biological Consulting Ltd. 2014). This dataset on (Fiera Biological Consulting 2014) was overlain on the Project Area to determine ESA potential. The numerical ESA ranking for the Project Area (SE-03-033-01 W5M) is 0.088, well below the 0.189 requirement for provincial ESA status. The ranking of the quarter-sections adjacent to the Project Area are or similar or lower value (Appendix A, Figure A8).

4.2 Impact Assessment Methods

4.2.1 Approach to the Assessment

A general impact assessment methodology has been used to evaluate the impact of the proposed work on VECs (e.g. Wildlife) described in the report. A ranking was given for the severity of effects on each VEC for spatial extent, duration, and magnitude. This assessment has been completed based on the information supplied within this report and the outline plan and land use map for the proposed Project. The impact significance criteria are described in the following sections.



4.2.2 Scoping the Assessment

The following VECs were identified to be evaluated for Project effects: vegetation, wetlands, wildlife, hydrology, and soils and terrain. The main effects analysis takes into account the expected impacts from this Project after mitigation measures have been applied. Geology, hydrogeology, and visual resources were not assessed in this report as the Project is not expected to significantly impact these resources.

4.2.3 Spatial and Temporal Extents

Effects on VECs were ranked spatially as within the site, local, or sub-regional and were ranked in duration as short-term, medium-term, or long-term. The magnitude of the expected effect was ranked as negligible, minor, moderate, or major, and then the overall significance of impacts to each VEC was given a ranking using the same scale attributed to magnitude. The ranking takes into account the mitigation measures that will be put in place for the Project, and so represents the residual effects of the Project.

Table 4-1: Impact Significance Criteria Used

Spatial Extent	
Site	Within the physical boundaries of the development footprint and all associated work space.
Local	Extending beyond the boundaries of the site, but within a 100 m buffer of the site boundary.
Sub-regional	Extending beyond the boundaries of the site, but remaining in the same natural sub-region of Alberta (Natural Regions Committee 2006).
Duration	
Short-term	A portion of the Project footprint construction (less than one year).
Medium-term	The reclamation/restoration period (1 to 3 years).
Long-term	The time frame for the presence of the developments (greater than 3 years).
Magnitude	
Negligible	Effect is difficult to detect. There are no obvious changes to the natural resource.
Minor	Effect is easily detected. Only affects the natural resource within the local Project Area, and is likely to recover with minor mitigation.
Moderate	Effect on the natural resource is easily detected. It may result in changes in species population parameters within the sub-regional area within natural limits of variability (generally short to medium-term). Resources require considerable mitigation measures to recover.
Major	Effect is easily detected, and the natural resources within the affected sub-regional Project Area would be destroyed or displaced beyond the natural limits of variability.
Overall Impact	
No Impact	No negative impacts are expected.
Negligible	The extent, duration, and magnitude of impacts tend to be within the site, short-term, and negligible or minor.
Minor	Extents tend to be within the site or local, the duration tends to be short to medium term, and the magnitude negligible to moderate.
Moderate	The extents tend to be local to sub-regional, the duration medium to long term, and the magnitude minor to moderate.
Major	The extent tends to be sub-regional, duration long-term, and the magnitude moderate to major.



4.3 Valued Ecosystem Component Assessment

This BIA uses desktop and field based assessment to determine Project risk and mitigation to biophysical resources within the area. This assessment method has been taken to understand Project impacts early in development to influence design.

4.3.1 Vegetation and Rare Plants

4.3.1.1 Methods

A literature review and a search of publicly available rare plant databases was conducted to identify potential rare plants and plant communities that could occur within the Project Area. The primary sources for information used to develop this list included the ACIMS Rare Plant Tracking List and Community Tracking list in Alberta (ACIMS 2022). Habitat requirements for rare plant species were acquired when available (Moss 1983a).

4.3.1.1.1 Definition of Rare Plants

Rare plants in Alberta are rated within the ACIMS database. Conservation status ranks are determined by the ACIMS based on number of previously recorded and confirmed sightings, or other biological factors. Alberta follows the NatureServe ranking methodology (ACIMS 2022):

- S1:** Often five or fewer occurrences in the province or only a few remaining individuals or may be imperiled because some factor of its biology making it especially vulnerable to extirpation.
- S2:** Often less than 20 occurrences or with many individuals in fewer occurrences; or may be susceptible to extirpation because of some factor of its biology.
- S3:** Twenty-one to 100 occurrences may be rare and local throughout its provincial range, or in a restricted provincial range (may be abundant in some locations or may be vulnerable to extirpation because of some factor of its biology).
- S4:** Apparently secure under present conditions, typically >100 occurrences, may be rare in parts of its provincial range, especially peripherally.
- S5:** Demonstrably secure under present conditions, >100 occurrences, may be rare in parts of its provincial range, especially peripherally.
- S#?:** Inclusion of a question mark indicates a status rank that is likely appropriate, but includes a level of uncertainty due to conflicting information and/or unresolved questions.

Typically, S1, S2, and some S3 species are considered sufficiently rare to be tracked by the Natural Heritage Information Centre.

4.3.1.1.2 Regulated Weed Survey

The *Alberta Weed Control Act*, SA 2008, c. W-5.1 (Government of Alberta 2008) regulates noxious weeds and prohibited noxious weeds in the province, mandating their control and removal. Regulated weeds as designated in the *Weed Control Regulation*, Alta Reg 19/2010 were recorded on all forms, including information on their cover and density distribution. A comprehensive survey was conducted along with the rare plant survey on July 9th, 2024.



4.3.1.1.3 Rare Plant Survey

Rare vascular plant and rare plant community surveys were conducted during the vegetation survey on July 9, 2024. This survey was conducted according to the procedures outlined by the Alberta Native Plant Council's "Guidelines for Rare Vascular Plant Surveys" (ANPC 2012). A vegetation ecologist completed rare plant surveys using a meandering search method through the Project Area. The focus of the rare plant survey was the only habitat present on site with potential to support rare species, this being the wetland and waterbody areas. The plotless floristic surveys were completed by meandering throughout natural and disturbed vegetation areas searching observed microsites and micro-community areas. All surveys were completed with the aid of a GPS unit, to record observed locations of rare plant species. Photographs of search areas were also obtained. If a species could not be identified in the field, a specimen or plant photograph was obtained for later identification using a plant key and/or by comparing species accounts in the Flora of Alberta (Moss 1983b), Rare vascular plants of Alberta (Alberta Native Plant Council 2001), the Alberta Conservation Information Management System (ACIMS) database (ACIMS 2018), Common Plants of the Western Rangelands (Tannas 2004), and herbarium specimens (TCS herbarium) to ensure the correct identification of each species. TCS conducted the survey for species considered endangered or threatened according to the ACIMS (2018) database and/or COSEWIC (Government of Canada 2016).

4.3.1.2 Results

4.3.1.2.1 Desktop Review

According to the ACIMS database, no tracked rare plant species have been documented within 03-033-01 W5M (Project Area). Given the land usage within and adjacent to the Project Area (agricultural), potential for rare plant species within the area is low. One rare plant species, *Gratiola neglecta* (clammy hedge-hyssop), was documented in the field survey for a previous BIA conducted in the adjacent quarter section NW-02-033-01 W5M (Wershler 2022). This species has a conservation status of S3 in Alberta, downgraded from previous ranking of S2. Its' primary habitat in Alberta is cropland drawdown where open bare areas/mud flats, exist in cultivated wetland and ephemeral water bodies. Habitat of this type is present within the Project Area, at wetland WL3, however, its presence was not confirmed on site during the vegetation assessment.

4.3.1.2.2 Vegetation Composition

ACIMS (2018a) does not list any rare plant communities in the Project Area. Based on desktop and imagery review, habitat potential for rare communities is low. The Project Area is mainly composed of agricultural (cultivated) lands, wetlands, and riparian areas along the wetlands. The wetlands and riparian areas were the main focus for vegetation surveys as these areas are most likely to support native plants and rare plant species or communities. Wetlands were surveyed to identify the dominant vegetation species (to classify and assign vegetation communities), rare plants, invasive species/weeds, and any other vegetation species present.

4.3.1.2.3 Non-Native Vascular Plant Species

As part of the literature review, a previously conducted BIA for the adjacent quarter section and the ACIMS database was reviewed to determine the presence of non-native and regulated weed species in the area. The BIA written by Sweetgrass Consultants in 2008 for NW-02-033-01 W5M (Wershler 2022) which included field based survey identified creeping thistle (*Cirsium arvense*) and perennial sow-thistle (*Sonchus arvensis*) within the periphery of the property. Given their presence in the adjacent quarter section, these species are likely present in the Project Area.



4.3.1.2.4 Weed Survey

During the vegetation survey, two regulated weed species were identified within the Project Area, creeping thistle (*Cirsium arvense*), and perennial sow-thistle (*Sonchus arvensis*). These species were found throughout the Project area but predominantly around the edges of the site. The density distribution of these species based on the Alberta Range Health categories as described in the Range Plant Communities and Range Health Assessment Guidelines (Adams et al. 2016) is 5 for upland areas and 8 for wetland areas.

4.3.1.2.5 Rare Plant Survey

Rare vascular plants are typically found in unique habitats. Additionally, locations are dependent on sunlight, soil type, and exposure. These features combine to create the following common habitats to find rare and endangered species: Groundwater seepage areas (springs, seeps), stream banks, steep eroding slopes, rocky outcrops, ridges, or slopes, wetlands, disturbed ground, native grasslands, and moist meadows.

Within the Project Area, there were a few locations where rare plants may have been anticipated due to habitat availability and quality. However, no rare plants or rare plant communities were found within the Project area during the field survey. Species identified during the rare plant survey are provided below in Table 4-2.

Table 4-2: Vegetation species observations during vegetation surveys

Common Name	Scientific Name
alsike clover	<i>Trifolia hybridia</i>
bluejoint	<i>Calamagrostis canadensis</i>
common dandelion	<i>Taraxacum officinale ssp. officinale</i>
common shepherd's-purse	<i>Capsella bursa-pastoris</i>
creeping spike-rush	<i>Eleocharis palustris</i>
common plantain	<i>Plantago major</i>
common horsetail	<i>Equisetum arvense</i>
Curly dock	<i>Rumex crispus</i>
foxtail barley	<i>Hordeum jubatum</i>
fowl bluegrass	<i>Poa palustris</i>
great bulrush	<i>Schoenoplectus acutus</i>
hairy speedwell	<i>Veronica peregrina</i>
hemp nettle	<i>Galeopsis bifida</i>
Kentucky bluegrass	<i>Poa pratensis</i>
leathery knotweed	<i>Polygonum achoreum</i>
lamb's-quarters	<i>Chenopodium album</i>
watercress	<i>Nasturtium officinale</i>
northern willowherb	<i>Epilobium ciliatum</i>
marsh willowherb	<i>Epilobium palustre</i>
marsh cudweed	<i>Gnaphalium palustre</i>
mudwort	<i>Limosella aquatica</i>
pale smartweed	<i>Persicaria lapathifolia</i>
red goosefoot	<i>Chenopodium rubrum</i>



reed canary grass	<i>Phalaris arundinacea</i>
slough grass	<i>Beckmannia syzigachne</i>
small forget-me-not	<i>Myosotis laxa</i>
short-awned foxtail	<i>Alopecurus aequalis</i>
timothy	<i>Phleum pratense</i>
toad rush	<i>Juncus bufonius</i>
quackgrass	<i>Elymus repens</i>
wire rush	<i>Juncus balticus</i>
wild oat	<i>Avena fatua</i>
wild mustard	<i>Brassica rapa</i>

4.3.1.3 Impacts to Vegetation

Potential impacts resulting from Project construction and operation include:

- **Remove of native vegetation** – Extensive agricultural activity has limited native vegetation within the Project Area, therefore removal of native vegetation is a negligible impact.
- **Destruction of rare plants** – Given the extensive agricultural activity within the Project Area it is unlikely that suitable habitat for rare plants exists within the site. Based on review of imagery, the site is dry enough that any wetland areas are fully cultivated in most years. There are two rare wetland plant species (clammy hedge-hyssop, and blunt-leaved watercress [*Rorippa curvipes*]) that can occur in disturbed wetlands in this region. The presence of the species identified above, will be determined during field survey. Clammy hedge-hyssop was found on an adjacent site, as outlined in the BIA completed by Sweetgrass Consultants (Wershler 2022). Due to the species potential occurrence, the impact of the Project on rare plants is considered to be minor.
- **Introduction of non-native species** – With proper implementation of mitigation measures the risk of introducing invasive species is low and they can be controlled on site in the event introduction occurs, therefore introduction of invasive species is a minor impact.

Within the Project Area, there are few areas that have not been largely impacted by annual cropping. All wetland areas within the disturbance area have been cropped through to various extents, based on annual climatic conditions. Upland vegetated areas are dominated by planted agronomic crop species, and likely non-native, regulated weeds. The wetland vegetation has been influenced greatly by the upland disturbances, and disturbance tolerant species are anticipated to be present in all wetlands. Impacts to biodiversity, native species, or rare plant species is expected to be of minimal significance across much of the site due to the current state of disturbance by agriculture.

Most proposed development is within previously impacted areas, and vegetation removal will mostly occur within upland areas with few native species. Removal of wetland vegetation will impact areas with moderate ecological integrity. Vegetation removal and stripping may introduce further vectors for non-native species introduction, although weed control within the Project Area may provide a net benefit effect, removing the cover and seed sources of non-native species and regulated weeds.



Past soil disturbance and agricultural land uses have created an optimal niche for weeds to establish. The proposed development will remove habitat for weed species, and with adequate weed management, can somewhat contain their continued spread throughout the Project Area. The spread of invasive species from the Project site can be reduced through weed control during construction and maintenance once the Project is completed.

4.3.1.4 Mitigation Measures

The mitigation measures presented below have been developed with the most current and available science, best management practices, and site conditions in mind. Mitigations include:

- Native vegetation removal should be minimized where feasible.
- A weed management program will be developed and implemented for all areas within the Project Site. As per the Weed Control Act (Government of Alberta 2008b), any problem species (Prohibited Noxious or Noxious) shall be managed mechanically, chemically, or biologically.
- The Alberta Blue Book, Crop Protection 2020, provides applicable herbicide spray rates and application instructions for specific regulated and nuisance weed species for Alberta (Alberta Agriculture and Forestry 2020). This resource should be used if weed species on site will be treated with herbicide.
- Mechanical control or herbicide application to weeds should be applied during the active growing season, prior to the plants setting seed.
- Herbicide selection and application must be carried out by a certified pesticide applicator. Herbicide products should be selected based on the season of application and the location. Herbicide applications should be conducted when temperatures are between 10°C — 25°C, with no precipitation, and appropriate low wind conditions.
- Exposed soils should be re-vegetated as soon as feasible to prevent establishment of weed species. Native species must be used for revegetation where possible. Adequate weed control should be conducted for a minimum of two years following construction.

4.3.2 Wetlands

4.3.2.1 Methods

For the purpose of this assessment, a “wetland” was defined as land saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity which are adapted to a wet environment (Alberta Environment 2007). These include wetlands as described in the Classification of Natural Ponds and Lakes in the Glaciated Prairie Region (Stewart and Kantrud 1971), Alberta’s Wetland Classification System (AESRD 2015a), and the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) (Government of Alberta 2015a).

The wetlands on the subject property were delineated, classified, and assessed according to the guidance documents from Alberta Environment and Protected Areas (Alberta EPA), including the Alberta Wetland Identification and Delineation Directive, Alberta Wetland Classification System, Alberta Wetland Assessment and Impact Report (WAIR) Directive, and the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) Guide (AESRD 2015; Government of Alberta 2015a; Government of Alberta 2015b; Government of Alberta 2017). Classification Pathway 5 (Comprehensive desktop delineation with field verification) was chosen for the Project. A desktop review of historical imagery was conducted to identify temporal changes in wetland occurrences,



extents, and land use within the Project Area. The desktop assessment was followed by a field-based assessment of wetland conditions during seasonally appropriate time periods.

Climate Information Service (Alberta Agriculture and Forestry 2019) data was consulted for average monthly precipitation for the relevant townships covering the Project Area. For the Preceding Precipitation Month Analysis, the preceding month’s precipitation was calculated as 30 days prior to the photo being taken, in order to establish a consistent data range before the air photo was taken. For the Preceding Precipitation Day Analysis, the average precipitation for the 30 days prior to the date that the photograph was taken was compared to the precipitation the day prior to the photograph. Values were determined to be average, wetter, or drier than average (determination of average described below).

Through synthesis of this information, wetland boundaries were delineated on current (2022) aerial photography.

4.3.2.2 Results

4.3.2.2.1 Historical climate data results

The historical climate data for the township (T033R01W5) is outlined in Figure 4-1. The average precipitation for the township was calculated to be 408.34 mm for the years 1963 to 2012. Years with average precipitation were defined as those within ± 27.26 mm of the mean precipitation. Precipitation classes were defined by classification into approximately equal groups, dry, average, and wet. This was done to account for the variability of the Alberta climate. The total range of precipitation from 1963 to 2012 was 275 mm to 676 mm. The range for average precipitation was 444 mm to 499 mm. Years with below average precipitation fell within the range of 275 mm to 444 mm, and years with above-average precipitation were within the range of 499 to 676 mm.

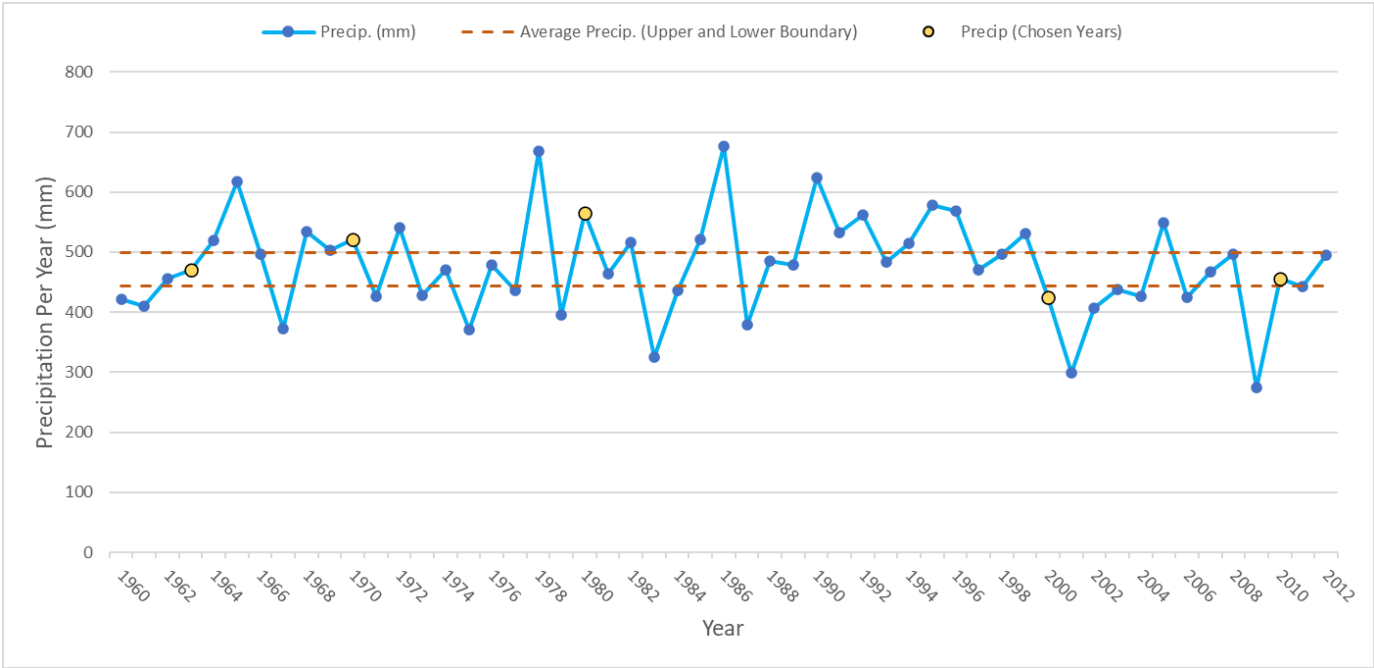




Figure 4-1: Precipitation relative to average conditions

4.3.2.2.2 Historical precipitation assessment

The method of delineation was completed through a desktop review using air photo imagery (recent and historical aerial photography and satellite) obtained from the Air Photo Library (Alberta Environment and Parks 2019) for five years between 1963 and 2010. Images were chosen through an analysis of regional precipitation data and image availability to encompass a range of seasons (spring, summer, and late summer/fall) and precipitation levels (below normal, near normal, and above normal) in order to reflect wetland and ephemeral water body dynamics (Appendix A, Figure A4). For each aerial image the precipitation for the preceding month (30 days) and the day prior to the photo being taken was also assessed (for the images with dates and data available). This showed that the “dry” years still had wet conditions leading up to the image being taken.

Table 4-3: Summary desktop characteristics used to classify the wetlands and water bodies within the Project Area

Date	Photo	Precipitation (Year, Month, Day {mm day prior})	Wetland Classification ¹	Photo Interpretation
1963-05-08	AS-0871-109	Average, Drier, Drier (0)	Temporary Graminoid Marshes Indicators including open water as shown by various dark shades.	Temporary Wetlands: The aerial photo from May 8, 1963 depicts the temporary wetlands as dark areas on the landscape, photo may have been taken after recent flooding. Connectivity between wetlands is evident through what might be man made drainage channels. Ephemeral Water bodies: The aerial photo from May 8, 1963 depicts the ephemeral water bodies as darkish areas on the landscape, photo may have been taken after recent flooding. Ephemerals appear slightly less dark than wetlands. Disturbance at this time is limited to agriculture and potential drainage channels.
1970-07-15	AS-1108-65	Wetter, Wetter, Drier (0)	Temporary Graminoid Marshes Indicators including potential open water as shown by various dark shades, minor wetland zonation is apparent.	Temporary Wetlands: The aerial photo from July 15, 1970 depicts the temporary wetlands as dark areas on the landscape. However additional areas on the landscape are darker than the central zones of the wetlands. Wetland interpretation using this image is inconclusive. Image does indicate connectivity between all wetlands through ephemeral or mad made channels. Ephemeral Water bodies: The aerial photo from July 15, 1970 depicts the ephemeral water bodies as the darkest areas on the landscape. This image presents the ephemerals at their most full level.



Date	Photo	Precipitation (Year, Month, Day {mm day prior})	Wetland Classification ¹	Photo Interpretation
				Disturbance at this time is limited to agriculture and potential drainage channels.
1980-07-02	AS-2205-62	Wetter, Wetter, Drier (1.21)	Temporary Graminoid Marshes Indicators including open water only in central zone of wetlands and water bodies in south of the site as shown by various dark shades.	Temporary Wetlands: The aerial photo from July 2, 1980 depicts the temporary wetlands as dark areas on the landscape. Image indicates connectivity between all wetlands through dry (lighter shade) ephemeral or man made channels. Ephemeral Water bodies: The aerial photo from July 15, 1970 depicts the ephemeral water bodies as rings around the wetlands, these areas appear light against the water within the wetlands and slightly darker upland. Disturbance at this time is limited to agriculture and potential drainage channels.
2000-05-24	AS-5104-173	Drier, Wetter, Normal (.81)	Temporary Graminoid Marshes Indicators including are faint but include light areas where wetlands should be	Temporary Wetlands: The aerial photo from May 24, 2000 depicts the temporary wetlands as the lightest areas on the landscape. Image indicates the land is fairly dry, wetland boundaries are not clear. Ephemeral Water bodies: The aerial photo from May 24, 2000 does not readily depict the ephemeral water bodies. Disturbance at this time is limited to agriculture, a golf course with numerous ponds has been developed to the north, the former ephemeral in the NW of the Project Area has completely dried as a result.
2010-04-19	AS-5512B-133	Average, Drier, Drier (0)	Temporary Graminoid Marshes Indicators including open water only in central zone of wetlands and water bodies in south of the site as shown by various dark shades	Temporary Wetlands: The aerial photo from April 19, 2010 depicts the temporary wetlands as the lightest areas on the landscape. Image indicates the land is fairly dry, however the wetland boundaries are clear. Ephemeral Water bodies: The aerial photo from May 24, 2000 depicts the ephemeral areas as light and dark rings around the wetlands and white areas where they do not envelop a wetland.



Date	Photo	Precipitation (Year, Month, Day {mm day prior})	Wetland Classification ¹	Photo Interpretation
				Disturbance at this time is limited to agriculture.

¹Based on Alberta Wetland Classification System(AESRD 2015). Wetland Permanency based solely on individual interpretation of historical image.

Given the lack of surface water in all periods but the wettest years and seasons, the wetlands in the Project Area were classified as temporary. Throughout the available historical imagery, wetland vegetation was not evident indicating that the wetlands were fully cultivated in dry conditions. This is consistent with a permanence of temporary. Ephemeral water bodies were also delineated, in areas with minimal development of wetland vegetation and soil conditions indicative of infrequent saturation.

4.3.2.2.3 Wetland delineation and classification

One wetland and three ephemeral water bodies were identified, delineated, and classified within the Project Area (Table 4-4; Appendix A, Figure A2). The wetland within the Project Area has been classified as temporary graminoid marsh due to its lack of emergent wetland vegetation, depth of mottling, degree of cultivation, and lack of surface water in all but the wettest times of the year or wettest years. The largest ephemeral waterbody exists as a ring around the temporary wetland and the others act as drainages between the Project Area and the ditch north of the site.

The temporary marsh is connected to the wider hydrological network through man made drainages. A large ditch to north of site was created sometime just after 1980 and drains numerous waterbodies on site. This ditch is connected with the water feature on the golf course immediately to the northwest (Appendix A) of the Project Area. During high flows, both features connect to the ditch within the western boundary of the Project Area. This ditch predominantly drains to the south of Highway 27.

The wetland is primarily composed of disturbance species. Dominant vegetation included common plantain (*Plantago major*), quack grass (*Elymus repens*), and slough grass (*Beckmannia syzigachne*) as identified during the June 2024 site visit. Soils had mottling within 25 - 75 cm of the soil surface. Topsoil layer was significantly admixed throughout the site and wetland.

The topography of the area contains minor peaks and troughs but is generally flat in the upland. The flow through the wetland occurs from the south to the north. With the relatively level environment the wetland hydrology is tied to the shallow water and runoff coming from the surrounding upland (all aspects). The wetland was dry during the time of field assessment.



Table 4-4: Wetlands and water bodies within the Project Area

Wetland/Waterbody ID	Code ¹	Class	Form	Salinity	Permanence	Total Area (ha)
Wetlands						
WL3	MGI	Marsh	Graminoid	-	Temporary	0.42
Total Wetland Area:						0.42
Ephemeral Water bodies						
EP1	MGI	-	-	-	-	1.57
EP2	MGI	-	-	-	-	0.26
EP3	MGI	-	-	-	-	0.04
Total Ephemeral Area:						1.87

¹Codes as per Alberta Wetland Classification System (AESRD 2015); MGI = Ephemeral Waterbody

WL03 is a temporary graminoid marsh (G-M-II). The wetland characteristics are outlined in Table 4-5. The temporary marsh is connected to the wider hydrological network through a man made ditch just north of the Project Area. This ditch diverts water to the west connecting hydrological network of the Project Area with portions of the golf course. The wetland is primarily composed of disturbance species. Dominant vegetation included short-awned foxtail (*Alopecurus aequalis*), quack grass (*Elymus repens*), and cattail (*Typha latifolia*) as identified during the July 2024 site visit. Soils had mottling within 25 - 75 cm of the soil surface. The wetland was dry during the time of the field assessment.

Table 4-5: Field characteristics of WL3

Waterbody ID	Classification Code ¹	Soil Characteristics	Hydrologic Characteristics	Vegetation Characteristics
WL3	G-M-II	Multiple soil profiles observed within the wetland. Hydric soil characteristics observed. An upper organics layer was documented with admixed layers. Distinct mottling was observed at an average depth of 50 cm.	No surface water was observed during the field assessment. The wetland is drained into the man-made ditch to the north. Considerable bare ground is present.	Dominant species include: short-awned foxtail, quack grass, lamb's quarters (<i>Chenopodium album</i>), and slough grass.

¹ Codes as per Alberta Wetland Classification System (AESRD 2015)

4.3.2.3 Wetland Value

Wetland value was determined for the wetland boundary as delineated in Appendix A. Alberta EPA returned the wetland value score (A240709) for WL03; the wetland was valued as D. The Alberta Wetland Mitigation Directive (Government of Alberta 2018b) was used to calculate the compensation/replacement cost for the wetland considered for removal. Within Relative Wetland Value Assessment Unit (RWVAU) 16 wetlands in the Project Area have a base in-lieu rate of \$18,500 per hectare. After multiplying the wetland area, the base in-lieu rate and ABWRET-A value modifier, the compensation/replacement cost would be \$ 8,158.50 for the wetland (Table 4-6).



This calculation is based on the project being within RWVAU Zone 16, and addresses land values, cost of restoring wetlands, and cost of monitoring in that zone, as well as an administrative fee. For Class D wetlands a one-to-one compensation rate is required per hectare of wetland disturbed. As of December 2018, the wetland replacement fees are paid directly to the Government of Alberta.

Table 4-6: Wetland Compensation Cost Summary

Wetland Information			Compensation Rate			
Waterbody ID	Size of Wetland (ha)	Area to be removed (ha)	Compensation Ratio	In-lieu Rate (\$/ha)	Rate per ha	Compensation Cost
Wetland 3	0.42	0.42	1:1	\$ 18,500	\$ 18,500	\$ 7,770
					GST (5%)	\$ 388.5
					Total:	\$ 8,158.5

4.3.2.4 Impacts to Wetlands

Potential impacts resulting from Project construction and operation include:

- **Altered hydrology and water quality** – Surface water will be retained and managed on site through the stormwater pond constructed in the southwest of the Project Area. With proper implementation of mitigation measures (below), the risk of sedimentation and other deleterious effects of construction will be minimized, therefore Project impacts to hydrology and water quality are minor.
- **Destruction of native vegetation species** – Specimens of the clammy-hedge hyssop found within the wetland area will be transplanted to areas where no disturbance is planned or taken to the TCS nursery until plantable areas are d
- esignated. No other sensitive native species or plant communities were identified during the field vegetation assessment.

All wetlands water bodies in the Project Area will be completely destroyed during stripping and grading of the Project. Historically wetlands in the Project Area were more permanent than they are today. Development has occurred north of the Project Area, and greatly impacted hydrology on site, and affected surface water inputs to wetlands in the area. This combined with the historic cultivation of the site has significantly reduced the ecological integrity of the wetlands and water bodies on site.

4.3.2.5 Mitigation Measures

Given full removal of wetlands and water bodies in the Project Area is required as part of Project design, there are no mitigation measures which can be applied to protect them. The removal of these water bodies will occur with approval under the *Water Act* following the completion of a Wetland Assessment and Impact Report (WAIR) and paid in-lieu fee replacement or wetland replacement as required under the Alberta Wetland Policy. The value of the wetlands to be removed will be determined following completion of the ABWRET-A conducted during field work this coming Spring (2024). Once the value of wetlands on site is known, the preferred replacement option will be discussed and presented to Alberta EPA in the *Water Act* application.



4.3.3 Wildlife and Wildlife Habitat

4.3.3.1 Methods

4.3.3.1.1 Desktop Review

A desktop review of provincial databases and associated studies was conducted to identify recorded occurrences of sensitive wildlife and/or sensitive wildlife habitat areas within the Project Area. Four main sources were investigated:

1. Natural Regions and Subregions of Alberta report (Natural Regions Committee 2006)
2. The Fish & Wildlife Internet Mapping Tool species search (FWIMT; Alberta Environment and Parks 2022)
3. Wildlife Sensitivity Maps (Alberta Environment and Parks 2022)
4. BIA conducted for the adjacent quarter section (NW-02-033-01-W5M) by Sweetgrass Consultants

The Natural Regions and Subregions of Alberta report was reviewed to identify key wildlife habitat features that could occur in the Project Area, as well as wildlife species that are known to occur in the Subregion.

The FWIMT (Alberta Environment and Parks 2022) was used to generate fish and wildlife reports for the approximate Project Area and a 3 km radius from the center of the Project Area. These reports show which sensitive wildlife species have been previously documented in the area. To identify which of these species may be of provincial or federal conservation concern, the status of all reported species was then classified according to the General Status of Alberta Wild Species report (Government of Alberta 2020a), the Alberta Wildlife Act and Regulations (Government of Alberta 1997a), the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and Status under the federal Species at Risk Act (SARA) as provided in the Species at Risk Public Registry (Government of Canada 2002). Fish inventory results were not included in this report.

GIS software was utilized to identify if the Project Area is within any provincially designated Wildlife Sensitivity Layers. Wildlife Sensitivity Layers are developed from current scientific knowledge of wildlife range extents, and are based on data from aerial surveys, historical information, telemetry, and habitat types. These areas have been identified as important locations for the viability and productivity of Alberta's wildlife. Specific operating conditions and mitigation strategies may have to be followed for industrial activities in these layers to help mitigate any adverse effects on wildlife populations or their habitat.

4.3.3.1.2 Wildlife Survey

Foothills/ Parkland Breeding Birds: Most songbirds have specific breeding habitat requirements and may necessitate special considerations when planning development projects. Foothills/ Parkland Breeding Songbird Surveys are designed to identify the presence of a wide range of species, but particularly species of management concern. Because of their special status, restricted activity dates and setback distances are in place for the nests of many species. TCS completed one round of Foothills/ Parkland Breeding Songbird Surveys following the guidance of the Sensitive Species Inventory Guidelines (Government of Alberta 2013). In accordance with the guidelines, point count stations were established approximately every 400 metres within the Project Area. At each point count station, all birds heard and seen within a 5 minute interval were recorded. Birds identified outside the 10 minute interval, and those flying over the station during the survey time were recorded as incidental observations. Additional incidental information such as nest locations and habitat descriptions were collected. The survey took place on June 28th, 2024 around 9:15 am. The temperature was approximately 15 C and winds were recorded as a 2 on the Beaufort scale (Appendix A Figure A9).



Foothills/ Parkland Raptors: Hawks, eagles owls, and falcons are vulnerable species that have specific breeding habitat requirements and may necessitate special considerations when planning development projects. Foothills/ Parkland Raptor Stick Nest Surveys are designed to identify occupied and potential nests of all raptors that use stick nests, but specifically target Sensitive species: Northern Goshawk (*Accipiter gentilis*), Broad-winged Hawk (*Buteo platypterus*), Swainson's Hawk (*B. swainsonii*), Bald Eagle (*Haliaeetus leucocephalus*), Golden Eagle (*Aquila chrysaetos*), Osprey (*Pandion haliaetus*), and Great Grey Owl (*Strix nebulosa*). Because of their special designations, restricted activity dates and setback distances are in place for the nests of Northern Goshawk, Bald Eagle, Golden Eagle and Osprey. TCS conducted Foothills/ and Parland Raptor Stick Nest Surveys in accordance with the Sensitive Species Inventory Guidelines. The stick nest survey is a ground based survey used to identify stick nests within 1,000 metres of the Project Area. Locations of nests will be recorded using a handheld GPS for reference during future ground-based searches. For actively used nests, the occupying species will be recorded. The survey took place on June 28th, 2024 around 1 pm. The temperature was approximately 15 C and winds were recorded as a 2 on the Beaufort scale (Appendix A Figure A10).

4.3.3.2 Results

4.3.3.2.1 Wildlife Habitat

As the Project Area is within the Central Parkland Natural Subregion but in close to proximity to Foothills Fescue Natural Subregion, it would have historically existed in an area comprised of woodlands bordering glasslands (Natural Regions Committee 2006). Currently, the site is cultivated agriculture, with lower order wetland areas that are cultivated in most years.

Wetlands, which are typically marshes in this region, contain some of the most diverse wildlife communities in the Subregion. Species commonly found in these areas include: muskrat (*Ondatra zibethicus*), Canada Goose (*Branta canadensis*), dabbling and diving ducks, American Coots (*Fulica americana*), Red-winged Blackbirds (*Agelaius phoeniceus*), Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*), boreal chorus frogs (*Pseudacris maculata*), American Bittern (*Botaurus lentiginosus*), Black-crowned Night-Heron (*Nycticorax nycticorax*), and Franklin's Gulls (*Leucophaeus pipixcan*; Natural Regions Committee 2006).

The Project occurs within two Wildlife Sensitivity Layers: Sharp-tailed Grouse Survey Area and Sensitive Raptor Range for Prairie Falcon, Bald Eagle, and Golden Eagle (Alberta Environment and Parks 2022). There is marginal habitat within the Project Area for Sharp-tailed Grouse including their leks, as there is little to no undisturbed upland areas with appropriate vegetation. Prairie Falcons and Golden Eagles primarily nest on bluffs and cliffs, while Bald Eagles nest in trees next to large bodies of water, so the Project Area does not contain suitable habitat for these species.

4.3.3.2.2 FWMIS Results

The search of the FWIMS database using the 3 km radius did not return any species detections. The absence of other reported species of concern does not indicate that they cannot occur in the area. Instead, the non-detection of species of concern may be a function of a lack of inventories or surveys that may have been conducted in the area.

4.3.3.2.3 Field Survey Results

During the breeding bird and raptor surveys, 7 birds were detected throughout the Project Area (Table 4-3). Only 1 species is classed as "Sensitive" in the General Status of Alberta's Wild Species (Government of Alberta 2017): Common Yellowthroat (*Geothlypis trichas*). All other species are listed as "Secure" and do not have provincial or federal listings. All species observed are common within disturbed areas.



Table 4-3: Wildlife species detected during field surveys (Breeding Bird, Raptor)

Common Name	Scientific Name	AB General ¹	Wildlife Act ²	COSEWIC status ³	SARA status ⁴
Birds					
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Secure	N/A	N/A	N/A
Red-Tailed Hawk ⁵	<i>Buteo jamaicensis</i>	Secure	N/A	Not at Risk	N/A
Common Yellowthroat	<i>Geothlypis trichas</i>	Sensitive	N/A	N/A	N/A
Common Raven	<i>Corvus corax</i>	Secure	N/A	N/A	N/A
Clay-Colored Sparrow	<i>Spizella pallida</i>	Secure	N/A	N/A	N/A
Black-Billed Magpie	<i>Pica hudsonia</i>	Secure	N/A	N/A	N/A
American Robin	<i>Turdus migratorius</i>	Secure	N/A	N/A	N/A

¹General Status of Alberta's Wild Species (Government of Alberta 2020b)

²Status under the Alberta *Wildlife Act* and Regulations (Government of Alberta 1997b; Government of Alberta 2000g)

³Status listed by the Committee on the Status of Endangered Wildlife in Canada (Government of Canada 2016)

⁴Status under the federal Species at Risk Act (Government of Canada 2020)

⁵Observed incidentally during the raptor stick nest survey

Given the high state of disturbance within the Project Area (corn field) and proximity to a road, occupancy and usage of the site was noted to be low. There was a moderate amount of background noise from the adjacent road and golf course which would contribute to low detections of birds or low activity levels. No stick nests were observed within the 1 km search radius where nesting habitat is present.

4.3.3.3 Impact Assessment

Potential impacts resulting from Project construction and operation include:

- **Habitat removal** – Given the lack of wildlife habitat within the Project Area which results from heavy cultivation, the Project impact to wildlife habitat is considered minor.
- **Direct mortality** – Given the extensive agricultural activity within the Project Area it is highly unlikely that suitable habitat for rare plants exists within the site. The Project is not expected to impact rare plant species.
- **Temporary sensory disturbance** – Given the limited usage of the area by wildlife, there will be little to no risk of sensory disturbance from the Project construction, therefore the impact from sensory disturbance is negligible.

The Project Area contains cultivated wetland areas and upland agricultural areas that offer little wildlife habitat. The large ephemeral/ wetland complex in the Project Area may offer habitat for wetland birds and amphibians in the early spring before it dries, and is planted with an annual crop. While these species may not nest or breed within temporary wetlands, they are able to feed on the larval stages of insects who breed within the ephemeral waters. In this way, ephemeral and temporary wetlands contribute to birds, bats, amphibians as well as numerous other species.

These habitats are expected to be removed during the course of construction. Environment and Climate Change Canada (ECCC) has indicated that construction or habitat clearing activities carry a particularly high risk of destroying or disturbing a nest of a migratory bird during the breeding bird window (April 14th to August 28th). The breeding timing window for migratory birds is based on the (Government of Canada 2017) General Nesting



Periods of Migratory Birds, which indicates the Project Area is located in Nesting Zone B4 within the Prairie Potholes Bird Conservation Region (BCR 11). In this nesting zone, birds are actively nesting between April 14th and August 28th, with some variation between different bird species and habitat types.

Wildlife movements and habitat availability will be impacted both during construction activities and as a result of development landscape changes. The removal of wetlands and vegetation during construction will reduce breeding opportunities and/or staging/migratory stopover areas for grassland birds, waterfowl, and small mammals. Most wildlife species in the area are already exposed to a certain amount of human disturbance and traffic nearby, so they would be expected to persist in the area even after further development occurs if sufficient forage and prey is available. During construction of the Project, there will also be a temporary increase in sensory disturbance to wildlife occupying the area.

The overall effect to wildlife is expected to be restricted to the Project Area, but for a long-term duration and have a minimal impact. Most species are expected to have remaining suitable habitat surrounding the development, but the quantity of that habitat is expected to be reduced. Following the recommended timing windows will ensure no direct disturbance occurs to nesting birds or other animals during critical breeding periods.

4.3.3.4 Mitigation Measures

The mitigation measures presented below have been developed with the most current and available science, best management practices, and site conditions in mind. In order to ensure compliance with the *Migratory Birds Convention Act*, all habitat disturbing activities (vegetation clearing, wetland draining, ground disturbance, etc.) should:

- be conducted outside of the breeding bird window (April 14th to August 29th), and ideally during the winter months when the least number of wildlife species will be present on site.
- Be preceded by a wildlife sweep if construction occurs during breeding bird window (April 14th to August 29th).
- Prevent species from nesting within active construction site by limiting suitable nesting habitat (e.g. excavations filled with water and left for prolonged periods).

If nests or other wildlife features are identified during the pre-construction nest sweep, established setbacks (developed by ECCC and EPA) must be placed around the feature. These nest sweeps are valid for seven days, after which another nest sweep should be conducted if further construction and disturbance activities will be taking place. If construction begins within this seven-day period and is continuous (and remains within the original Project footprint), another nest sweep will not be required unless a break of seven days or longer occurs between disturbance activities.

4.3.4 Hydrology (Surface Water)

4.3.4.1 Methods

Current orthoscopic imagery (2022), Digital Elevation Model (DEM) contour data, as well as the Code of Practice Maps for Red Deer (Alberta Environment and Sustainable Resource Development 2012) were reviewed to assess local hydrological conditions.



4.3.4.2 Results

The Project Area is relatively flat and poorly drained which contributes to the wetlands on site. The historical imagery dating to 1963 indicates that the site would likely have held more surface water historically than it does today. This is likely due to the draining of surface water that occurred during the construction of the golf course. The Project Area contains a large ephemeral / wetland complex (Appendix A, Figure A2 & A3) in its centre which likely drains to the north during heavy precipitation. Elsewhere in the Project Area drainage occurs into the county road network.

4.3.4.3 Impact Assessment

Potential impacts resulting from Project construction and operation include:

- **Restriction of surface water infiltration** – The removal of wetlands and water bodies within the Project Area will cause a reduction in water infiltration to the water table. While the amount of infiltration is likely low given the size of the wetlands, the cumulative effects of reduced ground water recharge are more significant. Therefore, this potential impact is moderate.
- **Runoff and reduced water quality** – With successful implementation of mitigation measures (below) which includes an erosion and sediment control plan, there should be no significant surface water runoff during construction, therefore this Project impact is minor.

Hydrology is expected to be impacted with removal of the large ephemeral / wetland complex and additional water bodies in the Project Area. By altering the hydrological function of the site by construction within or near wetlands, it may act as a barrier to surface drainage and groundwater flow. Removing wetland area and related habitat due to infilling activities will impact the watershed, water retention, and water filtration.

The flow regime downstream of the site will not be affected by the on-site stormwater management, with the exception of reduced surface drainage to all wetlands and water bodies. The proposed disturbance footprint will be graded to direct all surface runoff to the proposed stormpond. Thus, the lot is to be graded to ensure no untreated stormwater spills off-site.

4.3.4.4 Mitigation Measures

The mitigation measures presented below have been developed with the most current and available science, best management practices, and site conditions in mind. Mitigations include:

- Activities around wetlands should be scheduled during dry or frozen conditions if possible. Postpone wetland construction activities if excessive rain or flood conditions present themselves and constructions methods cannot be modified to cope with excessive water.
- Implement erosion and sediment control measures where the risk of wind or water erosion is moderate to high (e.g., avoidance of soil handling, application of water or tackifiers during windy conditions, utilization of geotextiles where reclamation occurs on slopes).
- Ensure all temporary grading of slopes, landscape contours, watercourses and drainages are restored to preconstruction conditions.
- Mitigation measures identified for the protection of wetlands prior to disturbance in the Environmental Protection Plan will be implemented.
- Refueling and maintenance of equipment as well as the storage of any excess fuels, oils, lubricants, or other petrochemical products should occur at least 100 m away from any watercourse or wetland.



Conduct regular monitoring to ensure site-specific operational EPMs are in place and functioning effectively.

- Avoid the application of pesticides near wetlands and water bodies, in accordance with the Alberta Environmental Code of Practice for Pesticides (Government of Alberta 2010b).
- Maintain equipment in good working order and ensure it is free of leaks.
- Avoid spraying herbicides for control of weeds and invasive, non-native species within 30 m of wetlands, watercourses, and drainages.
- If a reportable release of a harmful substance occurs during construction, then the Contractor must notify AEP by calling 1- 800-222-6514 and enact the Contractor provided Spill Response Plan.
- Ensure impervious material is placed beneath equipment when being serviced.
- Control wastewater from construction activities, such as equipment washing or concrete mixing, to avoid discharge directly into any body of water.

4.3.5 Soils and Terrain

4.3.5.1 Methods

The desktop assessment for soils and terrain included a literature review including Abadata (Abadata 2023) and AGRASID review (Government of Alberta 2021).

4.3.5.2 Results

4.3.5.2.1 Soils

Within the Project Area two soils polygons are present (Appendix A, Figure A6). Their characteristics are present below:

- Soil Polygon 12864 (Symbol: ATLP1/U1h)
 - Orthic Black Chernozem on medium textured (L,CL) till.
 - Component 1 (50%) – Antler Series. Well drained, parent material is Moderately fine textured: sand clay loam, clay loam and silty clay loam
 - Component 2 (50%) – Lonepine Series. Well drained, parent material is Medium textured: loam, silt loam, and very fine sandy loam.
- Soil Polygon 12956 (Symbol: ATL2/U1h)
 - Orthic Black Chernozem on medium textured (L,CL) till.
 - Component 1 (80%) - Antler Series. Well drained, parent material is Moderately fine textured: sand clay loam, clay loam and silty clay loam
 - Component 2 (20%) – Didsbury Series. Well drained, parent material is Medium textured: sand clay loam, clay loam, and silty clay loam.

4.3.5.2.2 Topography

Topography within the Project Area could be characterized as flat with minor undulations. The lowest area of the site is at an elevation of 1019 m and is the location of the largest wetland. This area is 2 to 3 metres lower than the adjacent upland within the site (Appendix A, Figure A5). This large ephemeral / wetland complex (Appendix A, Figure A2) connects to an ephemeral drainage channel which carries surface flows south into the county road network.



4.3.5.2.3 Potential Contamination

A search of the Environmental Site Assessment Repository (ESAR) has uncovered a former well site and access road within the Project Area (Alberta Environment and Protected Areas 2023). The site had been licensed in October 1978 and only drilled for two months. The formal abandonment date was in January 1979. A Reclamation Certificate was issued on August 31, 1979.

4.3.5.3 Impact Assessment

Potential impacts resulting from Project construction include:

- **Compaction and rutting** – Given the end use of the Project is for residential, industrial, and commercial purposes, these potential environmental impacts will not be applicable. In natural areas of the Project, the mitigation measures (below) can be used to avoid or restore soil conditions in the event compaction and rutting occurs, therefore this potential Project impact is minor.
- **Erosion by wind and water** – This potential Project risk can be successfully mitigated if all mitigations measures outlined below are followed, therefore this otherwise considerable Project impact is considered moderate.

Site preparation and construction require ground disturbance. These processes include activities such as stripping, grading, and compaction. Apart from potential erosion by wind and rain, Project impacts to soils resulting from construction and decommissioning activities are restricted in extent to the Project Area. The successful implementation of mitigation measures, in particular those identified in Section 4.3.5.4.1, will prevent the loss of soil resources from all construction activities.

4.3.5.4 Mitigation Measures

The mitigation measures presented below have been developed with the most current and available science, best management practices, and site conditions in mind. Mitigations include:

4.3.5.4.1 Erosion and Sediment Control (ESC)

- An Erosion and Sediment Control (ESC) Plan will be developed to address soil erosion and the movement of eroded soils within and from the site and should be implemented throughout construction and well into the maintenance phase.
- The recommended control measures should prevent or minimize any movement of soil from the development site, either directly or indirectly, into adjacent properties, or undisturbed riparian, grassland or wetland areas. ESC measures could include silt fencing, biodegradable coconut fiber matting and/or biologist, impoundment cells, and drainage swales.
- Dust control measures should be implemented to prevent wind transportation of dust from disturbed soil surfaces. Potential methods for controlling dust on site include sprinkling water on site until the ground is wet, removing vegetation only from areas that will be worked immediately, constructing wind breaks or screens, vegetating or mulching areas that will not receive vehicle traffic, or using and maintaining internal haul roads.
- To reduce the amount of mud tracked off site all construction vehicles should leave the site at a designated access point or points. Access roads should be graveled and of sufficient length to ensure that minimal material is tracked onto adjacent municipal streets.
- An essential aspect of the ESC Plan should be regular performance monitoring and maintenance to ensure that the proposed mitigation objectives are being met.



4.3.5.4.2 Soil Handling

- Work on site should not be conducted during wet conditions. This prevents unwanted rutting, admixing, soil clodding, and compaction resulting from working with wet soils.
- Through the duration of the Project, regular inspections should be completed to identify potential erosion, or areas at risk of erosion. Inspections and documentation should be completed every 7 days or during high wind, significant precipitation events, or melting events.
- If soil stockpiles are to remain on site short-term (< 1 month), they should be monitored regularly for potential wind or water erosion and kept moist to prevent loss. Stockpiles which may be on site for longer periods (>30 days) should be revegetated with an appropriate seed mix to reduce erosion potential, prevent establishment of weeds within the piles, and for aesthetics (The City of Calgary 2019).
- If seeding is undesirable, a hydromulch, or other erosion control material (e.g., erosion matting), could be applied to the stockpiles. Stockpiles should be inspected regularly for evidence of erosion, especially following significant rain or wind events. Stockpiles should also be inspected regularly for weeds and controlled as required (hand pulling, spraying, etc.). The less time soils are stockpiled the better, as soil organic matter, microbiota, and seed bank all reduce as time passes.
- Topsoil stockpiles should be stored no more than 1.3 m high and for less than one year (ideally less than 6 months).
- Stockpiles should be configured to ensure their slopes are no greater than 3:1 in order to prevent bank swallows (*Riparia riparia*) from nesting.
- Topsoils and subsoils should be stripped separately in a two or three-lift procedure if warranted. Since there is a potential for saline soil (likely in the lower subsoil), a three-lift procedure to separate soils into topsoil, upper subsoil, and lower subsoil. Soil layers should be stockpiled separately (>5 m away) and clearly identified to prevent admixing.
- Compaction can be alleviated by reducing the weight of equipment driving on the site and by having a designated area for driving. This focuses the compaction to a localized area making mitigation efforts more efficient. Should compaction occur, it should be mitigated before proceeding to the next phase of construction. For example, after recontouring the parent material, the surface should be de-compacted by using a ripper (or equivalent), and smoothed again (back blading), prior to placing subsoil.
- Both heavy and agricultural equipment can be used to mitigate impacts to soil. A wide variety of implements are available for use with a range of abilities. To mitigate impacts to soil as best as possible, a combination of various methods, frequent inspection, and adaptive management is most successful.

4.4 Determining Significance of Effects

The overall significance of effects was determined by considering the spatial extent, duration, and magnitude of the expected effects for each VEC after the applicable mitigation measures are taken into account (Table 4-7).

Table 4-7: Summary of the environmental impacts the Project may have on the identified VECs (after mitigation measures are applied)

Valued Ecosystem Component	Potential Environmental Impacts	Areas of assessment			Overall Significance
		Extent	Duration	Magnitude	
Vegetation	Vegetation Removal	Site	Long-Term	Moderate	Negligible
	Rare Plants	Site	Long-Term	Moderate	Minor



	Invasive Species	Site	Long-Term	Minor	Minor
Wetlands	Hydrology and Water Quality	Local	Long-Term	Moderate	Minor
	Vegetation Removal	Site	Long-Term	Moderate	Minor
Wildlife	Habitat Removal	Site	Long-Term	Minor	Minor
	Direct Mortality	Site	Long-Term	Minor	Minor
	Temporary Sensory Disturbance	Local	Short-Term	Minor	Negligible
Hydrology	Restriction of surface water infiltration	Local	Long-Term	Moderate	Moderate
	Runoff and reduced water quality	Local	Long-Term	Minor	Minor
Soils & Terrain	Compaction, Clodding, and Rutting	Site	Long-Term	Minor	Minor
	Erosion by Wind and Water	Local	Long-Term	Moderate	Moderate

* N/A is used when there is no anticipated impact extent, duration, or magnitude to be estimated

4.5 Follow-up Programs

The following follow-up programs will be required for this Project to obtain all provincial and regulatory permits or approvals and to abide by provincial law

- Wetland Assessment and Impact Report (WAIR), submitted under the *Water Act* for wetland removal.
- Bird nest sweeps will be required if any clearing or habitat disturbance occurs during the breeding bird window (April 14th to August 28th).

5.0 Conclusion

All potential Project impacts to biophysical resources have a significance of moderate or lower following implementation of mitigation measures. This is largely due to the disturbed condition of the site resulting from annual farming of corn. The Project Area is of limited ecological value and species in the region likely use the surrounding mixed wood stands or windrows instead of the site. Presently, the only anticipated regulatory approvals / authorizations relate to wetland removal where *Water Act* Approval is required and the construction of the stormwater pond where *EPEA* Authorization is required. We hope this report meets your requirements at this time.



Certification Page

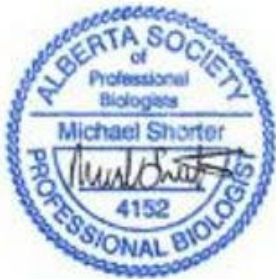
I hereby certify that:

The requested surveys and reporting were completed by qualified professionals (Michael Shorter) who considered all factors and influences that are within the scope of this assessment.

No person at Tannas Conservation Services Ltd., or associated sub-consultant working on this project have any contemplated interest in the property being assessed.

This report has been completed in conformity with the standards and ethics of the Alberta Institute of Agrologists and the Alberta Society of Professional Biologists.

Respectfully submitted:



08/16/2024

Michael Shorter, B.Sc., P.Biol.
Ecologist and Project Manager
Tannas Conservation Services Ltd.



Aug 17, 2024

Steven Tannas, Ph.D., P.Ag.
Senior Ecologist and President
Tannas Conservation Services Ltd.



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Appendix A

Figures



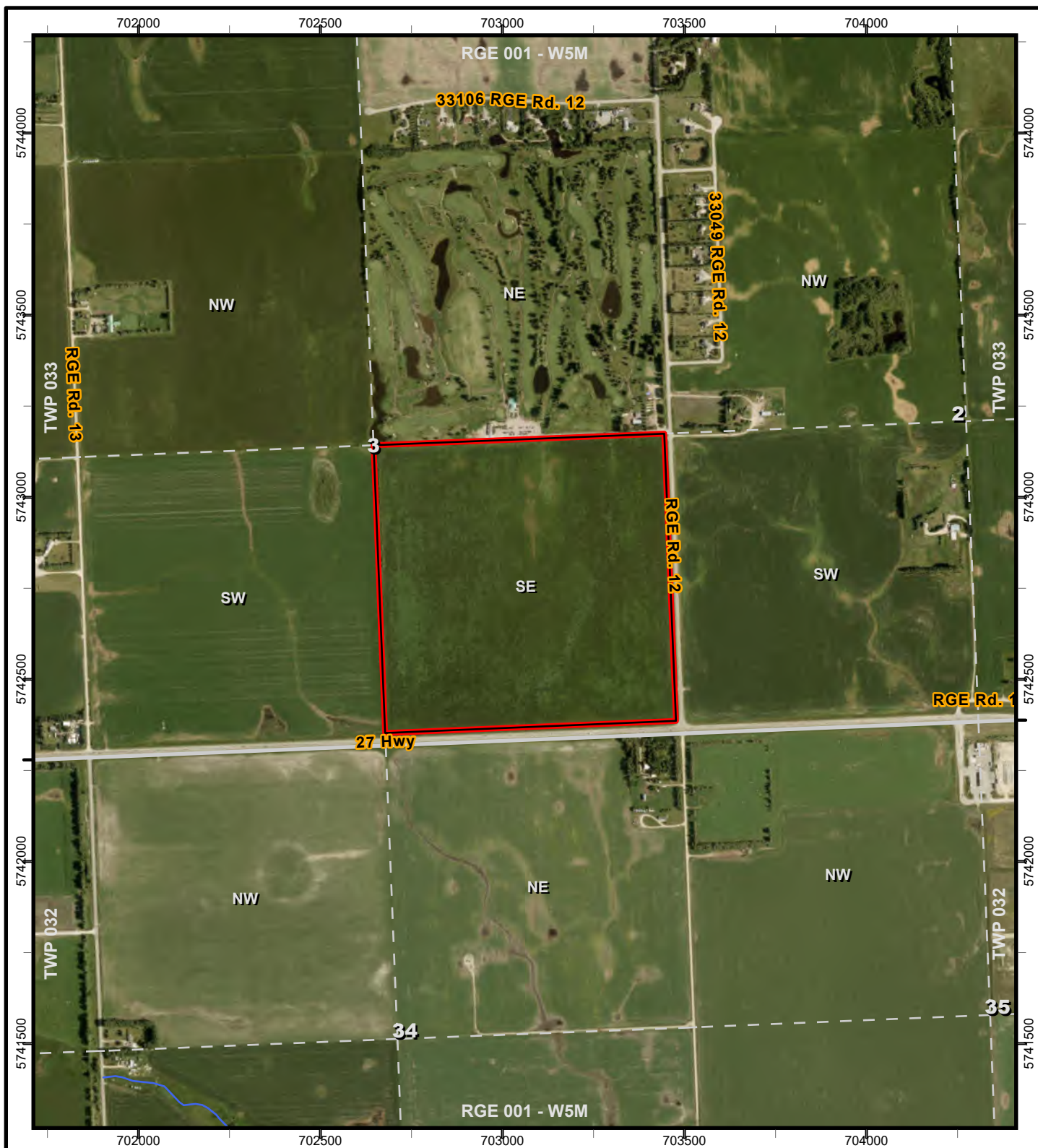


FIGURE A1

B&A - Netook Crossing Subdivision Biophysical Impact Assessment (BIA) Report Project Overview

Legend

 Netook Crossing Project Area

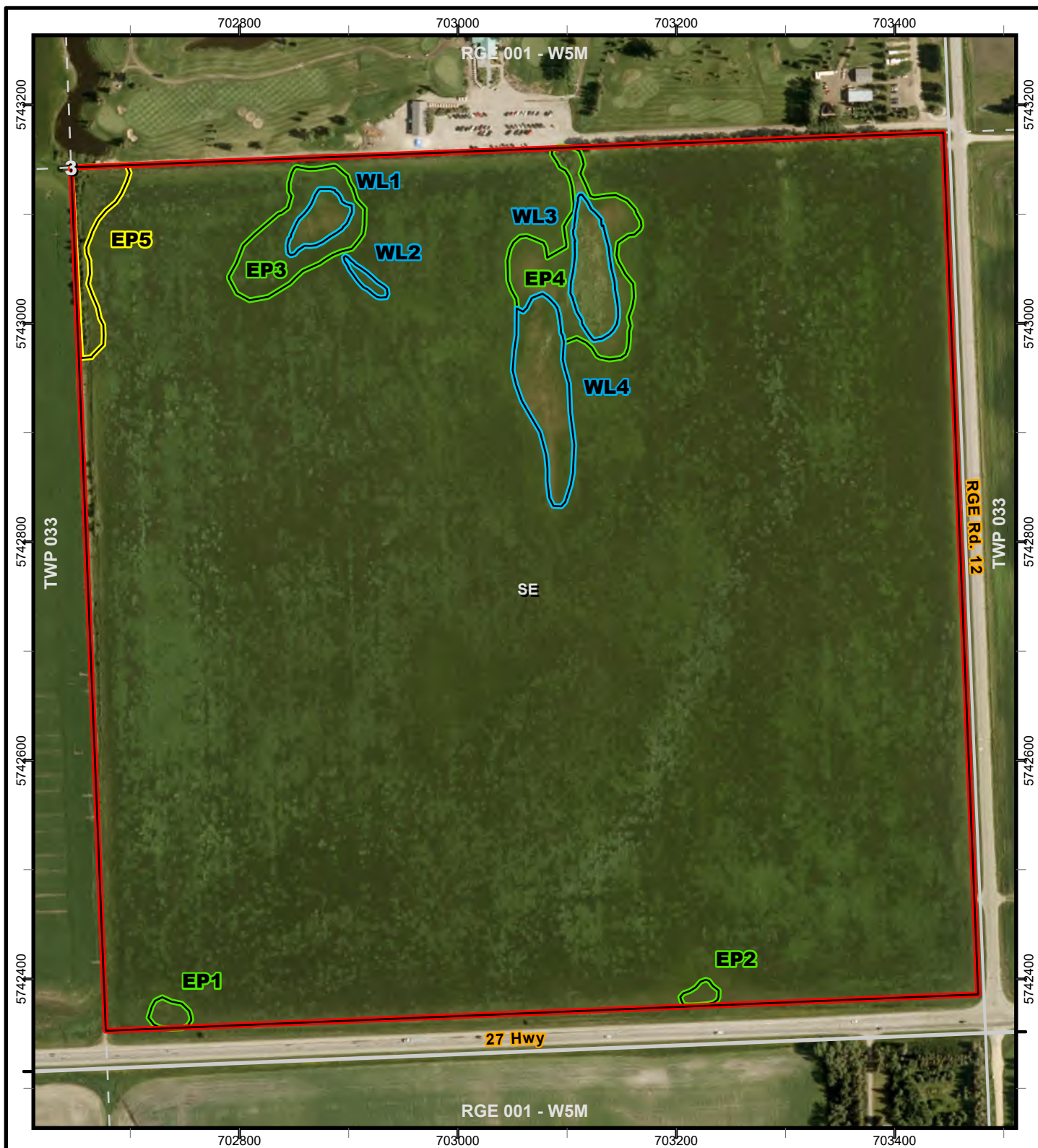
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EP1	MGI	0.082
EP2	MGI	0.054
EP3	MGI	0.642
EP4	MGI	0.785
EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

- Legend**
- Netook Crossing Subdivision
 - AWCS Class: MGII
 - AWCS Class: MGI
 - AWCS Class: MGI-historical

FIGURE A2

B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Current Wetland Overview



Tannas Conservation Services Ltd.

Orthophoto Date: 11 July 2022

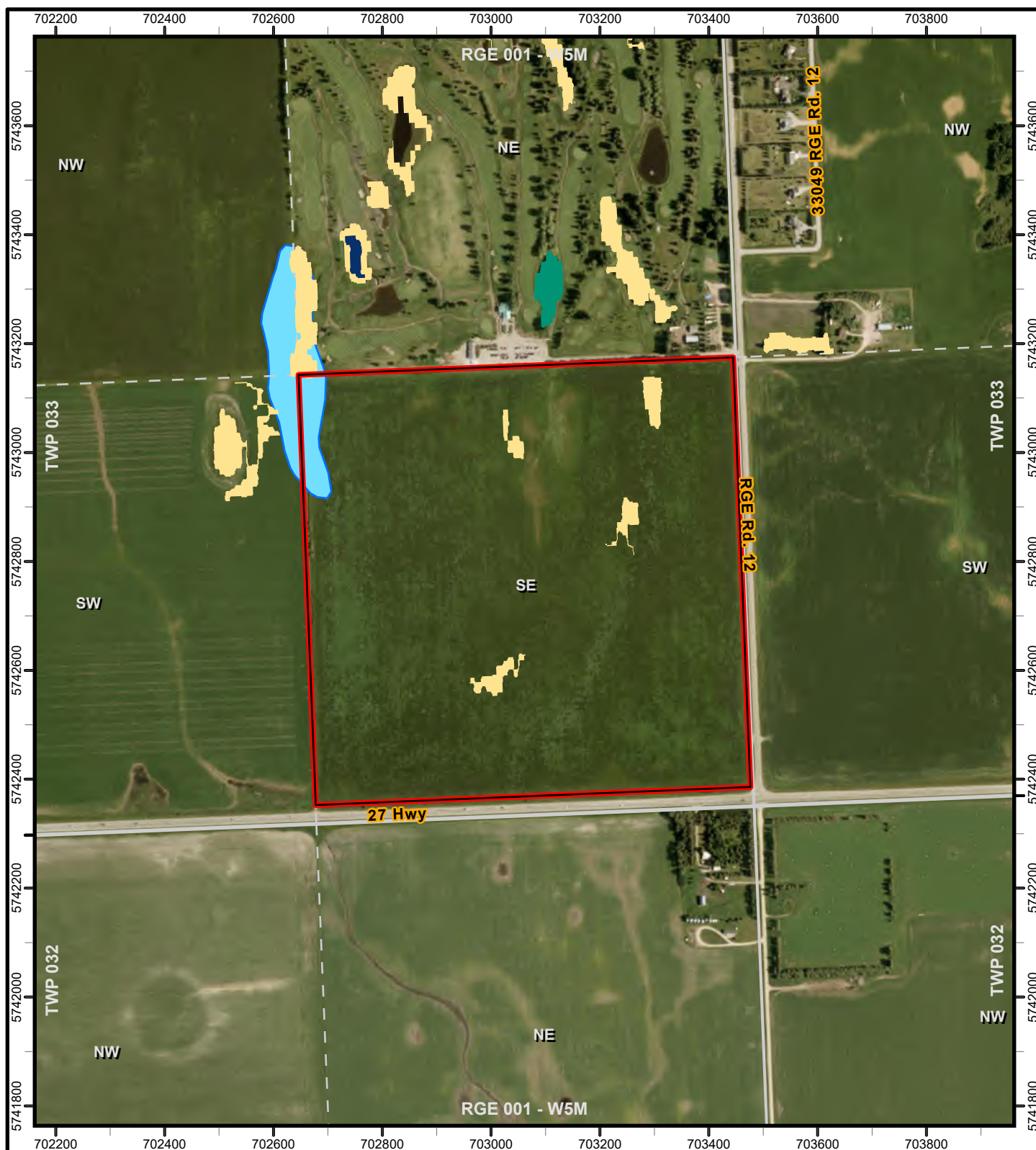


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Meters

NAD 1983 UTM Zone 11N



Legend

- Netook Crossing Subdivision
- Bog
- Fen
- Marsh
- Open water
- Swamp
- Alberta Hydrology Polylines
- Alberta Hydrology Polygons

FIGURE A3

B&A - Netook Crossing Subdivision Biophysical Impact Assessment (BIA) Report Hydrology Overview

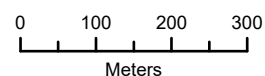


Tannas Conservation Services Ltd.

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EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

- Legend**
- Netook Crossing Subdivision
 - AWCS Class: MGII
 - AWCS Class: MGI
 - AWCS Class: MGI-historical

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FIGURE A4 - 1

B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Historical Imagery Atlas



Tannas Conservation Services Ltd



Scale: 1:5,000
0 50 100 150
Meters

NAD 1983 UTM Zone 11N



ID	AWCS	Hectares
EP1	MGI	0.082
EP2	MGI	0.054
EP3	MGI	0.642
EP4	MGI	0.785
EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

- Legend**
- Netook Crossing Subdivision
 - AWCS Class: MGII
 - AWCS Class: MGI
 - AWCS Class: MGI-historical

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FIGURE A4 - 2
B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Historical Imagery Atlas



Tannas Conservation Services Ltd



Scale: 1:5,000
0 50 100 150
Meters

NAD 1983 UTM Zone 11N



ID	AWCS	Hectares
EP1	MGI	0.082
EP2	MGI	0.054
EP3	MGI	0.642
EP4	MGI	0.785
EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

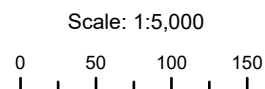
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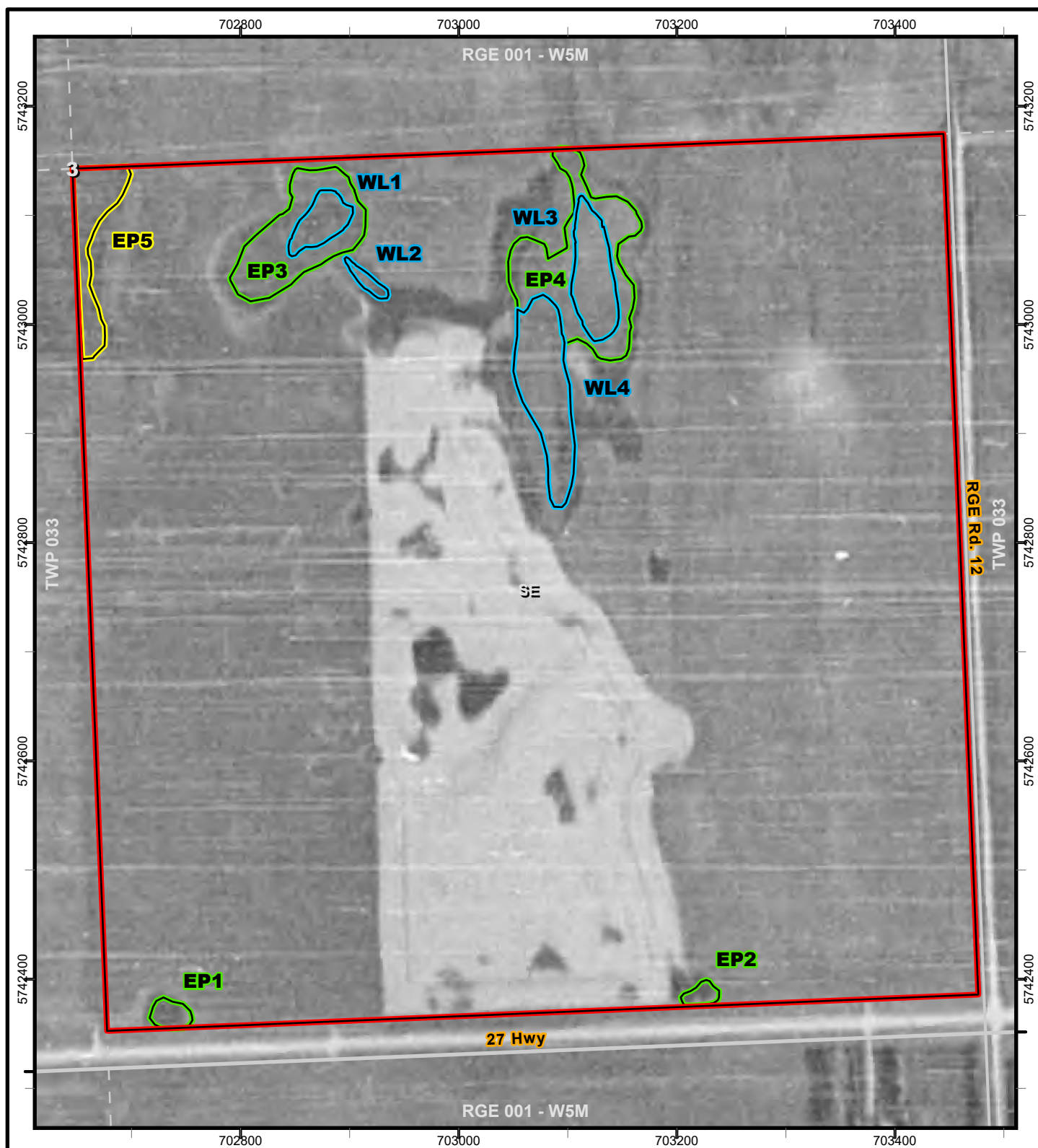
FIGURE A4 - 3
B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Historical Imagery Atlas



Tannas Conservation Services Ltd



NAD 1983 UTM Zone 11N



ID	AWCS	Hectares
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EP2	MGI	0.054
EP3	MGI	0.642
EP4	MGI	0.785
EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

- Legend**
-  Netook Crossing Subdivision
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FIGURE A4 - 4

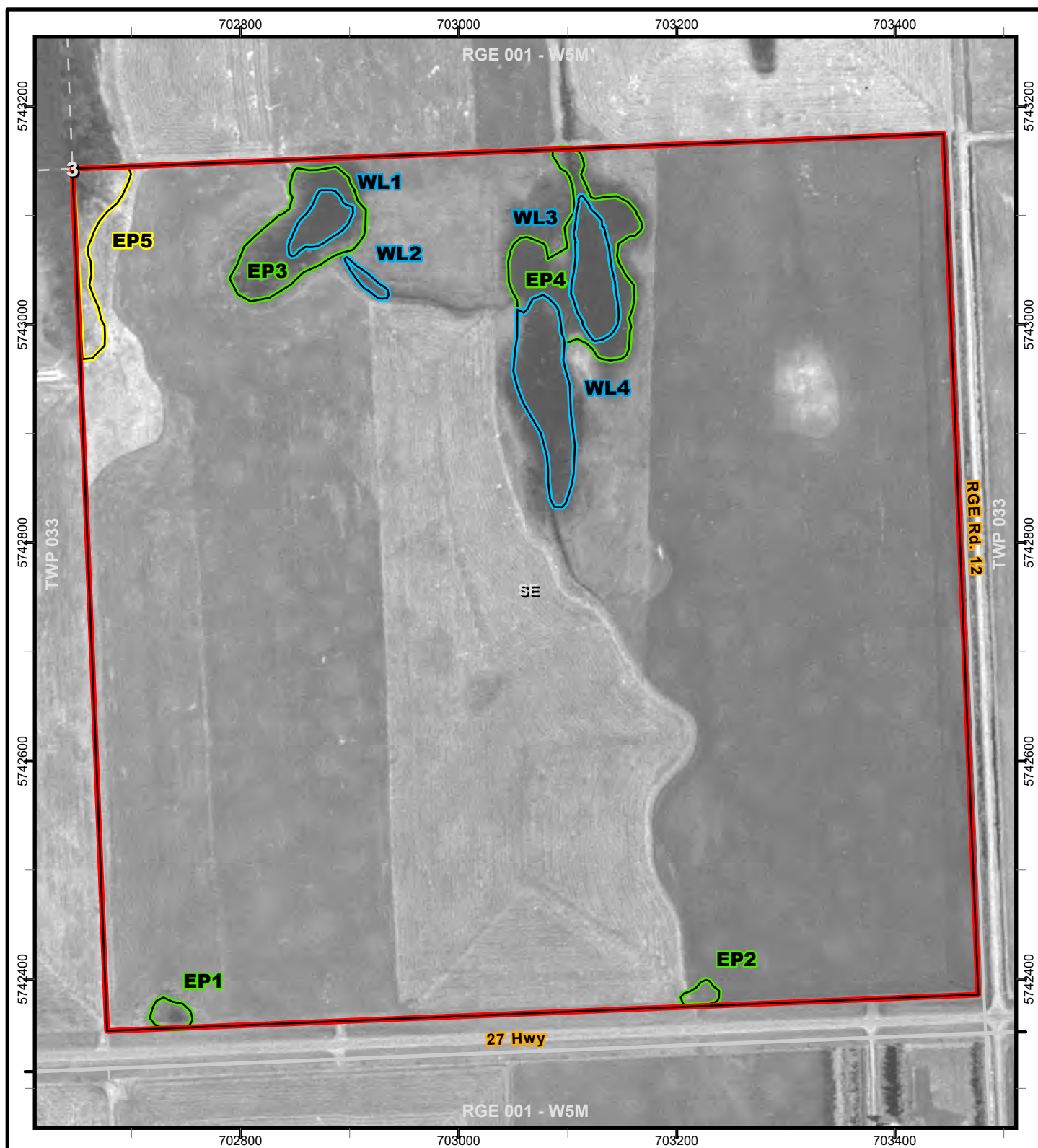
B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Historical Imagery Atlas



Tannas Conservation Services Ltd



Scale: 1:5,000
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Meters
NAD 1983 UTM Zone 11N



ID	AWCS	Hectares
EP1	MGI	0.082
EP2	MGI	0.054
EP3	MGI	0.642
EP4	MGI	0.785
EP5	MGI-historical	0.399
WL1	MGII	0.192
WL2	MGII	0.048
WL3	MGII	0.388
WL4	MGII	0.654

- Legend**
- Netook Crossing Subdivision
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 - AWCS Class: MGI
 - AWCS Class: MGI-historical

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FIGURE A4 - 5
B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Historical Imagery Atlas

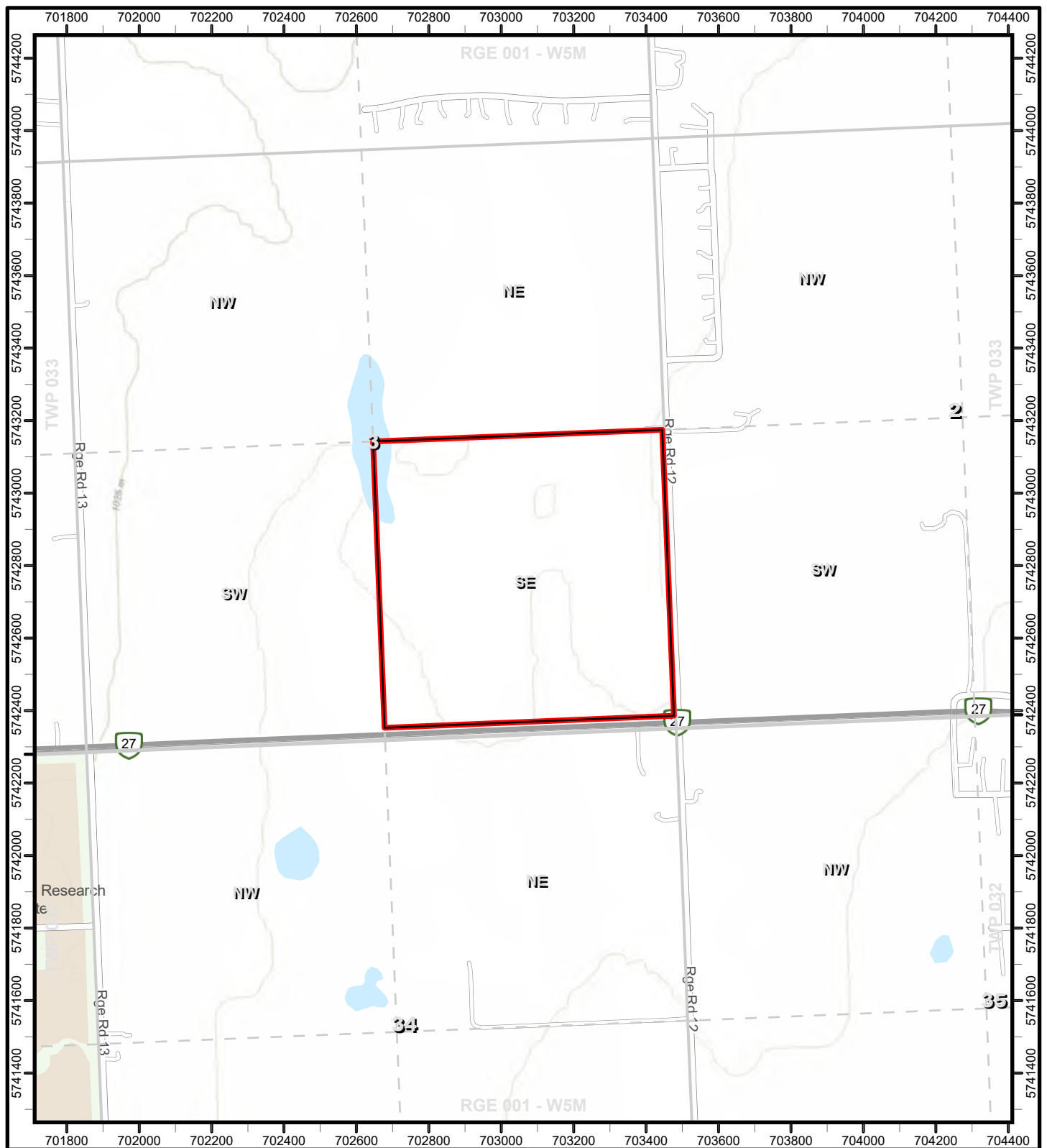


Tannas Conservation Services Ltd



Scale: 1:5,000
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Meters

NAD 1983 UTM Zone 11N



Legend

-  Netook Crossing Subdivision

FIGURE A5

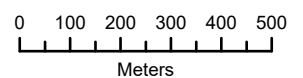
B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Digital Elevation Model (DEM) Overview



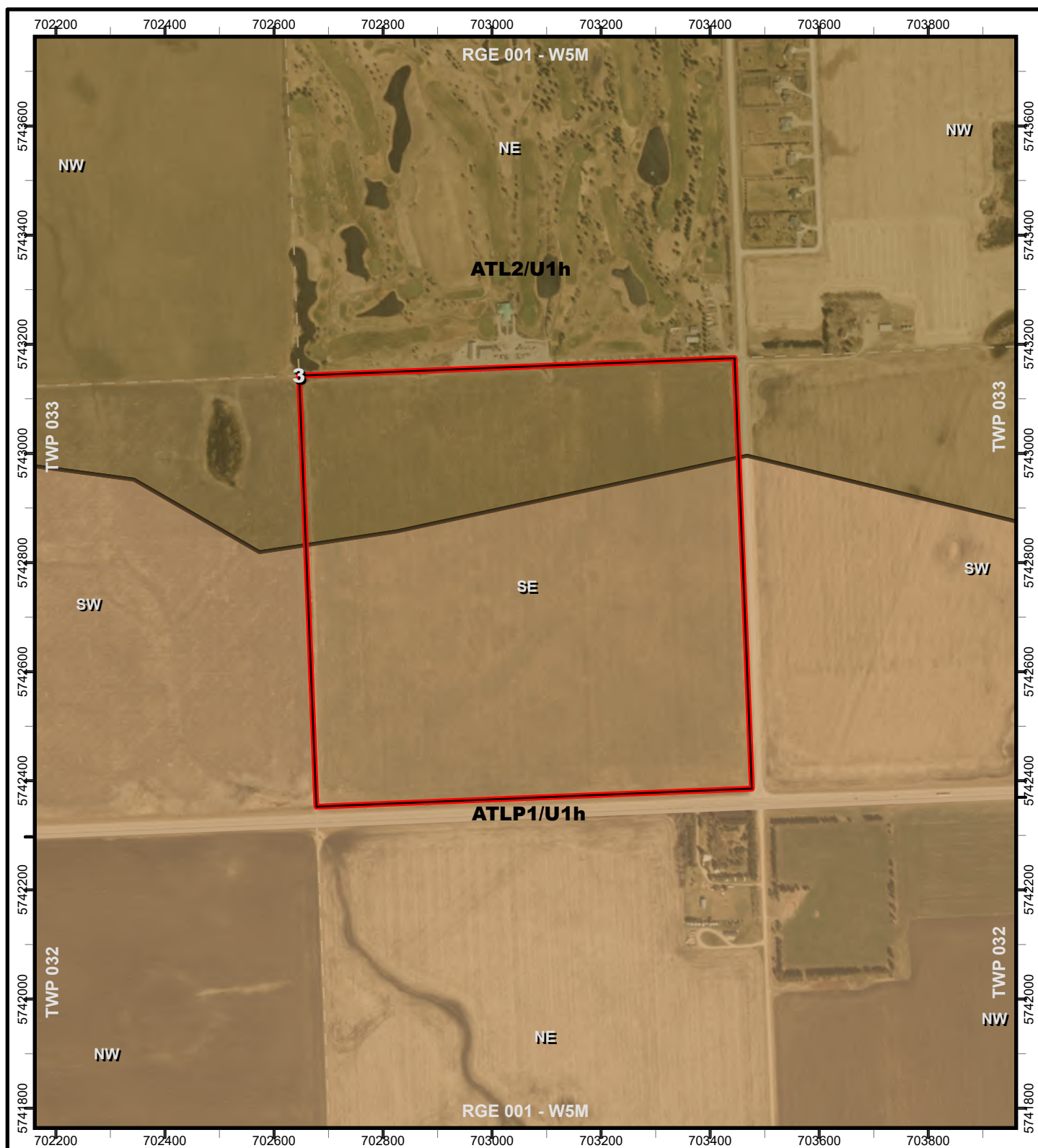
Tannas Conservation Services Ltd



Scale: 1:15,000



Meters
NAD 1983 UTM Zone 11N



- Legend**
-  Netook Crossing Project Area
 -  ATL2/U1h
 -  ATLP1/U1h

FIGURE A6

B&A - Netook Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Soils (AGRASID) Overview

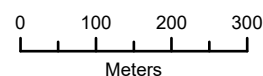


Tannas Conservation Services Ltd

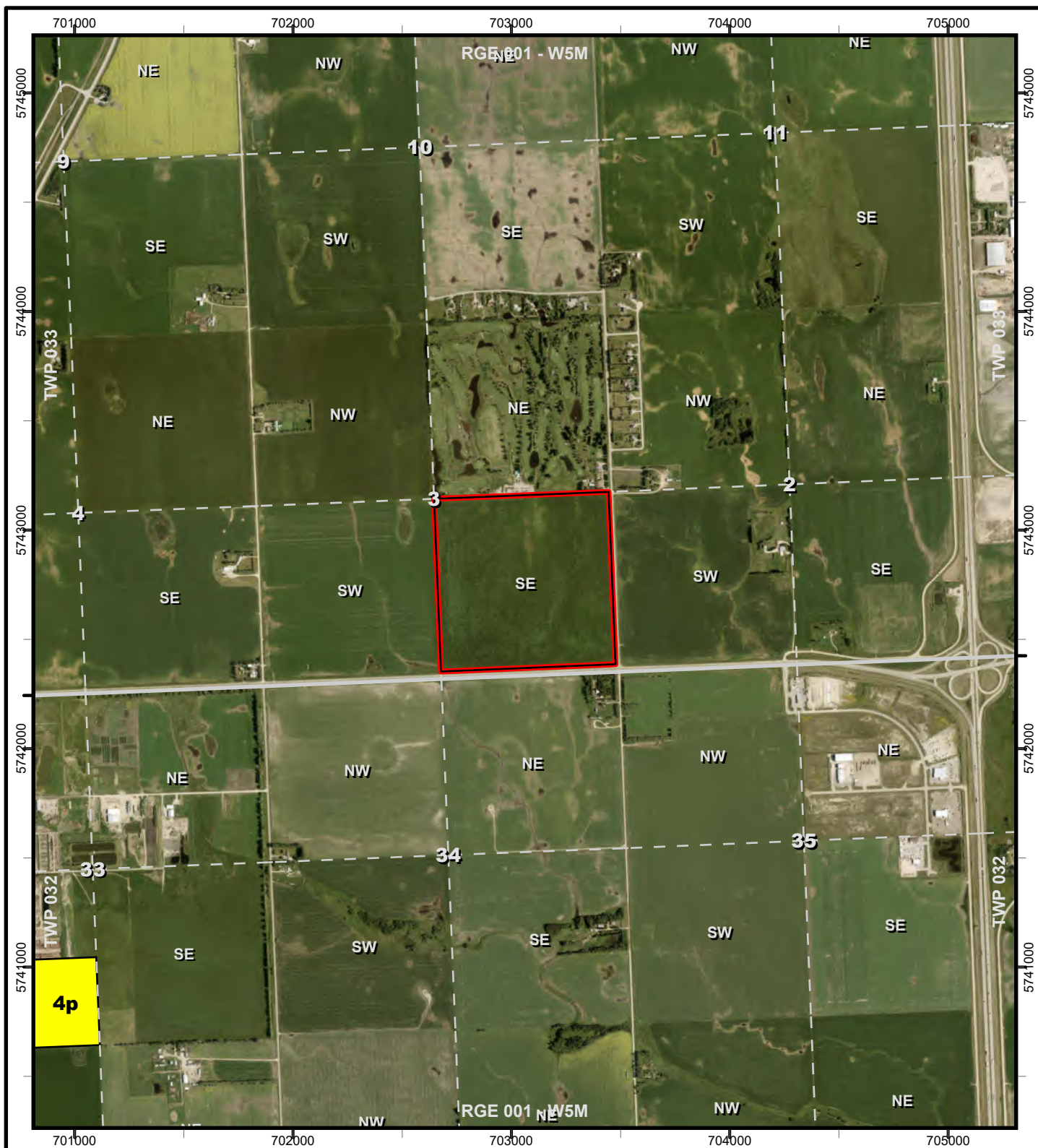
Orthophoto Date: 11 July 2022



Scale: 1:10,000



NAD 1983 UTM Zone 11N



Legend

-  Netook Crossing Project Area
-  Alberta HRV (Fall 2023)

FIGURE A7

B&A - Netook Crossing Subdivision Biophysical Impact Assessment (BIA) Report Historic Resource Value (HRV) Overview

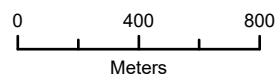


Tannas Conservation Services Ltd

Orthophoto Date: 11 July 2022



Scale: 1:25,000



NAD 1983 UTM Zone 11N

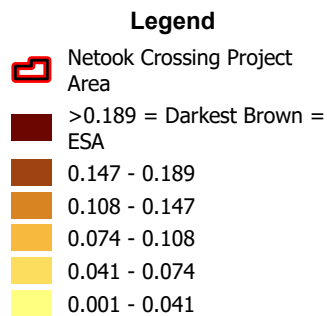
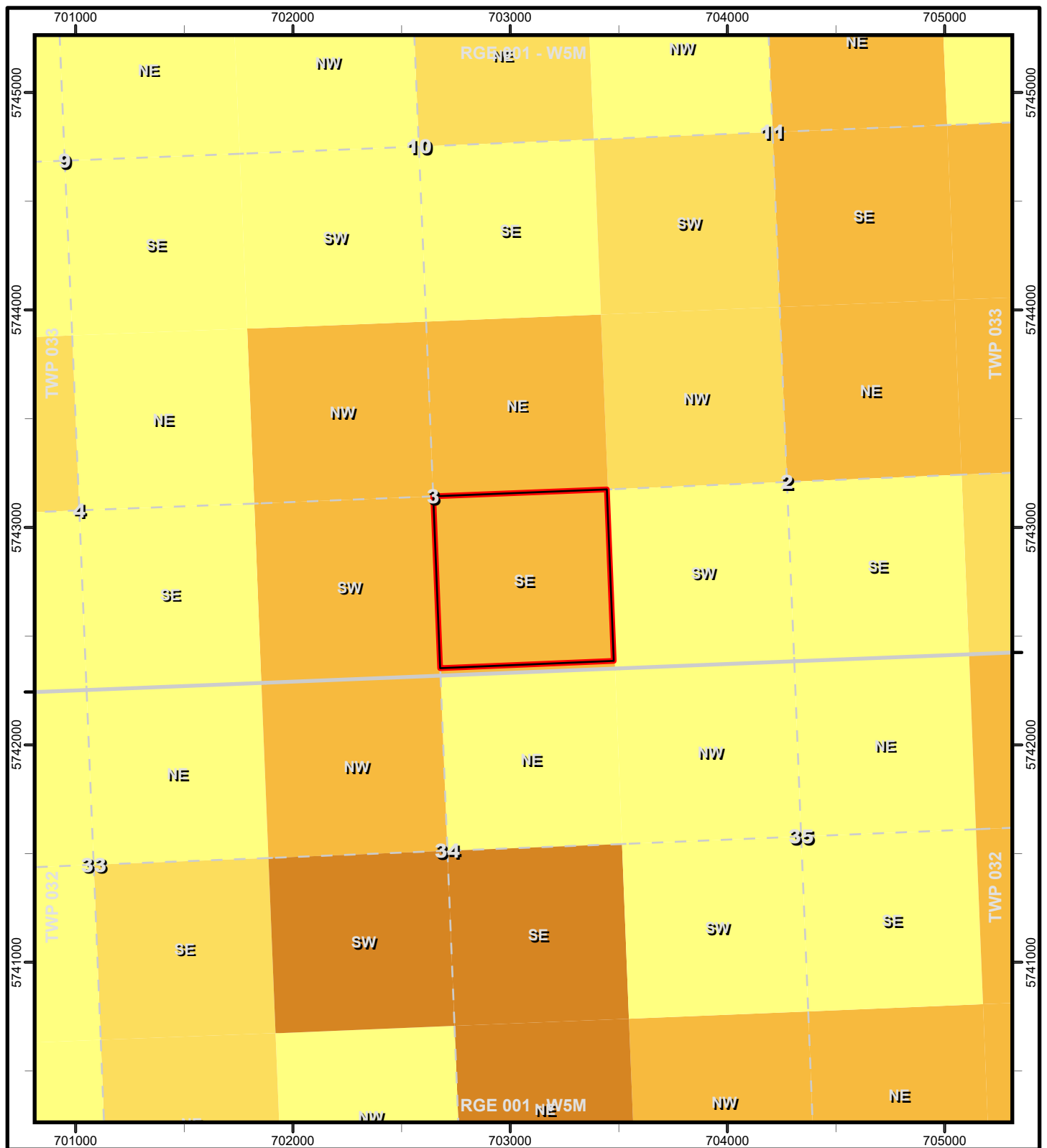
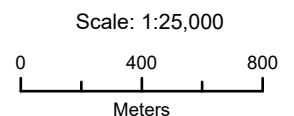


FIGURE A8
B&A - Netok Crossing Subdivision
Biophysical Impact Assessment (BIA) Report
Environmentally Significant Areas (ESA) Overview



Tannas Conservation Services Ltd



NAD 1983 UTM Zone 11N



- Legend
- Raptor Survey Buffer
 - BBS Pts
 - Project Area



Figure A9

Project: Olds BIA
Prepared for: B&A Planning Group
Wildlife Survey Map

Scale: 1:15500
0 75150 m

Bing Virtual Earth

Coordinate System: EPSG: 3857 - WGS 84 /
Pseudo-Mercator



Legend

- Project Area
- Wetland and Waterbody

Figure A10

Project: Olds BIA
Prepared for: B&A Planning Group
Wetland Map



Scale: 1:5000

0 75 150 m

Bing Virtual Earth

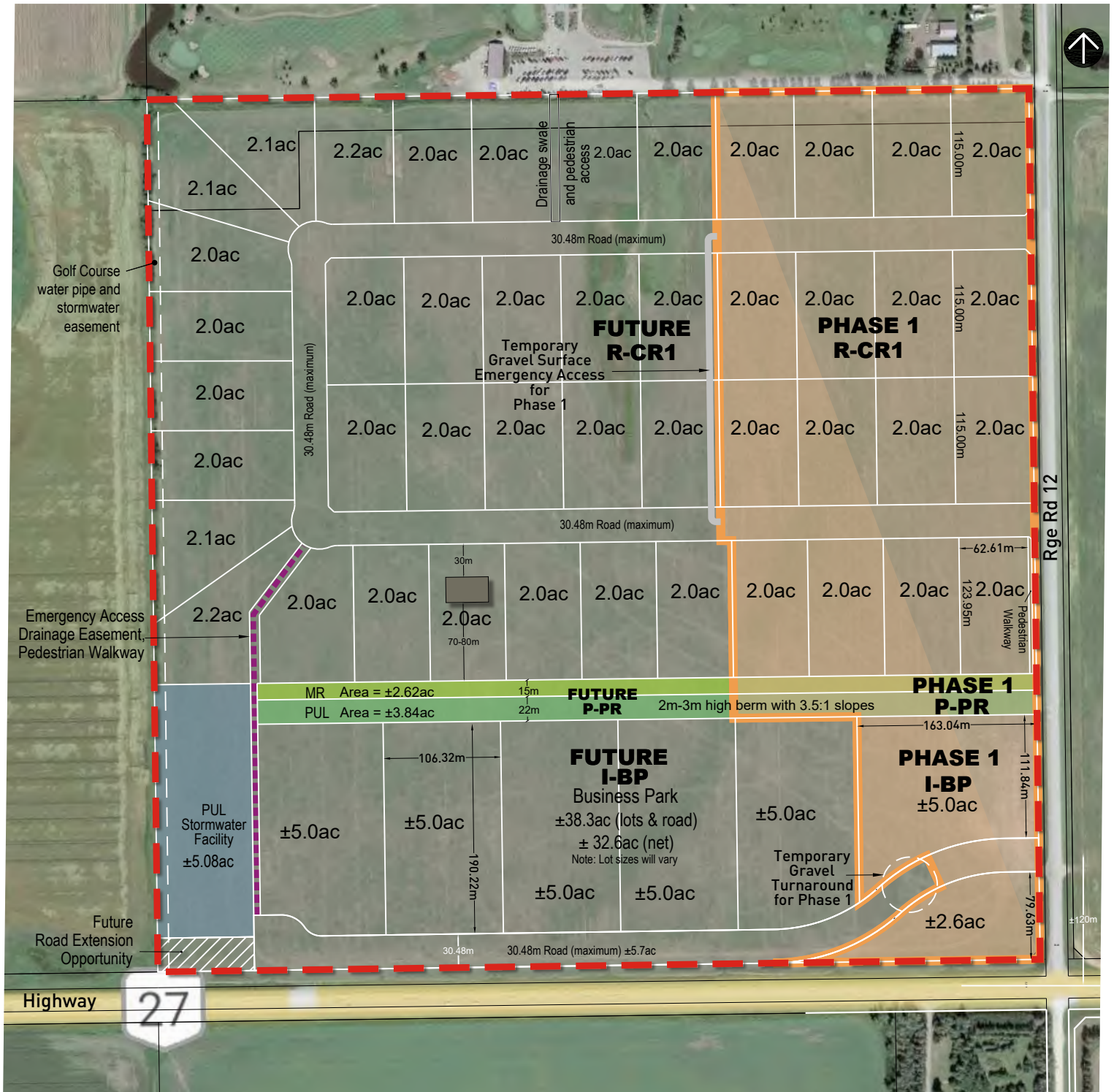
Coordinate System: EPSG: 3857 - WGS 84 /
Pseudo-Mercator



Appendix B

Engineering Plans





Legend

- Concept Plan Area ± 63.09 ha (± 156.02 ac)
- Phase 1 Land Use Redesignation and Subdivision ± 19.36 ha (± 47.85 ac)

Netook North

1273927 Alberta Ltd.

Concept Plan

SE 3-33-1 W5M

August 2024



Appendix C

FWMIS & ACIMS Report



Date: 16/2/2024

Requestor: Environmental Organization

Reason for Request: Environmental Assessment

SEC: 03 **TWP:** 033 **RGE:** 01 **MER:** 5



■ Non-sensitive EOs (updated: June 2022)

M_RR_TTT_SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
-------------	-------	-------	--------	-------	----------	------------

No Non-sensitive EOs Found: Next Steps - [See FAQ](#)

(<https://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-acims/faqs.aspx#2> - Process)

■ Sensitive EOs (updated: June 2022)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
----------	-------	-------	--------	-------	----------	------------

No Sensitive EOs Found: Next Steps - [See FAQ](#) (<https://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-acims/faqs.aspx#2> - Process)

Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

Species Summary Report

Report Date: 16-Feb-2024 05:27

Species present within the current extent

Fish Inventory

No Species Found in Search Extent

Wildlife Inventory

No Species Found in Search Extent

Stocked Inventory

No Species Found in Search Extent

Buffer Extent

Centroid (X,Y)

564278, 5736802

Projection

10-TM AEP Forest

Centroid (Qtr Sec Twp Rng Mer)

SW 3 33 1 5

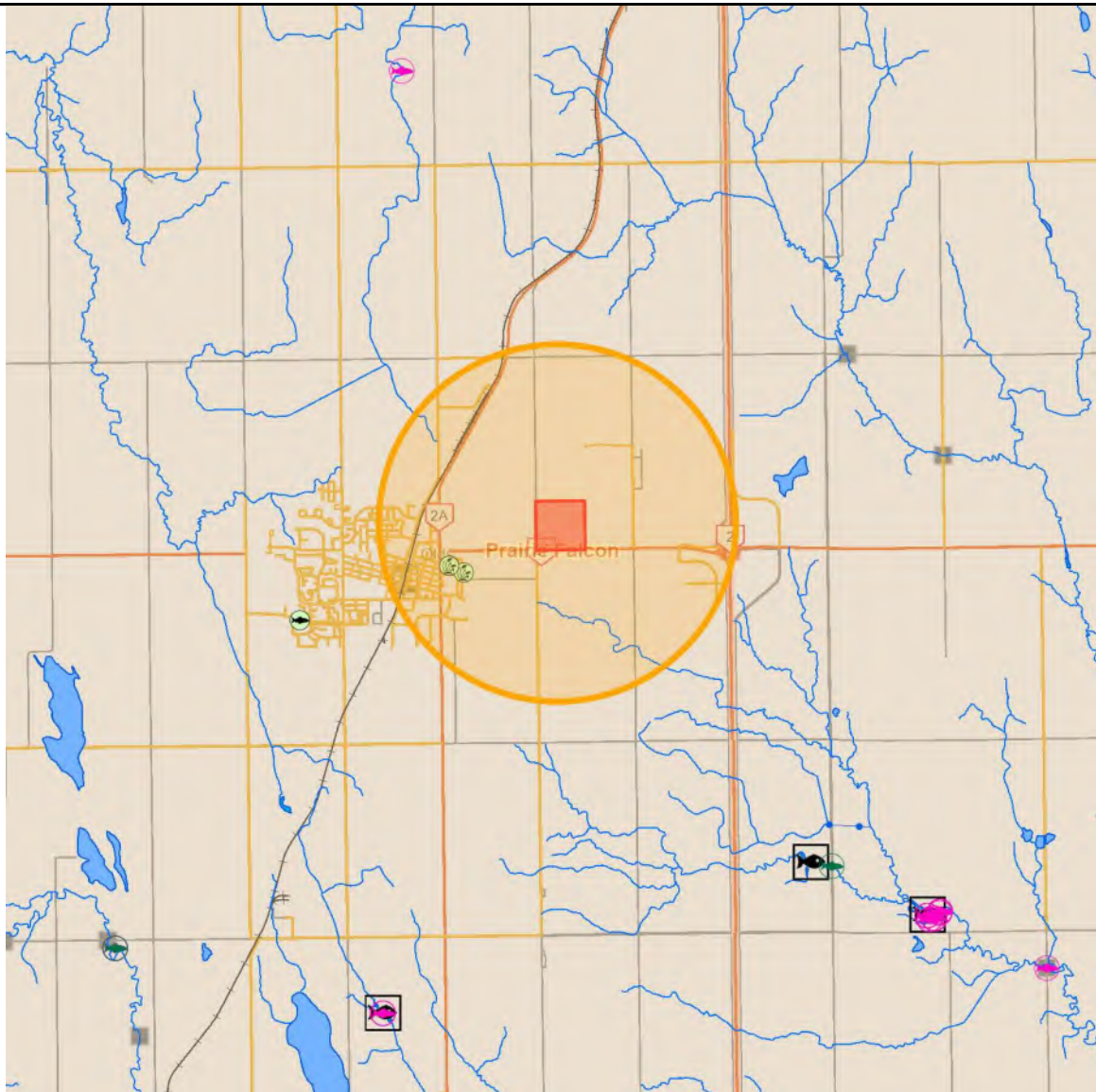
Radius or Dimensions

3 kilometers

Contact Information

For contact information, please visit:

<https://www.alberta.ca/fisheries-and-wildlife-management-contacts.aspx>



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