June 10, 2024

Director
Environmental Approvals Branch Manitoba
Environment and Climate
14 Fultz Boulevard
Winnipeg, Manitoba R3H 0W4

Dear Director:

Re: Retention Pond in SE ¼ Sec. 26-8-26W Environment Act Proposal Application

John Arthur (Arthur Consulting) on behalf of Graycan Inc. (the Proponent) is proposing to construct and operate a retention pond (for the purpose of irrigation) in SE ¼ Sec. 26-8-26W, south of Virden, Manitoba. Morrison Hershfield Ltd. was retained by Arthur Consulting (on behalf of the Proponent) to gather information related to the existing environmental conditions at the site and prepare an Environmental Assessment Screening Report to support the requirements of an Environment Act Proposal. It is understood that T. Butterfield (of MB. Environment and Climate Change) is familiar with this proposed Project.

It is anticipated the attached Environment Act Proposal Form and Environmental Assessment Screening Report have been prepared in detail sufficient detail to satisfy environmental review and allow final licensing. However, any questions related to the Environmental Assessment Screening Report can be addressed to the undersigned.

Sincerely,
Morrison Hershfield Limited

[redacted]

Paul Graveline, BSc., RPBio.
Senior Biologist / Team Lead

Cc John Arthur – Arthur Consulting

Environment Act Proposal Form

Manitoba

Name of the development:
Retention Pond in SE ¼ Sec. 26-8-26W

Type of development per Classes of Development Regulation (Manitoba Regulation 164/88):
Class 2

Legal name of the applicant:
Graycan Inc.

Mailing address of the applicant: 1-1660 Kenaston Blvd. Box 70050

Contact Person: John Arthur

City: Winnipeg Province: MB Postal Code: R3P 0X6

Phone Number: (204) 998-9898 Fax: (204) 736-2380 email: arthur_consulting@mymts.net

Location of the development: in SE 1/4 Sec. 26-8-26W

Contact Person: John Arthur

Street Address: Box 70050 1-1660 Kenaston Blvd.

Legal Description: in SE 1/4 Sec. 26-8-26W

City/Town: Winnipeg Province: MB Postal Code: R3P 0X6

Phone Number: 204-998-9898 Fax: (204) 736-2380 email: arthur_consulting@mymts.net

Name of proponent contact person for purposes of the environmental assessment:
Paul Graveline

Phone: (204) 977-8370
Fax:

Mailing address: Unit 1-59 Scurfield Blvd.
Winnipeg, Manitoba
R3Y 1V2

Email address:pgraveline@morrisonhershfield.com

Webpage address:

Date: 2024-06-10

Signature of proponent, or corporate principal of corporate proponent:
[redacted]

Printed name: John W. Arthur

PRINT RESET

A complete **Environment Act Proposal (EAP)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Environment Act Proposal Form**
- ☑ **Reports/plans supporting the EAP** (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information and number of copies)
- ☑ **Application fee** (Cheque, payable to Minister of Finance, for the appropriate fee)

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):

Class 1 Developments	$1,000
Class 2 Developments	$7,500
Class 3 Developments:	
Transportation and Transmission Lines	$10,000
Water Developments	$60,000
Energy and Mining	$120,000

Submit the complete EAP to:
Director
Environmental Approvals Branch Manitoba
Environment and Climate
14 Fultz Boulevard
Winnipeg, Manitoba R3H 0W4

For more information:
Email: EABDirector@gov.mb.ca
Phone: (204) 945-8321
Fax: (204) 945-5229
https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/licence/index.html

Internal Use Only
$1,000.....C1 B-02
$7,500.....C2 B-02
$10,000....TT B-02
$60,000.....WD B-02
$120,000...EM B-02

Retention Pond in SE ¼ Sec. 26-8-26W:

Environmental Assessment Screening Report

Presented to:

Environmental Approvals Branch
Manitoba Environment and Climate

Revision 4

January 24, 2025

LIST OF FIGURES

LIST OF TABLES

APPENDICES

EXECUTIVE SUMMARY

The information contained within includes responses to questions received through the initial EAP review process. All previous versions should not be referenced. Revision 4 (January 24, 2025) is the most current version.

This document presents an Environment Act Proposal (EAP) to obtain an Environment Act License under the Manitoba Environment Act (S.14.1) for the construction of an agricultural Retention Pond in SE ¼ Sec. 26-8-26W, within the vicinity of Oak Lake, Manitoba. Drought in the Project region is frequent, lasting one to two months on average, and presents a significant barrier to local crop production.

The EAP describes the physical components of the Project works (consisting of a suction intake from the Pipestone Creek Diversion, a portable high-density polyethylene or HDPE discharge hose to the Pond reservoir, and pump works for delivering water to above ground irrigation lines (HDPE piping) on the proposed crop field), the existing environment of the immediate and surrounding Project area, and provides an assessment of potential environmental impacts and proposed mitigation measures to reduce or avoid any adverse effects. Project details presented in this document have been considered in the effects assessment.

No significant adverse effects to the existing biophysical or socioeconomic environment have been determined from construction and/or operation of the Project. The Project is expected to pose no risk to climate and air quality, topography and geology, ground and surface water, vegetation, biodiversity, species at risk, public safety, human health, land and resource use, protected areas, heritage resources, or Indigenous communities.

INTRODUCTION AND BACKGROUND

Morrison Hershfield Ltd. (MHL) is submitting this Environment Act Proposal (EAP) to seek an Environment Act License for the construction of a Retention Pond in SE ¼ Sec. 26-8-26W (hereafter referred to as the Project) in accordance with Manitoba's Environment Act (S.14(1)). A request was submitted to Manitoba Environment and Climate Change, who informed the Proponent (i.e., Graycan Inc.) that an EAP will be required for the Project. Determined to be a Class 2 Development.

This proposal describes the physical components of the proposed work and provides an assessment of potential environmental impacts and proposed mitigation measures to reduce or avoid any adverse effects. Project details have been presented in this document and considered in the effects assessment.

Overview

The Project is generally located in the Oak Lake region of Manitoba, in the southwest part of the province south of Virden, and within the boundaries of the Oak Lake Sandhills and Wetlands Natural Area (Figure 1). Pipestone Creek, near the Project, flows northeast through Oak Lake Marsh and into Oak Lake via the Pipestone Creek Diversion (OLAMP 2000; WSRIWMP 2012, Figure 2). This diversion was constructed in the late 1970's. The surrounding land was originally mixed grass prairie but has been developed as agricultural cropland. In recent years, soil moisture levels have been inadequate for crop growth and drought in the Project region is frequent, lasting one to two months on average, and presents a significant barrier to local crop production (McGinn 2010). As such, the Proponent is seeking to develop a retention pond.

MHL was retained by Arthur Consulting to gather information related to the existing environmental conditions at the site and prepare an Environmental Assessment Screening Report on behalf of the Proponent. This included assessing the potential environmental effects of the proposed works and identifying mitigation measures. This screening report has been created to satisfy the requirements of an Environmental Assessment Screening Report pursuant to Manitoba's *The Environment Act* (1988). This document includes information on the following:

- Project description
- Existing environment
- Potential environmental impacts of the proposed Project Recommended mitigation measures to minimize or prevent potential environmental effects of the proposed Project
- Mitigation measures
- Summary of residual effects

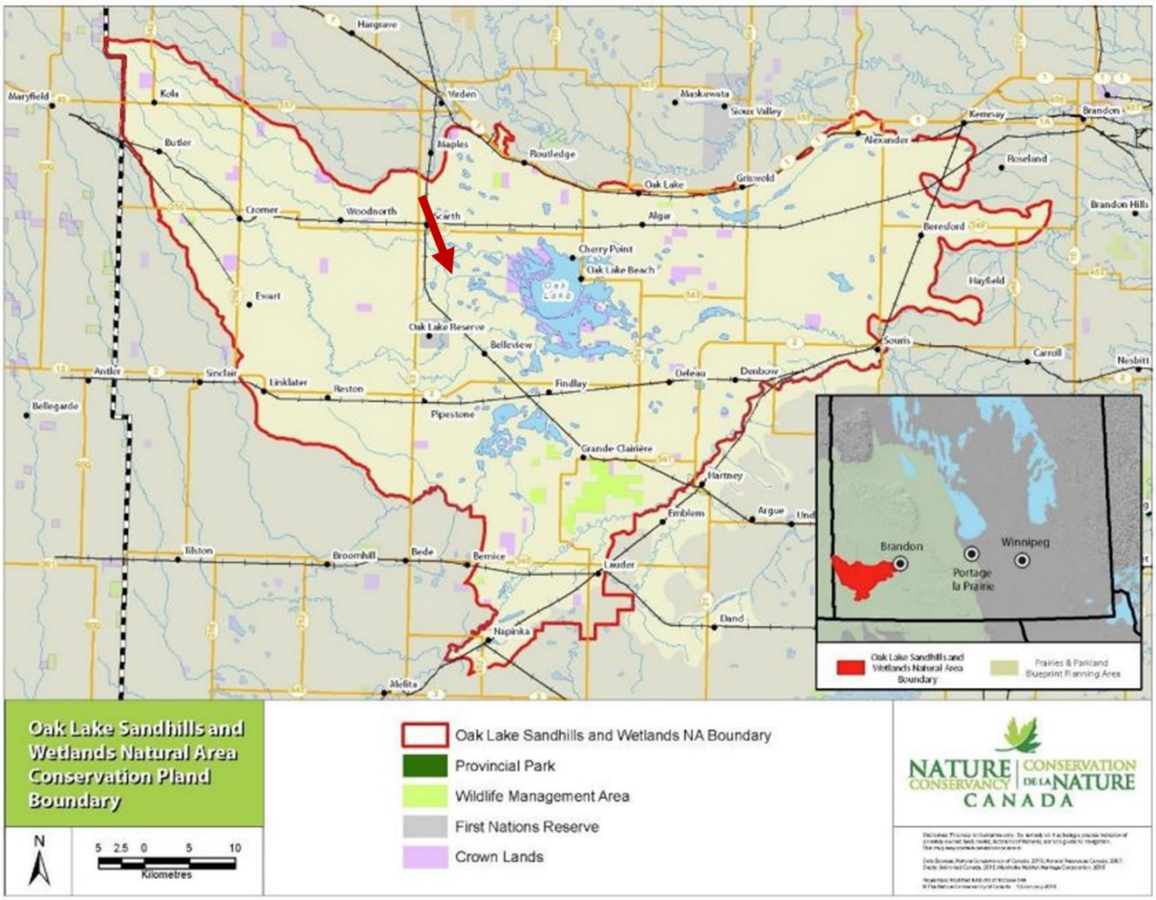

Figure 1: Approximate Project location (red arrow) in the Oak Lake Sandhills and Wetlands Natural Area of Manitoba (Source: Neufeld and Hamel, 2017).

Project Ownership and Funding

This Project is owned by the Proponent: Graycan Inc. as shown on the Certificate of Land Title (Appendix A). No capital funds have been requested from any government agency or program (federal, provincial, or otherwise) for this Project. The Project is fully funded by the Proponent.

Principal Proponent Contact: John W. Arthur, P.Eng.

Phone: (204) 998-9896

Email: arthur_consulting@mymts.net

Address: 1-1660 Kenaston Blvd. PO Box 70050 Winnipeg, MB R3P 0X6

Need for the Project

Near the Project, the dominant soil types are imperfectly drained light-textured sandy to sandy loam (Ellis 1938; MB-Ag 1998; Smith et al. 1998) and in the past have been some of the most productive agricultural lands in Canada (NCC 2019). Cereal grains (e.g., spring wheat) and oilseeds (e.g., canola) are important crops grown in the area, along with hay (alfalfa and other forage crops) (Smith et al. 1998, NCC 2019). This area, however, has been under drought conditions (plantmaps.com 2024), AAFC 2024) since 2020 (USDA 2021) resulting in lower productivity.

A recent Commodity Intelligence Report by the USDA (2021) indicated recent significant challenges for farmers on the Canadian Prairies, including Manitoba, due to severe heat and drought conditions, resulting in reduced yields for primary crops (wheat, canola, etc.) by 30-40%.

To protect from continued drought conditions, the Proponent needs to irrigate approximately 400 acres for potato production in quarter sections SE-26-8-26W, NE-26-8-26W and SE-35-8-26W (Figure 3) with an anticipated 1 inch (2.5 cm) of water every seven (7) days. This requires the construction of a retention pond with an area of 10 ha and an approximate (capacity) volume of 500 dam^3. The Project is consistent with current land use and other developments in the area (i.e., agricultural production) which adds value to the local and regional economy.

Project Timeline

The anticipated Project schedule is as follows:

- Preliminary Engineering Design:
    - Completed 2023
- Detailed Engineering Design:
    - Includes design of any required pump system
    - Substantially complete May/June 2024
- Construction:
    - Commencing Fall 2025 (September to November) anticipating three to four weeks for completion
- Operation:
    - Commencing 2026 (as required for filling of reservoir during spring melt and subsequent irrigation in the summer months)

Mineral and Surface Rights

The Proponent is the owner of the land upon which the development is intended to be constructed.

Project Location and Site Access

The Project is in the Rural Municipality of Sifton in southwestern Manitoba, within SE1/4 26-8-26-W (southern edge of retention pond: 14U 362575E 5504947N (49.681364, -100.905043; Figure 2 and Figure 3). The nearest communities are Virden and Oak Lake (approximately 20 km north and northeast), and Brandon is the closest city (approximately 70 km east) (both on PTH 1) (Figure 2). At the estimated centre point of the Project location, the Pipestone Creek Diversion is ~175 m south and generally flows west to east (Figure 4), feeding into Oak Lake ~8 km east of the proposed work.

The site is accessible by existing roads and trails in the vicinity of the Project and on the Proponent's property (Figure 2 and Figure 4).

Environmental Licensing

Morrison Hershfield Ltd. (MHL) is submitting this Environment Act Proposal (EAP) for John Arthur (Arthur Consulting) on behalf of Graycan Inc. (the Proponent) to seek an Environment Act License for the construction of a Retention Pond in SE ¼ Sec. 26-8-26W in accordance with Manitoba's Environment Act (S.14(1)). Based on email correspondence with T. Butterfield (April 4, 2023) and B. Webb (January 31, 2024) (both with MB. Environment and Climate Change), this licensing was determined to be required based on the size of the Project.

A water use license is being sought for this Project by others. No other federal, provincial, or municipal approvals, licenses, permits, or authorizations are known to be required for the proposed development. This is based on a Regulatory Risk Assessment completed by Qualified Environmental Professionals which included consideration of (for example): the *Manitoba Heritage Resources Act*, *Fisheries Act*, *Canadian Navigable Waters Act*, *Species at Risk Act* and *Migratory Birds Convention Act.*

PROJECT DESCRIPTION AND CONSTRUCTION

Project Specifications and Components

A berm of 3.0 m width and 3.0 m height will surround the perimeter of the retention pond (i.e., reservoir), with a 3.0 m excavation depth, resulting in a total pond depth of 6.0 m and bringing the top of water limit to an elevation of 434.78 (Appendix B). The elevation at the bottom of the proposed pond is 429.00. Current ground elevation ranges from 431.50 to 433.00 in the area to be excavated. The reservoir size is 500 cubic decametres (dam^3) (Appendix B).

To satisfy EAP process the following questions have been considered:

Q - What is the amount of water requested and when the water is retrieved?

- **Response** - A water use license is being sought for this Project by others. The amount of water requested will be 500 dam^3. Noting that refilling of the reservoir will not always be required and will be based on actual use, snow melt, precipitation events, etc. Essentially, there may be some periods of time when the reservoir will not require filling. When and if required, filling of the reservoir will occur during spring melt.

Q – Point of diversion and relevant details on how the development will be operated (e.g., filling, use, etc.)?

- **Response - Filling of Reservoir**: The approximate 'point of diversion' pumping from source to reservoir (i.e., filling) is shown in the final Design Sheet located in Appendix B (blue circle). This is the approximate location of where pumping will occur and will be the shortest distance between the water source and reservoir. Filling will occur via the use of a tractor mounted pump with a power take off (PTO), which utilizes the power of a gas-powered tractor engine to move large quantities of water quickly, efficiently, and close to maintenance-free. The pumping will have a suction end with a high-density polyethylene (HDPE) discharge hose directly into the reservoir. There will be no permanent infrastructure (e.g., pad, ramps, etc.) located at the pump filling location as the required infrastructure will be portable. The best suited location will be flat, stable ground with minimal grade to the water source.

- **Response - Irrigation**: Pumping from reservoir to field – Similar to filling, when irrigation is required a tractor mounted pump with PTO will be utilized. The approximate location from reservoir to field lines is shown in the final Design Sheet located in Appendix B (green circle). The tractor will be located such that the above ground irrigation lines (HDPE piping) or can be utilized on stable, flat surface.

Q – Water pipeline and related infrastructure?

- **Response**: As noted above, infrastructure required for filling of the reservoir is temporary. Specifically, the pump is tractor mounted with PTO and will be mobilized to the diversion point when reservoir filling is required. Filling and discharge hoses are anticipated to be flexible (e.g., made of HDPE capable of being rolled or wound) and not permanent as they are expected to be stored when filling is complete. Also as noted above, irrigation will be achieved by a tractor mounted pump mobilized to site as required. The tractor will be

utilized to fill the HDPE above ground irrigation lines which (are typically for this application) a central ground line with lateral extensions.

Q – Expected crop types and showing the supplemental water requirements?

- **Response**: Currently, the crop type is potatoes. However, this may change based on crop prices and rotational crop process.

Construction and Operation Methods

The anticipated methods of construction and equipment are as follows:

- The primary means of excavation will be conducted with the use of a tracked excavator.
- The top layer of organic materials (e.g., brush, grasses, topsoil) will be stripped and stockpiled for subsequent use on the berms of the retention pond.
- The expected inorganics (e.g., clays) below the organic layer will be excavated to design depth. These materials will be used to form the desired height of perimeter berms.
- Final compaction and grading will be completed by excavator. Slopes will be finished with a loosely compacted cover of the stockpiled organic materials. Should it be required, revegetation of the slopes will be completed by seeding with a forage crop mix.
- Berm maintenance (e.g., mowing) will be completed by the Proponent on as required basis to ensure the overall integrity and function of the retention pond.

The Proponent needs to irrigate approximately 400 acres for potato production in quarter sections SE-26-8-26W, NE-26-8-26W and SE-35-8-26W (Figure 3) with an anticipated 1 inch (2.5 cm) of water every seven (7) days.

There are no current plans for decommissioning.

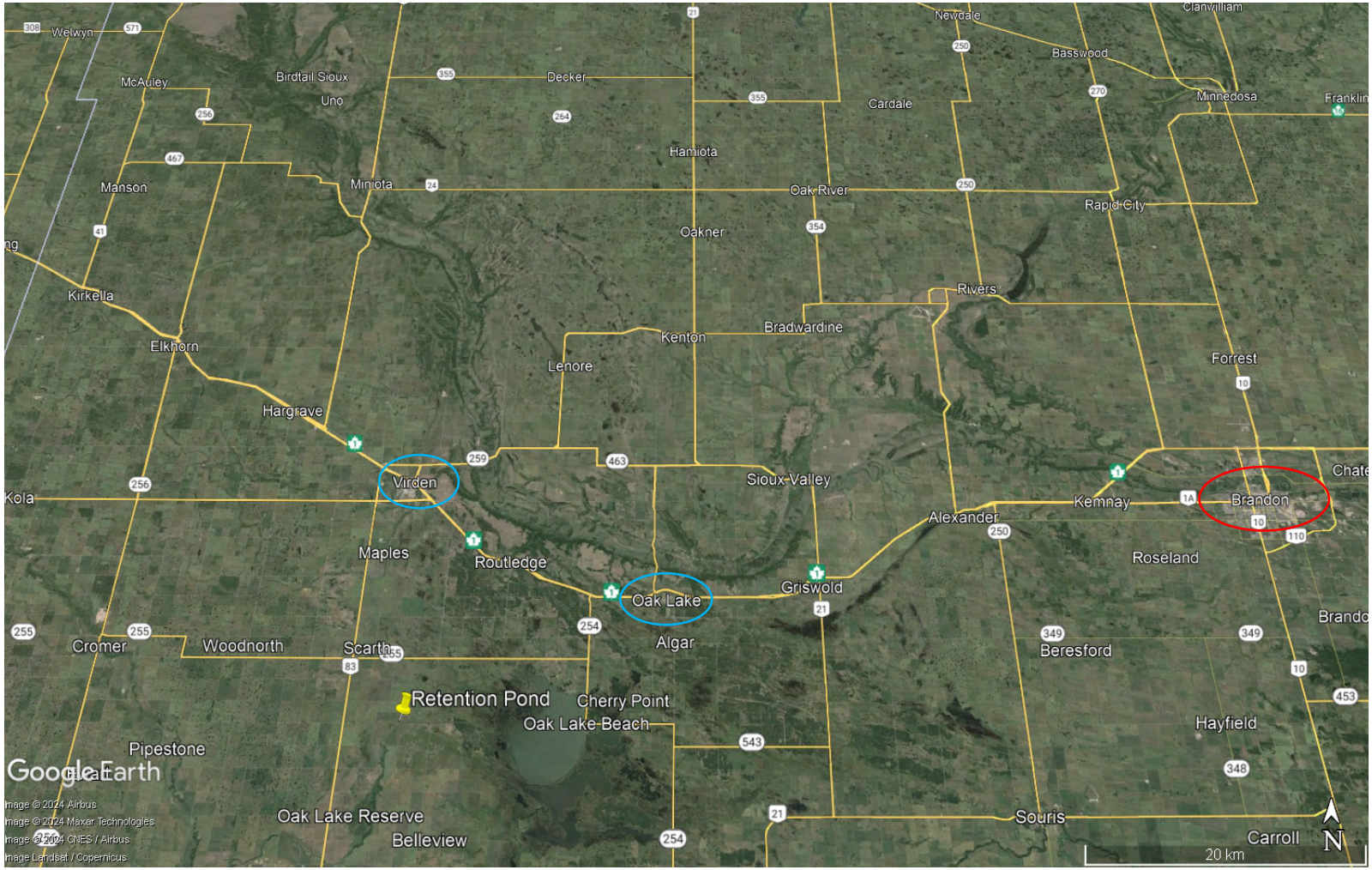

Figure 2: Approximate Project location (yellow pin; 14U 362575E 5504947N) showing nearest local highways (yellow lines), communities (blue circles) and urban centre (red circle) (Source: Google Earth).

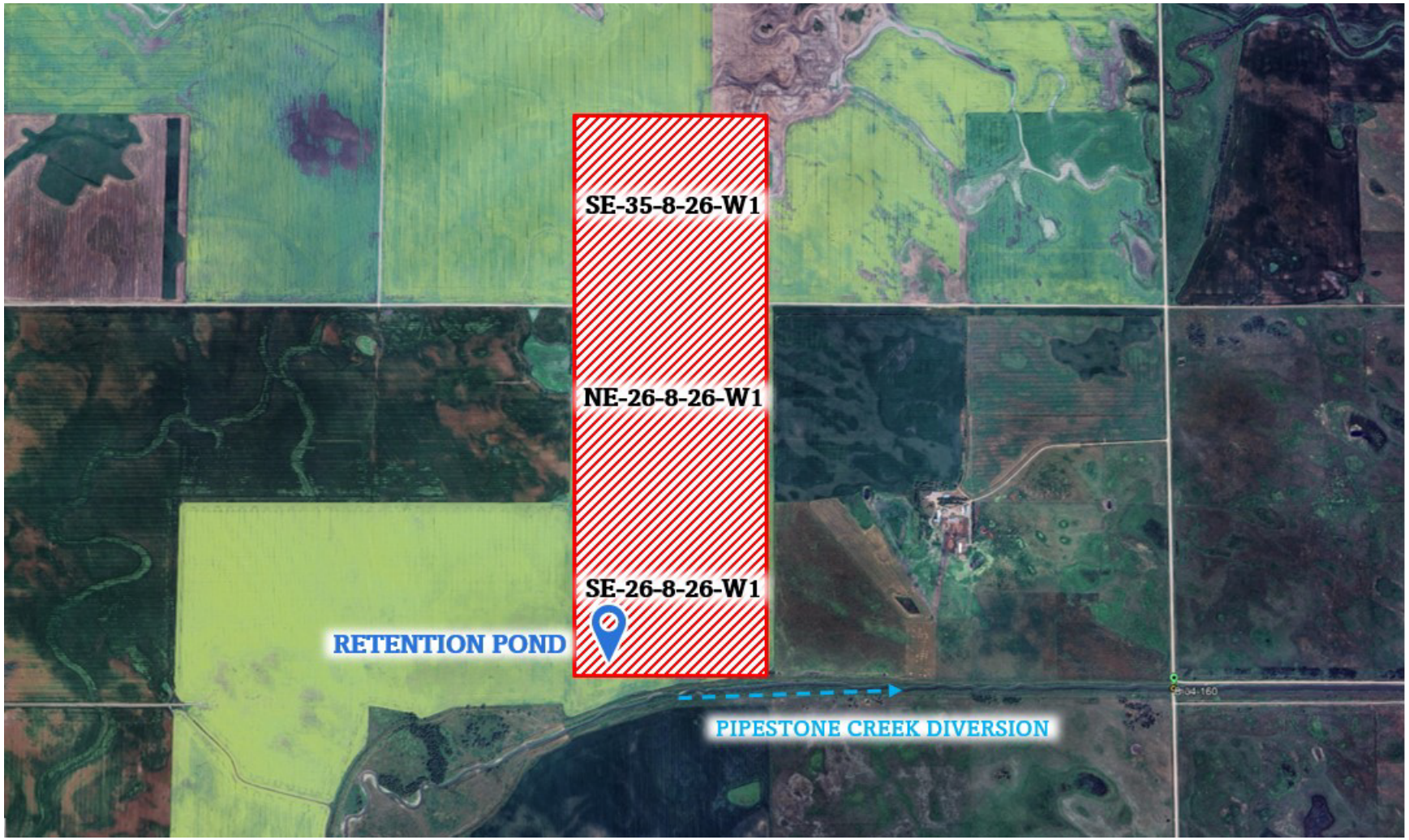

Figure 3: Location of cropland (three ¼ section areas crosshatched in red) to receive irrigation from the retention pond reservoir (blue pin) in proximity to the Pipestone Creek Diversion (flow direction indicated by blue arrow) (Source: Google Earth).

Figure 4: Approximate Project location (yellow pin) in SE1/4 26-8-26-W showing the Pipestone Creek diversion to the south and access roads to east and north (Source: Google Earth).

EXISTING ENVIRONMENT

The Project is located within the broader Prairies Ecodistrict of Canada and confined within the Aspen Parklands Ecoregion in the far southwest corner of Manitoba and including a small area between the Riding and Duck Mountains (Figure 5). This ecoregion is part of the larger parkland belt extending from the boreal forest to the north/northeast and grasslands to the southwest and characterized by the individual biophysical factors detailed below.

The existing land use on the site and on the adjoining land is agricultural. The predominant agricultural production activities in the region are beef cattle, forage, cereal, and other crops, and some oil and gas production (OLAMP 2000; WSRIWMP 2012). The Project area is specifically cultivated for cereal crop production. No change will be made to land use for the purposes of the development. No public consultation will be required.

Figure 5: Aspen Parkland Ecoregion Location within the Manitoba Boundary (Source: Smith et al. 1998).

Climate and Air Quality

The ecoregion is described as a continental climate in the transitional grasslands area, with short, warm summers and long, cold winters (Smith et al. 1998; AAFC 1999; NCC 2019). The southwestern area of the province has the warmest climate in the whole ecoregion. The average length of frost-free period is 118 days and average date of last spring frost occurs around May 22 based on 1981-2010 Canadian Climate Normals station data for the nearest weather station at

Virden (~20 km north of the Project site) (Environment Canada 2024). The average precipitation for the year is low and typical of Canada's arid grassland region at less than 500 mm (with the majority falling as rain in spring and summer and having high potential for evaporation) (McGinn 2010), daily average temperature is 3.1°C, daily maximum temperature in summer is 25.5°C, and daily minimum temperature in winter is -20.7°C. The air quality reported for Brandon and Virden historically ranges from moderate to good (WAQIP 2024).

Topography and Geology

The ecoregion is a rolling, hilly landscape with many small lakes and wetlands (NCC 2024). The Souris River Basin broadly encompasses the Project area (WSRIWMP 2012), along with the nearby Oak and Plum Lakes Important Birding Area (IBA-Can n.d.), historically formed the bottom of glacial Lake Souris and is relatively flat (i.e. Souris Plain, 445 m asl) (Ellis 1938). The Oak and Plum Lakes area provides diverse habitat types including meandering rivers and streams, grasslands, deciduous woods, willow scrub, and rocky areas, along with cultivated agricultural lands (IBA-Can n.d., OLAMP 2000, CIER 2017). The Project is in the Western Plains Hydrogeological Region (NRC n.d.). The surficial geology in the area is comprised of deep basin deposits (largely shaly sediments covered by calcareous glacial till in the northwest and lake deposits in the northeast) (Ellis 1938, Smith et al. 1998, OLAMP 2000). Fertile Black Chernozemic soils are typical in the area making the area ideally suited for agricultural crop production.

Groundwater

This area is semiarid, with sandy to sandy loam soils, and dominated by dryland farming, with significant irrigation requirements (NRC n.d., OLAMP 2000). The Oak Lake Aquifer underlies the entire Project area and is the main source of drinking water and groundwater resource for local crop, livestock, and petroleum production activities (OLAMP 2000; WSRIWMP 2012). It is comprised of sand and gravel deposits within 1.5 to 3.0 m of the ground surface, resulting in complex shallow groundwater systems. These sandy soils are highly permeable and retain little event precipitation in the root zone, with most water moving downward toward the water table. Groundwater in this area, as it predominantly does across Manitoba, moves from west to east.

Surface Water

The Project is contained within the larger Souris River basin (WSRIWMP 2012), in a chronic drought region of Manitoba (OLAMP 2000). The average annual in-season rainfall is low (~274 mm) and there is little runoff in the area, with most of the snowmelt and rain being utilized by vegetation. In the vicinity of the Project area the Pipestone Creek Diversion is a provincially designated waterway (MI 2024) and is part of watershed #62. The Pipestone Creek Diversion (aka Pipestone Creek), running parallel to the south of the Project, flows west to east discharging into Oak Lake (~8.0 km east of the Project area) (Figure 6). However, being part of a constructed drainage network, flow in Pipestone Creek is 'flashy' and typically only occurs from spring to early summer, running only intermittently or becoming dry by the fall and winter months. As part of a drainage network, the adjacent bank edges are also linear, with consistent channel widths and depths (e.g., homogenous, simple habitat).

A review of aerial imagery and existing maps in the immediate Project area showed no wetlands.

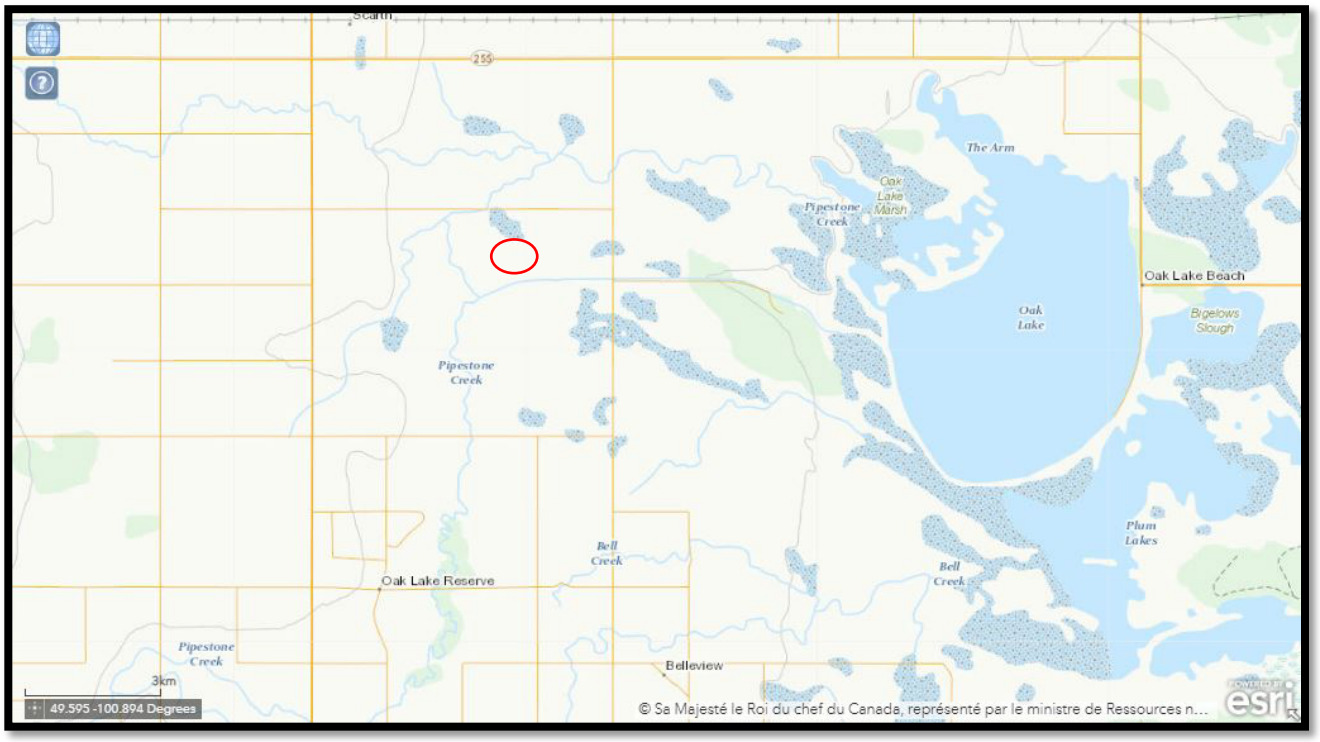

Figure 6: Primary Regional Surface Water Features and Approximate Location of the Project Area (red circle) (Source: DFO Aquatic Species at Risk Map).

Vegetation

The vegetation of the ecoregion is in the transition zone between boreal forest and a mixed-grass prairie, and historically encompassed small trembling aspen/oak stands interspersed with rough fescue prairie (Smith et al. 1998; AAFC 1999). However, most of this ecoregion in Manitoba has been converted for agricultural land use (NCC 2019) (Figure 7). Cultivated land tends to be flat, well drained, and typically tilled and seeded for continuous crop rotation.

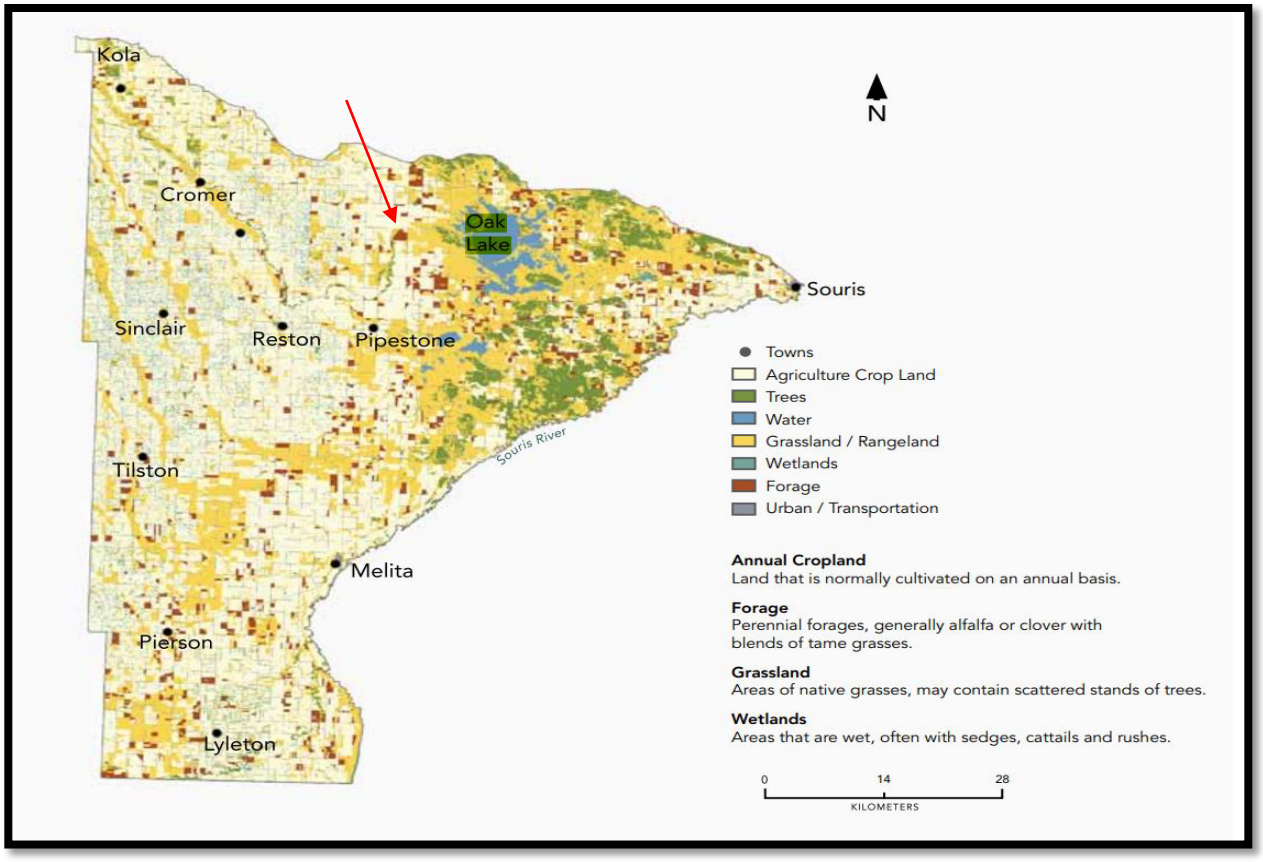

Figure 7: Land Cover Classes in the West Souris River Watershed Planning area (red arrow indicates approximate location of Project) (Source: WSRIWMP 2012).

Biodiversity

Wildlife habitat and biodiversity in the vicinity of the Project area is limited due to the majority of the land being cultivated for agriculture (i.e., associated with grassland and wetland habitat loss leading to lower distribution of species and populations) (Smith et al. 1998). However, there is a diversity of small mammals, birds, and reptiles, and amphibians known to exist in the ecoregion and within the localized Project area (Smith et al. 1998, NCC 2019, NCC 2024, MB-CDC 2024).

Plants

No patches of natural parkland areas remain within the immediate Project area (Figure 7). The surrounding Oak Lake region remains under native mixed-grass prairie and wetland marsh vegetation cover. For example, fescue and wheat grasses, Kentucky bluegrass, June grass, and various deciduous shrubs and forbs in drier areas, and sedges, cattails, marsh grasses, and willow shrub in wetter areas (Smith et al. 1998). The remaining mixed-grass habitat in the Oak Lake region is not listed under any protected areas legislation in Manitoba (MB-Gov 2021, WSRWIMP 2012).

Aquatics (Fish and Fish Habitat)

According to the WSRIWMP (2012) “The largest waterbody in the [West Souris River] watershed is Oak Lake. It is and will continue to be an extremely popular and important sport fishery and recreational area within southwestern Manitoba”. The province of Manitoba annually stocks Oak Lake in the spring with approximately 800,000 walleye fry (*Sander vitreus*), depending on availability from the hatchery (WSRIWMP 2012). There is believed to be little or no natural (Walleye) reproduction occurring in Oak Lake or its primary tributary, the Pipestone Creek Diversion. Conversely, Northern Pike (*Esox lucius*), Yellow Perch (*Perca flavescens*) and White Sucker (*Catostomus commersoni*) are thought to be able to naturally reproduce in Oak Lake, albeit in limited quantities.

Milani (2013) identifies the Pipestone Creek as Type A (i.e., complex habitat with indicator species). In the context of Milani (2013), indicator species include large bodied species with commercial, domestic, or sport fishery value such as Northern Pike, Walleye, and/or White Sucker. Indicator species also include any fish listed in Schedule 1 of the *Species at Risk Act* (SARA), which are not present in the Project area (see section 3.7.2). The spring spawning species, Northern Pike, White Sucker, and (to a lesser extent) Walleye may be present in the Pipestone Creek, but spawning success may be limited to the flashy flow characteristics and simple habitat (described in Section 3.4).

Mammal

Large mammals are largely absent from this ecoregion (except for elk in the Riding Mountain area, and the occasional moose) and from the immediate Project area. Smaller mammal species such as white-tailed and mule deer, coyote, snowshoe hare, cottontail rabbit, red fox, striped skunk, Franklin’s ground squirrels, northern pocket gopher, and deer mice are widespread throughout the region (Smith et al. 1998, NCC 2024) and may potentially occur within the Project area.

Avian

According to Manitoba’s Breeding Bird Atlas (Artuso et. al 2010-2014), over 100 bird species may occur in this area of the Prairie Pothole region (i.e., the Oak and Plum Lakes IBA). Many bird species spend time at Oak Lake and surrounding marshland during breeding season and fall migration and this area provides foraging sites for migratory songbirds and waterbirds (IBA-Can n.d., Artuso et al. 2010-2014, Neufeld and Hamel 2017, CIER 2017). Example species include Franklin’s gull, sandhill crane, killdeer, red-winged blackbird, and various waterfowl spp. (IBA-Can n.d., Smith et al. 1998, NCC 2024). Several grassland birds like Baird’s sparrow, Chestnut-collared longspur, and Burrowing owl (Table 1), which notably occur in the ecoregion but are limited to the extreme southwest corner, are one of the most threatened groups of birds in North America (Neufeld and Hamel 2017) (also see Section 3.7.4).

Amphibians and Reptiles

Commonly found reptiles and amphibians in the ecoregion and Oak Lake vicinity include garter and green snakes, tiger salamanders, and a variety of frog and toad species (Naturenorth.com n.d., Smith et al. 1998).

Invertebrates

A substantially large and diverse population of common freshwater invertebrates found in North America are believed to occur in the Aspen Parkland area and highly likely in the Project area, including the following families/species examples: Coleoptera (beetles), Diptera (true files), Ephemeroptera (mayflies), Hemiptera (true bugs), Lepidoptera (butterflies and moth), Megaloptera (Alderflies, Dobsonflies, and Fishflies), Plecoptera (Stoneflies), Odonata (Dragonflies and Damselfies), Trichoptera (Caddisflies) (Macroinvertebrates.org). Some common invertebrates potentially found in the woody areas of the ecoregion are roundworms, snails, segmented worms, centipedes, mites, spiders and mosquitoes, beetles, and forest tent caterpillars (Wikipedia 2024).

Species of Management Concern

A request was made to the Manitoba Conservation Data Centre (MB-CDC 2024) to generate a list of SAR typically found in the Project area (Table 1). These SAR are designated as either “Threatened”, “Endangered” or “Special Concern” by SARA (2002), Committee on the Status of Wildlife in Canada (COSEWIC), and/or *The Endangered Species and Ecosystems Act* in Manitoba (ESEA 1990) and included in the MB-CDC rare species database. A list of all SAR in a five-km radius of the Project is reported in Table 1. According to NCC (2019) there is a very high abundance of SAR in the ecoregion which may include species not found elsewhere in Canada, particularly in the West Souris Mixed-Grass Prairie and Oak Lake Sandhills and Wetlands Natural Areas. The WSRIWMP (2012) indicates over 60% of endangered species occur in the West Souris River Watershed and an important area for conservation of SAR. The MHHC (n.d.) published a Species at Risk Landowner’s Guide which summarizes the biggest threats to species in specific regions of the province along with some beneficial management practices; the SAR in the south-west region continue to be affected by historic grassland habitat loss, in addition to the negative effects of a changing climate, as many species in this area are at the northern and/or eastern extent of their range.

Table 1: Species at Risk (SAR) Which May Occur in a Five-km Radius of the Project Area (Based on January 2024 results of a data search by the MB-CDC 2024).

Common Name	Genus	Species	SARA	COSEWIC	Source	
					MB-CDC[1]	ESEA[2]
Grasshopper Sparrow	*Ammodramus*	*savannarum*			MB-CDC	
Sprague's Pipit	*Anthus*	*spragueii*	T	T	MB-CDC	T
Burrowing Owl	*Athene*	*cunicularia*	E	E	MB-CDC	E
Ferruginous Hawk	*Buteo*	*regalis*	T	SC	MB-CDC	E
Chestnut-collared Longspur	*Calcarius*	*ornatus*	T	E	MB-CDC	E
Baird's Sparrow	*Centronyx*	*bairdii*	SC	SC	MB-CDC	E
Bobolink	*Dolichonyx*	*oryzivorus*	T	T	MB-CDC	
Horned Lark	*Eremophila*	*alpestris*			MB-CDC	
Barn Swallow	*Hirundo*	*rustica*	T	T	MB-CDC	
Prairie Loggerhead Shrike	*Lanius*	*ludovicianus*	T	T	MB-CDC	E
Horned Grebe	*Podiceps*	*auritus*	SC	SC	MB-CDC	

1 Manitoba Conservation Data Centre's rare species database
2 Manitoba's Endangered Species and Ecosystems Act
MB-CDC = Species that have been observed within a five-km radius of the project
SC = Indicates a "Special Concern" designation
T = Indicates a "Threatened" designation
E = Indicates an "Endangered" designation

Plants

No plant SAR were listed by MB-CDC (2024) in the immediate Project area.

Aquatics (Fish and Fish Habitat)

No fish or other aquatic SAR were listed by MB-CDC (2024) in the immediate Project area. Additionally, a review of the Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map (DFO-ASAR) showed that no critical habitat and no aquatic species at risk have been identified in the Project area.

Mammal

No mammal SAR were listed by MB-CDC (2024) in the immediate Project area.

Avian

The MB-CDC (2024) results indicated several avian SAR within a five-km radius of the Project (Table 1). The WSRIWMP (2012) lists two additional avian SAR, Piping Plover and Yellow Rail, in the broader West Souris River Watershed area. However, based on high degree of land conversion in the Project area to agriculture, any existing and/or suitable bird habitat for SAR in the vicinity of the Project is limited, modified, and fragmented.

- **Grasshopper Sparrow** (*Ammodramus savannarum*): The Grasshopper Sparrow is protected under the *Migratory Birds Convention Act in Canada* (MBCA 1994). According to the Manitoba Breeding Bird Atlas, this species nests in large, dense idle fields and hayfields and moderately grazed pastures (De Smet 2018a). Although not protected as a SAR in Manitoba (ranked as "Imperiled/Vulnerable"), its abundance is low in the southwest, and steep declines are attributed to loss and conversion of grasslands. Suitable habitat in the immediate Project area is unlikely and it was last recorded in 2013 within five km according to the MB-CDC (2024).

- **Sprague's Pipit** (*Anthus spragueii*): The Sprague's Pipit is protected under the *Migratory Birds Convention Act in Canada* (MBCA 1994). Designated "Threatened" by COSEWIC, and under SARA and ESEA, this species needs large tracts of intact grasslands for breeding (COSEWIC 2010, ESEA 1994) and adapts poorly to converted native grassland areas (De Smet 2018b). No suitable habitat exists in the immediate Project area.

- **Burrowing Owl** (*Athene cunicularia*): Prefers to nest in mammal burrows in well-drained grasslands, grazed pastures, or short shrublands but forages in taller vegetation (De Smet and Froese 2019). Designated "Endangered" by COSEWIC, and under SARA and ESEA (1994), their population in Canada has declined drastically, and they are nearly extirpated in Manitoba with remaining populations in southeastern Alberta and southwestern Saskatchewan (COSEWIC 2017). The last observation recorded within five km of the Project area was in 2009 by the MB-CDC (2024).

- **Ferruginous Hawk** (*Buteo regalis*): Prefers open habitat, including native grasslands, and avoids areas with extensive agricultural cultivation; the Manitoba Breeding Bird Atlas only confirmed breeding in the extreme southwest part of the province (De Smet 2018c). Threats to this species include loss of nesting sites, reduction in prey availability, and disturbance from agriculture (COSEWIC 2021). Designated "Special Concern" by COSEWIC and "Threatened" under SARA, and "Endangered" under ESEA (1994). No suitable habitat exists in the immediate Project area.

- **Chestnut-collared Longspur** (*Calcarius ornatus*): Prefers short or mixed-grass native prairie with minimal cover, or well-grazed pastures, and low levels of woody debris accumulation; avoids areas with tall shrubs (De Smet 2018d). The biggest threat to this species is the conversion of grasslands to agriculture. Protected by the *Migratory Birds Convention Act* in Canada (MBCA 1994). Designated "Endangered" by COSEWIC and

ESEA and “Threatened” under SARA (COSEWIC 2019, ESEA 1994). Suitable habitat in the immediate Project area is unlikely.

- **Baird’s Sparrow** (*Centronyx bairdii*): The Baird’s Sparrow is protected under the *Migratory Birds Convention Act in Canada* (MBCA 1994). This species is found in ungrazed to moderately grazed tracts of native prairie with little shrub cover and is reported by the Manitoba Breeding Bird Atlas to only occur localized south and west of Oak Lake (De Smet 2018e). Designated “Special Concern” by COSEWIC and SARA, and “Endangered” under ESEA (COSEWIC 2012, ESEA 1994). Suitable habitat in the immediate Project area is unlikely.

- **Bobolink** (*Dolichonyx oryzivorus*): The Bobolink is protected under the *Migratory Birds Convention Act* in Canada (MBCA 1994). This species prefers to nest on the ground in native grasslands, hayfields, pastures, and wet meadows with tall vegetation, and less common in dry shorter-grasslands, highly grazed pastures, alfalfa fields or crop monocultures (McCracken et al. 2018; COSEWIC 2022). Designated “Threatened” by COSEWIC and under SARA (COSEWIC 2022). Suitable habitat in the immediate Project area is unlikely.

- **Horned Lark** (*Eremophila alpestris*): The Horned Lark is protected under the *Migratory Birds Convention Act* in Canada (MBCA 1994). This species nests in bare or sparsely vegetated habitat such as heavily grazed, cultivated, or natural sparse areas, and range contraction is largely linked to intensified agriculture (Taylor 2018). Although not protected as a SAR, it is ranked “Vulnerable” in Manitoba. Suitable habitat in the immediate Project area is unlikely.

- **Barn Swallow** (*Hirundo rustica*): Widely distributed, the Barn Swallow is found in open habitats, including farmland, wetlands, human settlements, roads, and large forest clearings. Nests under roofs, under bridges, and in culverts. Recent decline in Canada has been attributed to the demolition of old wooden structures and insect decline, among other causes (Poole 2018). Protected by the *Migratory Birds Convention Act* in Canada (MBCA 1994). Designated as “Threatened” by SARA and COSEWIC but population status is ranked as “Secure” in Manitoba (COSEWIC 2011).

- **Prairie Loggerheaded Shrike** (*Lanius ludovicianus*): The Loggerhead Shrike is protected by the *Migratory Birds Convention Act in Canada* (MBCA 1994). This species nests in scattered trees or shrubs within native pasturelands. According to the Manitoba Breeding Bird Atlas, their distribution is now limited to the far southwest corner of the province (De Smet 2018f). Designated as “Threatened” by COSEWIC and SARA and “Endangered” under ESEA (COSEWIC 2014a, ESEA 1994). Based on specific nesting requirements, this species is unlikely to occur in the immediate Project area.

- **Yellow Rail** (*Coturnicops noveboracensis*): Breeds primarily in shallow grass/sedge wetlands and requires native prairie and parkland cover to nest; low probability of observation in the Oak Lake area was indicated on a map by the Manitoba Breeding Bird Atlas (Bazin 2018). The Yellow Rail is protected by the Migratory Birds Convention Act in Canada (MBCA 1994). Designated “Special Concern” under SARA and by COSEWIC (COSEWIC 2009a). Based on specific nesting requirements, this species is unlikely to occur in the immediate Project area.

- **Piping Plover** (*Charadrius melodus*): Piping plover tends to nest on gravel shores of shallow lakes or sandy shores of larger prairie lakes with little vegetation (Porteous 2019). However, the Manitoba Breeding Bird Atlas indicates there has been a greatly reduced range and gradual decline of this species in Manitoba since the 1980s due to reduction in suitable nesting habitat; it reports only one breeding pair on Lake Winnipeg was confirmed to be successful in 2010 and two unsuccessful attempts on Whitewater Lake in 2012. Designated “Endangered” by COSEWIC, SARA, and ESEA (COSEWIC 2013). Based on specific nesting requirements, this species is unlikely to occur in the immediate Project area.

- **Horned Grebe** (*Podiceps auratus*): Prefers breeding areas in freshwater on small to medium-sized, open permanent potholes with emerging vegetation (cattails and rushes) to provide nesting material, anchorage, and protection of young; low probability of observation in the Oak Lake area was indicated on a map by the Manitoba Breeding Bird Atlas (Mitchell 2018). Designated “Special Concern” under SARA and by COSEWIC (COSEWIC 2009b). Based on specific nesting requirements, this species is unlikely to occur in the immediate Project area.

Amphibians and Reptiles

No amphibian or reptile SAR occurrences were listed by MB-CDC (2024) in the five-km radius of the Project area. However, the WSRIWMP (2012) indicates Northern Leopard Frog is a notable SAR occurring in the broader West Souris River Watershed. The Manitoba Herps Atlas (Naturenorth.com 2021 has maps showing a few occurrences north of Oak Lake. However, based on specific habitat requirements, it would unlikely occur in the immediate Project area.

- **Northern Leopard Frog** (*Lithobates pipiens*): Overwinters in streams that do not freeze to the bottom, requires slow-moving water for breeding, and prefers riparian areas with short vegetation. Removal or modification of one of these three habitat types threatens the Boreal/Prairie population (COSEWIC, 2002).

Invertebrates

No invertebrate SAR were listed by MB-CDC (2024) in the Project area, but the Dakota Skipper (a small butterfly) was indicated on the list of notable SAR in the broader West Souris River Watershed by the WSRIWMP (2012). However, based on specific habitat requirements, it would be unlikely to occur in the immediate Project area (see below).

- **Dakota Skipper** *(Hesperia dacotae)***:** The Dakota Skipper prefers native prairie habitats of mixed- and tall- grass species in southern Manitoba and is reported to occur in the Oak Lake Sandhills and Wetlands Natural Area (NCC 2024). Declines in this species are a result of pesticide use, overgrazing, woody shrub encroachment, and continued conversion of natural habitat for other land uses. Designated “Threatened” by COSEWIC and under SARA and ESEA (COSEWIC 2014b, ESEA 1994).

Socio-Economic Environment

Land and resource use in the Oak Lake region area is predominantly agricultural, including both livestock production and small grain farming, but recreational uses and petroleum development are on the rise (Neufeld and Hamel 2017; WSRWPA 2012). Since the immediate Project area is on private property and access restricted to the landowner's property, risk to public safety is removed. There are also no First Nations communities or traditional land use areas located within or adjacent to the immediate Project area (ISC 2023).

Any potential socio-economic effects associated with the construction and operation of the Project and mitigations are described in Section 4.0.

ENVIRONMENTAL EFFECTS ASSESSMENT

Valued Components

The valued components selected for this assessment have the potential to experience effects because of the project:

- Climate
- Air Quality and Noise
- Topography and Geology
- Groundwater
- Surface Water
- Aquatic Resources
- Vegetation
- Wildlife
- Species of Management Concern
- Land and Resource Use
- Protected Areas
- Heritage Resources
- Direct Impacts
- Resource Use
- Cultural and Traditional Activities

The existing environmental conditions are described in Section 3.0 (Existing Environment) of this report. Based on a review of similar EAP applications, the methods and results of assessment in Sections 4.2 and 4.3 (Table 2 and Table 3) were developed.

Effects Assessment Methods

The following qualitative environmental criteria utilized for assessing significance of potential residual effects of the Project were considered in context of magnitude, extent, duration, frequency, and degree of reversibility (Table 2). Based on these criteria, there are three possible significance levels determined ranging from Level I ‘not significant’ to Level II ‘potentially significant” to Level III ‘very significant’.

Table 2: Determination of Significance of Residual Effects.

Significance Level	Context		Magnitude and Extent	Duration and Frequency	Likelihood of Occurrence	Reversibility
	Biophysical	Socioeconomic				
I	No meaningful adverse biophysical effects	No meaningful adverse effects to socioeconomic interests	Minor, or restricted to the Project site	Short term or rare	Unlikely	Readily reversible
II	Adverse effects to common species or ecological features	Adverse effects that are meaningfully inconvenient to local stakeholders	Moderate, or effects would be anticipated beyond the Project site	Moderate term or life of the Project or intermittent	Likely to occur	Reversable with difficulty
III	Adverse effects to livelihood or property values	Adverse effects to livelihood or property values	Major, or effects extend beyond the life of the Project	Long term or continuous	Will occur	Irreversible

Results of Effects Assessment

The summary of environmental effects for the Project VCs are provided in Table 3. Overall, effects of the Project through all phases of impact are determined to be of Significance Level I (i.e., Not significant) or in some instances, not applicable based on criteria assessed in Table 2. Specifically, the Project effects are minor, of short-term duration, unlikely to occur, and restricted to the immediate Project area with ability to be mitigated as detailed in Table 3.

Table 3: Summary of Potential Environmental Interactions / Effects and Significance Level Pertaining to the Construction and Operation of the Retention Pond in SE ¼ Sec. 26-8-26W.

Valued Component	Type of Interaction	Phase of Impact	Recommended Mitigations	Significance Level of Residual Effects
Climate, Air Quality, and Noise				
Emissions and Greenhouse Gases	Potential emissions from heavy equipment.	Construction	• Ensure all equipment is maintained and turned off when not in use (no idling). • No burning of oils, rubber, tires, or other material will take place.	I
Dust	Potential dust generated from movement of heavy equipment on gravel roads	Construction	• Limit dust-generating activities (moving equipment and construction) during windy periods, and the size of disturbed area and	I

Valued Component	Type of Interaction	Phase of Impact	Recommended Mitigations	Significance Level of Residual Effects
	and construction activities (i.e., excavation).		material excavation piles (where applicable).	
Noise	Potential noise generated by heavy machinery.	Construction	• Ensure all equipment is maintained and contractors will have appropriate noise PPE.	I
Topography and Geology				
Topography	The Project area is accessed through roads, trails, forested areas.	Construction	• Limit the disturbed area to that proposed. • Use of exiting trails, roads • No unwarranted clearing of existing vegetation • Access site during periods of low precipitation and/or when ground is relatively dry to minimize rutting.	I
Soils	Compaction of soils and increased erosion potential with clearing site	Construction	• Limit the size of the disturbed area and equipment access to existing roads and trails.	I
Groundwater				
Quantity	Potential contamination of groundwater because of spills or accidents.	Construction	• Ensure the Contractor will contain all spills and have a spill containment kit to avoid groundwater contamination.	I
Quality	Potential changes in groundwater quantity or quality because of changes in site drainage and/or soil compaction.	Construction	• Limit the size of the disturbed area and equipment access to existing roads and trails.	I
Surface Water				
Quality	Potential contamination of surface water because of spills or accidents.	Construction	• Ensure the Contractor will contain all spills and have a spill containment kit to avoid groundwater contamination.	I
Quantity	Potential changes in surface water drainage patterns because of operation activities.	Operation	• Limit the size of the disturbed area. • No drainage channels or connections to existing water course to be altered	I
Fish and Fish Habitat	There are no in water works that may affect health of aquatic habitat.	Construction	• Not applicable but text remains as it was considered	Not applicable.
Terrestrial Environment				
Vegetation	The works occur in a previously disturbed area. Vegetation clearing, and potential introduction or	Construction	• Limit the size of the disturbed area. • Machinery used will arrive in clean condition (e.g., free of soils or other plant matter)	I

Valued Component	Type of Interaction	Phase of Impact	Recommended Mitigations	Significance Level of Residual Effects
	spread of noxious or invasive plant species.			
Wildlife	Habitat loss through vegetation clearing	Construction	• Limit the size of the disturbed area to that proposed. • No clearing of vegetation besides that required for the Project.	I
Species at Risk	Habitat loss or changes in survival or behavior (see Wildlife)	Construction	• Limit the size of the disturbed area. • No clearing of vegetation besides that required for the Project.	I
Socio-Economic Environment				
Public Safety and Human Health	Works will not affect public safety and human health in surrounding area.	Construction	• Not applicable but text remains as it was considered.	Not applicable.
Land and Resource Use	Works will not affect land and resource use in surrounding area.	Construction	• Not applicable but text remains as it was considered	Not applicable.
Protected Areas	Works will not affect land and resource use in surrounding area.	Construction	• Not applicable but text remains as it was considered	Not applicable.
Heritage Resources	No known archaeological features in immediate vicinity. There are no impacts to Heritage Resources.	Construction	• Not applicable but text remains as it was considered	Not applicable.
Indigenous Communities	There are no direct impacts on harvesting or resources, no First Nation in immediate vicinity.	Construction	• Not applicable but text remains as it was considered	Not applicable.
Spills and Accidents				
	Spills or discharge of contaminants (such as reagents or fuels) or sediment-laden water may affect surface water, groundwater, or soil quality.	Construction	• See Groundwater, Surface Water, and Soils.	I

MITIGATION MEASURES AND RESIDUAL ENVIRONMENTAL EFFECTS

The sensitivity and/or resiliency of the surrounding environment and the species utilizing a Project area has direct bearing on environmental impact. However, the extent or severity of these impacts can often be mitigated through proper environmental design and adherence to applicable Best Management Practices (BMPs). A series of BMPs, pertinent to aquatic and terrestrial protections, were further considered in determining impacts of this Project (Table 4). Any residual effects (section 4.2) can be mitigated or avoided through the application of the mitigation measures (section 4.3) and BMPs below.

Mitigation Measures

Recommended mitigation measures for the Project VCs are summarized below from section 4.3, Table 3 and additional BMPs are provided in Table 4:

- **Emissions and Greenhouse Gases:** Ensure all equipment is maintained and turned off when not in use (no idling). No burning of oils, rubber, tires, or other material will take place.
- **Dust:** Limit dust-generating activities (moving equipment and construction) during windy periods, and the size of disturbed area and material excavation piles (where applicable).
- **Noise:** Ensure all equipment is maintained and contractors will have appropriate noise PPE.
- **Topography:** Limit the size of the disturbed area.
- **Soils:** Limit the size of the disturbed area and equipment access to existing roads and trails.
- **Groundwater and Surface Water Quality:** Ensure the Contractor will contain all spills and have a spill containment kit to avoid groundwater contamination.
- **Groundwater and Surface Water Quantity:** Limit the size of the disturbed area and equipment access to existing roads and trails.
- **Terrestrial Environment (Vegetation, Wildlife, Species at Risk):** Limit the size of the disturbed area.
- **Spills and Accidents**: Ensure the Contractor will contain all spills and have a spill containment kit to avoid groundwater, surface water, and soils contamination.
- **Aquatic (Fish and Fish Habitat)** and **Socioeconomic Environment** mitigation measures are not directly applicable due to no effect of the Project on these VCs. However, they have been considered in the overall effects assessment process.

Table 4: Review of Project Pertinent Measures and Industry Standard Construction Practices to Protect Terrestrial and Aquatic Ecosystems from Potential Construction Related Impacts.

Mitigation	Mitigation Code	Primary Application	How Standard Mitigation is Typically Applied
Project Planning			
Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation.	PP-4	Aquatic Terrestrial	Rainfall/snowmelt operational shutdowns adhered to. Work under frozen/frost conditions
Site Selection			
Design and plan activities and works in terrestrial habitats such that loss or disturbance to habitat is minimized and sensitive life stage periods are avoided.	SS-1	Terrestrial	Use of existing trails, roads and existing access points utilized to the greatest extent possible.
Design and construct approaches (to the site) to minimize loss or disturbance to riparian vegetation.	SS-2	Aquatic Terrestrial	Use of existing roads, trails, and access routes along previously constructed corridors.
Containment and Spill Management			
Plan activities near water such that materials such as paint, primers, rust solvents, degreasers, or other chemicals do not enter any watercourses.	CSM-1	Aquatic Terrestrial	All equipment will have spills kits and checked for leaks and signs of wear as part of the daily pre-use inspection. All spills to ground will be cleaned up, and have contaminated materials stored and disposed of properly. No refueling within 30 m of any watercourses or waterbodies or environmentally sensitive areas. Use secondary containment for storage of all bulk fuels on site.
Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.	CSM-2	Aquatic Terrestrial	All equipment will have spills kits and checked for leaks and signs of wear as part of the daily pre-use inspection. All spills to ground will be reported, cleaned up, and have contaminated materials stored and disposed of properly. No refueling within 30m of any watercourses or waterbodies or environmentally sensitive areas. Use secondary containment for storage of all bulk fuels on site.

Mitigation	Mitigation Code	Primary Application	How Standard Mitigation is Typically Applied
Ensure that any building materials used have been handled and treated in a manner to prevent the release or leaching of substances into the water or adjacent soils that may be deleterious to aquatic or terrestrial habitats.	CSM-3	Aquatic Terrestrial	Not applicable but text remains as it was considered.
Erosion and Sediment Control			
Consider effective Erosion and Sediment Control for the Project site that minimizes risk of sedimentation to any adjacent waterbodies and/or terrestrial banks during all phases of the project.	ESC-1	Aquatic Terrestrial	Primary Erosion and Sediment Control Practices (ESCP) is working in the dry and avoiding precipitation events. Earthworks will be of relatively short duration with site restoration occurring as the project proceeds. Stripped organics will not be stockpiled adjacent to any watercourses or banks.
Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody.	ESC-2	Aquatic Terrestrial	Works primarily conducted in the dry and at low flow periods. Works conducted in isolation and on even grade.
Shoreline/Bank Re-Vegetation & Stabilization			
Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction.	SBVS-1	Aquatic Terrestrial	Use of existing trails, roads and existing access points utilized to the greatest extent possible. Working is frost/frozen conditions, when possible, will allow protection of ground from rutting.
Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.	SBVS-3	Aquatic Terrestrial	Disturbance to surfaces will be minimized to the greatest extent possible. Tracking of slopes and remediation will be completed in sequence and as soon as feasible.
Remove all construction materials from site upon project completion.	SBVS-6		Good housekeeping practices (e.g., use of waste receptacles) and disposal of any waste products at an approved facility will be adhered to.
Fish Protection			

Mitigation	Mitigation Code	Primary Application	How Standard Mitigation is Typically Applied
Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.	FP-3	Aquatic	Pumping not required but text remains as it was considered.
Operation of Machinery			
Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species, and noxious weeds	OM-1	Aquatic Terrestrial	
Whenever possible, operate machinery on land above the high-water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.	OM-2	Aquatic Terrestrial	Works in and near waterways is limited.
Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.	OM-4	Aquatic Terrestrial	No fording is required as access to Project site will be achieved via existing trails and property. Text remains as it was considered in effects.
Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.	OM-5	Aquatic Terrestrial	Machinery will not be washed onsite.

Residual Effects

Overall, effects of the Project through all phases of impact are determined to be of Significance Level I (i.e., Not significant) or in some instances, not applicable based on criteria assessed in Table 2. Specifically, the Project effects are minor, of short-term duration, unlikely to occur, and restricted to the immediate Project area with ability to be mitigated as detailed. There will be no residual effects resulting from construction or operation of this Project.

CONCLUSIONS AND FOLLOW-UP PLANS

It has been determined that no significant adverse effects and/or residual effects to the existing biophysical or socioeconomic environment from construction and operation of the Project will result. The Project is expected to pose no risk to climate and air quality, topography and geology, ground and surface water, vegetation, biodiversity, species at risk, public safety, human health, land and resource use, protected areas, heritage resources, or Indigenous communities.

There will be no requirement for follow-up plans (including monitoring and reporting) for the Project, based on determination of no significant adverse effects and/or residual effects.

CLOSURE

Arthur Consulting retained Morrison Hershfield Ltd. on behalf of Graycan Inc. to conduct the work described in this document, and this document has been prepared solely for this purpose.

This document, the information it contains, the information and basis on which it relies, and factors associated with implementation of suggestions contained in this document are subject to changes that are beyond the control of the author. The information provided by others is believed to be accurate and may not have been verified.

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We trust the information presented in this document meets the requirements of both Arthur Consulting and Graycan Inc.

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APPENDIX A: Certificate of Land Title

STATUS OF TITLE

The Property Registry
A Service Provider for the Province of Manitoba

Title Number 2862586/2
Title Status Accepted
Client File

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

GRAYCAN INC.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

THE SE 1/4 OF SECTION 26-8-26 WPM
EXC: DRAINAGE WORKS PLAN 1479 BLTO
AND EXC: ALL MINES AND MINERALS AS SET FORTH IN
TRANSFERS 90456 AND R46760

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

2. ACTIVE INSTRUMENTS

No active instruments

3. ADDRESSES FOR SERVICE

GRAYCAN INC.
P.O. BOX 298
VIRDEN MB
R0M 2C0

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Brandon

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

194268/2 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type:	**Request Electronic Title Conversion**
Registration Number:	**1404593/2**
Registration Date:	2016-09-21
From/By:	BLTO
To:	
Amount:	

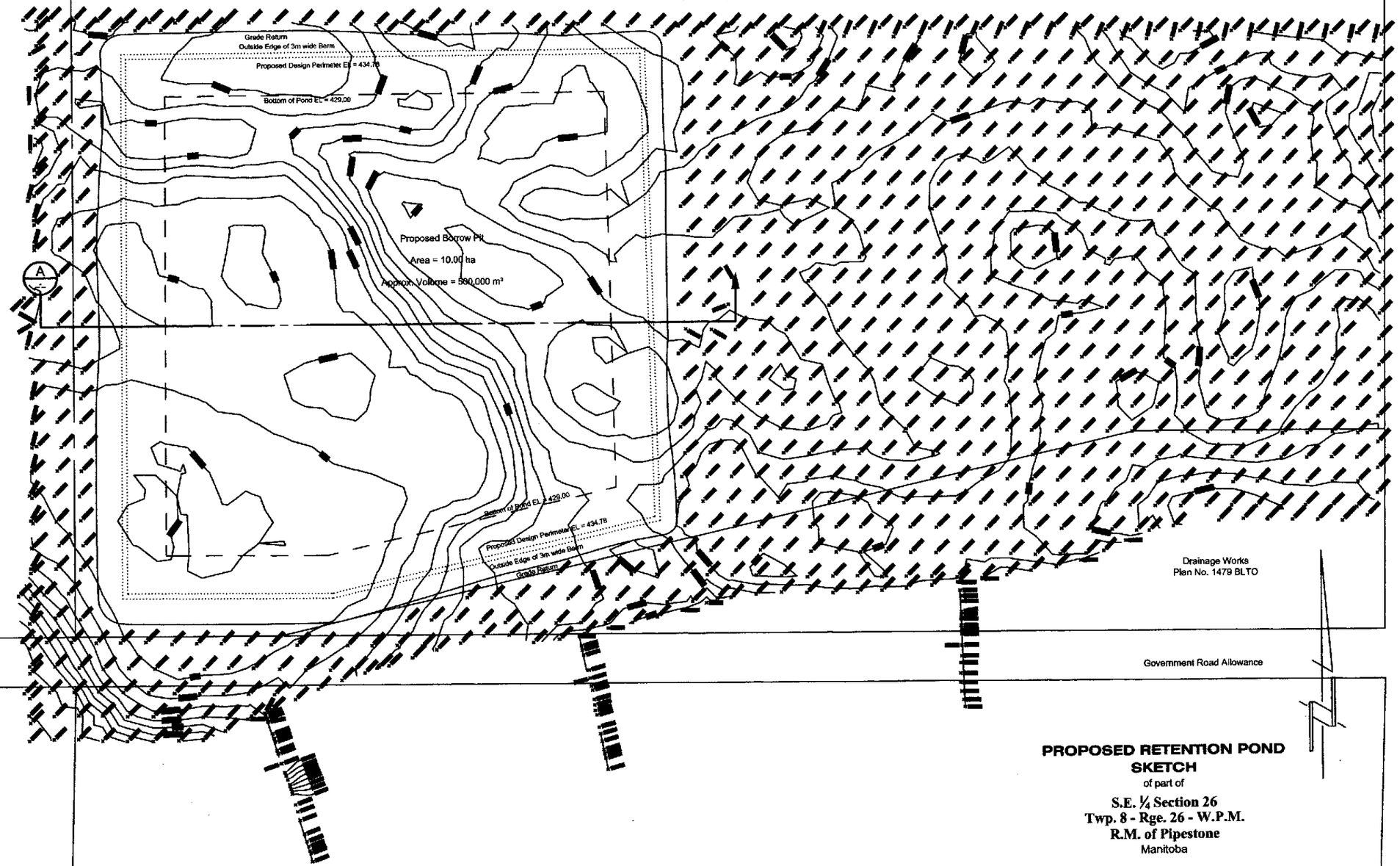
10. LAND INDEX

SE 26-8-26W
EXC PL 1479 AND M&M

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 2862586/2

APPENDIX B: Design Sheets

S.E.1/4 Sec.26, Twp.8, Rge.26, W.P.Mer.



PROPOSED RETENTION POND SKETCH
of part of
S.E. ¼ Section 26
Twp. 8 - Rge. 26 - W.P.M.
R.M. of Pipestone
Manitoba

By: K. Todd Baley, M.L.S.
Date: November, 2022

Scale - 1 : 1,000

ENGINEER'S SEAL

6137262 MANITOBA LTD.
ARTHUR CONSULTING
PROJECT MANAGEMENT-ENGINEERING DESIGN
JOHN W. ARTHUR, P.ENG.
1-1660 KENASTON BLVD. PO BOX 70050
WINNIPEG MANITOBA R3P 0X6
CELL #1: 204 998-9898 CELL #2: 204 296-3499
FAX NO: 204 736-2380
EMAIL: arthur_consulting@mymts.net

GENERAL NOTES:

ALL DRAWINGS ARE THE EXCLUSIVE PROPERTY OF JOHN ARTHUR CONSULTING (6137262 MANITOBA LTD.) AND SHALL NOT BE REPRODUCED OR DISTRIBUTED WITHOUT WRITTEN PERMISSION OF JOHN ARTHUR CONSULTING.
NO MODIFICATIONS SHALL BE CARRIED OUT WITHOUT PRIOR WRITTEN APPROVAL OF JOHN ARTHUR CONSULTING
GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND PERTINENT INFORMATION ON SITE AND NOTIFY JOHN ARTHUR CONSULTING OF ANY DISCREPANCIES.

PROJECT TITLE & LOCATION:

PROPOSED RETENTION POND SKETCH
RM OF PIPESTONE, MB

NO.	DDMMMYY	DESCRIPTION	BY

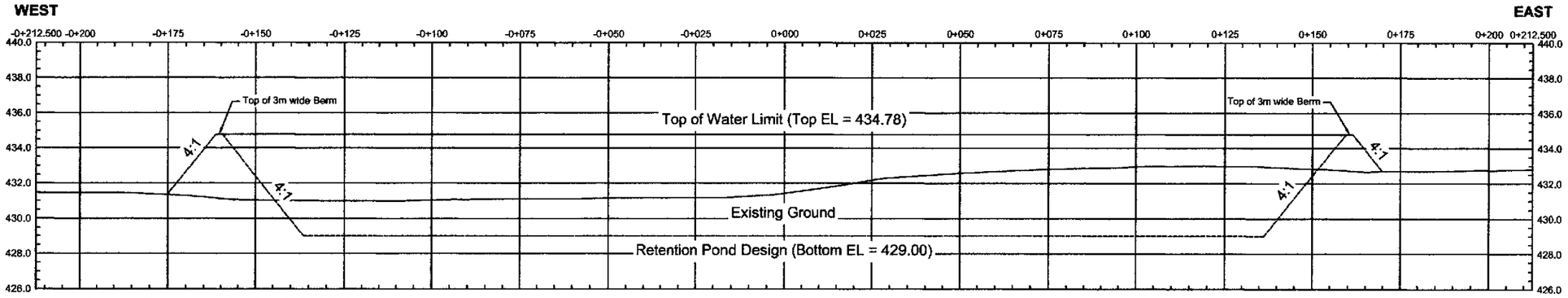
REVISION

SHEET TITLE: PROPOSED RETENTION POND SKETCH

REVISION NO.: 0

DESIGN BY: JWA	SCALE: AS NOTED
DRAWN BY: SM	DATE: 02/20/2023
CHECKED BY: JWA	PROJ. NO.: -

SHEET NO.: A-01



Profile View of SEC-A (-0+212.500 to 0+212.500)
Scales - 1:1000 Horiz. 1:200 Vert.
or
Horiz. Scale 1:1000 (5x Vertical Exaggeration)

KEY PLAN

0 100 200 300 400 500m.
Scale - 1 : 10,000

NOTE:

Measurements are in metres and decimals thereof.

Elevations shown are in metric geodetic datum.

Bench Mark - Elevations are referred to CGVD28 (mean sea level) and were related to published values for
Benchmark 82R718 (N.E. Sec.36, Twp.8, Rge.26, W.P.M).
N. = 5508059.243, E. = 364791.738.
Elevation = 430.248m

Oak Lake top of ice - Observed on November 23, 2022 at 8:08AM.
N. = 5508549.268, E. = 371704.545. Elevation = 429.123m

Section lines were provided by Manitoba Land Initiative and may not accurately depict true locations of property boundaries or defining monumentation thereof.

LEGEND

Spot Elevation ✱432.00
Major Contour
Minor Contour

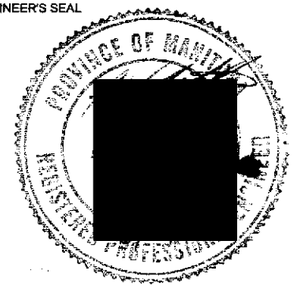
UNDERGROUND SERVICE INFORMATION WAS NOT BE SUPPLIED BY THE RM OF PIPESTONE, BELLMTS, RFNOW INC., OR MANITOBA HYDRO/GAS, AND SHOULD BE VERIFIED PRIOR TO DESIGN OR CONSTRUCTION. ON SITE UNDERGROUND SERVICES WERE LOCATED BY THE APPLICABLE UTILITY AND GEOVERRA ACCEPTS NO RESPONSIBILITY FOR THEIR LOCATION. PRIOR TO CONSTRUCTION IT IS IMPERATIVE THAT INDIVIDUAL UTILITY COMPANIES ARE CONTACTED FOR A LOCATE. IF THERE ARE DISCREPANCIES BETWEEN THE HARD COPY AND THE DIGITAL FILE, THE INFORMATION CONTAINED WITHIN THE HARD COPY SHALL GOVERN.

Click before you dig MB.com: 1-800-940-3497

PROPOSED RETENTION POND SKETCH
of part of
S.E. ¼ Section 26
Twp. 8 - Rge. 26 - W.P.M.
R.M. of Pipestone
Manitoba

By: K. Todd Baley, M.L.S.
Date: November, 2022
0 10 20 40 60 80 100m.
Scale - 1 : 1,000

ENGINEER'S SEAL



6137262 MANITOBA LTD.
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CELL #1: 204 998-9898 CELL #2: 204 296-3499
FAX NO: 204 736-2380
EMAIL: arthur_consulting@mymts.net

GENERAL NOTES:

PROJECT TITLE & LOCATION:

PROPOSED RETENTION POND SKETCH
RM OF PIPESTONE, MB

NO.	DDMMMYY	DESCRIPTION	BY

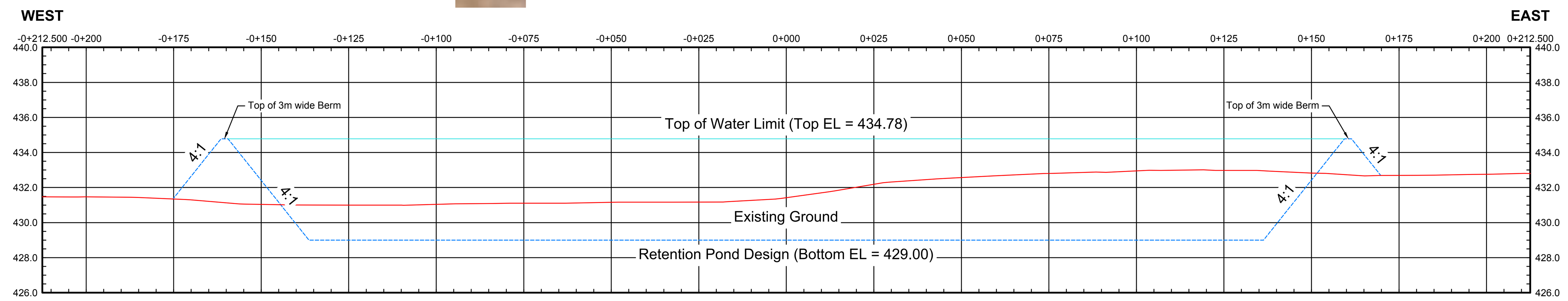
REVISION

SHEET TITLE:
PROPOSED RETENTION POND SKETCH

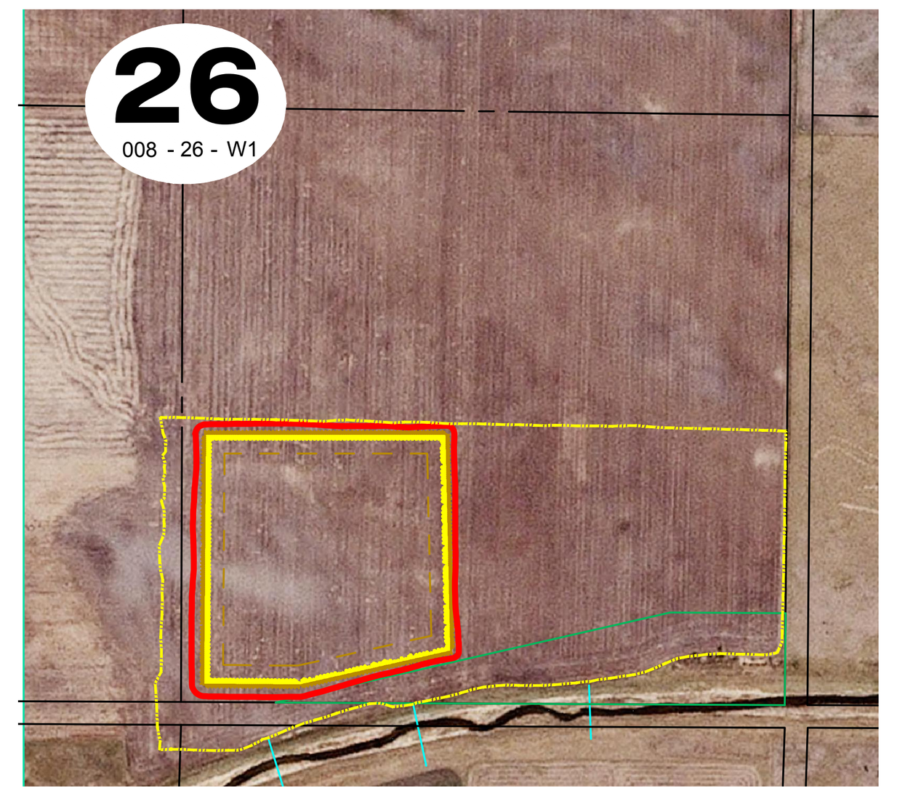
REVISION NO.: **0**

DESIGN BY: JWA	SCALE: AS NOTED
DRAWN BY: SM	DATE: 02/20/2023
CHECKED BY: JWA	PROJ. NO.: -

SHEET NO.: **A-02**



Profile View of SEC-A (-0+212.500 to 0+212.500)
Scales - 1:1000 Horiz. 1:200 Vert.
or
Horiz. Scale 1:1000 (5x Vertical Exaggeration)



KEY PLAN

0 100 200 300 400 500m.
Scale - 1 : 10,000

NOTE:

Measurements are in metres and decimals thereof.

Elevations shown are in metric geodetic datum.

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LEGEND

Spot Elevation ---- 432.00
Major Contour ---- 432
Minor Contour ---- 432.25

UNDERGROUND SERVICE INFORMATION WAS NOT BE SUPPLIED BY THE RM OF PIPESTONE, BELLMTS, RFNOW INC., OR MANITOBA HYDRO/GAS, AND SHOULD BE VERIFIED PRIOR TO DESIGN OR CONSTRUCTION. ON SITE UNDERGROUND SERVICES WERE LOCATED BY THE APPLICABLE UTILITY AND GEOVERRA ACCEPTS NO RESPONSIBILITY FOR THEIR LOCATION. PRIOR TO CONSTRUCTION IT IS IMPERATIVE THAT INDIVIDUAL UTILITY COMPANIES ARE CONTACTED FOR A LOCATE. IF THERE ARE DISCREPANCIES BETWEEN THE HARD COPY AND THE DIGITAL FILE, THE INFORMATION CONTAINED WITHIN THE HARD COPY SHALL GOVERN.

Click before you dig MB.com: 1-800-940-3497

CALL BEFORE YOU DIG

I certify that the survey represented by this plan is correct to the best of my knowledge and was completed on the 22nd day of November, 2022.

K. Todd Baley
Manitoba Land Surveyor

ASSOCIATION OF MANITOBA LAND SURVEYORS
PERMIT
GeoVerra Manitoba Land Surveying Ltd.
No. 2020-16

CERTIFICATE OF TITLE:

CT No.: 2862586/2 BLTO
REGISTERED OWNER: GRAYCAN INC.

NO.	REVISIONS	INITIALS	DATE
-			
-			
0	Issued	TB - SL - JH	Feb 13, 2023

Arthur Consulting

PROPOSED RETENTION POND SKETCH

of part of

S.E. ¼ Section 26
Twp. 8 - Rge. 26 - W.P.M.
R.M. of Pipestone
Manitoba

By: K. Todd Baley, M.L.S.

Date: November, 2022

0 10 20 40 60 80 100m.
Scale - 1 : 1,000

GeoVerra Manitoba Land Surveying Ltd.
GeoVerra Manitoba
Land Surveying Ltd.
Toll Free: 1-800-465-6233
www.geoverra.com

Client File No.:
File : 22-04458-001-CON-R0
F.B.:
REV. 0
Job: 22-04458-001
Survey Date : November 22, 2022

Printed Date: February 13, 2023 Comments: