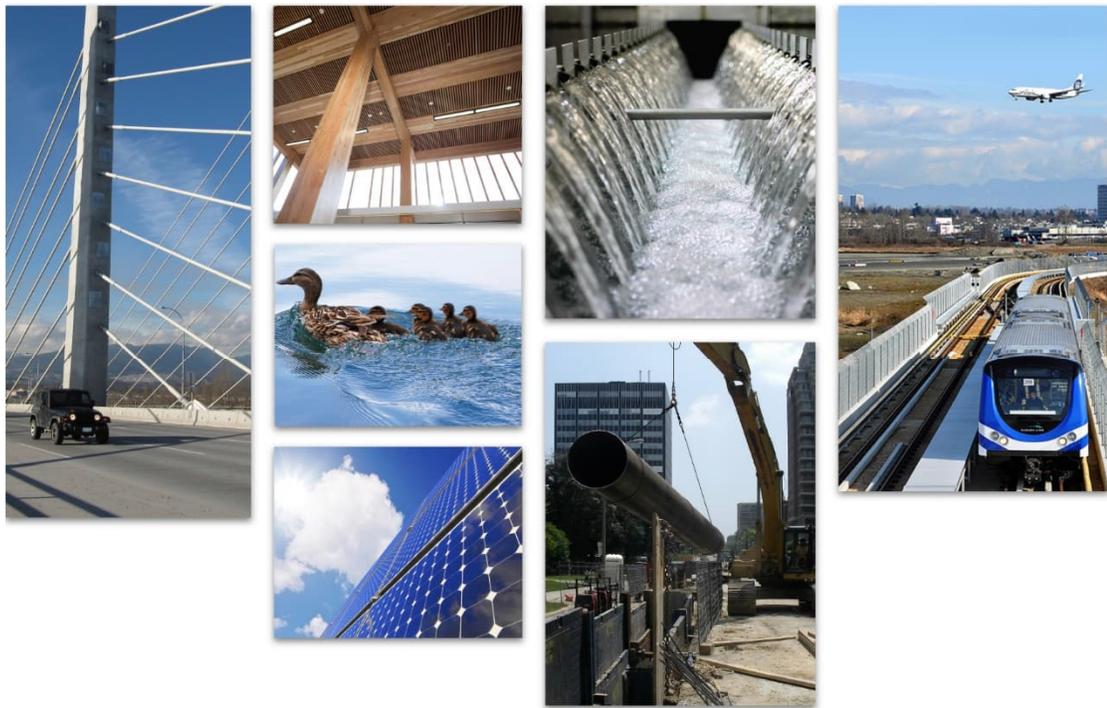


The Rural Municipality of Corman Park No. 344
Hillside Farm Real Estate Corp.

Comprehensive Development Review

N ½ 23-38-05-W3M



APRIL 2024

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1 INTRODUCTION AND PURPOSE

This Comprehensive Development Review (CDR) report has been prepared by Associated Engineering (Sask.) Ltd. (AE) on behalf of Hillside Farm Real Estate Corp. The purpose of this CDR report is to support an application to rezone and subdivide approximately 64 ha (160 acres) in the N ½ 23-38-05-W3M for a multi-lot light industrial park. The subject property is proposed to be rezoned from D - Agricultural District 1 (DAG1) to DM1 - Light Industrial District.

The subject property lies within the P4G Planning District. The P4G District Land Use Map designates the subject property for future Rural Commercial/Industrial development. This report provides an overview of how the proposed development relates to its physical surroundings and can positively integrate with existing and projected development in the vicinity.

This report is intended to generally support phased rezoning and subdivision applications. This report acknowledges that additional road planning needs to be completed by the municipality outside of the initial phase of subdivision which may result in the need to revise the road and lot layout and may influence the zoning of land in the plan area. Phasing will be determined by the owner based on the logical extension of infrastructure services and market conditions. It is acknowledged that future subdivision applications will need to generally align with the description of development as defined by this report.

2 PLAN CONTEXT

The subject property comprises the following parcels as illustrated in Figure 2-1:

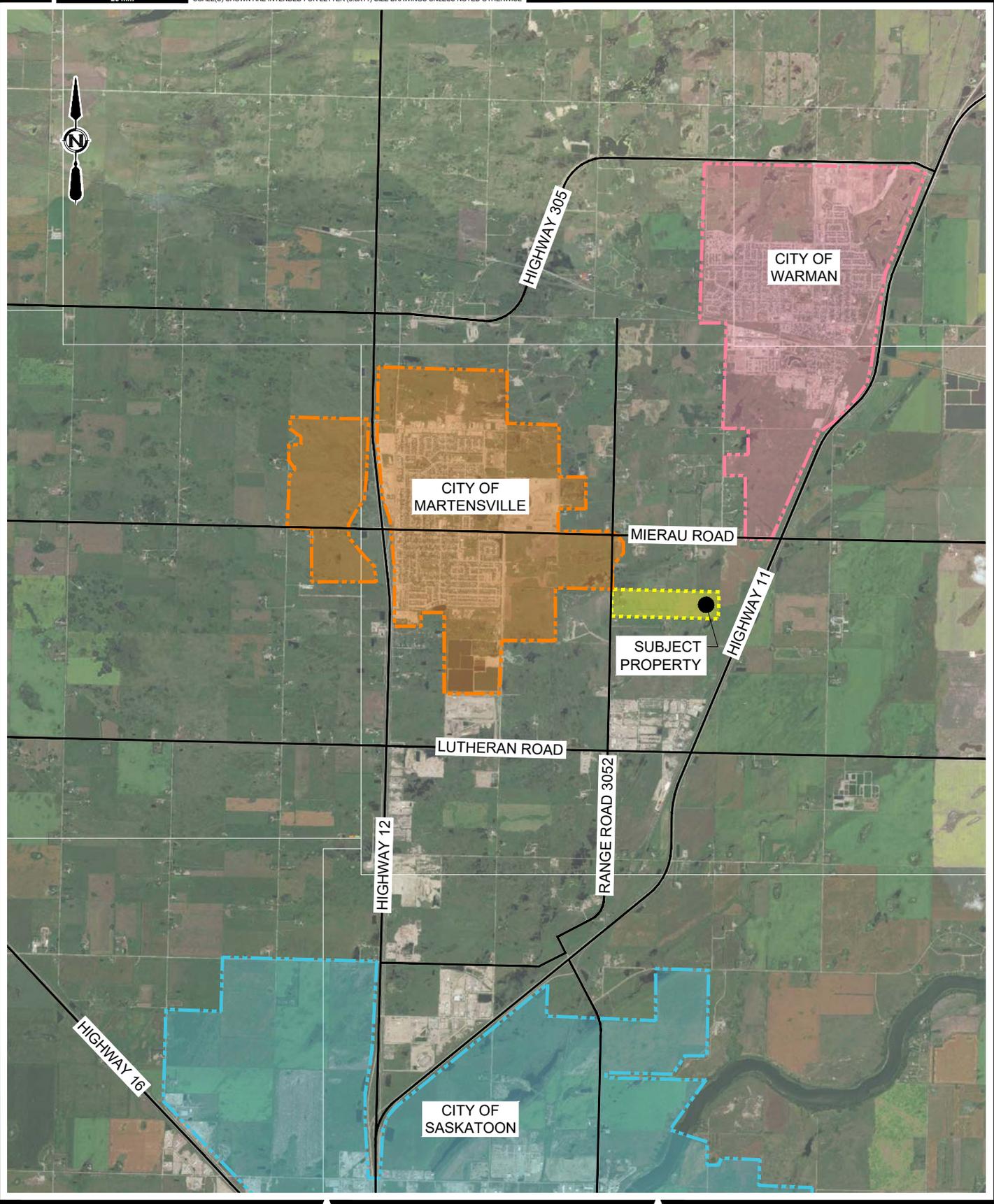
- LSD 5- 23-38-05-3 Ext 63 (Surface Parcel No. 145389820)
- LSD 6- 23-38-05-3 Ext 64 (Surface Parcel No. 145389831)
- LSD 7- 23-38-05-3 Ext 65 (Surface Parcel No. 145389842)
- LSD 8- 23-38-05-3 Ext 66 (Surface Parcel No. 145389853)

A copy of the property titles is included in Appendix A. The subject property lies adjacent to the southeast boundary of the City of Martensville along Range Road 3052 and approximately 900 meters west of the corporate boundary of the City of Warman.

2.1 Location Physiographic Conditions

The property is currently cultivated cropland. Surrounding lands are predominantly in agricultural production except for the following specific uses as illustrated in Figure 2-2: Existing Land Uses:

- Agricultural residences to the north and south;
- Ranch Ehrlo Corman Park Campus 1.2 km to the north along Mierau Road;
- Lake Vista residential neighbourhood in Martensville;
- Multi-parcel country residential to the northeast;
- Martensville Cemetery to the north;
- Corman Industrial Park to the south;
- Kitsaki Lands Corp First Nations Holdings to the south west;
- Opimihaw Creek to the north;
- Highway 11 to the east.



PLOT DATE: 2/15/2022 10:51:17 AM
SAVE DATE: 2/15/2022 8:30:15 AM SAVED BY: PAWLUSKIM
DWG PATH: \\ae.ca\data\working\esr2021-4890-01\plan\4606-01-up-70-location.dwg

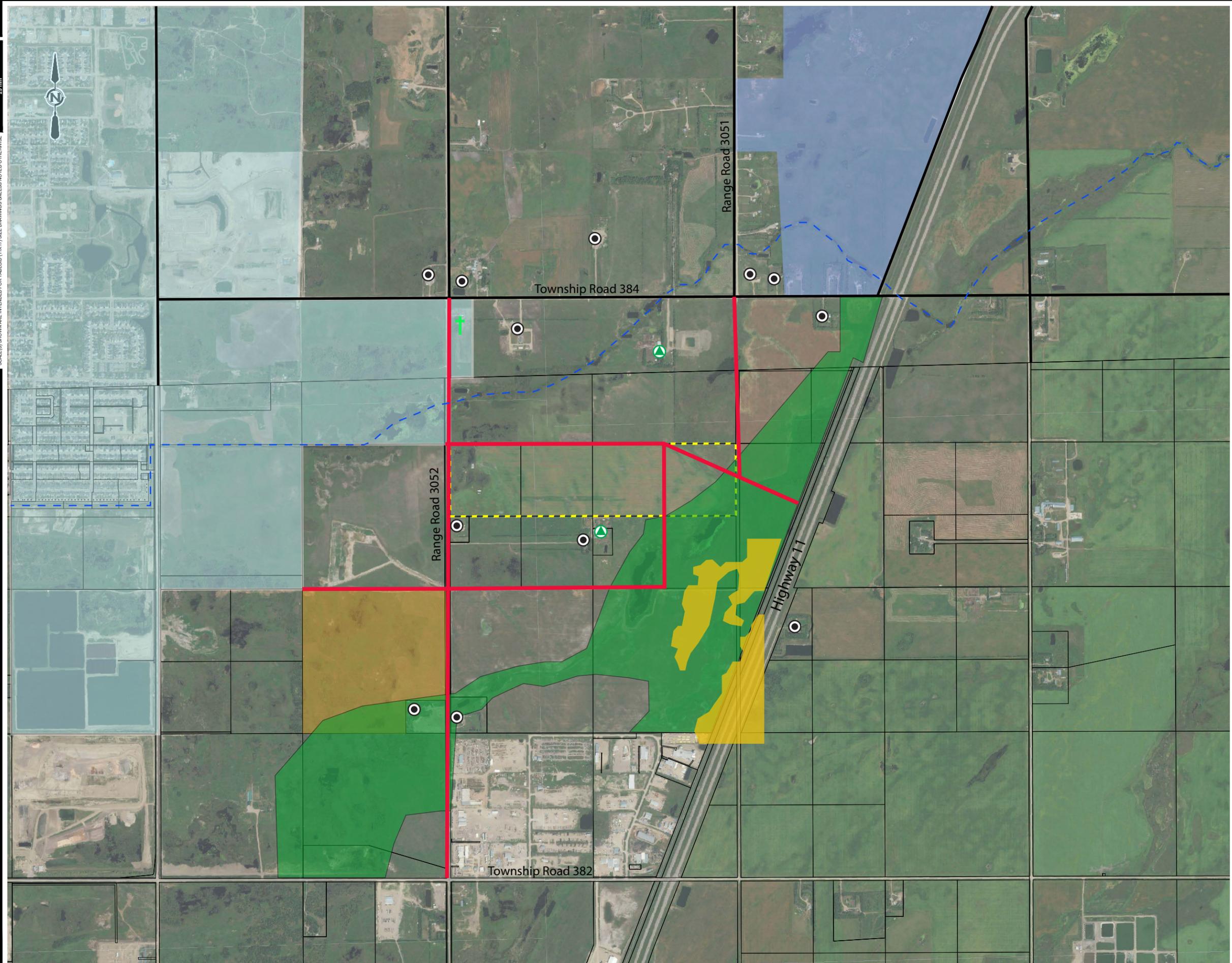
FIGURE 2-1

LOCATION PLAN
LP INDUSTRIAL CDR



Hillside Farm Real Estate Corp.

PLOT DATE: 7/4/2023 8:01:40 AM
 SAVE DATE: 8/27/2022 11:20:07 AM SAVED BY: PAWLUSKIM
 DWG PATH: \\ae.ca\data\working\asia\2021-4630-01\plan\4609-01-up-702-dwp-influence.dwg
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 25 mm



- Subject Property
- Warman
- Martensville
- First Nation Land
- Green Network Study Area
- Existing House
- ▲ Intensive Livestock
- † Cemetary
- Opimahaw Creek
- Future Roads
- 100 Year Wet Flood Hazard Extents

Figure 2-2 Existing Conditions

Hillside Farm Real Estate Corp.

The subject property generally slopes from northwest to southeast with ground surface elevations ranging between 511 m and 504 m above sea level. A topographic survey was completed in December 2021 and is attached as Appendix B.

There are temporary wetlands in the northwest and southeast corners of the property. According to the P4G Green Network Refinement Stage 1: Natural Areas Screening, the wetland in the northwest is categorized as a temporary Class II wetland that is likely to contain wet meadows, fine-stemmed grasses, sedges, and forbs.

The wetland in the southeast corner predominantly lies in the lands to the south of the subject property. This area is designated by the P4G Official Community Plan as part of the Green Network Study Area (GNSA) which includes connected areas of wetlands, swales, natural areas, the South Saskatchewan River corridor, and other areas providing stormwater storage and conveyance, and recharge of groundwater supplies. This area helps address regional stormwater issues and, where appropriate, supports multifunctional green spaces that deliver environmental, cultural and recreational benefits. The area accommodates compatible agriculture, outdoor recreation, and sensitively integrated stormwater management infrastructure. The proposed development of the subject property aims to integrate the natural features and landscapes provided by this corridor into development to support stormwater management, protect wildlife corridors and provide continued public access to the area offering passive recreation opportunities.

The 2012 Draft North Corman Park Flood Control System Phase I (2012) report shows a small portion of the lands within the southeastern portion of the subject property being ranked as a moderate hazard for a 100-year wet event, according to the UK Hazard classification system. The P4G North Drainage Study identifies the same area in question as Green Network Study Area (GNSA). Historical satellite imagery does not show any consistent or significant pooling on the site. The impacted area within the property is planned to be used for stormwater management which is consistent with the intention of the GNSA. This location is not identified as being within the Flood Plain Overlay as per the P4G District Zoning Bylaw.

A preliminary geotechnical investigation was conducted by P. Machibroda Engineering Ltd. in February 2022 to provide information on subsurface soil and groundwater conditions within the subject property. This report confirms that the site is suitable for the proposed development. Twelve boreholes were drilled to depths of 3 to 12.4 meters below the existing ground surface. The report indicates that the general soil profile consists of a surface layer of topsoil with depths ranging from 100 to 175 millimetres followed by variable layers of sand, clay and silt from depths of 0.2 to 3 meters. There is an extensive deposit of glacial till that extends to a depth of at least 12.4 m, the maximum depth drilled. Inter-till sand layers/lenses and cobbles/boulders were encountered at random depths. Groundwater seepage and sloughing conditions were encountered during test drilling in inter-till sand layers/lenses.

Groundwater elevations ranged between 2.1 and 2.8 meters below ground level. The report notes that the groundwater level can fluctuate and is typically at its highest during and/or following spring thaw or periods of precipitation and recommends re-measuring the monitoring wells prior to development to confirm the existing groundwater conditions. The report offers general design considerations based on the existing subsurface soil and groundwater conditions. Site preparation should consist of the removal of all vegetation, topsoil and organic material from the development areas. It is anticipated that conventional site preparation (scarifying, moisture conditioning and re-compacting the soils) will suffice over most of the property. The use of geosynthetics and additional fill thicknesses may be required in low-lying areas. There are currently no known limitations that would restrict development within the property, but detailed and specific geotechnical investigation(s) is recommended to accompany development and building permit applications. A copy of this report is attached as Appendix C.

2.2 Legal Encumbrances and Built Conditions

There are two storage buildings and two grain bins located in the northwest section of the subject property. These structures are planned to be removed in conjunction with the development of the site.

A 48.3 mm PE (NPS 1.5) 550 kPa SaskEnergy gas distribution line extends along the eastern boundary of the subject property within an unregistered 10-meter easement. The depth of the gas line at the time of installation is estimated to be 0.9 meters but will be verified prior to design or construction. According to SaskEnergy, no permanent structures or buildings can be built over top of the easement that could restrict access to the gas line. A roadway may be constructed across the easement subject to obtaining a crossing permit from their office and verifying that the gas line lies at a minimum of 1.2 meters below the ground surface.

A further review of land title information confirmed that there are no registered easements or utility rights-of-way within the property that would influence the form and configuration of development within the site or affect the subdivision of the property.

2.3 Environmental Conditions

A desktop environmental screening was completed using the Government of Saskatchewan HABISask online database which concluded that there are no known sensitive or protected vegetation, or rare and endangered species located within the plan area. A full copy of the HABISask project screening report is attached in Appendix D.

2.4 Cultural and Heritage Conditions

Based upon the Developers' Online Screening Tool, the subject property is not considered heritage sensitive and no further screening is required. A copy of the query results is attached in Appendix E.

2.5 Servicing Conditions

The subject property is currently un-serviced. There is an existing SaskWater distribution line directly along the west of the property boundary. Depending on the use and density at the time of development, the proponent will be required to secure the appropriate water supply.

SaskPower maintains a 25 kV distribution line directly west of the subject property. At the time of development, the proponent will coordinate with SaskPower to install the appropriate transmission lines in order to service the subdivision.

SaskEnergy maintains a distribution line operating at 550 kPa running through LSD 8 of the subject property with an unregistered 10-meter easement set on the center of the line. At the time of development, the proponent will coordinate with SaskEnergy to connect and install the appropriate lines to service the subdivision.

SaskTel maintains telecommunication lines directly west of the property extending north/south along Range Road 3052. SaskTel confirmed that an upgrade to the existing telecommunications line would be required to service the property and there is no high-speed internet available. Property purchasers will be responsible to coordinating telecommunication services as required to support their respective businesses.

It is expected that domestic wastewater will be managed within the sites through the installation of privately-owned septic holding tanks on each lot, sized to suit the nature of the operating business. Future lot/business owners will be responsible to coordinate the hauling of off-site solid waste disposal. There are several private companies in the greater Saskatoon area that offer these services, written confirmation of the availability of these services is attached as Appendix F.

At the time of development, all systems shall meet or exceed the on-site sewage treatment requirements established by the Saskatchewan Health Authority as contained in the P4G District Official Community Plan, Review Process for Onsite Wastewater Disposal Systems for Developments and Subdivisions. Septic holding tanks provide for a full separation between wastewater collection and groundwater sources and as such do not typically require the preparation of a hydro-geotechnical report to support subdivision.

Run-off naturally flows to the south to southeast of the property. Small portions of the subject property are identified as part of the Green Network within the North Concept Plan, these portions of the land are intended to be used for stormwater retention for the site. Further details of future stormwater management can be seen in section 4.3 of this report and detailed in Appendix G.

The site is currently accessed via Range Road 3052 which is a Main Farm Access Road transitioning to a Municipal Maintained Road as it extends south from the property towards the Corman Industrial Park. The North Concept Plan identifies an intention to develop new minor arterial roadways along the northern boundary of the subject property and along the western boundary of LSD 8 extending through the subject property. The Future Transportation Network Map is provided in Appendix I. The eastern portion of the subject property is also impacted by a planned Major Arterial Road intended to connect to Highway 11. The proposed design standards for these roads indicate that the minor arterials will require a minimum 41 m right-of-way whereas the major arterial will require dedication of a 43 m right-of-way. Although the subdivision of the property does not require the construction of these future roads, it will need to consider an appropriate dedication of the lands necessary for constructing the new arterial roads in the future. As this dedication will serve the broader future transportation network for the area, it is expected that the owner will be compensated for this dedication to reflect their proportionate contribution to this future infrastructure.

3 POLICY AND REGULATORY CONDITIONS

The site lies within the P4G Planning District and within the boundaries of the North Concept Plan. The following section summarizes the policies and regulations that will influence the type, configuration and intensity of development within the plan area.

3.1 P4G District Official Community Plan

The P4G District Official Community Plan (DOCP) contains policies intended to guide land use, development and infrastructure services in this area of the RM. The following sections of the DOCP are anticipated to have the greatest influence on the form, intensity and configuration of development within the plan area. A full list of the applicable policies is provided in Appendix I.

The DOCP identifies the intention for the subject property to be developed for future rural commercial or industrial purposes within the RM of Corman Park. This designation accommodates general commercial and industrial uses, including lightly serviced industrial, storage, and commercial areas that require a large land base.

Section 3 of the DOCP includes the following objectives for development:

- Support and encourage regional economic prosperity and entrepreneurship.
- Support initiatives to strengthen and diversify the regional economic base.
- Support efforts by the P4G municipalities, First Nations and Métis communities and economic development organizations in increasing economic opportunities in the region and enhancing regional competitiveness.

Section 6 of the DOCP aims to identify and protect significant natural and heritage resources within the region and to provide value-added spaces for the community. This section aims to:

- Conserve and enhance natural systems and biodiversity.
- Encourage the protection and conservation of heritage properties, including sensitive buildings, structures, and lands.
- Promote awareness of the natural and heritage resources and visual amenities to both residents and visitors.

Section 14 of the DOCP provides specific policies concerning rural industrial development and offers support to the development of the subject property for business, light and heavy industrial uses requiring rural servicing.

The DOCP establishes the following location criteria for industrial park development:

- The carrying capacity of the lands proposed for development and the surrounding area based on site conditions, environmental considerations, potential impacts, and other factors that may warrant consideration in the design of the proposal are addressed;
- Impacts on regional drainage patterns and other regional ecological systems are minimized;
- The suitability and availability of municipal and other services and infrastructure necessary to support the proposal are considered;
- The design is compatible with that of the surrounding area;
- Existing roads and infrastructure are sufficient to support the development while impacts to existing roadways and additional costs of maintenance are minimized;

- Nodal development is planned where key intersections of provincial highways, municipal roadways, and the Saskatoon Freeway can support access;
- Lands are not prone to natural hazards;
- Lands do not have unique historical or archaeological features;
- Lands do not have significant wildlife habitat;
- Lands do not have high quality recreational resources;
- Surface and groundwater resources will not be impacted; and
- Any other costs to Corman Park associated with the development are minimized.

Section 17 of the DOCP addresses regional stormwater issues. The area accommodates compatible agriculture, outdoor recreation, and sensitively integrated stormwater management infrastructure. Section 17.3.7 specifically addresses that the Green Network Study Area should be integrated with regional stormwater management systems whenever feasible and should consider ecological functions within the area and address the suitability of any sustainability measures.

Section 27 of the DOCP speaks to transportation with specific objectives in coordinating local infrastructure improvements with municipal partners:

- Support accessibility, connectivity, and mobility in the regional transportation system;
- Integrate transportation planning with land use planning and development policies to provide more effective responses to future development and mobility needs;
- Support efforts by the P4G municipalities to improve local circulation and build fiscally sustainable transportation infrastructure;
- Coordinate regional transportation planning with the Province to support efficient, integrated solutions to mobility requirements; and
- Explore future opportunities to expand mobility options and improve accessibility.

3.2 North Concept Plan

The DOCP provides for the preparation of concept plans to provide a more focused and specific policy direction to guide development, land use and services in specific areas of the region building on the general direction presented in the DOCP. The regional municipalities have endeavoured to prepare a concept plan for the area including and surrounding the subject property. Map 5 of the North Concept Plan (NCP) verifies the intention to introduce rural serviced light industrial development within the subject property. The NCP states that light industrial development will include uses that accommodate a wide variety of general industrial and agriculture-related industrial uses, both as standalone developments and within the context of a rural industrial park. Development in this area is intended to support the agriculture industry through value-added activities, except for intensive livestock operations. Developments in this area would maintain rural servicing and a typical rural roadways cross-section and would be compatible with and provide a transition from any adjacent heavy industrial uses. The NCP identifies a small portion of land in the southeast corner of the subject property as appropriate for hosting rural commercial development.

3.3 P4G Zoning Bylaw

The P4G Zoning Bylaw is the primary tool used by the municipality to implement the policy direction provided by the DOCP and NCP. The Zoning Bylaw contains regulations that inform the physical development requirements within the subject property including but not limited to establishing minimum lot size requirements, maximum building heights and setback distances between certain types of land uses. The proposed development has been planned to align with the D – Light Industrial District (DM1) with the intent to accommodate activities such as manufacturing, processing, assembly, repair, and or end-user production and distribution.

The key regulatory provisions of the Zoning Bylaw that influence development in the subject property include:

- Drainage - Where development may alter site drainage potentially affecting adjacent, upstream or downstream properties, or the stability of the land, the applicant shall be required to construct engineered drainage works incorporating sufficient capacity to accommodate the surficial water runoff for a 1:100 year storm event with no incremental increase in offsite flows in excess of what would have been generated from the property prior to the grading and levelling.
- Public Roadways – Roadways required to support development within the subject property will need to be constructed to the RM's current engineering standards and at the sole expense of the proponent.
- Utility Services – Development will be adequately serviced to the satisfaction of the municipality and in cases where upgrades are required, the applicant will be solely responsible for the costs and scheduling of such upgrades.
- Wastewater Treatment Systems – The development shall not be issued a development permit until all appropriate permits have been obtained for the wastewater treatment system from appropriate provincial regulatory agencies. It is anticipated that each individual lot will utilize holding tanks as a means of wastewater collection.
- Water Supply – All new multi-parcel commercial, industrial, community service and country residential development shall be serviced by a centralized potable waterline to the satisfaction of the municipality. The developer will contact the local water utility and will be solely responsible for the costs and scheduling of such upgrades. It is anticipated that curb stops will be provided to each lot as subdivision occurs.

4 DEVELOPMENT CONCEPT

The site is intended to host a variety of light industrial uses as defined by the P4G Zoning Bylaw. The configuration of the sites respects the current legal property boundaries representing the bounds of development envisioned by this CDR while also considering and accommodating the expansion of development in the vicinity and the eventual expansion of the regional road network.

The proposed form of development is consistent with the direction portrayed for future development in this area as defined by the DOCP and NCP. The site borders Range Road 3052 to the west. Lands to the northwest of the site and across 3052 are designated by the City of Martensville Future land Use Map as Municipal Reserve, Parks and Open Space. There are no incompatible land uses to the north or east of the site that would necessitate specific screening or buffering requirements.

The DOCP states that industrial parks with a high potential for land use conflicts must include buffering from non-industrial uses of land. The only potential source of conflict would be relative to the two residential yard sites lying south of the subject property.

The house situated in the S ½ of SW 23-38-5-W3M is situated approximately 60 metres south of the southern boundary of the subject property. The residential site includes a two-row mature shelterbelt along the common boundary with the subject property. The yard site also includes a third internal tree line along the north side of the dwelling.

The second house lies in the S ½ of SE 23-38-5-W3M and is situated approximately 180 metres from the south boundary of the subject property. The house is situated within a treed area approximately 70 metres deep to the north which would block any view of the proposed industrial development.

The setback and existence of mature tree cover within the nearby yard sites are perceived to provide enough buffer from development in the nearby industrial lots. Consideration of buffering or screening should account for the planned transition of development in the surrounding lands to a similar use. It is assumed where required by the RM at the time of lot development, the property owner may be required to provide additional screening along the southern boundary of a lot where the proposed use has the potential to negatively impact the use and enjoyment of the residential sites.

Table 4-1 summarizes the proposed allocation of land within the subject property.

Table 4-1 Development Summary

Land Use	Area (ha)	Percent of GDA
Gross Development Area (GDA)	64.18	100.0
Industrial Lots	39.48	61.5
Future Commercial Development Area ¹	6.32	9.9
Municipal Utility / Storm Pond	5.87	9.1
Buffer	0.11	0.2
Municipal Reserve	1.62	2.5
Road ROW ¹	10.78	16.8

IF NOT 25 mm ADJUST SCALES
25 mm



SCALES SHOWN ARE INTENDED FOR TABLORD (11X17) SIZE DRAWINGS UNLESS NOTED OTHERWISE

RANGE ROAD 3052

NW 23-38-5-W3M

NE 23-38-5-W3M

FUTURE ARTERIAL ROAD

FUTURE ARTERIAL ROAD

DM1
±9.91 ha
±24.49 ac

DM1
±9.99 ha
±24.69 ac

±0.85 ha
±2.10 ac

DC2
±5.47 ha
±13.52 ac

DM1
±9.84 ha
±24.32 ac

DM1
±9.74 ha
±24.07 ac

MU1 /
STORM POND

MR1

MR2

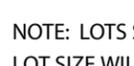
LSD 4 SW 23-38-5-W3M

LSD 3 SW 23-38-5-W3M

LSD 2 SE 23-38-5-W3M

LSD 1 SE 23-38-5-W3M

LEGEND

-  INDUSTRIAL LOT
-  FUTURE COMMERCIAL DEVELOPMENT AREA
-  STORM POND
-  MUNICIPAL UTILITY (MU)
-  MUNICIPAL RESERVE (MR)
-  INTERNAL SUBDIVISION ROAD
-  PATHWAY
-  FUTURE SANITARY TRUNK
-  FUTURE STORM TRUNK

NOTE: LOTS SHOWN ARE APPROXIMATE.
LOT SIZE WILL BE VERIFIED BY SUBDIVISION

FIGURE 4-1 DEVELOPMENT CONCEPT

CONCEPT - LP INDUSTRIAL CDR

HILLSIDE FARMS REAL ESTATE CORP.

AE PROJECT No.	20214690-01
SCALE	NTS
APPROVED	T. TETREULT
DATE	2022OCT04
REV	0
DESCRIPTION	ISSUED FOR REPORT

The road network and adjacent lands designated for commercial development are tentative and subject to change following the completion of additional transportation planning by the municipality following a planned relocation of the Highway 11 intersection.

It is anticipated that lot sizes will range between 2 and 4 acres; providing a suitable area to conduct industrial businesses while the block depth and configuration of the internal road network enables lot boundaries to be altered to suit larger operations without impacting the road network, drainage or the provision of water services within the development. The potential lot sizes illustrated in this report are subject to change depending upon the specific needs of future purchasers and will be confirmed through the submission of subdivision applications.

Lots will be accessed exclusively from the internal roadway. A 1 m municipal buffer is intended along the boundary of the industrial sites lying adjacent to the proposed future arterial roadway to the north to restrict driveway access along this proposed future roadway.

The plan also anticipates potential commercial development as represented by the NCP within in LSD 8. Further, more detailed investigation regarding the final transportation network for this area is planned to be completed by the municipality and will dictate whether the final form of development and basis for access to these lands.

The internal subdivision road will be developed to the RM's current industrial road standard as illustrated in Appendix H. The layout provides a road connection to the south to enable the subject property to connect and function within a broader rural industrial park in the future. This future road connection to the south is not required to support the subdivision or development within our site. As a result, the future south internal roadway connection is planned to be dedicated but not constructed in conjunction with this project. It is assumed that the landowner to the south would be responsible for constructing this roadway in the future in order to access the future arterial roadway to the north.

The development concept accounts for the partial dedication of the north arterial roadway and accounts fully for the land needed to construct the planned north/southbound arterial road lying along the western boundary of LSD 8. The NCP identifies a 40 m right-way requirement for the north arterial and a 40 m right-of-way for the southbound arterial road. The intent is to dedicate half of the north arterial right-of-way and the full right-of-way for the east arterial. As these future arterial roadways will act to serve the area beyond the subject property, it is expected that the owner will be compensated for this dedication to reflect their proportionate contribution to this future infrastructure.

For the initial phase of subdivision and development a all-season gravel road will be constructed within the north and east arterial rights-of-way to provide all season access to the proposed storm pond and to act as a secondary access for the subdivision.

The proposed primary municipal road access to the property is from Range Road 3052. This roadway is a gravel surfaced road constructed within a 20-metre right-of-way. It is the RM's policy that all multi-parcel developments are connected to an existing paved municipal road or a provincial highway. The first 600 metres of Range Road 3052 is paved extending north from Lutheran Road. To satisfy Council's road policy, the development will require the improvement of 1.5 km of gravel road to the south to connect to the existing pavement north of Lutheran Road. According to land titles information, suitable easements and dedications have been secured in this direction to accommodate these improvements.

A portion of LSD 8 is designated as Green Network Study Area. The development concept for the site seeks to retain this area for stormwater management and to provide passive recreation opportunities.

Based on a review of the HabiSask online database the site does not contain any sensitive habitat that would be negatively impacted by the development proposed. A review of the developer's online screening tool confirmed that the site is not considered heritage sensitive and by all classifications known, the watered areas within the property are classified as seasonal wetlands in GNSA. Most of the property is currently cultivated land with limited vegetation in the NW corner of the site, a portion of the existing trees situated on Range Road 3052 could be retained to provide a visual buffer between industrial development within the site. Section 2.1 of the DOCP speaks to the wetland areas and the intention to protect them from development that would compromise their function. To confirm as all current data states:

- There is no history of flooding on the property.
- There is no visual evidence to suggest that the developable lands are flood prone.
- The only areas that were identified flood-prone were identified as GNSA identification.
- The balance of the property was not considered unimpacted by a 1:100 storm event.
- The lands are to be used as light industrial, the types of uses anticipated to be used can be expected to have limited offsite impacts.
- As per the design, the exclusive use of septic tanks, there will be no risks of crossing waste and ground water.
- The ground water elevations on the site are 2.1-2.3 meters and the stormwater retention pond will utilize a depth of 1.5m which creates a physical separation.
- The intention would be to upgrade the wetlands. (would provide the potential to host aquatic and avian habitat).
- The wetlands would not be negatively impacted and would instead be enhanced by naturalizing the area.
- Upgrading to naturalized ponds would improve water quality by implementing natural filtration.

As the land area is not planned to be altered or refined to accommodate development and is planned to be used in a manner that is consistent with the intention of the GNSA, this application does not include any formal wetland or environmental assessment beyond the screening provided in Appendix D.

A portion of the GNSA above the high-water elevation of the planned SWMF is planned to be dedicated as municipal reserve and include an interpretive trail enabling public access to the swale. This trail is envisioned to set the stage for a broader interconnected trail network within the balance of the Opimihaw Creek watershed and support healthy and active lifestyles.

Based upon the conceptual land estimates represented in Figure 4-1 and a 5% municipal reserve requirement, we estimate the municipal reserve dedication to be 2.91 ha. As represented a total of 1.62 ha is proposed to be provided as a land dedication with the remaining balance to be provided as a cash-in-lieu payment. The information provided in this report is an estimate only. The actual municipal reserve dedication amount will be confirmed through the submission of formal subdivision plans.

4.1 Potable Water

SaskWater currently has the system capacity to provide 20-30 igpm which should likely be adequate for the proposed light industrial park (See Appendix F). The SaskWater SAPO-North 20 inch supply line runs in the east ditch adjacent to the west side of the property. The water service has not been planned to provide fire protection within the properties. The developer will be responsible for extending potable water lines to each lot within the proposed development which will terminate at a curb stop. At the time a future property owner applies for a development permit, they will contact the appropriate water service provider in order to determine what volumes of water will be required on a usage basis as well as peak volumes and flow rates. Further extension of the potable water lines will be the sole responsibility of each individual property owner.

4.2 Wastewater Management

As part of the development concept, sewage holding tanks are anticipated to be installed and constructed for each lot within the subject property. The sewage holding tanks will be constructed by property owners in compliance with applicable provincial regulations.

Sewage holding tanks are common in all existing commercial and industrial developments in Corman Park and primarily due to their relatively small footprint and limited impact on business operations relative to septic fields that consume larger areas of land. Holding tanks are primarily used on properties where no other alternative methods of wastewater disposal are feasible or allowed by regulation. Properties that do not have an adequate area for a wastewater treatment system, properties located along a lakeshore, or properties with unusual circumstances may need to utilize a holding tank.

At the time of application for a development permit by a property owner, they will employ a sewage contractor and ensure that the size and design of the private onsite sewage storage are completed and that the specifications of such are in compliance with all provincial regulations including, but not limited to, the Saskatchewan Health Authority and the Water Security Agency. As per the requirements of the subdivision approving authority, a licensed sewage hauler was contacted to confirm their ability to service the businesses within the park.

The NCP identifies the intention to extend a future sanitary sewer trunk through the plan area. The concept provides for the registration of a 20-m easement to provide access to the lands necessary to facilitate construction.

4.3 Grading and Drainage

A conceptual stormwater management plan was prepared to respond to the standards established in the District Zoning Bylaw and to comply with the provincial drainage regulations. A copy of the drainage plan and correspondence from the Water Security Agency is attached as Appendix G.

The NCP identifies the intention to extend a future storm trunk within the plan area. The concept provides for the registration of a 20-m easement to provide access to the lands necessary to facilitate construction.

4.4 Utilities and Services

The geographical location of the property does not limit potential services to the development proposal. Sasktel, SaskWater, SaskPower, and SaskEnergy, all maintain services directly adjacent to the property. Future property owners will have the ability to coordinate with each of these service providers to obtain the appropriate level of service that they may require, from each of the utility providers. This area is policed by the RM of Corman Park Police Service and the Martensville office of the RCMP.

The Warman Volunteer Fire Department provides fire protection and suppression service as well as rescue service for the surrounding rural area in the RM of Corman Park in proximity to Warman. The department also responds to medical emergencies in the area, providing first responder service in conjunction with MD Ambulance and the Saskatoon Health Region.

Copies of correspondence from the above-noted service providers are attached as Appendix F.

4.5 Development Phasing

Subdivision and development within the property is expected to occur in multiple phases and confirmed through the submission of subdivision applications. The timing and size of each phase will be determined by the owner based on market conditions and the logical extension of new infrastructure required to support development.

It is assumed that subdivision applications that represent minor variations in property boundaries with no impact on road alignments or servicing requirements and which are consistent with the intentions for development as represented in this CDR will be supported by the RM.

4.6 Financial Considerations

It is assumed that all responsibility for upgrading existing and constructing new infrastructure directly required for the proposed subdivision of the subject property will be the sole responsibility of the applicant and defined in a servicing agreement.

5 RECORD OF ENGAGEMENT

As part of the public notification regarding the proposed rezoning of the subject property, landowners within 1.6 kilometres were sent letters informing them of the proposed development. In total, 59 notices were sent on October 5th, 2022 with an open period for comments to be received, closing on October 28th, 2022. Two responses were received identifying the following concerns:

- The impact of development on the drainage in the area, specifically the potential for the development to disrupt the natural path for drainage in the area;
- The potential for development to impact the groundwater supplies;
- Management of garbage, dust and pollution potentially generated by industrial development;
- Increase in traffic; and
- Increased crime in the area.

An engineered stormwater management plan has been prepared to support the proposed development that accounts for upstream flows, incremental increases in run-off generated by development and the need to detain these incremental flows in a storm retention facility. The planned facility is situated in a natural low-lying area and is designed to release run-off along the natural course at a predevelopment rate.

The proposed development is planned to connect to a common treated potable water system and will not include any groundwater wells that might impact the volume of water available to existing wells.

Garbage disposal services will be contracted to one of many private third-party contractors. All internal roads are planned to be constructed to a paved surface standard as required by the RM. Additionally it is expected that as a condition of approval, the primary municipal access road connecting this site to the nearest paved road will be upgraded to a paved standard eliminating any issues with dust.

The RM requires the submission of a site and landscaping plan as part of its development permit application. It is expected that the RM will assess the need to incorporate any lot and operation specific screening on a case by case basis depending on the nature of the business.

The increase in traffic in this area has been accounted for by the North Concept Plan through the planned expansion of roadway infrastructure in this area. In the interim, planned improvements to Range Road 3052 will improve the capacity of the local road system.

We are not aware of any published studies that would suggest that development results in an increase in unwanted activity in an area. Businesses choosing to locate in this area will undoubtedly want to protect their investment in the land and improvements in the same way as existing residents in the area. An argument can be made that the development of this site will decrease the incidence of unwanted behavior in the area by expanding the local presence. One of the core principles of Crime Prevention Through Environmental Design is that more activity in an area results in increased natural surveillance which deters unwanted behaviour

The specific comments provided by the neighbouring property owners can be referenced in Appendix H.

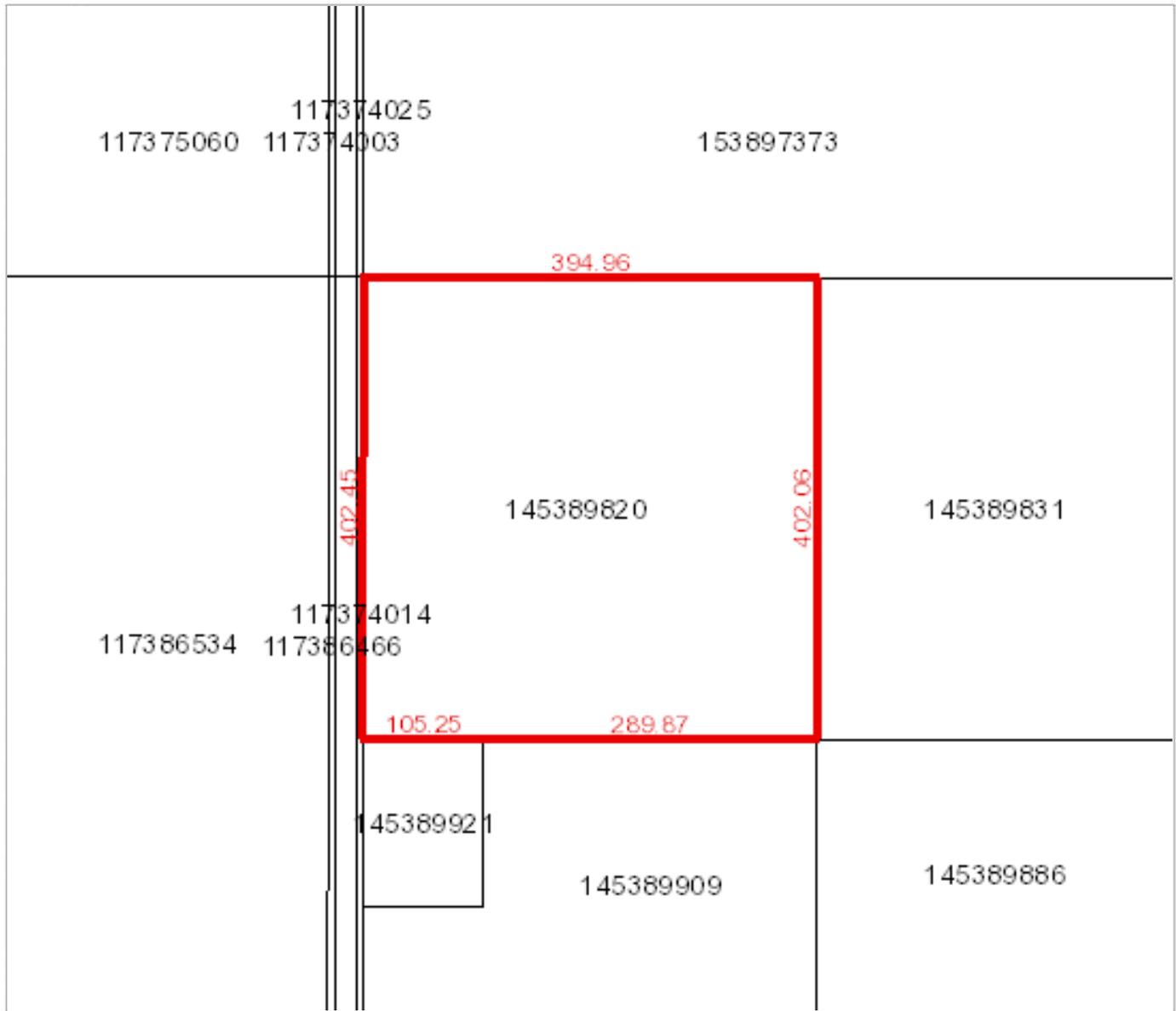
APPENDIX A - LAND TITLES CERTIFICATE





Surface Parcel Number: 145389820

REQUEST DATE: Thu Jun 9 14:53:41 GMT-06:00 2022



Owner Name(s) : HILLSIDE FARM REAL ESTATE CORP.

Municipality : RM OF CORMAN PARK NO. 344

Area : 15.889 hectares (39.26 acres)

Title Number(s) : 154611693

Converted Title Number : 89S04059

Parcel Class : Parcel (Generic)

Ownership Share : 1:1

Land Description : LSD 5- 23-38-05-3 Ext 63

Source Quarter Section : SW-23-38-05-3

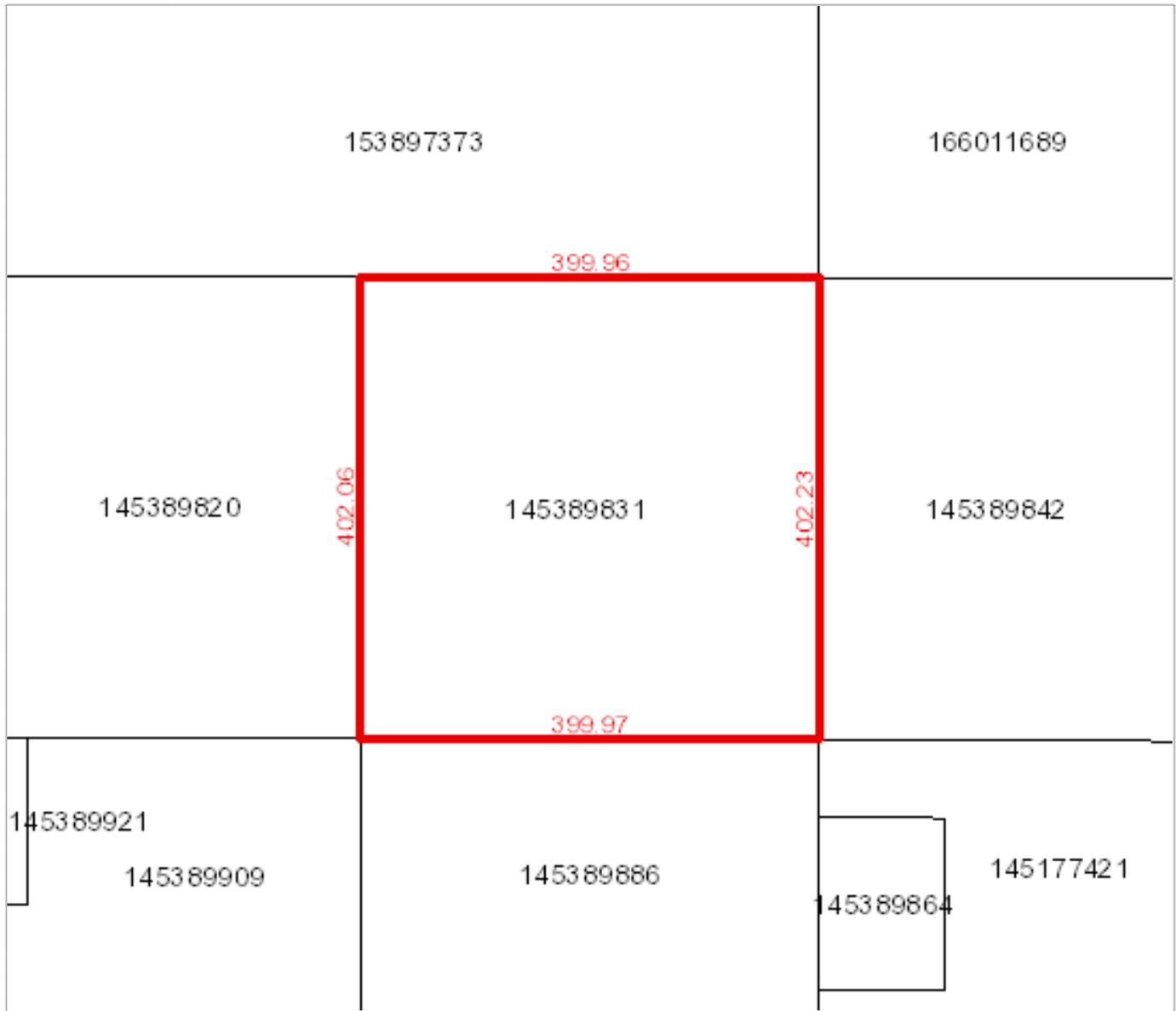
Commodity/Unit : Not Applicable

DISCLAIMER: THIS IS NOT A PLAN OF SURVEY It is a consolidation of plans to assist in identifying the location, size and shape of a parcel in relation to other parcels. Parcel boundaries and area may have been adjusted to fit with adjacent parcels. To determine actual boundaries, dimensions or area of any parcel, refer to the plan, or consult a surveyor.



Surface Parcel Number: 145389831

REQUEST DATE: Thu Jun 9 14:54:12 GMT-06:00 2022



Owner Name(s) : HILLSIDE FARM REAL ESTATE CORP.

Municipality : RM OF CORMAN PARK NO. 344

Area : 16.084 hectares (39.75 acres)

Title Number(s) : 154611727

Converted Title Number : 89S04059

Parcel Class : Parcel (Generic)

Ownership Share : 1:1

Land Description : LSD 6- 23-38-05-3 Ext 64

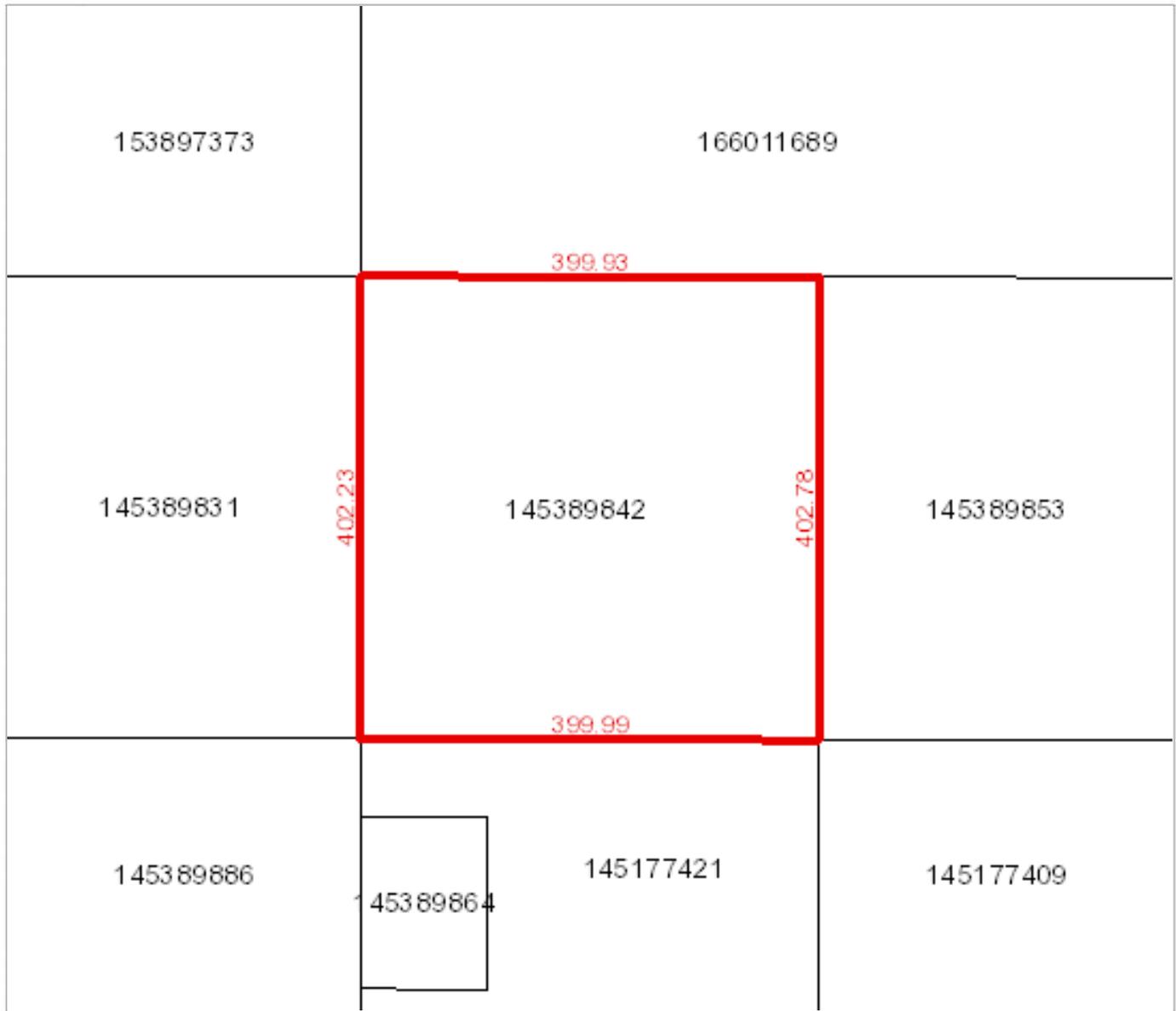
Source Quarter Section : SW-23-38-05-3

Commodity/Unit : Not Applicable



Surface Parcel Number: 145389842

REQUEST DATE: Thu Jun 9 14:59:23 GMT-06:00 2022



Owner Name(s) : HILLSIDE FARM REAL ESTATE CORP.

Municipality : RM OF CORMAN PARK NO. 344

Area : 16.099 hectares (39.78 acres)

Title Number(s) : 154611761

Converted Title Number : 89S04059

Parcel Class : Parcel (Generic)

Ownership Share : 1:1

Land Description : LSD 7- 23-38-05-3 Ext 65

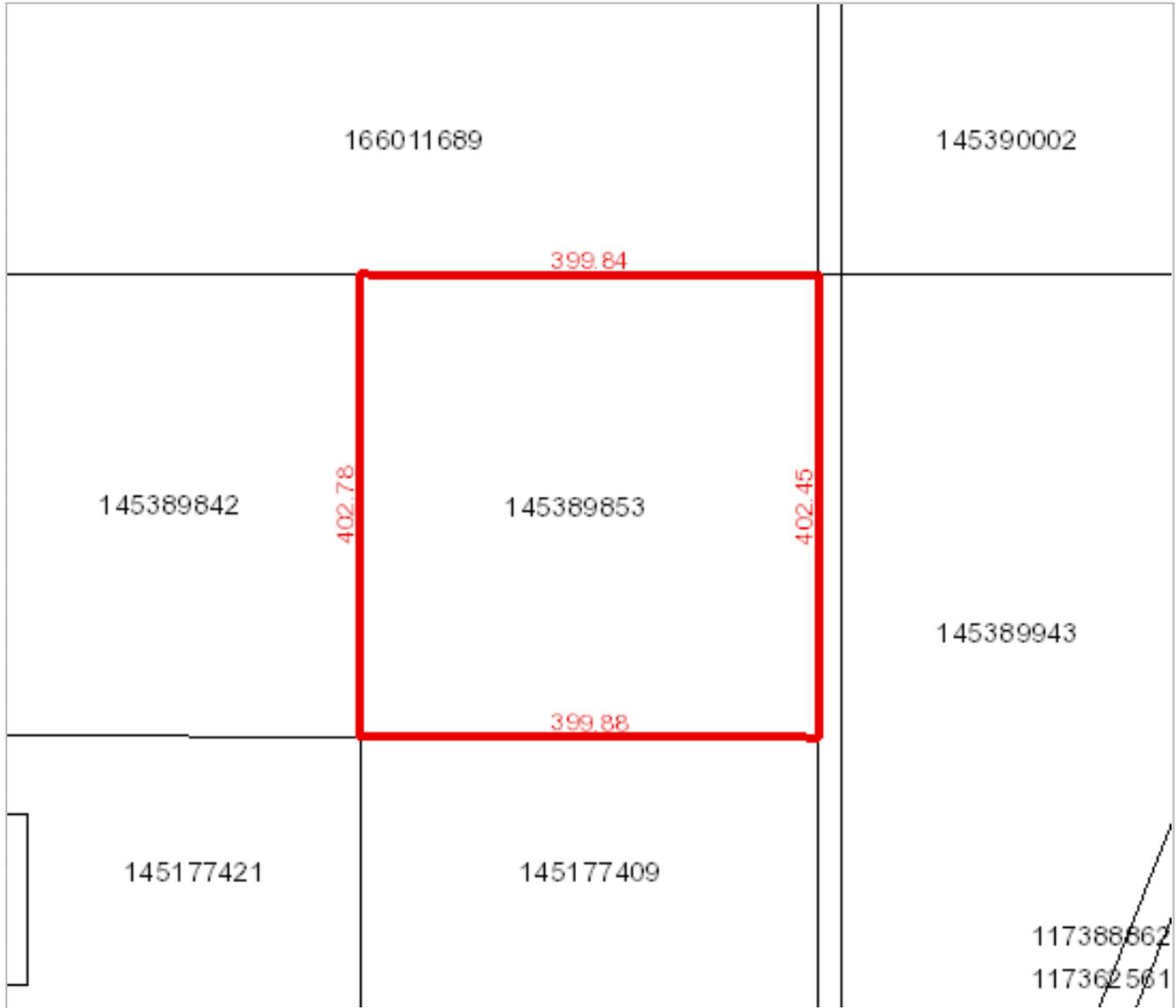
Source Quarter Section : SE-23-38-05-3

Commodity/Unit : Not Applicable



Surface Parcel Number: 145389853

REQUEST DATE: Thu Jun 9 15:00:56 GMT-06:00 2022



Owner Name(s) : HILLSIDE FARM REAL ESTATE CORP.

Municipality : RM OF CORMAN PARK NO. 344

Area : 16.099 hectares (39.78 acres)

Title Number(s) : 154611772

Converted Title Number : 89S04059

Parcel Class : Parcel (Generic)

Ownership Share : 1:1

Land Description : LSD 8- 23-38-05-3 Ext 66

Source Quarter Section : SE-23-38-05-3

Commodity/Unit : Not Applicable

Province of Saskatchewan Land Titles Registry Title

Title #: 154611693

Title Status: Active

Parcel Type: Surface

Parcel Value: \$275,000.00 CAD

Title Value: \$275,000.00 CAD

Converted Title: 89S04059

Previous Title and/or Abstract #: 145273079

As of: 09 Jun 2022 14:55:17

Last Amendment Date: 19 Nov 2021 13:54:09.007

Issued: 29 Oct 2021 13:55:45.790

Municipality: RM OF CORMAN PARK NO. 344

HILLSIDE FARM REAL ESTATE CORP. is the registered owner of Surface Parcel #145389820

Reference Land Description: LSD 5 Sec 23 Twp 38 Rge 05 W 3 Extension 63
As described on Certificate of Title 89S04059, description 63.

This title is subject to any registered interests set out below and the exceptions, reservations and interests mentioned in section 14 of *The Land Titles Act, 2000*.

Registered Interests:

None

Addresses for Service:

Name

Owner:

HILLSIDE FARM REAL ESTATE CORP.

Address

214-5405 EGLINTON AVENUE W TORONTO, Ontario, Canada
M9C 5K6

Client #: 137657335

Notes:

Under The Planning and Development Act, 2007, the title for this parcel and parcels 145389831 may not be transferred or, in certain circumstances, mortgaged or leased separately without the approval of the appropriate planning authority.

Parcel Class Code: Parcel (Generic)



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Province of Saskatchewan Land Titles Registry Title

Title #: 154611727

Title Status: Active

Parcel Type: Surface

Parcel Value: \$275,000.00 CAD

Title Value: \$275,000.00 CAD

Converted Title: 89S04059

Previous Title and/or Abstract #: 145273091

As of: 09 Jun 2022 14:54:24

Last Amendment Date: 19 Nov 2021 13:54:08.960

Issued: 29 Oct 2021 13:55:46.040

Municipality: RM OF CORMAN PARK NO. 344

HILLSIDE FARM REAL ESTATE CORP. is the registered owner of Surface Parcel #145389831

Reference Land Description: LSD 6 Sec 23 Twp 38 Rge 05 W 3 Extension 64
As described on Certificate of Title 89S04059, description 64.

This title is subject to any registered interests set out below and the exceptions, reservations and interests mentioned in section 14 of *The Land Titles Act, 2000*.

Registered Interests:

None

Addresses for Service:

Name

Owner:

HILLSIDE FARM REAL ESTATE CORP.

Address

214-5405 EGLINTON AVENUE W TORONTO, Ontario, Canada
M9C 5K6

Client #: 137657335

Notes:

Under The Planning and Development Act, 2007, the title for this parcel and parcels 145389820 may not be transferred or, in certain circumstances, mortgaged or leased separately without the approval of the appropriate planning authority.

Parcel Class Code: Parcel (Generic)



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Province of Saskatchewan Land Titles Registry Title

Title #: 154611761

Title Status: Active

Parcel Type: Surface

Parcel Value: \$275,000.00 CAD

Title Value: \$275,000.00 CAD

Converted Title: 89S04059

Previous Title and/or Abstract #: 145273114

As of: 09 Jun 2022 14:59:50

Last Amendment Date: 19 Nov 2021 13:54:08.973

Issued: 29 Oct 2021 13:55:46.277

Municipality: RM OF CORMAN PARK NO. 344

HILLSIDE FARM REAL ESTATE CORP. is the registered owner of Surface Parcel #145389842

Reference Land Description: LSD 7 Sec 23 Twp 38 Rge 05 W 3 Extension 65
As described on Certificate of Title 89S04059, description 65.

This title is subject to any registered interests set out below and the exceptions, reservations and interests mentioned in section 14 of *The Land Titles Act, 2000*.

Registered Interests:

None

Addresses for Service:

Name

Owner:

HILLSIDE FARM REAL ESTATE CORP.

Address

214-5405 EGLINTON AVENUE W TORONTO, Ontario, Canada
M9C 5K6

Client #: 137657335

Notes:

Under The Planning and Development Act, 2007, the title for this parcel and parcels 145389853 may not be transferred or, in certain circumstances, mortgaged or leased separately without the approval of the appropriate planning authority.

Parcel Class Code: Parcel (Generic)



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Province of Saskatchewan Land Titles Registry Title

Title #: 154611772

Title Status: Active

Parcel Type: Surface

Parcel Value: \$275,000.00 CAD

Title Value: \$275,000.00 CAD

Converted Title: 89S04059

Previous Title and/or Abstract #: 145273136

As of: 09 Jun 2022 15:01:13

Last Amendment Date: 19 Nov 2021 13:54:08.973

Issued: 29 Oct 2021 13:55:46.527

Municipality: RM OF CORMAN PARK NO. 344

HILLSIDE FARM REAL ESTATE CORP. is the registered owner of Surface Parcel #145389853

Reference Land Description: LSD 8 Sec 23 Twp 38 Rge 05 W 3 Extension 66
As described on Certificate of Title 89S04059, description 66.

This title is subject to any registered interests set out below and the exceptions, reservations and interests mentioned in section 14 of *The Land Titles Act, 2000*.

Registered Interests:

None

Addresses for Service:

Name

Owner:

HILLSIDE FARM REAL ESTATE CORP.

Address

214-5405 EGLINTON AVENUE W TORONTO, Ontario, Canada
M9C 5K6

Client #: 137657335

Notes:

Under The Planning and Development Act, 2007, the title for this parcel and parcels 145389842 may not be transferred or, in certain circumstances, mortgaged or leased separately without the approval of the appropriate planning authority.

Parcel Class Code: Parcel (Generic)



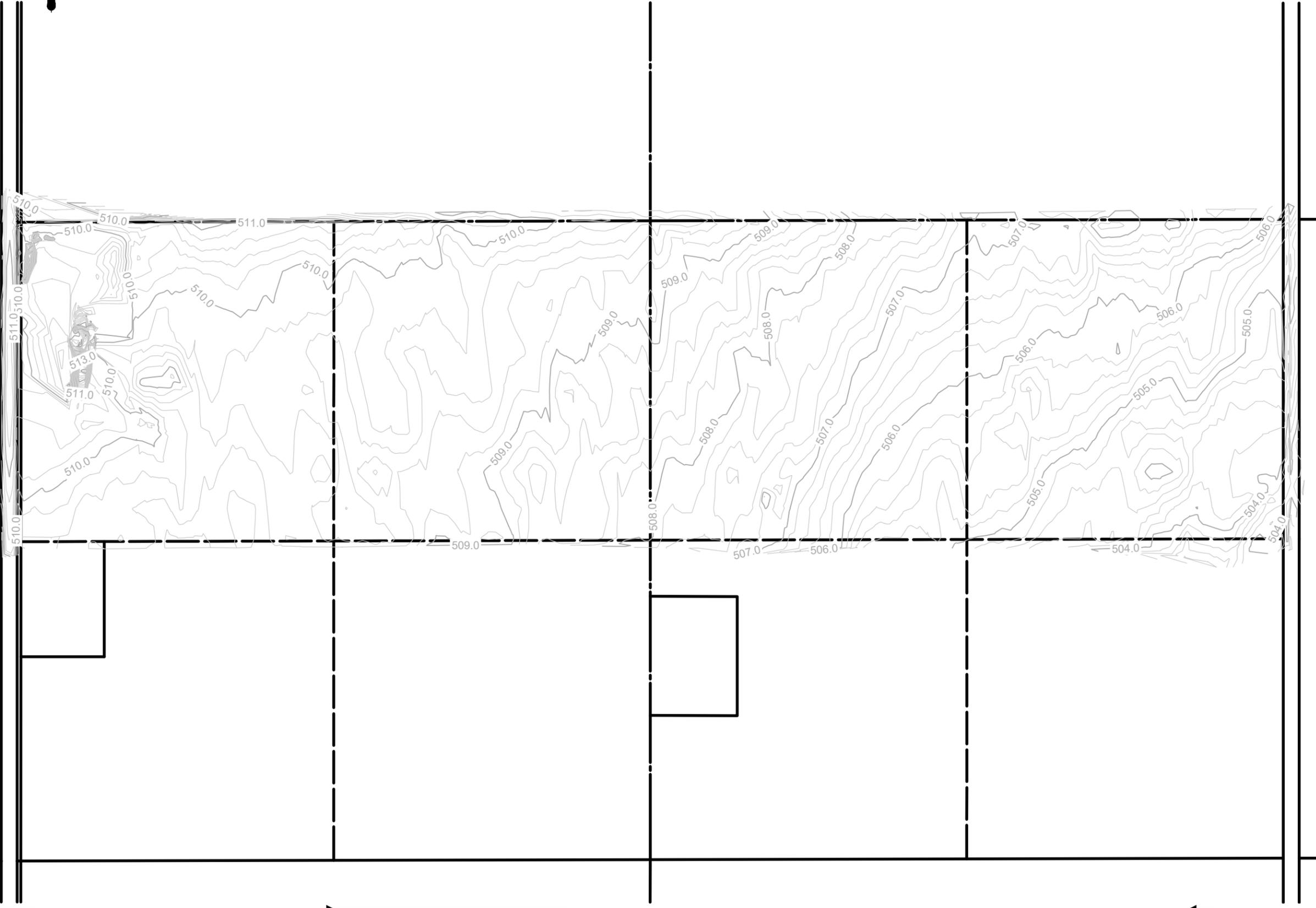
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APPENDIX B - TOPOGRAPHIC MAP



IF NOT 25 mm ADJUST SCALES

SCALE(S) SHOWN ARE INTENDED FOR TABLOID (11X17) SIZE DRAWINGS UNLESS NOTED OTHERWISE



PLOT DATE: 2/16/2022 10:52:42 AM
 SAVE DATE: 2/15/2022 8:54:59 AM SAVED BY: PAWLUSKIM
 DWG PATH: \\ae.ca\data\working\saas\2021-4690-01\plan\4609-01-up-704-contours.dwg

APPENDIX B

SITE CONTOURS
 LP INDUSTRIAL CDR

Hillside Farm Real Estate Corp.

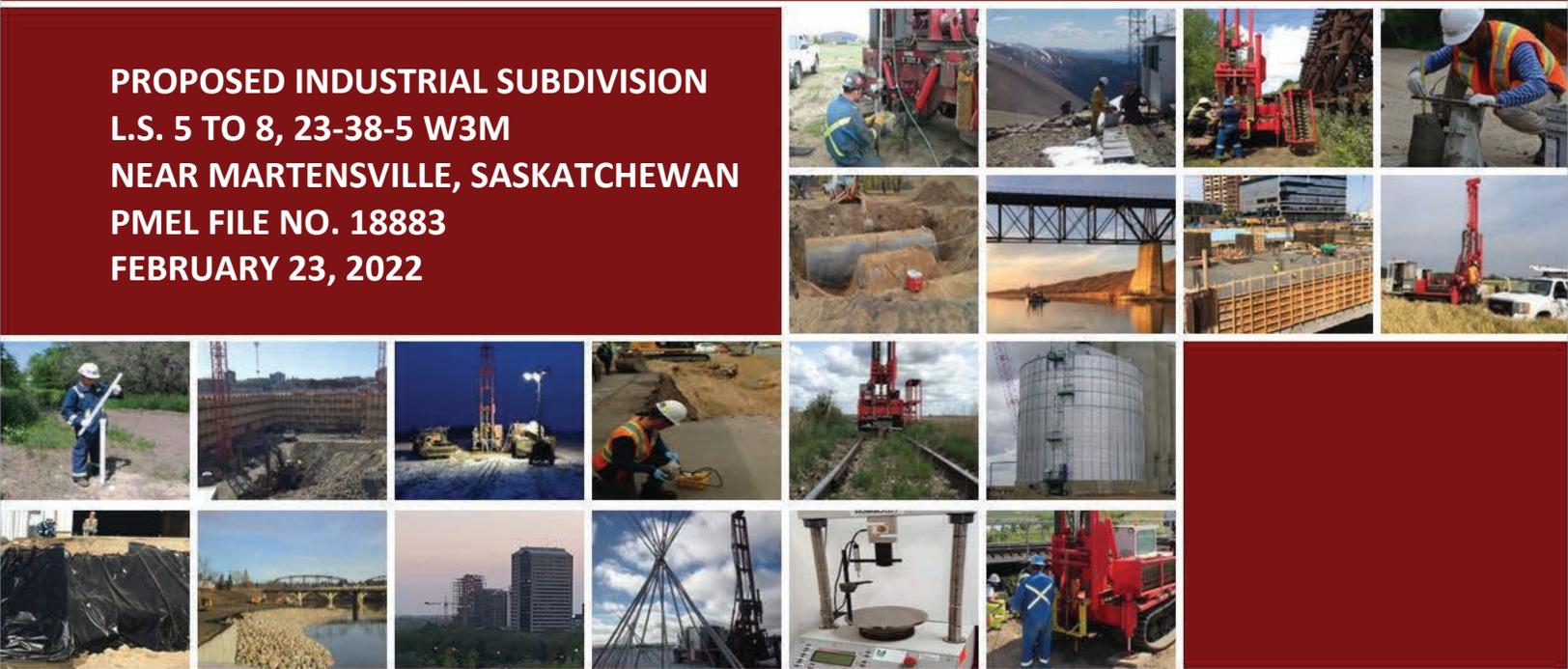
AE PROJECT No.	20214690-01
SCALE	NTS
APPROVED	J. TAYLOR
DATE	2022FEB15
REV	0
DESCRIPTION	ISSUED FOR REPORT

APPENDIX C - PRELIMINARY GEOTECHNICAL REPORT



PRELIMINARY GEOTECHNICAL INVESTIGATION

**PROPOSED INDUSTRIAL SUBDIVISION
L.S. 5 TO 8, 23-38-5 W3M
NEAR MARTENSVILLE, SASKATCHEWAN
PMEL FILE NO. 18883
FEBRUARY 23, 2022**



**PREPARED FOR:
Associated Engineering (Sask.) Ltd.**

ATTENTION: Bill Delainey, RPP MCIP

PROJECT: Preliminary Geotechnical Investigation
Proposed Industrial Subdivision
L.S. 5 to 8, 23-38-5 W3M
Near Martensville, Saskatchewan
PMEL File No. 18883
February 23, 2022

PREPARED FOR: Associated Engineering (Sask.) Ltd.
1-2225 Northridge Drive
Saskatoon, Saskatchewan
S7L 6X6

ATTENTION: Bill Delainey, RPP MCIP
Manager, Urban Planning

DISTRIBUTION: Associated Engineering (Sask.) Ltd. – Digital Copy
P. Machibroda Engineering Ltd. – One Copy

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3	SOIL AND GROUNDWATER CONDITIONS	2
3.1	Soil Profile	2
3.2	Groundwater Conditions, Sloughing	2
3.3	Cobblestones and Boulders	2
4	LABORATORY ANALYSIS	3
5	DESIGN CONSIDERATIONS	3
6	LIMITATIONS	5

LIST OF DRAWINGS

18883-1	Site Plan – Borehole Locations
18883-2 to 13	Borehole Logs and Soil Test Results

LIST OF APPENDICES

Appendix A	Explanation of Terms on Borehole Logs
Appendix B	Grain Size Distribution Test Results

1 INTRODUCTION

1.1 GENERAL

The following report has been prepared to provide preliminary geotechnical information for the proposed industrial subdivision to be developed within Legal Subdivision Nos. 5, 6, 7 and 8 within the N½ 23-38-5 W3M near Martensville, Saskatchewan.

The terms of reference for this investigation were presented in P. Machibroda Engineering Ltd. (PMEL) Proposal No. 18883, dated January 7, 2022. Authorization to proceed with this investigation was provided in the e-mail from Bill Delainey of Associated Engineering (Sask.) Ltd., dated January 25, 2022.

1.2 SITE LOCATION AND DESCRIPTION

The proposed industrial subdivision is located in a field just east of Martensville, Saskatchewan. The site is bordered by Range Road 3052 to the west, light residential and Township Road 384 to the north, Highway 11 to the east and farmland/industrial development to the south. The primary land use of the site appears to be for agricultural purposes. A Site Plan showing the location of the study area and boreholes has been shown on Drawing No. 18883-1.

2 FIELD INVESTIGATION

The field test drilling, soil sampling and monitoring well installation was conducted on February 7 and 8, 2022. Groundwater monitoring was conducted on February 17, 2022.

The plan location of each borehole was surveyed using handheld Global Positioning Equipment (Trimble, Model No. GeoXH 6000). The elevation of each borehole was estimated based on the GPS coordinates and on the existing topographic survey conducted of the site by GeoVerra (File 21-04694-001-Topo_RO, dated December 20, 2021)

Twelve boreholes, located as shown on the Site Plan, Drawing No. 18883-1, were dry drilled using our truck-mounted, continuous flight auger drilling rig. The boreholes were 150 mm in diameter and extended to depths of 3 to 12.4 m below the existing ground surface. Borehole logs, as shown on the attached Drawing Nos. 18883-2 to 13, inclusive, were compiled during test drilling to record the soil stratification, the groundwater conditions, the position of unstable sloughing soils and the depths at which cobblestones and/or boulders were encountered.

Disturbed samples of auger cuttings, collected during test drilling, were sealed in plastic bags to minimize moisture loss. The soil samples were taken to our laboratory for analysis.

Standard penetration tests (SPT) were performed during test drilling.

Standpipe monitoring wells (slotted, 50 mm PVC pipe) were installed in BH's 22-5, 22-6, 22-7 and 22-8 to monitor the existing groundwater conditions.

3 SOIL AND GROUNDWATER CONDITIONS

3.1 SOIL PROFILE

The general soil profile at the locations investigated consisted of a surface layer of topsoil (100 to 175 mm) followed by variable layers of sand, clay and silt that extended to depths of about 0.2 to 3 m, followed by an extensive deposit of glacial till that extended to the maximum depth investigated with our boreholes at this site (to a depth of at least 12.4 m below existing ground surface). Inter-till sand layers/lenses and cobbles/boulders were encountered at random depths during test drilling.

The surface deposits were frozen to a depth of about 1 to 1.2 m at the time of the investigation. Where not frozen, the sand was compact and well graded, the clay was firm to very stiff and highly plastic and the silt was firm and low plastic. The underlying glacial till was low plastic and initially stiff to very stiff in consistency, becoming hard below about 3.1 to 6.8 m below existing grade.

3.2 GROUNDWATER CONDITIONS, SLOUGHING

Groundwater seepage and sloughing conditions were encountered in the sand layers/lenses during test drilling. The depths at which groundwater seepage and sloughing conditions were encountered have been shown on the borehole logs.

A summary of the groundwater levels recorded in the monitoring wells installed during this investigation has been presented in Table I.

TABLE I RECORDED GROUNDWATER LEVELS

Borehole No.	¹ Monitoring Well Rim Elevation (m)	¹ Ground Surface Elevation (m)	Groundwater Depth (m)	¹ Groundwater Elevation (m)
			February 17, 2022	February 17, 2022
22-5	510.8	509.6	2.5	507.1
22-6	509.4	508.3	2.1	506.2
22-7	506.7	505.6	2.8	502.8
22-8	505.8	504.8	2.5	502.3

Notes:

1. Assume ground surface elevation estimates are within ± 0.3 m of accuracy.

Examination of Table I revealed that the groundwater table was measured between depths of about 2.1 to 2.8 m below existing ground surface on February 17, 2022. Higher water levels may be encountered, particularly during and/or following spring snowmelt and/or periods of precipitation.

3.3 COBBLESTONES AND BOULDERS

Cobblestones and/or boulders were encountered within the depth of exploration at this site.

Auer refusal was encountered on cobbles/boulders at a depth of 10.1 m below existing ground surface at the location of BH 22-9. The depths at which cobbles/boulders were encountered have been shown on the borehole logs, Drawing Nos. 18883-2 to 13, inclusive.

Glacial till consists of a heterogeneous mixture of gravel, sand, silt and clay-sized particles. Glacial till inherently contains sorted deposits of the above particle sizes as well as a random distribution of larger particle sizes in the cobblestone range (60 to 200 mm) and boulder-sized range (larger than 200 mm). Inter/intra till deposits of cobblestones, boulders, boulder pavements and isolated deposits of saturated sand or gravel should be anticipated.

It should be recognized that the statistical probability of encountering cobbles/boulders in the small diameter boreholes drilled at this site was low. The frequency of encountering such deposits will increase proportionately with the number and depth of piles installed and/or volume of soil excavated.

4 LABORATORY ANALYSIS

The soil classification and index tests performed during this investigation consisted of a visual classification of the soil, moisture contents, Atterberg limits, unit weights and grain size distribution analysis.

The results of the soil classification and index tests conducted on representative samples of soil have been plotted on the borehole logs alongside the corresponding depths at which the samples were recovered, as shown on Drawing Nos. 18883-2 to 13, inclusive. The results of the grain size distribution analyses have been presented in Appendix B.

5 DESIGN CONSIDERATIONS

The purpose of this investigation was to evaluate the existing subsurface soil and groundwater conditions for potential site development. Site specific investigation(s) will be required once the proposed development layout has been finalized.

The subsurface soil conditions consisted of variable deposits of sand, clay and silt within the upper approximately 0.2 to 3 m of the soil profile followed by glacial to the full depth explored (i.e., 12.4 m). Groundwater seepage and sloughing conditions were encountered in inter-till sand layers/lenses during test drilling. The groundwater levels in the installed monitoring wells ranged from 2.1 to 2.8 m below ground level on February 17, 2022. The groundwater level can fluctuate and is typically at its highest during and/or following spring thaw or periods of precipitation. It is recommended to re-measure the monitoring wells prior to development to confirm the existing groundwater conditions.

Site preparation should consist of the removal of all vegetation, topsoil and organic material from the development areas. It is anticipated that conventional site preparation (scarifying, moisture conditioning and re-compacting the soils) will suffice over the majority of the site. The use of geosynthetics and additional fill thicknesses may be required in low lying areas.

Within building footprints and traffic areas, the subgrade should be uniformly compacted to a specified density. Soils which are unstable during site preparation and fail to achieve the required compaction will require additional treatment, which may include: over-excavation and replacement and/or geosynthetic stabilization. Locally available soils which are similar to underlying soils should be suitable for use as subgrade fill; creating mixed soil conditions during site grading is not recommended.

Conventional open-cut excavations above the groundwater table should be feasible at this site. Below the groundwater table, dewatering will be required to maintain excavation stability, particularly where sand or silt soils exist.

The subgrade soils are considered frost susceptible and the potential depth of frost penetration could range from approximately 1.5 to 2.5 m, depending on soil type (i.e., glacial till vs sand), surface cover, severity of winter and heat loss affects beneath/adjacent buildings; the depth of frost penetration will be greater where granular fills are utilized.

Potential deep foundation alternatives for structures at this site include drilled, cast-in-place concrete piles (straight shaft and belled) or continuous flight auger (CFA) piles. Temporary casing will be required to complete the installation of drilled piles due to the presence of saturated sand layers/lenses existing in the glacial till. Drilled piles may not be feasible at some locations of the site if large thicknesses of saturated sands are encountered. Construction difficulties associated with cobbles/boulders will also be encountered during the installation of pile foundations. Coring and/or larger diameter augers may be required to assist in achieving the design pile depths. Driven piles (open-end pipe and timber) were also considered but may not be practical due to the potential for shallow termination in hard glacial till and/or on cobbles/boulders.

Footings and/or thickened edge raft (shallow) foundations bearing on undisturbed naturally occurring glacial till and/or sand/silt soils could be a suitable foundation alternative at this site and should perform satisfactorily. Setting shallow foundations below the depth of frost penetration or protecting from frost action using extruded polystyrene insulation will be required to mitigate frost induced foundation movements. Dewatering will be required if the footing excavations extend below the groundwater table.

Highly plastic clays exist within the upper 3 m of the soil profile in some areas of the site. Where highly plastic clay is encountered at the foundation level, the potential exists for shallow foundations to undergo some differential movements associated with the active nature of the clay (i.e., swelling when wetted, settlement upon drying). If potential shallow foundation movements are not considered acceptable due to the existence of highly plastic clays, pile foundations would be a suitable alternative and would provide stable foundation support.

As with footings, floor slabs bearing on glacial till and/or sand/silt should perform satisfactorily whereas the potential exists for differential floor movements to occur where floors are constructed over highly plastic clay. If potential floor movements associated with active clay soils are not considered acceptable, overexcavation and replacement of a portion of the highly plastic clay will be required (if/where encountered) to provide stable subgrade support.

Where potential floor movements/cracking cannot be tolerated, the slabs will need to be structurally supported by piles.

If basements are constructed, they should be based an adequate depth above the groundwater table and permanent drainage systems should be constructed to control and discharge any water that may accumulate adjacent to or below the structure.

Traffic structures constructed in accordance with typical City of Saskatoon construction practices/standards should perform satisfactorily at this site.

Based on the consistency of the subgrade soils encountered at this site and Table 4.1.8.4A of the 2015 National Building Code, the site classification for seismic site response falls within Class D.

6 LIMITATIONS

The presentation of the summary of the borehole logs and preliminary design recommendations has been completed as authorized. Twelve, 150 mm diameter boreholes were dry drilled using continuous flight, solid stem auger drilling equipment. Borehole logs were compiled during test drilling which, we believe, were representative of the subsurface conditions at the borehole locations at the time of test drilling.

Variations in the subsurface conditions from that shown on the borehole logs at locations other than the exact test locations should be anticipated. If conditions should differ from those reported here, then we should be notified immediately in order that we may examine the conditions in the field and reassess our recommendations in the light of any new findings.

The Terms of Reference for this geotechnical investigation did not include any environmental assessment of the site. No detectable evidence of environmentally sensitive materials such as hydrocarbon odour was detected during the actual time of the field test drilling program. If, on the basis of any knowledge, other than that formally communicated to us, there is reason to suspect that environmentally sensitive materials may exist, then additional boreholes should be drilled and samples recovered for chemical analysis.

The subsurface investigation necessitated the drilling of deep boreholes. The boreholes were backfilled at the completion of test drilling. Please be advised that some settlement of the backfill materials will occur which may leave a depression or an open hole. It is the responsibility of the client to inspect the site and backfill, as required, to ensure that the ground surface at each borehole location is maintained level with the existing grade.

It is recommended to decommission the monitoring wells once they are no longer needed. PMEL will not accept any future liability associated with inadequate decommissioning. Costs for decommissioning the monitoring wells can be provided by PMEL upon request.

This report has been prepared for the exclusive use of Associated Engineering (Sask.) Ltd. and their agents for specific application to the proposed industrial subdivision to be developed within L.S. 5 to 8, N½ 23-38-5 W3M near Martensville, Saskatchewan.

It has been prepared in accordance with generally accepted geotechnical engineering practices and no other warranty, express or implied, is made.

Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of such Third Party. Governing Agencies such as municipal, provincial, or federal agencies having jurisdictions with respect to this development and/or construction of the facilities described herein have full jurisdiction with respect to the described development. Any other unspecified subsequent development would be considered Third Party and would, therefore, require prior review by PMEL. PMEL accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

The design considerations presented in this report are for preliminary purposes only. Detailed, specific geotechnical investigation(s) are recommended once the building/structure details and locations have been finalized. PMEL will not accept responsibility on this project for any unsatisfactory performance if the design considerations presented in this report are utilized for the final building design in lieu of conducting a detailed, specific geotechnical investigation.

If this report has been transmitted electronically, it has been digitally signed and secured with personal passwords to lock the document. Due to the possibility of digital modification, only originally signed reports and those reports sent directly by PMEL can be relied upon without fault.

We trust that this report fulfills your requirements for this project. Should you require additional information, please contact us.

P. MACHIBRODA ENGINEERING LTD.



Kelly Pardoski, P. Eng.

A handwritten signature in blue ink, appearing to read "C. Zubrowski".

Cory Zubrowski, P. Eng.
KP/CZ:tbs

Association of Professional Engineers & Geoscientists of Saskatchewan CERTIFICATE OF AUTHORIZATION P. MACHIBRODA ENGINEERING LTD. Number 172 Permission to Consult held by: Discipline Sk. Reg. No. Signature Geotechnical 10461 <i>K. Pardoski</i> 2022-02-23		

DRAWINGS



KEY PLAN
NOT TO SCALE

NOTE:
 1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
 2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2021, IMAGE ©2021 DIGITALGLOBE. (IMAGERY DATE: 04/27/21).
 3. THIS DRAWING WAS COMPILED USING HANDHELD GPS EQUIPMENT (TRIMBLE, MODEL No. 6967X).

LEGEND

- PMEL BOREHOLE
- PMEL BOREHOLE (MONITORING WELL INSTALLED)

P. MACHIBRODA ENGINEERING LTD.

CONSULTING
 GEOTECHNICAL
 ENGINEERS
 806 - 48th STREET EAST
 SASKATOON, SK
 S7K 3Y4

DRAWING TITLE:

SITE PLAN - BOREHOLE LOCATIONS
 PROJECT:
 PROPOSED INDUSTRIAL SUBDIVISION
 L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

APPROVED BY: CZ/JNT
 DRAWN BY: TP

DATE: FEBRUARY, 2022
 SCALE: AS SHOWN
 DRAWING NUMBER:
 18883-1



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793609

EASTING (m): 389574

ELEVATION (m): 510.5 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
		DESCRIPTION										
0						3.3						0
0	TOPSOIL, organic, moist, dark brown, rootlets, frozen.											
1	SAND, trace silt, compact, well graded, fine to coarse grained, moist, brown, sloughing, frozen to 1.0 m.					1.9						1
2	GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown, oxide stained.				11	13.5			21.8		3.25	2
3						13.5	24	11				3
4												4
5	hard below 4.5 m. cobbles and boulders 4.5 to 5.5 m. grey below 4.9 m.				35	10.8			22.4			5
6	sand lense, wet, seepage, sloughing 6.1 to 6.2 m.					10.0					4.25	6
7												7
8					25	10.7					4.25	8
9	cobbles and boulders, seepage 8.5 to 8.6 m.					11.3					4.25	9
10												10
11					32	11.1			22.4		4.5	11
12	cobbles and boulders at 11.5 m.					10.3						12

NOTE

1. Borehole sloughed to 11.7 m Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793599

EASTING (m): 389844

ELEVATION (m): 510.1 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS

SPLIT SPOON

SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
		DESCRIPTION										
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.										0
0		SAND, silty, well graded, fine to coarse grained, moist, brown, frozen.										
1		trace silt below 0.3 m.										
1		GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown, oxide stained.										1.5
2												2
3												3
4												4
5		grey below 4.7 m.										5
6		trace seepage at 6.2 m.										
6		hard below 6.5 m.										4.0
7												7
8												8
9												9
10												10
11		sand lense at 10.7 m.										4.5
12												12



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793599

EASTING (m): 389844

ELEVATION (m):

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
		DESCRIPTION										
12		GLACIAL TILL, clay, some silt, some sand, trace gravel, hard, low plastic, moist, grey.										12
13												13
14												14
15												15
16												16
17												17
18												18
19												19
20												20
21												21
22												22
23												23
24												24

NOTE

1. Borehole open Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793588

EASTING (m): 390366

ELEVATION (m): 507.9 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
DESCRIPTION												
0						15.8						0
	TOPSOIL, organic, moist, dark brown, rootlets, frozen.											
	CLAY, some silt, very stiff, highly plastic, moist, brown.											
1	frozen to 1.0 m.											
	GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown, oxide stained, gypsum crystals.											
2												
3												
4												
5	hard below 4.2 m. mottled brown, grey below 4.2 m. grey below 4.8 m.											
6												
7	cobbles and boulders at 6.9 m.											
8	SAND, some silt, dense, well graded, fine to coarse grained, wet, grey, seepage, sloughing.											
9	GLACIAL TILL, clay, some silt, some sand, trace gravel, hard, low plastic, moist, grey.											
10												
11												
12												

NOTE

1. Borehole sloughed to 7.7 m Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793588

EASTING (m): 390689

ELEVATION (m): 506.8 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
0	TOPSOIL, organic, moist, dark brown, rootlets, frozen.					4.2						0
	SAND, some silt, well graded, fine to coarse grained, moist, brown, frozen.					4.4						
1	CLAY, some silt, very stiff, highly plastic, moist, brown, gypsum crystals.					30.1	72	15			3.0	1
2	GLACIAL TILL, clay, some silt, some sand, trace gravel, stiff, low plastic, moist, brown, oxide stained. very stiff below 2.3 m.											2
3	hard below 3.1 m.											3
4												4
5												5
6	mottled grey brown at 5.9 m.											6
7	grey below 6.8 m.											7
8												8
9												9
10												10
11												11
12												12



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793588

EASTING (m): 390689

ELEVATION (m):

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
		DESCRIPTION										
12		GLACIAL TILL, clay, some silt, some sand, trace gravel, hard, low plastic, moist, grey.										12
13												13
14												14
15												15
16												16
17												17
18												18
19												19
20												20
21												21
22												22
23												23
24												24

NOTE

1. Borehole open with trace water Immediately After Drilling.

PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793395

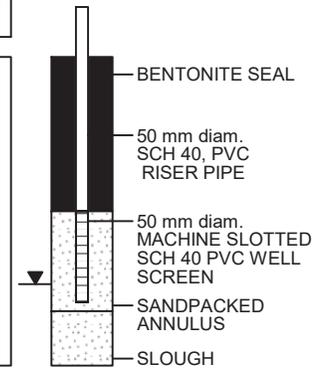
EASTING (m): 389704

ELEVATION (m): 509.6 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	MONITORING WELL: BH21-5 ELEV.: 510.8 +/- 0.3 m	DEPTH (m)
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.			5.3							0
1		SAND AND GRAVEL, well graded, fine to coarse grained, moist, brown, frozen.			2.7							1
2		CLAY, some silt, stiff, highly plastic, moist, brown. silty below 1.8 m.			29.6	60	18			1.5		2
3		GLACIAL TILL, clay, some silt, some sand, trace gravel, stiff, low plastic, moist, brown. very stiff below 2.7 m.										3
				19	13.6			21.8				
4												4
5												5
6												6
7												7
8												8
9												9
10												10
11												11
12												12



NOTE
 1. Borehole sloughed to 2.8 m Immediately After Drilling.
 2. Monitoring Well water level at 2.5 m below existing grade on February 17, 2022.

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PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793374

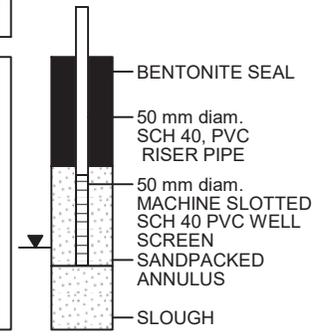
EASTING (m): 390129

ELEVATION (m): 508.3 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	MONITORING WELL: BH21-6 ELEV.: 509.4 +/- 0.3 m	DEPTH (m)
		▼ After Drilling	▽ During Drilling										
0						2.8							0
0.5	TOPSOIL, organic, moist, dark brown, rootlets, frozen.					3.7							0.5
1	SAND, trace to some gravel, some silt, compact, well graded, fine to coarse grained, moist, brown. cobbles and boulders below 0.6 m.												1
1.5	frozen to 1.0 m.				5	33.9			17.6		0.5		1.5
2	SILT, sandy, trace clay, firm, low plastic, wet, seepage, sloughing.												2
2.5	CLAY, some silt, stiff, highly plastic, moist, brown.												2.5
3	silty, firm below 2.5 m.												3
3	sand lense 2.9 to 3.0 m.												3
4													4
5													5
6													6
7													7
8													8
9													9
10													10
11													11
12													12



NOTE
 1. Borehole sloughed to 2.7 m Immediately After Drilling.
 2. Monitoring Well water level at 2.1 m below existing grade on February 17, 2022.

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PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793384

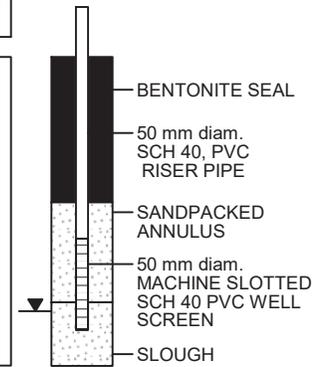
EASTING (m): 390545

ELEVATION (m): 505.6 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	MONITORING WELL: BH21-7 ELEV.: 506.7 +/- 0.3 m	DEPTH (m)
		▼ After Drilling	▽ During Drilling										
0	TOPSOIL, organic, moist, dark brown, rootlets, frozen.					3.9							0
1	SAND, trace silt, well graded, fine to coarse grained, moist, brown, frozen.					23.8							1
2	GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown. frozen to 1.0 m.					19.0					1.5		2
3	interbedded sand seams, wet, seepage, sloughing below 2.5 m.					12.4							3
					38	13.8							



NOTE
 1. Borehole sloughed to 2.7 m Immediately After Drilling.
 2. Monitoring Well water level at 2.8 m below existing grade on February 17, 2022.

02-23-2022, Z:\2022 Projects- Geotechnical\18883-GEO-MARTENSVILLE, SK\DWG\TH7-18883.bor



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

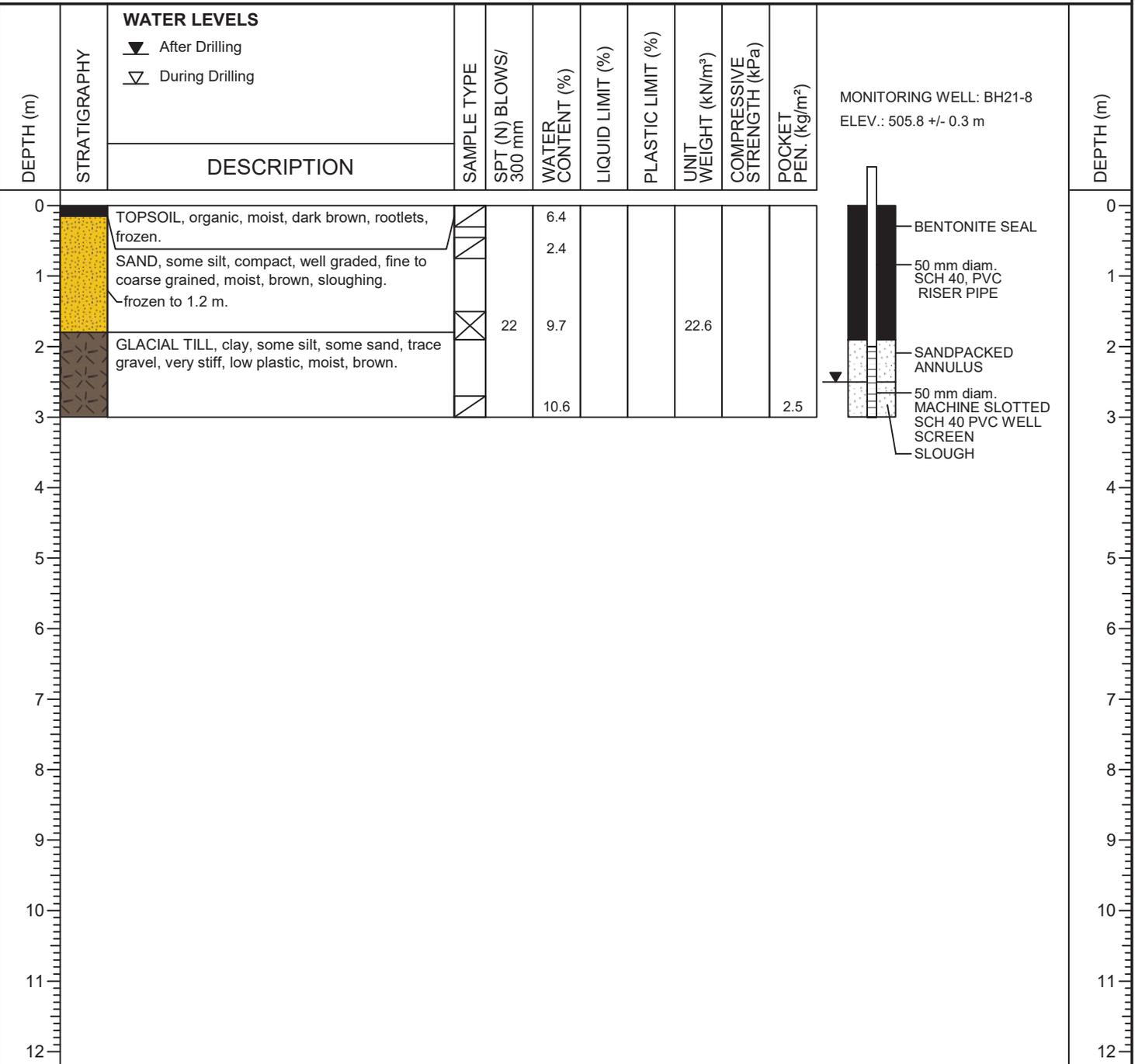
NORTHING (m): 5793436

EASTING (m): 390860

ELEVATION (m): 504.8 +/- 0.3

DATE DRILLED: FEB 7/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE



NOTE

- Borehole sloughed to 2.5 m and dry Immediately After Drilling.
- Monitoring Well water level at 2.5 m below existing grade on February 17, 2022.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793276

EASTING (m): 389565

ELEVATION (m): 509.3 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)	
		▼ After Drilling	▽ During Drilling										
		DESCRIPTION											
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.											0
		SAND, some silt, trace gravel, well graded, fine to coarse grained, moist, brown, frozen.											
1		CLAY, some silt, stiff, highly plastic, moist, brown, gypsum crystals. frozen to 0.9 m.											1
		-silty, firm below 1.5 m.											
2		GLACIAL TILL, clay, some silt, some sand, trace gravel, stiff, low plastic, moist, brown, oxide stained, gypsum crystals.											2
3		very stiff below 3.2 m.											3
4		hard, grey below 3.8 m.											4
5													5
6													6
7													7
8													8
9													9
10		auger refusal at 10.1 m on cobbles and boulders.											10
11													11
12													12

NOTE

1. Borehole open and dry Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793267

EASTING (m): 389874

ELEVATION (m): 509.2 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
0											0
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.			6.6						
0		SAND, some silt, trace gravel, well graded, fine to coarse grained, moist, brown, frozen.			12.3					1.25	
1		GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown, oxide stained, gypsum crystals.									1
2			X	12	12.3					1.5	2
3			X		13.2					1.5	3
4		hard below 3.8 m.									4
4		mottled brown and grey below 4.3 m.									4
5		grey below 5.0 m.	X	28	10.8			22.3		4.25	5
6		sand seam, wet, seepage, sloughing 5.8 to 6.1 m.	X		12.9					4	6
7											7
8			X	28	11.1			22.4		4.25	8
9		sandy, wet, seepage, sloughing at 8.6 m.			10.5					4.5	9
10											10
11		cobbles and boulders at 10.8 m.	X	35	9.6					4.5	11
12			X		12.4					4.5	12

NOTE

1. Borehole open Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793254

EASTING (m): 390365

ELEVATION (m): 505.8 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)	WATER LEVELS	
												▼ After Drilling	▽ During Drilling
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.			19.2						0		
0		SAND, some gravel, trace silt, well graded, fine to coarse grained, moist, brown, frozen.			18.2						0		
1		GLACIAL TILL, clay, some sand, some silt, trace gravel, stiff, low plastic, moist, brown, oxide stained, gypsum crystals.			15.0						1		
2		frozen to 1.0 m. very stiff below 1.7 m.									2		
3		very stiff to hard below 2.8 m.									3		
4		grey below 4.3 m.									4		
5											5		
6											6		
6		hard below 6.8 m.		24	10.3					4.25	6		
7											7		
8											8		
9											9		
9				25	10.6			22.4			9		
10											10		
10											10		
11											11		
11				30	10.7			22.6		4.5	11		
12											12		
12					10.5					4.5	12		



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793254

EASTING (m): 390365

ELEVATION (m):

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS		SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
		▼ After Drilling	▽ During Drilling									
		DESCRIPTION										
12		GLACIAL TILL, clay, some sand, some silt, trace gravel, hard, low plastic, moist, grey, gypsum crystals.										12
13												13
14												14
15												15
16												16
17												17
18												18
19												19
20												20
21												21
22												22
23												23
24												24

NOTE

1. Borehole open and dry Immediately After Drilling.



PROJECT: PROPOSED INDUSTRIAL SUBDIVISION

LOCATION: L.S. 5 TO 8 23-38-5-W3M, NEAR MARTENSVILLE, SK

NORTHING (m): 5793273

EASTING (m): 390746

ELEVATION (m): 504.7 +/- 0.3

DATE DRILLED: FEB 8/22

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m ³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m ²)	DEPTH (m)
0		TOPSOIL, organic, moist, dark brown, rootlets, frozen.			7.6						0
0.8		SILT AND SAND, trace clay, very stiff, low plastic, moist, brown, frozen. P200 = 38% at 0.8 m.			7.0	27	11				0.8
1		GLACIAL TILL, clay, some silt, some sand, trace gravel, very stiff, low plastic, moist, brown, oxide stained, gypsum crystals.									1
2				16	10.1					2.25	2
2.6		sand lense 2.6 to 2.7 m.									2.6
3					9.4	24	8			2.5	3
4		SAND, trace silt, compact, well graded, fine to coarse grained, wet, brown, seepage, sloughing.									4
5		GLACIAL TILL, clay, some silt, some sand, trace gravel, hard, low plastic, moist, brown.		29	12.4 11.5			22.5			5
6					11.3					4.5	6
7		sand seam, wet, seepage, sloughing 6.9 to 7.4 m.									7
8				32	11.5			22.2		4.5	8
9					11.7					4.5	9
10		cobbles and boulders at 10.1 m. grey below 10.2 m.			11.7						10
11											11
12					11.9					4.5	12

NOTE

1. Borehole sloughed to 9.3 m Immediately After Drilling.

APPENDIX A

Explanation of Terms on
Borehole Logs

CLASSIFICATION OF SOILS

Coarse-Grained Soils: Soils containing particles that are visible to the naked eye. They include gravels and sands and are generally referred to as cohesionless or non-cohesive soils. Coarse-grained soils are soils having more than 50 percent of the dry weight larger than particle size 0.080 mm.

Fine-Grained Soils: Soils containing particles that are not visible to the naked eye. They include silts and clays. Fine-grained soils are soils having more than 50 percent of the dry weight smaller than particle size 0.080 mm.

Organic Soils: Soils containing a high natural organic content.

Soil Classification By Particle Size

Soil Type	Particles of Size
Clay	< 0.002 mm
Silt	0.002 – 0.060 mm
Sand	0.06 – 2.0 mm
Gravel	2.0 – 60 mm
Cobbles	60 – 200 mm
Boulders	>200 mm

TERMS DESCRIBING CONSISTENCY OR CONDITION

Coarse-grained soils: Described in terms of compactness condition and are often interpreted from the results of a Standard Penetration Test (SPT). The standard penetration test is described as the number of blows, N, required to drive a 51 mm outside diameter (O.D.) split barrel sampler into the soil a distance of 0.3 m (from 0.15 m to 0.45 m) with a 63.5 kg weight having a free fall of 0.76 m.

Compactness Condition	SPT N-Index (blows per 0.3 m)
Very loose	0-4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	Over 50

Fine-Grained Soils: Classified in relation to undrained shear strength.

Consistency	Undrained Shear Strength (kPa)	N Value (Approximate)	Field Identification
Very Soft	<12	0-2	Easily penetrated several centimetres by the fist.
Soft	12-25	2-4	Easily penetrated several centimetres by the thumb.
Firm	25-50	4-8	Can be penetrated several centimetres by the thumb with moderate effort.
Stiff	50-100	8-15	Readily indented by the thumb, but penetrated only with great effort.
Very Stiff	100-200	15-30	Readily indented by the thumb nail.
Hard	>200	>30	Indented with difficulty by the thumb nail.

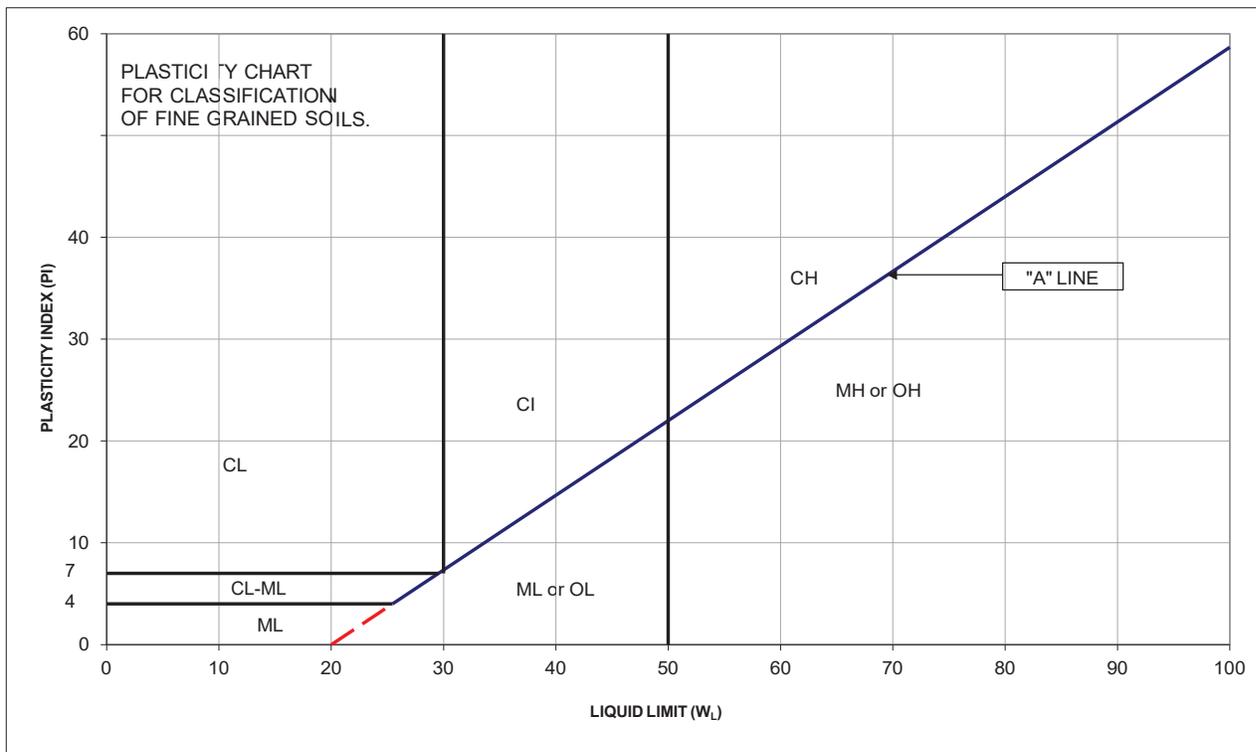
Organic Soils: Readily identified by colour, odour, spongy feel and frequently by fibrous texture.

DESCRIPTIVE TERMS COMMONLY USED TO CHARACTERIZE SOILS

Poorly Graded	- predominance of particles of one grain size.
Well Graded	- having no excess of particles in any size range with no intermediate sizes lacking.
Mottled	- marked with different coloured spots.
Nuggety	- structure consisting of small prismatic cubes.
Laminated	- structure consisting of thin layers of varying colour and texture.
Slickensided	- having inclined planes of weakness that are slick and glossy in appearance.
Fissured	- containing shrinkage cracks.
Fractured	- broken by randomly oriented interconnecting cracks in all 3 dimensions

SOIL CLASSIFICATION SYSTEM (MODIFIED U.S.C.)

MAJOR DIVISION		GROUP SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA
HIGHLY ORGANIC SOILS		Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOUR OR ODOUR AND OFTEN FIBROUS TEXTURE
COARSE-GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS More than half coarse fraction larger than No. 4 sieve size	CLEAN GRAVELS	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES <5% FINES	$C_u = \frac{D_{60}}{D_{10}} > 4$ $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}} = 1 \text{ to } 3$
			GP POORLY-GRADED GRAVELS AND GRAVEL-SAND MIXTURES <5% FINES	NOT MEETING ALL ABOVE REQUIREMENTS FOR GW
		DIRTY GRAVELS	GM SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES >12% FINES	ATTERBERG LIMITS BELOW "A" LINE OR $PI < 4$
			GC CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES >12% FINES	ATTERBERG LIMITS ABOVE "A" LINE WITH $PI > 7$
	SANDS More than half coarse fraction smaller than No. 4 sieve size	CLEAN SANDS	SW WELL-GRADED SANDS, GRAVELLY SANDS MIXTURES <5% FINES	$C_u = \frac{D_{60}}{D_{10}} > 6$ $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}} = 1 \text{ to } 3$
			SP POORLY-GRADED SANDS OR GRAVELLY SANDS <5% FINES	NOT MEETING ALL GRADATION REQUIREMENTS FOR SW
		DIRTY SANDS	SM SILTY SANDS, SAND-SILT MIXTURES >12% FINES	ATTERBERG LIMITS BELOW "A" LINE OR $PI < 4$
			SC CLAYEY SANDS, SAND-CLAY MIXTURES >12% FINES	ATTERBERG LIMITS ABOVE "A" LINE WITH $PI > 7$
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSING NO. 200 SIEVE SIZE)	SILTS Below "A" line on plasticity chart; negligible organic content	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	$W_L < 50$
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS	$W_L > 50$
	CLAYS Above "A" line on plasticity chart; negligible organic content	CL	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS	$W_L < 30$
		CI	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS	$W_L > 30 < 50$
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	$W_L > 50$
	ORGANIC SILTS & ORGANIC CLAYS Below "A" line on plasticity chart	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	$W_L < 50$
		OH	ORGANIC CLAYS OF HIGH PLASTICITY	$W_L > 50$



APPENDIX B

Grain Size Distribution
Test Results



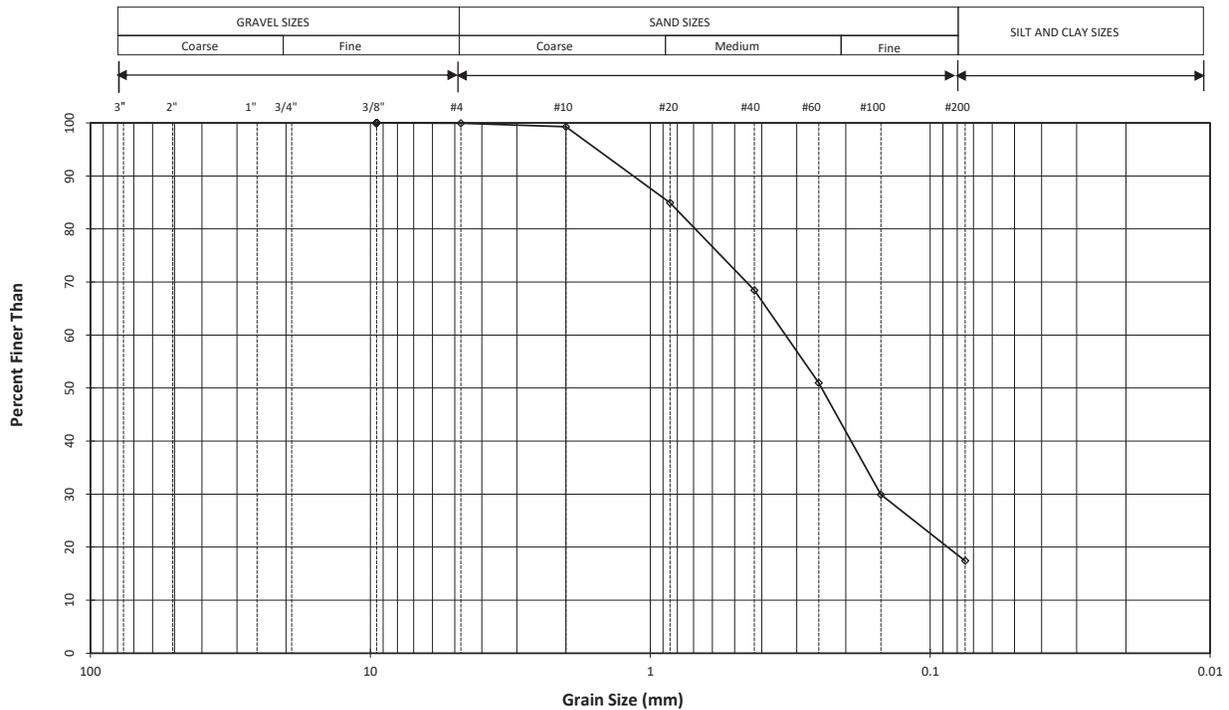
Project: Proposed Industrial Subdivision
 Location: 23-38-5-W3M, Near Martensville, SK
 Project No.: 18883
 Date Tested: February 16, 2022
 Borehole No: 22-4
 Sample No.: 33
 Depth (m): 0.8

Sieve	Diameter mm	% Finer
	76.200	100
	63.500	100
	50.000	100
	37.500	100
	25.000	100
	19.000	100
	12.500	100
	9.500	100
	4.750	100
	2.000	99
	0.850	85
	0.425	68
	0.250	51
	0.150	30
	0.075	17

Material Description:

% Gravel Sizes 0	% Sand Sizes 83	% Silt and Clay Sizes 17
---------------------	--------------------	-----------------------------

Remarks:



DRAWING NUMBER

Appendix B-1

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE
 WITH ASTM C136 AND C117 STANDARDS
 P. MACHIBRODA ENGINEERING LTD.
 PER *Preston Scherwitz*



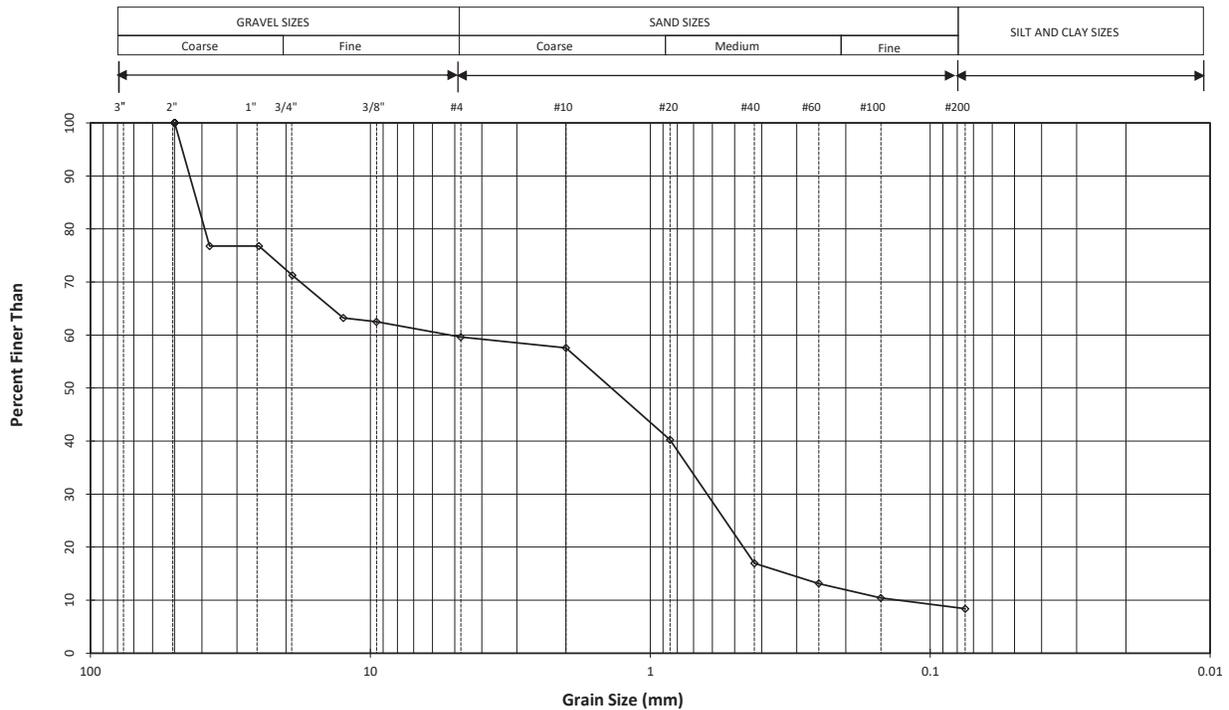
Project: Proposed Industrial Subdivision
 Location: 23-38-5-W3M, Near Martensville, SK
 Project No.: 18883
 Date Tested: February 16, 2022
 Borehole No: 22-5
 Sample No.: 87
 Depth (m): 0.8

Sieve	Diameter mm	% Finer
	76.200	100
	63.500	100
	50.000	100
	37.500	77
	25.000	77
	19.000	71
	12.500	63
	9.500	63
	4.750	60
	2.000	58
	0.850	40
	0.425	17
	0.250	13
	0.150	10
	0.075	8.4

Material Description:

% Gravel Sizes 40	% Sand Sizes 52	% Silt and Clay Sizes 8
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Remarks:



DRAWING NUMBER

Appendix B-2

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE
 WITH ASTM C136 AND C117 STANDARDS
 P. MACHIBRODA ENGINEERING LTD.
 PER *Preston Scherwitz*

APPENDIX D - ENVIRONMENTAL SCREENING



Notes:

Report Generated
01/24/2022

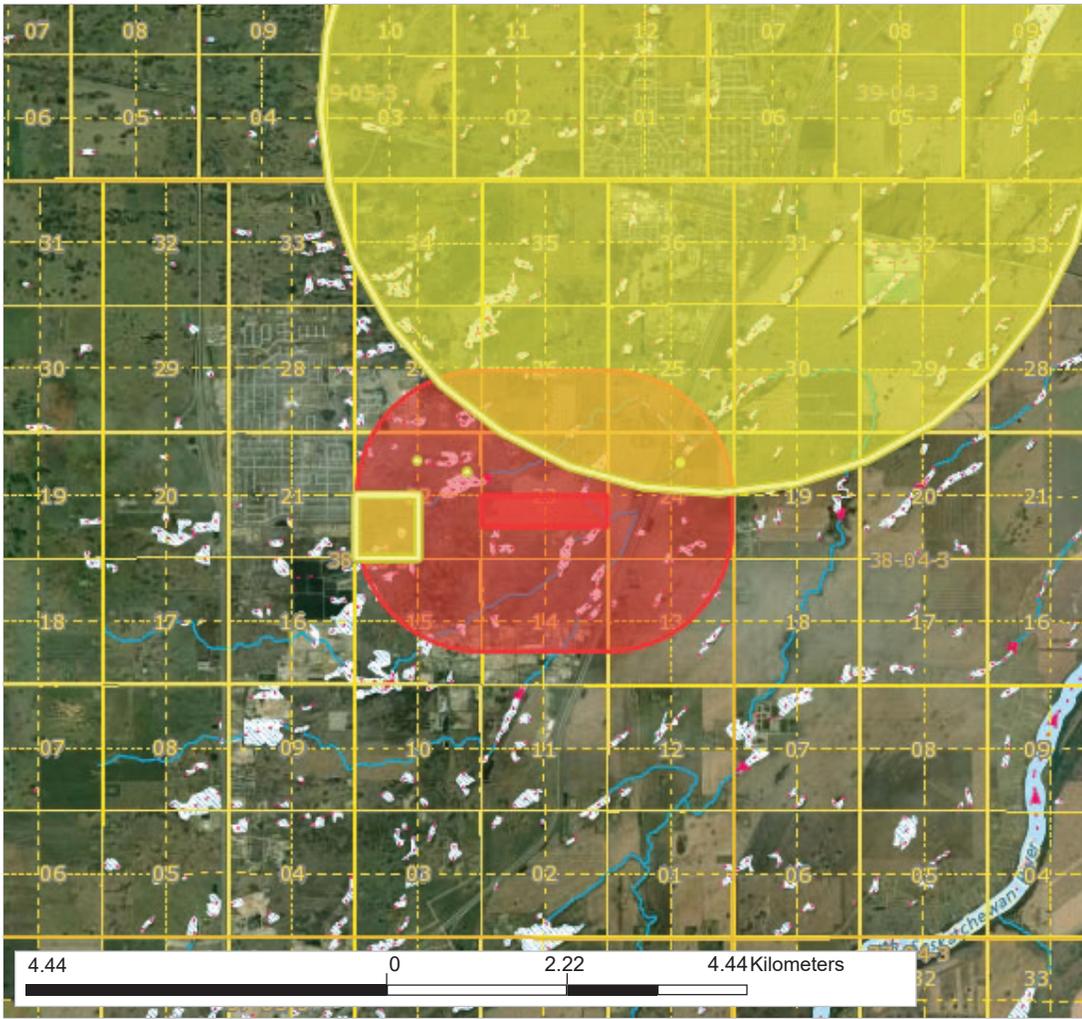
Map Information



Buffer Size:
1.6 Kilometers

Coordinates:
Lat: 52.28030° N
Lon: -106.61080° W

Area of Interest

- Screened Areas:**
- Ecological Management Specialist (EMS) District
 - Compliance & Field Service Area
 - Compliance & Field Service (CFS) Region
 - Area Fisheries Ecologists
 - Area Wildlife Ecologists
 - Rural Municipality
 - Indian Reserve
 - Rare and Endangered Species
 - Fish Species
 - Woodland Caribou Range
 - Species Predictive Models
 - Whooping Crane Corridor
 - Federal Critical Habitat
 - Emergency Protection Order
 - Wind Energy Avoidance Zones
 - Important Natural Areas
 - Provincial Parks
 - Recreation Sites
 - Game Preserves
 - National Wildlife Areas
 - Federal Pastures
 - Community Pastures
 - Wildlife Habitat Protection Act Lands
 - Fish & Wildlife Development
 - Fund Lands
 - Migratory Bird Sanctuary
 - Wildlife Refuge
 - Conservation Easements
 - Crown Conservation Easements
 - Ecological Reserves
 - Ramsar Wetlands
 - Reservoir Development Areas
 - Representative Areas

Species Likely to be Present

Known Species

“Known” species are species that have known occurrences in the area from the Saskatchewan Conservation Data Centre’s Rare and Endangered Species map layer. However, absence of species observation records does not preclude the existence of species in the area of interest. Observations may simply not have been recorded for the given area or may not have yet been entered into the ministry data holdings – new observation records are continuously being discovered. Information accessible through HABISask is not intended to be a definitive statement on the presence, absence or status of a species within a given area, nor as a substitute for onsite surveys.

Rare and Endangered Species

Category: Vascular Plant							Wild Species at Risk Regulations
Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	

Red-stemmed Cinquefoil	<i>Potentilla rubricaulis</i>	G4G5	N4N5	S3			
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Category: Vertebrate Animal							Wild Species at Risk Regulations
Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	

Barn Swallow	<i>Hirundo rustica</i>	G5	N3N4B, N3N4M	S4B	Special Concern	Threatened	
Bobolink	<i>Dolichonyx oryzivorus</i>	G5	N5B, N4N5M	S5B	Threatened	Threatened	
Prairie Falcon	<i>Falco mexicanus</i>	G5	N3B, N4N, N3M	S3B, S3N	Not at Risk		

Fish Atlas							Wild Species at Risk Regulations
Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	

Expected Species

“Expected” is based on a modelled prediction if a species might occur in areas based upon developed statistical relationships between local and landscape characteristics and species presence. Models utilized by this report have only been created in the prairie ecozone for a selection of species. The boreal plain, boreal shield and taiga shield will not return any expected species results. Models are not a substitute for on the ground surveys to determine species presence.

Species Predictive Models

Category: Invertebrate Animal							Wild Species at Risk Regulations
Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	

Monarch	<i>Danaus plexippus plexippus</i>	G4T3	N3B, NNRM	S2B, SNRM	Endangered	Special Concern	
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Category: Vertebrate Animal							Wild Species at Risk Regulations
Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	

American Badger	<i>Taxidea taxus taxus</i>	G5T5	N4	S3	Special Concern	Special Concern	
Baird's Sparrow	<i>Centronyx bairdii</i>	G4	N4B, N4M	S4B	Special Concern	Special Concern	
Bank Swallow	<i>Riparia riparia</i>	G5	N5B, N5M	S4B, S5M	Threatened	Threatened	
Bobolink	<i>Dolichonyx oryzivorus</i>	G5	N5B, N4N5M	S4B, S4M	Threatened	Threatened	
Burrowing Owl	<i>Athene cunicularia</i>	G4	N1N2B, N1N2M	S2B, S2M	Endangered	Endangered	Endangered
Common Nighthawk	<i>Chordeiles minor</i>	G5	N4B, N3M	S4B, S4M	Special Concern	Threatened	
Ferruginous Hawk	<i>Buteo regalis</i>	G4	N3B, N3N, NUM	S3B	Special Concern	Threatened	
Golden Eagle	<i>Aquila chrysaetos</i>	G5	N4N5B, N4N5N, N4N5M	S3B, S3N, S4M	Not at Risk		
Horned Grebe	<i>Podiceps auritus</i>	G5	N5B, N5N, N5M	S5B, S5M	Special Concern	Special Concern	
Loggerhead Shrike	<i>Lanius ludovicianus excubitorides</i>	G4T4	N3B	S2B, S2M	Threatened	Threatened	
Northern Harrier	<i>Circus hudsonius</i>	G5	N5B, N4N	S4B, S4M	Not at Risk		
Northern Leopard Frog	<i>Lithobates pipiens</i>	G5	N5	S3	Special Concern	Special Concern	
Piping Plover	<i>Charadrius melodus circumcinctus</i>	G3T3	N3B	S3B, S3M	Endangered	Endangered	Endangered

Short-eared Owl	<i>Asio flammeus</i>	G5	N4B,N3N, N4M	S3B,S2N, S3M	Threatened	Special Concern
Sprague's Pipit	<i>Anthus spragueii</i>	G3G4	N3N4B, N3N4M	S3B,S3M	Threatened	Threatened
Whooping Crane Corridor	50% Core Area					
Whooping Crane Corridor	95% Core Area					
Whooping Crane Corridor	75% Core Area					

Woodland Caribou Habitat

Detailed information concerning woodland caribou habitat, administration units and Caribou Habitat Management areas is provided below.

Currently, information on woodland caribou habitat potential is not available in this report, but users are encouraged to view the dataset "Woodland Caribou Habitat Potential" to determine whether your project falls within high, moderate or low caribou habitat potential areas.

Caribou Conservation Unit(s): Nothing found

Caribou Administrative Unit(s): Nothing found

Caribou Habitat Management Area Tier category: Nothing found

Species with Critical Habitat Present

This dataset displays the geographic areas within which federal Critical Habitat for species at risk listed on Schedule 1 of the federal Species at Risk Act (SARA) occurs in Saskatchewan. Please be aware that not all of the area within these boundaries is necessarily Critical Habitat. To determine if a specific area is Critical Habitat and if your activity might be considered "destruction" of Critical Habitat, other information available in each individual species' Recovery documents (<http://www.sararegistry.gc.ca>) need to be considered, including biophysical attributes and activities likely to result in destruction of Critical Habitat.

Note that recovery documents (and therefore Critical Habitat) may be amended from time to time. Species are added as the data becomes ready, which may occur after the recovery document has been posted on the SAR Public Registry. Although HABISask will try to provide the latest data, the SAR Public Registry should always be considered as the official source for Critical Habitat information.

Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	Wild Species at Risk Regulations
No Critical Habitat found							

Emergency Protection Order

This dataset is comprised of areas under the federal Emergency Order for the Protection of the Greater Sage-Grouse in Canada. The exterior extent polygons are derived from the detailed dataset of the Government of Canada Emergency Order dataset. For specific information regarding the order and the prohibitions set out in the Emergency Order please consult the official documents on the Species at Risk Registry (sararegistry.gc.ca)

Common Name	Scientific Name
-------------	-----------------

No species found

Important Natural Areas

Important Natural Areas are sites in Saskatchewan that are considered to have conservation significance, but are not necessarily legally protected.

Name	Type
------	------

Nothing Found

Wind Turbine Avoidance Zones Present

The Wind Energy Avoidance Zones were designed to enhance environmental protection and provide more certainty to future wind energy developments. These guidelines clearly identify environmentally sensitive areas that should be avoided for projects that include the siting of wind turbines but can be helpful in siting any development project. The complete report entitled, *Wildlife Siting Guidelines for Saskatchewan Wind Energy Projects*, can be found on the Government of Saskatchewan website or by selecting the following link: <https://publications.saskatchewan.ca/#/categories/78>

Land Type

North and South Saskatchewan Rivers

Provincial Parks

Managed Areas

Managed areas are a diverse collection of lands and waters on which the conservation of biodiversity and ecosystem function are among the goals of the land management programs. Each of the unique or sensitive landscapes, within the network of managed areas, have some level of protection or activity restrictions placed on them by legislation, agreement or policy. These lands include provincial and national parks, ecological reserves, wildlife lands, game preserves, conservation easements and other privately held stewardship lands.

Conservation Easement

Nothing Found

Crown Conservation Easement

Nothing Found

Ecological Reserve

Nothing Found

Fish & Wildlife Development Fund (FWDF)

Nothing Found

Former Federal Pasture

Nothing Found

Game Preserve

Nothing Found

Migratory Bird Sanctuary

Nothing Found

National Wildlife Area

Nothing Found

Provincial Park

Nothing Found

Provincial Pasture

Nothing Found

Ramsar Wetland

Nothing Found

Recreation Site

Nothing Found

Representative Area Ecological Reserve

Nothing Found

Reservoir Development Area

Nothing Found

Wildlife Habitat Protection Act (WHPA)

Nothing Found

Wildlife Refuge

Nothing Found

Rare and Endangered Species Occurrences

The absence of information provided by the Saskatchewan Conservation Data Centre (SKCDC) does not categorically mean the absence of sensitive species or features. The quantity and quality for data collected by the SKCDC are dependent on the research and observations of many individuals and organizations. SKCDC reports summarize the existing natural heritage information, known to the SKCDC, at the time of the request.

SKCDC data should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The user therefore acknowledges that the absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Occurrence ID: 6898	First Observation: 1935-06-20
Occurrence Class: Vascular Plant	Last Observation: 1935-06-20
Scientific Name: <i>Potentilla rubricaulis</i>	
Common Name: Red-stemmed Cinquefoil	
Occurrence Rank: H - Historical	
General Description:	
Occurrence Data: 1935 - species observed in 1 site	
Directions: Warman	
Occurrence ID: 999987489	First Observation: 2018-06-12
Occurrence Class: Vertebrate Animal	Last Observation: 2018-07-12
Scientific Name: <i>Dolichonyx oryzivorus</i>	
Common Name: Bobolink	
Occurrence Rank:	
General Description: 2 Adult Male(s); (2018)	
Occurrence Data:	
Directions:	
Occurrence ID: 999987491	First Observation: 2018-06-12
Occurrence Class: Vertebrate Animal	Last Observation: 2018-06-12
Scientific Name: <i>Dolichonyx oryzivorus</i>	
Common Name: Bobolink	
Occurrence Rank:	
General Description: 1 Adult Male(s); (2018)	
Occurrence Data:	
Directions: SW-22-38-5-3	
Occurrence ID: 9999118223	First Observation: 2015-09-22
Occurrence Class: Vertebrate Animal	Last Observation: 2015-09-22
Scientific Name: <i>Falco mexicanus</i>	
Common Name: Prairie Falcon	
Occurrence Rank:	
General Description: Species detected (2015)	
Occurrence Data:	
Directions: Hwy 11 and Warman South Entrance - farm Dugout	
Occurrence ID: 9999116794	First Observation: 2016-08-09
Occurrence Class: Vertebrate Animal	Last Observation: 2016-08-09
Scientific Name: <i>Hirundo rustica</i>	
Common Name: Barn Swallow	
Occurrence Rank:	
General Description: Species detected (2016)	
Occurrence Data:	
Directions: Hwy 11 and Warman South Entrance - farm Dugout	



Project Screening Report



Occurrence ID: 999987490

Occurrence Class: Vertebrate Animal

Scientific Name: *Hirundo rustica*

Common Name: Barn Swallow

Occurrence Rank:

General Description: 3 Adult(s) (Unknown Sex); (2018)

Occurrence Data:

Directions:

First Observation: 2018-06-12

Last Observation: 2018-06-12

Wild Species Research Permitting

A Research Permit is required to detect or observe plants or wildlife for commercial purposes, such as pre-screening surveys to collect baseline data or other activities, or to conduct academic research. Research Permits are not required if you are doing surveys for personal, recreational, educational or other non-commercial purposes. Revisions were made to Section 21 of The Wildlife Act in 2015 and to Section 6.2 of The Wildlife Regulations in 2016.

See the Government of Saskatchewan [Wild Species Research Permitting](#) page for more information.

All forms and related information pertaining to Research Permits can be found in the Publications Centre. Be sure to check out the Conservation Standards Terms and Conditions for Research Permits for general, wildlife and research-specific and information submission conditions that pertain to all research permits.

Subscribe to our Mail-out List Subscriptions for updates regarding Species Detection Permits, SKCDC Lists and Ranks, Legislation and Policy and HABISask.

Species Detection Survey Protocols

The [Species Detection Survey Protocols](#) are used to detect rare and sensitive species so Activity Restriction Guidelines can be applied. Their use is required by industry/environmental consultants for proposed or existing commercial activities.

Activity Restriction Guidelines for Sensitive Species

The [Activity Restriction Guidelines for Sensitive Species](#) outline restricted activity periods and distance setbacks for rare and sensitive species to assist proponents in minimizing impacts to rare and sensitive species and habitats.

Administrative Areas

8	Ecological Management Specialist (EMS) District(s)
Saskatoon	Compliance and Field Services Area(s)
Saskatoon	Compliance and Field Services Region(s)
Saskatoon	Area Fisheries Ecologist Area(s)
PARKLAND REGION	Area Wildlife Ecologist(s)
344 - CORMAN PARK	Rural Municipality
Nothing Found	First Nation Reserve

Contact Us

For more information, please contact our Client Service Office:

Email: centre.inquiry@gov.sk.ca

Tel (toll free in North America): 1-800-567-4224

Tel (Regina): 306-787-2584

APPENDIX E - HERITAGE SCREENING



Inquiry was made on June 6, 2022 at 1:36 PM

You are inquiring about the heritage sensitivity of the following land location:

Quarter-section:

SW

Section:

23

Township:

38

Range:

05

Meridian:

3

This quarter-section is NOT heritage sensitive.

It is not necessary to submit the project to the Heritage Conservation Branch for screening. These results can be printed for submission to other regulatory bodies (e.g. Saskatchewan Environment, Saskatchewan Energy and Resources). Please email arms@gov.sk.ca if you have any questions.

Inquiry was made on June 6, 2022 at 1:37 PM

You are inquiring about the heritage sensitivity of the following land location:

Quarter-section:

SE

Section:

23

Township:

38

Range:

05

Meridian:

3

This quarter-section is NOT heritage sensitive.

It is not necessary to submit the project to the Heritage Conservation Branch for screening. These results can be printed for submission to other regulatory bodies (e.g. Saskatchewan Environment, Saskatchewan Energy and Resources). Please email arms@gov.sk.ca if you have any questions.

APPENDIX F - GENERAL CORRESPONDENCE





Associated Engineering (Sask.) Ltd.
1 – 2225 Northridge Dr.
Saskatoon, Sk. S7L 6X6

July 28, 2022

Attn: Tanner Tetreault

Please accept this letter stating that Loraas Disposal can offer waste and recycle service removal from a new light industrial development at S ½ of 23-38-05-W3M in between the city of Martensville and Warman.

Thank You,

Heather Button

Heather Button
Inside Sales Representative
Loraas Disposal Services Ltd.

S ½ 23-38-05-W3M

Hi Tanner,

Thank you for your enquiry regarding potential liquid waste services from GFL. We would certainly be willing and able to help with that service.

In the interim, we thought we would attach a couple of information pieces that outline GFL's various divisions and the more common services we provide within those divisions. In addition, shown below is a link to our corporate video that expand on those services a bit further.

<https://vimeo.com/292224930>

Let me know on the letter.

Thank you for the considering GFL.

Ken

306-270-9505 cell

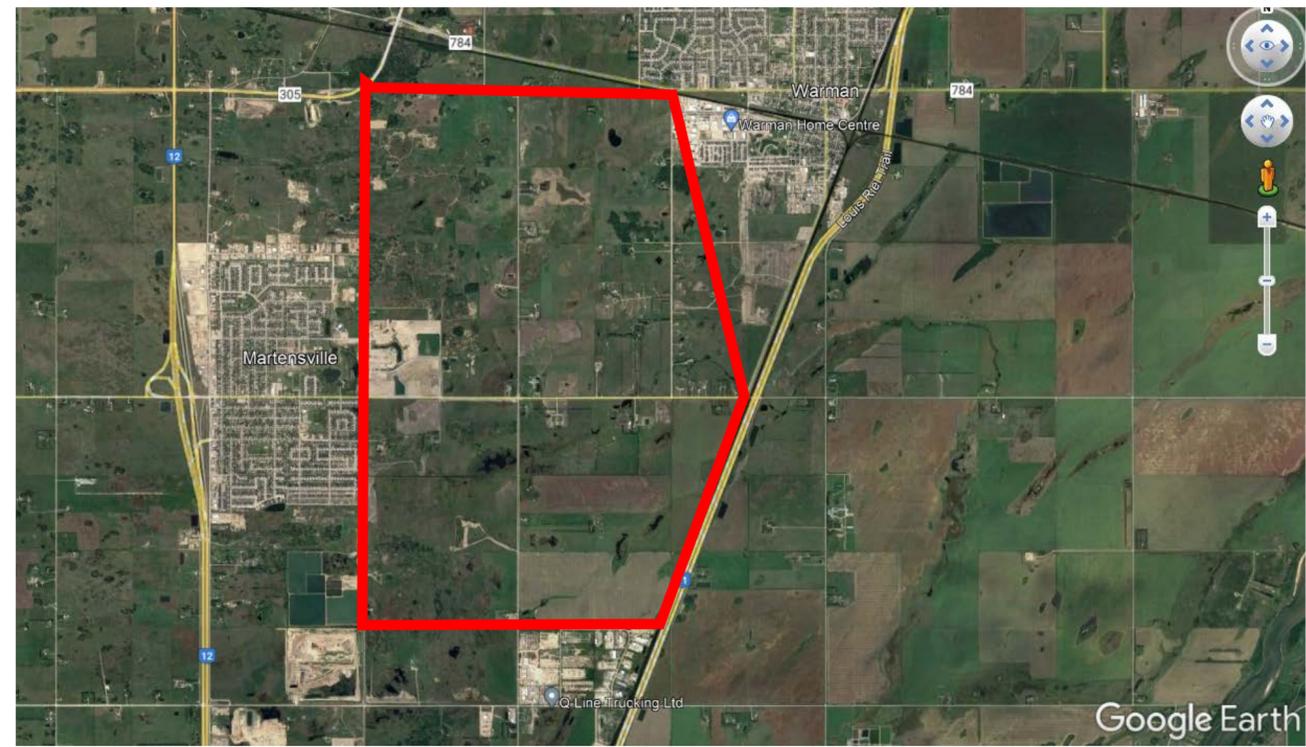
Ken Wasden | Account Manager, Liquid Waste

GFL Environmental Inc.

100 Cory Rd, Saskatoon, SK S7K 3J7

T (877) 244-9500 | **F** (306) 244-9501 | **C** (306) 270-9505 | kwadsen@gflenv.com | www.gflenv.com

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Hillside Farm Real Estate Corp.

Proposed Multi Parcel Rezoning and Subdivision Public Notice

PURPOSE

The purpose of this communication is to notify neighbouring property owners of a proposed application to rezone and subdivide land located in the S ½ 23-38-05-W3M to support a proposed multi-lot light industrial park development. Associated Engineering has been retained by the owner (Hillside Farm Real Estate Corp.) to prepare a comprehensive development review to support the above-noted applications. This report will be provided to the RM Council for its consideration and to the Community Planning Branch of the Ministry of Government Relations to support the proposed subdivision.

DEVELOPMENT SUMMARY

The purpose of the Light Industrial District is to accommodate a range of light industrial uses and activities, typically including manufacturing, processing, assembly, repair and end-user production and distribution involving limited storage of raw inputs.

Light industrial businesses typically operate during normal business hours. Outdoor storage and processing is limited to the rear yard and indoors. Unlike heavy industrial uses, manufacturing and processing in light industrial zones involves later stages of the manufacturing process focused on transforming or assembling goods for sale rather than storing and processing raw and unfinished goods. Development in this zoning district requires a high standard of landscaping and the incorporation of property screening to reduce the visual impact of development along public roadways and adjacent properties.

Permitted uses within a Light Industrial District (DM1) include, but are not limited to:

- Agricultural Support Services

- Commercial Storage Centre
- Equipment Sales/Rentals
- Manufacturing Establishment
- Vehicle Repair Shop
- Warehouse and Warehouse Sales
- Wholesale Trade

The proposed development is consistent with the designation of the land as approved by the P4G District Land Use Map and further verified by the recently completed North Concept Plan.

A portion of the property is identified by the North Concept Plan as rural commercial. The specific form of development and configuration of commercial lots in this area will depend upon confirming the RM's arterial road access standards which are currently being developed.

It is anticipated that the development will occur in phases based on market conditions and the logical extension of services to the area.

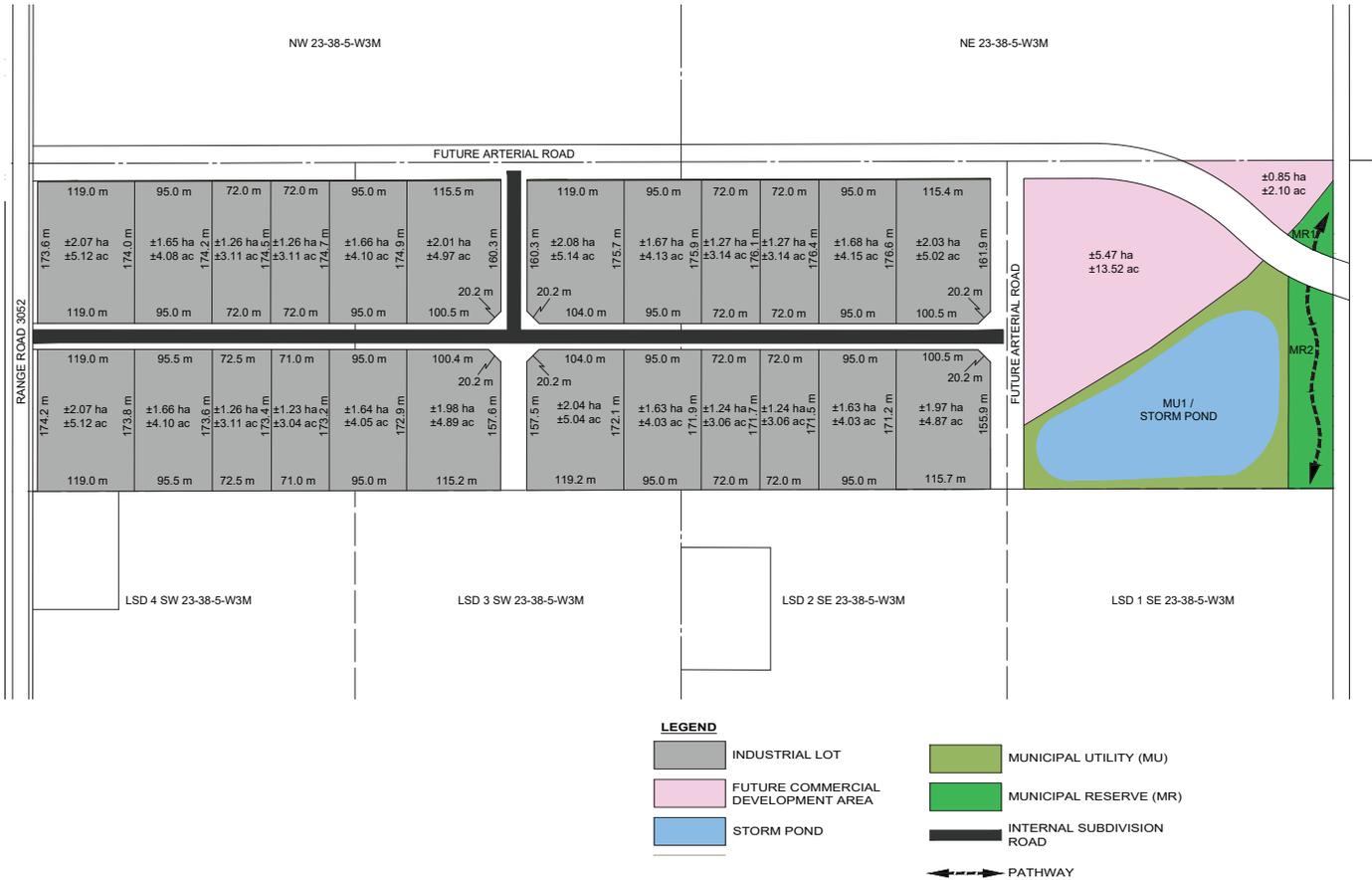
Potable water is anticipated to be provided by the Intervalley Water Inc. and wastewater will be exclusively managed by septic holdings tanks.

All the internal roads will be paved and similar improvements will be made to Range Road 3052 which represents the primary access to the property.

It is expected that a portion of the property along the eastern boundary associated with the Opimahaw Creek watershed will be retained in a semi-natural state to collect stormwater and offer public recreation opportunities.

The P4G District Official Community Plan and the Proposed North Concept Plan reports can be viewed on the RM of Corman Park website at www.rm.cormanpark.ca/205/Planning-Zoning-Documents

The proposed development plan is shown below:



The formal rezoning and subdivision application is intended to be submitted for consideration by the P4G District Planning Commission and subsequently the RM of Corman Park Council in the coming months. Neighbouring property owners may provide their perspectives and comments concerning the proposed development prior to consideration of the application by the RM. Any communications received from this mailing will be included in the final submission. Please respond to the request for comment by **October 28, 2022** by mail, email or telephone to the contact below:

Tanner Tetreault, RPP, MCIP
 Associated Engineering
 1-2225 Northridge Drive
 Saskatoon, SK S7L 6X6
 tetreaultt@ae.ca
 306-808-3360



RE: LSD 8- 23-38-05-3 Ext 66 - SaskEnergy Unregistered Easement

Hi Tanner,

I should have included a bit on that in my email. This is an IP (intermediate Pressure) distribution line. As a result this is installed in a 10m easement centered on the gas main.

Restrictions:

- 5m on either side is a no build zone. No buildings or permanent structures can be built overtop of this easement. Note: it can still be used for storage or parking.
 - grade changes: If a road or parking lot is going to be built, or anything else with excavation, the current depth of our main needs to be determined to ensure there is proper clearance.
 - grade changes (2): If the area is being built up it can also be a concern for locating and accessing our main. Typically we use 1.8m as our maximum depth.
- This last one is the one that comes into play if you were looking to build the berm overtop of our gas main. If you can keep the berm 5m back from the centerline of our gas main you should be good.

Before you get too far into the design, you can apply for a work permit using the following link:

[Planning a Dig Project | SaskEnergy](#)

There should also be some more information about setback and restrictions from working around our gas lines... but maybe they are provided by the permitting group now.

Thx,
Brad



Brad Shotton, P.Eng.

Senior Engineer, Distribution Engineering

SaskEnergy

408 – 36th Street East | Saskatoon, SK S7K 6K8

c. 306.281.4867

bshotton@saskenergy.com | saskenergy.com

Hi Tanner,

After a cursory look at the request, it appears that SaskWater currently has the system capacity to provide 20-30 igpm which should likely be adequate for the proposed light industrial park. The SaskWater SAPO-North 20 inch supply line runs in the east ditch adjacent to the west side of the property.

As SaskWater redistributes potable water from the City of Saskatoon, we would be required to obtain approval from the City to connect any new customers within the P4G boundary.

As the proposed location is inside the P4G boundary, City of Saskatoon approval would be required, and the City would provide their associated connection cost based on your required flow rate.

The SaskWater connection cost would be about \$18K for a flow rate up to 15 igpm. Flows above 15 igpm would require larger meter/fittings/etc. and the cost would be adjusted to reflect the actual cost.

Please feel free to call if you have any questions.

Thanks,
Bob

Bob Lys

Manager
Customer Service



SaskWater creates trusted and sustainable water solutions for a vibrant Saskatchewan

200 - 111 Fairford Street East

Moose Jaw, SK, S6H 1C8

Phone: 306-694-3784

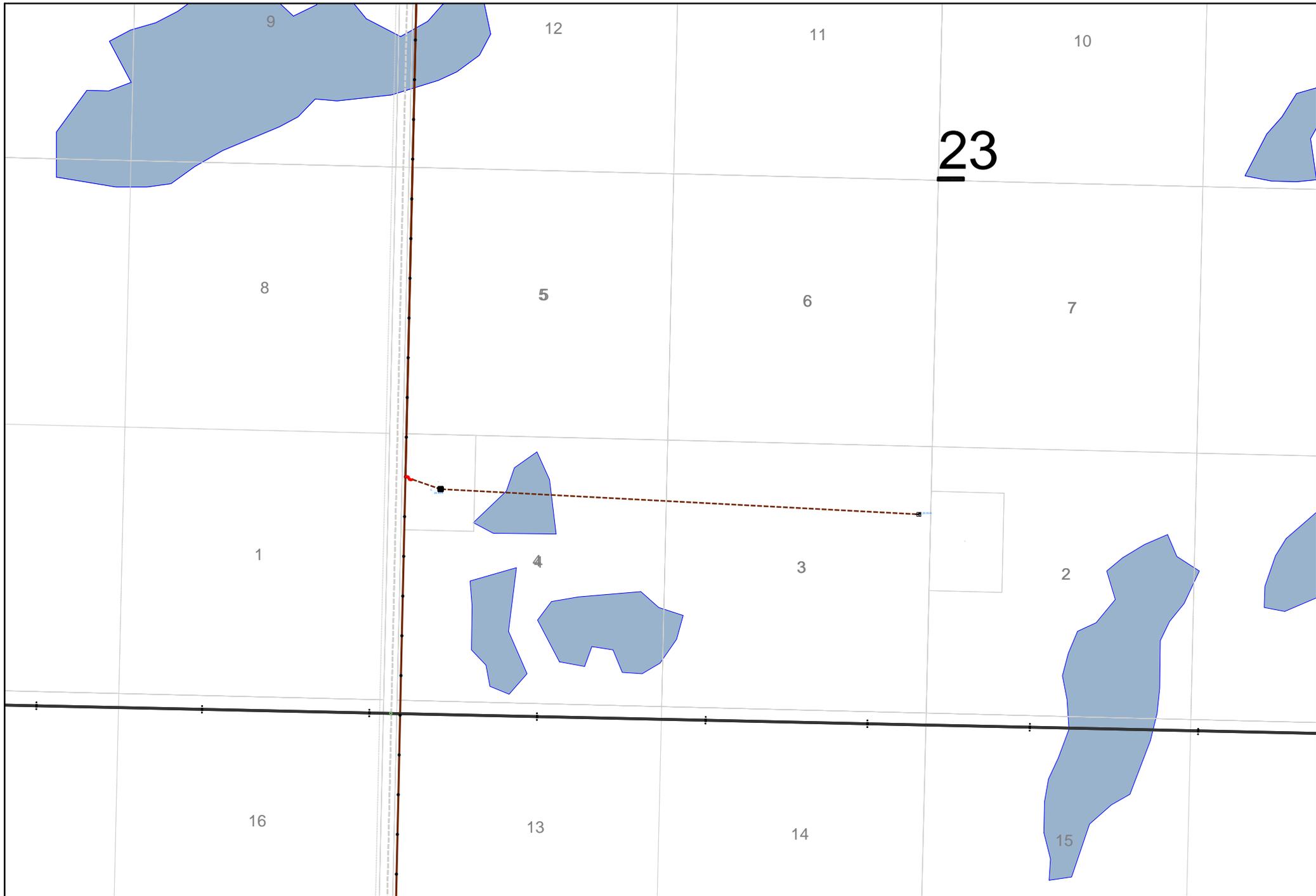
Fax: 306-694-3207

bob.lys@saskwater.com

www.saskwater.com

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NW23
38-05-W3

MARTENSVILLE

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LSD
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LSD
7

SASKATOON
CITY EXC.

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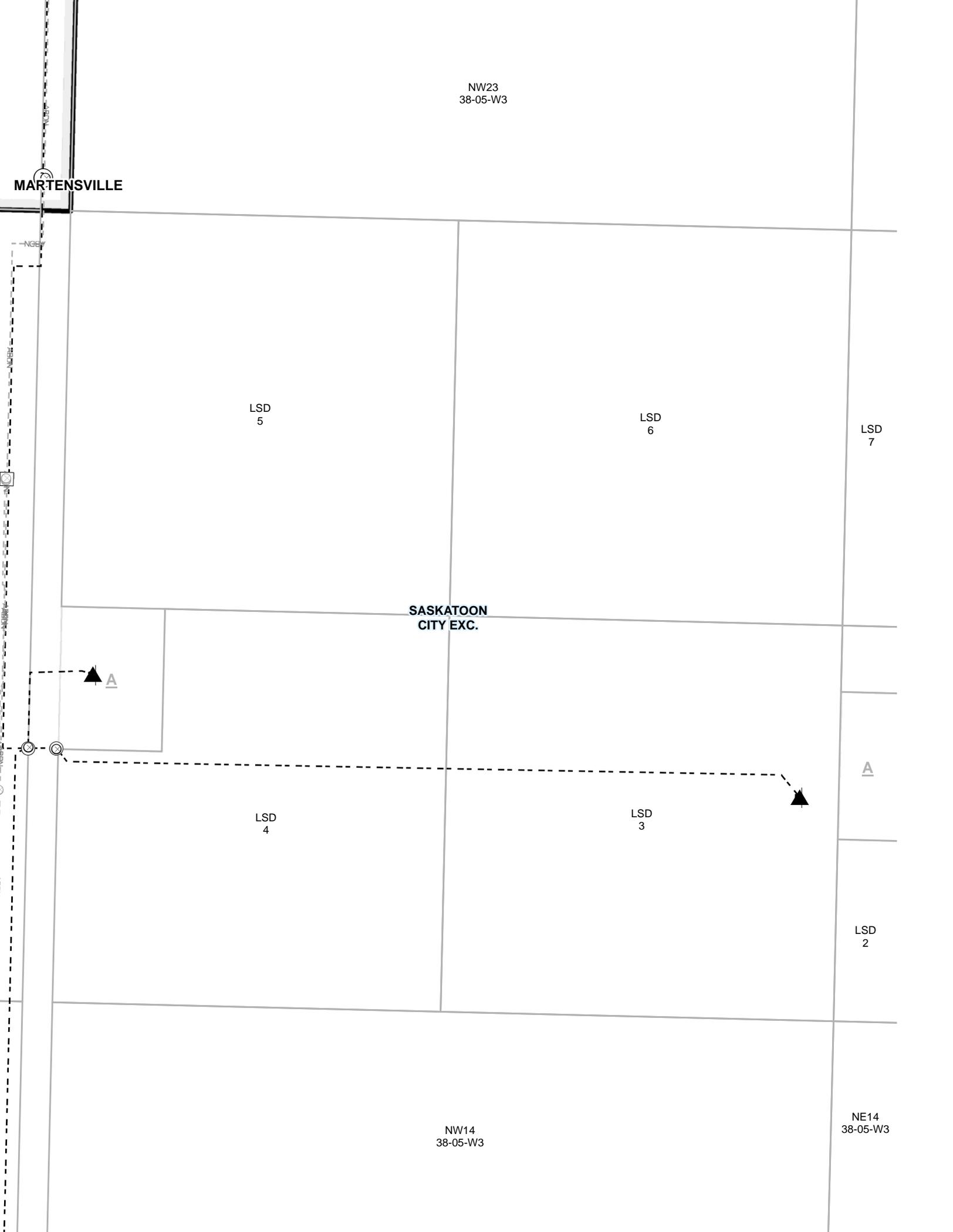
LSD
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LSD
3

LSD
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NW14
38-05-W3

NE14
38-05-W3



NW 23

NE 23

NW 24

SW 23

SE 23

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SW 24

38-05-3

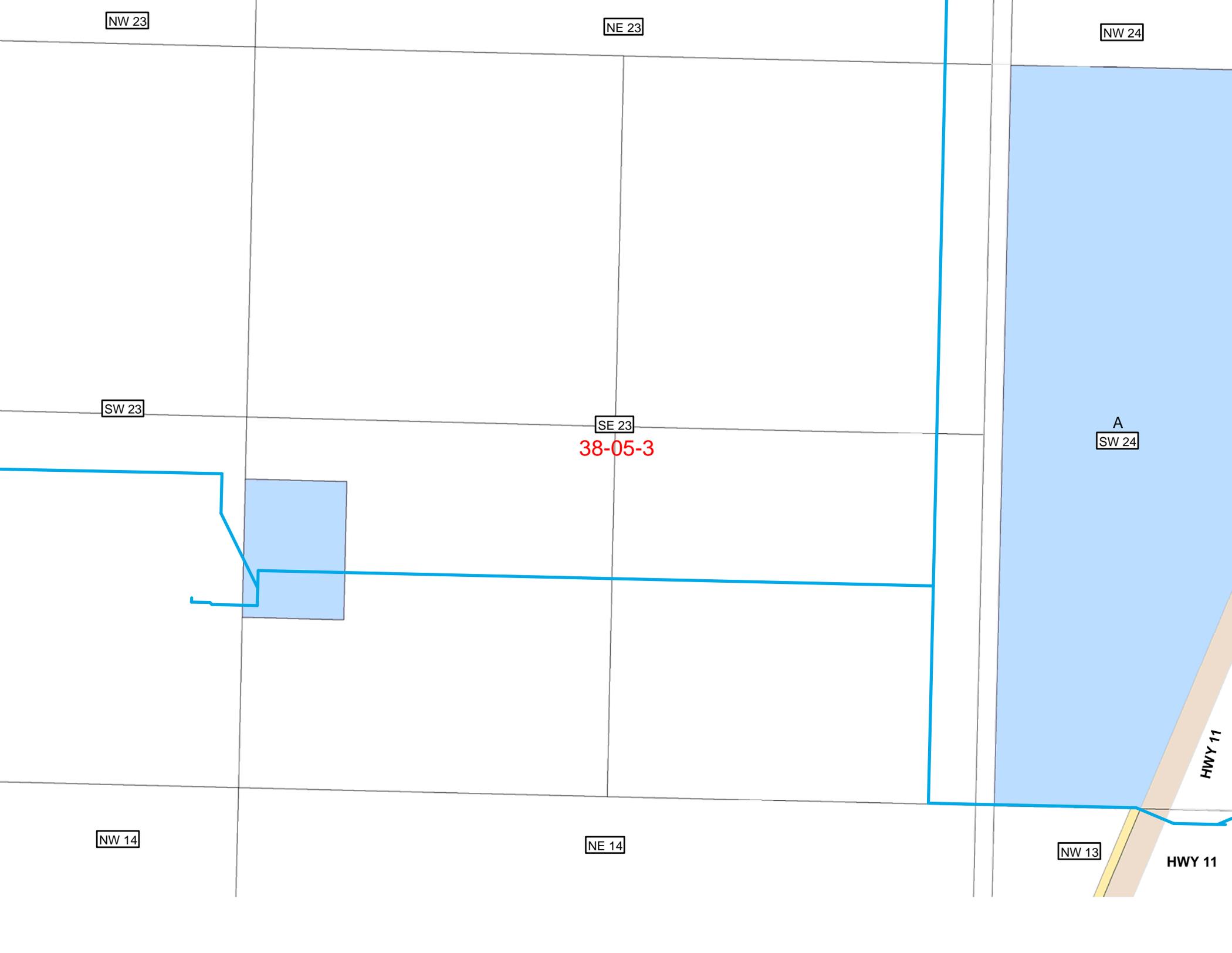
NW 14

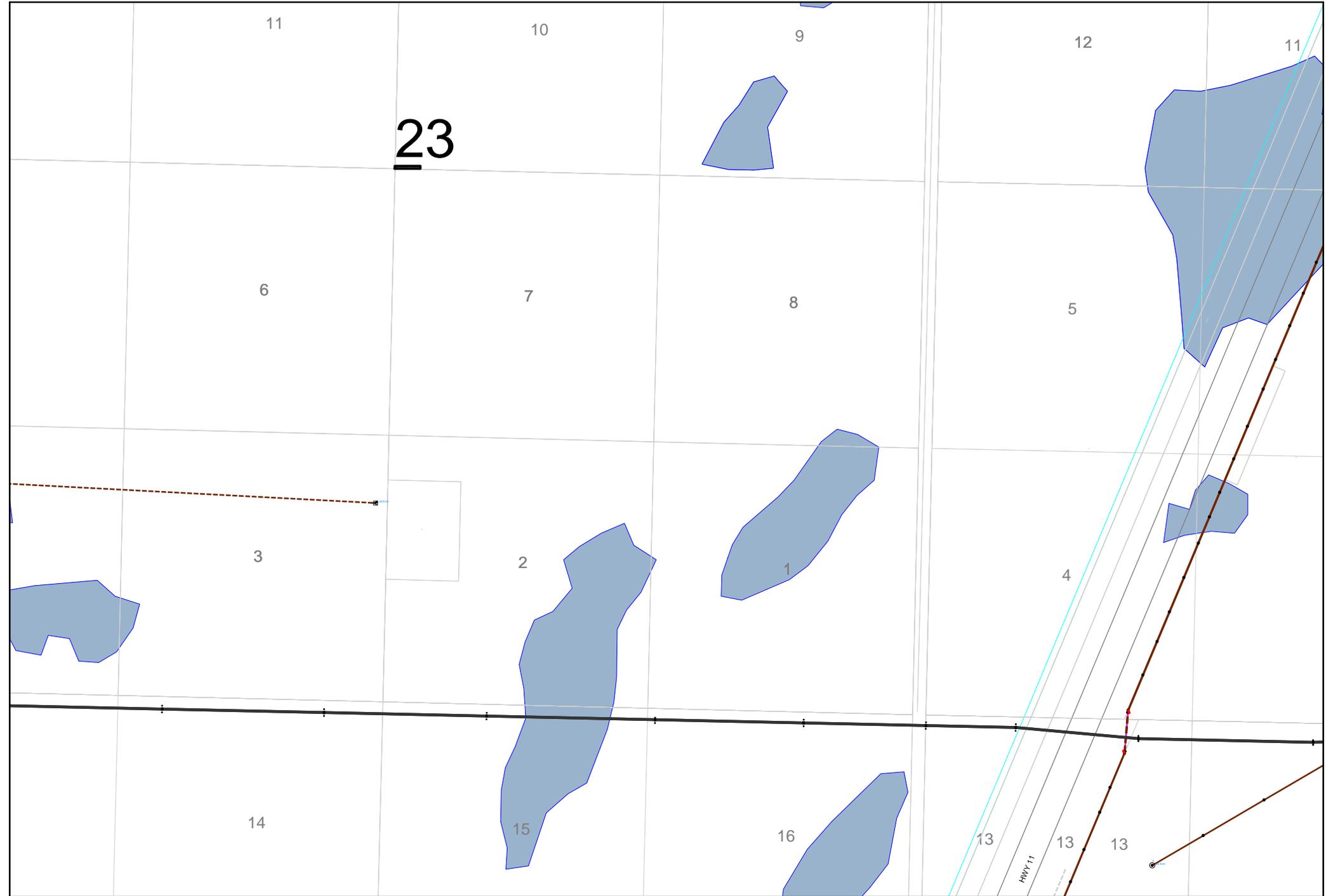
NE 14

NW 13

HWY 11

HWY 11





23



NW23
38-05-W3

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SASKATOON
CITY EXC.

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38-05-W3

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NE 22 MARTENSVILLE

NW 23

NE 23

SE 22

SW 23

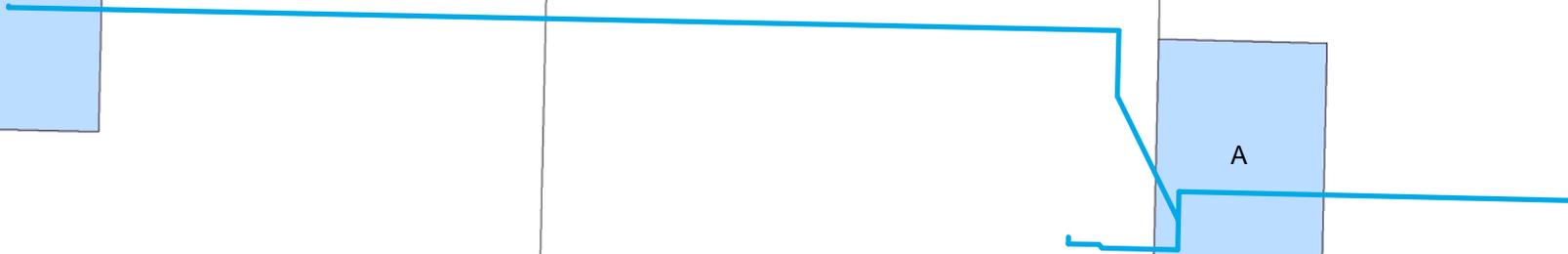
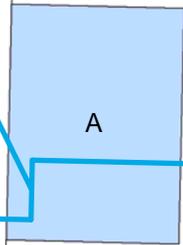
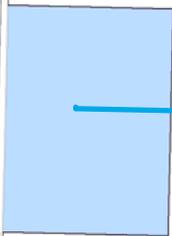
38-05-3

SE 23

NE 15

NW 14

NE 14



APPENDIX G – CONCEPTUAL STORMWATER PLAN



Date: November 4, 2022 File: 2021-4690-01
To: Water Security Agency (WSA) Page: Page 1 of 2
From: Karisa Purvis, P.Eng.
Project: LP Industrial CDR
Subject: Conceptual Drainage Plan

1 INTRODUCTION

Hillside Farm Real Estate Corp. has engaged Associated Engineering (Sask.) Ltd. (AE) to complete a conceptual drainage plan as part of the Comprehensive Development Review (CDR) application. The project involves the rezoning of 58 ha (143 acres) of land situated just east of the City of Martensville. Figure 1 depicts the subject property.

2 LOCAL TOPOGRAPHY AND EXISTING LAND FEATURES

The development site naturally drains west to east towards the regional Green Network drainage area before entering Opimihaw Creek. The Green Network drainage area accounts for the accumulation of stormwater runoff from the City of Saskatoon and northern surrounding area before draining into the South Saskatchewan River. An existing yard site in the northwest corner of the property does have some natural depressions that are expected to be filled in during construction. Contours were obtained from GeoVerra Inc. for the project site verifying where runoff would naturally discharge during a storm event. The pre-development contours and proximity to the Green Network drainage area can be seen in Figure 1. A topographic survey should be completed as part of the detailed design.

3 CONCEPTUAL DRAINAGE PLAN

The proposed development includes topsoil removal, construction of access roads, and construction of a gravel road structure across the industrial lots. Figure 2 illustrates the proposed post-development drainage plan.

Lot grading will direct runoff across the lots at a minimum of 1% grade. Runoff is intended to be conveyed overland via roadway ditches and a swale using culverts at approaches and intersections (as required). The development design is intended to take advantage of the natural low area in the southeast corner where stormwater retention pond will be constructed.

The stormwater retention pond will retain the pre-development to post-development increase in runoff resulting from the development during a 1:100 year 24-hour storm event. Using the Modified Rational Method as the basis for analysis, the pre- and post-development runoff coefficients are assumed to be 0.30 and 0.78, respectively. Weighted post-development coefficients were then adjusted to 0.98 through the addition of an Antecedent Moisture Condition (AMC) factor of 1.25 to account for an increase in runoff when the ground is saturated due to the 1:100-year event.

The change in the runoff between pre- and post-development flows requires the development to permanently store 36,550 m³ of "dead" storage. In addition, there are two (2) natural depressions on the site that will be filled in during construction which increases the permanent storage requirement by 330 m³. The resulting total permanent storage required is therefore 36,880 m³.

Memo To: Water Security Agency (WSA)

November 04, 2022

- 2 -

In addition to the permanent storage, the active storage was sized to store the post-development peak 1:100 year 24-hour runoff. The calculated average pre-development release rate is 0.19 m³/s which requires 52,100 m³ of active storage. A 600 mm diameter pipe installed at 1% grade with a 275 mm diameter orifice opening will be used as the outlet for the stormwater pond.

Once the runoff is released from the developments stormwater pond, the drainage path follows regional drainage as per the P4G Green Network Pilot Project: Report (2019) and the P4G North Concept Plan (2022). Runoff from the project area flows east and connects to the South Saskatchewan River via Opimihaw Creek.

4 CLOSURE

This memo was prepared for Water Security Agency on behalf of Hillside Farm Real Estate Corp. to outline the intended drainage design to aid in the Application for Approval to Construct and Operate Drainage Works.

Should you have any questions or require clarification on anything that is presented herein, please do not hesitate to contact us.

Respectfully submitted,
Associated Engineering (Sask.) Ltd.

Prepared by:



Karisa Purvis, P.Eng.
Project Engineer

KP/RK/np



Reviewed by:



Ryan Karsgaard, P.Eng.
Project Engineer

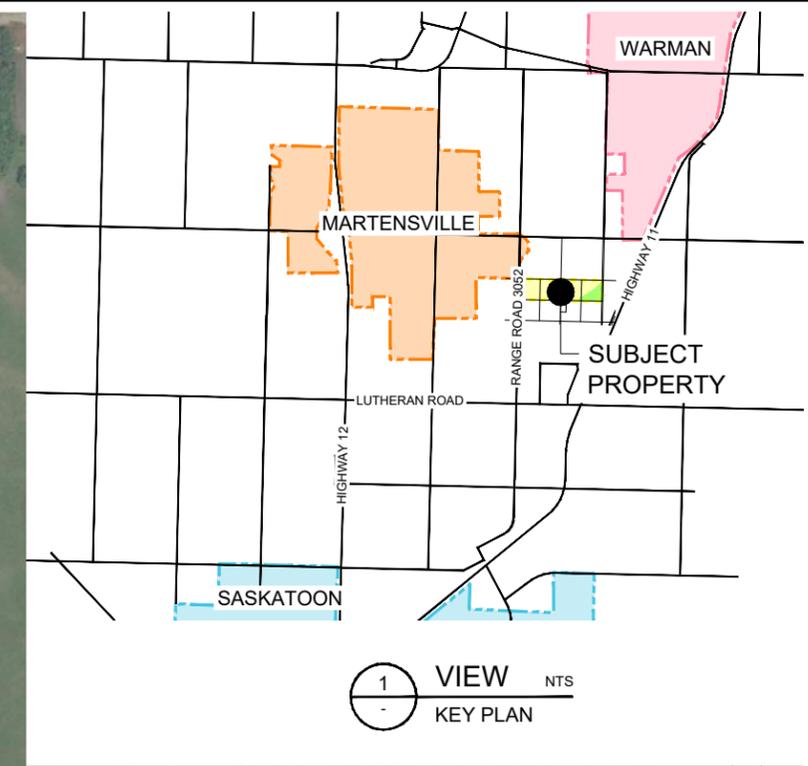
ASSOCIATION OF PROFESSIONAL ENGINEERS
AND GEOSCIENTISTS OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
ASSOCIATED ENGINEERING (SASK.) LTD.
NUMBER C116
PERMISSION TO CONSULT HELD BY:
DISCIPLINE SASK. REG. No. SIGNATURE
MUNICIPAL 14039 *Adrian Thomson*

**ASSOCIATED ENGINEERING
QUALITY MANAGEMENT SIGN-OFF**

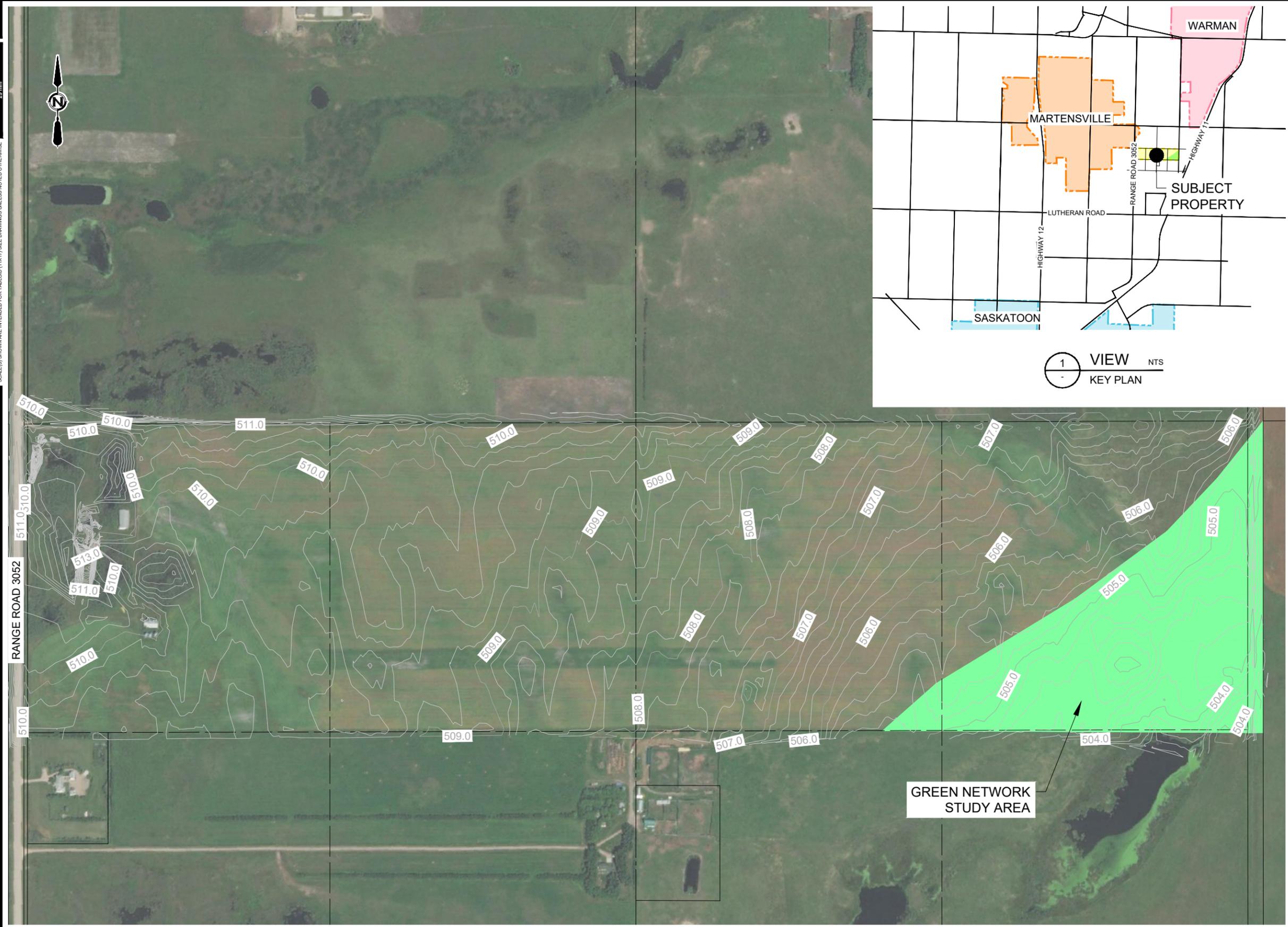
Signature: 

Date: November 7, 2022

IF NOT 25 mm ADJUST SCALES
SCALE(S) SHOWN ARE INTENDED FOR TABLOID (11X17) SIZE DRAWINGS UNLESS NOTED OTHERWISE



1 VIEW NTS
KEY PLAN



2 VIEW NTS
EXISTING CONTOURS

FIGURE 1
Hillside Farm Real Estate Corp.
LP INDUSTRIAL CDR

CIVIL
PLAN
EXISTING CONTOURS

AE PROJECT No.	20214690-01
SCALE	AS SHOWN
APPROVED	K. PURVIS
DATE	2022NOV07
REV	0
DESCRIPTION	ISSUED FOR MEMO

PLOT DATE: 2022-11-07 3:41:11 PM
SAVE DATE: 2022-11-07 3:40:48 PM
DWG PATH: \\ae.ca\data\working\user\2021-4690-01\civil\analysis\drainage\4690-01-cv701.dwg

SAVED BY: PAWLUSKIM

IF NOT 25 mm ADJUST SCALES
25 mm

SCALE(S) SHOWN ARE INTENDED FOR TABLOID (11X17) SIZE DRAWINGS UNLESS NOTED OTHERWISE



LEGEND

- INDUSTRIAL LOT
- FUTURE DEVELOPMENT AREA
- STORM POND
- MUNICIPAL UTILITY (MU)
- MUNICIPAL RESERVE (MR)
- INTERNAL SUBDIVISION ROAD
- SUMMER ROAD
- DRAINAGE EASEMENT
- → → → → DRAINAGE DITCH/SWALE FLOW
- OVERLAND DRAINAGE FLOW
- CULVERT

RANGE ROAD 3052

POND INLET

POND OUTLET

PLOT DATE: 2022-11-07 3:44:34 PM
SAVE DATE: 2022-11-07 3:34:46 PM SAVED BY: PAWLUSKIM
DWG PATH: \\nae.ca\data\working\user\2021-4690-01\civil\analysis\drainage\4690-01-c-702.dwg

FIGURE 2

Hillside Farm Real Estate Corp.
LP INDUSTRIAL CDR

CIVIL
PLAN
CONCEPTUAL DRAINAGE PLAN

AE PROJECT No.	20214690-01
SCALE	NTS
APPROVED	K. PURVIS
DATE	2022NOV07
REV	0
DESCRIPTION	ISSUED FOR MEMO

From: Jessica Phelps <Jessica.Phelps@wsask.ca>
Sent: Wednesday, October 19, 2022 9:29 AM
To: Karisa Purvis <purvisk@ae.ca>
Subject: RE: Hillside Farm Real Estate Corp. Industrial CDR - Drainage Approval

Hi Karisa,

Thank you for the clarification, WSA does not have any further concerns on this drainage plan.

Regards,

Jessica

Jessica Phelps - B.Sc. Hons, Geoscientist-in-Training

Technologist, Water & Wastewater
402 Royal Bank Tower 1101 - 101st Street
North Battleford, SK S9A 0Z5
Ph: 306.480.6792
wsask.ca | jessica.phelps@wsask.ca



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From: Karisa Purvis <purvisk@ae.ca>
Sent: Tuesday, October 18, 2022 4:04 PM
To: Jessica Phelps <Jessica.Phelps@wsask.ca>
Cc: Ryan Karsgaard <karsgaardr@ae.ca>; Bill Delainey <delaineyb@ae.ca>; Tanner Tetreault <tetreaultt@ae.ca>
Subject: RE: Hillside Farm Real Estate Corp. Industrial CDR - Drainage Approval

CAUTION: External to WSA. Verify sender and exercise caution opening links and attachments.

Hi Jessica,

Thank you for getting back to me! It looks like a lot of that northwest wetland drains just north of our site, but we will ensure any drainage paths that naturally come through the proposed development site will not be impeded. Ditch design and capacity will keep the existing drainage in mind, as you've stated below.

1

The stormwater pond will have a total capacity of 88,980 m³ (36,880 m³ of dead storage and 52,100 m³ of active storage). We generally sized it using City of Saskatoon stormwater pond standards and will further refine the dimensions during detailed design.

Please let me know if I can help clarify anything else!

Thank you,

Karisa Purvis, P. Eng

Project Engineer

Associated Engineering (Sask.) Ltd.

1-2225 Northridge Drive, Saskatoon, SK. S7L 6X6

Tel: 306.808.3105 | Cel: 306.290.8413

From: Jessica Phelps <Jessica.Phelps@wsask.ca>
Sent: Monday, October 17, 2022 4:05 PM
To: Karisa Purvis <purvisk@ae.ca>
Subject: RE: Hillside Farm Real Estate Corp. Industrial CDR - Drainage Approval

Hi Karisa,

WSA staff - North Battleford, have reviewed the Conceptual Drainage Plan you have provided. Based on available imagery, there is a wetland adjacent to the proposed project to the Northwest. The summer road must maintain natural drainage patterns and not block or impound any water in this wetland. The ditch on the southern side of the development must be designed to have enough capacity to ensure there are no impacts to the neighboring yard sites on the south.

Could you please provide more information on the capacity and design of the stormwater pond; is it designed to store 52,100m³ total or 88,980m³ (36,880+52,100)?

Regards,

Jessica

Jessica Phelps - B.Sc. Hons, Geoscientist-in-Training

Technologist, Water & Wastewater
402 Royal Bank Tower 1101 - 101st Street
North Battleford, SK S9A 0Z5
Ph: 306.480.6792
wsask.ca | jessica.phelps@wsask.ca



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From: Karisa Purvis <purvisk@ae.ca> 2
Sent: Friday, October 7, 2022 3:24 PM
To: Spencer McNie <Spencer.McNie@wsask.ca>; Jessica Phelps <Jessica.Phelps@wsask.ca>; Caroline Wiebe <Caroline.Wiebe@wsask.ca>
Cc: Ryan Karsgaard <karsgaardr@ae.ca>; Bill Delainey <delaineyb@ae.ca>; Tanner Tetreault <tetreaultt@ae.ca>
Subject: Hillside Farm Real Estate Corp. Industrial CDR - Drainage Approval

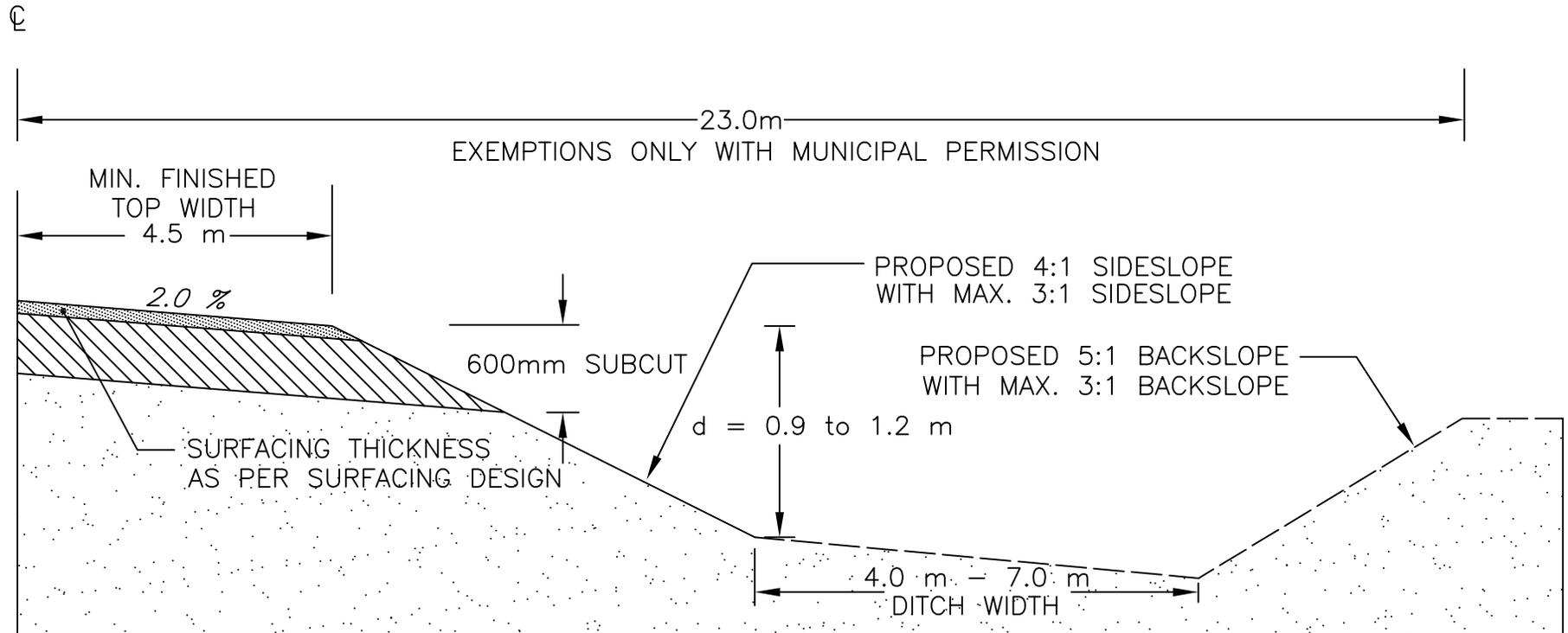
Hello,

As discussed, see attached for the conceptual drainage plan for Hillside Farm Real Estate Corp.'s industrial development east of Martensville. Please take a moment to review and let me know if you have any questions or comments.

Thank you,
Karisa Purvis, P. Eng
Project Engineer
Associated Engineering (Sask.) Ltd.
1-2225 Northridge Drive, Saskatoon, SK. S7L 6X6
Tel: 306.808.3105 | Cel: 306.290.8413

APPENDIX H – TRANSPORTATION MAPS AND ROAD STANDARDS



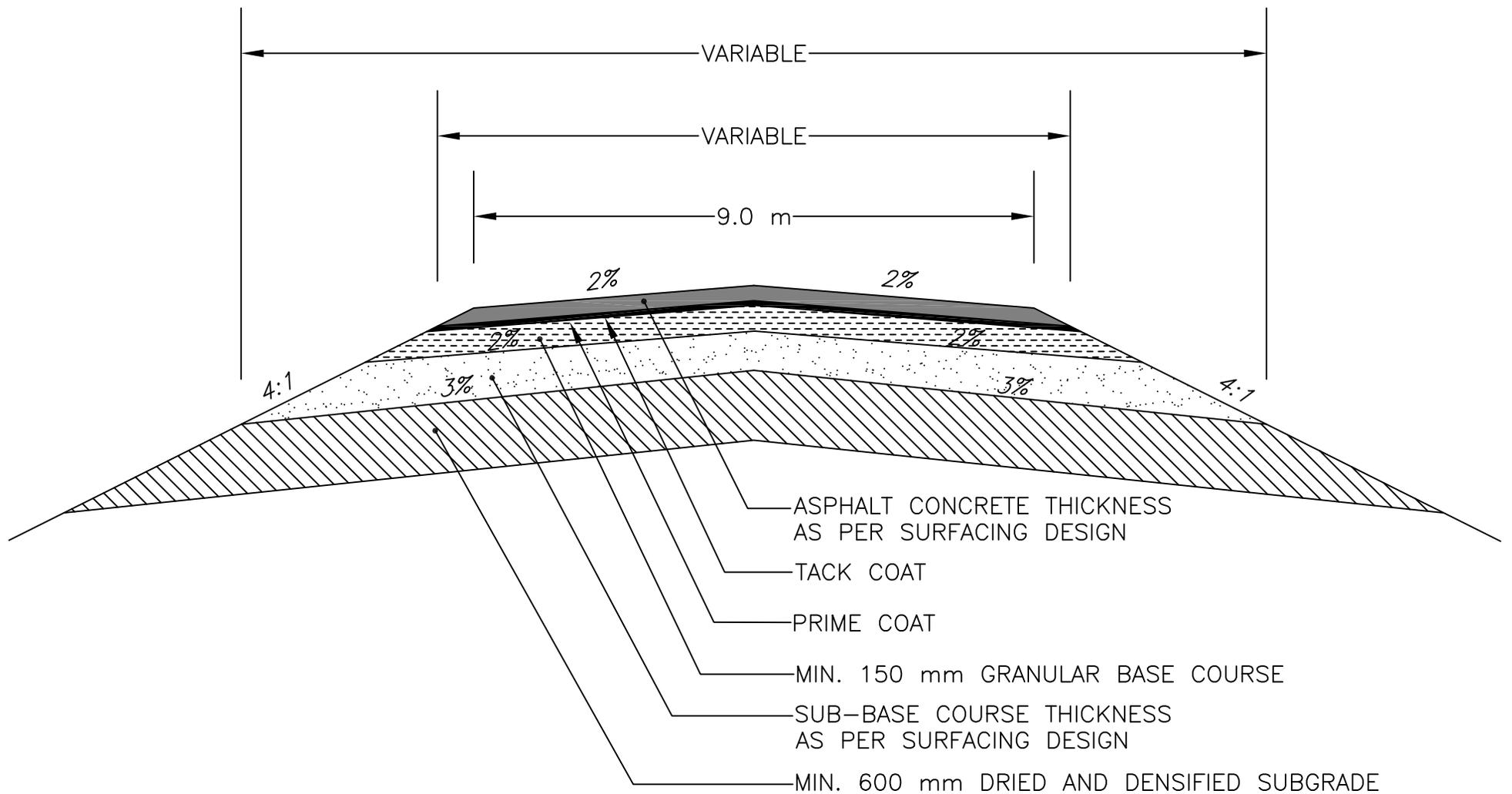


PUBLIC WORKS
 INDUSTRIAL PAVED - TYPICAL CROSS SECTION
 SUBGRADE

DATE: 2017

SCALE: NTS

DRAWN BY: WOOD E&I



PUBLIC WORKS
INDUSTRIAL PAVED - TYP. SURFACING STRUCTURE
ASPHALT CONCRETE

DATE: 2017

SCALE: NTS

DRAWN BY: WOOD E&I

1. Description

- Road design and construction standards for Industrial Paved (asphalt concrete) roads as designed within the Rural Municipality of Corman Park, No. 344 (Municipality).

2. Miscellaneous

- For the purposes of this document, the term “proponent” shall be used to address duties that shall be undertaken by the owner, developer, contractor and engineer interchangeable.
- During construction, the proponent shall be responsible for all traffic accommodation measures. This shall include but not limited to:
 - Proper signing of all access roads whereby traffic (construction or local) may access existing Municipality roads.
 - Traffic gravel shall be applied, if or as necessary for local traffic.
 - Proper measures shall be taken to ensure that local traffic can safely interact with construction equipment.
- The proponent shall ensure that all necessary Haul Road Agreements are in place including any provisions for dust control prior to the hauling of materials.
- Dust control to be applied on any approved detour routes.

3. Required Right-Of-Way Standards

- Minimum allowable Right-of-Way (ROW) purchased shall be 46.0 meters (m).
 - With special approval, the Municipality may permit that a 30.0 m ROW be purchased and utilized.
- The proponent shall be responsible for the purchase of all ROW.
- The minimum allowable ROW for cul-de-sacs and turnabouts purchased shall be 60.0 m with a minimum of 15.0 m radius for the driving surface.
- The road shall be designed and constructed in the center of the ROW unless with special permission of the Municipality.

4. Road Widths and Geometric Standards

4.1. Finished Road Width and Height

- The finished asphalt driving surface (paved width before the start of the asphalt slope) shall be as follows:
 - For fill heights of 3.0 m or less (where the road surface is from 0.0 m to 3.0 m in height), a 9.0 m finished road top width (asphalt) shall be required.
 - For fill heights greater than 3.0 m (where the road surface is from 3.1 metres in height or more), a 9.6 m finished road top width (asphalt) shall be required.

- The road cross-fall (slope) shall be constructed to 2.0% with any curves must be constructed with the proper super-elevation.
- The average shoulder elevation of the road surface should be approximately 0.9 m to 1.2 m above the adjacent ground except in cut areas.
- The subgrade surface shall not be less than 1.5 m above high water level on the ground water table. (ie: level to which free water would rise in a hole sunk in the ground).

4.2. Surfacing and Hydraulic Design

- A grading, surfacing and hydraulic design shall be completed, signed and stamped by a Professional Engineer registered with the Association Of Professional Engineers and Geoscientists of Saskatchewan (APEGS) and licensed to practice (Permission to Consult in this field of expertise) within the Province of Saskatchewan.
- The surfacing structure shall be based upon the Saskatchewan Ministry of Highways and Infrastructure’s Shell Curve method and shall be based on a 15 year design life (N_{15}).
- Soils testing shall be in accordance with the Saskatchewan Ministry of Highways and Infrastructure’s Standard Test Procedures manual.
- Hydraulic structures (culverts) with significant flows shall be designed (sized) in accordance with the Saskatchewan Ministry of Highways and Infrastructures Hydraulic Manual and shall be based on a Q^{25} flow (1 in 25 year (1:25)) frequency.
 - The Municipality may request that the design be based on a Q^{50} flow (1 in 50 year (1:50)) frequency based on the location (proximity) of any residences upstream of the crossing.
 - The proponent shall apply for, and shall meet all of the listed requirements, an Aquatic Habitat Protection Permit (AHPP) from SaskWatershed Authority for hydraulic passages requiring such.

4.3. Sideslopes

- Sideslopes shall range from 3:1 to 4:1 depending upon situation and with approval from the Municipality.
 - The standard required sideslope shall be 4:1.
 - For road fills ranging from 0.0 to 3.0 m in height, the sideslope shall be 4:1.
 - For road fills ranging in height from 3.0 m to 4.0 m, the toe of slope shall be 12.0 m from shoulder of the road.
 - For road fills greater than 4 m the sideslope shall be 3:1.
 - If upon review by the Municipality, a sideslope of 3:1 may be allowed only with special permission from the Municipality.

4.4. Ditch Bottom Widths

- Ditch bottom widths shall be range from 4.0 to 7.0 m depending upon grade height and backslope requirements.
 - The desirable is 7.0 m for snow storage.

4.5. Backslopes

- Sideslopes shall range from 5:1 to 3:1 depending upon the situation and with approval from the Municipality.
 - The standard required back slope shall be 5:1.
 - A backslope of ranging from a minimum of 3:1 to the standard backslope of 5:1 will be allowed in conjunction with maximizing the ditch bottom width.

4.6. Maximum Road Gradient

- The maximum road gradient allowed shall be 5.0%.
- With special approval by the Municipality, a 6.0% gradient may be allowed.

4.7. Stopping Sight and Intersection Distances

- The stopping sight distance for intersections with any road shall be a minimum of 200 m. This is based upon the SARM guidelines for a 100 km/h road design.
- The minimum length of road (constructed past an approach) shall be 100 m.
 - This is done in order to meet Stopping Sight Distances, snow and ice removal and road maintenance.
- For intersecting roads, the sight triangles shall be clear of any obstructions.
 - The sight triangle shall be a minimum of 85.0 m from the point of intersection on municipal roads and grid intersections and to a maximum of 140.0 m on primary grid roads using 80 km/h design speed; and a minimum of 140.0 m from the point of intersection on municipal roads 200 m for a highway on another heavy haul using 100 km/hr design speed.

5. Snow Clearance Standards

- When shoulder grade elevation is 0.3 m or less above natural surface at 15.0 m to 20.0 m from center line then the backslope must be flattened using a variable slope of 5:1 to a maximum of 3:1.

6. Road Construction

6.1. Clearing and Grubbing

- Timber, brush, duff (vegetation), roots, logs and stumps shall be completely cleared from the surface of the Right-of-Way.
- Debris from clearing and grubbing operations shall not be used in the construction of embankments (any portion of the road structure).
- Debris from clearing and grubbing operations shall not be buried within the Right-Of-Way.

6.2. Removal and Replacement of Topsoil

- All topsoil within the Construction Footprint shall be removed and stockpiled.
 - The Construction Footprint is defined as the area within the cut or fill stakes.
- The Contractor shall install appropriate sediment control to ensure no sedimentation from topsoil stockpiles enters into adjacent water bodies.
- Upon completion of the construction, topsoil shall be replaced to a uniform depth over the Construction Footprint excluding the road surface.
 - The maximum compacted depth of topsoil replaced will be 100 mm.
- Stones (rocks) 75 mm or more in diameter shall be removed and disposed of from the topsoil replaced.

6.3. Drainage (culvert) Installations

- If the foundation is unsuitable, the bottom of the bed shall be sub-cut to a minimum of 0.3 m below the granular backfill layer.
- A geotextile fabric shall be installed to separate the ground surface from the granular materials.
 - A minimum 8 ounce (Geotex 801 or equivalent) nonwoven geotextile shall be used.
- The bedding line shall be shaped to fit the culvert.
- Corrugated metal pipe culverts (CSP) shall be placed with the inside circumferential laps pointing downgrade and with the longitudinal laps at the sides or quarter points. The sections of the culvert shall be firmly joined with coupling bands. Joints shall be as tight as possible.
- Culverts shall be to the following minimum sizes unless larger sizes are required to meet flow requirements:
 - Approach culverts shall be a minimum of 400 mm in diameter.
 - Through grade culverts shall be a minimum of 600 mm in diameter.
- CSP culverts shall have a minimum thickness of 2.0 mm (12 gauge).
- Granular material shall be composed of sand or gravel free from undesirable quantities of soft or flaky particles, loam, and organic or other deleterious material. Granular material shall comply with the following requirements:

Sieve Designation	Percent by Weight Passing Canadian Metric Sieve Series		
	TYPE		
	115	116	10
50 mm	100	-	100
9.0 mm	-	100	-
900 µm	-	30 - 100	-
400 µm	-	15 - 75	-
160 µm	-	0 - 10	-
71 µm	0 - 15	-	0 - 20
Plasticity Index	0 - 6	0 - 6	0 - 6

- For backfilling all types of culverts and bridge abutments, Type 115 shall be used.
- For backfilling subsurface drain pipes, Type 116 shall be used as a filter Material.

- For backfilling curbs, curbs and gutters, sidewalks, driveways, storm sewers, and manholes, catch basins, and other ancillary structures, Type 10 shall be used.
- Earth backfill under the haunches of culverts, except those in approaches not to be paved shall be compacted with mechanical impact tampers.
- After the earth backfill and granular backfill has been placed and compacted around the culvert, the remainder of the embankment shall be constructed by drying the earth material to at least the optimum moisture content and compacted to an average of not less than one-hundred (100) percent of the maximum density as determined by a Saskatchewan Ministry of Highways and Infrastructure Standard Proctor test.
- The earth material above the bedding line shall be placed, simultaneously and uniformly, in lifts on each side of the culvert. In subcut sections, the lift shall extend to the limits of the sub-cut; otherwise the lifts shall extend not less than 15 m from each side of the culvert.
- No objectionable material shall be used within that portion of the embankment above or below the bedding line on culverts through the roadbed.
- The embankment, within three diameters or three span; of the culvert barrel, shall be free from rocks having a dimension of 80 mm or greater when measured in any direction.
- Random riprap shall be installed at all culvert locations where the culvert diameter is greater than 800 mm.
 - A nonwoven geotextile shall be placed prior to the placement of the riprap material.

6.4. Subgrade Embankments

- Earth embankments shall consist of acceptable earth material and rock material free from objectionable quantities of organic matter, frozen soil, stumps, trees, moss, and other unsuitable materials.
- The embankment shall be constructed by placing the material in successive layers.
- The depth of each layer shall not be more than fifteen (15) centimetres (cm) uncompacted. The full width of each segment of each layer shall be bladed with a motor grader at least twice prior to being compacted.
- The slopes and surface of the embankment shall be shaped and trimmed to a uniform smooth surface conforming to the cross-sections shown on the plans, or as staked.
- Stones having a dimension of eight (8) cm or more when measured in any direction shall be removed from the top fifteen (15) cm of the subgrade.
- The following requirements will apply for all embankments:
 - When unsuitable material is encountered below the natural ground surface in embankment areas, the material shall be excavated and removed.
 - The embankment layer (other than at culverts including the sub-cut backfill layer) from 750 mm to 600 mm below the top of the subgrade shall be dried to within 3% of the optimum moisture content.
 - Each layer of the top 600 mm of the subgrade shall be dried to at least the optimum moisture content and compacted to an average of not less than one-

hundred (100) percent of the maximum density as determined by the Saskatchewan Ministry of Highways and Infrastructure Standard Proctor test. The moisture and densities will be considered satisfactory when:

- All individual moisture test results are equal to or less than the optimum moisture content.
- Density test results average not less than one hundred (100) percent of the maximum density.
- All individual density tests are greater than ninety-eight (98) percent of the maximum density.
- If the moisture existing in the soil is insufficient for compacting to the specified density and for finishing, the proponent may elect to add water.
- The foregoing requirements will also apply to backfill of subcuts and the embankment required to prepare the beds and backfill drainage structures.
- Approaches to be constructed as per Municipalities Approach Construction policy.

6.5. Traffic Gravel

- Traffic gravel shall comply with Type 106.

Sieve Designation	Percent by Weight Passing Canadian Metric Sieve Series
	TYPE
	106
40.0 mm	-
31.5 mm	-
22.4 mm	100
18.0 mm	63 – 92
5.0 mm	0 – 50
2.0 mm	0 – 35
400 µm	
Fractured Faces	40% Minimum

- A tolerance of 3% in the percent by weight passing the maximum size sieve shall be permitted.

6.6. Traffic Gravel Behind Construction

- Type 106 Traffic Gravel shall be placed and spread on a newly constructed subgrade surface.
- Traffic gravel Type 106 shall not be deposited until the subgrade surface has been compacted (to the required density) and trimmed.
- Traffic gravel shall be dumped and spread uniformly on the subgrade surface as required.
- Traffic gravel shall be applied to the finished surface of all approaches.

6.7. Sub-Base Course

- Sub-base aggregate shall be composed of sound, hard, and durable particles of sand, gravel and rock free from injurious quantities of soft or flaky particles, shale, loam, clay balls and organic or other deleterious material.
- Sub-base course shall comply with the requirements listed in following table:

Sieve Designation	Percent by Weight Passing Canadian Metric Sieve Series
50 mm	100
2.0 mm	0 – 80.0
400 µm	0 – 45.0
160 µm	0 – 20.0
71 µm	0 – 8.0
Plasticity Index	0 – 6

A tolerance of 3% in the percent by weight passing the maximum size sieve shall be permitted providing 100% of the oversize passes the 63.0 mm sieve.

- The thickness of any one compacted lift of sub-base course shall not exceed 120 mm.
- Sub-base courses shall be compacted until no further settlement is apparent and the particles are well keyed into place.
- The finished surface of the sub-base course shall be true to grade and cross section and free of any surface defects, rutting or deformations the placement of the next course.

6.8. Granular Base Course

- Base aggregate shall be composed of sound, hard and durable particles of sand, gravel and rock free from injurious quantities of elongated, soft or flaky particles, shale, loam, clay balls and organic or other deleterious material.
- Base Course Mix (Type 33) shall comply with the requirements listed in following table:

Sieve Designation	Percent by Weight Passing Canadian Metric Sieve Series
18.0 mm	100
12.5 mm	75.0 – 100.0
5.0 mm	50.0 – 75.0
2.0 mm	32.0 – 52.0
900 µm	20.0 – 35.0
400 µm	15.0 – 25.0
160 µm	8.0 – 15.0
71 µm	6.0-11.0
Plasticity Index	0 - 6.0
Fractured Faces (%)	50.0% Minimum
Lightweight Pieces	5.0% Maximum

- A tolerance of 3% in the percent by weight passing the maximum size sieve shall be permitted providing 100% of the oversize passes the 22.4 mm sieve.
- Granular Base Mix shall be spread on dry and unfrozen surfaces and shall not be compacted if the atmospheric temperature is less than 2° Celsius.
- The finished surface of the Granular Base Course shall be true to grade and cross section and free of any surface defects.
- The Granular Base Course shall be considered satisfactory when:
 - It contains no surface defects.
 - The average density meets or exceeds 100% of maximum density.
 - All individual test results are greater than 98% of maximum density.
 - The moisture content is less than or equal to the optimum moisture content.
- A prime coat shall be placed on the finished final lift of Granular Base Course
 - Prime coat shall be placed within 24 hours, weather permitting.

6.9. Asphalt Prime and Tack Coat

- The proponent may elect to use MC-30, an emulsified asphalt primer, road-mixed SS-1, road-mixed SS-1H for the prime coat.
 - If using SS-1 or SS-1H, the SS-1 must be incorporated into the top 25 mm to 50 mm of the Granular Base Course.
- SS-1 or SS-1H emulsified asphalt shall be used as a tack coat.
- The tack coat shall be applied in accordance with the application rates outlined in the following table:

Surface Type	Application Rate (L/m ²)		
	Residual	Undiluted	Diluted (one part water to one part emulsified asphalt)
New Asphalt Concrete	0.14 – 0.18	0.23 – 0.32	0.45 – 0.60

- Potable water shall be used to dilute the emulsified asphalt.
- The tack coat shall be applied in a single application and uniformly across the prepared surface.
- Asphalt for prime coat and tack coat shall not be applied to a prepared surface when:
 - The surface temperature is less than 2° C.
 - The weather is misty, rainy, or if rain is impending.
- Traffic will not be permitted to travel on prime coat until 6 hours after application. After 6 hours, excess asphalt remaining on the surface shall be blotted by sand before traffic is permitted to travel on the surface.

6.10. Asphalt Concrete

- Virgin aggregate used for Asphalt Concrete shall be composed of sound, hard and durable particles of sand, gravel and rock, free from injurious quantities of elongated, soft or flaky particles, shale, clay, loam, ironstone, coal and organic or other deleterious materials.

- Type 150 – 200A asphalt shall be used as bituminous binder.
 - This material shall meet the requirements of Saskatchewan Ministry of Highways and Infrastructure’s Specifications for Manufactured Materials (SMM) For Asphalt Cements.
- Hydrated-lime or liquid anti-strip shall be used as an anti-stripping agent.
 - The stripping potential shall not exceed 5% as determined by SMHI Standard Test Procedure (STP 204-15).
 - Liquid anti-stripping agent shall be added at a rate of approximately 1.0% of the weight of liquid asphalt added.
 - The amount of hydrated lime added shall be approximately 1% of the total dry aggregate by weight.
 - The Contractor shall ensure the procedures and equipment used for the addition of hydrated lime anti-stripping agent are adequate to ensure that the hydrated lime is added at a uniform consistent rate.
- Only the following Mix Design Type will be permitted:

Sieve Designation	Percent By Weight Passing Canadian Metric Sieve Series
12.5 mm	100
9.0 mm	76-89
5.0 mm	50-60
2.0 mm	30-48
900 um	19-38
400 um	10-26
160 um	3-10
71 um	2-5
Fracture Minimum %	70 (1 face)
Sand Equivalent Minimum %	45
Los Angeles Abrasion (% loss)	35 (max)
Organic Content (% passing 5 mm)	1.0
Marshal Blows	50
Marshal Stability (kN) at 60°C min	8
Retained Stability (min %)	75
Marshal Flow Index (mm)	2-4
Air Voids in Mixture	3-5
Voids Filled With Asphalt %	70-80
Min Film Thickness	8.0

- A tack coat shall be applied and allowed to fully cure prior to the placement of the asphalt mix (paving operations).
- Asphalt concrete shall be spread on dry, clean, and unfrozen surfaces.

- Asphalt concrete shall be placed in accordance with the following temperature limitations:
 - Paving may begin, for other than the final lift, when the temperature is 0° C provided the temperature is forecast, by Environment Canada, for the closest location to the project, to reach at least 5° C that day.
 - The final lift of asphalt concrete shall not be placed if:
 - The atmospheric temperature is less than 5° C;
 - The surface temperature is less than 7° C.
- The asphalt concrete mat shall be constructed to a field density range of 97% to 98% of the Marshall Density based on readings from a correlated Nuclear Densometer gauge.
 - The proponent will develop a correlation between the results of the nuclear gauge and the results of the asphalt concrete cores obtained from the compacted lift of asphalt concrete. The density results obtained from the cores will be used to correct the Field Density results obtained from the nuclear gauge.
- The asphalt mat shall be constructed so that:
 - There are no pavement depressions.
 - Longitudinal construction joints from one lift to the next shall be separated by at least 100 mm.
- The minimum and maximum thickness of a compacted lift of asphalt concrete shall meet the following requirements:
 - Minimum asphalt mat thickness shall be 30 mm.
 - Maximum asphalt mat thickness shall be 50 mm.
- The asphalt mix temperature in the paver shall not be less than 110° C.
- Contact faces of curbs, gutters, manholes, and sidewalks shall be coated with asphalt using a hand applicator before placing the asphalt mix.
- When paving is discontinued on the roadway, the asphalt concrete shall be temporarily feathered to a slope of 10 horizontal to 1 vertical. When paving is resumed, the transverse joint shall be straight and have a vertical face when the taper is removed.
- Asphalt mix shall not be placed or allowed to fall on previously laid top lift asphalt concrete or the existing asphalt concrete.
- Transverse construction joints from one lift to the next shall be separated by at least 2.0 m.
- The proponent shall construct the asphalt mat so that there are no areas of:
 - Segregation.
 - Surface defects which may consist of:
 - Roller marks.
 - Open texture.
 - Improper matching of longitudinal and/or transverse joints.
 - Cracking or tearing.
 - Contamination by diesel, hydraulic fluids, detergent or other harmful products.
 - Foreign objects or materials that are detrimental to the asphalt concrete.
 - Clay balls or oversized materials.
 - Any repairs required shall be to the satisfaction and approval by the Municipality.

6.11. Seeding

- Prior to seeding, the area to be seeded shall be true to grade and cross section and free from irregularities.
- The proponent shall harrow the seeded areas immediately after the seeding is completed.
- The seed material shall contain the following blend of seeds:

Seed Mix Common Name	% of Mix
Sheep's Fescue	15
Canada Blue Grass	15
Blue Fescue	15
Hard Fescue	15
Chewings Fescue	15
Creeping Red Fescue	15
Perennial Rye Grass	10

- The seed application rate shall be 14 kg per hectare (31 lbs per acre).
- The Municipality may approve other grass seed mixtures having similar grass seeds or slight changes in mixture percentages.

7. Design and Construction Certification

- The Municipality reserves the right to request any and/or all test result(s) or other associated documentation at any stage of the project.
- Upon completion of the project and prior to the start of the warranty period, the proponent's Engineer and/or engineering firm shall complete and submit a signed and sealed Statutory Declaration stating that all design and construction criteria/specifications in accordance with the parameters aforementioned have been met.
 - The Engineer of Record shall be a Professional Engineer registered with the Association Of Professional Engineers and Geoscientists of Saskatchewan (APEGS) and licensed to practice (Permission to Consult) within the Province of Saskatchewan.
 - The Engineer(s) of Record shall have reviewed and/or been involved with the design and/or construction of the project and shall have firsthand knowledge of the work completed.

APPENDIX I – MUNICIPAL POLICY COMPLIANCE TABLE

P4G OCP	Section	Compliance
Part 2: General Policies		
<p>3.3 Subdivision Criteria</p> <p>The policies in this Plan that apply to subdivision of land set out the criteria that will be used by Corman Park in making a recommendation to the Province where a subdivision application has been submitted.</p>	Refer to section 2.	Yes.
<p>4.3.2 Business Retention, Expansion, and Attraction - The P4G municipalities will work to coordinate land use and development policies to attract, retain and promote the growth of businesses beneficial for the region.</p>	Refer to section 2.	Yes.
<p>5.3.4 Integration of Land Uses - New subdivision or development adjacent to existing reserve development shall complement and, where possible, integrate with, reserve development that is compatible with the Plan.</p>	Refer to section 3.	Yes.
<p>6.3.5 Impacts to Natural and Heritage Resources - Subdivisions and development must be designed and constructed to ensure that alterations to the landscape or other natural conditions avoid or mitigate on and offsite impacts to natural and heritage resources</p>	Refer to sections 2.3 and 2.4.	Yes.

<p>6.3.6 integration of Natural Features - Development should integrate and complement natural features and landscapes including the incorporation of natural vegetation and conserved wetlands.</p>	<p>Refer to sections 2.3 and 4.3.</p>	<p>Yes.</p>
<p>8.3.1 Source Water Protection - Development shall not restrict the use of groundwater or surface water, or alter the flow of surface water in a way that detrimentally affects other property or the ecology of the drainage system.</p>	<p>Refer to section 4.1.</p>	<p>Yes.</p>
<p>8.3.2 Runoff from Site Development - Untreated stormwater runoff from a multi-parcel development should be directed to a retention pond or similar feature to reduce sediment and pollutants inputs into surface water and wetlands.</p>	<p>Refer to section 4.3.</p>	<p>Yes.</p>
<p>8.3.6 Least Disturbance to Wetlands - Development and subdivision designs that ensure the least possible disturbance and alteration of retained wetlands will be encouraged.</p>	<p>Refer to sections 4.3 and 4.5.</p>	<p>Yes.</p>
<p>8.3.8 Wetland and Riparian Buffers Buffers around wetlands and water courses are required to maintain and improve water quality, minimize disturbance to native vegetation, and provide</p>	<p>Refer to sections 2.3 and 4.3.</p>	<p>Yes.</p>

<p>habitat for wildlife. A 30m buffer is required unless environmental and technical plans acceptable to Corman Park support a reduced buffer. Development within the buffer is prohibited and native vegetation within the buffer should be preserved.</p>		
<p>Part 3: Land Use</p>		
<p>10.3.4 Intent of the Land Use Designations C) Rural Commercial/Industrial accommodates general commercial and industrial uses, including lightly-serviced industrial, storage, and commercial areas that require a large land base. These areas shall be further designated as Rural Commercial or Rural Industrial areas through more detailed planning;</p>	<p>Refer to sections 3.1, 3.2, and 3.3.</p>	<p>Yes.</p>
<p>14.3.1 Designation on Schedule B – District Land Use Map - Areas designated as Rural Commercial/Industrial on Schedule B – District Land Use Map shall be further designated as Rural Industrial areas or Rural Commercial areas through more detailed planning. Concept Plans and other detailed planning shall identify the type(s) of Rural Industrial land use(s) being proposed.</p>	<p>Refer to sections 3.1, 3.2, and 3.3.</p>	<p>Yes.</p>

<p>14.3.2 Rural Industrial Development - Rural Industrial development shall be located in areas designated as Rural Commercial/Industrial on Schedule B – District Land Use Map, and in areas that have been identified as suitable for Rural Industrial development through the detailed planning referenced in section 14.3.1.</p>	<p>Refer to sections 3.1, 3.2, and 3.3.</p>	<p>Yes.</p>
<p>14.3.3 A) The carrying capacity of the lands proposed for development and the surrounding area based on site conditions, environmental considerations, potential impacts, and other factors that may warrant consideration in the design of the proposal are addressed;</p>	<p>Refer to section 4.</p>	<p>Yes.</p>
<p>14.3.3 B) Impacts on regional drainage patterns and other regional ecological systems are minimized;</p>	<p>Refer to sections 2.3, 3 and 4.</p>	<p>Yes.</p>
<p>14.3.3 C) The suitability and availability of municipal and other services and infrastructure necessary to support the proposal are considered;</p>	<p>Refer to section 4.</p>	<p>Yes.</p>
<p>14.3.3 D) The design is compatible with that of the surrounding area;</p>	<p>Refer to section 3.</p>	<p>Yes.</p>
<p>14.3.3 E) Existing roads and infrastructure are sufficient to support the development while</p>	<p>Refer to Appendix H</p>	<p>Yes.</p>

impacts to existing roadways and additional costs of maintenance are minimized;		
14.3.3 F) Nodal development is planned where key intersections of provincial highways, municipal roadways, and the Saskatoon Freeway can support access;	Refer to section 3.2.	Yes.
14.3.3 G) Lands are not prone to natural hazards;	Refer to section 2.1.	Yes.
14.3.3 H) Lands do not have unique historical or archaeological features;	Refer to section 2.4.	Yes.
14.3.3 I) Lands do not have significant wildlife habitat;	Refer to section 2.3.	Yes.
14.3.3 J) Lands do not have high quality recreational resources;	Refer to section 3.	Yes.
14.3.3 K) Surface and groundwater resources will not be impacted;	Refer to sections 4.3 and Appendix C.	Yes.
14.3.3 L) Any other costs to Corman Park associated with the development are minimized.	Refer to section 4.6.	Yes.
14.3.4 Industrial Parks - Industrial uses shall be restricted to industrial parks unless it can be clearly demonstrated that an industrial use has specific location requirements that limit its location to a specific alternate site.	Refer to section 3.	Yes.
14.3.6 Buffered Uses in Industrial Parks - Industrial parks with a high potential for land use conflicts must include buffering from non-industrial uses of land,	Refer to section 3.3.	Yes.

<p>including locating uses with fewer impacts near roadways, and other criteria as set out in in this Plan and the District Zoning Bylaw.</p>		
<p>17.3.5 Siting of Development - Development located within the Green Network Study Area shall:</p> <p>a) Be sited and developed to ensure that impacts are avoided or mitigated; and b) Demonstrate to the satisfaction of Corman Park through supporting environmental and technical plans, that any potential negative impacts have been avoided or mitigated.</p>	<p>Refer to sections 2, 3, and 4.</p>	<p>Yes.</p>
<p>Part 4: Servicing</p>		
<p>25.3.5 Septic Utilities As a condition of approval of a multi-parcel country residential, commercial, or industrial subdivision, Council may in accordance with a septic utility bylaw adopted pursuant to The Municipalities Act, require the developer to create and administer a private on-site septic utility to monitor the ongoing operation and maintenance of an on-site wastewater system</p>	<p>Refer to section 4.2.</p>	<p>Yes.</p>
<p>26.3.1 Integration of Green Network Study Area - Planning for and refinement of the Green</p>	<p>Refer to section 4.3.</p>	<p>Yes.</p>

Network Study Area will include consideration of stormwater management and drainage.		
26.3.2 Drainage Plans Development must be designed and constructed to avoid or mitigate on and off-site impacts from alteration to drainage.	Refer to section 4.3.	Yes.
26.3.10 "No Net Impact" Standard - On-site stormwater management controls for site development will be encouraged to meet a "no net impact" standard, incorporating sufficient capacity to accommodate surface water runoff for a 1:100-year storm event with no incremental increase in offsite flows in excess of what would have been generated from the property prior to the new development.	Refer to section 4.3.	Yes.
27.3.3 Roadway Access Development must meet all municipal and provincial regulations respecting access to and from provincial highways and municipal roads.	Refer to section 4.	Yes.
27.3.4 Minimize New Roadway Construction - To make the most efficient use of existing roadway facilities, residential, commercial, and industrial subdivisions and developments will be encouraged to locate adjacent to existing roads	Refer to section 4.	Yes.

that have been designed and constructed to accommodate them.		
27.3.5 Access Requirements for Developments - Residential, commercial, industrial, recreational, and regional infrastructure and institutional developments shall have year-round, legal, all weather physical access to a municipally maintained roadway.	Refer to section 4.	Yes.
27.3.6 Safe Access and Egress - Developments must include safe access and egress from adjacent roadways without disruption of the roadway function. The type and number of access points provided onto municipal roadways may be limited through shared points of access along shared driveways or service roads where applicable.	Refer to section 4.	Yes.
27.3.7 Access to Uses Provided at Developer Expense - Where subdivision or development requires year-round, all weather access, the expansion or upgrade of the roadway to such a standard will be provided at the developer's expense.	Refer to section 4.	Yes.
27.3.8 Where a development is expected to result in the accelerated deterioration of municipal roadways, Corman Park	Refer to section 4.	Yes.

may require the applicant, as a condition of approval, to enter into a road maintenance agreement to recover the costs of maintaining all affected roadways.		
27.3.9 Road Widening - Subdivisions must include allocations as necessary for the expansion of roads to standards as prescribed by Corman Park and, in the case of subdivision in Future Urban Growth Areas, the adjacent municipality.	Refer to section 4.	Yes.
Part 5: Implementation		
31.3.9 Holding Provision - Council may use the Holding Symbol "H" in conjunction with any other use designated in the District Zoning Bylaw, to specify the use to which lands may be put at some time in the future, but which are now considered premature or inappropriate for immediate development.	Refer to section 4.	Yes.

P4G ZB	Compliance	Complete
Section 3 – General Regulations	Refer to section 3.3.	Yes.
3.10 Drainage - The applicant shall be required to construct engineered drainage works incorporating sufficient capacity to accommodate the surficial water runoff	Refer to section 3.3.	Yes.

for a 1:100 year storm event with no incremental increase in offsite flows in excess of what would have been generated from the property prior to the grading and levelling.		
3.22 Public Roadways - All public roadways shall be constructed in accordance with the engineering standards of the Municipality or other jurisdiction having authority.	Refer to section 3.3.	Yes.
3.25 Separation Distances - Separation distances are established to minimize conflict between rural and urban development, incompatible uses, and achieve orderly, cost-efficient, and context appropriate development patterns.	Refer to section 3.3.	Yes.
3.28 Utility Services - All development shall be adequately serviced to the satisfaction of the municipality including the provision of power, natural gas, and telecommunications. If upgrades are required, the applicant shall be solely responsible for the cost and the undertaking of such upgrades.	Refer to section 3.3.	Yes.
3.30 Waste Water Treatment Systems - Where a development requires a means of sewage disposal or treatment, the developer	Refer to section 3.3.	Yes.

<p>shall be required to install a sewage disposal system in accordance with municipal and provincial requirements. The Development Officer, in 39 P4G Planning District Zoning Bylaw conjunction with appropriate provincial regulatory agencies, shall determine the suitability of a site to accommodate a private wastewater treatment system</p>		
<p>3.31 Water Supply - No development or use of land shall be allowed where the proposal will adversely affect domestic or municipal water supplies, or where a suitable, potable water supply cannot be furnished.</p>	<p>Refer to section 3.3.</p>	<p>Yes.</p>

APPENDIX J - PUBLIC CONSULTATION



October 26, 2022

Tanner Tetreault, RPP, MCIP
Associated Engineering
1, 2225 Northridge Drive
Saskatoon, SK S7L 6X6
Email: tetreaultt@ae.ca

RE: London Property Corp.

We recently received communication from you on behalf of London Property Corp. (hereafter LPC) regarding a proposed multi parcel rezoning and subdivision public notice.

We are submitting this letter to outline a number of serious concerns. We, the undersigned two sets of owners, reside and farm the two half quarters south and parallel to this proposed development and express concerns as they relate directly to us. However, we are certain neighbouring property owners will also share some of our concerns, and we are drafting a petition to be circulated.

1. Water drainage and quality. LPC has accounted for a level of water collection in a storm pond. The natural slope of this property leads to the east. That same drainage basin collectively joins onto our land. This is also part of the upstream Opimahaw Creek drainage flow. There is a double edge to our concerns. A development like this will eventually result in a lot of concrete and pavement that leads to rapid runoff. The first question is whether the storm pond can handle runoff properly. If there are variances in grades of the different lots, that water will move sideways onto our property or the property to the north. If there is good grade and flow it would lead to the pond as long as it has capacity. And this is the other edge. The current natural runoff was welcomed by us as a source of livestock water. As mentioned, it also contributes to the natural drainage flow for the area and allows for a level of nature conservancy. We currently do not graze that area until late in the season to allow for waterfowl nesting. If the storm pond is successful, it may help the property but not necessarily help the surroundings. If the pond does a proper job it avoids flooding. Yet if it does a proper job, it also starves out natural flow and water use. We are concerned about the water quality as runoff contaminants from this site.

Furthermore, both adjacent property owners have a contract with Sask Water. As per our agreement, "7. SASK WATER does not guarantee a continuous supply of water. The supply of water and pressure will be subject to the service requirements of the major municipal and industrial users and to such other operating and maintenance requirements that are or may be established by Sask Water. The Consumer will be subject to disruptions of service and agrees to conform to restrictions of water supply at the direction of Sask Water." Business needs will override our personal needs for a source of fresh, safe drinking water.

2. Garbage, dust and pollution. Due to our proximity, we are concerned about the incorporated screening. We have concerns regarding garbage blowing into our field where we graze our livestock. We also have concerns regarding blowing dust, as well as particulate and light pollution. All of these environmental issues threaten not only our livestock but the birds and other wildlife in the area.

3. Traffic and crime. LPC have indicated in their plan to pave Range Road 3052 at their cost. Their plan is to pave it north to Township Road 384 only. This will not be the direction that most traffic will come from, as 384 is not built for a large traffic influx (especially heavy trucks). The same goes for 3052 as most traffic will likely come from the south. That entire stretch of 3052 would need to be built up to standard and paved. Historically, this road sees weight restricted road bans every year for extended periods of time, an indication that it is not a road that can sustain increased heavy traffic and volume. Are LPC prepared to pay for the entire 1.5 miles? They should be incurring this cost, not the taxpayers of *Corman Park*. *If it is not built up, it will get damaged by the increase in traffic during construction and in future years.* Paved roads encourage more traffic and with that more crime, because it makes for easier access/exit for criminals.

The proposed development references a "future arterial road" to the north and to the east of the industrial lots. It isn't clear where either of these two roads will connect to the current road infrastructure. This raises the question of access to the east end?

There is also the question of whether this is an appropriate location to create a multi-lot industrial park development, recognizing the property borders the Martensville Cemetery (disrespect) and the Ranch Ehrlo Campus (safety).

4. Lack of logic of the plan. We challenge the logic of granting a development like this at this time. It is an island development that presents environmental and safety issues to surrounding lands and infrastructure. It seems more logical to continue to build on the current developments, such as the Corman Park industrial area, first and progress out from there. The full reality is that this area is zoned for light industrial, but we must use logic to how it is developed in the short and long term for overall prosperity, not just to accommodate a speculation project from someone unfamiliar with the local area.

"It is expected that a portion of the property along the eastern boundary associated with the Opimahaw Creek watershed will be retained in a semi-natural state to collect stormwater and offer public recreation opportunities." What constitutes a semi-natural state? Who develops a public recreation opportunity adjacent to a light industrial development and where is the access?

Also, according to the P4G Planning District Future Urban Growth Areas Map, a future Regional Community Node has been proposed for an area between Warman and Martensville (see <https://www.ccgazette.ca/articles/warman-martensville-regional-node-study-receives-funding/>). This regional cooperation project received funding in spring 2022 and the studies are currently incomplete. This illustrates again that this light industrial development is premature, as it may not be suitable once the study is complete and recommendations provided. Planning should be very methodical, one step at a time, and deal with the issues currently being researched. It is imperative to have proper planning and development defined.

In summary, we strenuously oppose LPC's proposed location for a multi-lot industrial park development as being premature for an area currently under study, presenting environmental and safety hazards for neighbouring properties, and bordering the Martensville Cemetery and the Ranch Ehrlo Corman Park campus.

Sincerely,

Thelma Kraushar
Regan Kraushar

Thelma and Regan Kraushar

L MacMillan *Tim Gardner*

Lorna MacMillan and Tim Gardner



RECORD OF TELEPHONE CONVERSATION

Date: 10/17/2022 Time: 2:30 p.m. Project No.: 2021-4690-01

Call from: _____ Name: Tim Gardner

Company: Landowner SW-23-38-5-W3 Phone No.: (306) 380-7555

Associated Engineering Representative Receiving Call: Tanner Tetreault

Project: Hillside Farm Real Estate Corp. CDR

Subject: Response to the proposed rezoning of LSD 5,6,7, and 8 23-38-5-W3 to D - Light Industrial 1 District (DM1).

Summary of Discussions:

Mr. Gardner inquired to understand the types of uses that might be possible to be employed at this location if the rezoning to D - Light Industrial 1 District (DM1) were to be approved. In this case, uses typically include manufacturing, processing, assembly, repair and end-user production and distribution involving limited storage of raw inputs.

Concerns were raised with potential visual impacts to the neighbouring properties, If approved, at the time that a property owner applies for a building permit, the applicant would comply with all setback requirements as stipulated by the RM of Corman Park, as well as to construct the appropriate landscaping and screening requirements in order to reduce the impacts to neighbouring properties.

Concerns were also brought forward with respect to increased dust and traffic, as part of the proposed development, Range Road 3052 will be upgraded to a paved industrial standard in order to reduce transportation nuisance.

Conclusions/Decisions/Actions to be Taken:

It would be Mr. Gardner's preference that the paving of Range Road 3052 head south to the Cory Industrial Park as in their opinion, this is a more heavily utilized traffic direction. The RM of Corman Park Public works department will make a determination as to which direction paving would be required.

Mitigation measures in order to provide screening from proposed DM1 uses will be completed at the time of a development or building permit application completed by the property owner(s) and will comply with the policies and regulations applicable to the zoning district.

Distribution:	<input checked="" type="checkbox"/> RM of Corman Park:	<u>Included as information as part of the CDR report.</u>	<input type="checkbox"/>
	<input type="checkbox"/> Contractor:	_____	<input type="checkbox"/>
	<input type="checkbox"/> Project Manager:	_____	<input type="checkbox"/>

