NEW HORIZON BUSINESS PARK

COMPREHENSIVE DEVELOPMENT PROPOSAL

Prepared for: The RM of Edenwold No. 158

Submitted by: New Horizon Group of Companies

July 29, 2024

Basis and Use of this Comprehensive Development Proposal

The information contained in this Comprehensive Development Proposal (CDP) is intended for the sole use by New Horizon Park (Developer) as part of a development application to the RM of Edenwold No. 158. No other party may use or rely upon this CDP, or any portion thereof, without the written consent of Beaton Planning. Beaton Planning will consent to any reasonable request made by the Developer to approve the use of this CDP by other parties as approved users.

The contents of this CDP are based on the specific site, land use, design, and background information that have been described or provided to Beaton Planning by the Developer. The material herein reflects Beaton Planning's knowledge and understanding of the development, given the information available, at the time of preparation. The accuracy and reliability of this CDP are valid only to the extent that the information provided is correct.

This CDP has been prepared in a manner consistent with the level of skill ordinarily exercised by members of the profession practicing at the time of writing the report and under similar conditions. No other warranty is expressed or implied.

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1 PURPOSE

This Comprehensive Development Proposal (CDP) has been prepared on behalf of New Horizon Group of Companies (Developer) to express interest in expanding an existing commercial-light industrial park, known as New Horizon Business Park, located in the RM of Edenwold No. 158 (RM).

The Developer is a Saskatchewan-based company, specializing in the development and real estate of commercial and light industrial properties. The Developer has established other properties, some of which they own and operate, in the Town of Pilot Butte and the community of Emerald Park.

The RM's Official Community Plan (OCP) and Zoning Bylaw require a CDP to be included with an application to rezone, subdivide, re-subdivide, or re-develop three or more sites. This CDP has been prepared in accordance with the provisions of the OCP and Zoning Bylaw; it describes the physical characteristics of the development site (Site), the existing and planned uses, and the provision of infrastructure services. Professional reports, site assessments, and other supporting background information are attached as appendices.

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 LOCATION

The Developer is proposing to subdivide and develop 39.115 hectares (96.65 acres) of vacant farmland in the RM for commercial-light industrial use. The source parcel is legally described as the SE ¼ 06-18-18-W2M Ext 3 and will be developed in two phases. This will be an expansion to New Horizon Business Park, located approximately 4 km (2.5 miles) east of the nearest boundary of the City of Regina, and 1 km (0.6 miles) west of the Town of Pilot Butte, as shown in the map below. The parcel picture for the SE ¼ 06-18-18-W2M Ext 3 is attached to this CDP as Appendix A.

The Site is located on Treaty Four Territory, traditional lands of the Nêhiyawak (Cree), Nahkawé (Saulteaux) and Nakota, Dakota, Lakota, and homeland of the Métis.

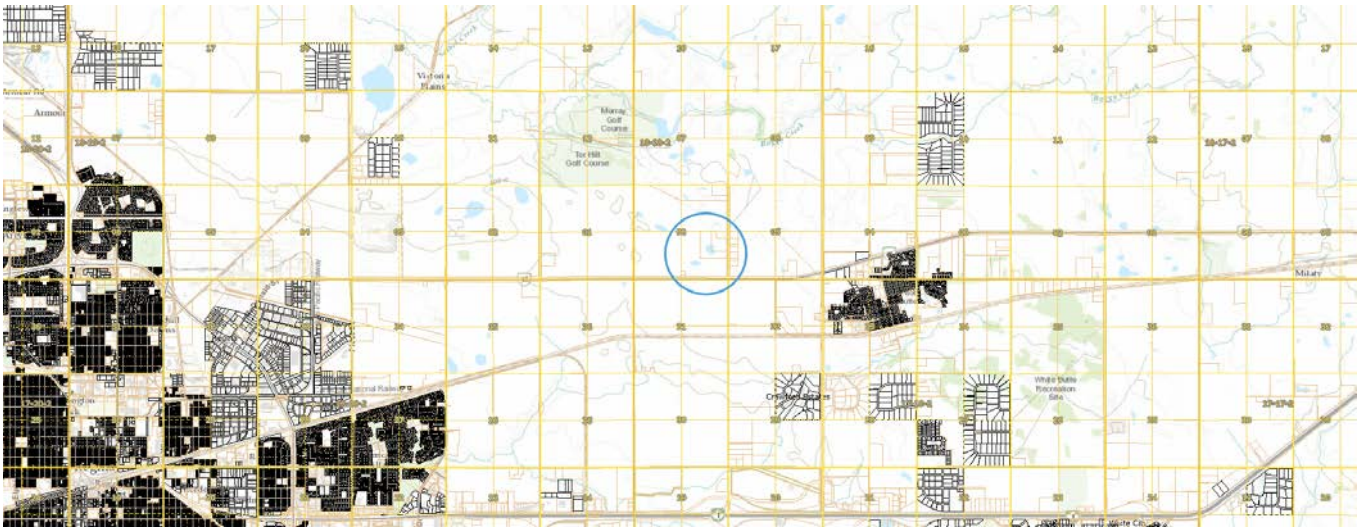


Figure 2-1: Map depicting regional context of the development site, which is located within the blue circle.

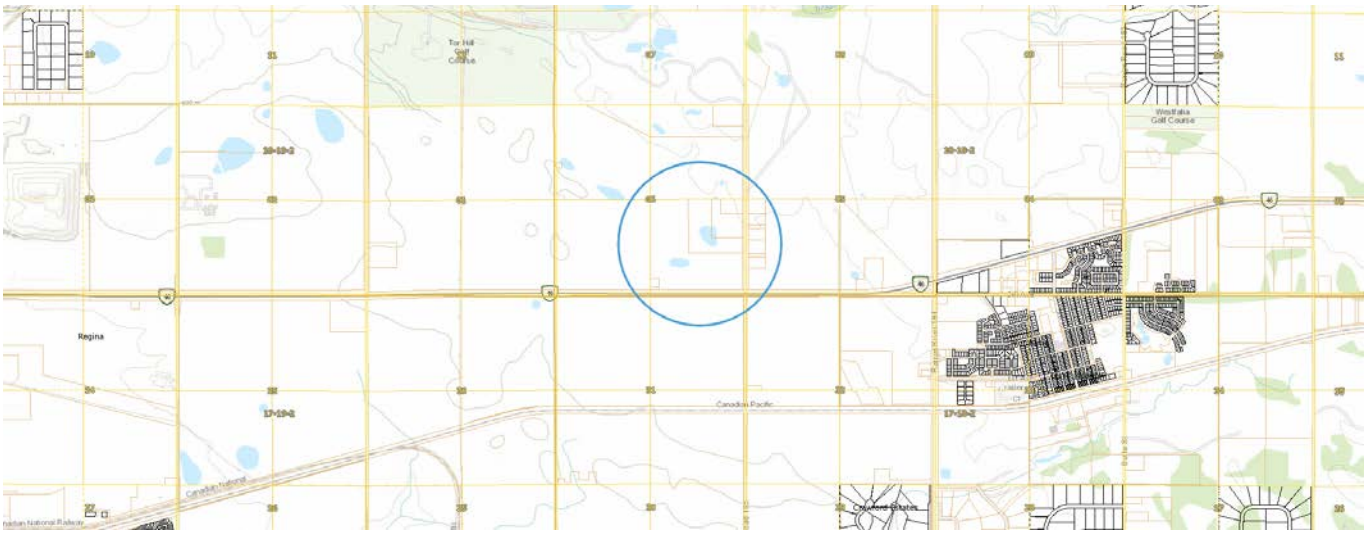


Figure 2-2: Map depicting regional context of the development site, which is located within the blue circle.

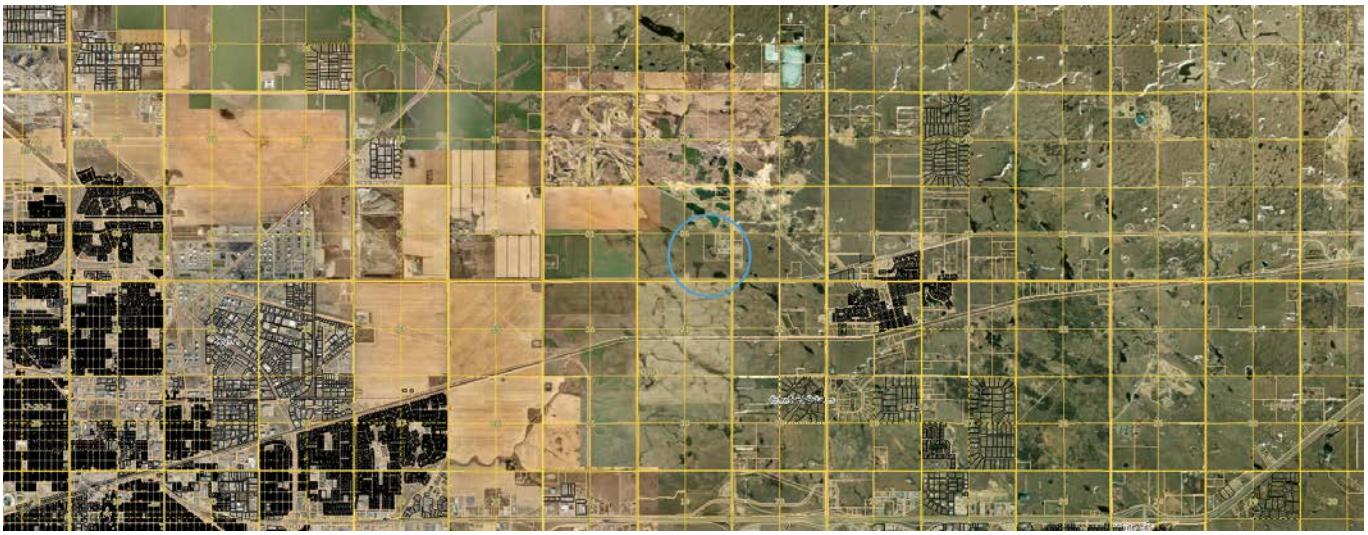


Figure 2-3: Air photo depicting regional context of the development site, which is located within the blue circle.

Figure 2-4: Air photo depicting regional context of the development site, which is located within the blue circle.

2.2 EXISTING LAND USES AND CONDITIONS

Within the Subject Source Parcel

The source parcel proposed for development is 39.115 hectares (96.65 acres) in area and is the remaining portion of the partially developed quarter section. Land within the source parcel is cultivated farmland and pasture, and is free of buildings and structures.

Within the Subject Quarter Section

The northeast portion of the quarter section contains two commercial bareland condominium developments (Condo Developments or Condo Plans), measuring a total area of 19.089 ha (47.17 acres). Construction and installation of the buildings and utilities within the Condo Plans are complete and the majority or all of the units have been built and rented.

A residential acreage, not associated with New Horizon Business Park, is located on Blk/Par C-Plan102164981 Ext 0, in the northeast corner of the quarter section.

Saskatchewan Water Corporation owns a small (0.562 ha) parcel of land, legally described as Blk/Par A, Plan 101858609 Ext 0, which houses a pumping station.

Surrounding Lands

Land uses surrounding the quarter section are primarily cropland, pasture, and commercial and industrial operations. Businesses in the vicinity include KF Croft Aggregates Ltd., Inland Aggregates, TTN Farm Pro Wholesale Corp., and Regina Maintenance Plus. A gravel extraction operation is located directly north and east of the Site. The Tor Hill and Murray golf courses are to the northwest. The intended commercial-light industrial use of the proposed subdivision is compatible with neighboring uses.

2.3 PHASING OF DEVELOPMENT

Plan of Proposed Subdivision and Concept Plan

The plan of proposed subdivision, attached as Appendix B, shows the locations of the lots and roads proposed for subdivision as well as land for future development. The planned locations of the buildings, roads, and utilities for the entire source parcel are shown in the concept plan, attached as Appendix C. The concept plan also shows the boundaries of the existing bareland condominium units, and the buildings, roads, and drainage works within the Condo Plans.

Phase 1 and Phase 2

The subdivision and construction of the Condo Plans, are considered phases 1 and 2, and are now complete. The development applications for phases 1 and 2 were addressed under a separate CDP, dated June, 2023.

Phase 3

In December, 2023, the Developer applied to the Community Planning Branch (Community Planning) in Regina for subdivision approval of the eight lots and municipal utility parcel shown on the attached plan of proposed subdivision. The 21.11 hectares (52.17 acres) proposed under this subdivision application will constitute phase 3 of the development. The lots range from 1.21 hectares (3.00 acres) to 4.05 hectares (10.00 acres) in area and will be accessed from an internal subdivision road off Range Road 2185.

Two municipal buffer strips, measuring 5.0 metres in width along the southern boundary of the quarter section, and 3.0 metres in width along the eastern boundary, will provide physical separation between the proposed lots and the municipal road and provincial highway.

The roads, utilities, and buildings for the eight-lot subdivision will be constructed or installed as part of phase 3.

Future Phases

Should the proposed eight-lot subdivision be approved, 18.005 hectares (44.49 acres) of the source parcel will remain for future development. The Developer plans to subdivide the remaining portion of the quarter section into twelve lots in one phase (phase 4). However, the number of lots and phases, and the timeline for development, will depend on market demand and the sale or occupancy of the completed lots.

2.4 MUNICIPAL RESERVE

The Planning and Development Act, 2007 (PDA) requires the owner of land that is proposed for subdivision to provide to the municipality in which the land is located:

- Land dedicated as municipal reserve;
- Money in lieu of any land required as municipal reserve; or
- A combination of land and money.

During the subdivision of the Condo Plans, the Developer, the RM, and Community Planning agreed that, given the use and location of the development, money in lieu of land dedication would be the most appropriate way of meeting the requirement of the PDA. The funds were transferred to the RM during the subdivision of the two Condo Plans.

On this eight-lot subdivision proposal, approximately, 0.93 hectares (2.3 acres) are required for municipal reserve; the calculation does not include land within the proposed utility parcel. Subject to the approval of Community Planning and the RM, the Developer intends to meet the requirement for this, and future phases of development, by paying cash in lieu. The dollar amount required by the RM will be determined by a land appraisal and paid by the Developer during the subdivision of each phase.

2.5 LANDSCAPING STANDARDS

Xeriscaping is proposed in order to limit the need for irrigation and maintenance. As required by the Zoning Bylaw, a landscaped area measuring a minimum of 5.0 meters (16.4 feet) in width will be provided along the front site line of each lot. Once grading and construction activities are complete, vegetation, and other landscaping features may be incorporated at locations where they would not interfere with sight lines.

Designated areas for the outdoor storage of equipment and materials, garbage and recycling bins, and an oil drop will be provided on-site. Areas used for storage and solid waste will be suitably screened from view. Space for parking and loading vehicles will also be provided on-site, and will be located so as to allow for the safe movement of vehicles and pedestrians.

The development will be enclosed with a silt screen fence, similar to those shown in Figures 2-5 and 2-6, and gates will be installed at the entrances to the Site. As per the regulations established in the Zoning Bylaw:

- Fences will not exceed the height limits established in the Zoning Bylaw;
- All fences, hedges, and other structures will be located entirely within the property lines of each lot and will not be placed in any required sight triangle; and
- The design and building materials of fences and screening devices will be consistent and complementary to the primary building(s).

The landscaping plan attached as Appendix D shows the general locations of the proposed buildings, fencing, surface materials, road network, parking areas, sidewalks, and landscaped buffer strips.

Figure 2-5: Example of silt screen fence.

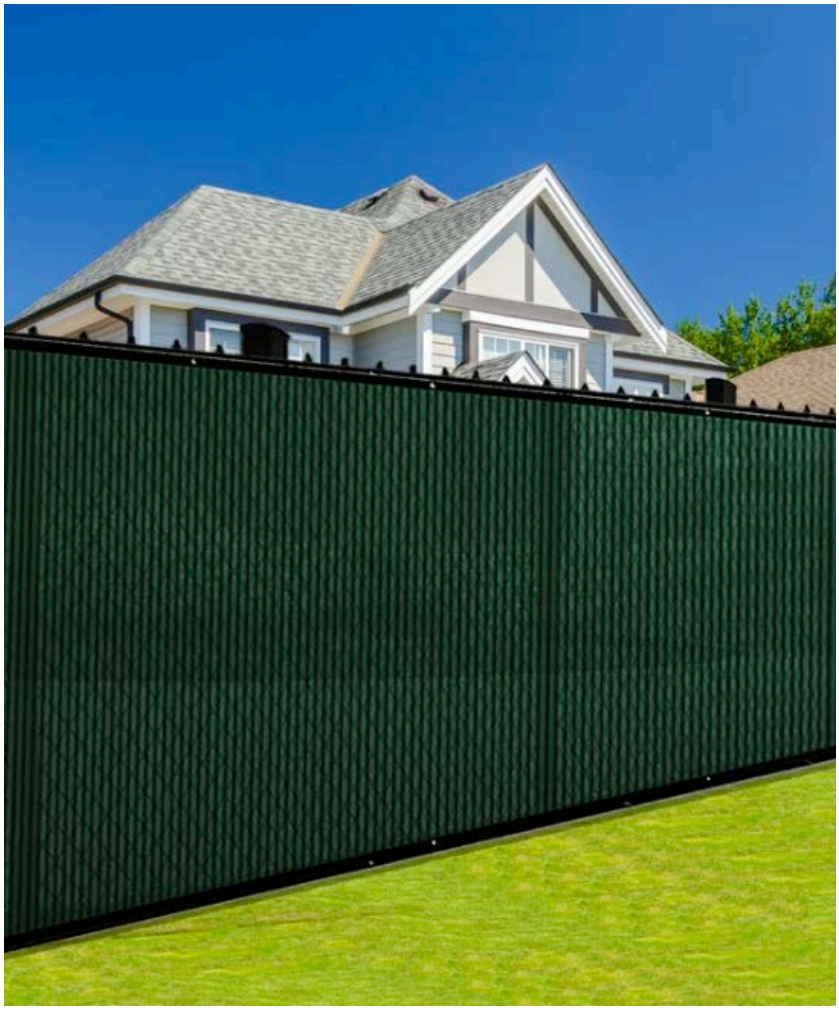


Figure 2-6: Example of silt screen fence.

2.6 BUSINESS LICENCES

The Developer will notify the future occupants of the RM's requirement for all businesses to obtain a valid business licence from the Municipality.

3 ENVIRONMENTAL AND HERITAGE SENSITIVITY

3.1 ENVIRONMENTAL SITE ASSESSMENT

Two phase 1 environmental site assessments were completed for the Site, both assessments were carried out by Ground Engineering Ltd. The reports are attached as Appendix E.

The first report, dated October 15, 2010, confirms the Site has never been developed and indicates there is no evidence to suggest it has been used for any other use aside from low intensity agriculture, such as field crops, pasture, forage, etc. Ground Engineering's research on the history of the property did not result in any records of hazardous substances having been stored on the Site, nor were there any records of hazardous spills.

The second, supplementary, assessment, dated February 15, 2024, was conducted to determine if previous development or activities on the Site or surrounding lands have changed since 2010. The findings of the supplementary report indicate no evidence of additional fill materials having been placed on the property since the assessment in 2010. Nor is there evidence of a change in land use or activities that would result in adverse impacts to the environment. The activities and developments which have taken place on the Site and the adjacent properties since the previous assessment are not considered harmful to the environment. The risk of significant contamination to the soil and/or groundwater on the Site, particularly at levels that would exceed current environmental standards, remain low.

3.2 GEOTECHNICAL REPORTS

Ground Engineering Ltd. conducted a preliminary geotechnical investigation, dated December 31, 2010, was conducted for the Site. The report indicates the Site is located within the recharge area of the Condie Aquifer. The report also indicates the presence of groundwater and a water table at the location but does not identify conditions that would make the Site unsuitable for the development. The geotechnical investigation is attached to this CDP as Appendix F.

Based on the geotechnical investigation, groundwater flows across the Site in a westerly direction. Stratigraphy and groundwater conditions vary across the development Site. Because of this, site-specific geotechnical investigations will be required for each proposed lot, prior to construction, to determine recommendations for building design and construction.

3.3 HERITAGE SENSITIVITY

A search of the Developers' Online Screening Tool, which is administered by the Saskatchewan Heritage Conservation Branch, Ministry of Parks, Culture and Sport, indicates that the land is not heritage-sensitive. A copy of the heritage screening report, dated January 9, 2024, is attached as Appendix G.

4 SERVICING

4.1 DRAINAGE

The topography of the Site is relatively flat and slopes from north to south, towards Highway No. 46. Prior to the development of the Condo Plans, water pooled in a shallow depression to form a natural slough. The topography and soil conditions presented a potential for poor drainage and flooding. During the development of the Condo Plans, a detention pond was constructed in the location of the slough to facilitate drainage and manage surface runoff on-site.

Surface runoff from the Site flows into a drainage ditch north of Highway No. 46 and eventually drains into Pilot Butte Creek south of Highway No. 46 via a system of culverts and ditches, and eventually flows into Wascana Creek, east of the City of Regina.

The Site will be graded to direct stormwater to a dry bottom detention pond, which is to be constructed on a municipal utility parcel in the southwest portion of the quarter section. This detention pond will be in addition to the existing detention pond that was constructed during the development of the Condo Plans. The outlet of the proposed pond will be located north of Highway No. 46 and will be restricted to the pre-development release rate. The proposed detention pond will be sized to detain 1:100-year, 24-hour rainfall events. The final site grading, pond configuration, and pond outlet will be confirmed during the detailed design.

The stormwater management plan is further detailed in the preliminary engineering report completed by WCE Design Inc. and attached as Appendix H. The report provides pre and post-development runoff conditions for the site as well as a conceptual design for a stormwater retention pond.

The RM confirmed that approval from the Water Security Agency for drainage works is not required as part of this CDP. An email from the RM office is attached as Appendix I.

The 1:500 Estimated Peak Water Level and Minimum Building Elevation (1:500 EPWL plus 0.5 metres) will be calculated and shown on the detailed drainage design drawing(s). In accordance with provincial and municipal regulations, all buildings will be constructed at or above the Minimum Building Elevation of 1:500 Estimated Peak Water Level plus a safety factor of 0.5 metres (1.6 feet), or higher.

4.2 AQUIFER PROTECTION

The Site overlies a portion of the Condie Aquifer and is considered to be within a high-sensitivity aquifer area, as identified in the RM's future land use map. An aquifer protection plan, dated February 15, 2024, was completed by Ground Engineering Ltd. for the eight lots proposed in this phase of the development. Recommendations intended to limit potential impacts to the aquifer are outlined in the report, attached as Appendix J.

The preliminary engineering report (Appendix H) provides additional details regarding protection of the aquifer and requirements for design and construction.

4.3 ACCESS AND TRANSPORTATION

Access

The SE ¼ 6-18-18-W2M is bordered on the south by Provincial Highway No. 46 and on the east by Range Road 2185. Access to the Site will be from Range Road 2185, which is a paved two-lane municipal road, designed to accommodate the weight and volume of traffic typically generated by industrial uses. A new approach and internal subdivision road will provide access to the lots within the development. The internal road will be a registered public road intended to be owned and maintained by the RM in accordance with the timelines established in the servicing agreement. The road and approach will both measure 20.0 metres in width and will accommodate two-way traffic. The locations of the planned approach and internal road layout are shown on the plan of proposed subdivision and concept plan (Appendices B and C, respectively).

Since this is a commercial-light industrial development, separated from the general public by physical distance, fencing, and a highway, pedestrian movement into and out of the Site will be minimal. However, sidewalks will be constructed along the front of each building to provide safe entry, as shown on the pedestrian traffic plan, attached as Appendix K. Sidewalks will be a minimum of 1.5 metres in width and will meet universal design standards as in accordance with section 3.24.E.3 of the Zoning Bylaw.

Road Construction

The timing of construction of the roads and road surfaces within the proposed subdivision will depend on the timing of subdivision approval for each phase. Once registered and constructed, the internal road included in this phase of development will be named Horizon Road.

Traffic Impact

There will be minimal traffic through the Site; only vehicles associated with the businesses, such as customers and staff, will be entering and exiting the development. Vehicles entering the property will primarily be trucks arriving to pick up or drop off equipment and materials.

The Ministry of Highways recently commissioned a functional planning study for Highway No. 46. The purpose of the study is to determine if future twinning of the highway will be required and if so, how the highway corridor would accommodate a four-lane cross-section.

A traffic impact assessment, dated June 20, 2023 and attached as Appendix L, was completed by the KGS Group during the previous phases of development, to determine potential traffic impacts. Since a functional planning study is being conducted for the area, a traffic impact assessment is not required for phase 3 of the development.

4.4 UTILITIES

Shallow utilities, provided by SaskPower, SaskEnergy, and Sasktel are installed and available in the vicinity of the Site. Occupants will be responsible for the cost of extending and connecting utilities to

their respective properties. The locations of planned utilities are shown on the utilities plan attached as Appendix M.

4.5 WATER SUPPLY AND SEWAGE DISPOSAL

Water Supply

Water will be supplied from an existing hygienic (non-potable) water well, which has been permitted by SaskWater Corporation. A renewed water rights licence and approval to operate works, attached in Appendix N, have been issued by the Water Security Agency. This constitutes approval by the Province to operate groundwater works within the development. Waterlines will be extended to each of the commercial-light industrial lots and will connect to individual lots at the font site lines.

Since the well is considered hygienic, water drawn from the well is not suitable for human consumption, Individual building/lot-owners will be responsible for obtaining their own potable water, likely bottled.

Additional details regarding water distribution can be found in the preliminary engineering report (Appendix H).

Sewage Disposal

On-site holding tanks will be installed on each lot. Sewage will be pumped from holding tanks and hauled to the licensed sewage lagoon in the City of Regina or the Town of Balgonie. It will be the responsibility of each business to install the holding tank on their lot and to contact a licensed hauler to dispose of wastewater.

AAA Sewer Service has provided a letter, attached as Appendix O, to confirm their company can provide services to remove and dispose of effluent generated by the development. AAA Sewer Service is on the Water Security Agency's list of approved haulers and has permits for the disposal of this type of material at the wastewater treatment facilities in the Hamlet of Kronau, the Town of Balgonie, and the City of Regina.

4.6 CANADA POST

The Developer intends to contact Canada Post to have post office boxes or mailboxes installed and registered for the lots within the Site.

4.7 EMERGENCY RESPONSE

The Town of Pilot Butte Fire Department was been consulted during the planning of this and previous phases of development. The department provided verbal confirmation that the department has adequate capacity to provide emergency response and fire suppression services to the development.

4.8 SERVICING COSTS

The Developer will be responsible for the costs associated with the design, construction, and installation of all on-site and off-site services. The Developer is prepared to enter into a servicing agreement with the RM and pay the required servicing fees.

5 CONSULTATION AND PUBLIC ENGAGEMENT

During the subdivision of the Condo Plans, the Developer participated in two municipal public hearings as part of the bylaw amendment process to rezone the land within the Condo Plans from AR-Agricultural Resource District to IND-General Industrial District. The Developer also attended a public hearing held for the application of a discretionary use permit for one of the businesses. Minimal to no concerns were received from the public at the hearings.

At the time of writing this CDP, the land proposed for subdivision is zoned AR-Agricultural Resource District. However, the Developer has applied to the RM to amend the zoning bylaw to rezone the land to IND-General Industrial District in order to accommodate the proposed subdivision. The proposed bylaw amendment was read a first time on June 10, 2024. The Developer hosted an open house to receive feedback from the public on Thursday, July 18, 2024 from 1:00 pm to 3:00 pm in Council Chambers at the RM office in Emerald Park, Saskatchewan. Six members of the public attended the open house. Questions received from the public were primarily regarding the location and use of the proposed development; there were no objections to the rezoning or the proposal.

6 POLICY AND REGULATORY COMPLIANCE

Development within the Site is subject to the policies and regulations for land use and development established by the OCP and Zoning Bylaw. This section outlines how the development is intended to comply with the RM's planning bylaws.

6.1 COMPLIANCE WITH THE RM'S OFFICIAL COMMUNITY PLAN

The land is designated as Mixed Use (Industrial/Commercial) on the RM's future land use map, shown below, and is within the Development Overlay Area (46IP).

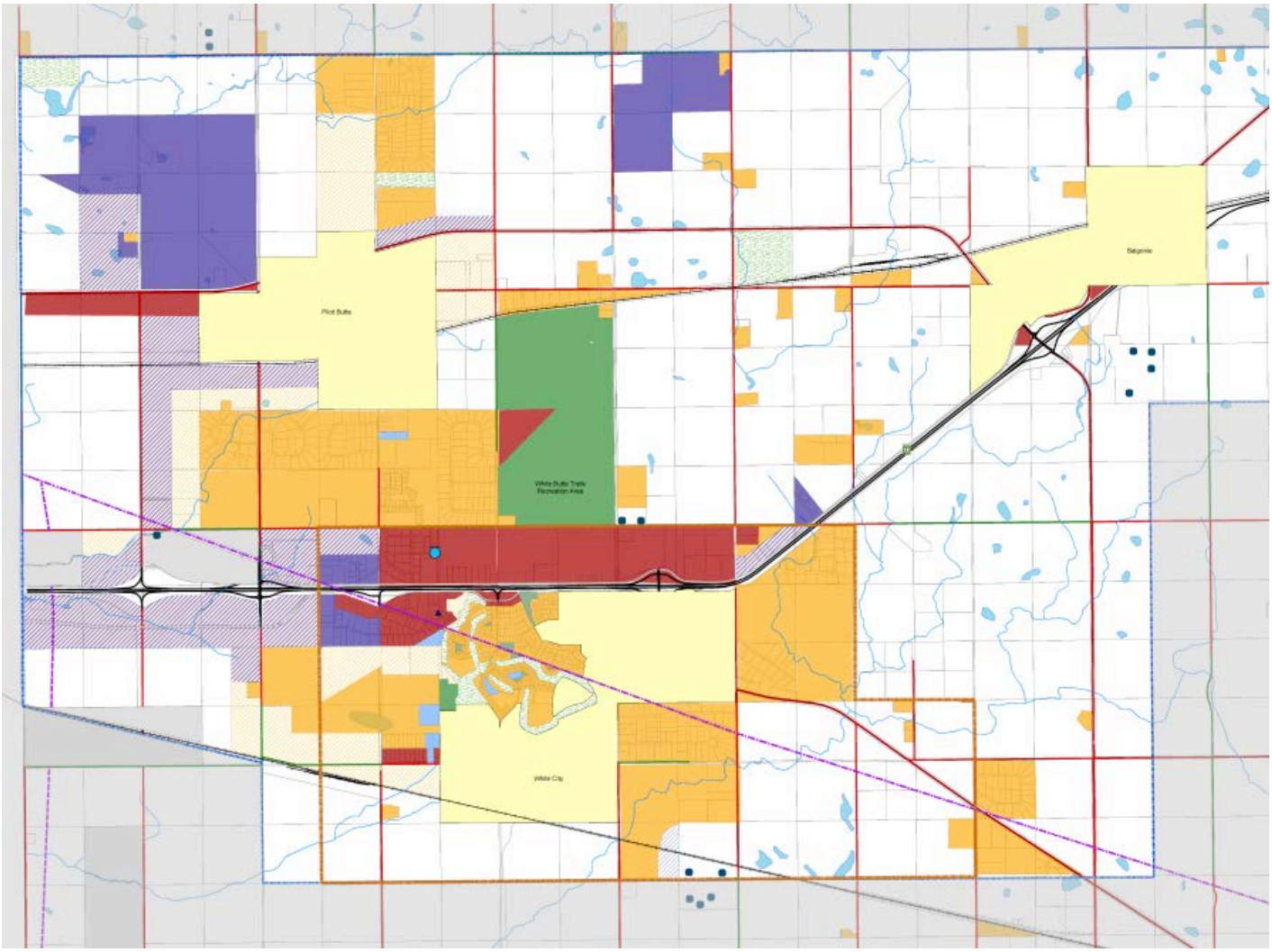


Figure 6-1: RM of Edenwold No. 158 excerpt of future land use map.

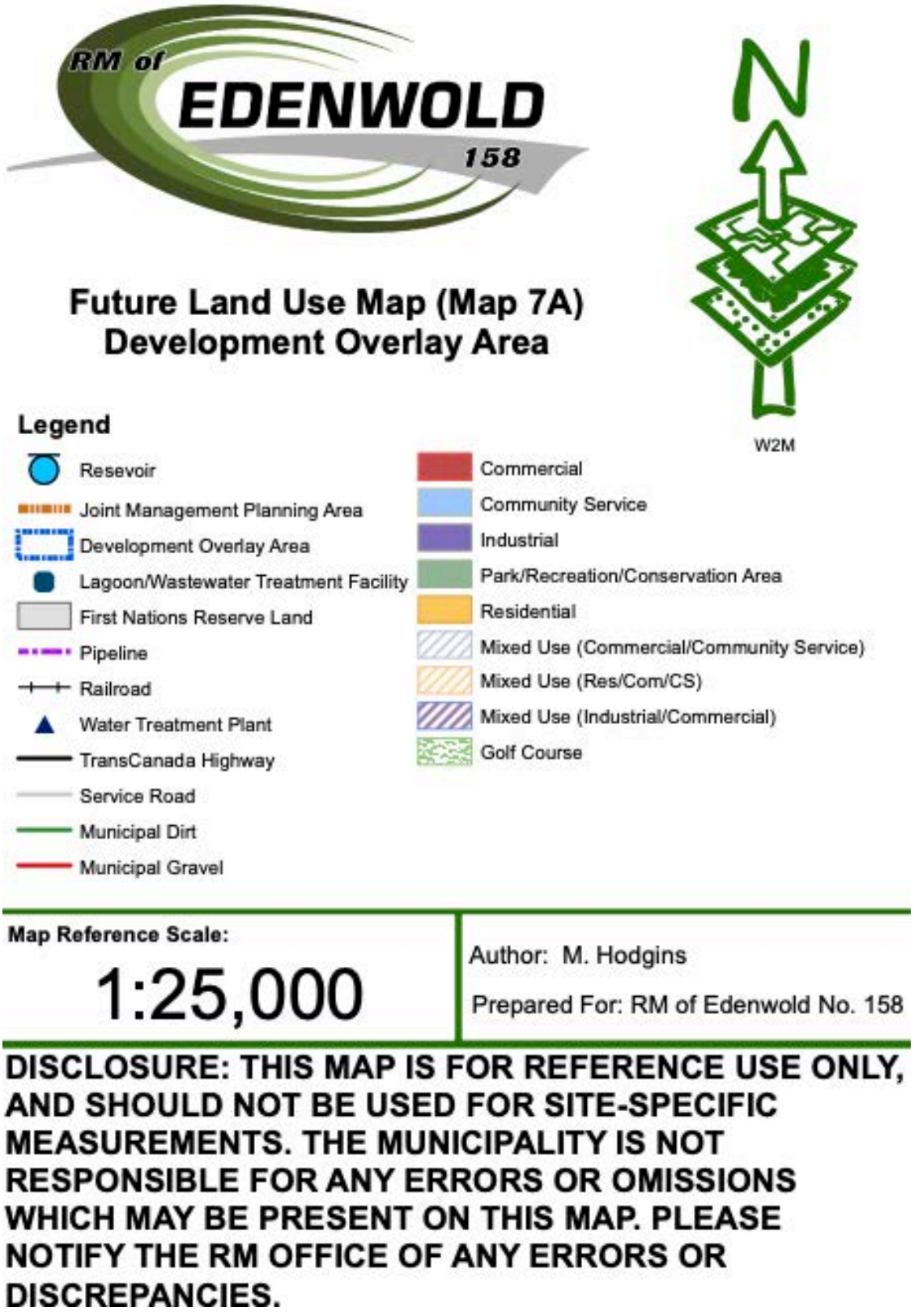


Figure 6-2: RM of Edenwold No. 158, legend of future land use map.

Table 6-1: Compliance with the OCP

OCP Reference	Compliance
1.6 Community Priorities	
Ensure compatible land uses across the municipality.	• The development is located within the 46IP Business District. Existing and intended land uses conform to those identified in the OCP. • The land uses in the proposed development are consistent and compatible with other commercial light industrial businesses in the vicinity.
Protect and maintain the character of the residential subdivisions in Emerald Park and country residential developments.	• The land has been designated in Map 7A (FLU) of the Official Community Plan for commercial and industrial use. • Aside from Blk/Par C-Plan 102164981 Ext 0, which is zoned CR1-Country Residential 1, the development site is suitably separated from lands that are zoned or designated for residential use. The proposal would therefore, not detract from existing or planned residential development.
Encourage and support the development of local recreation and leisure amenities.	• Since it would not be suitable to include community services for recreation and leisure as part of a commercial light industrial development, the Developer is proposing cash in lieu as the most appropriate means of meeting the municipal reserve requirement. The dollar amount will be based on a land appraisal following Council's acceptance of this CDP.
Ensure new infrastructure and services are developed in an efficient and cost-effective manner.	• The development is located in proximity to existing heavy haul routes and other infrastructure services that are of a standard suitable for commercial light industrial development.
Protect prime agricultural lands.	• Land within the development site has been designated for commercial and industrial uses and has not been identified as prime agricultural land.
Address drainage issues.	• An engineered drainage plan has been designed to provide on-site stormwater management and ensure minimal impacts off-site and downstream. As per the attached preliminary engineering report, the existing grades and topography will be maintained.

Accommodate resource development while addressing potential related nuisances.	• Although the use of the proposed development is not directly related to resource extraction and development, the businesses may provide support to the natural resource industry. • The businesses and land uses within development will not conflict or restrict the existing gravel operation on the adjacent lands or any future resource development activities.
Improve signage for roadways and business districts.	• Signage for the development will conform with all municipal, provincial, and federal transportation regulations and will consider required setbacks and sight lines. • Appropriate signage for heavy industrial uses will be installed, if/where needed to ensure public safety.
Support the development of a variety of housing forms in appropriate locations to meet the needs of the local work force and the growing population.	• The development contributes to the local economy by providing business and employment opportunities for the regional population. • Businesses are within a reasonable commuting distance from neighbouring towns and country residential subdivisions.
Broaden transportation options in high-density areas.	• The development site is not within a high-density area. • Will make use of existing paved and heavy haul roads and secondary highways, which are currently designed to accommodate heavy truck traffic. • Internal subdivision roads will provide access to individual lots within the development.
Continue to work collaboratively with neighbouring municipalities, local First Nations, and other external authorities and improve working relationships with White City Council.	• The Developer is part of the local business community and is committed to establishing and strengthening relationships with the public and neighbouring jurisdictions.
2.5 Strategic Growth Sectors and Areas	
2.5.4 Development Overlay Area	• The development site is located within the Development Overlay Area, which has been identified by the RM as suitable and preferable for industrial development.

3.9.6 Highway No. 46 Industrial Park (46IP) Policies		
1. Land Use and Intensity	a. Industrial businesses that require large site sizes and/or space for outdoor storage of materials or equipment shall be encouraged to locate within the 46IP.	• The large lots are consistent with the density of development intended within the 46IP.
	b. A variety of commercial business shall also be accommodated within the southern area of 46IP, along Highway No. 46.	• Existing and intended businesses within the development will be commercial light industrial in nature.
2. Access	a. All roadways surfaces in the 46IP shall be developed to a heavy haul standard and Council may require pavement depending on the density of development and expected traffic counts in the area.	• The development makes use of the existing heavy haul transportation network. • Internal subdivision roads will be appropriately designed and constructed to accommodate the weight and volume of traffic generated by the development.
3. Complementary and Compatible Development	a. Compatibility with adjacent land uses is of primary importance and developers may be required to construct screening, fencing, or carry out landscaping activities onsite and in buffer strips as part of initial onsite construction activities.	• Fencing will be installed as required to ensure construction activities are not visible to neighbouring landowners and the travelling public.
4. Aesthetics and Business Promotion	a. Developers may be required to provide fencing around lots for screening, site control, or security.	• Fencing, screening, and landscaping will be installed in appropriate locations to provide a buffer between neighbouring land uses and the travelling public.
6.0 Planning Tools and Procedures		
6.3 Pre-Engineering Report		• In addition to the preliminary engineering report attached to this CDP, if required by the RM, the Developer will provide a separate report to identify servicing and infrastructure needs and to establish engineering standards and detailed designs for the development.
6.6 Servicing Agreements		• The Developer will incur all costs associated with the installation of the infrastructure services required as part of the subdivision and is prepared to enter into a servicing agreement as part of the application to subdivide the proposed eight commercial-light industrial lots and municipal utility parcel.

Applicable Official Community Plan Maps

- Map 3 - Map of Business Districts
- Map 5A - Sensitive Environmental Area, Potentially Flood Prone and Potentially Hazardous Areas
- Map 6A - Lands with Special Designation
- Map 7A - Future Land Use Map

6.2 COMPLIANCE WITH THE RM'S ZONING BYLAW

As part of this application, the Developer is requesting that the RM rezone the land proposed for subdivision from AR-Agricultural Resource to IND1-General Industrial District.

Table 6-2: Zoning Bylaw Compliances.

Zoning Bylaw Reference	Compliance
3.0 Administration and Interpretation	
3.20 Additional Information	• Information describing the existing, completed, and planned development, phasing, and supporting site assessments are provided in this submission.
3.22 Concept Plan	• The concept plan included in this submission, shows the layout of the Condo Plans, which were approved during the previous phases of development, as well as the location of proposed and planned lots, an overview of the drainage design, the location of existing and proposed utilities, internal road network, and the approximate location of approaches off Range Road 2185.
3.24 Pre-Engineering Report	• In addition to the preliminary engineering report attached to this CDP, if required by the RM, the Developer will provide a separate report to identify servicing and infrastructure needs and to establish engineering standards and detailed designs for the development.
3.32 Servicing Agreement	• The Developer is prepared to enter into a servicing agreement with the RM to establish standards and timelines for development, payment of servicing fees, municipal reserve, and other requirements.

4.0 General Regulations	
4.3 Prohibited and Noxious Uses	• Land uses within the development will conform to the uses allowed within the zoning district. The Developer will ensure the required approvals and permits are obtained prior to commencing construction. • The Site is within an area that has been designated on the FLU map for commercial and industrial use. Construction and operating activities will be carried out so as to eliminate the potential for nuisance to neighbouring landowners and the general public.
4.6 Accessory Buildings, Structures, and Uses	• Principal buildings will be established prior to the construction of any accessory structures. • The Developer will ensure the appropriate development permits are obtained prior to the construction of any accessory structures.
4.10 Grading and Levelling of Sites	• A preliminary drainage and grading plan has been designed for the proposed subdivision and is included in the attached preliminary engineering report.
4.11 Fences and Hedges	• Fences, hedges, and screening devices will comply with the height restrictions established in the zoning bylaw. Fences will be installed within the property lines and outside of required sight triangles.
4.14 Approaches	• Approaches will be constructed by the Developer. The Developer will ensure Approach Permits are obtained, where required.
4.15 Roadways	• Roads will be designed and constructed to meet RM standards as per the terms of the servicing agreement and any additional engineering reports.
4.24 Outdoor Storage	• The development will involve some outdoor storage of equipment and materials. Storage will be restricted to designated areas on-site and will be suitably screened from view from adjacent roads and public lands.
4.27 Personal Vehicle Parking and 4.30 Loading Requirements	• Designated areas for parking and loading vehicles as well as adequate space for the safe movement of vehicles and pedestrians will be provided on each lot. The number and size of parking and loading spaces will comply with the requirements of the zoning bylaw.
4.31 Performance Standards for Commercial and Light Industrial Development	• The Developer recognizes the purpose and significance of the performance standards established un the zoning bylaw and agrees that nuisances to neighbouring landowners must be avoided.

4.32 Waste Disposal	• Each lot will have a holding tank for sewage disposal. Effluent will be pumped and hauled to a licenced wastewater treatment facility. • The Developer has or will enter into agreements with licenced haulers and waste management companies to ensure solid and liquid wastes are removed and disposed of in compliance with municipal and provincial regulations.
4.33 Groundwater	• A preliminary geotechnical investigation is included in this submission. The report indicates the presence of groundwater but does not identify the potential for contamination or other adverse impacts to the aquifer. All guidelines of the Saskatchewan Health Authority and the Water Security Agency will be followed. • The Developer has obtained approval from WSA to increase the volume of water drawn from the same well that supplies the condo development. Water will be distributed to each lot through a communal system.
4.44 Landscape Buffers	• Landscape buffers, with a minimum depthe of 5.0 metres will be provided along the front site lines of each lot.
4.48 Development/Subdivision Adjacent to Potential Hazardous Lands	• The land is identified on the RM's OCP Map 5A as potentially flood prone and potentially hazardous. A preliminary drainage design is included in this submission.

Zoning Designation

- SE ¼ 6-18-18-W2M Ext 3 - zoned AR-Agricultural Resource District

Town of Pilot Butte Future Growth Area

Because the Site is in close proximity to the Town of Pilot Butte, a brief review of the Future Land Use and Annexation Areas Map, included in Pilot Butte's proposed new Official Community Plan[1] is also included.

The Site is outside of the future growth and annexation area identified by Town of Pilot Butte in its proposed new Official Community Plan. The proposed Future Land Use Map designates land in the south half of 5-18-18-W2M as General Industrial Commercial District and Future Annexation Area. The land in the north half of 32-17-18-W2M is designated Highway Commercial, General Industrial Commercial,

[1] The Town of Pilot Butte is in the process of adopting a new Official Community Plan (OCP) and Zoning Bylaw, which are intended to replace the Town's existing Zoning Bylaw. The final draft of the proposed OCP is nearing completion and has been made available for review on the Town of Pilot Butte's website. Although the OCP has not yet been approved by the Ministry of Government Relations, the proposed bylaw was considered to assess land use compatibility and the potential for impacts in the future.

Community Service, and Future Annexation Area. The land uses intended within the proposed development are compatible with the uses planned for neighboring lands and would not impact the Town of Pilot Butte's plans for future growth.

7 CLOSURE

We trust this CDP and the attached appendices provide sufficient information for your purposes. Please direct any questions regarding the details of the development to New Horizon Group of Companies.

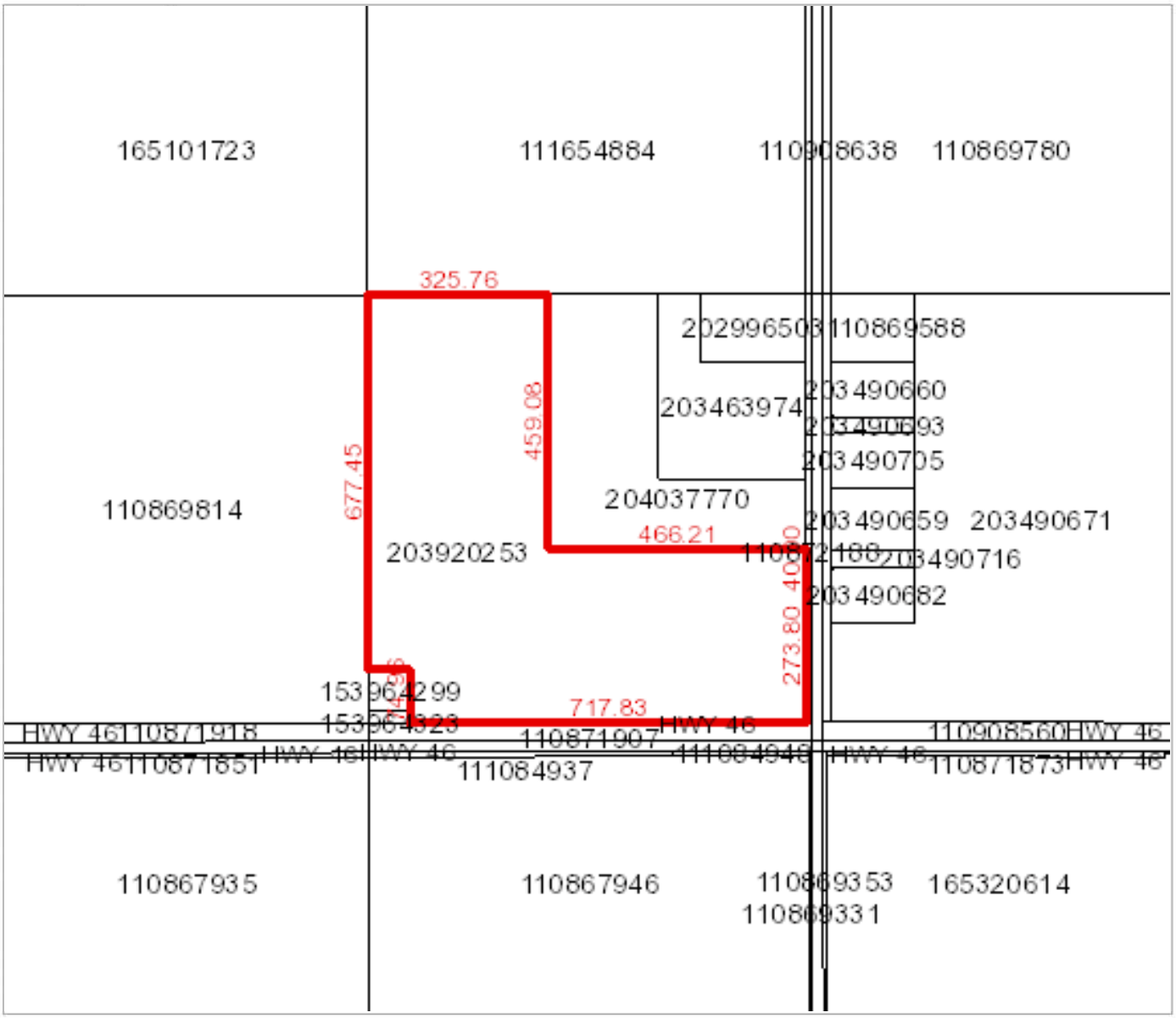
Seal

Ashley Beaton, MASc, RPP, MCIP
Beaton Planning

APPENDIX A – PARCEL PICTURE SE ¼ 6-18-18-W2M EXT 3

Surface Parcel Number: 203920253

REQUEST DATE: Mon Oct 30 20:29:48 GMT-06:00 2023



Owner Name(s) : 101245184 SASKATCHEWAN LTD.

Municipality : RM OF EDENWOLD NO. 158

Area : 39.115 hectares (96.65 acres)

Title Number(s) : 154765031

Converted Title Number : 79R10492

Parcel Class : Parcel (Generic)

Ownership Share : 1:1

Land Description : SE 06-18-18-2 Ext 3

Source Quarter Section : SE-06-18-18-2

Commodity/Unit : Not Applicable

APPENDIX B – PLAN OF PROPOSED SUBDIVISION

PLAN OF PROPOSED SUBDIVISION

OF PART OF

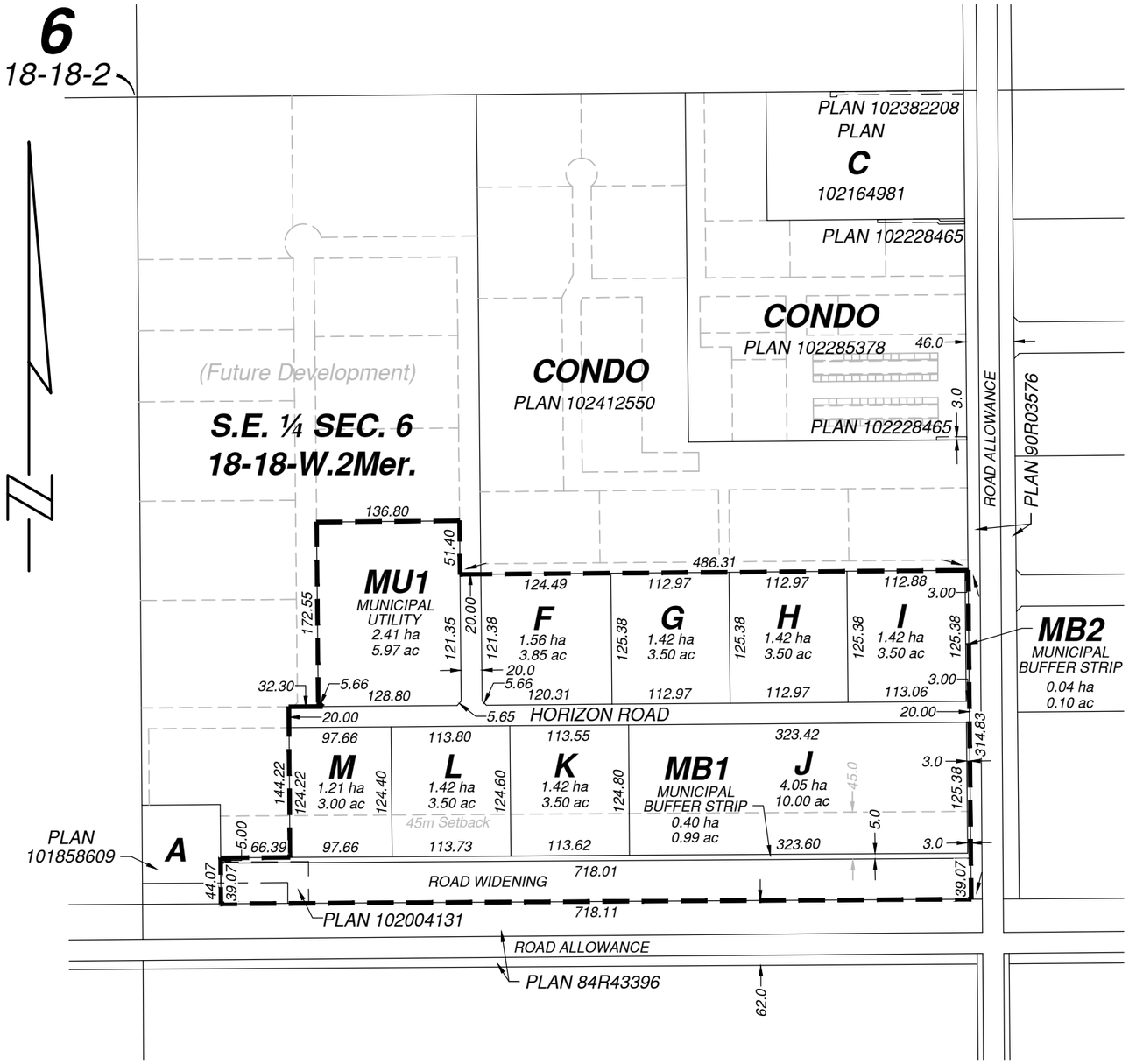
S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
R.M. of EDENWOLD No. 158, SK

SCALE 1:5000

NOTES

PRELIMINARY SURVEY DONE ON MAY 31, 2023.
PORTION TO BE SURVEYED IS OUTLINED IN A HEAVY DASHED LINE, AND CONTAINS **21.11 ha. (52.17 acres).**
MEASUREMENTS ARE IN METRES AND DECIMALS THEREOF.
DISTANCES ARE APPROXIMATE AND MAY VARY BY ± 5 METRES.
STANDARD ROAD ALLOWANCE SHOWN ARE 20.117m IN WIDTH.
SOURCE PARCEL NUMBER IS 203920253.

Planning Authority Approval



Daniel S. E. Cook
Saskatchewan Land Surveyor

Representative of 101245184 Saskatchewan Ltd.
Approval: Owner S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.

No.	REVISIONS	DATE	DR.	CH.
10	Changed MR1 to MU1	March 27, 2024	kmh	dsec
11	Modified MU1	May 23, 2024	kmh	dsec
FILE: RE232092		DWG.: RE232092DEV-R11		

Meridian Surveys Ltd.

PLAN OF PROPOSED SUBDIVISION

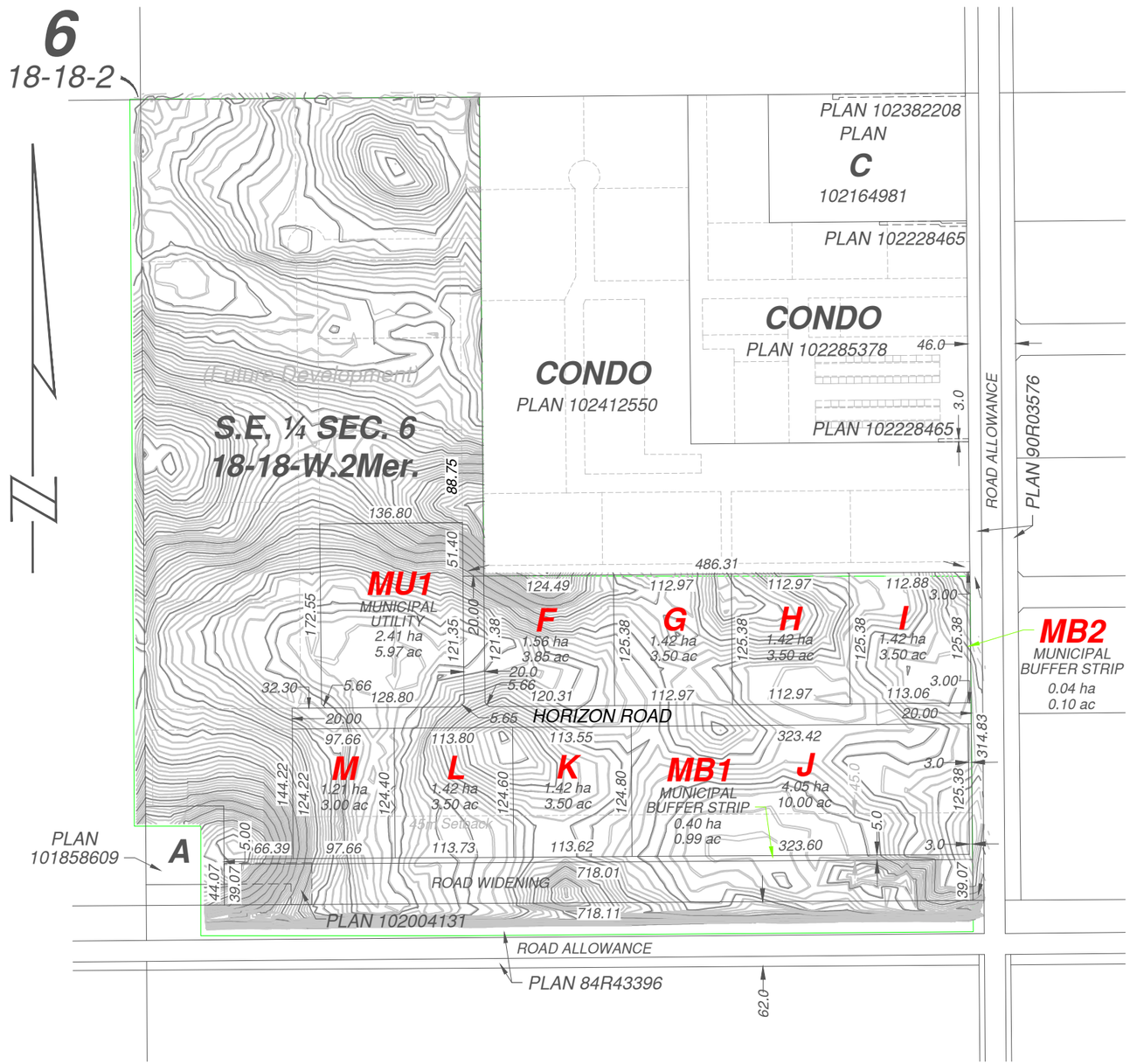
OF PART OF

S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
R.M. of EDENWOLD No. 158, SK

SCALE 1:5000

NOTES

PRELIMINARY SURVEY DONE ON MAY 31, 2023.
PORTION TO BE SURVEYED IS OUTLINED IN A HEAVY DASHED LINE, AND CONTAINS **20.11 ha. (49.70 acres).**
MEASUREMENTS ARE IN METRES AND DECIMALS THEREOF.
DISTANCES ARE APPROXIMATE AND MAY VARY BY ± 5 METRES.
STANDARD ROAD ALLOWANCE SHOWN ARE 20.117m IN WIDTH.
SOURCE PARCEL NUMBER IS 203920253.



Planning Authority Approval

Daniel S. E. Cook
Saskatchewan Land Surveyor
Signer ID: NEMY4UKJ9H...

Representative of 101245184 Saskatchewan Ltd.
Approval: Owner S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.

No.	REVISIONS	DATE	DR.	CH.
10	Changed MR1 to MU1	March 27, 2024	kmh	dsec
11	Modified MU1	May 23, 2024	kmh	dsec
FILE: RE232092		DWG.: RE232092DEV-R11-CONTOURS		

Meridian Surveys Ltd.

PLAN OF PROPOSED SUBDIVISION

OF PART OF

S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
R.M. of EDENWOLD No. 158, SK

SCALE 1:5000

NOTES

PRELIMINARY SURVEY DONE ON MAY 31, 2023.
PORTION TO BE SURVEYED IS OUTLINED IN A HEAVY DASHED LINE, AND CONTAINS **20.11 ha. (49.70 acres).**
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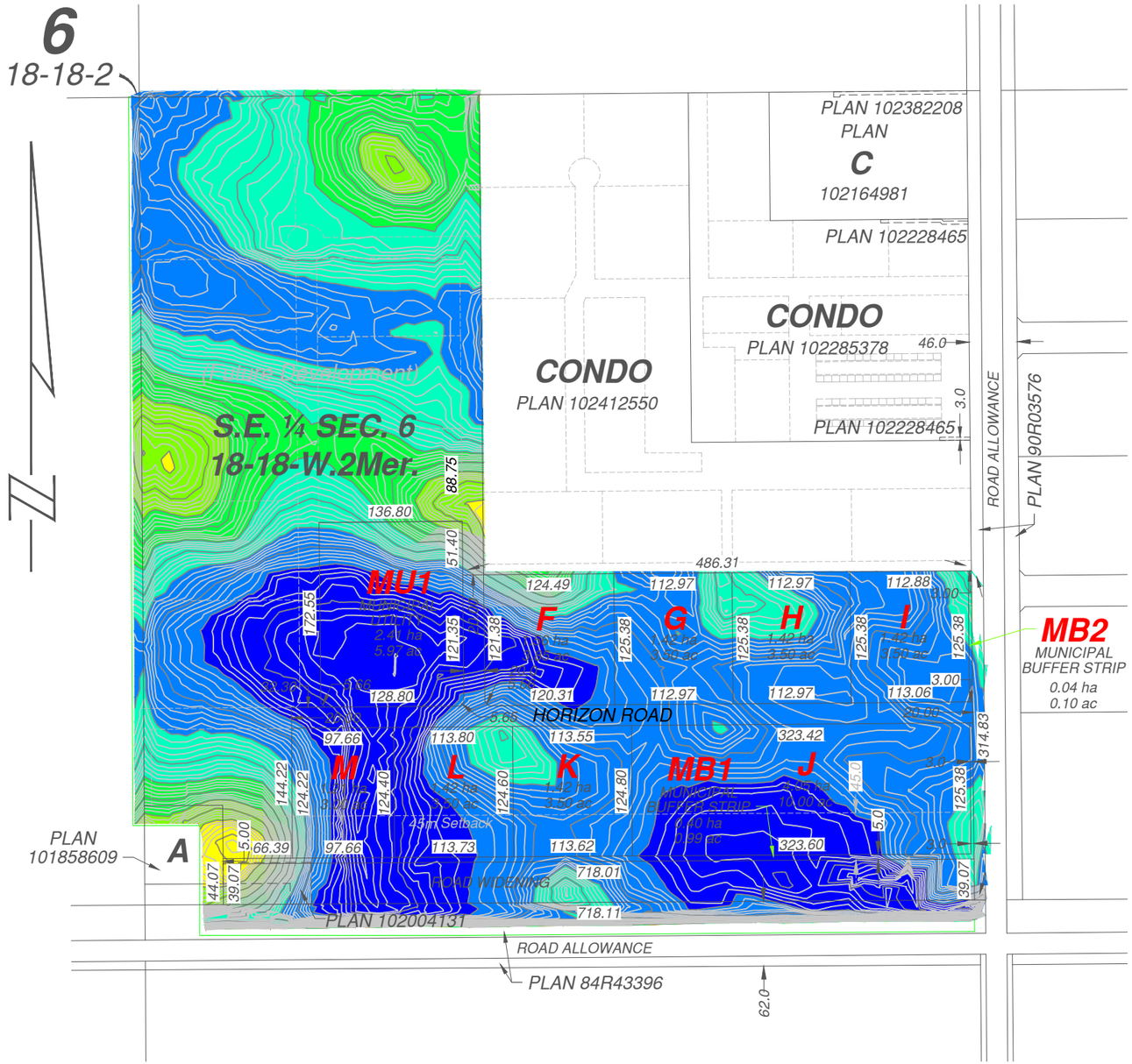
SOURCE PARCEL NUMBER IS 203920253.



Planning Authority Approval

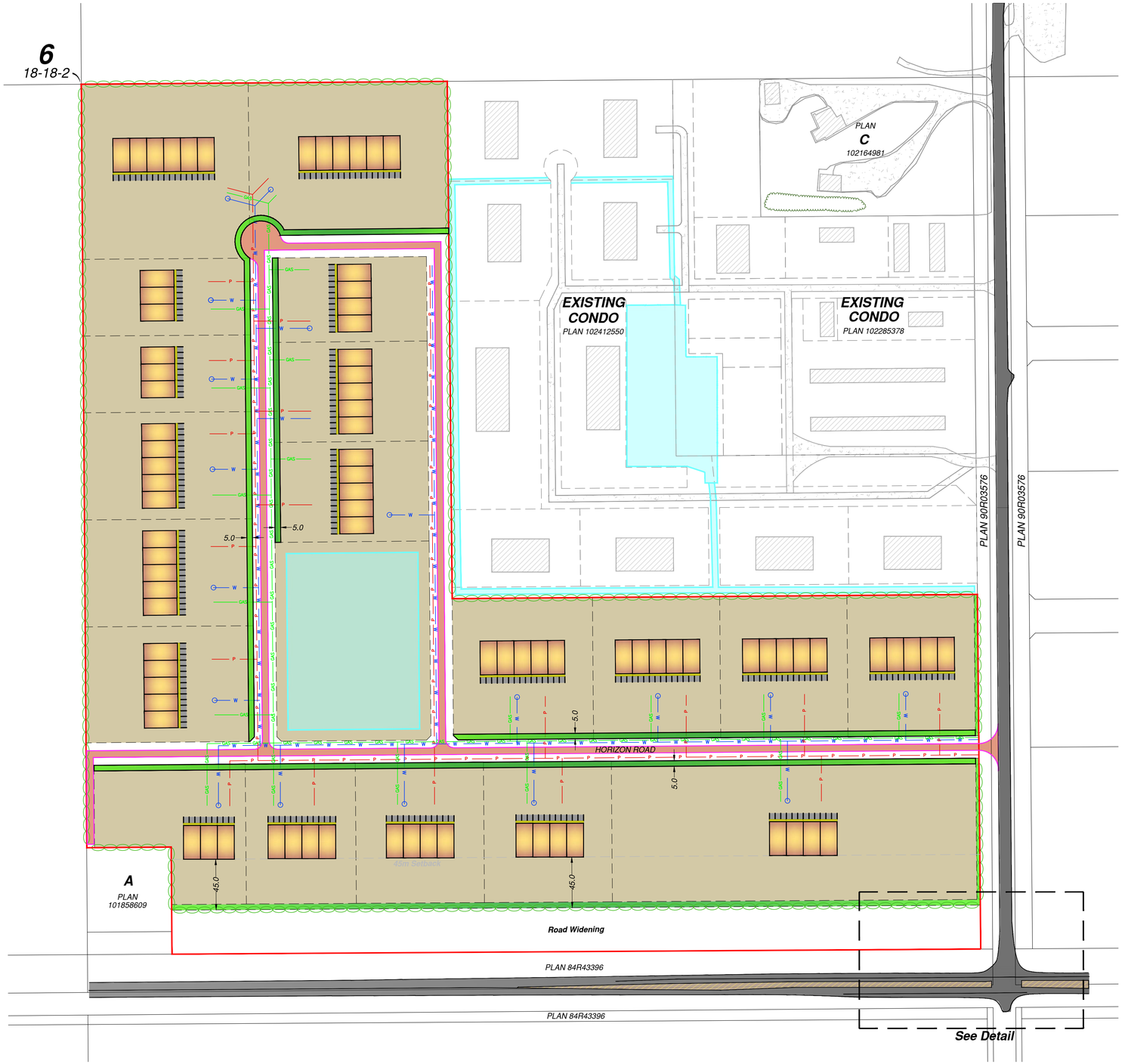
Daniel S. L. Cook
Saskatchewan Land Surveyor

Representative of 101245184 Saskatchewan Ltd.
Approval: Owner S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.

No.	REVISIONS	DATE	DR.	CH.
10	Changed MR1 to MU1	March 27, 2024	kmh	dsec
11	Modified MU1	May 23, 2024	kmh	dsec
FILE: RE232092		DWG.: RE232092DEV-R11-CONTOURS		

Meridian Surveys Ltd.

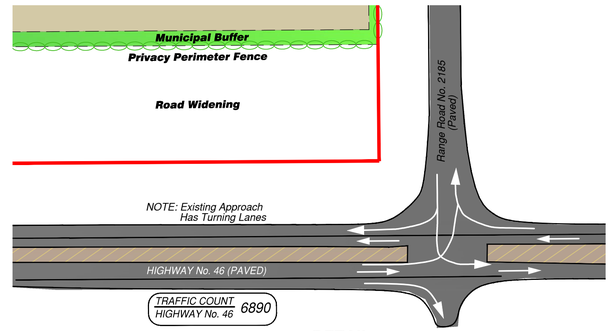
APPENDIX C – CONCEPT PLAN



PLAN VIEW
SCALE: NOT TO SCALE

Legend

Landscaping		New Development	
Proposed Building		Condo Subdivision	
Gravel Road (Main Traffic)		Privacy Fence	
Lot Gravel		Existing Fence	
Parking Stall		Waterline	W W
Sidewalk		Powerline	P P
Drainage		Gasline	GAS GAS
Existing Building		Curbstop / Water Valve	
Existing Gravel Road		Existing Well	
Existing Paved Road			



DETAIL
SCALE: NOT TO SCALE

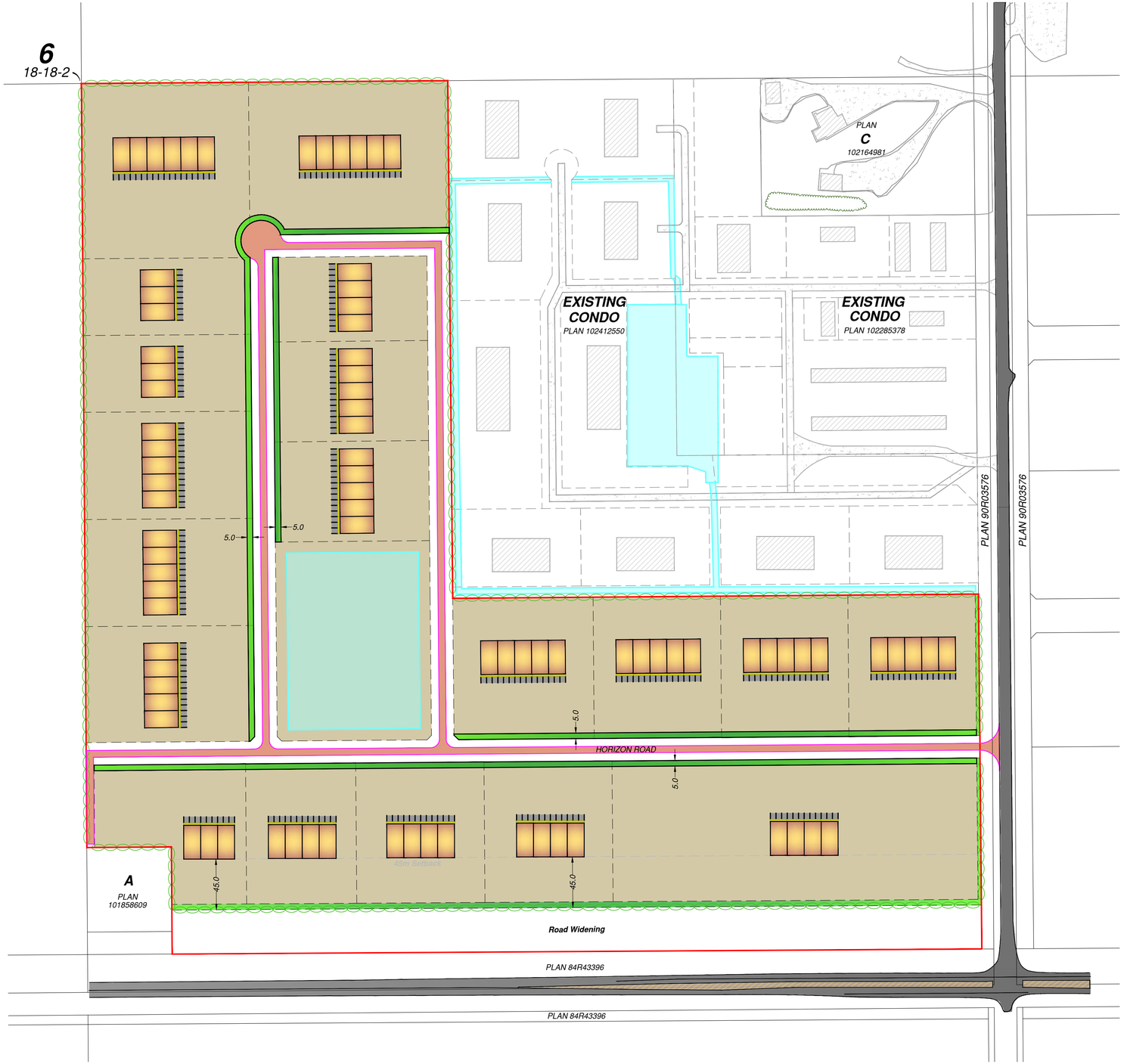
NOTE: Saskpower to complete power design
Existing utilities not shown on plan.

Meridian Surveys Ltd.

CONCEPT PLAN SHOWING DEVELOPMENT
ON
S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
RM OF EDENWOLD No. 158, SASKATCHEWAN

DRAWING:	DATE:	REV No.
RE232092-CONCEPT-PLAN-Rev3	May 22, 2024	3

APPENDIX D – LANDSCAPING PLAN



PLAN VIEW
SCALE: NOT TO SCALE

Legend

Landscaping		New Development	
Proposed Building		Condo Subdivision	
Gravel Road (Main Traffic)		Privacy Fence	
Lot Gravel		Existing Fence	
Parking Stall			
Sidewalk			
Drainage			
Existing Building			
Existing Gravel Road			
Existing Paved Road			

PHOTO INSERTS
PRIVACY PERIMETER
FENCE (6' HIGH)

NOTE: Saskpower to complete power design
Existing utilities not shown on plan.

Meridian Surveys Ltd.

LANDSCAPING PLAN SHOWING DEVELOPMENT
ON
S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
RM OF EDENWOLD No. 158, SASKATCHEWAN

DRAWING:	RE232092-LANDSCAPING-Rev3	DATE:	May 22, 2024	REV No.	3

APPENDIX E – ENVIRONMENTAL SITE ASSESSMENTS

TITLE: ENVIRONMENTAL SITE ASSESSMENT – PHASE I
SE 6-18-18-W2 EXT 2
EAST OF REGINA, SASKATCHEWAN

CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION

FILE NO: GE-07133 DATE: OCTOBER 15, 2010

TABLE OF CONTENTS

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APPENDICES

EXECUTIVE SUMMARY

SITE DESCRIPTION

The subject property is located approximately 6 kilometres east of the City of Regina, Saskatchewan in the Rural Municipality of Edenwold. The property covers an area of 128 acres approximately.

SITE HISTORY

The subject property has never been developed and is cultivated farmland.

SUMMARY OF FINDINGS

The information collected during this investigation indicates that the risk of significant soil and/or groundwater contamination as the result of former and present activities on the subject property and immediate adjacent properties is considered to be low. No further investigative work is warranted at this time.

GROUND ENGINEERING LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415 - 7th AVENUE • REGINA • SASKATCHEWAN • CANADA • S4N 4P1
TELEPHONE: (306) 569-9075 FAX: (306) 565-3677 EMAIL: geground@accesscomm.ca

FILE: GE-07133 October 15, 2010

North Ridge Development Corporation
395 Maxwell Crescent
REGINA, Saskatchewan
S4N 5X9

ATTENTION: MR. PATRICK MAH

Dear Sir:

SUBJECT: ENVIRONMENTAL SITE ASSESSMENT – PHASE I
SE 6-18-18-W2 EXT 2
EAST OF REGINA, SASKATCHEWAN

1.0 INTRODUCTION

This report documents our Phase I Environmental Site Assessment of the above captioned property located east of the City of Regina in the Rural Municipality of Edenwold, Saskatchewan. An environmental site assessment was required to determine if there are any potential environmental problems on the property as a general liability risk reduction. This report was prepared according to guidelines provided in CSA Standard Z768-01.

The scope of work for this study consisted of the following tasks:

.1 Review records, local information, site and building plans, agency searches, historical air photos, geological and hydrogeological data, previous environmental assessments and interview persons knowledgeable about the property to obtain information on the history of the site and adjacent areas. Emphasis shall be placed on determining whether potential contaminants have been released to the environment and the locations of those releases;

.2 Conduct a visual inspection of the property and interior of any buildings in an effort to identify areas of potential contamination. The visual inspection will be conducted with particular interest in identifying the presence of contaminants and hazardous materials. Adjacent properties will be observed in an attempt to identify sources of potential contamination which may have impacted the subject property.

.3 Utilizing information gathered through the visual inspection and historical review, prepare a report documenting conclusions regarding actual or potential site contamination associated with former uses of and activities on the subject property or adjacent properties. Where warranted, provide recommendations for additional investigative work and/or remediation.

2.0 SITE LOCATION

The subject property is located approximately 6 kilometres east of the City of Regina, Saskatchewan in the Rural Municipality of Edenwold. The property borders the north side of Highway No. 46 and covers an area of 128 acres approximately. A site plan showing the location of the study area is included in Appendix A.

3.0 RECORDS REVIEW

3.1 Air Photos

Air photos taken in 1968, 1975, 1980, 1993 and 2004 were reviewed to obtain additional information on the history of the site. Copies of the air photos are included in Appendix B.

The subject property and adjacent properties are undeveloped cultivated farmland/grassland on all the air photos. There are several seasonal sloughs visible on the property. The existing farmyard is visible on the adjacent property to the northeast on all the photos. The existing Saskwater pumping station is visible on the adjacent property to the southwest on the 2004 air photo.

3.2 Property Use Records

3.2.1 Insurance Maps

A review of Insurance Maps was performed at the Saskatchewan Archives Board. There were no Insurance Maps available for the study area.

3.2.2 Henderson Directories

A review of Henderson Directories was performed at the Saskatchewan Archives Board. There were no Henderson Directories available for the study area.

3.3 Title Search and Assessment Rolls

3.3.1 Land Titles

The current legal description of the subject property is SE 6-18-18-W2 EXT 2. A property title search was conducted through the Information Services Corporation (ISC) from the current registered owner back to 1916. The historical titles are included in Appendix C and indicate the property has been owned by various individuals up until August 5, 2009 at which time it was sold to the current property owner (101056728 Saskatchewan Ltd.).

3.3.2 Assessment Records and Building Permits

The assessment records for the subject property was not available.

3.4 Previous Phase I ESA Reports

We are not aware of any previous Phase I ESA reports which were conducted for the subject property.

3.5 Building Plans

The subject property is not developed.

3.6 Geological and Geotechnical Reports

3.6.1 Regional Geology

Information available in our Company files indicates that the subject property is located in the physiographic division known as the Assiniboine River Plain of the Saskatchewan Plains. The prominent landform in and around the City of Regina is a glacial lacustrine plain. The glacial sediments which form the surficial geology in the study area consist of lacustrine deposits silt and clay, glacial till and outwash sands and gravels. These drift materials are underlain by the Upper Cretaceous shale bedrock of the Bearpaw Formation.

3.6.2 Local Geology

Information available in our Company files indicates that the study area is underlain by glacial lacustrine deposits of highly plastic clay, silt and sand. The lacustrine deposits are underlain by a clayey glacial till stratigraphic unit.

3.7 Regulatory Information

3.7.1 Rural Municipality of Edenwold

A request was submitted to the Rural Municipality of Edenwold to obtain any information they may have concerning the environmental status of the subject property. At the time this report was prepared no response had been received from the Rural Municipality.

3.7.2 Saskatchewan Environment

A search of Saskatchewan Environments Hazardous Substance Storage Sites and Hazardous Substance Spills database and the Saskatchewan Environment "Saskatchewan Spills" website was conducted to determine if there has been any reported spills on the subject property or adjacent properties. There has been no registry of a hazardous substance storage site on the subject property or immediate adjacent properties. There are no spills recorded on the subject property or immediate adjacent properties.

3.7.3 National Pollutant Release Inventory

A search of Environment Canada's National Pollutant Release Inventory (NPRI) was conducted to determine if there has been any reported pollutant releases on the subject property or adjacent properties. There are no registered pollutant releases on the subject property and immediate adjacent properties.

4.0 SITE VISIT

4.1 General

4.1.1 Methodology

Mr. Steve Harty, P. Eng. of GE Ground Engineering Ltd. conducted a visual inspection of the subject property and adjacent properties on August 10, 2010. Photographs of the subject property taken during the site inspection are included in Appendix D. Details of the subject property and adjacent properties are shown on the site plan included in Appendix E.

4.1.2 Limitations

The entire property was accessible.

4.1.3 Property Use

There was no current use or evidence of past uses of the subject property or immediate adjacent properties that involve, or have involved, such activities as the use, treatment,

storage, disposal, generation of hazardous materials, landfilling or the storage of wastewater in impoundments.

4.1.4 Hazardous Materials

There were no hazardous materials identified during our visit.

4.1.5 Unidentified Substances

There were no unidentified substances detected on the subject property or immediate adjacent properties.

4.1.6 Storage Tanks

There were no storage tanks noted on the subject property or immediate adjacent properties.

4.1.7 Storage Containers

There were no storage containers identified on the subject property.

4.1.8 Odours

There were no unusual odours noted during our site visit.

4.1.9 Potable Water Supply

There is currently no potable water supply for the subject property.

4.1.10 Special Attention Items

Comments pertaining to special attention items are as follows:

.1 The subject property is presently undeveloped, therefore, the potential for special attention items related to buildings is not applicable.

.2 No high tension transmission lines or electrical substations that could generate significant electromagnetic fields were identified on or immediately adjacent to the subject property.

.3 No major or persistent sources of noise and vibration were identified during our site inspection.

.4 There were no suspect PCB containing equipment identified at the property.

4.2 Interior Observations

The subject property is presently undeveloped.

4.3 Exterior Observations

There was no visual evidence of contamination noted during our exterior inspection of the subject property.

4.3.1 Observations of Adjoining Properties

With the exception of the farmyard (northeast) and Saskwater pumping station (southwest), the adjacent properties are all undeveloped cultivated farmland.

4.3.2 Topographic, Geologic and Hydrogeologic Conditions

The topography of the property and adjacent areas is relatively flat. The subject property is underlain by both the Condie and Regina Aquifers.

4.3.3 General Description of Structures

The subject property is presently undeveloped.

4.3.4 Wells

There were no wells identified on the property.

4.3.5 Sewage Disposal

There is currently no sewage generated at the property.

4.3.6 Pits and Lagoons

There are no pits or lagoons located on the subject property.

4.3.7 Stained Materials

There was no surficial staining noted during our inspection.

4.3.8 Stressed Vegetation

No surface vegetation was visible on the subject property at the time of our inspection.

4.3.9 Fill

Some fill material has been placed at the southeast corner of the property. There was no evidence that fill materials have been placed in other areas of the subject property.

4.3.10 Wastewater

There was no evidence of wastewater or other liquid discharge on the subject property.

4.3.11 Watercourses, Ditches or Standing Water

There is a dugout located at the southeast corner of the property.

4.3.12 Roads, Parking Facilities and Right-of-Ways

A grid road borders the east side of the property. Highway No. 46 borders the south side of the property.

5.0 INTERVIEWS

The following people were interviewed to augment the information gathered during our records review and site visit:

.1 Mr. Larry Lolacher (former property owner);
.2 Mr. Larry Morrison (employee of local business).

No information of a potential environmental concern was noted during our interviews. The owner of the property from 1950 to 1979 (Mr. George Davis) is deceased. Mr. Thomas Davis owned the property from 1979 to 2005. Numerous unsuccessful attempts have been made to contact Mr. Thomas Davis.

6.0 EVALUATION OF INFORMATION

6.1 Summary of Site History

The subject property has never been developed and is cultivated farmland.

6.2 Potential Environmental Concerns

There were no potential environmental concerns identified on the subject property or immediate adjacent properties during our historical review and site reconnaissance.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The information collected during this investigation indicates that the risk of significant soil and/or groundwater contamination as the result of former and present activities on the subject property and immediate adjacent properties is considered to be low. No further investigative work is warranted at this time.

8.0 QUALIFICATIONS OF ASSESSOR

This assessment was performed by Mr. Steve Harty, P. Eng. The qualifications of Mr. Harty are outlined in his resume, included in Appendix F.

9.0 LIMITATIONS

The conclusions and recommendations presented herein are based on the information obtained during our historical review and site reconnaissance. This report has been prepared for the exclusive use of North Ridge Development Corporation. It has been prepared in accordance with generally accepted engineering practices. No warranty is made, either expressed or implied, since even the most rigorous professional assessment may fail to identify all hidden problems on a site. A Statement of General Conditions is included, attached with this report.

10.0 CLOSURE

We trust this report is satisfactory for your purposes. If you require additional information, please contact our office.

ASSOCIATION OF PROFESSIONAL ENGINEERS
OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
GE GROUND ENGINEERING LTD.
NUMBER 8
PERMISSION TO CONSULT HELD BY:
DISCIPLINE SASK. REG. No. SIGNATURE
ENVIRONMENTAL 6951

Yours very truly
GE GROUND ENGINEERING LTD.

STEVEN HARTY, P. ENG.

PROFESSIONAL ENGINEER
S.J. HARTY
MEMBER 6951
10 10 15
YR. MN. DAY
SASKATCHEWAN

SH:ss
Distribution: North Ridge Development Corporation (2 copies, 1 PDF copy)
SH248 Office (1 copy)

GE GROUND ENGINEERING LTD.

STATEMENT OF GENERAL CONDITIONS

1. STANDARD OF CARE

This study and report have been prepared in accordance with generally accepted geotechnical and environmental consulting practices in this area. No other warranty, expressed or implied, is made.

2. BASIS OF REPORT

This report has been prepared for the specific site, development, design objectives and purpose that were described to GE Ground Engineering Ltd. (**GE**) by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alternation or variation from any of the said descriptions provided to **GE**, unless **GE** is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

3. USE OF THE REPORT

The information and opinions expressed in this document are for the sole benefit of the Client. No other party may use or rely upon the report or any portion thereof without **GE**'s expressed written consent. **GE** will consent to any reasonable request by the Client to approve the use of this report by other parties as approved users. The contents of the report remain the copyright property of **GE**, who authorizes only the Client and "Approved Users" to make copies of the report only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make available this document or the report or any portion thereof, or any copy of the report or portion thereof, to any party without the expressed written permission of **GE**.

4. COMPLETE REPORT

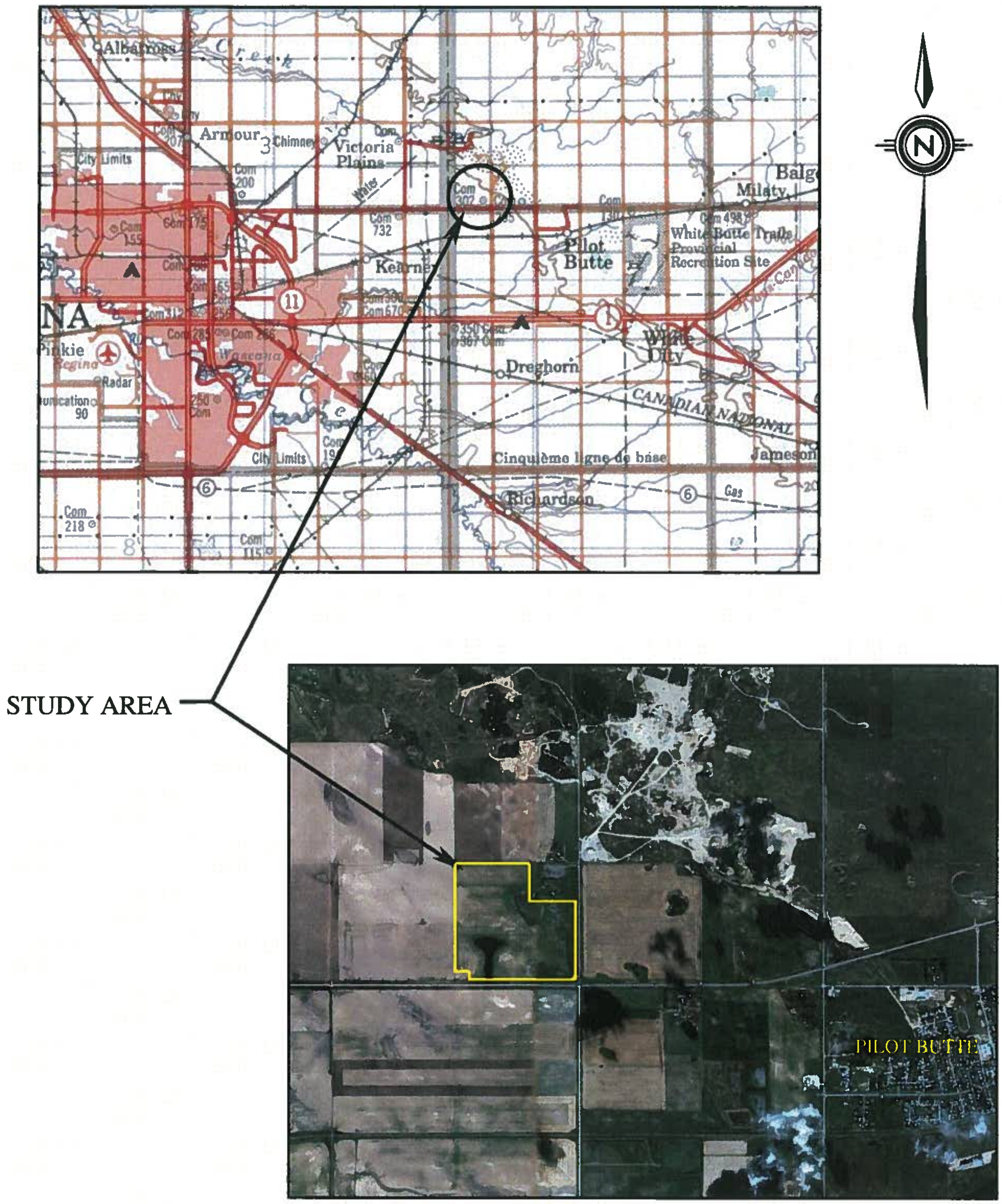
The report is of a summary nature and is not intended to stand alone without reference to the instructions given to **GE** by the Client, communications between **GE** and the client, and to any other reports, writings or documents prepared by **GE** for the Client relative to the specific site described herein, all of which constitute the report. Wherever the word "report" is used herein, it shall refer to any and all of the documents referred to herein

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. **GE** CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OR PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

5. INTERPRETATION OF THE REPORT

Nature and Exactness of Soil and Contaminant Description. Classification and identification of soils, rocks, geological units, contaminant materials and contaminant quantities have been based on commonly accepted geotechnical and environmental consulting practices in this area. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs implemented with appropriate equipment by experienced personnel, may fail to locate some hidden conditions. All reasonable problems will involve an inherent risk that some conditions will not be detected and all reports summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such reports should be aware of and accept this risk. Some conditions are subject to change over time and those making use of the report should be aware of this possibility and understand that the report only presents the conditions at the sampled points at the time of sampling.

APPENDIX A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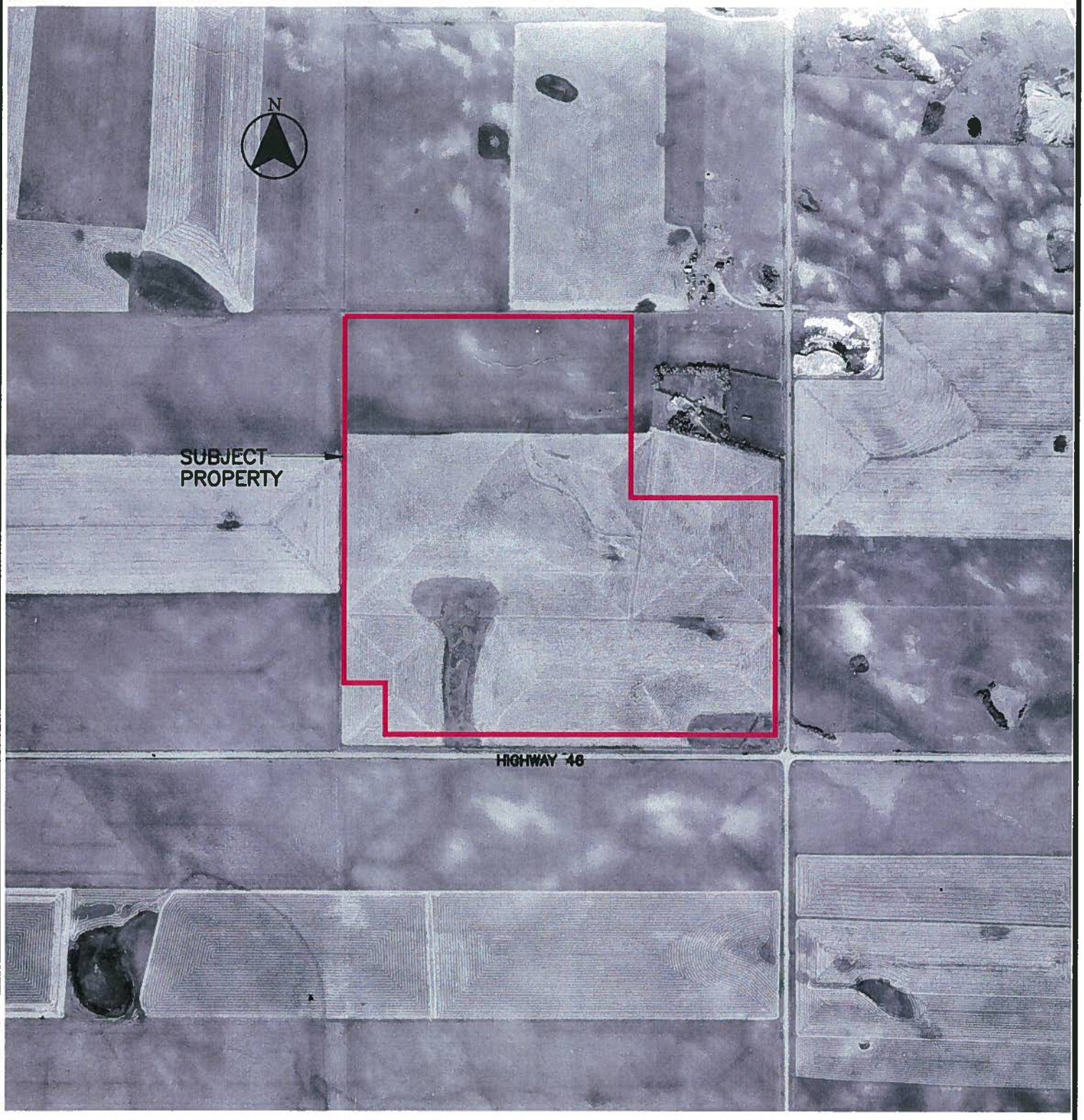
Armour
Chimney
Victoria
Plains
Kearney
Pilot
Butte
Milaty
White Butte Trails
Provincial
Recreation Site
City Limits
Pinkie
Radar
Dreghorn
White
City
CANADIAN NATIONAL
Cinquième ligne de base
Jameson
Richardson
Gas
N
STUDY AREA
PILOT BUTTE

APPENDIX B



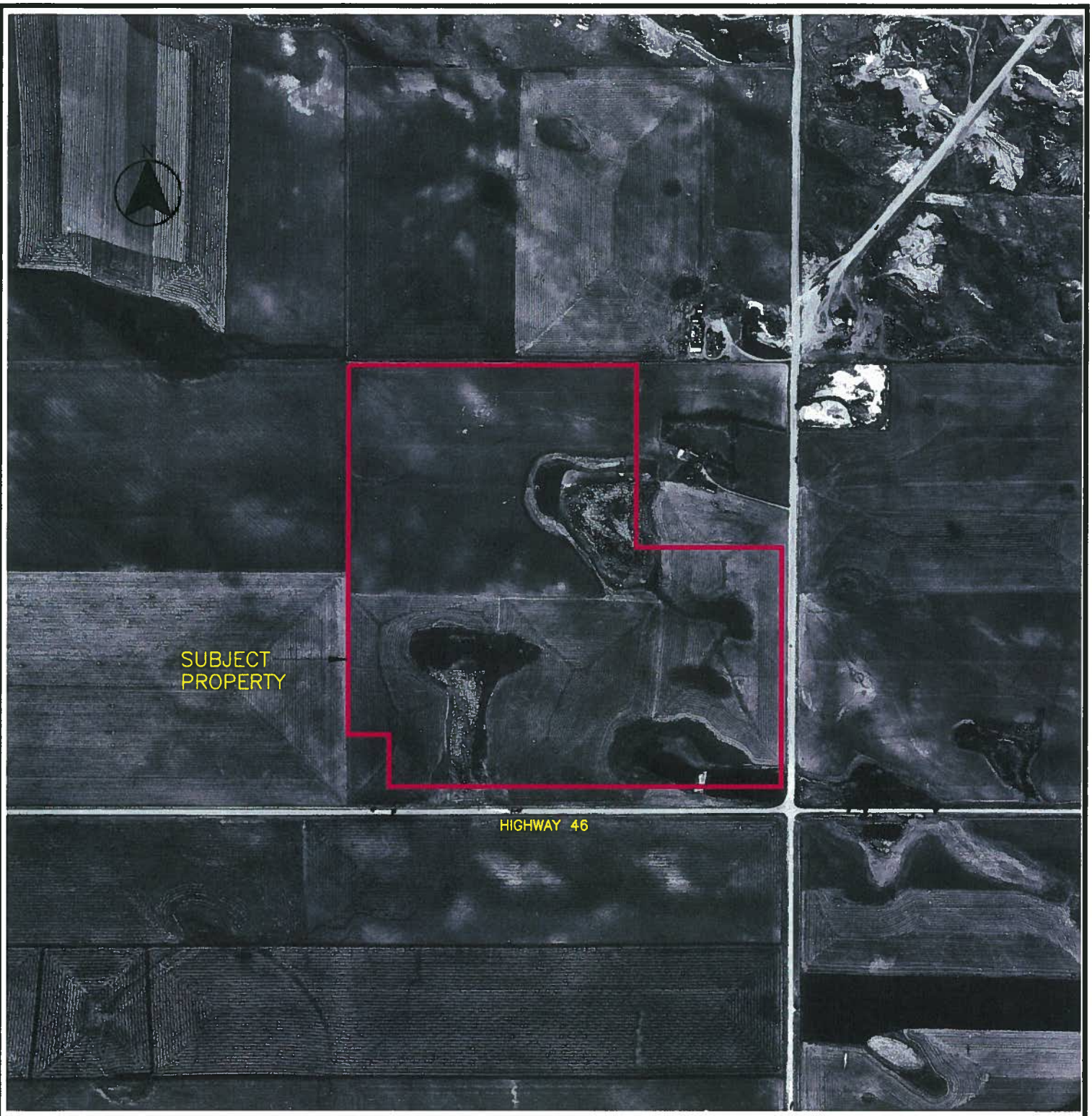
NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

1968 AIRPHOTO (A19290-58)
ENVIRONMENTAL SITE ASSESSMENT – PHASE I
PORTION OF SE 6-18-18-W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		OCTOBER 15, 2010	GE-07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\PHASE I\AIRPHOTOS\07133 1968 AIRPHOTO.DWG



NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

1975 AIRPHOTO (MA988-104)
ENVIRONMENTAL SITE ASSESSMENT – PHASE I
PORTION OF SE 6-18-18-W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		OCTOBER 15, 2010	GE-07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\PHASE 1\AIRPHOTOS\07133 1975 AIRPHOTO.DWG

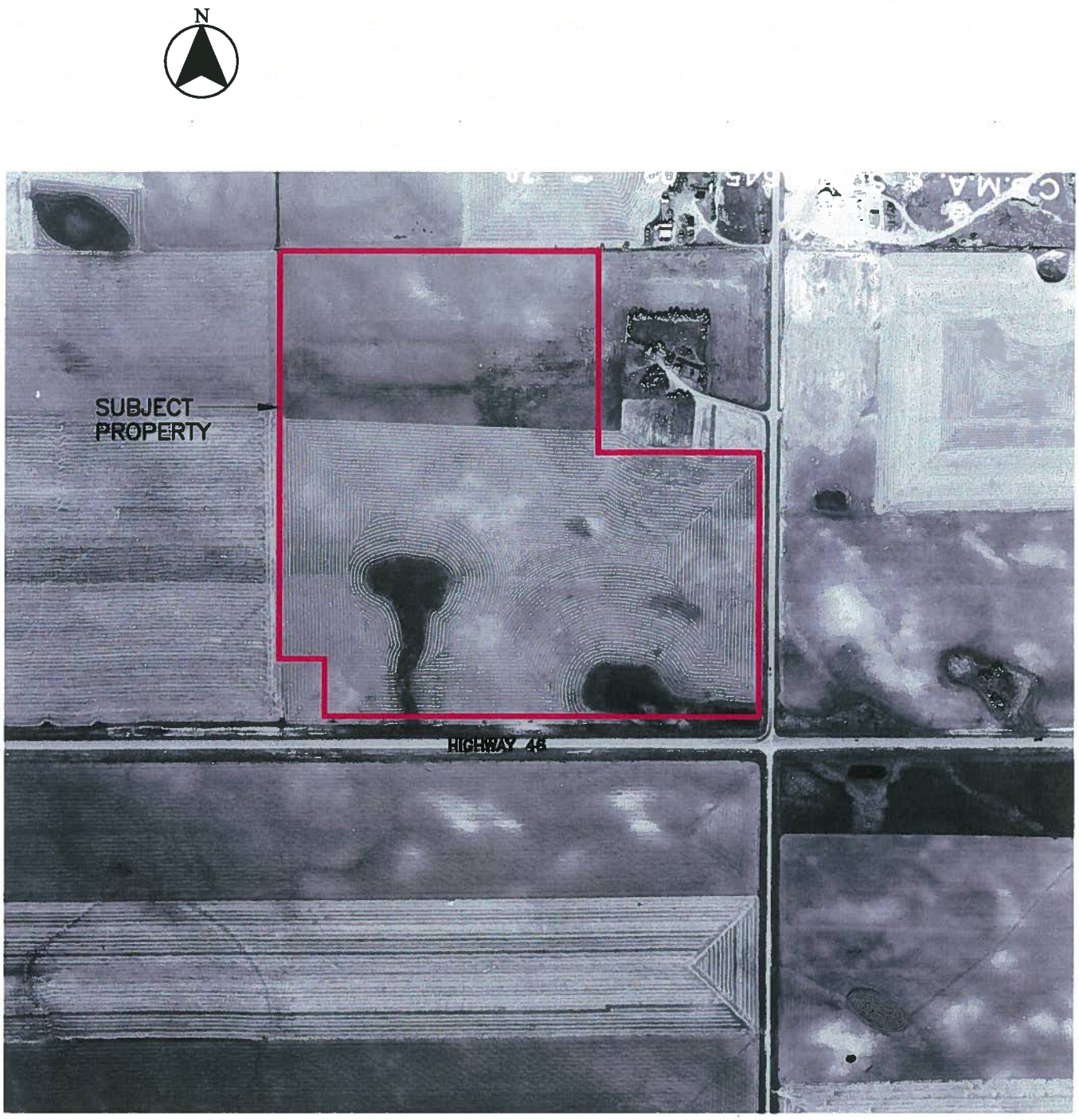
NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

1980 AIRPHOTO (CSMA 80183 07 REGINA L6-94)
ENVIRONMENTAL SITE ASSESSMENT - PHASE I
PORTION OF SE 6-18-18-W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		OCTOBER 15, 2010	GE-07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\PHASE 1\AIRPHOTOS\07133 1980 AIRPHOTO.DWG



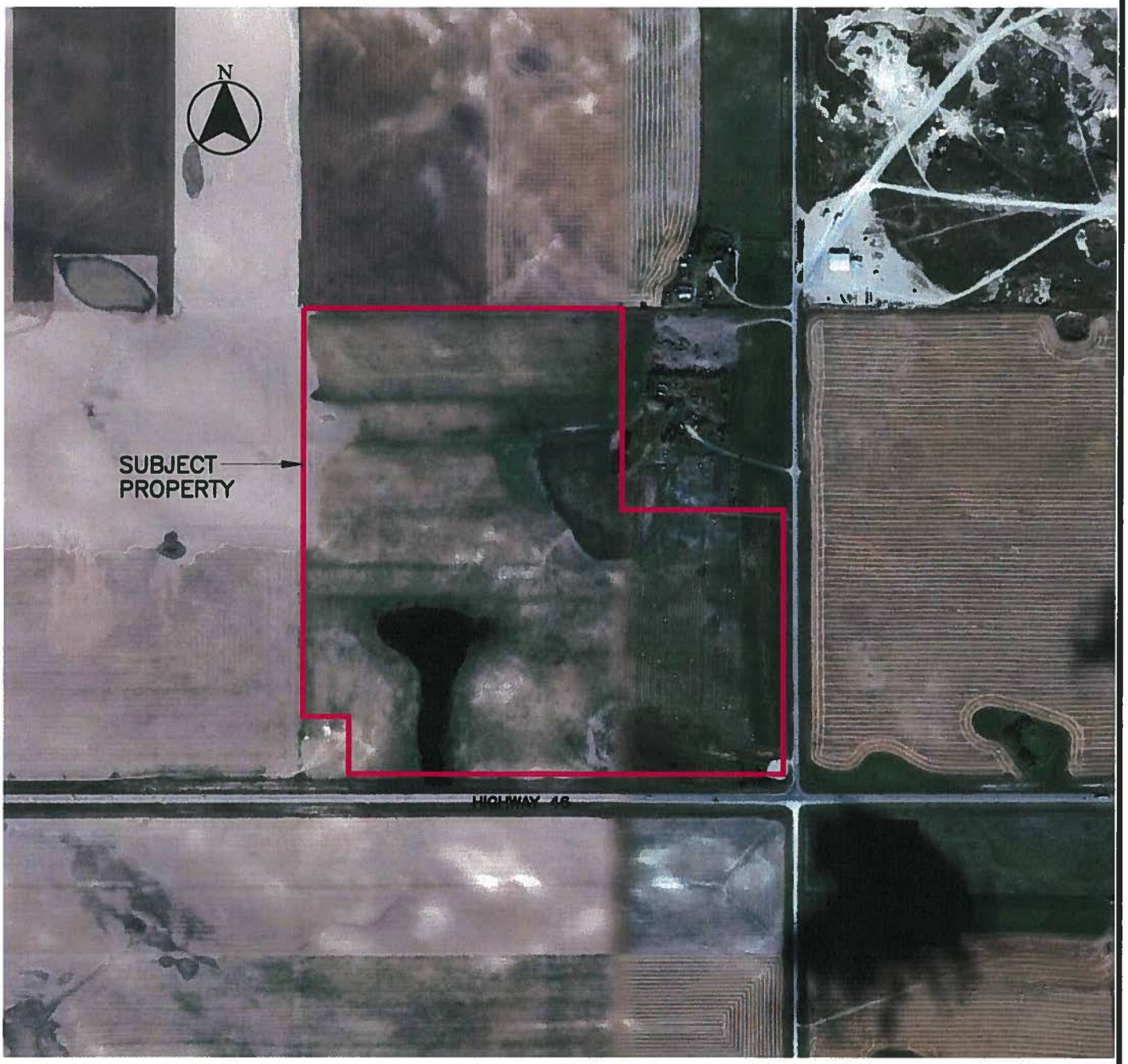
NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

1993 AIRPHOTO (C.S.M.A. SUM3A645 02 –70)
ENVIRONMENTAL SITE ASSESSMENT – PHASE I
PORTION OF SE 6–18–18–W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		OCTOBER 15, 2010	GE–07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE–07133 NORTH RIDGE GI PILOT BUTTE\PHASE I\AIRPHOTOS\07133 1993 AIRPHOTO.DWG



NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

2004 AIRPHOTO
ENVIRONMENTAL SITE ASSESSMENT – PHASE I
PORTION OF SE 6–18–18–W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		JULY 28, 2010	GE–07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\PHASE 1\AIRPHOTOS\07133 2004 AIRPHOTO.DWG

APPENDIX C

Province of Saskatchewan
Land Titles Registry
Title

Title #: 137879117
Title Status: Active
Parcel Type: Surface
Parcel Value: $400,000.00 CAD
Title Value: *$400,000.00 CAD*
Converted Title: 79R10492
Previous Title and/or Abstract #: 134663272

As of: 07 Jul 2010 12:03:08.033
Last Amendment Date: 14 Aug 2009 14:06:37.423
Issued: 05 Aug 2009 15:50:21.003
Municipality: RM OF EDENWOLD NO. 158

101056728 SASKATCHEWAN LTD. is the registered owner of Surface Parcel #163512211

Reference Land Description: SE Sec 06 Twp 18 Rge 18 W2 Extension 2
As shown on Plan 101924726

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:

Interest #:
148257928 CNV Easement

Value:
Reg'd: 20 Dec 1972 02:00:45
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

E 400 Feet
Holder:
Saskatchewan Telecommunications
13th Floor, 2121 Saskatchewan Drive
Regina, Saskatchewan, Canada S4P 3Y2
Client #: 100006861
Int. Register #: 101300386
Converted Instrument #: 72R44698

Interest #:
148257940 Pipelines Act - Easement

Value:
Reg'd: 26 Sep 2007 08:54:46
Interest Register Amendment Date: N/A

Interest Assignment
Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
200 - 111 FAIRFORD STREET EAST
MOOSE JAW, SK, Canada S6H 1C8
Client #: 100313143
Int. Register #: 113257638

Interest #:
148257951

Saskatchewan Water Corporation Act
Easement

Value:
Reg'd: 26 Sep 2007 09:14:35
Interest Register Amendment
Date: N/A
Interest Assignment
Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
200 - 111 FAIRFORD STREET EAST
MOOSE JAW, SK, Canada S6H 1C8
Client #: 100313143
Int. Register #: 113257841

Addresses for Service:

Name	**Address**
Owner:	
101056728 SASKATCHEWAN LTD. Client #: 118008019	P.O. BOX 638 SASKATOON, SK, Canada S7K 3L7

Notes:

Parcel Class Code: Parcel (Generic)

Back

Interest Registration Summary

Permanent Pipeline Easement **Application Seq. #1**

Information Services Corporation

Packet No: 120808133

Interest Details

Interest Type: Pipelines Act - Easement **Holder's Mortgage or Interest Reference No:**

Scheduled Expiry Date: **Interest Value: $** **Feature Number:**

Description of Interest:

Conditions:

Type of Condition: No Conditions **Details (if any):**

Attach Interest

Attach Interest To:	Number:	Parcel Class Code	Holder/Owner	Reference Land Description	Indicator
Title	128673546	Parcel (Generic)	Davis, Thomas Charles	SE 06 18 18 2 Ext 1 As shown on Plan 101858609	Not Applicable

Holder Details

Share

Fractional Share: 1/1

Holder:

Client No.	Name	Address	Phone	Fax
100313143	SASKATCHEWAN WATER CORPORATION			

	Email	Preferred Delivery Method

Summary of Title Requests

Authorizations & Attachments

Authorizations:

No. of Authorizations: 0

Attachments:

No. of Attachments: 1

Attachment 1: davis easement.tif

OFFER TO GRANT AN EASEMENT

BETWEEN: Thomas Charles Davis
of Regina in the Province of Saskatchewan,

Hereinafter called the "Offeror",

and

SASKATCHEWAN WATER CORPORATION

Hereinafter called the "Offeree".

WHEREAS: the Offeror is registered owner of an estate in fee simple of those certain pieces or parcels of land situated in the Province of Saskatchewan and being described as follows:

Surface Parcel # 153964334
Title # 128673546
Reference Land Description SE Section 06 Twp 18 Rge 18 W 2
Extension 1
As described on Certificate of Title 79R10492

Except: All Minerals in the Crown

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT:

In consideration of mutual covenants set out herein, and in consideration of the sum of One Hundred Dollars ($ 100.00), the Offeror does hereby grant an easement unto the Offeree for the full right and privilege to use as a right-of-way on, over and/or through that portion of the said lands being 0.21 hectares (0.52 acres) more or less, hereinafter called "permanent right-of-way", as shown outlined in red on the attached sketch marked Exhibit "A", for the laying down, construction, operation, maintenance, inspection, alteration, removal, replacement, reconstruction and/or repair of a pipeline or lines including, but without limiting the generality of the foregoing, all such works, structures and other equipment and appurtenances as may be necessary or convenient for the safe carriage, conveyance and/or transportation of water for the Regina East Well #3 Pipeline Tie-In, together with the right of ingress and egress to and from the same for its servants, agents, vehicles, machinery, supplies and equipment for all purposes necessary or incidental to the exercise and enjoyment of the rights and privileges herein granted, until the grantee surrenders or terminates the rights and privileges hereby granted.

FIRST: THE Offeree (Grantee) shall have the right to immediate use of the required portion of the said land although the required portion may not have been surveyed at that time.

SECOND: THE Offeree (Grantee) shall pay the consideration, for the pipeline right-of-way in the above mentioned land, set out above to the Offeror (Grantor), or such other person or persons entitled to it under provisions of **The Public Utilities Easements Act,** within 60 days after the date of registration of this easement in the appropriate Land Titles Office.

THIRD: THE Offeror (Grantor) shall not, without the prior written consent of the Offeree (Grantee), excavate, drill, install, erect or permit to be cultivated, excavated, drilled, installed or erected on or under the said right-of-way any crop, dugout, dam, well, pit, foundation, pavement, obstruction or other structure or installation, but otherwise the Offeror (Grantor) shall have the right fully to use and enjoy the said right-of-way provided that no appreciable damage is done to the Offeree's (Grantee's) vehicles, machinery, supplies and equipment, except as the same may be necessary for the purposes herein granted to the Offeree (Grantee).

FOURTH: The Offeree (Grantee) shall be solely responsible for the operation and maintenance of the works.

FIFTH: THE Offeree (Grantee) shall also have the right to a temporary working space which shall consist of :

a strip of land **5** metres in width, lying **North** of, and a strip of land **20** metres in width, lying **South** of and adjacent to the permanent pipeline right-of-way, to facilitate the pipeline construction within the aforementioned permanent right-of-way. the said lands being **0.20** hectares (**0.48** acres) more or less, hereinafter called "temporary right-of-way", as shown outlined in green on the attached sketch marked Exhibit "A"
Temporary working space **will not be required** after the pipeline has been fully constructed.

If additional temporary working space width is required over and above the width previously mentioned, the Offeree (Grantee) will contact and advise the Offeror (Grantor) of such. Additional compensation will be calculated in accordance with condition 6 (a) and (b), and paid to the Offeror (Grantor) by the Offeree (Grantee), within 30 days of being advised of such.

SIXTH: Offeree (Grantee), in addition to the compensation mentioned on page 1, shall pay the following compensation:

a. A lump sum of 0.— ________, (0.—) for approximately **0.20** hectares (**0.48** acres) of temporary working space right-of-way;

b. A lump sum of 0.— ________, (0.—) for temporary damages on both the permanent right-of-way and temporary work space right-of-way;

c. For above ground structures pursuant to condition number 8 hereof, a lump sum of **N/A** Dollars (**$ N/A**) shall be paid relative to the land taken out of production and inconvenience created to farming operations.

The sum of 0.— ________, (0.—) will be paid by the Offeree (Grantee) to the Offeror (Grantor) or such other person or persons entitled to it under provisions of **The Public Utilities Easements Act**, within 30 days of the signing of this agreement by the Offeree (Grantee).

SEVENTH: THE Offeree (Grantee) shall compensate the Offeror (Grantor) or any person claiming through or under the Offeror (Grantor) for damage done to any buildings, crops, grain, fences, livestock, or other goods or chattels of the Offeror (Grantor) or any person claiming through or under the said Offeror (Grantor) when such damage is caused by the Offeree (Grantee) while constructing, operating, maintaining or altering the works; subject to the provisions of those statutes of Saskatchewan governing the affairs and operations of the Offeree (Grantee) as to claims and settlements for damages in that behalf.

EIGHTH: THE Offeree (Grantee) shall, as soon as weather and soil conditions permit, bury and maintain all pipelines and restore the permanent and temporary work space rights-of-way to the same condition, so far as may be practicable and usual so to do, as the same was in prior to the entry thereon and use thereof by the Offeree (Grantee). The following structures and appurtenances will remain above ground:

NINTH: THE Offeree (Grantee) , performing and observing the covenants and conditions on its part to be performed and observed, shall and may peaceably hold and enjoy the rights and liberties granted without hindrance, molestation or interruption on the part of the Offeror (Grantor).

TENTH: EACH of the parties herein may assign this agreement and all rights and benefits accruing to him, and shall thereupon give notice thereof to the other party by registered mail.

ELEVENTH: NOTWITHSTANDING that in constructing, maintaining and operating the works the Offeree (Grantee) may install works, structures and other equipment and appurtenances in, or under the permanent right-of-way in such manner that it or they become affixed to the realty, the title and property of such works, structures and other equipment and appurtenances together with the right to remove the same shall nevertheless remain in the Offeree (Grantee).

TWELFTH: IN the event that the Offeree (Grantee) desires to abandon the right-of-way, the Offeree (Grantee) shall cause this easement to be discharged as an encumbrance from the title to the lands and will restore the surface of the lands to the same condition, so far as may be practicable so to do, as the same were in prior to the entry thereon and the use thereof by the Offeree (Grantee). The Offeree (Grantee) however may, if it so elects, leave the pipeline(s) or any part thereof in place. After abandonment as aforesaid, the Offeree (Grantee) shall have no further responsibility with respect to the right-of-way or the adjacent lands.

THIRTEENTH: NOTHING herein contained shall be deemed to vest in the Offeree (Grantee) any titles of mines, ores, metals, coal, slate, oil, gas or other minerals in or under the land comprising the said right-of-way.

FOURTEENTH: THIS easement may be registered in the appropriate Land Titles Office, under provisions of ***THE PUBLIC UTILITIES EASEMENTS ACT***, and shall be of the same force and effect, to all intents and purposes, as a covenant running with the land, and shall be binding upon the heirs, executors, administrators, successors and assigns of the Grantor and the heirs, successors and assigns of the Grantee.

IN WITNESS WHEREOF the Offeror (Grantor) has hereunto set his hand and seal, and the Offeree (Grantee) has attached its Corporate Seal attested under the hands of its signing official, this 13th day of September, A.D. 2007.

Witness

Thomas C. Davis
Thomas Charles Davis

Approved for Acceptance

SASKATCHEWAN WATER CORPORATION

SASKATCHEWAN WATER CORPORATION Seal

Date: Sept. 14, A.D. 2007

****

AFFIDAVIT OF EXECUTION
(To be completed by Witness)

CANADA)
PROVINCE OF SASKATCHEWAN)
TO WIT:)

I, Jessica Towns
(Name of Witness, One Full Christian Name)

of Regina, Saskatchewan

Engineer
(Occupation)

MAKE OATH AND SAY:

1. THAT I was personally present and did see **Thomas Charles Davis** named in the within instrument, who are personally known to me to be the persons named therein, duly sign and execute the same for the purposes named therein.

1. THAT the same was executed at R.M. of Edenwold, Saskatchewan, and that I am the subscribing witness thereto.

1. THAT I personally know the said **Thomas Charles Davis** and each is in my belief eighteen years of age or more.

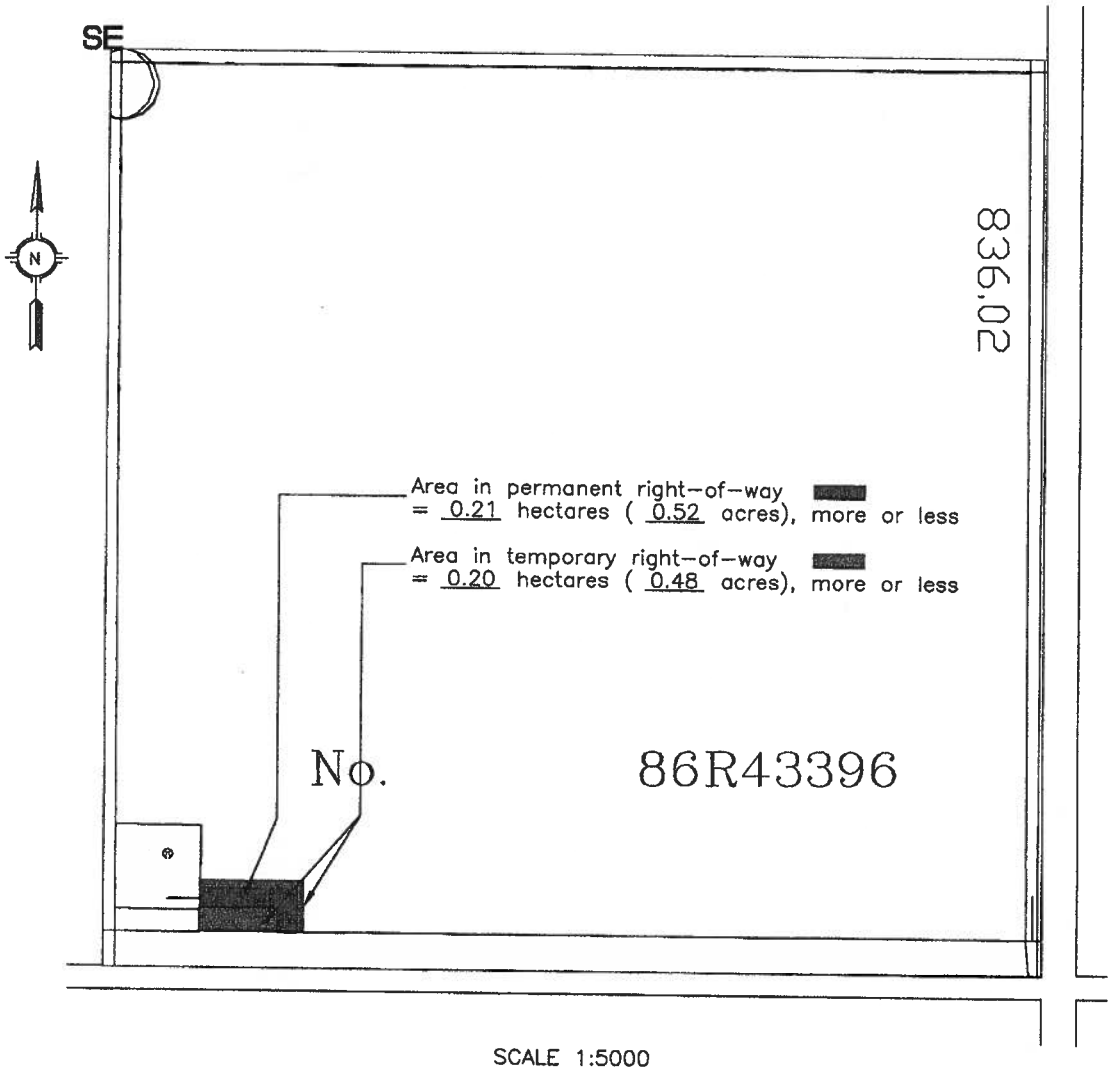
SWORN BEFORE ME AT Moose Jaw in the Province of Saskatchewan, this 14th day of September, A.D. 20 07.

A Commissioner for Oaths, in and for the Province of Saskatchewan

My Appointment Expires: June 30, 2009

EXHIBIT "A"

Sketch showing details of right-of-way in the South East (SE) of Section Six (06), in Township Eighteen (18), Range Eighteen (18), West of the Second (2nd) Meridian, in the Province of Saskatchewan.



SCALE 1:5000

Signed by the Offeror (Grantor) at the R.M. of Edenwold, in the Province of Saskatchewan, this 13th day of September, A.D. 2007.

Witness

Thomas C. Davis
Offeror (Grantor)

plot date: Sept. 11, 2007

ref: SE0618182

Province of Saskatchewan
Land Titles Registry
Title

Title #: 134663272
Title Status: Active
Parcel Type: Surface
Parcel Value: $117,000.00 CAD
Title Value: *$117,000.00 CAD*
Converted Title: 79R10492
Previous Title and/or Abstract #: 128673546

As of: 05 Aug 2009 15:49:21.0
Last Amendment Date: 04 Feb 2009 09:51:00.457
Issued: 05 Nov 2007 15:41:00.640
Municipality: RM OF EDENWOLD NO. 158

Larry Lolacher is the registered owner of Surface Parcel #163512211

Reference Land Description: SE Sec 06 Twp 18 Rge 18 W2 Extension 2
As shown on Plan 101924726

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:

Interest #:
139869040 CNV Easement

Value:
Reg'd: 20 Dec 1972 02:00:45
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

E 400 Feet
Holder:
Saskatchewan Telecommunications
13th Floor, 2121 Saskatchewan Drive
Regina, Saskatchewan, Canada S4P 3Y2
Client #: 100006861
Int. Register #: 101300386
Converted Instrument #: 72R44698

Interest #:
139869051 Miscellaneous Interest

Value:
Reg'd: 23 Jun 2005 14:49:22
Interest Register Amendment Date: N/A
Interest Assignment

Date: N/A
Expiry Date: N/A

Holder:
Larry Lolacher
P.O. Box 94
Pilot Butte, Saskatchewan, Canada S0G 3Z0
Client #: 119153662
Int. Register #: 109890715

Interest #:
139869062

Pipelines Act - Easement

Value:
Reg'd: 26 Sep 2007 08:54:46
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
200 - 111 FAIRFORD STREET EAST
MOOSE JAW, SK, Canada S6H 1C8
Client #: 100313143
Int. Register #: 113257638

Interest #:
139869073

Saskatchewan Water Corporation Act
Easement

Value:
Reg'd: 26 Sep 2007 09:14:35
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
200 - 111 FAIRFORD STREET EAST
MOOSE JAW, SK, Canada S6H 1C8
Client #: 100313143
Int. Register #: 113257841

Addresses for Service:

Name	Address
Owner: Larry Lolacher Client #: 119336698	Box 94 Pilot Butte, Saskatchewan, Canada S0G 3Z0

Notes:

Parcel Class Code: Parcel (Generic)

Back

Province of Saskatchewan
Land Titles Registry
Title

Title #: 128673546
Title Status: Active
Parcel Type: Surface
Parcel Value: N/A
Title Value: *N/A*
Converted Title: 79R10492
Previous Title and/or Abstract #: 104515242

As of: 05 Nov 2007 15:40:00.00
Last Amendment Date: 26 Sep 2007 09:14:36.033
Issued: 10 Jan 2005 14:44:30.660
Municipality: RM OF EDENWOLD NO. 158

Thomas Charles Davis is the registered owner of Surface Parcel #153964334

Reference Land Description: SE Sec 06 Twp 18 Rge 18 W2 Extension 1
As shown on Plan 101858609

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:

Interest #:
127085722 CNV Easement

Value:
Reg'd: 20 Dec 1972 02:00:45
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

E 400 Feet
Holder:
Saskatchewan Telecommunications
13th Floor, 2121 Saskatchewan Drive
Regina, Saskatchewan, Canada S4P 3Y2
Client #: 100006861
Int. Register #: 101300386
Converted Instrument #: 72R44698

Interest #:
128802674 Miscellaneous Interest

Value:
Reg'd: 23 Jun 2005 14:49:22
Interest Register Amendment Date: N/A
Interest Assignment

Date: N/A
Expiry Date: N/A

Holder:
Larry Lolacher
P.O. Box 94
Pilot Butte, Saskatchewan, Canada S0G 3Z0
Client #: 119153662
Int. Register #: 109890715

Interest #:
139287976

Pipelines Act - Easement

Value:
Reg'd: 26 Sep 2007 08:54:46
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
111 Fairford St. E
Moose Jaw, SK, Canada S6H 7X9
Client #: 100313143
Int. Register #: 113257638

Interest #:
139288607

Saskatchewan Water Corporation Act
Easement

Value:
Reg'd: 26 Sep 2007 09:14:35
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Expiry Date: N/A

Holder:
SASKATCHEWAN WATER CORPORATION
111 Fairford St. E
Moose Jaw, SK, Canada S6H 7X9
Client #: 100313143
Int. Register #: 113257841

Addresses for Service:

Name	**Address**
Owner:	
Thomas Charles Davis Client #: 103146397	Pilot Butte, Saskatchewan, Canada

Notes:

Parcel Class Code: Parcel (Generic)

Back

Canada

Province of Sask.

SASKATCHEWAN

Value $ 16,000.00

No. 79RI0492

Grant No. DB 12552

Ref. 187 BHQ

CERTIFICATE OF TITLE

Conversion Cancelled Title

THIS IS TO CERTIFY that THOMAS CHARLES DAVIS
of Pilot Butte, in the Province of Saskatchewan

is now the owner of an estate in fee simple

of and in The South East Quarter of Section Six (6),

in Township Eighteen (18),

in Range Eighteen (18),

West of the Second Meridian,

in the Province of Saskatchewan, in the Dominion of Canada, containing One Hundred and Sixty (160) acres, more or less, according to Dominion Government Survey thereof.

MINERALS INCLUDED

Plan Ex

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM NOW OR HEREAFTER UNDERWRITTEN OR ENDORSED HEREON, OR WHICH ATTACH BY IMPLICATION UNDER THE LAND TITLES ACT.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal this Seventh day of March, A.D. 19 79.

Post Office Address Pilot Butte, Saskatchewan

.....

.....
Registrar

Regina
Land Registration District

Regina
Province of Saskatchewan

Form 182A

lu

79R10492

ABBREVIATIONS

T—Transfer
Tr—Transmission
M—Mortgage
C—Caveat
ML—Mechanic's Lien
TL—Tax Lien
E—Execution
N—Notice

Show Other Abbreviations Here

CERTIFICATE OF TITLE

Name Thomas Charles Davis

Land SE¼ of Sec 6-18-18-W2nd Mer., Sask.

CHARGES, LIENS AND INTERESTS

Nature of Instrument	Registration Number	Date of Registration	Date of Instrument	Amount	Particulars	Signature of Registrar	Discharges and Withdrawals		
							Registration Number	Date of Registration	Signature of Registrar
Easement	72R44698	20/Dec/72	12/Dec/72		Made Between: George Davis And: The Frankslake Rural Telephone Company Limited (E 400 feet)				
M	79R10493	7/Mar/79	$16,000.00 19/Apr/78	Int. as therein stated	Made by: Thomas Charles Davis In favour of: George Davis Address: Box 5, Pilot Butte, Saskatchewan		82R40421	24/Sep/82	
C	79R10494	7/Mar/79	27/Feb/79		Made by: George Davis Address: 2100 Smith Street Regina, Saskatchewan		82R40422	24/Sep/82	
C	80R25451	6/Jun/80	12/May/80		made by: Saskatchewan Housing Corporation Address: 2024 Albert Street, Regina, Saskatchewan S4P 3V7		86R54888	15/Oct/86	
Plan	86R43396	15/Aug/86			Roadway-cont. 2.630 hectares ~~out of SE¼ 6~~ To: Her Majesty the Queen (Sask) New C. of T. No. 86R43396A				
Plan	90R03576	19 Jan 90			Roadway - 0.90 of a ha To: Her Majesty the Queen (Sask) Title: 90R03576				

CANADA
PROVINCE OF SASKATCHEWAN

Saskatchewan
Certificate of Title

VALUE, $ 5600.00 GRANT No. DB 12552

SEE R. No. ACV FOLIO 84 No. 1878HQ DAY BOOK No. EX5994

This is to Certify that George Davis
of Pilot Butte in the Province of Saskatchewan
Farmer
is now the owner of an estate in fee simple
of and in the Southeast Quarter of Section Six (6) in Township Eighteen (18) in Range Eighteen (18) West of the Second Meridian in the Province of Saskatchewan, in the Dominion of Canada containing One Hundred and sixty (160) acres, more or less according to Dominion Government Survey thereof

MINERALS INCLUDED

CANCELLED
792.104.92

subject to the incumbrances, liens and interests notified by memorandum indorsed hereon, or which may hereafter be made in the register, or which attach by implication under The Land Titles Act.

COMPARED
DEC 2 1950

In Witness Whereof *I have hereunto subscribed my name and affixed my official seal at* Regina *this* Twenty-second *day of* November *A.D. 19* 50

Post Office Address Pilot Butte, Saskatchewan

J. Luttmer Jr. *Registrar*
Regina *Land Registration District*
Regina *Saskatchewan*

1

This Title is subject to a Caveat made by Prudential Trust Company Limited
Dated the 17 day of Oct 1942 and registered at 12:35 P.M. on the 19 day of Oct 1942
as No. EX 3006
Address for Service:
Regina Sask

REGISTRAR

2

The within land is subject to a MORTGAGE made by George Davis
in favor of Canadian Farm Loan Board
to secure repayment of the sum of $1,000.00 with interest thereon at the rate of [illegible]% per annum. Principal and [illegible] Dated the 23 day of Oct 1950 and registered at 10:05 o'clock A M. the 23 day of Nov 1950 as No. EX 5995
Regina Sask

REGISTRAR

3

The CAVEAT registered as No. EX 3006 is WITHDRAWN by Prudential Trust Company Limited
[illegible] 22 day of May 1960 and
Registered [illegible] on the 31 day of May 1960
as No. 60R06759.

REGISTRAR

4

This Title is subject to a Caveat made by Atlantic Richfield Company
Dated the 28th day of March 19 68 and registered at [illegible] M. on the 4th day of April 19 68
as No. 68R12879
Address for Service: MacPherson, Leslie & Tyerman, 2236 Albert St., Regina, Sask.,

REGISTRAR

5

No. 4001
A mineral certificate as to petroleum and natural gas
was issued under section 208 this 29th day of April
A.D. 19 68, pursuant to application registered as No. 68R15926

REGISTRAR

6

The Mortgage registered as No. EX 5995 [illegible] by DISCHARGE of MORTGAGE made by Farm Credit Corporation
[illegible] 2 [illegible]
of November 19 72 [illegible]
the 5 day of December, 19 72 as No. 72R42527

REGISTRAR

7

~~The within land~~ [illegible] is affected by an EASEMENT for
made between George Davis
and The Frankslake Rural Telephone Company Limited
Dated 12th day of December 19 72 and registered at
[illegible] this 20th day of December 19 72
as No. 72R44698

REGISTRAR

8

The CAVEAT registered as No. 68R12879 is WITHDRAWN by Atlantic Richfield Company
Dated the 15th day of March 19 73 and
Registered at [illegible] o'clock [illegible] m. on the 28th day of March 19 73
as No. 73R11477

REGISTRAR

9

This Certificate is CANCELLED BY [illegible]
and a new Certificate of Title No. [illegible] issued to
[illegible]
dated the 19 day of April [illegible]
day of March A.D. 1979 as No. [illegible]

Registrar

10

11

12

13

14

15

16

17

18

19

20

CANADA

PROVINCE OF SASKATCHEWAN

VALUE, $ 5800.00

See R. No. 827 Folio 66.

No. 84.

Certificate of Title

GRANT No. ____

DAY BOOK No. B.K. 4541.

Assiniboia Land Registration District

This is to Certify that Samuel Summerville, of Pilot Butte, in the Province of Saskatchewan, Farmer.

is now the owner of an estate in fee simple of and in the South East quarter of Section Six (6), in Township Eighteen (18), in ~~Township~~ Range Eighteen (18), West of the Second Meridian, in the Province of Saskatchewan, in the Dominion of Canada, containing One hundred and sixty (160) acres, more or less according to Dominion Government survey thereof.

MINERALS INCLUDED

JAN 11 1916

CANCELLED TO No 1871BHQ

subject to the incumbrances, liens and interests notified by memorandum underwritten or indorsed hereon, or which may hereafter be made in the registers

In Witness Whereof *I have hereunto subscribed my name and affixed my official seal this* Seventh day of January A.D. 1916.

Post Office Address Pilot Butte, Sask

M.W. Dangell Registrar
Assiniboia Land Registration District

1

Percy B. Baragar.
~~Law Union and Rock Insurance Company Limited.~~
~~1800.00 8~~
~~a 5 10 May 15~~
May 15 10.31 B.G. 5716.
% Osler, Hammond & Nanton, Winnipeg, Man.
M.W. Dangell

2

The Mortgage registered as No. B.G. 5716 is discharged by DISCHARGE of MORTGAGE made by ~~Law Union and Rock Insurance Company Limited~~, dated the 19 day of July 1920, and registered at 10.59 o'clock A.M. on the 15 day of July 1922, as No. C.G. 3635

REGISTRAR

3

The *within land* is subject to a Relief Lien made by *Sam Summerville* in favor of the R. M. of *Edenwold No. 158* for the sum of $ *104.46* Dated the *1* day of *Oct. 1931* and registered at *10.42* o'clock *A.* M. on the *2* day of *July* 19*32* as No. *DV.231*
Balgonie. Sask.
Wdr. by EG5468 [illegible]
REGISTRAR

4

This Title is subject to a Caveat made by *R.M. of Edenwold No. 158*
Dated the *4* day of *July* 19*36* and registered at *1.54 P.* M. on the *11* day of *Aug* 19*36* as No. *DV.6339*
Address for Service
Balgonie. Sask.
Registrar.

5

The CAVEAT registered as No. *DV6339* is WITHDRAWN by Notice thereof to the Registrar, Dated the *8* day of *January* 19*37* and Registered at *10.02* o'clock *A.* M. on the *11* day of *January* 19*37* as No. *DW2087*
REGISTRAR

6

This Title is subject to a Caveat made by *George Davis*
Dated the *23* day of *March* 19*45* and registered at *12.26 P.* M. on the *23* day of *March* 19*45* as No. *EE 6240.*
Address for Service
c/o Messrs Barr, Cumming & Barr, Regina, Sask. *merged by request attached to Statement to EX5994*
Registrar.
[illegible]

7

[illegible]
This Title is subject to a Caveat made by *Prudential Trust Company Limited*
Dated the *17* day of *Oct* 19*49* and registered at *12.28 A.* M. on the *19th* day of *Oct* 19*49* as No. *EX 3006*
Address for Service
Regina Sask
Registrar

8

The *Seed Relief* Lien registered as No. *DV.231* is discharged by *The R.M. of Edenwold No 158*
Dated the *26* day of *Oct* 19*45* and registered at *1.28* o'clock *P.* M. this *29* day of *Oct.* 19*45* as No. *EG5468*
REGISTRAR
[illegible]

9

This Certificate is CANCELLED by *Transfer* *Surface & Minerals* and a new Certificate of Title No. *187BHR* issued to *George Davis*
dated *21st Nov 1950* and registered at *10.06* *22* day of *Nov* 19*50* as No. *EX5994*
REGISTRAR
[illegible]

10

11

12

13

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17

18

19

20

Land Description
SE 06-18-18-2 Ext 2
As shown on Plan 101924726

Owner(s)
101056728 SASKATCHEWAN LTD.

	Number	Share	Title Lock Information
Title	137879117	1/1	N/A

Last Amendment Date	Old Land Description
14-Aug-2009 14:06:37.423	

Parcel	Parcel Type	Municipality	Ties
163512211	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

Land Description
Blk/Par B-Plan 101924726 Ext 0

Owner(s)
Lolacher, Karen
Lolacher, Larry

	Number	Share	Title Lock Information
Title	138708007	1/1	N/A

Last Amendment Date	Old Land Description
24-Dec-2009 14:36:26.233	

Parcel	Parcel Type	Municipality	Ties
163512200	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

Land Description
Blk/Par A-Plan 101858609 Ext 0

Owner(s)
SASKATCHEWAN WATER CORPORATION

	Number	Share	Title Lock Information
Title	128673333	1/1	N/A

Last Amendment Date	Old Land Description
11-Sep-2008 14:52:38.347	

Parcel	Parcel Type	Municipality	Ties
153964299	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

Land Description
Blk/Par B-Plan 101858609 Ext 0

Owner(s)
Her Majesty The Queen in Right of Saskatchewan

	Number	Share	Title Lock Information
Title	128673489	1/1	N/A

Last Amendment Date	Old Land Description
10-Jan-2005 14:44:30.410	

Parcel	Parcel Type	Municipality	Ties
153964323	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

Land Description
SE 06-18-18-2 Ext 0

As described on Certificate of Title 79R10492.

Owner(s)
Davis, Thomas Charles

	Number	Share	Title Lock Information
Title	104515253	1/1	Uncertified Mineral Title - Non-Producing Area (Transfer Permitted)

Last Amendment Date	Old Land Description
22-Jan-2002 20:08:44.030	

Parcel	Parcel Type	Municipality	Ties
111654873	Mineral	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	All mines and minerals as referenced on Certificate of Title 79R10492	N/A

Land Description
SE 06-18-18-2 Plan 86R43396 Ext 1
As described on Certificate of Title 86R43396A.

Owner(s)
Her Majesty the Queen (Saskatchewan)

	Number	Share	Title Lock Information
Title	103132325	1/1	N/A

Last Amendment Date	Old Land Description
02-Dec-2001 13:58:30.497	SE 06-18-18-2 Plan 86R43396 Ext 1 As described on Certificate of Title 86R43396A.

Parcel	Parcel Type	Municipality	Ties
110871907	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

Land Description
SE 06-18-18-2 Plan 90R03576 Ext 1
As described on Certificate of Title 90R03576.

Owner(s)
Her Majesty the Queen (Saskatchewan)

	Number	Share	Title Lock Information
Title	103454131	1/1	N/A

Last Amendment Date	Old Land Description
04-Dec-2001 03:19:27.497	SE 06-18-18-2 Plan 90R03576 Ext 1 As described on Certificate of Title 90R03576.

Parcel	Parcel Type	Municipality	Ties
110872188	Surface Regular	RM OF EDENWOLD NO. 158	

Validated Ties	Commodity/Unit	Linked to Unit
	N/A	N/A

APPENDIX D

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

PHOTO 6

PHOTO 7

PHOTO 8

PHOTO 9

PHOTO 10

PHOTO 11

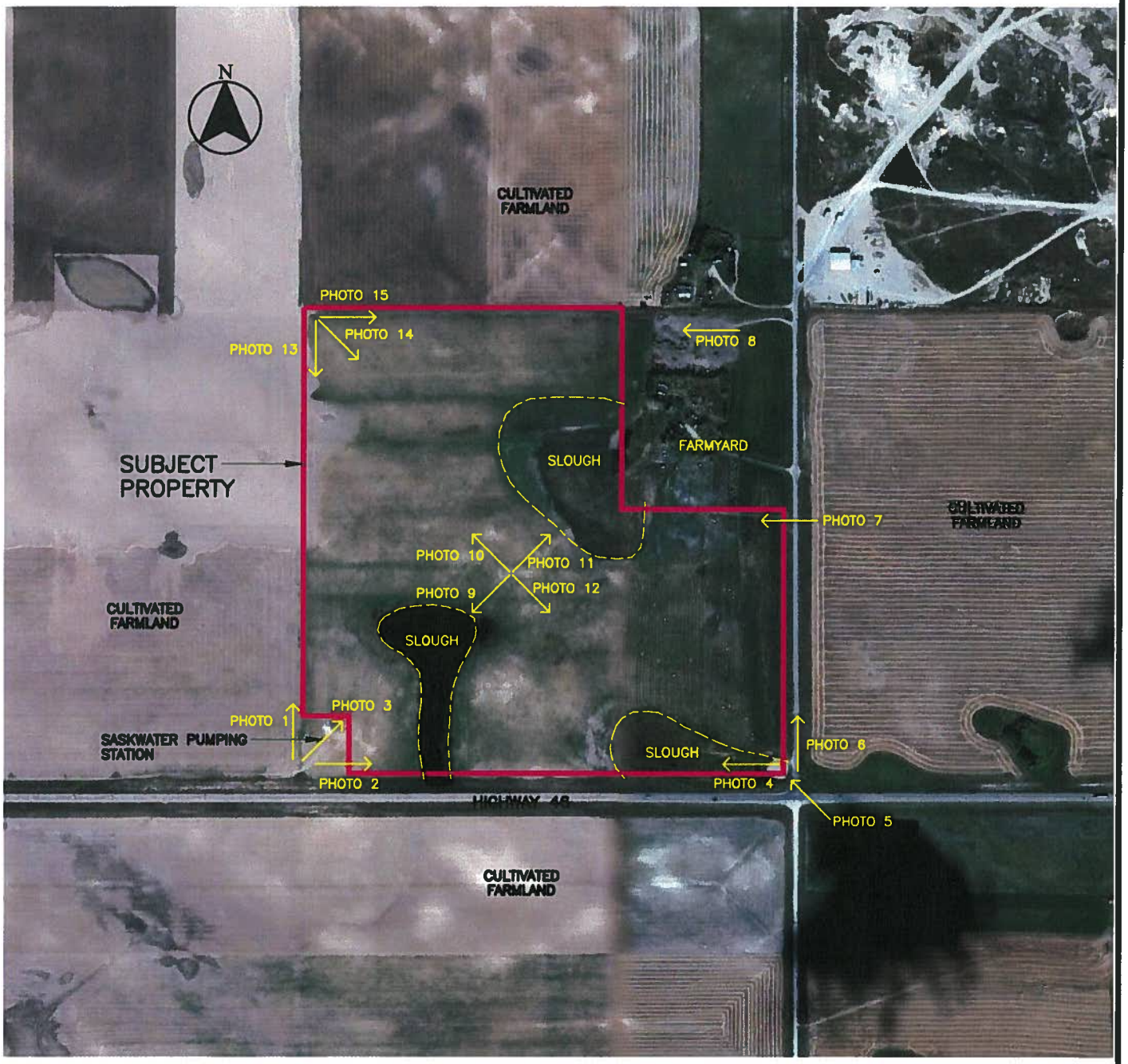
PHOTO 12

PHOTO 13

PHOTO 14

PHOTO 15

APPENDIX E



2004 AIRPHOTO

NOT TO SCALE

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

SITE PLAN SHOWING DETAILS OF SUBJECT PROPERTY
ENVIRONMENTAL SITE ASSESSMENT – PHASE I
PORTION OF SE 6–18–18–W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORP.		OCTOBER 15, 2010	GE–07133

ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\PHASE 1\AIRPHOTOS\07133 2004 AIRPHOTO.DWG

APPENDIX F

STEVEN J. HARTY, P. ENG.
GE Ground Engineering Ltd.

Steven Harty, P. Eng., is a Senior Engineer for GE Ground Engineering Ltd. He is directly involved in all aspects of the geotechnical and environmental assessment process, including site characterization, investigation, remediating, monitoring and report preparation.

EXPERIENCE

- Prepare Phase I and II Environmental Site Assessment Reports and contract tender documents for site remediation.

- Prepare Geotechnical investigation reports to provide foundation, floor and parking lot/roadway design recommendations.

- Conduct residential and commercial foundation inspections, assessments and designs.

- Evaluate indoor air quality for mold and volatile organic compounds (VOCs) contamination.

- Air photo interpretation and slope stability studies in landslide terrain to identify suitable building sites and provide development guidelines.

- Supervise the test hole drilling, monitoring well installations, soil sampling for numerous geotechnical investigations.

- Supervise the test hole drilling, monitoring well installations, soil and groundwater sampling for numerous and Environmental Site Assessments.

- Supervise various site remediation projects.

- Supervise the construction of bentonite liners constructed at Key Lake, McArthur River and Saskatchewan Landing Provincial Park, Saskatchewan.

- Various laboratory tests on soil and asphaltic concrete.

- Quality assurance testing of concrete, aggregate, soil and asphaltic concrete during the construction process.

- Pile inspection during construction and preparation of the pile inspection report.

EMPLOYMENT HISTORY

June 1986 to Present:	GE Ground Engineering Ltd., Regina, Saskatchewan. Geotechnical Engineer
June to September, 1985:	City of Melfort, Melfort, Saskatchewan. Surveyor and Draftsperson.

EDUCATION

Bachelor of Science, Faculty of Civil Engineering, University of Saskatchewan, 1993

Civil Engineering Technology, Saskatchewan Technical Institute, 1986

TECHNICAL AFFILIATIONS AND MEMBERSHIPS

Member of the Association of Professional Engineers and Geoscientists of Saskatchewan
Executive Member of Regina Geotechnical Group
Member of Regina Engineering Society
Organizing Committee Member for 1999 Canadian Geotechnical Conference
National Accreditation Team Member for Canadian Council of Technicians and Technologists - Environmental Programs

TECHNICAL PAPERS

Design and Construction of Soil Bentonite Liners and Two Case Histories by Paul Kozicki, Steven Harty and John P. Kozicki, First International Congress on Environmental Geotechnics, Edmonton, Canada, July 10 - 15, 1994.

Engineered Foundation Package Designed to Perform in Areas with Expansive Clay Soils. Paul Kozicki and Steven Harty (co-author), Information Booklet prepared for Saskatchewan Department of Community Services, Housing Division, 1992.

GROUND ENGINEERING CONSULTANTS LTD.

CIVIL & GEOENVIRONMENTAL ENGINEERS

415 – 7TH AVENUE · REGINA · SASKATCHEWAN · S4N 4P1
Tel: (306) 569-9075 Fax: (306) 565-3677 Email: admin@groundeng.ca

FILE: GE-14105 February 15, 2024

New Horizon Park Corp.
Box 558
PILOT BUTTE, Saskatchewan
S0G 3Z0

ATTENTION: MR. ALLEN KILBACK

Dear Sir:

SUBJECT: SUPPLEMENTARY ENVIRONMENTAL SITE ASSESSMENT – PHASE I
NEW HORIZON BUSINESS PARK – PHASE 3
PORTION OF SE-6-18-18-W2
R.M. OF EDENWOLD, SASKATCHEWAN

1.0 INTRODUCTION

This report documents our supplementary Phase I Environmental Site Assessment (ESA) of the above captioned property located east of Regina in the R.M. of Edenwold, Saskatchewan. Ground Engineering Consultants Ltd. conducted a Phase I ESA of the property in 2010 (File GE-07133, report dated October 15, 2010) at which time there were no potential environmental concerns identified. The study area including the subject property was cultivated farmland which was being used for forage at the time. The property had never been developed and had historically been cultivated farmland. The objective of this supplementary assessment was to determine if the development and activities on the subject property or adjacent properties have changed since the previous assessment in such a way that would impact the environmental condition of the subject property.

Authorization to proceed with this work was received verbally on February 5, 2024.

2.0 SITE RECONNAISSANCE

The subject property was visually inspected by Mr. Steve Harty, P. Eng. on February 12, 2024. Air photos taken in 2011 and 2022 showing details of the subject property are attached. Photographs of the subject property which were taken during our inspection are also attached. The following relevant observations were noted during a review of the historical air photos and our inspection.

.1 The subject property and adjacent properties are undeveloped in both 2011 and 2022 photos. The existing SaskWater pumping station is present on the adjacent property to the west. The adjacent property to the east (north side) has been rough graded for development on the 2022 photo. Phase 1 of the New Horizon Business Park has been developed northeast of the property on the 2022 photo.

.2 The subject property covers an area of 17.90 ha and is currently cultivated farmland which is being used for forage. There is no evidence that additional fill materials have been placed on the subject property since the previous assessment in 2010.

.3 The adjacent properties to the east, west, south and north (west end) remain cultivated farmland. The adjacent property to the north (east end) is in the early stages of being developed with Phase 2 of the New Horizon Business Park. RTM homes are being constructed on the adjacent lots in the subdivision. There were no storage tanks or evidence of activities on the adjacent properties which would be considered a potential environmental concern.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The information collected during this supplementary assessment indicates that the subject property has remained cultivated farmland (forage) since the previous assessment. From an environmental standpoint, the activities and developments which have occurred on the subject property and adjacent properties since the previous assessment are not considered to pose an environmental risk to the subject property. We have found no change in the environmental status of the subject property since the previous assessment. The risk of significant soil and/or groundwater contamination on the subject property, particularly at levels that would exceed current environmental standards, remains low. No further investigative work is warranted to address the environmental status of the subject property at this time.

4.0 LIMITATIONS

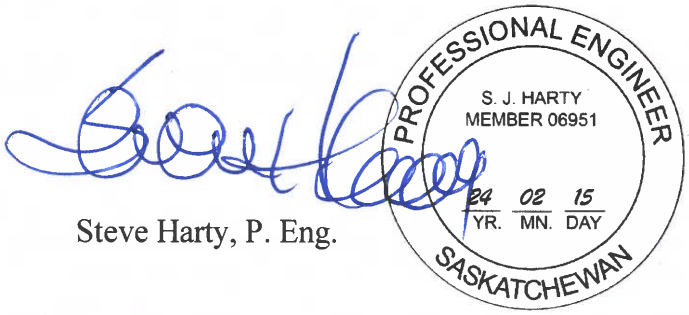
The information presented herein is supplementary to the previous Phase I ESA prepared by Ground Engineering Consultants Ltd. (report dated October 15, 2010). The information in the previous report and this supplementary assessment must be reviewed and interpreted as a whole.

This report has been prepared for the exclusive use of New Horizon Park Corp. It has been prepared in accordance with generally accepted engineering practices. No warranty is made, either expressed or implied, since even the most rigorous professional assessment may fail to identify all hidden problems on a site. A Statement of General Conditions is included, attached with this report.

5.0 CLOSURE

We trust this report is satisfactory for your purposes. If you have any questions or require additional information, please contact our office.

Yours very truly
Ground Engineering Consultants Ltd.



Steve Harty, P. Eng.

SH:vb
Attach.
Distribution: New Horizaon Park Corp. (1 PDF copy)
SH1106 Office (1 copy)

Association of Professional Engineers & Geoscientists of Saskatchewan

CERTIFICATE OF AUTHORIZATION

GROUND ENGINEERING CONSULTANTS LTD.
NUMBER C0008

Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
Environmental	06951	

GROUND ENGINEERING CONSULTANTS LTD.

STATEMENT OF GENERAL CONDITIONS

1. STANDARD OF CARE

This study and report have been prepared in accordance with generally accepted geotechnical and environmental consulting practices in this area. No other warranty, expressed or implied, is made.

2. BASIS OF REPORT

This report has been prepared for the specific site, development, design objectives and purpose that were described to Ground Engineering Consultants Ltd. (**GEC**) by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alternation or variation from any of the said descriptions provided to **GEC**, unless **GEC** is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

3. USE OF THE REPORT

The information and opinions expressed in this document are for the sole benefit of the Client. No other party may use or rely upon the report or any portion thereof without **GEC**'s expressed written consent. **GEC** will consent to any reasonable request by the Client to approve the use of this report by other parties as approved users. The contents of the report remain the copyright property of **GEC**, who authorizes only the Client and "Approved Users" to make copies of the report only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make available this document or the report or any portion thereof, or any copy of the report or portion thereof, to any party without the expressed written permission of **GEC**.

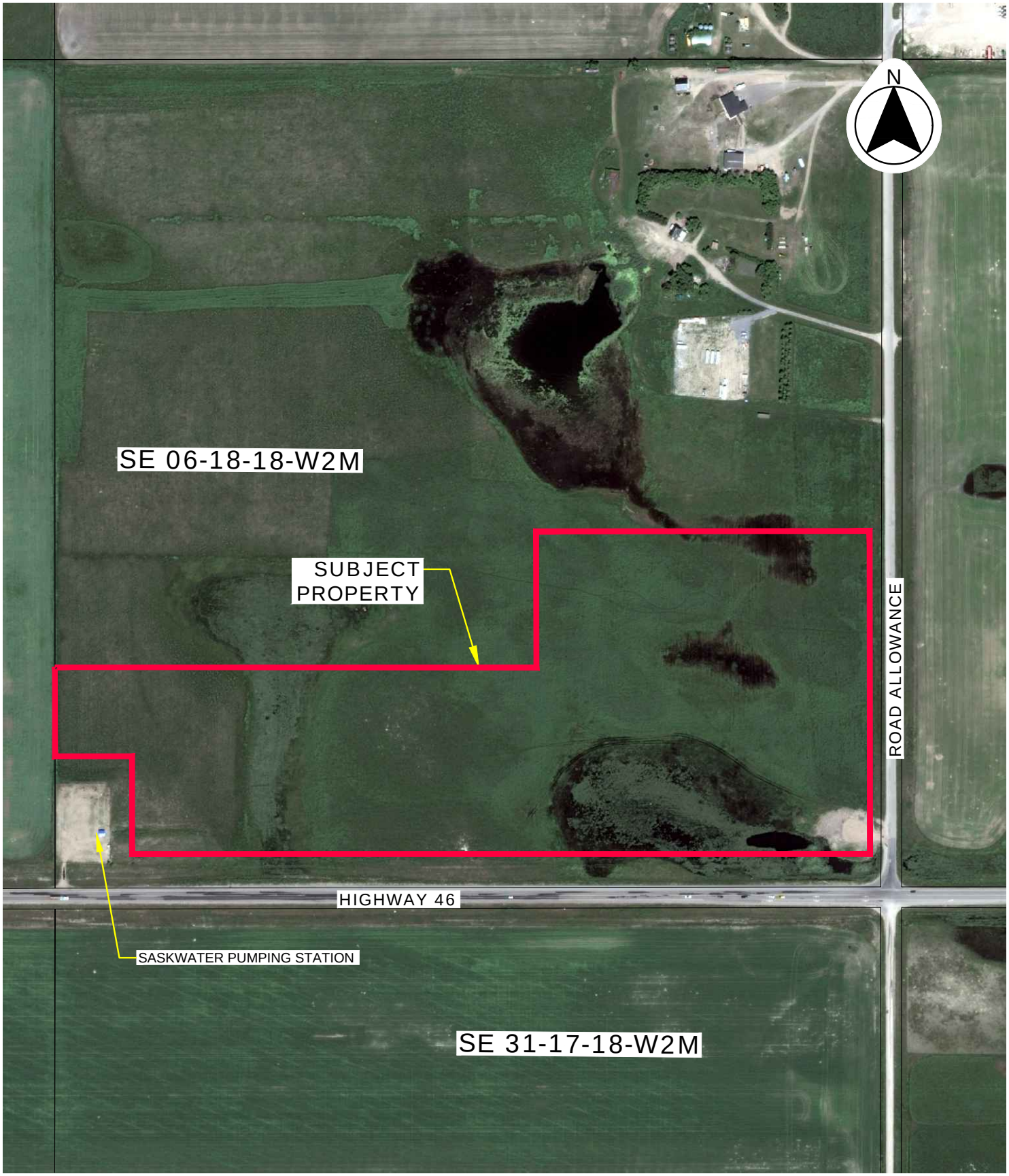
4. COMPLETE REPORT

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to **GEC** by the Client, communications between **GEC** and the client, and to any other reports, writings or documents prepared by **GEC** for the Client relative to the specific site described herein, all of which constitute the report. Wherever the word "report" is used herein, it shall refer to any and all of the documents referred to herein

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. **GEC** CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OR PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

5. INTERPRETATION OF THE REPORT

Nature and Exactness of Soil and Contaminant Description. Classification and identification of soils, rocks, geological units, contaminant materials and contaminant quantities have been based on commonly accepted geotechnical and environmental consulting practices in this area. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs implemented with appropriate equipment by experienced personnel, may fail to locate some hidden conditions. All reasonable problems will involve an inherent risk that some conditions will not be detected and all reports summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such reports should be aware of and accept this risk. Some conditions are subject to change over time and those making use of the report should be aware of this possibility and understand that the report only presents the conditions at the sampled points at the time of sampling.



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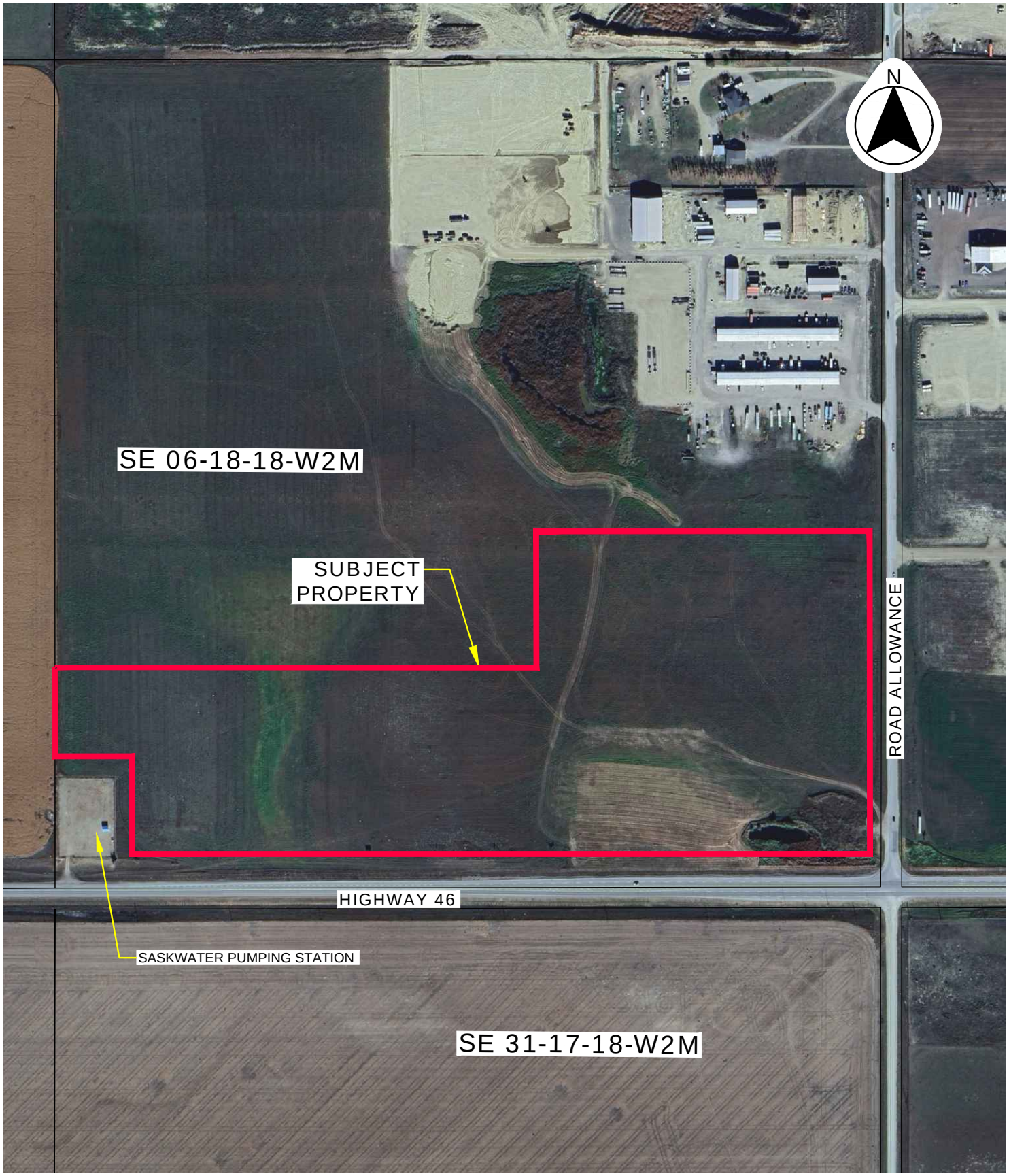
GROUND ENGINEERING CONSULTANTS LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415–7th AVENUE
REGINA, SASKATCHEWAN, CANADA

2011 AIR PHOTO
SUPPLEMENTARY ENVIRONMENTAL SITE ASSESSMENT - PHASE I
NEW HORIZON BUSINESS PARK PHASE 3
PORTION OF 06-18-18-W2M
R.M. OF EDENWOLD No 158, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NEW HORIZON PARK INCORPORATED	S. HARTY	FEBRUARY, 2024	GE-14105



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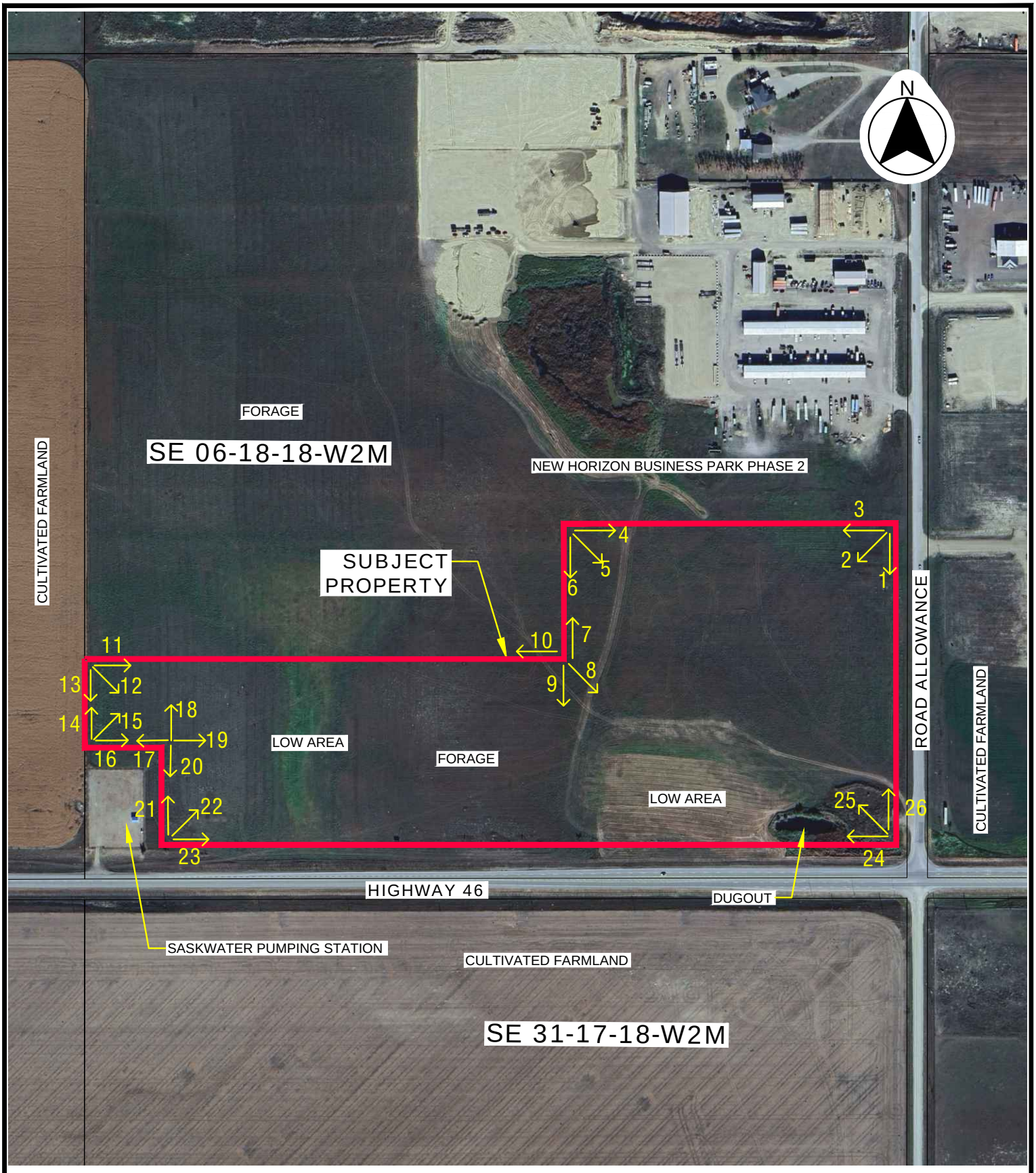
GROUND ENGINEERING CONSULTANTS LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415–7th AVENUE
REGINA, SASKATCHEWAN, CANADA

2022 AIR PHOTO
SUPPLEMENTARY ENVIRONMENTAL SITE ASSESSMENT - PHASE I
NEW HORIZON BUSINESS PARK PHASE 3
PORTION OF SE 06-18-18-W2M
R.M. OF EDENWOLD No. 158, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NEW HORIZON PARK INCORPORATED	S. HARTY	FEBRUARY, 2024	GE-14105



2022 AIR PHOTO

SCALE: 1:5000

GROUND ENGINEERING CONSULTANTS LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415–7th AVENUE
REGINA, SASKATCHEWAN, CANADA

SITE PLAN SHOWING DETAILS OF THE SUBJECT PROPERTY
SUPPLEMENTARY ENVIRONMENTAL SITE ASSESSMENT - PHASE I
NEW HORIZON BUSINESS PARK PHASE 3
PORTION OF SE 06-18-18-W2M
R.M. OF EDENWOLD No. 158, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NEW HORIZON PARK INCORPORATED	S. HARTY	FEBRUARY, 2024	GE-14105

PHOTO 1

PHOTO 2

PHOTO 3

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PHOTO 18

PHOTO 19

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PHOTO 21

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PHOTO 23

PHOTO 24

PHOTO 25

PHOTO 26

APPENDIX F – PRELIMINARY GEOTECHNICAL INVESTIGATION

TITLE: PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED INDUSTRIAL SUBDIVISION
PORTION OF SE-6-18-18-W2
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION

FILE NO: GE-07133 DATE: DECEMBER 31, 2010

TABLE OF CONTENTS

DRAWINGS

GROUND ENGINEERING LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415 - 7th AVENUE • REGINA • SASKATCHEWAN • CANADA • S4N 4P1
TELEPHONE: (306) 569-9075 FAX: (306) 565-3677 EMAIL: geground@accesscomm.ca

FILE: GE-07133

December 31, 2010

North Ridge Development Corporation
395 Maxwell Crescent
REGINA, Saskatchewan
S4N 5X9

ATTENTION: MR. PATRICK MAH

Dear Sir:

SUBJECT: PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED INDUSTRIAL SUBDIVISION
PORTION OF SE-6-18-18-W2
WEST OF PILOT BUTTE, SASKATCHEWAN

1.0 INTRODUCTION

This report presents the results of a site specific subsurface soils investigation and geotechnical analysis carried out at the above captioned property located west of the Town of Pilot Butte, Saskatchewan. It is understood that the subject property will be developed with an industrial subdivision.

The objectives of this investigation were to provide the following information:

.1 To define the subsurface soil stratigraphy, groundwater regime and engineering properties of the foundation soils at the site;

.2 To identify suitable types of foundation systems to support the proposed buildings;

.3 To comment on possible excavation and construction problems related to foundation construction, with particular reference to groundwater conditions;

.4 To provide recommendations on pertinent geotechnical issues identified during the subsurface investigation.

2.0 DESCRIPTION OF SITE

The study area shown in Figure 1 is located in the Rural Municipality of Edenwold No. 158 approximately 1.0 km west of the Town of Pilot Butte, Saskatchewan. At the present time, the property is used for forage. The property has never been developed and has historically been cultivated farmland. The topography is gently rolling with seasonal sloughs located in the low areas. There is an elevation difference of approximately 5 metres across the site.

3.0 FIELD AND LABORATORY INVESTIGATION

The subsurface conditions were investigated by drilling 15 test borings at the locations shown on Drawing No. GE-07133-1. The test borings were drilled on July 7, 2009 (Test Holes 101 to 104) and October 18, 2010 (Test Holes 201 to 211) using a truck-mounted, CME digger equipped with a 150 mm diameter continuous flight auger. The test holes were terminated at depths ranging from 4.5 to 12.2 metres below existing grade. A total of 7 standpipe piezometers were installed to monitor groundwater levels.

Representative disturbed auger samples and undisturbed Shelby tube soil samples were recovered from the test borings at selected intervals and were taken to our laboratory for analysis. Each soil sample was visually examined to determine its textural classification and a natural moisture content test was performed on each soil sample. Grain size analysis tests were performed on selected soil samples. Standard Penetration tests were conducted in select test holes. Details of the soil profile, samples taken, laboratory test results, piezometer installations and stratigraphic interpretations of the subsoils are presented on Drawing Nos. GE-07133-5 to -23, inclusive.

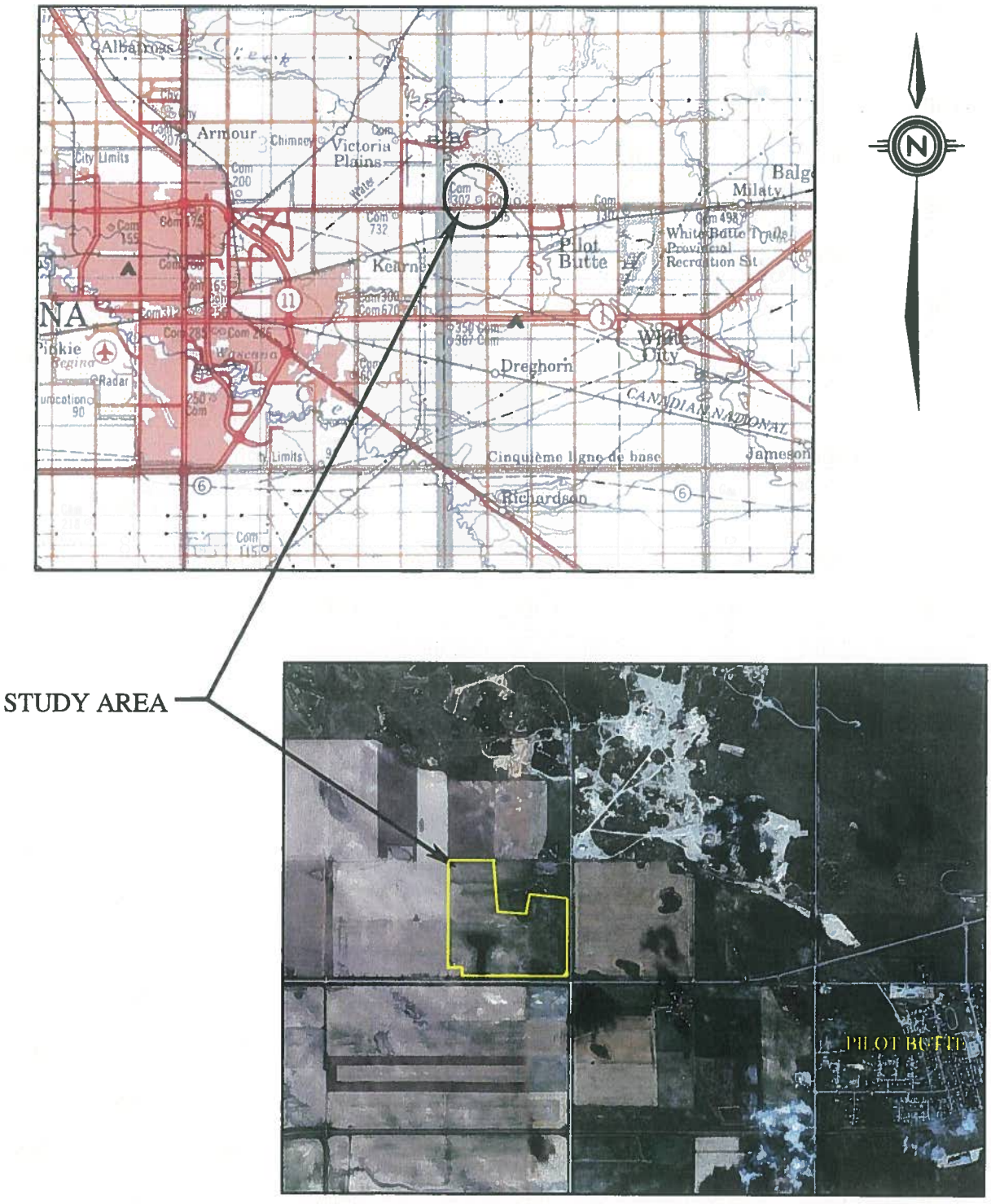

FIGURE 1

LOCATION OF STUDY AREA

The ground surface elevations at the test hole locations are referenced to geodetic datum provided by Midwest Surveys. There is an elevation difference of 3.55 metres between the test hole locations.

4.0 GEOTECHNICAL ANALYSIS

4.1 Stratigraphy

The drilling information indicates that the surficial topsoil is generally underlain by a highly plastic, silty clay stratigraphic unit which extends to depths ranging from 0.9 to 5.2 metres. The clay unit was not present in Test Hole 103. The clay is stiff to very stiff with undrained shear strength ranging from 50 to 120 kPa based on unconfined compression and vane shear strength tests. The Liquid Limit ranges from 65 to 85 percent and the Plasticity Index ranges from 40 to 60 percent.

The surficial clay is underlain by a silt unit which extends to depths ranging from 1.7 to 9.0 metres and the maximum depth penetrated in Test Holes 207 and 211 (9.1 metres). The silt is clayey, sandy, moist to very moist and firm in consistency.

The silt unit is underlain by a sand unit which extends to the maximum depth penetrated in the test holes (12.2 metres). The sand is silty, fine grained and contains occasional till lenses. The sand is normally consolidated and loose to medium dense with Standard Penetration test "N" values ranging from 8 to 19 blows per foot. The saturated sand is cohesionless and subject to sloughing. Typical gradations of the silt and sand strata are shown on Drawing Nos. GE-07133-21 to -23, inclusive.

4.2 Groundwater

The drilling information indicates that there is a groundwater table at this site. The water levels measured in the piezometers are summarized in Table 1, below.

TABLE 1

PIEZOMETRIC SURFACE MEASUREMENTS

MONITORING WELL NO.	DATE MEASURED	DEPTH TO BOTTOM OF SCREEN (m)	DEPTH TO GROUNDWATER BELOW GROUND SURFACE (m)	GROUNDWATER ELEVATION (GEODETIC) (m)
MW 102	July 7, 2009	6.4	Dry	-
	November 6, 2009		Dry	-
MW 104	July 7, 2009	4.6	Dry	-
	November 6, 2009		Dry	-
MW 201	July 7, 2009	7.6	Dry	-
	November 6, 2009		6.15	599.20
MW 204	July 7, 2009	12.5	11.41	596.29
	November 6, 2009		11.40	596.30
MW 206	July 7, 2009	7.9	6.56	598.29
	November 6, 2009		6.77	598.08
MW 208	July 7, 2009	7.6	*	-
	November 6, 2009		*	-
MW 211	July 7, 2009	12.5	11.37	595.83
	November 6, 2009		10.96	596.24

* Monitoring well was damaged.

Information obtained from Saskatchewan Environment and Resource Management report, "Groundwater Quality Analysis of the Condie Aquifer" dated May, 1997 indicates that the subject property is located within the recharge area of the Condie Aquifer. The Condie Aquifer was encountered at depths ranging from 6.1 to 11.4 metres below existing ground surface. The piezometric surface contours are shown on Drawing No. GE-07133-1. The contours show groundwater flows across the site in a westerly direction.

5.0 FOUNDATION CONSIDERATIONS

The results of this investigation indicate that the stratigraphy and groundwater conditions vary considerably across the subject property. Due to the variable conditions, geotechnical investigations will be required for each lot to determine site specific foundation recommendations. The following foundation systems are considered options for the development depending on the size of the building and location on the site.

- Conventional Bored Concrete Piles
- Spread Footings
- Driven Timber/Steel Pipe Piles
- Augercast Bored Concrete Piles

6.0 EXCAVATION CONSIDERATIONS

Excavations at this site will be in the clay, silt and sand strata. Excavations in which persons must work must be cut back to at least one (1) horizontal to one (1) vertical or a temporary shoring system must be used to support the sides of the excavation.

7.0 OTHER

.1 The ground surface adjacent to the buildings should be sloped away from the building at a grade of at least 5% to minimize infiltration of water into the subgrade. The building sites should be set as high an elevation as possible in relation to the surrounding area.

.2 Test results on selected samples indicate that the soluble sulphate contents in the soil range from 0.02 to 0.50 percent by dry soil weight. Class 3 Concrete, with HS (Type 50) cement, as specified in the Guide for Use of Sulphate Resistant Cement on Drawing No. GE-07133-24, should be used for use for all concrete in contact with soil.

.3 Attention is drawn to the presence of shale which is commonly found in concrete aggregates in Regina. Shale may produce "pop-outs" on concrete floors. These small holes are detrimental under tiled or on smooth finished floors. If finish is critical on the floors, the aggregate should be carefully checked to insure its acceptability.

.4 In the event that changes are made in the design, location or nature of the project, the conclusions and recommendations included in this report would not be deemed valid unless the changes in the project were reviewed by our firm. Modification to this report would then be made if necessary. Furthermore, it is recommended that this firm be allowed an opportunity for a general review of the final design plans and specifications in order to ensure that the recommendations made in this report are properly interpreted and implemented. If this firm is not allowed the opportunity for this review, we assume no responsibility for the misinterpretation of any of the recommendations.

.5 This preliminary report has been prepared for North Ridge Development Corporation and is intended for the specific application to the design and construction of the proposed industrial subdivision to be located approximately 1.0 km west of the Town of Pilot Butte, Saskatchewan. The analysis and recommendations are based in part on the data obtained from the test hole logs. The boundaries between soil strata have been established at bore hole locations. Between the bore holes, the boundaries are assumed from geological evidence and may be subject to considerable error. It is recommended that persons reviewing this report should make such tests, inspections and other on-site investigations as is considered necessary to satisfy themselves as to the nature of the conditions to be encountered.

8.0 CLOSURE

We trust that this report is satisfactory for your purposes. If you have any questions or require additional information, please contact this office.

Yours very truly
GE GROUND ENGINEERING LTD.

ASSOCIATION OF PROFESSIONAL ENGINEERS
OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
GE GROUND ENGINEERING LTD.
NUMBER 8
PERMISSION TO CONSULT HELD BY:
DISCIPLINE SASK. REG. No. SIGNATURE
GEOTECHNICAL 6307

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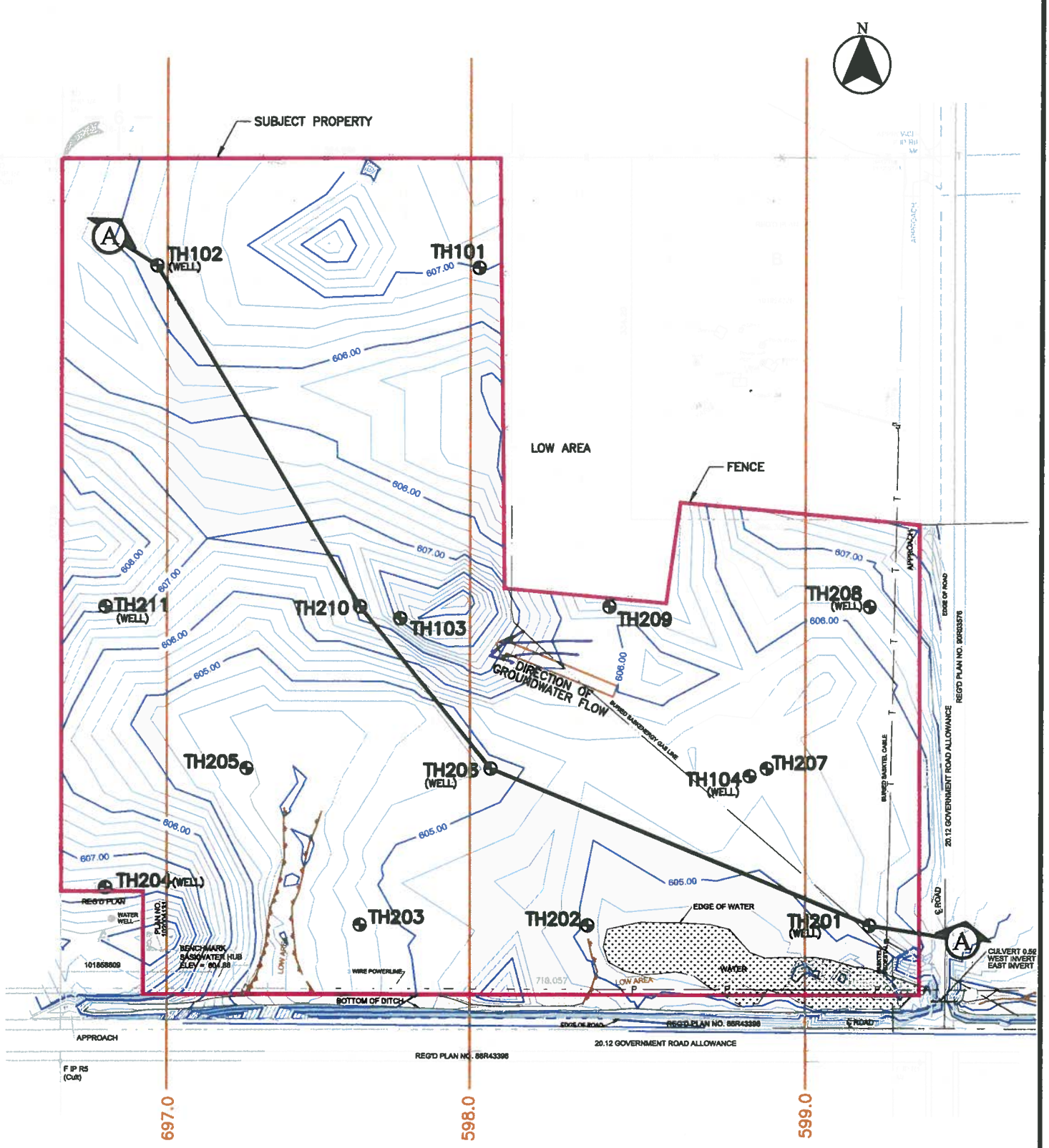
SH:ss
Distribution: North Ridge Development Corporation (2 copies, 1 PDF copy)
SH290 Office (1 copy)

DRAWINGS



SCALE: 1:5000

GROUND ENGINEERING LTD.
CONSULTING GEOENVIRONMENTAL ENGINEERS
REGINA, SASKATCHEWAN

SITE PLAN SHOWING LOCATION OF TEST HOLES
PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION
PORTION OF SE 6-18-18-W2M
WEST OF PILOT BUTTE, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NORTH RIDGE DEVELOPMENT CORPORATION		DECEMBER 21, 2010	GE-07133-1

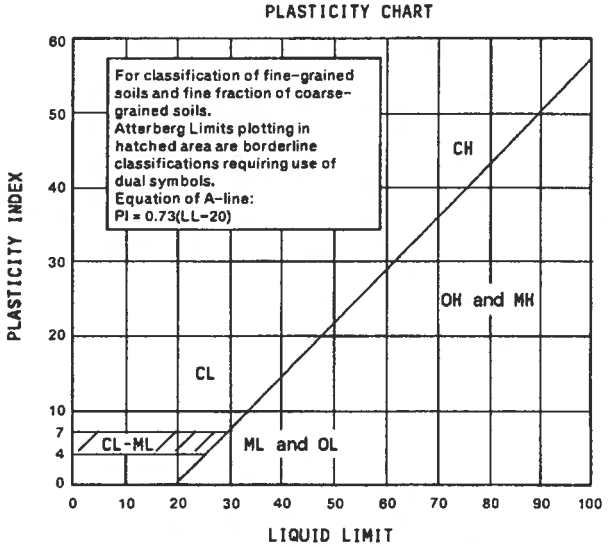
ARCHIVE: 2007 FILES\2007 ENG.FILES\GE-07133 NORTH RIDGE GI PILOT BUTTE\GEOTECHNICAL\DRAWINGS\07133 SITE PLAN.DWG

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 - 69 AND D 2488 - 69

(Unified Soil Classification System)

Major Divisions			Group Symbols	Typical Names	Classification Criteria		
Coarse-grained soils More than 50% retained on No. 200 sieve *	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines Less than 5% pass No. 200 sieve ..... GW, GP, SW, SP More than 12% pass No. 200 sieve ..... GM, GC, SM, SC 5 to 12% pass No. 200 sieve ..... Borderline classifications requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4: $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW	
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6: $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW	
		Sands with fines	SM	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils 50% or more passes No. 200 sieve *	Silts and clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	PLASTICITY CHART		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity			
	Highly organic soils		Pt	Peat, muck and other highly organic soils			



*Based on the material passing the 75mm (3in) sieve.

SYMBOLS AND TERMS USED IN THE REPORT

CLAY SILT SAND GRAVEL ORGANIC PEAT TILL SHALE FILL

The symbols may be combined to denote various soil combinations, the predominate soil being heavier.

RELATIVE PROPORTIONS

TERM	RANGE
Trace	0 - 5%
A Little	5 - 15%
Some	15 - 30%
With	30 - 50%

ASTM CLASSIFICATION BY PARTICLE SIZE

Boulder		> 300 mm
Cobble		300 mm - 75 mm
Gravel		75 mm - 4.75 mm
Sand		
	coarse	4.75 mm - 2 mm
	medium	2 mm - 425 um
	fine	425 um - 75 um
Silt		75 um - 5 um
Clay		< 5 um

DENSITY OF SANDS AND GRAVELS

DESCRIPTIVE TERM	RELATIVE DENSITY [1]	N VALUE STANDARD [2] PENETRATION TEST
Very loose	0 - 15%	0 - 4 Blows per 300mm
Loose	15 - 35%	4 - 10 Blows per 300mm
Medium Dense	35 - 65%	10 - 30 Blows per 300mm
Dense	65 - 85%	30 - 50 Blows per 300mm
Very Dense	85 - 100%	> 50 Blows per 300mm

CONSISTENCY OF CLAYS AND SILTS

DESCRIPTIVE TERM	UNDRAINED SHEAR STRENGTH (kPa) (CFEM, 2nd Edt., 1985)	N VALUE STANDARD [2] PENETRATION TEST	FIELD IDENTIFICATION (ASTM D 2488-84)
Very Soft	<12	< 2 Blows per 300mm	Thumb will penetrate soil more than 25 mm
Soft	12 - 25	2 - 4 Blows per 300mm	Thumb will penetrate soil about 25 mm
Firm	25 - 50	4 - 8 Blows per 300mm	Thumb will indent soil about 6 mm
Stiff	50 - 100	8 - 15 Blows per 300mm	Thumb will indent, but only with great effort (CFEM)
Very Stiff	100 - 200	15 - 30 Blows per 300mm	Readily indented by thumbnail (CFEM)
Hard	>200	> 30 Blows per 300mm	Thumb will not indent soil but readily indented with thumbnail

NOTES: 1. Relative Density determined by standard laboratory tests.
2. N Value - Blows/300mm of a 620N hammer falling 762mm on a 50mm O.D. Split Spoon.

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SYMBOLS AND TERMS USED IN THE REPORT (continued)

GROUNDWATER

▼ Water level measured in the borings at the time and under the conditions indicated. In sand, the indicated levels can be considered reliable groundwater levels. In clay soil, it is not possible to determine the groundwater level within the normal scope of a test boring investigation, except where lenses or layers of more pervious waterbearing soil are present and then a long period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed texture soils may not indicate the true level of the groundwater table. The available water level information is given at the bottom of the log sheet.

▽ Water level determined by piezometer installation - In all soils the levels can be considered reliable groundwater levels.

DESCRIPTIVE SOIL TERMS

WELL GRADED	Having wide range of grain sizes and substantial amounts of all intermediate sizes.
POORLY GRADED	Predominantly of one grain size.
SLICKENSIDES	Refers to a clay that has planes that are slick and glossy in appearance; slickensides are caused by shear movements.
SENSITIVE	Exhibiting loss of strength on remolding.
FISSURED	Containing cracks, usually attributable to shrinkage. Fissured clays are sometimes described as having a nuggetty structure.
STRATIFIED	Containing layers of different soil types.
ORGANIC	Containing organic matter; may be decomposed or fibrous.
PEAT	A fibrous mass of organic matter in various stages of decomposition. Generally dark brown to black in color and of spongy consistency.
BEDROCK	Preglacial material.
DRIFT	Material deposited directly by glaciers or glacial melt-water.
ALLUVIAL	Soils that have been deposited from suspension from moving water.
LACUSTRINE	Soils that have been deposited from suspension in fresh water lakes.

DRILLING AND SAMPLING TERMS

SYMBOL	DEFINITION
C.S.	Continuous Sampling
Sy	75mm Thin Wall Tube Sample
Sy (2)	50mm Thin Wall Tube Sample
SPT (SS)	50mm O.D. Split Spoon Sample
BLOWS / 300mm	"N" Value - Standard Penetration Test
Bag	Disturbed Bag Sample
No.	Sample Identification Number
——►	Piezometer Tip
S.I.	Slope Indicator
SPG —►	Observed Seepage

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
●	Moisture Content - Percent of Dry Weight
⊢—►	Plastic and Liquid Limit determined in accordance with ASTM D-423 and D-424
◆	Dry Density - t/m^3
■	Shear Strength - As determined by Unconfined Compression Test
▲	Shear Strength - As determined by Field Vane
▲	Shear Strength - As determined by Pocket Penetrometer Test
$\%SO_4$	Water Soluable Sulphates - Percent of Dry Weight
M.A.	Grain Size Analysis

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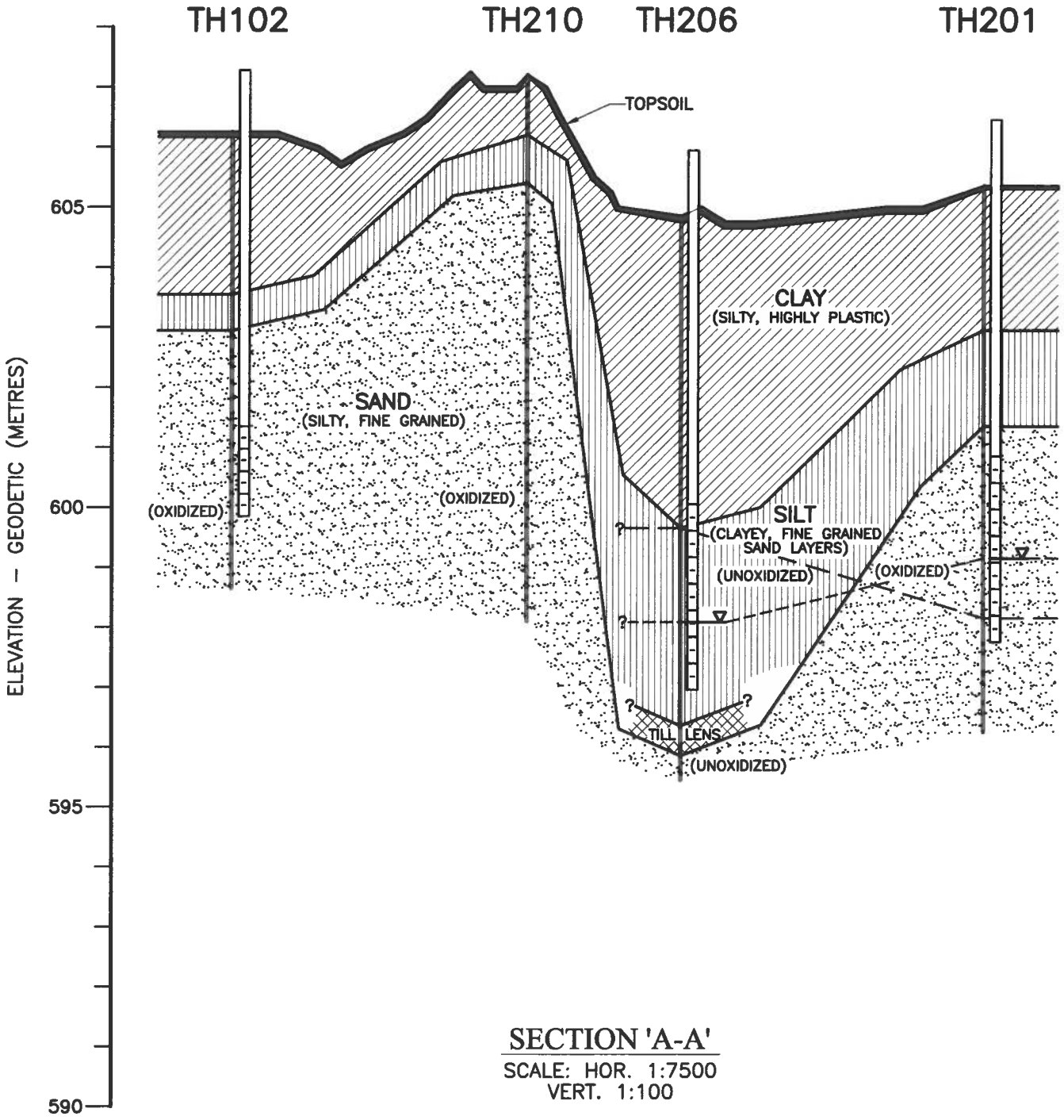


SECTION 'A-A'

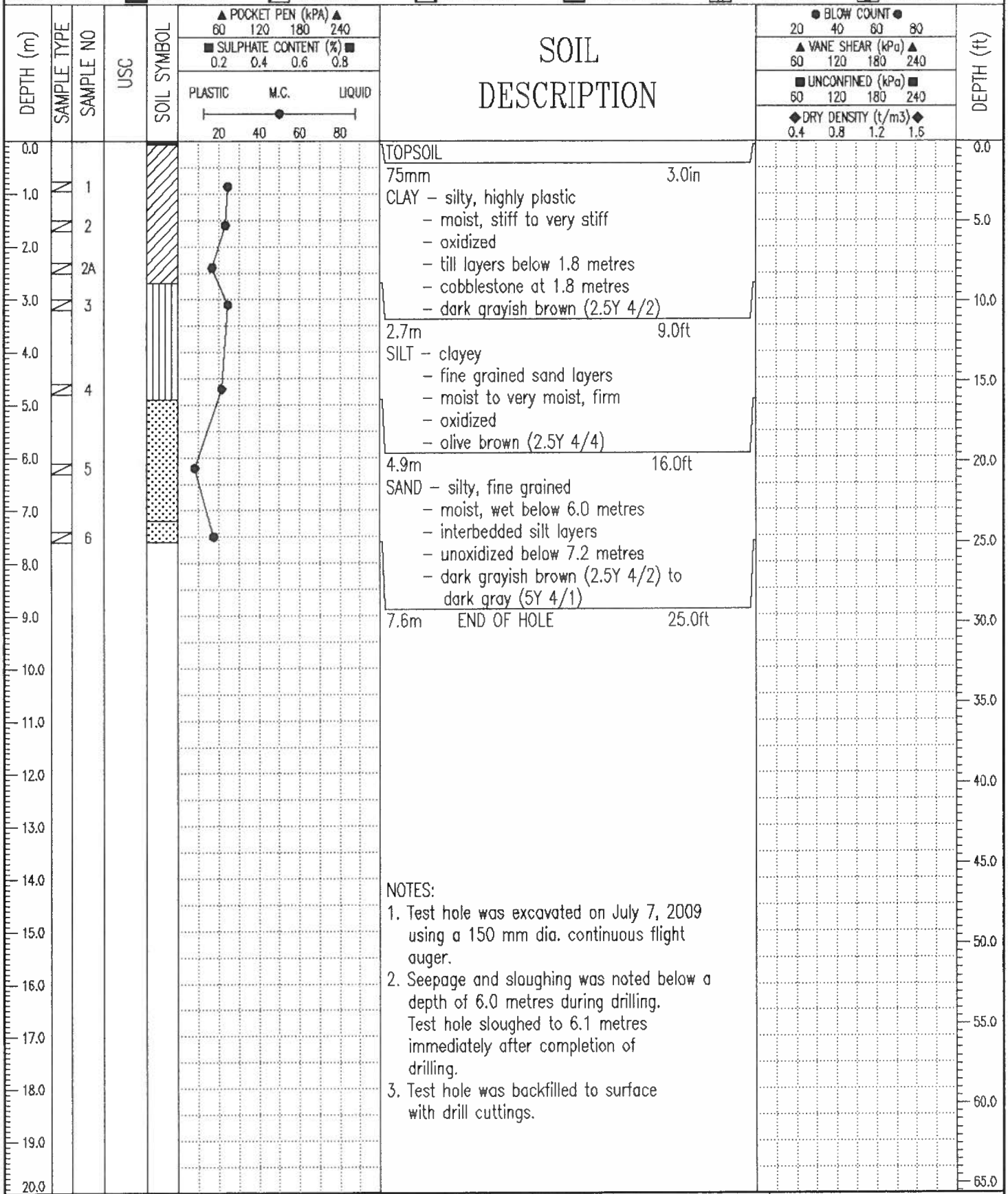
SCALE: HOR. 1:7500
VERT. 1:100

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes, the boundaries are interpolated and may be subject to considerable error.

GROUND ENGINEERING LTD. CONSULTING GEOENVIRONMENTAL ENGINEERS REGINA, SASKATCHEWAN	STRATIGRAPHIC CROSS SECTION 'A-A' PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION PORTION OF SE 6-18-18-W2M WETS OF PILOT BUTTE, SASKATCHEWAN		
CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION	APPROVED:	DATE: DECEMBER 21, 2010	DWG. No.: GE-07133-5

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538050 E; 5593333 N	TEST HOLE NO: 07133-TH101
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 607.00 metres (GEODETIC)	ELEVATION: 607.00 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
75mm 3.0in

CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- till layers below 1.8 metres
- cobblestone at 1.8 metres
- dark grayish brown (2.5Y 4/2)

2.7m 9.0ft

SILT – clayey
- fine grained sand layers
- moist to very moist, firm
- oxidized
- olive brown (2.5Y 4/4)

4.9m 16.0ft

SAND – silty, fine grained
- moist, wet below 6.0 metres
- interbedded silt layers
- unoxidized below 7.2 metres
- dark grayish brown (2.5Y 4/2) to dark gray (5Y 4/1)

7.6m END OF HOLE 25.0ft

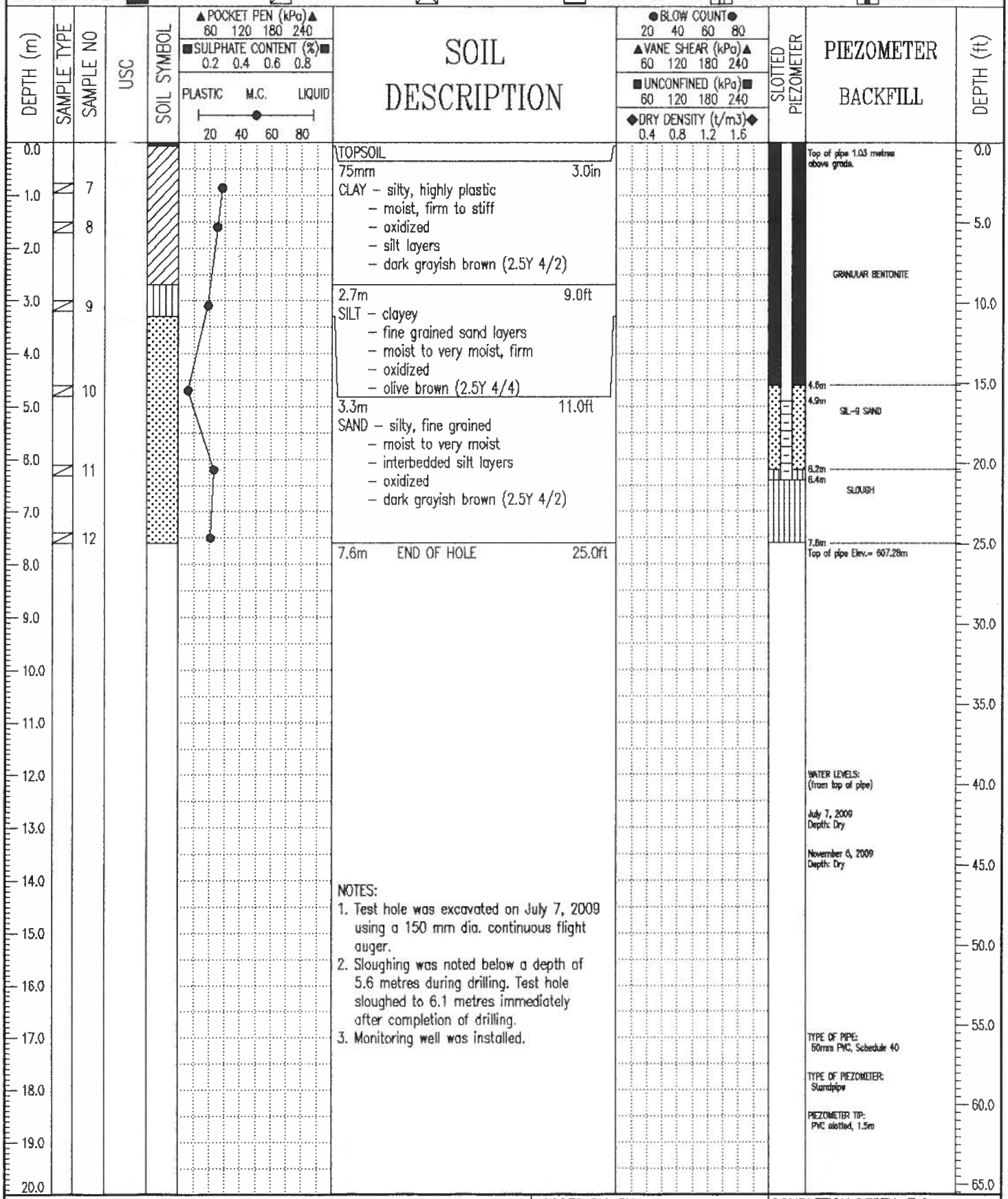
NOTES:
1. Test hole was excavated on July 7, 2009 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 6.0 metres during drilling. Test hole sloughed to 6.1 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 7.6 m
	REVIEWED BY: SH	COMPLETE: 09/07/07
	Fig. No: 07133-6	Page 1 of 1

10/12/22 04:25PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537753 E; 5593335 N	TEST HOLE NO: 07133-TH102
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 606.25 metres (GEODETIC)	ELEVATION: 606.25 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



NOTES:
1. Test hole was excavated on July 7, 2009 using a 150 mm dia. continuous flight auger.
2. Sloughing was noted below a depth of 5.6 metres during drilling. Test hole sloughed to 6.1 metres immediately after completion of drilling.
3. Monitoring well was installed.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 7.6 m
	REVIEWED BY: SH	COMPLETE: 09/07/07
	Fig. No: 07133-7	Page 1 of 1

11/01/13 08:52AM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537978 E; 5593009 N	TEST HOLE NO: 07133-TH103
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 608.20 metres (GEODETIC)	ELEVATION: 608.20 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE

DEPTH (m) | SAMPLE TYPE | SAMPLE NO | USC | SOIL SYMBOL | ▲ POCKET PEN (kPa) ▲ 60 120 180 240 | ■ SULPHATE CONTENT (%) ■ 0.2 0.4 0.6 0.8 | PLASTIC M.C. LIQUID 20 40 60 80

SOIL DESCRIPTION

● BLOW COUNT ● 20 40 60 80 | ▲ VANE SHEAR (kPa) ▲ 60 120 180 240 | ■ UNCONFINED (kPa) ■ 60 120 180 240 | ◆ DRY DENSITY (t/m3) ◆ 0.4 0.8 1.2 1.6

DEPTH (ft)

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (ft)
0.0					TOPSOIL	0.0
					50mm 2.0in	
1.0	N	13			SILT – sandy	5.0
	N	14			– fine grained sand layers	
2.0					– moist, loose	
					– oxidized	
3.0	N	15			– till lense below 0.9 metres	10.0
					– olive brown (2.5Y 4/4)	
4.0					1.7m 5.5ft	
					SAND – silty, fine grained	15.0
5.0	N	16			– moist	
					– interbedded silt layers	
6.0					– oxidized	20.0
	N	17			– dark grayish brown (2.5Y 4/2)	
7.0					6.1m END OF HOLE 20.0ft	25.0
8.0						
9.0						30.0
10.0						
11.0						35.0
12.0						40.0
13.0						
14.0						45.0
15.0						50.0
16.0						
17.0						55.0
18.0						60.0
19.0						
20.0						65.0

NOTES:
1. Test hole was excavated on July 7, 2009 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 5.5 metres during drilling. Test hole sloughed to 5.5 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD.
Regina, Saskatchewan

LOGGED BY: RY	COMPLETION DEPTH: 6.1 m
REVIEWED BY: SH	COMPLETE: 09/07/07
Fig. No: 07133-8	Page 1 of 1

10/12/22 04:25PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538300 E; 5592863 N	TEST HOLE NO: 07133-TH104
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 605.30 metres (GEODETIC)	ELEVATION: 605.30 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	▲POCKET PEN (kPa)▲ 60 120 180 240 / ■SULPHATE CONTENT (%)■ 0.2 0.4 0.6 0.8 / PLASTIC M.C. LIQUID 20 40 60 80	SOIL DESCRIPTION	●BLOW COUNT● 20 40 60 80 / ▲VANE SHEAR (kPa)▲ 60 120 180 240 / ■UNCONFINED (kPa)■ 60 120 180 240 / ◆DRY DENSITY (t/m3)◆ 0.4 0.8 1.2 1.6	SLOTTED PIEZOMETER	PIEZOMETER BACKFILL	DEPTH (ft)
0.0						TOPSOIL			Top of pipe 1.03 metres above grade.	0.0
1.0	N	18				150mm 6.0in CLAY – silty, highly plastic – moist, stiff to very stiff – oxidized, iron stains – salt crystals – dark grayish brown (2.5Y 4/2)			GRANULAR BENTONITE	5.0
2.0	N	19								
3.0	N	20							2.7m 3.1m SIL-9 SAND	10.0
4.0	N	21				3.5m 11.5ft SILT – clayey – fine grained sand layers – very moist, firm – oxidized – dark grayish brown (2.5Y 4/2)			4.6m Top of pipe Elev.= 606.33m	15.0
5.0						4.6m END OF HOLE 15.0ft				
6.0										20.0
7.0										25.0
8.0										30.0
9.0										35.0
10.0										
11.0										
12.0									WATER LEVELS: (from top of pipe)	40.0
13.0									July 7, 2009 Depth: Dry	
14.0						NOTES: 1. Test hole was excavated on July 7, 2009 using a 150 mm dia. continuous flight auger. 2. No seepage or sloughing was noted during drilling. 3. Monitoring well was installed.			November 6, 2009 Depth: Dry	45.0
15.0										50.0
16.0										
17.0									TYPE OF PIPE: 50mm PVC, Schedule 40	55.0
18.0									TYPE OF PIEZOMETER: Standpipe	60.0
19.0									PIEZOMETER TIP: PVC slotted, 1.5m	
20.0										65.0

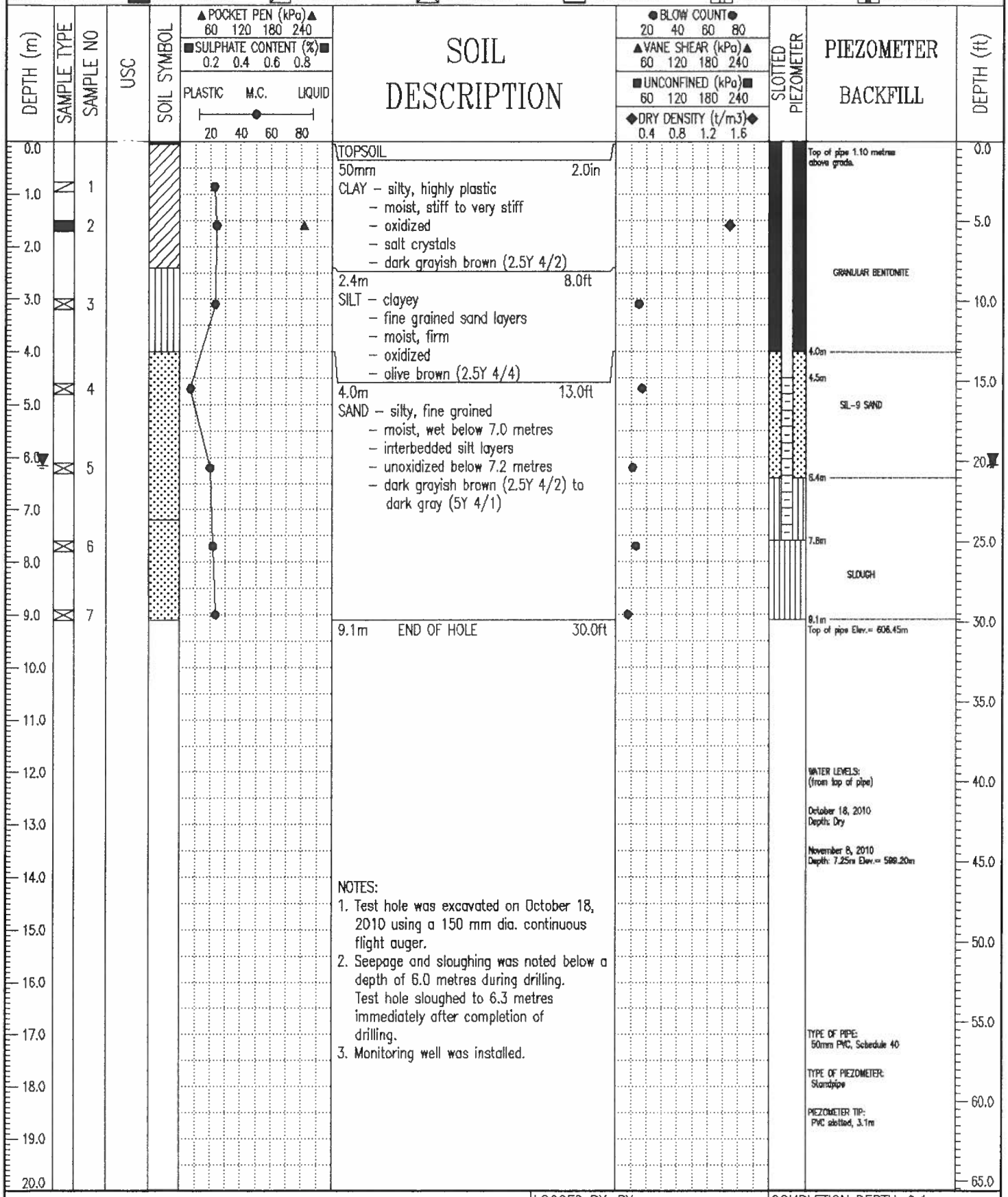
GE GROUND ENGINEERING LTD.
Regina, Saskatchewan

LOGGED BY: RY	COMPLETION DEPTH: 4.6 m
REVIEWED BY: SH	COMPLETE: 09/07/07
Fig. No: 07133-9	Page 1 of 1

11/01/13 08:42AM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538411 E; 5592725 N	TEST HOLE NO: 07133-TH201
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 605.35 metres (GEODETIC)	ELEVATION: 605.35 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



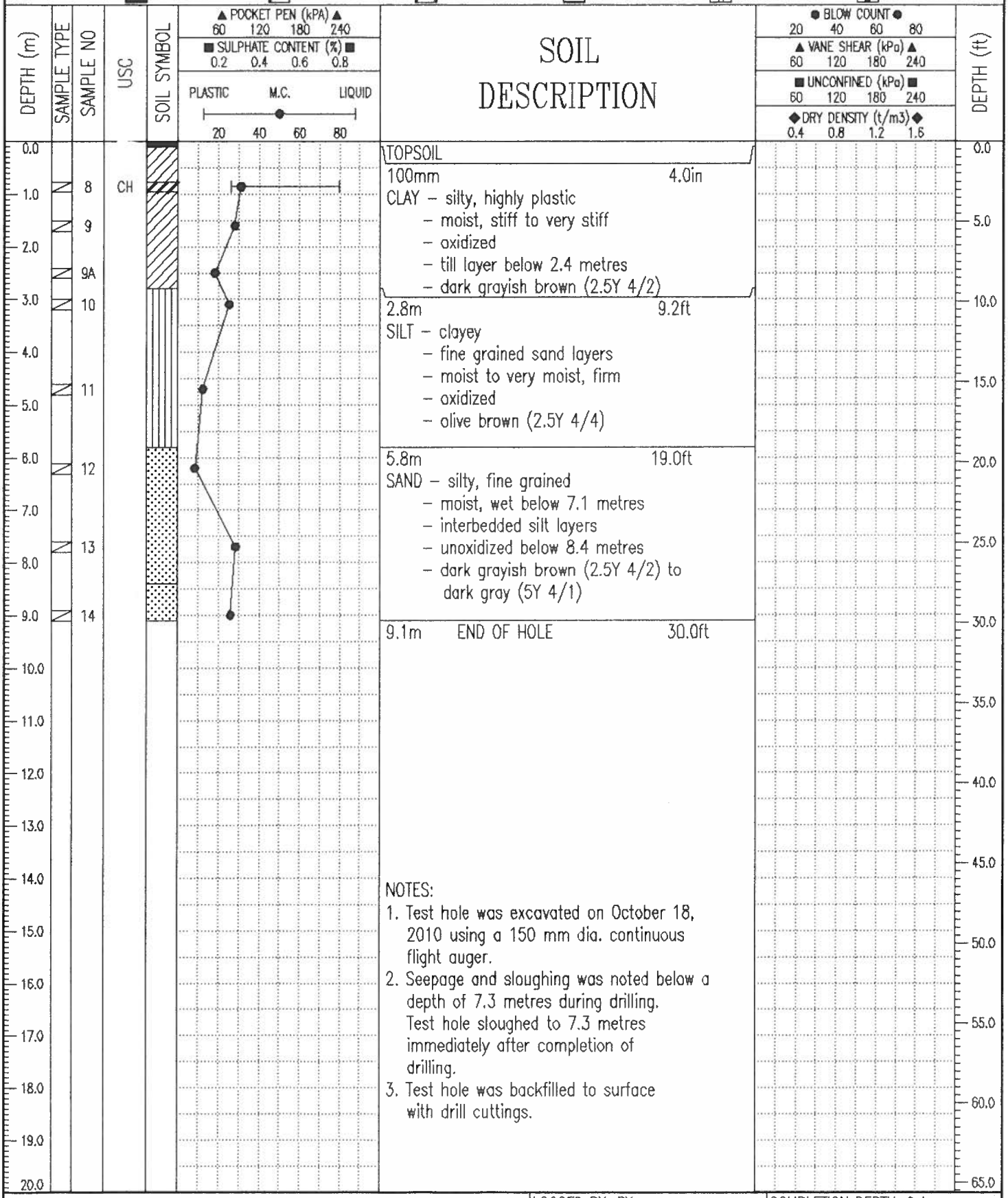
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 6.0 metres during drilling. Test hole sloughed to 6.3 metres immediately after completion of drilling.
3. Monitoring well was installed.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-10	Page 1 of 1

10/12/21 12:32PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538151 E; 5592725 N	TEST HOLE NO: 07133-TH202
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 604.60 metres (GEODETIC)	ELEVATION: 604.60 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



NOTES:

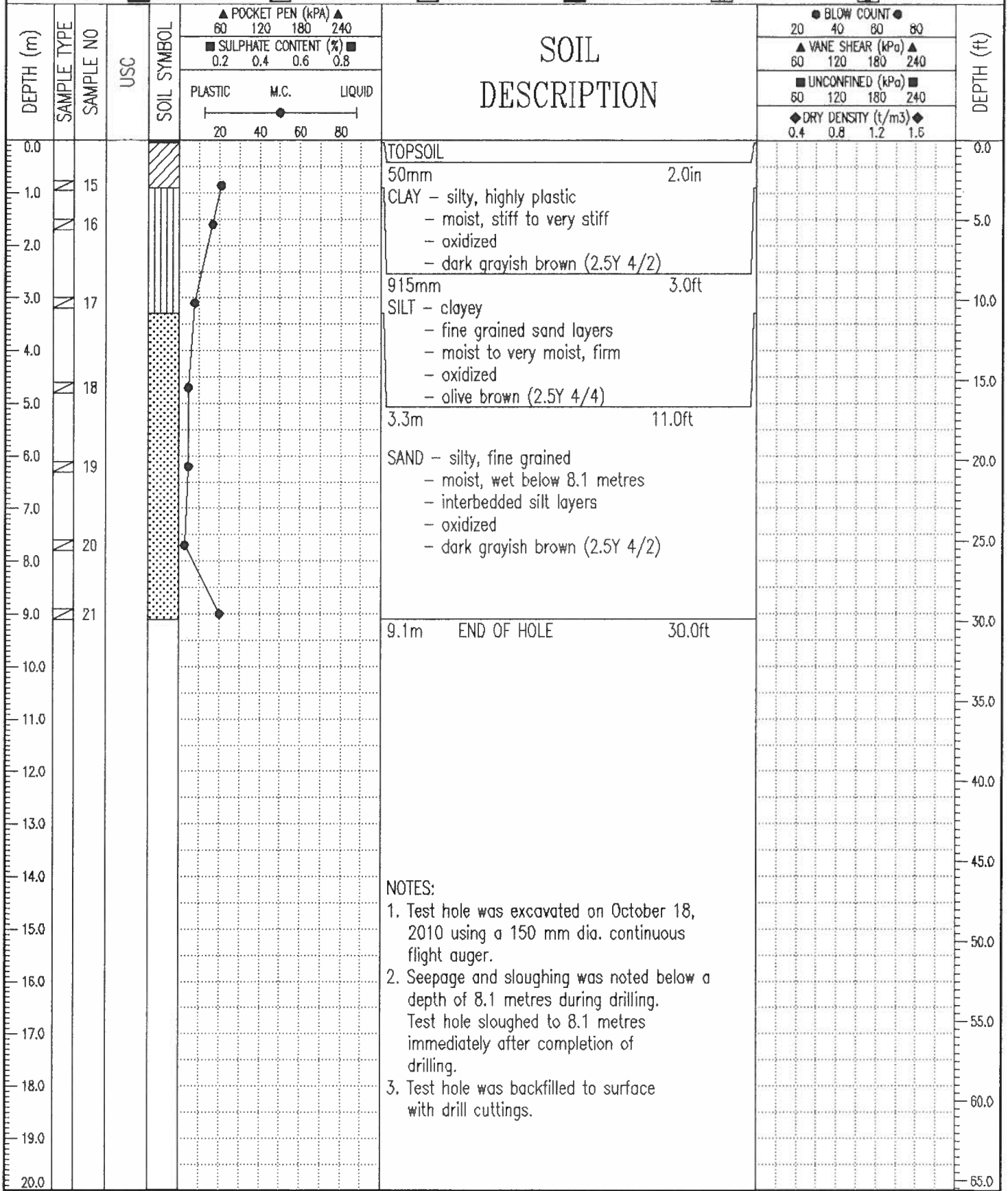
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 7.3 metres during drilling. Test hole sloughed to 7.3 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-11	Page 1 of 1

10/12/21 12:32PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537941 E; 5592725 N	TEST HOLE NO: 07133-TH203
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 604.65 metres (GEODETIC)	ELEVATION: 604.65 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
50mm 2.0in
CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- dark grayish brown (2.5Y 4/2)

915mm 3.0ft
SILT – clayey
- fine grained sand layers
- moist to very moist, firm
- oxidized
- olive brown (2.5Y 4/4)

3.3m 11.0ft

SAND – silty, fine grained
- moist, wet below 8.1 metres
- interbedded silt layers
- oxidized
- dark grayish brown (2.5Y 4/2)

9.1m END OF HOLE 30.0ft

NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 8.1 metres during drilling. Test hole sloughed to 8.1 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-12	Page 1 of 1

10/12/21 12:32PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537706 E; 5592760 N	TEST HOLE NO: 07133-TH204
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 607.70 metres (GEODETIC)	ELEVATION: 607.70 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	▲POCKET PEN (kPa)▲ 60 120 180 240 / ■SULPHATE CONTENT (%)■ 0.2 0.4 0.6 0.8 / PLASTIC M.C. LIQUID 20 40 60 80	SOIL DESCRIPTION	●BLOW COUNT● 20 40 60 80 / ▲VANE SHEAR (kPa)▲ 60 120 180 240 / ■UNCONFINED (kPa)■ 60 120 180 240 / ◆DRY DENSITY (t/m3)◆ 0.4 0.8 1.2 1.6	SLOTTED PIEZOMETER	PIEZOMETER BACKFILL	DEPTH (ft)
0.0						TOPSOIL			Top of pipe 1.06 metres above grade.	0.0
						50mm 2.0in				
1.0	N	22				CLAY – silty, highly plastic – moist, stiff to very stiff – oxidized – dark grayish brown (2.5Y 4/2)				
2.0		23	CH						GRANULAR BENTONITE	5.0
3.0	N	24				3.3m 11.0ft SILT – clayey – fine grained sand layers – moist to very moist, firm – oxidized – olive brown (2.5Y 4/4)				10.0
4.0										
5.0	N	25				5.5m 18.0ft				15.0
6.0	N	26				SAND – silty, fine grained – moist, wet below 11.3 metres – interbedded silt layers – oxidized – dark grayish brown (2.5Y 4/2)			9.1m	20.0
7.0									9.4m	
8.0	N	27							SIL-S SAND	25.0
9.0	N	28								
10.0										30.0
11.0	N	29							11.3m	35.0
12.0	N	30							SLOUGH	
13.0						12.2m END OF HOLE 40.0ft			12.2m Top of pipe Elev.= 608.76m 12.5m	40.0
14.0						NOTES: 1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger. 2. Seepage and sloughing was noted below a depth of 11.3 metres during drilling. Test hole sloughed to 11.3 metres immediately after completion of drilling. 3. Monitoring well was installed.			WATER LEVELS: (from top of pipe)	45.0
15.0									October 18, 2010 Depth: 12.47m Elev.= 596.29m	50.0
16.0									November 8, 2010 Depth: 12.46m Elev.= 596.30m	
17.0										55.0
18.0									TYPE OF PIPE: 50mm PVC, Schedule 40	
19.0									TYPE OF PIEZOMETER: Standpipe	60.0
20.0									PIEZOMETER TIP: PVC slotted, 3.1m	65.0

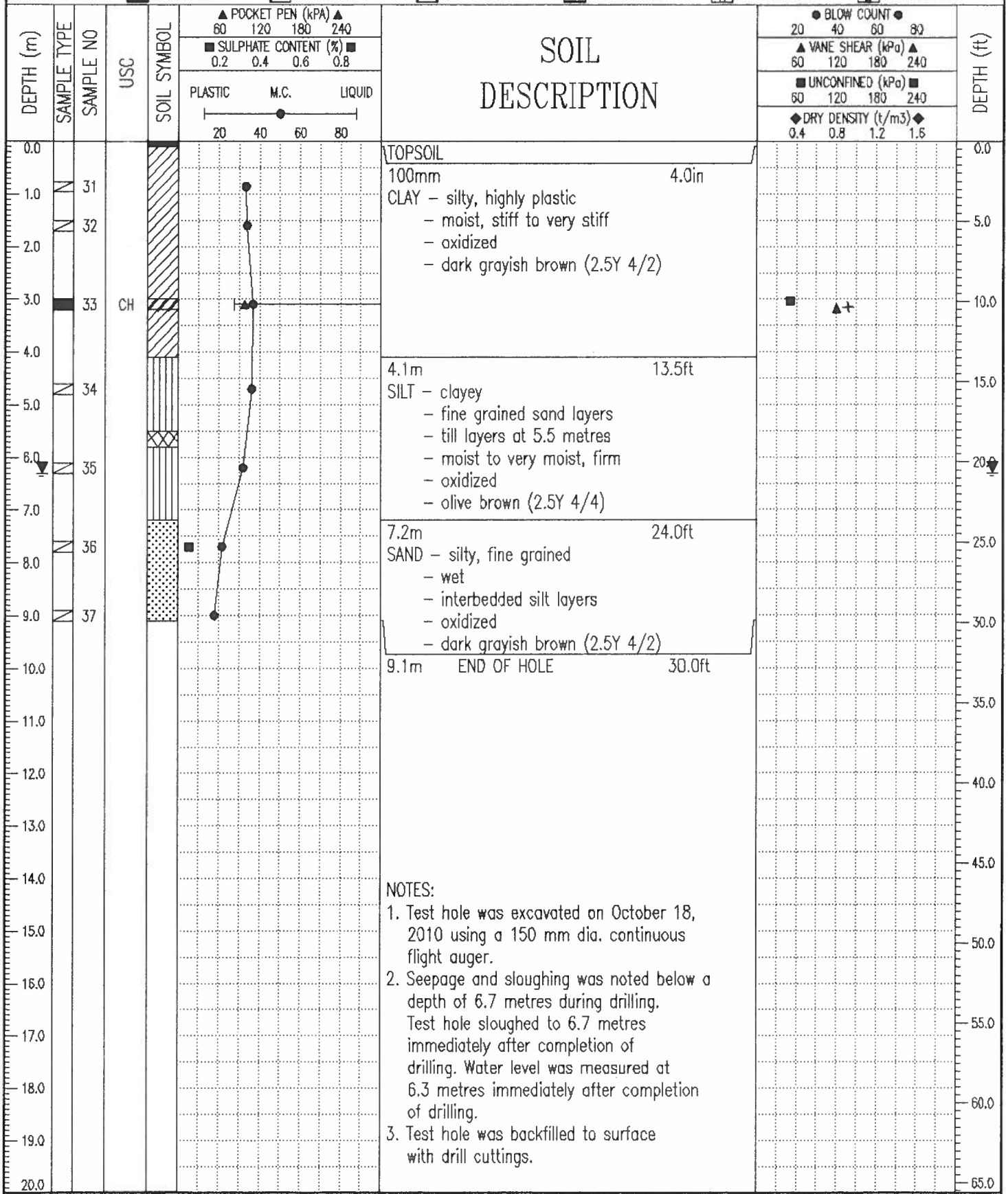
GE GROUND ENGINEERING LTD.
Regina, Saskatchewan

LOGGED BY: RY	COMPLETION DEPTH: 12.2 m
REVIEWED BY: SH	COMPLETE: 10/11/18
Fig. No: 07133-13	Page 1 of 1

10/12/21 12:33PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537836 E; 5592870 N	TEST HOLE NO: 07133-TH205
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 604.25 metres (GEODETIC)	ELEVATION: 604.25 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
100mm 4.0in
CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- dark grayish brown (2.5Y 4/2)

4.1m 13.5ft
SILT – clayey
- fine grained sand layers
- till layers at 5.5 metres
- moist to very moist, firm
- oxidized
- olive brown (2.5Y 4/4)

7.2m 24.0ft
SAND – silty, fine grained
- wet
- interbedded silt layers
- oxidized
- dark grayish brown (2.5Y 4/2)

9.1m END OF HOLE 30.0ft

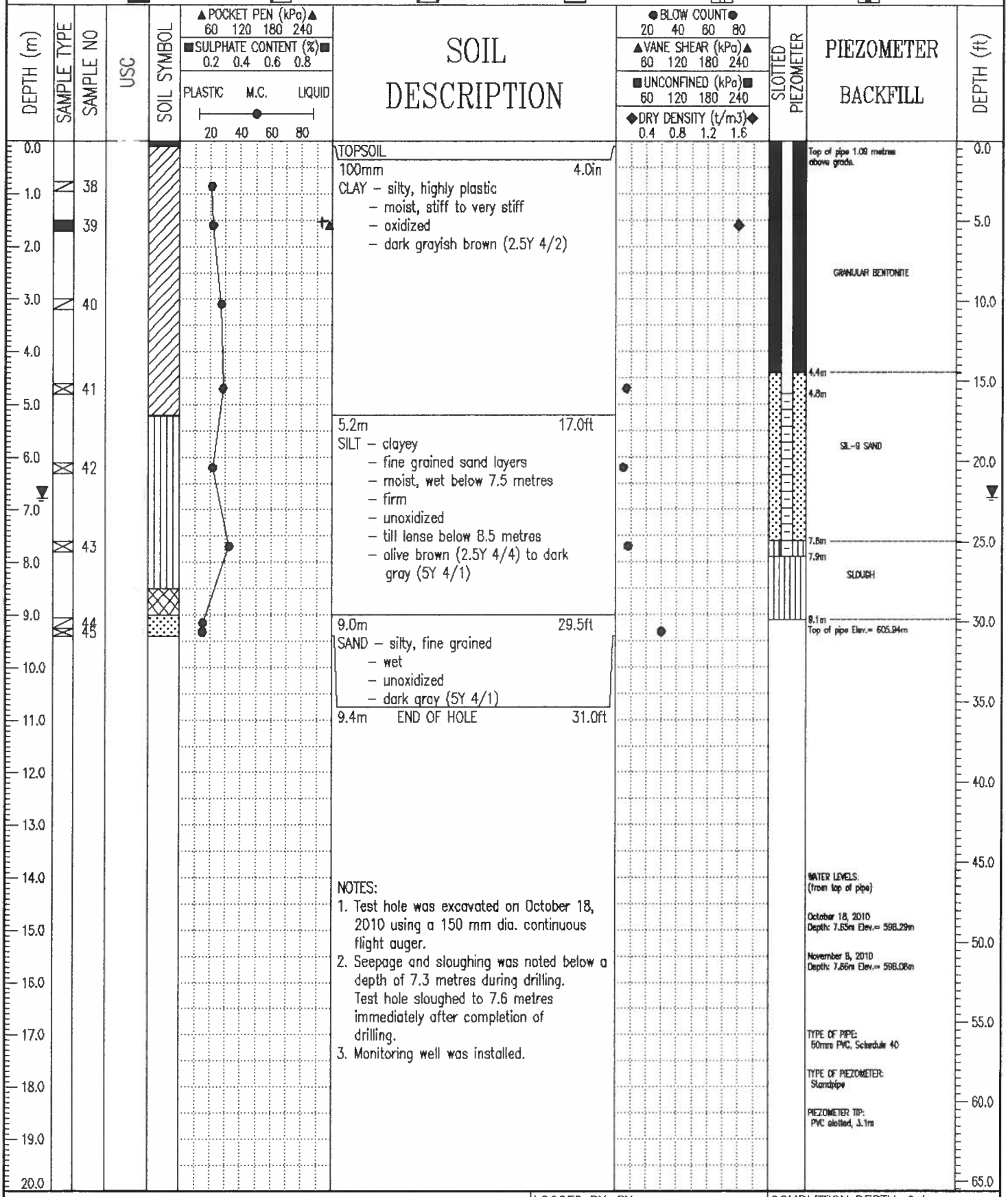
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 6.7 metres during drilling. Test hole sloughed to 6.7 metres immediately after completion of drilling. Water level was measured at 6.3 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-14	Page 1 of 1

10/12/21 12:34PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538061 E; 5592870 N	TEST HOLE NO: 07133-TH206
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 604.85 metres (GEODETIC)	ELEVATION: 604.85 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



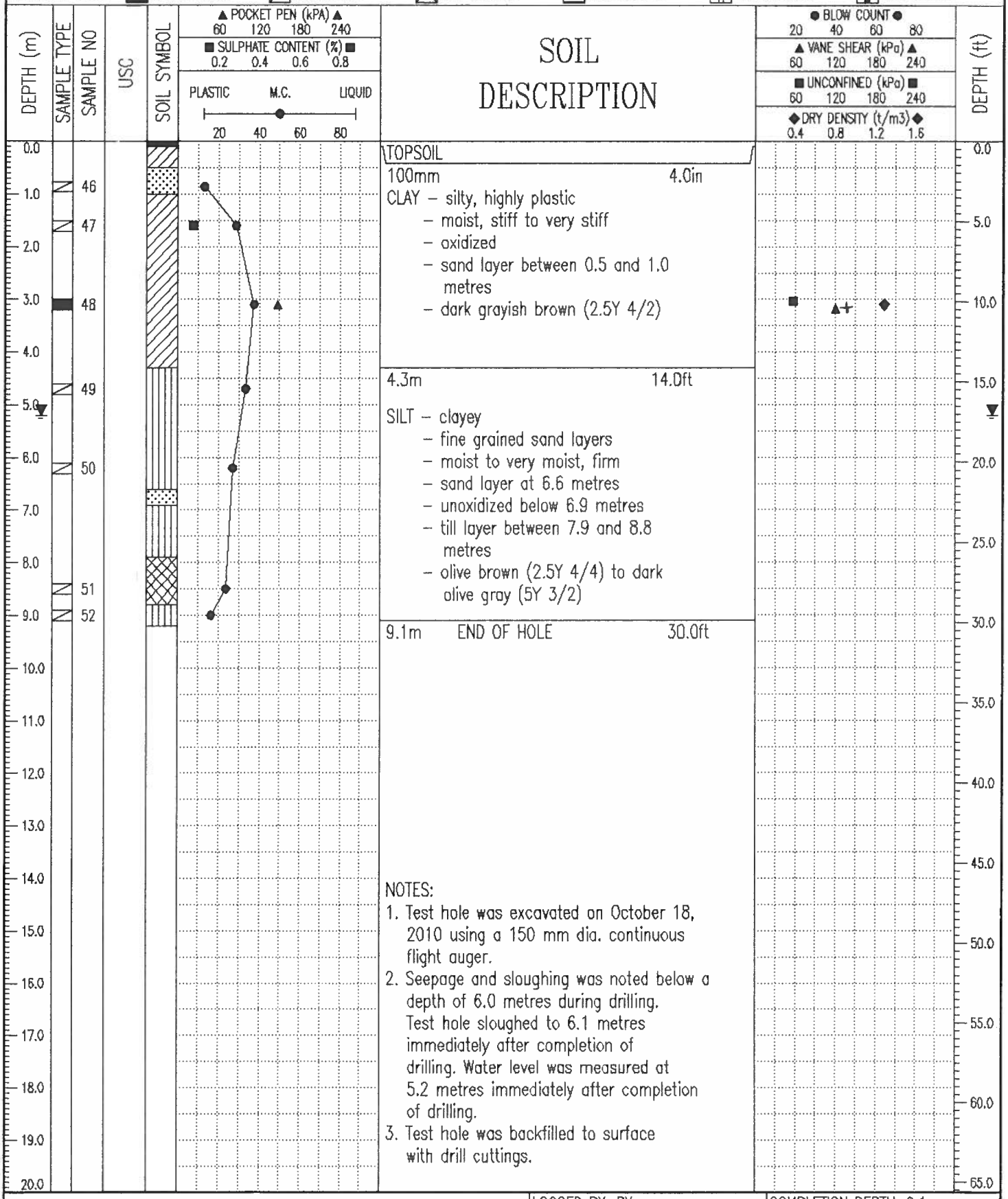
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 7.3 metres during drilling. Test hole sloughed to 7.6 metres immediately after completion of drilling.
3. Monitoring well was installed.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-15	Page 1 of 1

10/12/21 12:37PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538316 E; 5592870 N	TEST HOLE NO: 07133-TH207
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 605.30 metres (GEODETIC)	ELEVATION: 605.30 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
100mm 4.0in

CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- sand layer between 0.5 and 1.0 metres
- dark grayish brown (2.5Y 4/2)

4.3m 14.0ft

SILT – clayey
- fine grained sand layers
- moist to very moist, firm
- sand layer at 6.6 metres
- unoxidized below 6.9 metres
- till layer between 7.9 and 8.8 metres
- olive brown (2.5Y 4/4) to dark olive gray (5Y 3/2)

9.1m END OF HOLE 30.0ft

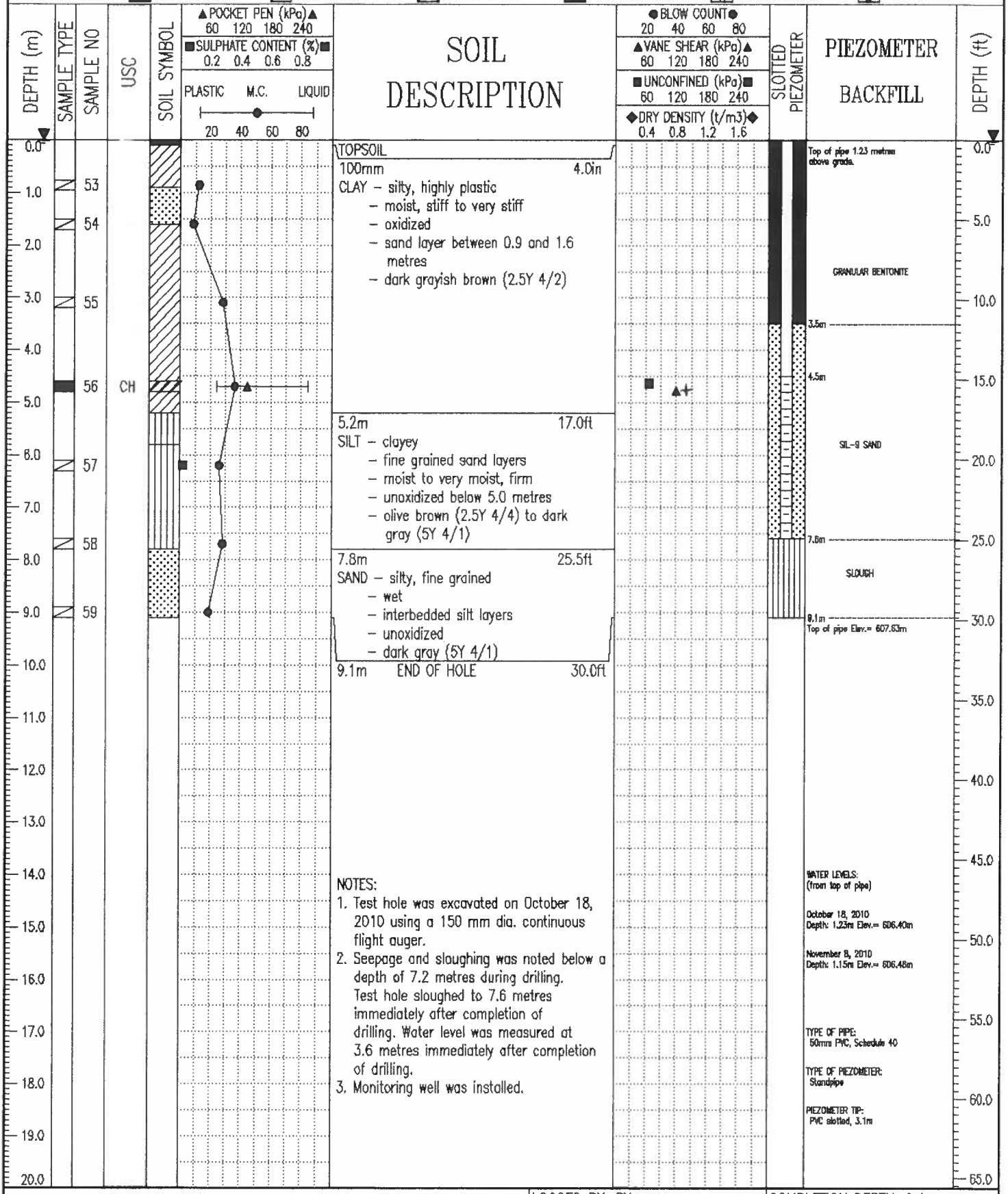
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 6.0 metres during drilling. Test hole sloughed to 6.1 metres immediately after completion of drilling. Water level was measured at 5.2 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-16	Page 1 of 1

10/12/21 12:37PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538411 E; 5593020 N	TEST HOLE NO: 07133-TH208
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 606.40 metres (GEODETIC)	ELEVATION: 606.40 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



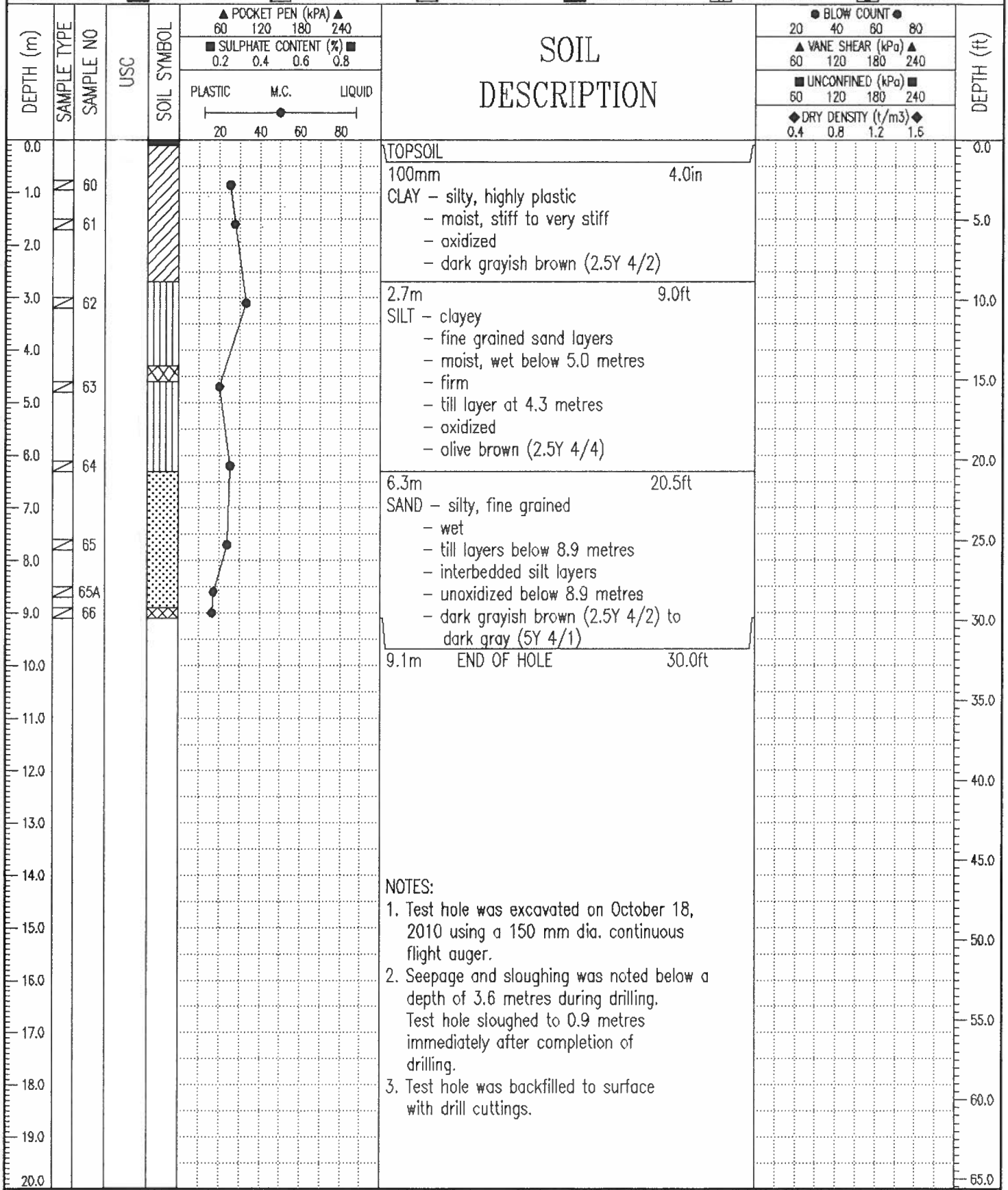
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 7.2 metres during drilling. Test hole sloughed to 7.6 metres immediately after completion of drilling. Water level was measured at 3.6 metres immediately after completion of drilling.
3. Monitoring well was installed.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-17	Page 1 of 1

10/12/21 12:39PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13538171 E; 5593020 N	TEST HOLE NO: 07133-TH209
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 605.30 metres (GEODETIC)	ELEVATION: 605.30 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
100mm 4.0in
CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- dark grayish brown (2.5Y 4/2)

2.7m 9.0ft
SILT – clayey
- fine grained sand layers
- moist, wet below 5.0 metres
- firm
- till layer at 4.3 metres
- oxidized
- olive brown (2.5Y 4/4)

6.3m 20.5ft
SAND – silty, fine grained
- wet
- till layers below 8.9 metres
- interbedded silt layers
- unoxidized below 8.9 metres
- dark grayish brown (2.5Y 4/2) to dark gray (5Y 4/1)

9.1m END OF HOLE 30.0ft

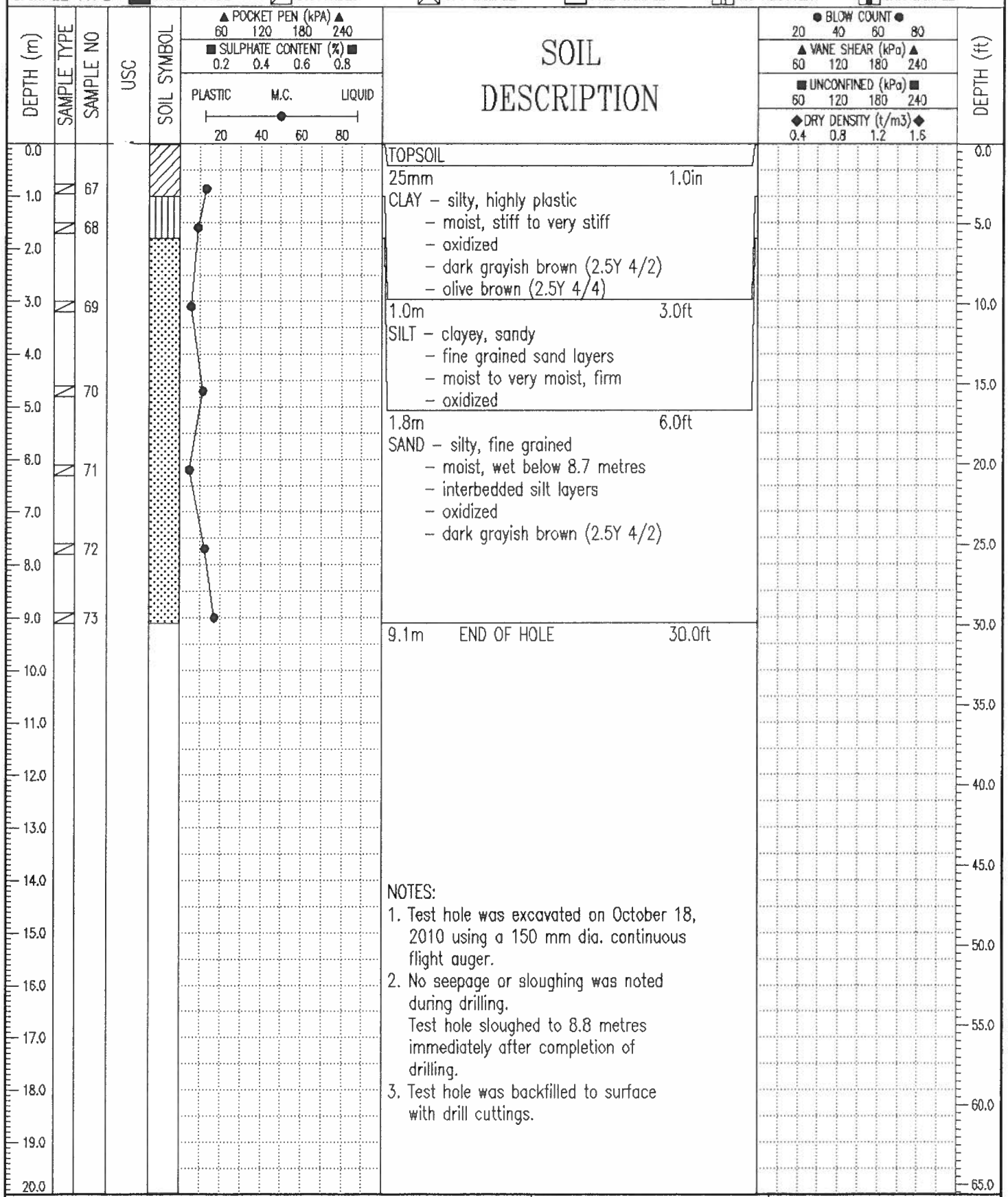
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. Seepage and sloughing was noted below a depth of 3.6 metres during drilling. Test hole sloughed to 0.9 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-18	Page 1 of 1

10/12/21 12:40PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537941 E; 5593020 N	TEST HOLE NO: 07133-TH210
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 607.20 metres (GEODETIC)	ELEVATION: 607.20 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



TOPSOIL
25mm 1.0in
CLAY – silty, highly plastic
- moist, stiff to very stiff
- oxidized
- dark grayish brown (2.5Y 4/2)
- olive brown (2.5Y 4/4)

1.0m 3.0ft
SILT – clayey, sandy
- fine grained sand layers
- moist to very moist, firm
- oxidized

1.8m 6.0ft
SAND – silty, fine grained
- moist, wet below 8.7 metres
- interbedded silt layers
- oxidized
- dark grayish brown (2.5Y 4/2)

9.1m END OF HOLE 30.0ft

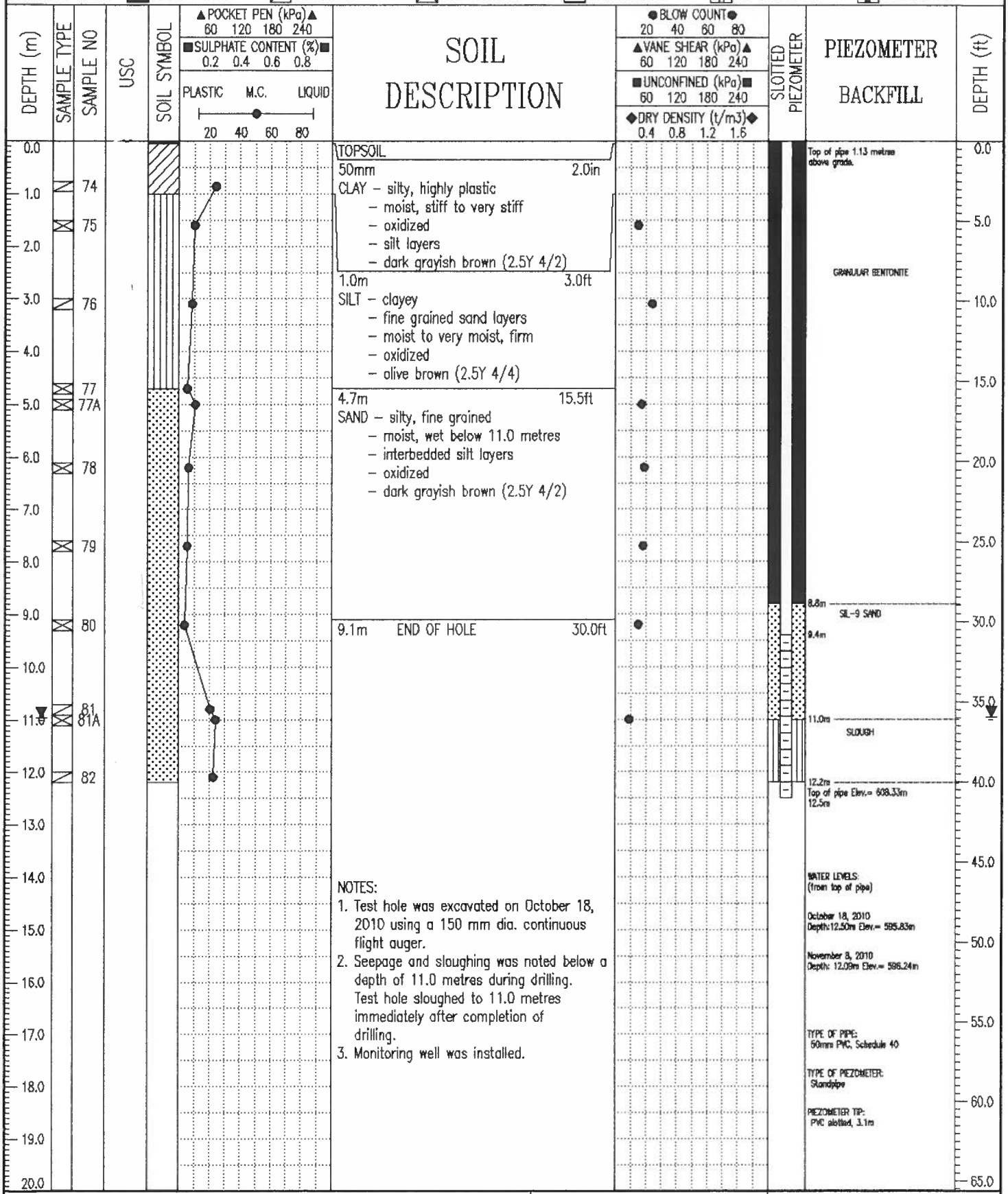
NOTES:
1. Test hole was excavated on October 18, 2010 using a 150 mm dia. continuous flight auger.
2. No seepage or sloughing was noted during drilling.
   Test hole sloughed to 8.8 metres immediately after completion of drilling.
3. Test hole was backfilled to surface with drill cuttings.

GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 9.1 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-19	Page 1 of 1

10/12/21 12:40PM

PROJECT: PROP. COMMERCIAL SUBDIVISION	LOCATION: 13537706 E; 5593020 N	TEST HOLE NO: 07133-TH211
CLIENT: NORTH RIDGE DEVELOPMENT CORP.	LOCATION: EAST OF REGINA, SASKATCHEWAN	PROJECT NO: GE-07133
DRILL RIG: CME DIGGER	ELEVATION: 607.20 metres (GEODETIC)	ELEVATION: 607.00 (m)

SAMPLE TYPE: SHELBY TUBE | DISTURBED | SPT SAMPLE | PAIL SAMPLE | NO RECOVERY | JAR SAMPLE



GE GROUND ENGINEERING LTD. Regina, Saskatchewan	LOGGED BY: RY	COMPLETION DEPTH: 12.2 m
	REVIEWED BY: SH	COMPLETE: 10/11/18
	Fig. No: 07133-20	Page 1 of 1

10/12/21 12:42PM

GE GROUND ENGINEERING LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415 - 7th AVENUE, REGINA, SASKATCHEWAN, CANADA
S4N 4P1 TELEPHONE: (306) 569-9075, FAX: (306) 565-3677

GRAIN SIZE CURVE

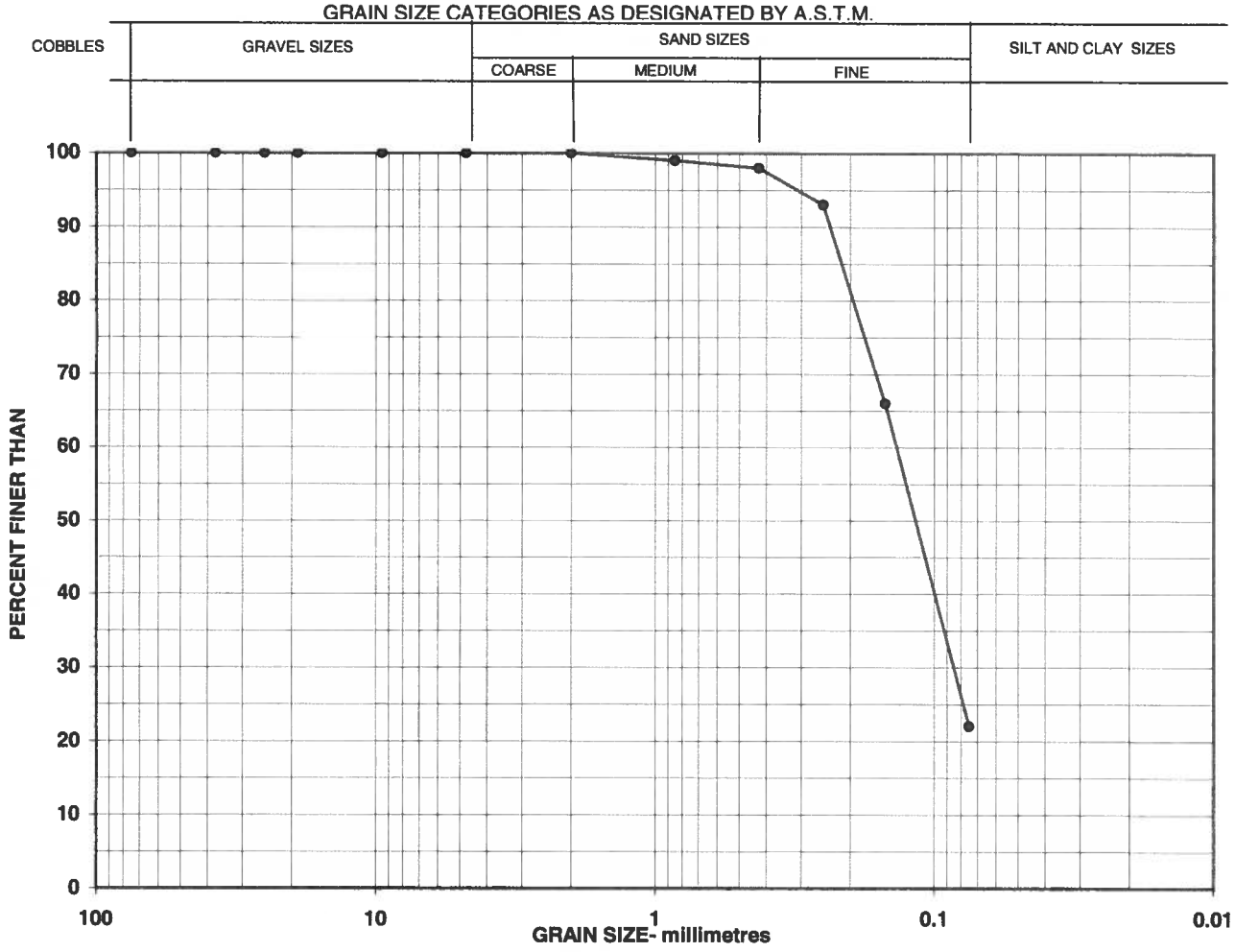
(A.S.T.M. C-136, C.S.A. A23.2-2A & 5A)

JOB No: GE-07133 **DATE:** October 20, 2010 **TECH:** R. YAREMKO

CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION

PROJECT: GEOTECHNICAL INVESTIGATION - SUBDIVISION DEVELOPMENT

LOCATION: SE-6-18-18-W2 EXT 2, NEAR PILOT BUTTE, SASKATCHEWAN



SIZE OF OPENING (mm)	SPECIFIED % FINER THAN	PERCENT FINER THAN
75.0		100
37.5		100
25.0		100
19.0		100
9.51		100
4.75		100
2.00		100
0.850		99
0.425		98
0.250		93
0.150		66
0.075		22

GRAIN SIZE CATEGORY	PARTICLE SIZE RANGE (mm)	PERCENT RETAINED
GRAVEL	75 to 4.75	0
COARSE SAND	4.75 to 2.0	0
MEDIUM SAND	2.0 to 0.425	2
FINE SAND	0.425 to 0.075	76
SILT & CLAY	< 0.075	22

SAMPLE DESCRIPTION : SAND, SOME SILT AND CLAY.

MATERIAL SUPPLIED BY: _____ **SAMPLED BY :** R. YAREMKO OF GE GROUND ENGINEERING LTD.

SAMPLE LOCATION: TEST HOLE 203

SAMPLE NUMBER: 18 AT 15' BELOW GRADE **DATE SAMPLED :** October 18, 2010

DISTRIBUTION:

WE CERTIFY TESTING PROCEDURES IN ACCORDANCE WITH C.S.A. & A.S.T.M. STANDARDS FOR THAT PORTION OF THE TESTING PERFORMED BY THIS COMPANY GE GROUND ENGINEERING LTD.

Per: _____
KELLY MAUNDER, A.Sc.T.

GE-07133-21

GE GROUND ENGINEERING LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415 - 7th AVENUE, REGINA, SASKATCHEWAN, CANADA
S4N 4P1 TELEPHONE: (306) 569-9075, FAX: (306) 565-3677

GRAIN SIZE CURVE

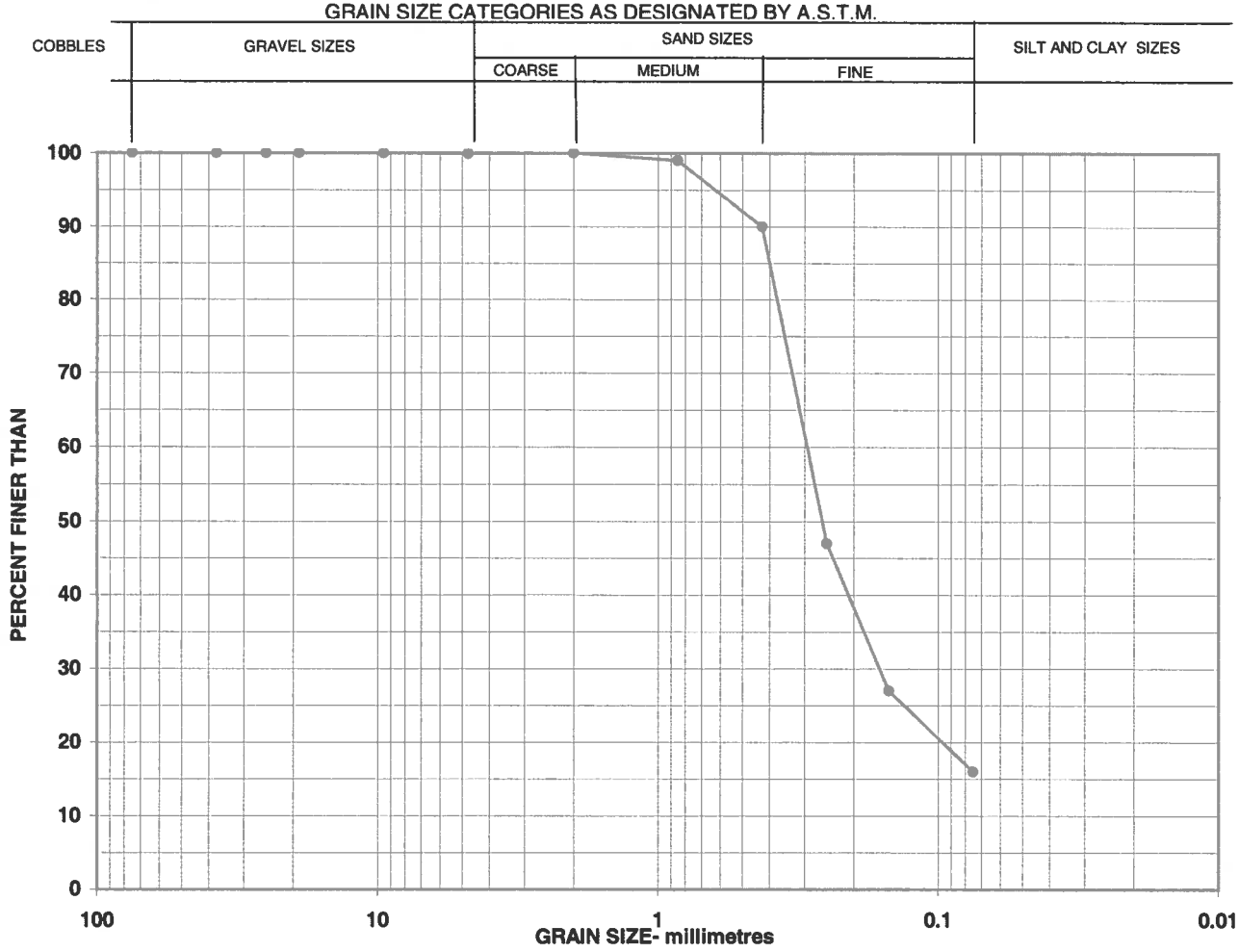
(A.S.T.M. C-136, C.S.A. A23.2-2A & 5A)

JOB No: GE-07133 **DATE:** October 20, 2010 **TECH:** R. YAREMKO

CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION

PROJECT: GEOTECHNICAL INVESTIGATION - SUBDIVISION DEVELOPMENT

LOCATION: SE-6-18-18-W2 EXT 2, NEAR PILOT BUTTE, SASKATCHEWAN



SIZE OF OPENING (mm)	SPECIFIED % FINER THAN	PERCENT FINER THAN
75.0		100
37.5		100
25.0		100
19.0		100
9.51		100
4.75		100
2.00		100
0.850		99
0.425		90
0.250		47
0.150		27
0.075		16

GRAIN SIZE CATEGORY	PARTICLE SIZE RANGE (mm)	PERCENT RETAINED
GRAVEL	75 to 4.75	0
COARSE SAND	4.75 to 2.0	0
MEDIUM SAND	2.0 to 0.425	10
FINE SAND	0.425 to 0.075	74
SILT & CLAY	< 0.075	16

SAMPLE DESCRIPTION : SAND, SOME SILT AND CLAY.

MATERIAL SUPPLIED BY: **SAMPLED BY :** R. YAREMKO OF GE GROUND ENGINEERING LTD.

SAMPLE LOCATION: TEST HOLE 205

SAMPLE NUMBER: 37 AT 30' BELOW GRADE **DATE SAMPLED :** October 18, 2010

DISTRIBUTION:

WE CERTIFY TESTING PROCEDURES IN ACCORDANCE WITH C.S.A. & A.S.T.M. STANDARDS FOR THAT PORTION OF THE TESTING PERFORMED BY THIS COMPANY GE GROUND ENGINEERING LTD.

Per: _____
KELLY MAUNDER, A.Sc.T.

GE-07133-22

GE GROUND ENGINEERING LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415 - 7th AVENUE, REGINA, SASKATCHEWAN, CANADA
S4N 4P1 TELEPHONE: (306) 569-9075, FAX: (306) 565-3677

GRAIN SIZE CURVE

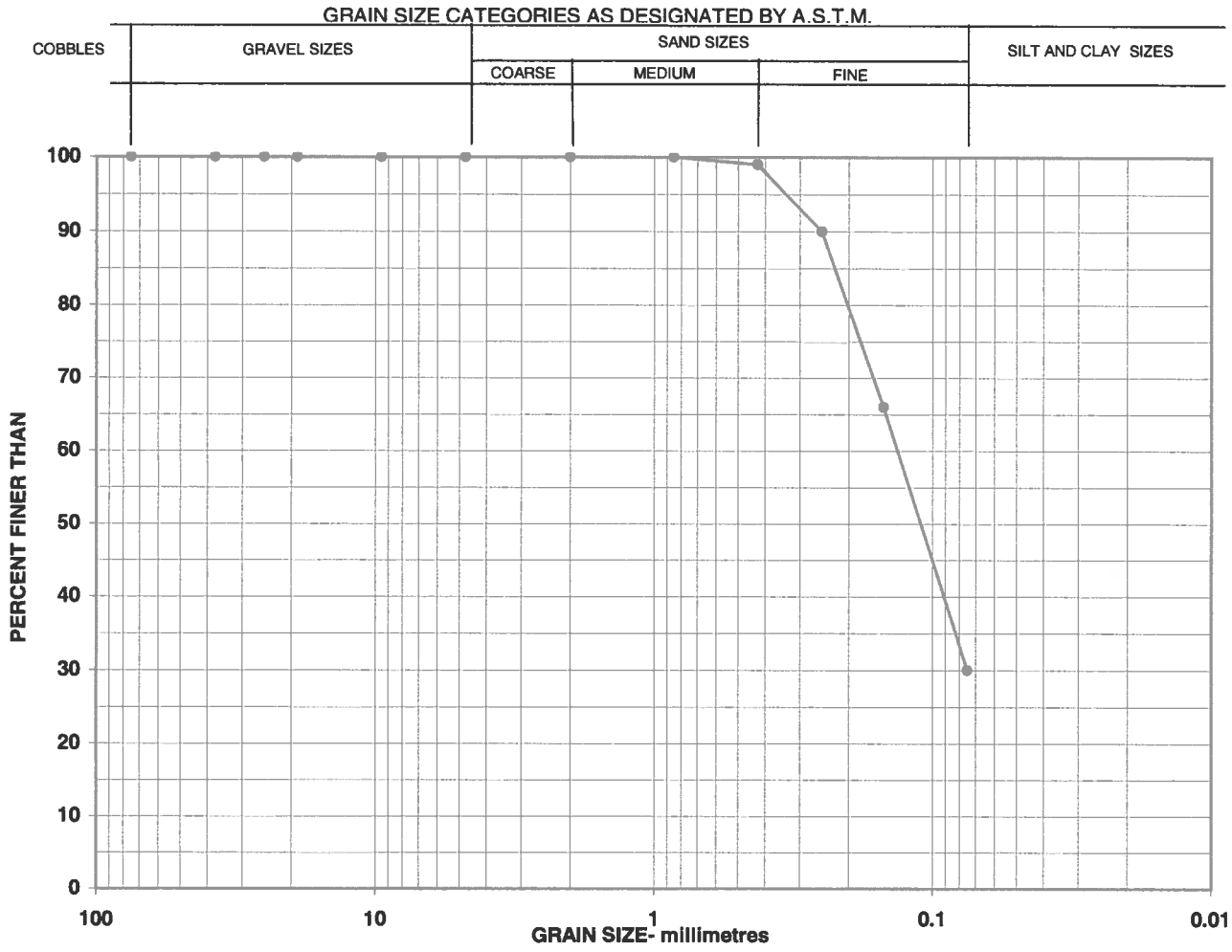
(A.S.T.M. C-136, C.S.A. A23.2-2A & 5A)

JOB No: GE-07133 **DATE:** October 20, 2010 **TECH:** R. YAREMKO

CLIENT: NORTH RIDGE DEVELOPMENT CORPORATION

PROJECT: GEOTECHNICAL INVESTIGATION - SUBDIVISION DEVELOPMENT

LOCATION: SE-6-18-18-W2 EXT 2, NEAR PILOT BUTTE, SASKATCHEWAN



SIZE OF OPENING (mm)	SPECIFIED % FINER THAN	PERCENT FINER THAN
75.0		100
37.5		100
25.0		100
19.0		100
9.51		100
4.75		100
2.00		100
0.850		100
0.425		99
0.250		90
0.150		66
0.075		30

GRAIN SIZE CATEGORY	PARTICLE SIZE RANGE (mm)	PERCENT RETAINED
GRAVEL	75 to 4.75	0
COARSE SAND	4.75 to 2.0	0
MEDIUM SAND	2.0 to 0.425	1
FINE SAND	0.425 to 0.075	69
SILT & CLAY	< 0.075	30

SAMPLE DESCRIPTION : SAND, WITH SILT AND CLAY.

MATERIAL SUPPLIED BY: _____ **SAMPLED BY :** R. YAREMKO OF GE GROUND ENGINEERING LTD.

SAMPLE LOCATION: TEST HOLE 210

SAMPLE NUMBER: 71 AT 20' BELOW GRADE **DATE SAMPLED :** October 18, 2010

DISTRIBUTION: _____

WE CERTIFY TESTING PROCEDURES IN ACCORDANCE WITH C.S.A. & A.S.T.M. STANDARDS FOR THAT PORTION OF THE TESTING PERFORMED BY THIS COMPANY GE GROUND ENGINEERING LTD.

Per: _____
KELLY MAUNDER, A.Sc.T.

GE-07133-23

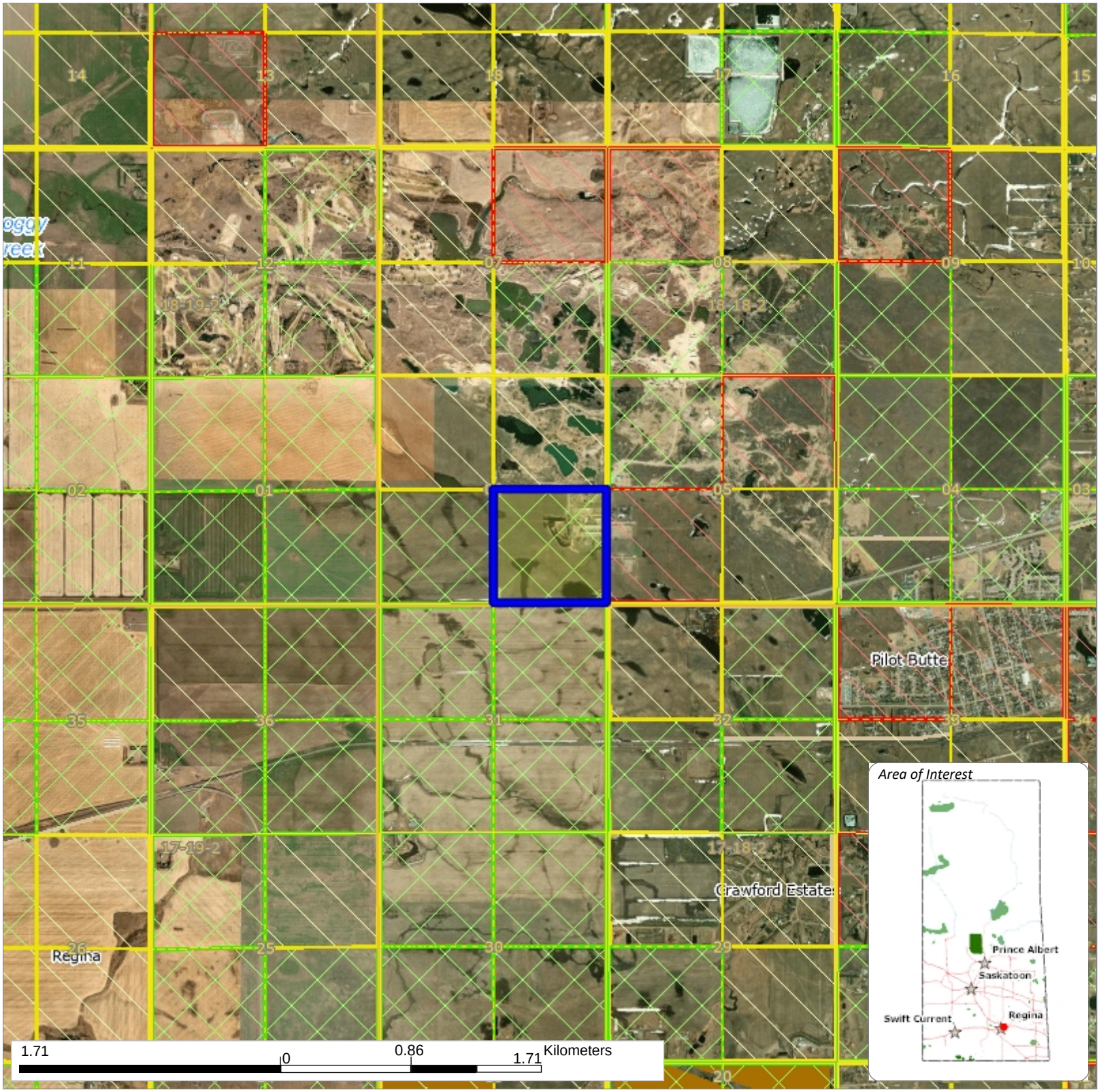
APPENDIX G – HERITAGE SCREENING REPORT

Heritage Sensitivity Screening Report

Sensitivity: **This selection is Not Heritage Sensitive.**

This development has heritage clearance to proceed. Do not submit this project to the Heritage Conservation Branch. Keep this report for your records.

Report Generated
Jan/29/2024 2:28 PM



Heritage Sensitivity Screening Report

Parcel Description	Sensitivity	Parcel Description	Sensitivity
SE-06-18-18-2	N		

Sensitivity Legend:

Y = Heritage Sensitive, C = Conditionally Heritage Sensitive, N = Not Heritage Sensitive, Blank = Heritage Sensitive.

When the parcel description and sensitivity listing is blank, the project is outside of the quarter sections screened for sensitivity. All projects within these areas are automatically heritage sensitive and require review.

If needed, please complete the appropriate referral form and submit the project to the Heritage Conservation Branch for further screening. Project referrals must be accompanied by survey plans. The Screening Report can be saved and/or printed for your records, but does not need to be submitted as part of the referral. https://www.saskatchewan.ca/residents/parks-culture-heritage-and-sport/heritage-conservation-and-commemoration/archaeology/submit-your-land-and-resource-proposal-for-a-heritage-review

Disclaimer:

Attention landowners: The majority of small scale activities that involve improvements to, or maintenance of, private property usually have little or no impact on archaeological heritage resources. Access the Exempt Activities Checklist for Private Landowners to determine if your proposed activity is exempt from archaeological heritage screening using the Developers' Online Screening Tool. If the activity is exempt, please retain a copy (paper or electronic) of the completed Exempt Activities Checklist for Private Landowners for your records. Include the completed checklist with any applications for regulatory approvals or permits that may be required for the proposed activity to confirm that heritage concerns have been addressed.

Exempt Activities Checklist: https://applications.saskatchewan.ca/eachecklist

Contact us:

For more information, please contact the Heritage Conservation Branch:

Email: arms@gov.sk.ca

Tel 306-787-2817.

APPENDIX H – PRELIMINARY ENGINEERING REPORT

New Horizon Business Park – Phase 3 and Phase 4

Preliminary Engineering Report

Final Submission

Prepared by:

WCE design inc.
80 Emerald Ridge East
White City, SK, Canada S4L 0C3
306.540.8312

Project Number:

24-012

Date:

June 03, 2024

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by WCE design inc. (“Consultant”) for the benefit of the client (“Client”) in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations, and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”)
- represents Consultant’s professional judgement considering the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made, or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to, and forms part of the Report and any use of the Report is subject to the terms hereof.

WCE design inc.
80 Emerald Ridge East
White City, SK. S4L 0C3

tel: 306.540.8312
email: dustin.weiss@wcedesign.ca

June 2, 2024

Clark Gates, P. Eng.
Manager of Engineering and Public Works
RM of Edenwold No. 158
306.347.2967

Dear Mr. Gates:

Project No: **24-012 – New Horizon Business Park – Phase 3**

Regarding: **Preliminary Engineering Report**

WCE Design is pleased to submit this Preliminary Engineering Report for expansion of the New Horizon Business Park located on SE ¼ 6-18-18-W2M. This proposal establishes the preliminary servicing requirements to develop and subdivide a portion of the quarter section south of the existing Business Park.

Should you have any questions, please contact the undersigned at 306.540.8312.

Sincerely,
WCE Design

Dustin Weiss, P. Eng.
Senior Civil Engineer
WCE Design
dustin.weiss@wcedesign.ca

DW:bw
Encl.
cc: New Horizons Group

Distribution List

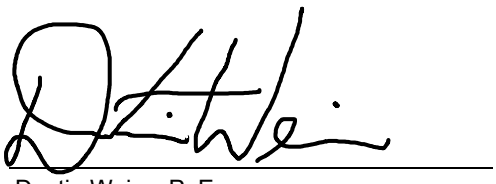
# of Hard Copies	PDF Required	Association / Company Name
0	1	New Horizon Group of Companies

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
0	DW	24-02-16	Issued for Draft Review
1	DW	24-03-26	Issued for Draft Review
2	DW	24-05-13	Final Draft
2	DW	24-05-13	Final Draft Revision 1

WCE Design Signatures

Report Prepared By:



Dustin Weiss, P. Eng.
Civil Engineer
WCE design inc.

Stamp

Executive Summary

WCE Design (WCE) was commissioned by New Horizon Group of Companies (the Developer) to complete the Preliminary Engineering Report for expansion of the existing New Horizon Business Park in the SE ¼ Section 6-18-18 W2M, in the Rural Municipality of Edenwold No. 158 (the RM).

It is the intent of the Developer to subdivide the remainder of the section into nine separate parcels as an extension to the existing New Horizon Business Park. The proposed development site is 21.11 hectares (ha) for Phase 3 and 18.005 ha for Phase 4.

Land use at the site is currently agricultural. Land use west and south of the site is also agricultural. The existing New Horizon Business Park northeast of the site has several existing metal clad buildings that are occupied by various commercial and light industrial businesses. A light industrial development also exists east of the site.

The site is located in an area designated as *High Sensitivity to the Aquifer*. Section 4.38 of the Zoning Bylaw may require the Developer to provide an Aquifer Protection Plan. Clay fill will be placed on top of the site as part of the development site grading. As part of the building permit process with the RM, each new lot developer will be required to submit the measures used to protect the aquifer when installing foundations as well as any cistern and holding tanks.

The site is not located in an area designated as environmentally or heritage resource sensitive.

The development is located on Treaty 4 Territory, the original lands of the Cree, Ojibwe (OJIB-WĒ), Saulteaux (SO-TO), Dakota, Nakota, Lakota, and on the homeland of the Métis Nation. There are known First Nation lands 2.0 kilometres north of Parcel D.

Water service will be provided using a water line supplied from the existing well and current water distribution system. Water from the well is considered hygienic (i.e. non-potable) and will not be used for human consumption. The well currently has a licensed annual allocation to provide the full development build out at a higher weekly consumption rate than the current usage. In the event that the development acquires either a high water user or require potable water on site cisterns will be utilized with hauled water.

The site is relatively flat with drainage trending from north to south. Runoff from the site flows into the north ditch of Highway No. 46 and is eventually conveyed to Pilot Butte Creek south of Highway No. 46 via a series of culverts and ditches. The creek eventually flows into Wascana Creek at the east side of Regina.

Storm water management is proposed to include a dry bottom detention pond with the pond outlet restricted to the pre-development release rate. The site will be graded to direct runoff to the dry bottom detention pond. Site grading for the development will include providing compacted clay fill over the site to promote runoff and reduce infiltration. The proposed storm pond will be sized to detain the 1:100 year, 24 hour rainfall event.

Final site grading, pond configuration and pond outlet will be confirmed during detailed design.

Shallow utilities (SaskPower, SaskEnergy, and SaskTel) are located in the immediate vicinity of the development. The necessary installation and connection fees will be borne by the individual lot owner.

Access to the existing New Horizon Business Park is obtained from the existing Highway No. 46 via Range Road 2185. Access to the new development will be from a new approach to be installed off of Range Road 2185. A channelized intersection at the intersection of Highway 46 and Range Road 2185 has previously been constricted to accommodate additional traffic to the development north of the highway.

Fire fighting services are to be provided by the RM. The RM also has standard fire protection agreements with Balgonie, White City, Pilot Butte, the Village of Edenwold, and the Hamlet of Kronau. Police services in the RM are provided by the RCMP's White Butte Detachment.

Commercial Districts are also required to comply with the landscaping and buffer requirements as outlined in Section 4.44. As part of the building permit process with the RM, each new lot developer will be required to submit landscaping plans for each lot.

It is the intent of the Developer to complete the site grading and access road construction in one phase. Further development of the lots will be the responsibility of the owners.

The adjacent sites have already been zoned for development. Therefore, it has been assumed no further public consultation is required.

Table of Contents

List of Figures

1.0 Introduction

This Preliminary Engineering Report (PER) is prepared on behalf of the New Horizon Group of Companies (the Developer) in support of an application for development of the next phases of the New Horizon Business Park located in the Rural Municipality of Edenwold No. 158 (the RM). The Developer is proposing to expand the existing New Horizon Business Park to the south.

The location of the proposed development is shown in Figure 1.1[1]. The development is located west of the Town of Pilot Butte, north of Highway No. 46. The registered owner of in the south half of Section 6-18-18 W2M is currently 101245184 SASKATCHEWAN LTD. It is the intent of the Developer to subdivide the site into twenty separate lots in two additional phases: Phase 3 and Phase 4.

This PER is prepared in accordance with Sections 3.24 of the Zoning Bylaw and provides a framework for servicing the proposed development.

Figure 1.1: Site Location Map

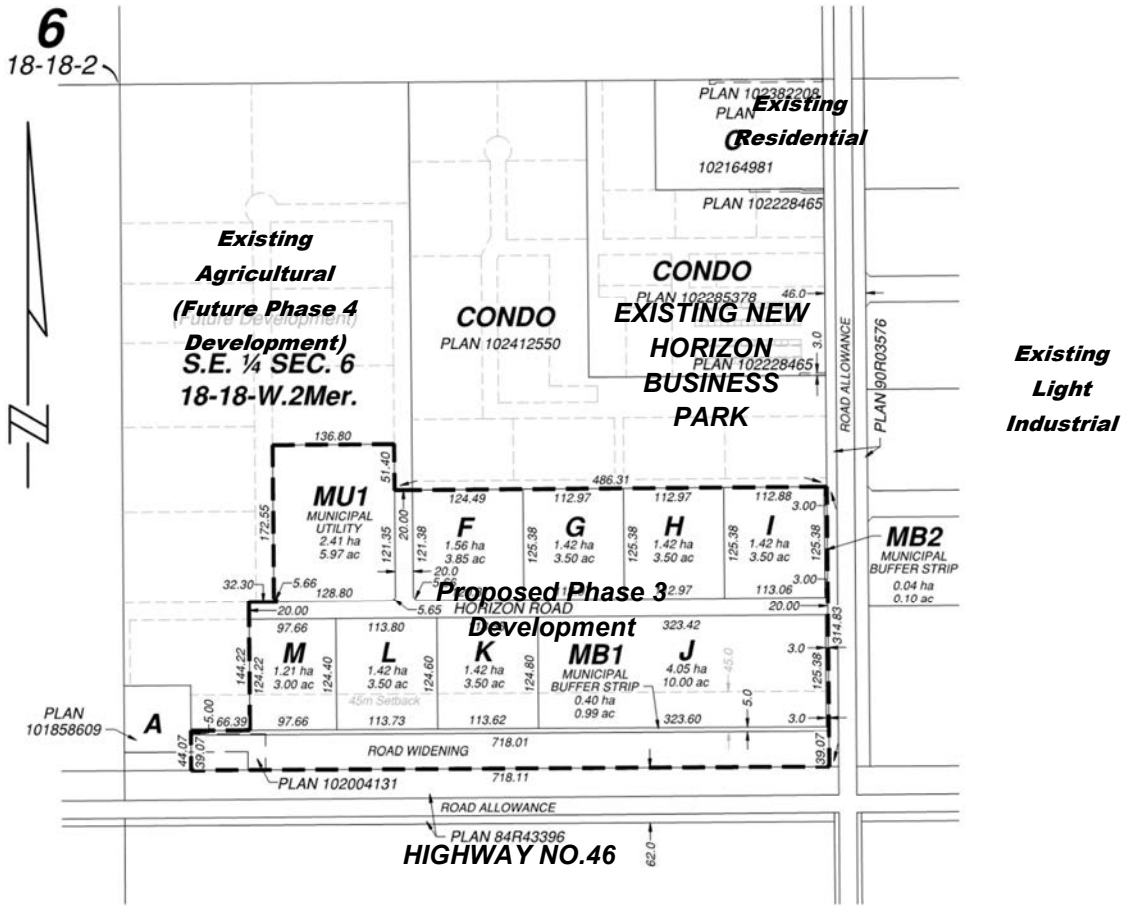
[1] *Sask Interactive Mapping https://gisappl.saskatchewan.ca/Html5Ext/index.html?viewer=saskinteractive*

2.0 Existing Conditions

2.1 Existing Land Use

The existing New Horizon Business Park is located in the northeast quadrant of the SE ¼ Section 6-18-18 W2M as shown in Figure 2.1[2] and within the Highway 46 Industrial Park Business District. The proposed Phase 3 is located south of the existing New Horizon Business Park and north of Highway No. 46. The future Phase 4 is located to the west. The site is currently used for agricultural purposes.

The existing business park currently has several metal clad buildings with gravel roadways and parking area. Businesses in the existing New Horizon Business Park are light industrial.



The areas east, west and south of the are currently agricultural land. A light industrial development also exists east of the New Horizon Business Park.

New Horizon Business Park is zoned as General Industrial (IND1). The proposed development site is currently undeveloped agricultural land and zoned as Agricultural Resource (AR)[3].

Figure 2.2: Existing Site Plan

[2] *Google Earth*
[3] *RM of Edenwold, Zoning Map 5*

The Saskatchewan Water Corporation (SWC) owns Parcel A in the southwest corner of the quarter section. A well and pump house building operated by SWC are located on Parcel A.

Future land use at the site is designated as Mixed Use (Industrial / Commercial)[4].

2.2 Existing Roadway Network

Existing roadways in the area include:

- Highway No.46 runs east-west along the south side of Section 6-18-18 W2M.
- Range Road 2185 is a two-lane, gravel rural road runs north-south, east of the site.

A channelized intersection has been previously constructed at the intersection of Highway No. 46 and Range Road 2185.

2.3 Existing Municipal Services and Utilities

Existing Municipal Services in the area include:

- Water service for the existing New Horizon Business Park is provided from an existing well producing 0.38 L/s (5 IGPM). Water is distributed to the existing buildings using two separate pressure loops. Each building is then supplied with pressure tanks that maintain the water storage for non-potable use. Potable water is supplied from delivered water. Based on consumption data from the development, a weekly volume of 3,000 imperial gallons (13.6 m^3) is used or an average of 429 IGPD (1950 L/day). Based on the existing weekly usage of 13.6m^3/week the development currently uses 708m^3 annually.
- Wastewater collection for the existing Business Park is accommodated by holding tanks.

Existing Utilities in the area include:

- Sask Power has an overhead power line along the east side of Township Road 2180.
- Sask Energy has a buried natural gas line along the north boundary of and internally within the SE ¼ Sec 6-18-18 W2M
- SaskTel has been installed with the SaskPower utility for communication use.

[4] *RM of Edenwold, OCP Map 7A*

2.4 Topography

The site is relatively flat with drainage trending from north to south as shown in Figure 2.3[5]. Runoff from the site flows into the north ditch of Highway No. 46 and is eventually conveyed to Pilot Butte Creek south of Highway No. 46 via a series of culverts and ditches. The creek eventually flows into Wascana Creek at the east side of Regina.

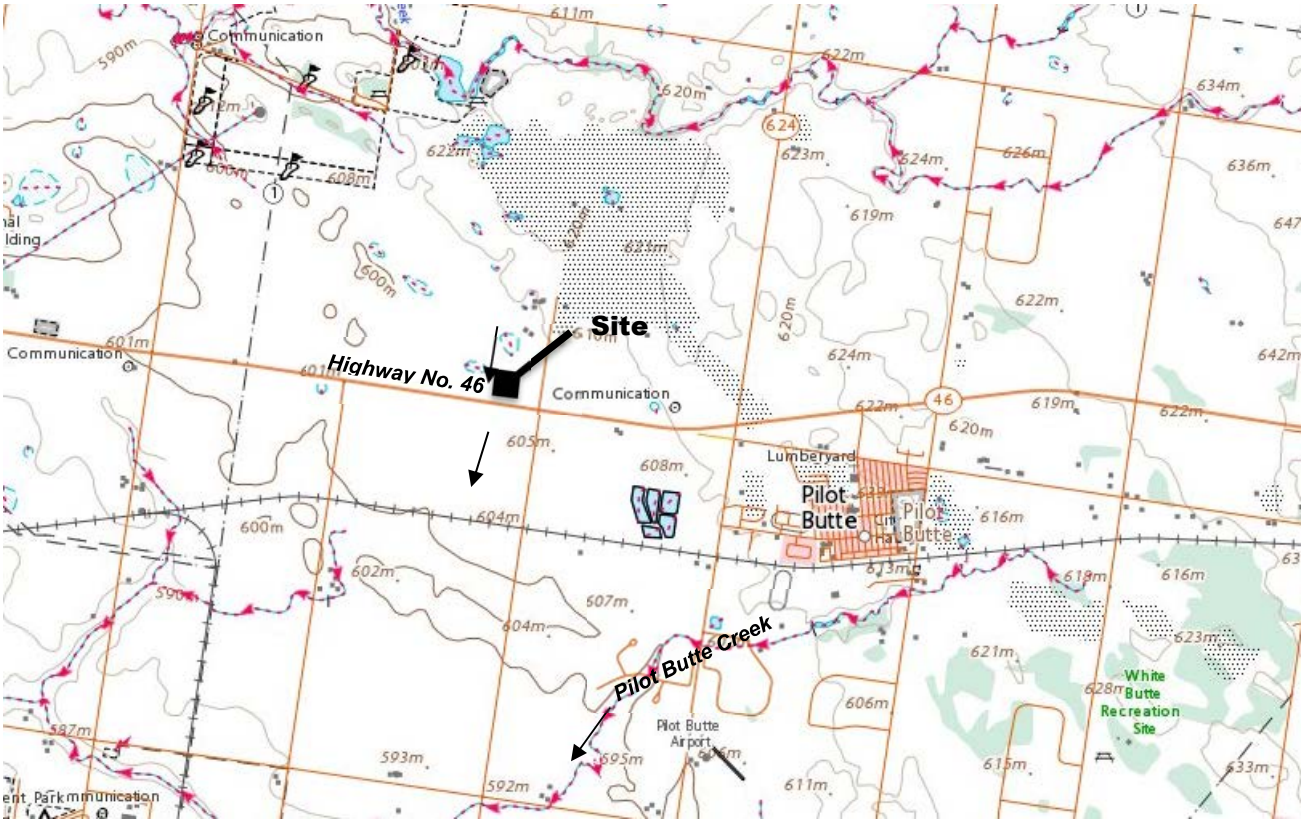


Figure 2.5: Existing Topography

[5] *https://atlas.gc.ca/toporama/en/index.html*

2.5 Regional Surface Geology and Soils

The site is situated on a glacial-fluvial deposit (GFp) as shown in Figure 2.4[6]. GFp deposits generally consist of gravels, sand and silt accumulations transported and deposited by glacial meltwater.

Logs from water wells previously drilled near the site indicated topsoil is underlain by approximately 4.0 m to 4.5 of silt followed by approximately 10 m of sand.

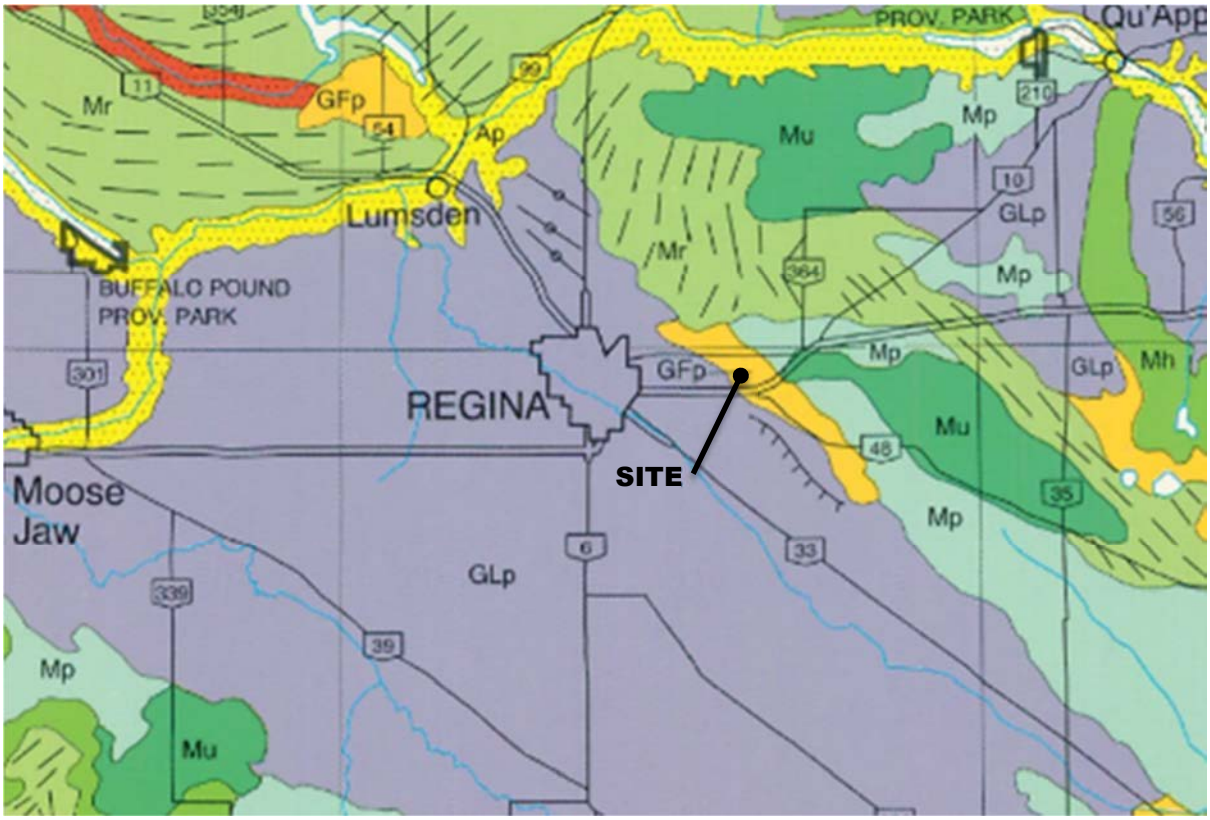


Figure 2.7: Regional Surface Geology

Figure 2.6: Regional Surface GeologyFigure 2.4: Regional Surface Geology

2.6 Aquifer Sensitivity

The proposed development is located in an area designated as having *High Sensitivity to the Aquifer*. The site grading for the development will include providing a clay fill over the site to promote runoff and reduce infiltration.

Each new lot developer will be responsible to submit an aquifer protection plan to the RM as part of the building permit process. The plan should include measures for protection of the aquifer during installation of foundations as well as cisterns and holding tanks.

[6] *Surficial Geology Map of Saskatchewan, Saskatchewan Geological Survey*

Section 3.24C of the Zoning Bylaw may require the Developer to provide an *Aquifer Protection Plan* including:

- Site-specific information regarding groundwater and the local aquifer and the sensitivity of these systems with respect to potential breach, contamination, depletion, or other concerns.

- The impact the proposed development or subdivision may have on the quantity and quality of groundwater and the aquifer and the proposed mitigation measures that will be implemented in order to preserve and protect the ground water/aquifer.

As part of the building permit process with the RM, each new lot developer will be required to submit the measures used to protect the aquifer when installing foundations as well as any cistern and holding tanks.

2.7 Heritage Resources

The proposed development is not located in an area designated as *Heritage Sensitive*[7]. Confirmation of this designation was concluded by use of the 'Developer's Online Screening Tool', which designates this parcel as non-sensitive.

2.8 First Nations

The development is located on Treaty 4 Territory, the original lands of the Cree, Ojibwe (OJIB-WĒ), Saulteaux (SO-TO), Dakota, Nakota, Lakota, and on the homeland of the Métis Nation.

There are First Nation lands located 2.0 kilometres north of the site.

3. Proposed Development

3.1 Site Services

3.1.1 Water

Water service in the existing New Horizon Business Park is provided from an existing well, producing water at a flow rate of 5 imperial gallons per minute (IGPM) (0.38 L/s). The existing well is licensed for an annual allocation of 3,250 m^3/year.

The existing Business Park (Phase 1) currently uses an average of approximately 3,000 imperial gallons per week (13.64m^3/week or 709 m^3/year). Assuming a similar consumption rate per hectare (39.83 m^3/ha/year for the proposed new development and an annual consumption of 2,290 m^3/year is assumed. The well license allows for a hectare rate of 56.52 m^3/ha year, which is more than the current per hectare consumption rate.

In the event a single or multiple high water user is brought into the development or in the case for a user to require a potable water source, cisterns can be utilized with hauled in water from the RM of Edenwold to subsidize the water volume. An application to increase well production would also be an option as the well has more capacity than the license allows.

[7] *RM of Edenwold, OCP Map 6B*

Water obtained from the existing well is considered hygienic (or non-potable). Hygienic systems must not be used for human consumption including drinking, oral hygiene or food preparation. Potable water will be provided separately by each individual building owner, typically using bottled water.

The distribution of the water service for the existing development is provided by two separate pressured loops. The proposed water service to the new development will be completed by adding additional pressure loops to the system.

Each new building will be serviced using a hydro-pneumatic pressure tank. The pressure tank size will depend on the individual building usage and occupancy. Any heavy water users within the development will require the installation of a cistern for additional storage.

3.1.2 Wastewater

Wastewater from each new parcel will be collected in holding tanks. Holding tanks will be designed and installed in accordance with the *Saskatchewan Onsite Wastewater Disposal Guide (2018).*

It will be the responsibility of the new parcel owners to install the holding tanks and to engage private septic waste haulers for disposal of wastewater. Private haulers typically dispose of septic waste at one of the wastewater treatment facilities in the area that accept septic waste.

3.1.3 Storm Water Management

The storm water management system will be designed in accordance with the most current version of Water Security Agency's Stormwater Guidelines (EPB 322) and other best management practices.

Storm water management is proposed to include a dry bottom detention pond with the pond outlet restricted to the pre-development release rate. The site will be graded to direct runoff to the retention pond. Site grading for the development will include providing compacted clay fill over the site to promote runoff and reduce infiltration.

The existing topography in the area generally slopes from north to south towards Highway No. 46. The storm pond is proposed to be sized to detain a 1:100-year, 24-hour rainfall event. The release rate will be restricted to the predevelopment runoff rate.

Rainfall runoff is based on the *Short Duration Intensity Duration Frequency (IDF)* curves for Regina for the period 1941 to 2017 obtained from *Environment Canada*. Rainfall intensity and rainfall amounts derived from the IDF curves for the 1:100-year, 24-hour duration rainfall event are summarized in Table 3.1.

Table 3-1: Rainfall Data (1:100 Year, 24 Hour Event)

Return Period (Tr)	Rainfall Amount (mm)
1:2	39.9
1:5	59.4
1:10	72.2
1:25	88.5
1:50	100.6
1:100	112.6

Based on an assumed pre-development and post-development runoff coefficient (C) of 0.25 and 0.80, respectively and a total area of 21.11 ha for Phase 3 and 18.005 ha for Phase 4, the estimated runoff volume during a 1:100, 24-year rainfall event is estimated in Table 3.2.

Table 3.2: Estimated Runoff Volume

	Runoff Coefficient	Phase 3 Estimated Runoff Volume (m^3)	Phase 4 Estimated Runoff Volume (m^3)	Total Estimated Runoff Volume (m^3)
Predevelopment	0.25	5,945	5,070	11,015
Post Development	0.80	19,015	16,220	35,232
Required Storage Volume		13,070	11,150	24,220
Release Rate (L/s)		76	65	141

The excess runoff will be released over a 48-hour period (including during the 24-hour rainfall event and for a period of 24 hours following the event) as shown in Table 3.2

Pond side slopes are proposed to be 4 horizontals to 1 vertical (4H:1V). The pond depth will typically be between 1.5 and 2.4 m with freeboard of between 0.3 m and 0.6 m.

The proposed pond outlet includes a 450 mm CSP or HDPE pipe with a precast concrete manhole. The pipe would be designed to daylight to natural ground at the south limit of the site. An orifice plate or inlet control device is provided inside the manhole to control the release rate.

The preliminary site grading plan is shown in Appendix A. The final pond location, site grading, pond configuration and pond outlet will be confirmed during detailed design.

3.1.4 Site Access and Roadways

Access to the site will be from a new approach constructed off of Range Road 2185. Internal roads will be gravel with a top width of 8.0 metres. Swale ditches will be provided to remove and direct runoff from the road surface to the proposed storm pond.

A channelized intersection was previously constructed at the intersection of Highway 46 and Range Road 2185 to accommodate traffic to the developments north of the highway. The channelized intersection includes:

- Eastbound dedicated left and right turn lanes.
- Westbound dedicated right turn lane.
- Through lane in the east bound and westbound directions.

The RM required a traffic impact assessment (TIA) as part of the comprehensive development proposal (CDP) for the previous phase. In discussion with the Saskatchewan Ministry of Highways (MHI) a functional design of the entire Highway 46 corridor is underway internally. Therefore, a traffic impact assessment was not required for this phase.

3.1.5 Utilities

Shallow utilities (SaskPower, SaskEnergy, and SaskTel) are located in the immediate vicinity of the development. The necessary installation and connection fees will be borne by the individual lot owner.

3.2 Fire and Protective Services

Fire fighting services in the area are provided by the RM. The RM also has standard fire protection agreements with Balgonie, White City, Pilot Butte, the Village of Edenwold, and the Hamlet of Kronau.

Police services in the RM are provided by the RCMP's White Butte Detachment.

3.3 Phasing

It is the intent of the Developer to complete the site grading and access road construction in one phase. Further development of the lots will be the responsibility of the owners.

3.4 Landscaping

Commercial Districts are also required to comply with the landscaping and buffer requirements as outlined in Section 4.44.

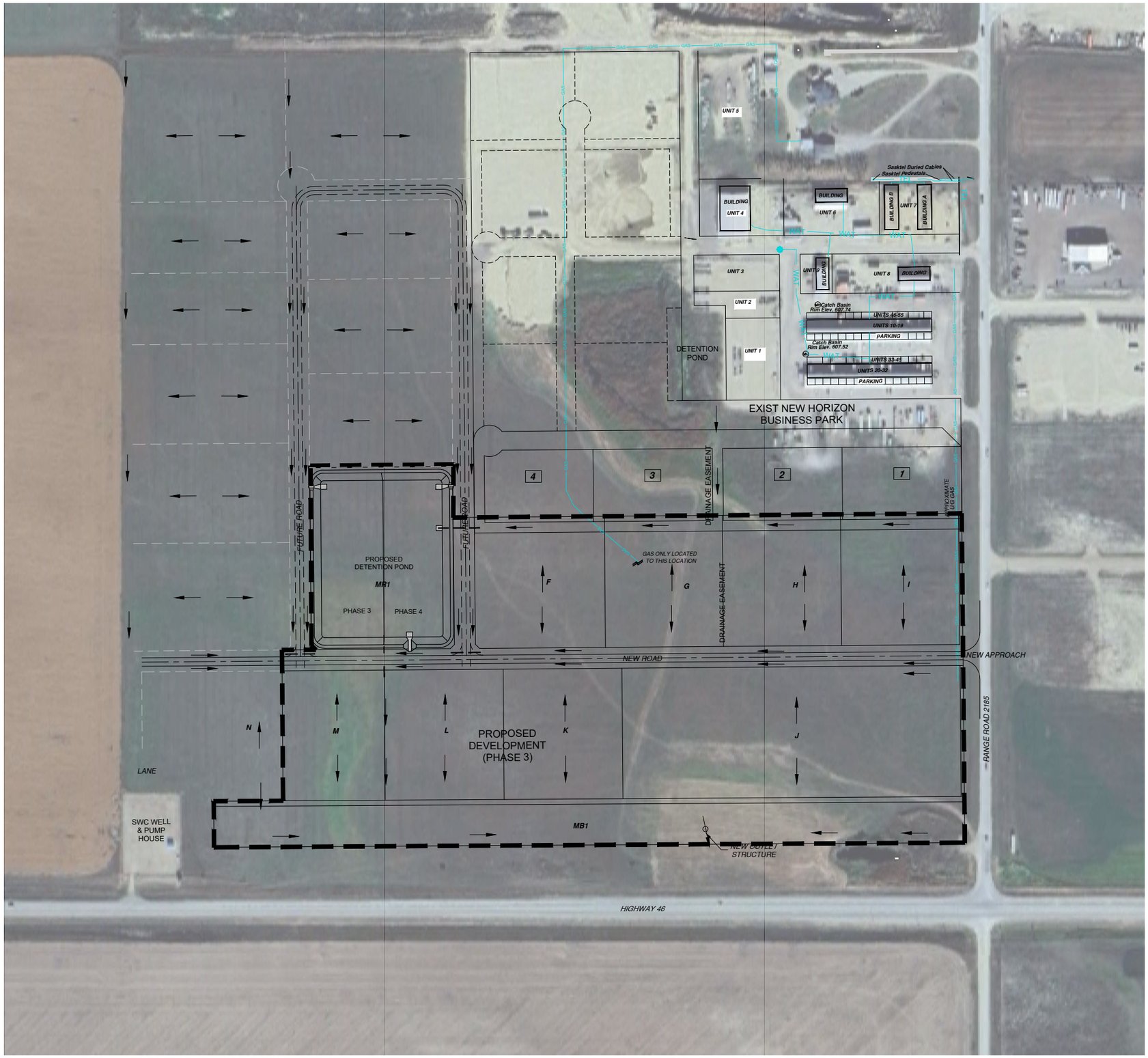
Each new lot owner will be responsible to submit a landscaping plan to the RM as part of the building permit process.

3.5 Public Consultation

The adjacent sites have already been zoned for developments. Therefore, it has been assumed no further public consultation is required.

APPENDIX A

Overall Drainage Plan



NOTICE:
THE EXISTENCE, LOCATION AND ELEVATION OF UTILITIES AND/OR CONCEALED STRUCTURES AT THE PROJECT SITE ARE NOT GUARANTEED BY WCE DESIGN.

THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE, LOCATION AND ELEVATION OF ALL SUCH UTILITIES AND/OR STRUCTURES AND IS RESPONSIBLE FOR NOTIFYING THE APPROPRIATE COMPANY, DEPARTMENT OR PERSON(S) OF ITS INTENTION TO CARRY OUT ITS OPERATIONS.

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Last saved date: (2024-03-26) Last Plotted: 2024-03-26
Filename: G:\SHARED DRIVES\WCE DESIGN\24-012 NEW HORIZON BUSINESS PARK\400 - TECHNICAL\450 - PREDESIGN\WCE DRAINAGE 24-012 - REVISED STORM POND LOCATION.DWG

WCE design inc.

PROJECT
NEW HORIZON BUSINESS PARK EXPANSION
PHASE 3 & PHASE 4

CLIENT
NEW HORIZON GROUP OF COMPANIES

REGINA, SASK

CONSULTANT
WCE Design Inc.
80 EMERALD RIDGE EAST
WHITE CITY, SASKATCHEWAN
306.540.8312 tel
dustin.weiss@wcedesign.ca

SEALS

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER
24-012

SHEET TITLE
PROPOSED DRAINAGE CONCEPT PLAN

SHEET NUMBER
C100

APPENDIX B

Well Data

File: E3/5074

WATER RIGHTS LICENCE
TO USE GROUND WATER

Licence No. E3/5074 issued on March 27, 2024

NEW HORIZON PARK INC. of **EMERALD PARK, SASKATCHEWAN**

hereinafter called the licensee, is granted the right to use water in accordance with this Licence subject to the conditions and restrictions contained in *The Water Security Agency Act* and the regulations under that *Act*, each as amended or replaced from time to time.

Annual Quantity of Water Allocated:	**3.25 cubic decametres (3,250 cubic metres)**
Well Name/Number:	PW1-2014
Point of Diversion:	SE 06-18-18 W2 (Condo Plan 102285378)
Point of Delivery:	SE 06-18-18 W2 (Condo Plan 102285378)
Purpose:	Municipal (Commercial Facility)
Expiration Date:	March 30, 2029

This Licence does not negate the licensee's responsibility to comply with the requirements of any other relevant municipal, provincial and/or federal legislation.

This Licence issued and recorded at Moose Jaw, Saskatchewan is subject to the conditions listed on the following page(s).

for Water Security Agency

Conditions (E3/5074)

General Conditions

1. This Licence is subject to cancellation, amendment or suspension on written notice pursuant to Section 53 of *The Water Security Agency Act* and the regulations under that *Act*.

2. In the event that the Water Security Agency determines that the effects of the project deviate significantly from those predicted in the studies which were the basis of the grant of the original or amended licence, the Water Security Agency may cancel this Licence.

3. This Licence does not guarantee that water will be available at all times during the currency of this licence. The Water Security Agency reserves the right to restrict the use of water under this Licence due to shortage or pressing necessity.

4. This Licence does not run with land tenure and automatically terminates on the date of disposition of the subject lands at the point of delivery. Any person who assumes ownership of or a legal interest in the lands at the point of delivery must file a new application for Water Rights Licence with the Water Security Agency. Upon acceptance of the application, a new Water Rights Licence may be issued.

5. The licensee shall pay such fees, levies, rates or charges as may be fixed from time to time by the Water Security Agency under the authority of *The Water Security Agency Act* for the privilege or authority granted by this licence.

6. No change in the purpose of the project, rate of diversion and/or annual quantity of water shall be made without prior authorization being obtained under *The Water Security Agency Act*.

Special Conditions

1. Water allocated under this licence will be delivered by water supply works owned by the licensee under the Approval to Operate for E3/5074. This Licence will automatically expire if the licensee does not maintain a valid Approval to Operate Works for such ground water supply works.

APPENDIX I – EMAIL FROM RM OF EDENWOLD RE: DRAINAGE APPROVAL

From: Paige Boha <paige.boha@edenwold-sk.ca>
Sent: Thursday, March 28, 2024 1:52:54 PM
To: Project Management <81@nhgoc.com>
Subject: RE: WSA comments for the CDP

Hi Clint,

Thank you for your email and voicemails.

Yes, you can submit the CDP without the WSA comments, and the RM will review it. Most likely the RM will refer the CDP to WSA for comments during our review process.

Have a great long weekend!

Best Regards,

Paige Boha, RPP, MCIP, B.A.

Manager of Planning and Development

RM of Edenwold No. 158

100 Hutchence Road

Emerald Park, SK S4L 1C6

Office: 306-347-2967

Fax: 306-347-2970

paige.boha@edenwold-sk.ca

Community Proud

APPENDIX J – AQUIFER PROTECTION PLAN

GROUND ENGINEERING CONSULTANTS LTD.

CIVIL & GEOENVIRONMENTAL ENGINEERS

415 – 7TH AVENUE · REGINA · SASKATCHEWAN · S4N 4P1
Tel: (306) 569-9075 Fax: (306) 565-3677 Email: admin@groundeng.ca

FILE: GE-14105 February 15, 2024

New Horizon Park Corp.
Box 558
PILOT BUTTE, Saskatchewan
S0G 3Z0

ATTENTION: MR. ALLEN KILBACK

Dear Sir:

SUBJECT: AQUIFER PROTECTION PLAN
NEW HORIZON BUSINESS PARK – PHASE 3
PORTION OF SE-6-18-18-W2
R.M. OF EDENWOLD, SASKATCHEWAN

The above captioned property is being proposed to be subdivided and developed with an industrial subdivision (New Horizon Business Park – Phase 3). The property is currently cultivated farmland which is used for forage. The limits of the proposed subdivision are shown on the attached site plan. Our Company conducted a geotechnical investigation at the subject property in 2010 at which time it was determined that the property is underlain by a surficial layer of highly plastic clay followed by silt and sand. The groundwater table was located at depths ranging from 6 to 11 metres below grade at the time of the investigation (Condie Aquifer).

The subject property is located within the High Sensitivity Aquifer zone as identified in the R.M. of Edenwold Official Community Plan (Map 12, Appendix A). The OCP requires that an Aquifer Protection Plan be implemented to limit potential contamination of the aquifer.

The following recommendations and comments are provided to limit the potential impact the proposed development may have on the underlying aquifer:

.1 Imported fill material which is required to grade the property shall consist of highly plastic clay or clay till obtained from an off-site pre-approved borrow source. Random fill from various sources shall not be permitted. Importing of the fill shall be monitored.

All fill shall be placed in lifts which are compacted and graded to provide effective drainage. All surficial organics and topsoil shall be stripped before placing fill materials.

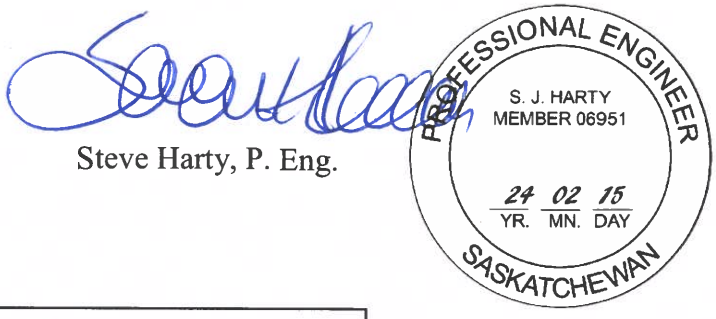
.2 Trenches for site services may be backfilled with the excavated soil which is placed in lifts which are compacted. The upper 1.5 metres of trench backfill shall consist of highly plastic clay or clay till.

.3 The transportation, storage, handling and use of Contaminants of Potential Concern (COPC) on the property shall comply with all applicable regulations. All COPC shall be stored in such a manner as to allow for visual confirmation that there have been no spills or leaks. Any spills or leaks shall be promptly addressed. Storage of COPC shall not occur over bare ground. COPC shall be stored within a secondary containment system to contain potential spills. An annual site inspection shall be conducted to evaluate the storage, handling and use of COPC.

Provided the mitigative measures outlined above are followed, the contaminant risk posed to the underlying aquifer by the proposed industrial development will be satisfactorily managed.

We trust that this letter is satisfactory for your purposes. If you have any questions, please contact this office.

Yours very truly
Ground Engineering Consultants Ltd.



Steve Harty, P. Eng.

SH:vb
Attach.
Distribution: New Horizon Park Corp. (1 PDF copy)
SH1105 Office (1 copy)

Association of Professional Engineers & Geoscientists of Saskatchewan

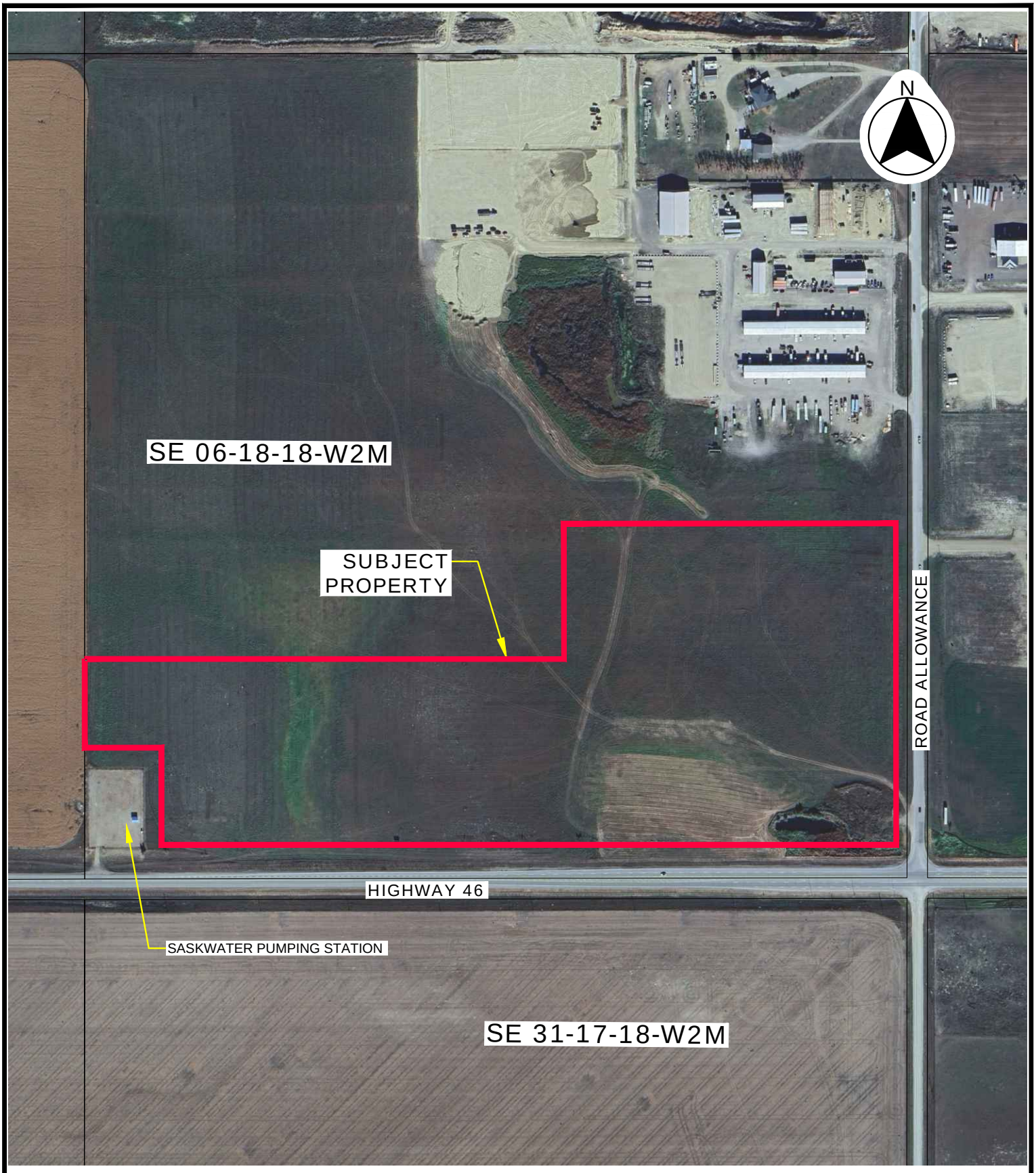
CERTIFICATE OF AUTHORIZATION

GROUND ENGINEERING CONSULTANTS LTD.
NUMBER C0008

Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
Environmental	*06951*	

GROUND ENGINEERING CONSULTANTS LTD.



2022 AIR PHOTO

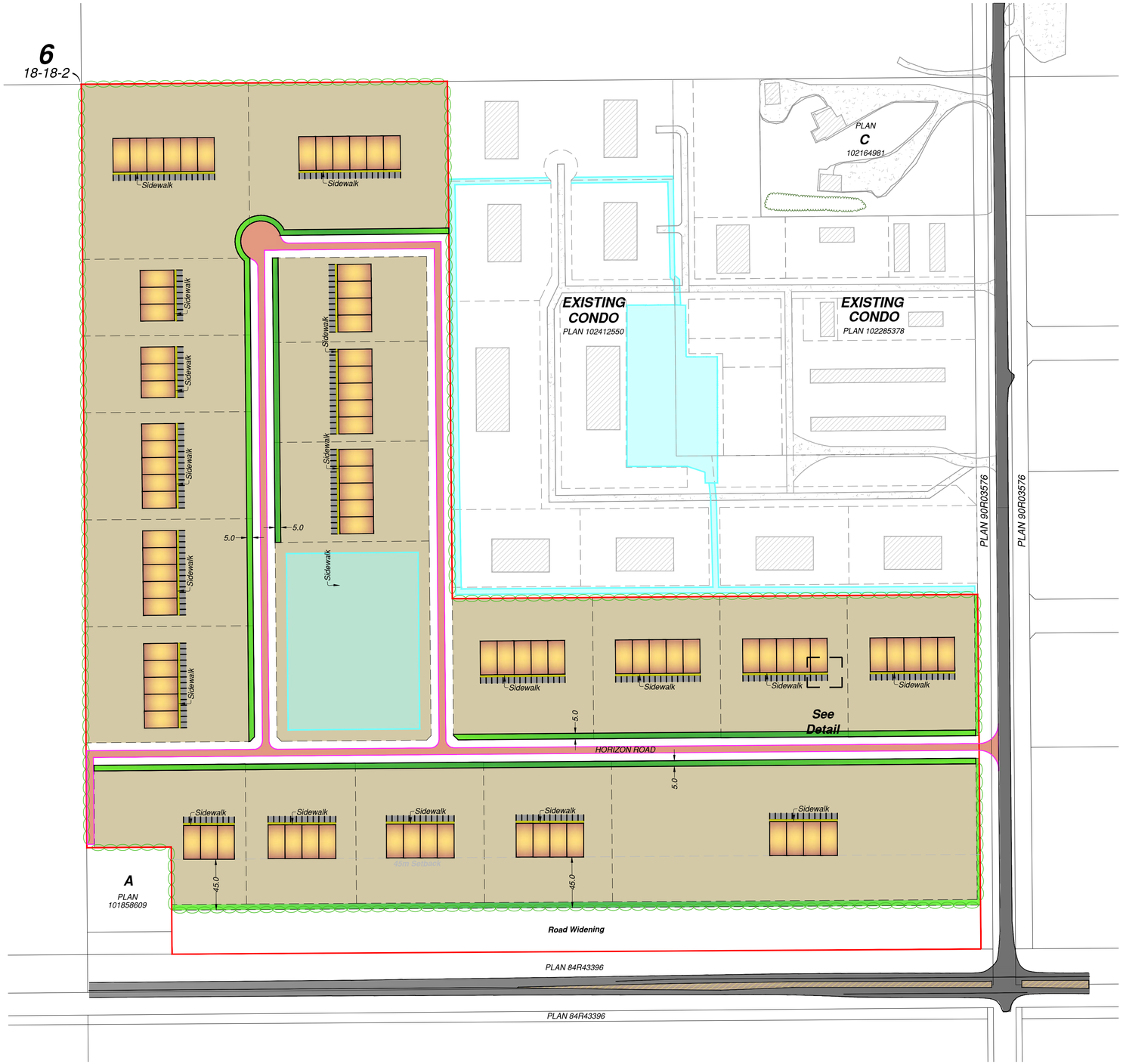
SCALE: 1:5000

GROUND ENGINEERING CONSULTANTS LTD.
CIVIL & GEOENVIRONMENTAL ENGINEERS
415–7th AVENUE
REGINA, SASKATCHEWAN, CANADA

AQUIFER PROTECTION PLAN
NEW HORIZON BUSINESS PARK PHASE 3
PORTION OF SE 06-18-18-W2M
R.M. OF EDENWOLD No. 158, SASKATCHEWAN

CLIENT:	APPROVED:	DATE:	DWG. No.:
NEW HORIZON PARK INCORPORATED	S. HARTY	FEBRUARY, 2024	GE-14105

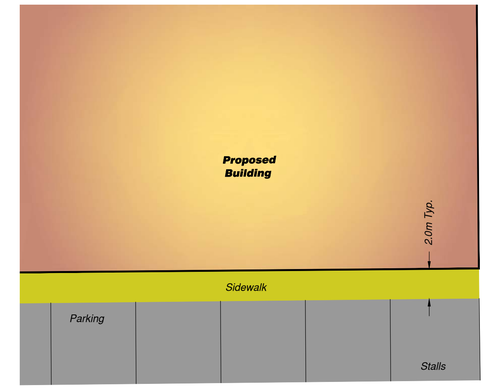
APPENDIX K – PEDESTRIAN TRAFFIC PLAN



PLAN VIEW
SCALE: NOT TO SCALE

Legend

Landscaping		New Development	
Proposed Building		Condo Subdivision	
Gravel Road (Main Traffic)		Privacy Fence	
Lot Gravel		Existing Fence	
Parking Stall			
Sidewalk			
Drainage			
Existing Building			
Existing Gravel Road			
Existing Paved Road			



DETAIL
SCALE: NOT TO SCALE

NOTE: Saskpower to complete power design
Existing utilities not shown on plan.

Meridian Surveys Ltd.

PEDESTRIAN TRAFFIC PLAN FOR PROPOSED DEVELOPMENT

ON

S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
RM OF EDENWOLD No. 158, SASKATCHEWAN

DRAWING:	RE232092-PEDESTRIAN TRAFFIC-Rev3	DATE:	May 22, 2024	REV No.	3

APPENDIX L – TRAFFIC IMPACT ASSESSMENT

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June 20, 2023

WCE Design Inc.
RM of Edenwold

Attention: Mr. D. Weiss

Re: New Horizon Business Park Transportation Impact Assessment - Draft

Dear Mr. Weiss:

KGS Group is pleased to submit the following letter report which outlines the results of the New Horizon Business Park Transportation Impact Assessment. The purpose of this assessment is to evaluate the impact that traffic generated by the proposed industrial development will have on the adjacent highway network and to recommend any required mitigation measures.

INTRODUCTION

KGS Group has been commissioned by WCE Design Inc. to complete a transportation impact assessment (TIA) for an industrial development located along Gravel Pit Road in the Rural Municipality of Edenwold. The proposed development herein referred to as the New Horizon Business Park, is located north of the Highway 46 and Gravel Pit Road intersection. The New Horizon Business Park includes approximately 11.4 ha of light industrial development. This study will identify any mitigation measures on the surrounding road network necessary to accommodate the site generated traffic.

The study intersections for this assessment include:

- Highway 46 and Gravel Pit Road intersection
- Site access intersections along Gravel Pit Road

The location of the proposed development in relation to the city of Regina and the town of Pilot Butte is illustrated in **Figure 1**.

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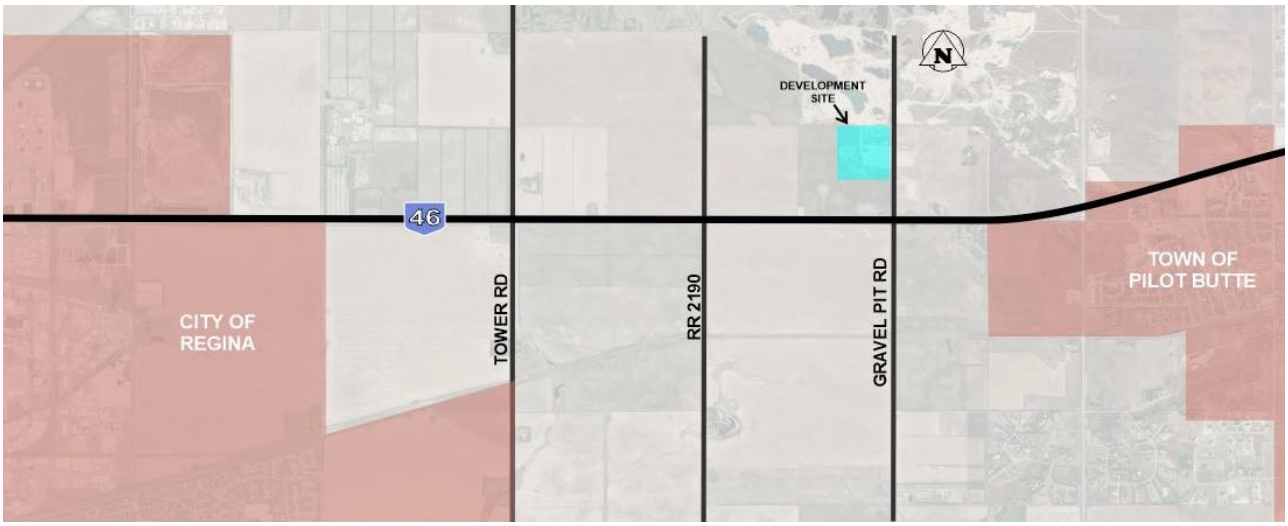

FIGURE 1: STUDY AREA

In finalizing the TIA parameters, the Ministry of Highways identified a potential mixed-use development (Bamboo Nations Mixed-use Development) located south of Highway 46 that is currently undergoing a separate TIA. The impact of that proposed development at the Highway 46 and Gravel Pit Road intersection was considered in a supplemental analysis and is presented in **Appendix A**.

EXISTING SITE CONDITIONS

Existing Roadways

Highway 46 is a paved two-lane undivided provincial highway with a rural cross-section and a posted speed limit of 90 km/h adjacent to the proposed site. The Highway 46 and Gravel Pit Road intersection is stop-controlled in the north and south directions and there is corridor lighting present along Highway 46. There are dedicated left-, through-, and right-turn lanes in the eastbound direction and a shared through- and left-turn lane and a shared through- and right-turn lane (flared intersection treatment) in the westbound direction. There are no auxiliary lanes in the northbound or southbound directions.

The Ministry of Highways (Ministry) recently commissioned a functional planning study for the Highway 46 corridor that was to review if twinning would be required in the future and how the corridor would facilitate a four-lane cross-section. At the time of this transportation impact assessment, the functional planning study was not complete, and the future cross-section of Highway 46 was not available.

Gravel Pit Road is a north-south road with a paved surface to the north and gravel surface to the south. The speed limit is posted at 60 km/h north and south of the study intersection. There is a weight restriction of 10 tonnes on the gravel road to the south. Gravel Pit Road provides access to several light industrial businesses

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and two commercial aggregate pits to the north, and one residential/farm, one residential/transport business, and one concrete and masonry plant to the south.

Existing Development

The proposed development is located near the western border of the Rural Municipality of Edenwold. The proposed site is partially developed, and the surrounding area includes undeveloped fields, agricultural lands and other light industrial businesses. A light industrial development is located along Gravel Pit Road to the east of the proposed site, and north of the proposed development site are the KF Croft Aggregate and Inland Aggregates sites, which is where Gravel Pit Road terminates to the north.

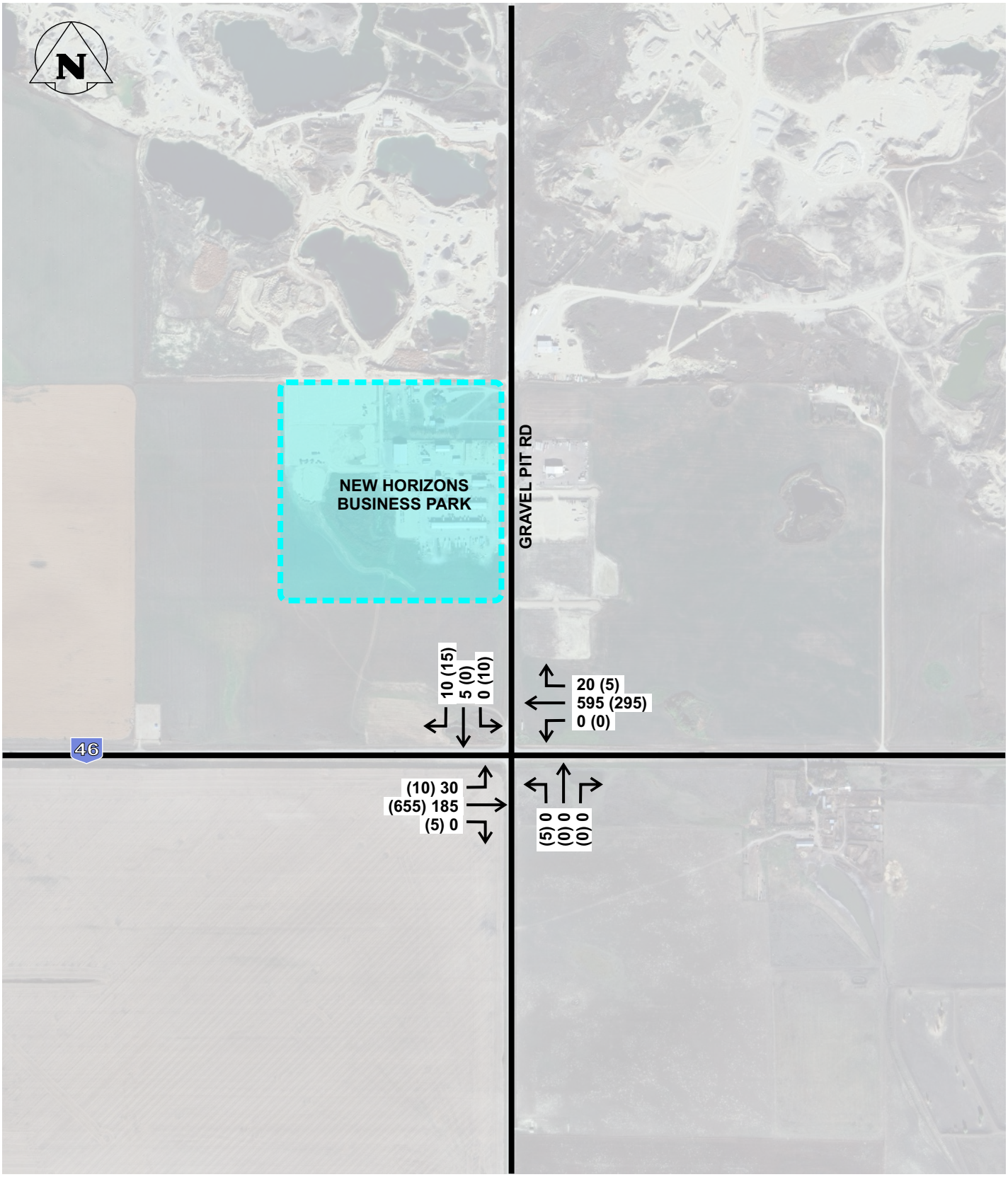
Existing Traffic Volumes

Existing traffic volumes were collected in April 2023. Data collection avoided Good Friday and the week of April 9, 2023, as travel patterns may have been altered due to school break. The turning movement counts captured the weekday morning peak period (7:00 a.m. to 9:00 a.m.) and the afternoon peak period (4:00 p.m. to 6:00 p.m.), corresponding to typical commute hours. The traffic data was collected by turning movement and classified into cars, trucks, and buses.

Figure 3 summarizes the total vehicular turning movements (rounded to the nearest five vehicles) recorded at the study intersections during both the morning and afternoon peak hours. The weekday morning peak hour was found to occur between 7:00 a.m. – 8:00 a.m. and the weekday afternoon peak hour was found to occur between 4:30 p.m. – 5:30 p.m.

The traffic volumes along Highway 46 are predominately directional in nature, with vehicles traveling westbound during the morning peak hour towards Regina, and vehicles traveling eastbound during the afternoon peak hour towards Pilot Butte. This travel pattern is consistent with people commuting for work in the morning and returning home in the evening.

The intersection capacity analysis for the existing site conditions is presented under **Traffic Analysis.** The Highway 46 and Gravel Pit Road intersection was found to be operating well overall (LOS A) during the peak hours; however, the north and south approaches are seeing some delay (LOS C) due to the higher volume of traffic on Highway 46.



LEGEND:

PROJECT SITE

XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC VOLUMES
VOLUMES ROUNDED TO THE NEAREST FIVE (5).

KGS GROUP	WCE DESIGN INC
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2023 EXISTING PEAK HOUR TRAFFIC VOLUMES	
JUNE_2023	FIGURE 2 — REV. 0

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NEW HORIZON BUSINESS PARK

The proposed site plan is illustrated in **Figure 2**. The New Horizon Business Park has approximately 11.4 ha of land to be developed. The proposed development plan indicates a 30 m right-of-way for the internal circulating road, which is appropriate for the proposed development. The proposed development will have two accesses via Gravel Pit Road. Construction of the proposed industrial development is anticipated to occur in the fall of 2023 with full development estimated to be in 2038.

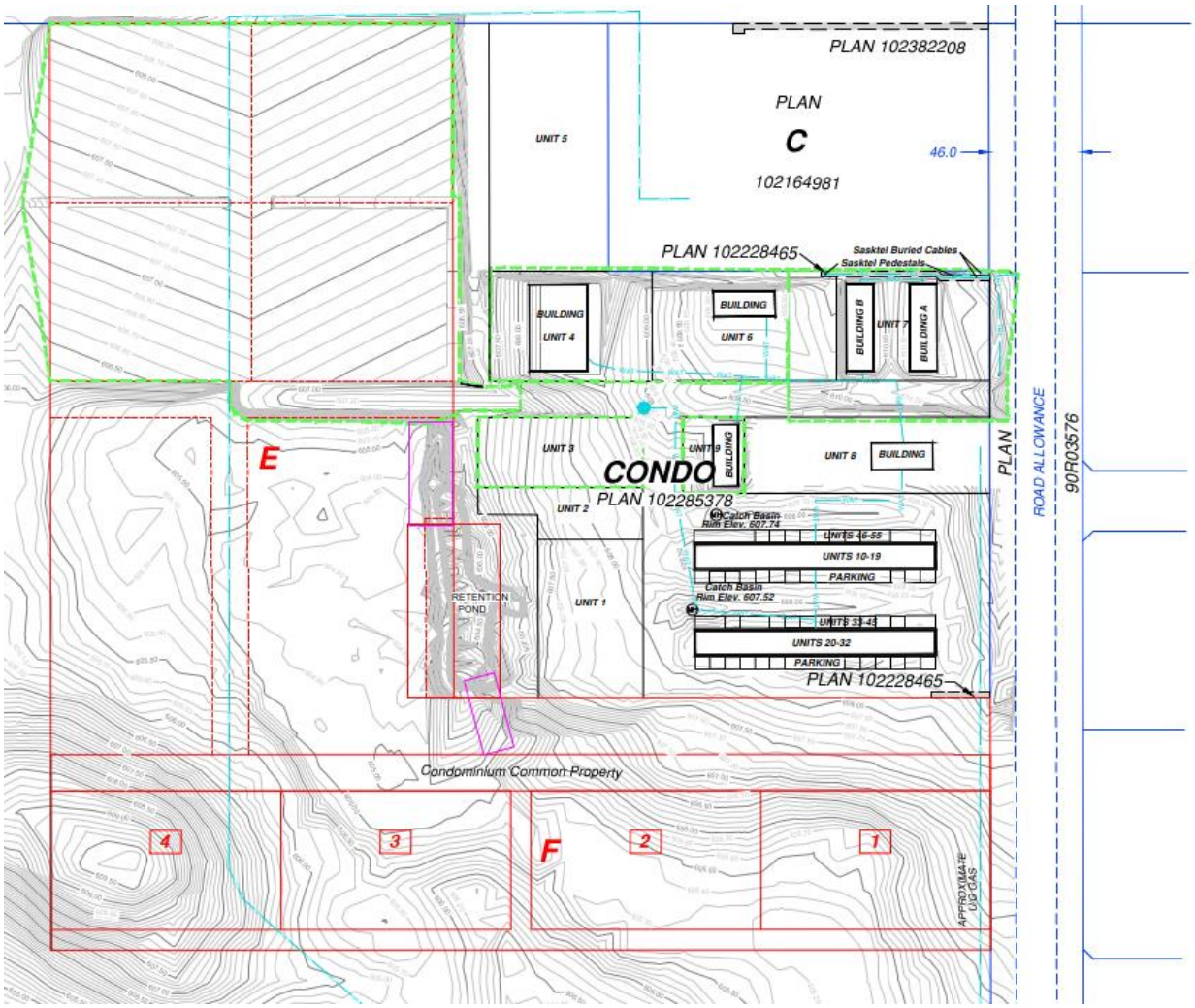

FIGURE 3: SITE PLAN

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TRAFFIC ANALYSIS

The study area was analyzed under three scenarios to identify how vehicles move through the study intersections. The scenarios analyzed include:

- Existing Traffic Volumes– How the intersections operate today.
- 2038 Background Traffic Volumes – How the intersections would operate in the future **without** the proposed development.
- 2038 Total Traffic Volumes – How the intersections would operate in the future **with** the proposed New Horizon Business Park.

Appendix A presents the background and total traffic volume analyses that includes the Bamboo Nations Mixed-use development.

Analysis Assumptions

The study area was analyzed using the existing roadway geometry and traffic control to identify how traffic moves through the study intersections. Synchro 11 was used to assess the study intersections during the weekday morning and weekday afternoon peak hours, when adjacent street traffic is at its busiest.

Synchro, which is based on the methodology outlined in the Highway Capacity Manual, produces two key measures to determine the operations of an intersection. The first is level of service (LOS), which is based on the average delay per vehicle, and the second is the volume-to-capacity (v/c) ratio, which indicates the traffic volume at an intersection or for a traffic movement in relation to the capacity available. The LOS criteria for signalized and unsignalized (stop-controlled) intersections is presented in **Table 1**. A LOS A indicates good traffic flow with minimal delay and LOS F indicates congested traffic operations with considerable delay (i.e. stop and go conditions). The v/c ratio identifies the intersection's overall or individual movement's ability to accommodate fluctuations in traffic flow. In a rural environment, a system that is reaching the limits of its operational effectiveness will experience ratios greater than 80%.

SimTraffic, a traffic simulation software program included in the Synchro Studio 11 suite, was used to perform a queuing analysis. SimTraffic can be used to help predict the length of vehicle queues that will form at an intersection. The results for the SimTraffic analysis were based on an average of ten 60-minute simulation runs for all scenarios. The queuing analyses were conducted for the 95th percentile queues. The 95th percentile queue length provides the queue length that would only be exceeded five percent of the time. The 95th percentile queue represents the worst-case scenario, and they are used as an indicator to determine where further examination of storage length is required.

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TABLE 1: LEVEL OF SERVICE CRITERIA

Level-of-Service	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	>10 – 20	>10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

Source: Highway Capacity Manual

2023 Existing Traffic

The Highway 46 and Gravel Pit Road intersection was analyzed using the existing roadway geometry, traffic control, and 2023 peak hour traffic volumes. The results of the existing conditions operations analysis are summarized in **Table 5**.

The capacity analysis results show that the Highway 46 and Gravel Pit Road intersection operates generally well overall (LOS A) under the existing traffic conditions, with individual movements operating at a LOS C or better during the peak hours. Traffic on the north and south approaches are primarily delayed due to the higher volume of east- and westbound traffic on Highway 46. The analysis demonstrates that no modifications are required to accommodate the existing traffic volumes.

TABLE 5: HIGHWAY 46 & GRAVEL PIT ROAD 2023 INTERSECTION OPERATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS (Delay)*	A (10 s)	--	--	A (0 s)	--	--		C (23 s)			C (17 s)	
	V/C ratio	0.05	--	--	0.00	--	--		0.01			0.07	
	Queue (m)	16	--	--	--	--	--		2			17	
	Overall LOS	***A (1 s)***											
PM Peak Hour	*LOS (Delay)*	A (9 s)	--	--	A (0 s)	--	--		C (18 s)			C (16 s)	
	V/C ratio	0.01	--	--	0.00	--	--		0.02			0.07	
	Queue (m)	9	--	--	--	--	--		4			16	
	Overall LOS	***A (1 s)***											

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2038 Background Traffic

Background conditions provide a point of reference to understand the relative impact of a development on the transportation network. Background conditions refer to the transportation network and how it is expected to operate, regardless of the proposed development.

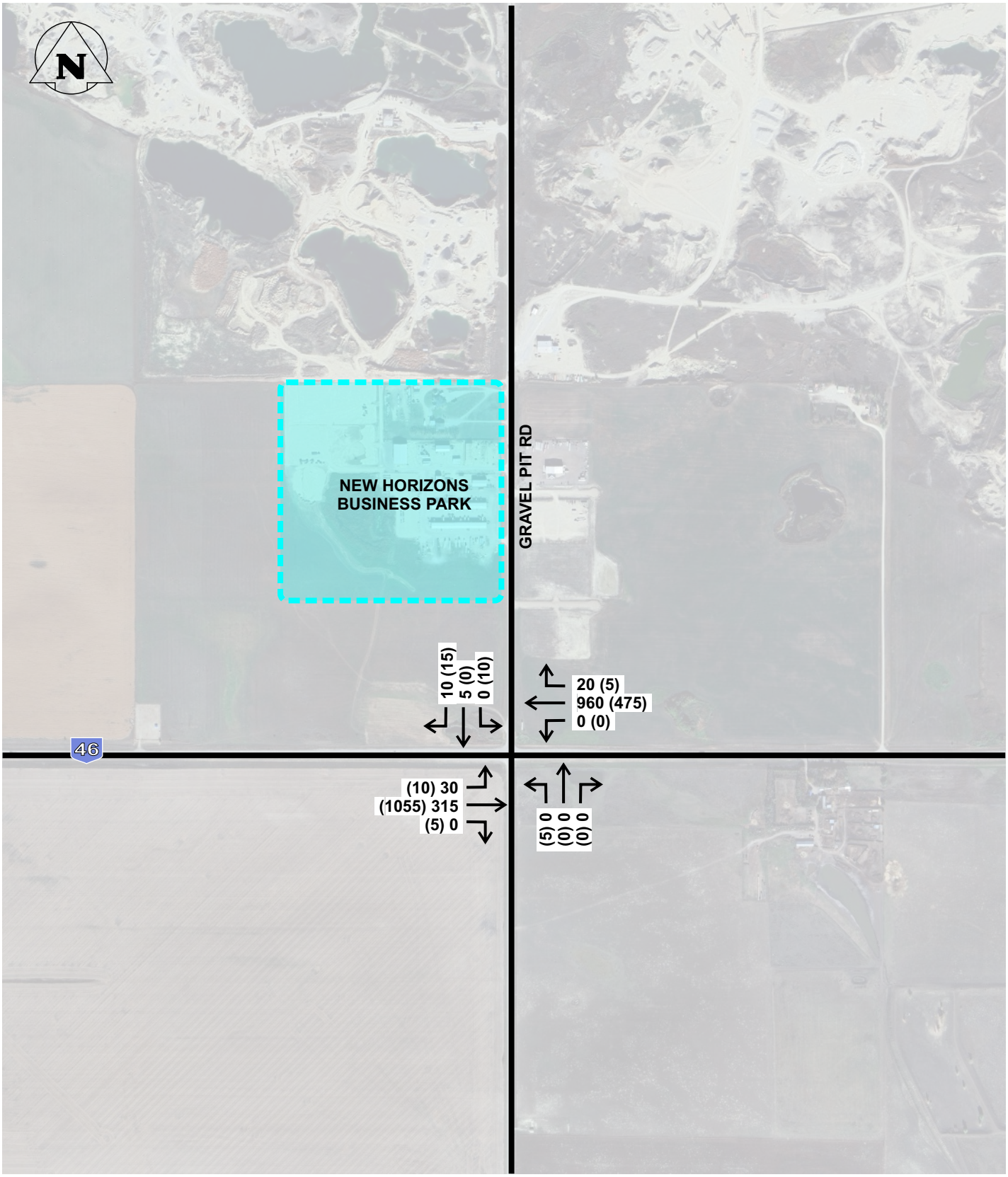
2038 BACKGROUND TRAFFIC FORECAST

The future background traffic volume projections were developed for the 2038 horizon, five years beyond full buildout of the development.

The Ministry's background growth rates consider open highway conditions and are largely impacted by community growth when applied to sections of highway within or adjacent to municipalities. The Ministry's 15-year growth rate is 1.60, which represents a 60% increase in traffic in the next 15 years.

The 2038 background traffic volumes were estimated by applying the 15-year growth rate of 1.60 to the 2023 eastbound and westbound through traffic volumes on Highway 46. No background growth rate was applied to the turning movements to the north or south as it is assumed that only new development would contribute to the growth of these movements.

The estimated 2038 peak hour background traffic volumes are illustrated in **Figure 4**.



LEGEND:

PROJECT SITE

XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC VOLUMES
VOLUMES ROUNDED TO THE NEAREST FIVE (5).

KGS GROUP	WCE DESIGN INC
NEW HORIZON BUSINESS PARK TRANSPORTATION IMPACT ASSESSMENT	
2038 BACKGROUND PEAK HOUR TRAFFIC VOLUMES	
JUNE_2023	FIGURE 4 — REV. 0

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2038 BACKGROUND TRAFFIC OPERATIONS

The background capacity analysis evaluates the traffic conditions in the area that would occur if the proposed development did not proceed. The study intersection was analyzed using the existing roadway geometry and traffic control, and the 2038 peak hour background traffic volumes. The results of the 2038 background traffic conditions operations analysis are summarized in **Table 6**.

The Highway 46 and Gravel Pit Road intersection is operating well overall (LOS A) during both peak hours. However, the capacity analysis demonstrates that the northbound and southbound approaches are expected to see increased delay in the future. The northbound approach is estimated to have an average delay per vehicle of ~36 seconds (LOS E) during the peak hours. However, this is relatively a minor amount of traffic when compared to the volume of traffic on the other approaches (i.e. <5 vehicles during the peak hours). The southbound approach is estimated to have an average delay per vehicle of ~ 25-33 seconds (LOS D) during the peak hours.

The target operating parameters for individual movements is a LOS D on a highway network, and the Highway 46 and Gravel Pit Road intersection is at the threshold where intersection improvements should be considered.

TABLE 2: HIGHWAY 46 & GRAVEL PIT ROAD 2038 BACKGROUND INTERSECTION OPERATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	B	--	--	A	--	--		E			D	
	Delay (s)	12	--	--	0	--	--		36			25	
	V/C ratio	0.06	--	--	--	--	--		0.01			0.10	
	Queue (m)	23	--	--	1	1	0		2			20	
	Overall LOS	***A (1 s)***											
PM Peak Hour	*LOS*	A	--	--	A	--	--		E			D	
	Delay (s)	10	--	--	0	--	--		36			33	
	V/C ratio	0.02	--	--	--	--	--		0.04			0.16	
	Queue (m)	12	--	--	1	1	--		12			61	
	Overall LOS	***A (1 s)***											

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Development Traffic

TRIP GENERATION

The proposed industrial development encompasses approximately 11.4 ha of land, which is expected to be developed as light industrial. The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, was used to estimate the trips generated by the proposed industrial development for the weekday morning and afternoon peak hours. The land use code and trip rates and in/out ratios applied to the land uses within the proposed development are listed in **Table 3**.

TABLE 3: TRIP GENERATION RATES

Land Use	ITE Code	Peak Hour	Trip Generation Equation	Directional Distribution	
				Entering	Exiting
Light Industrial	110	AM	T = 0.68 (X) + 3.81	88%	12%
		PM	Ln(T) = 0.72 Ln(X) + 0.38	14%	86%

T = Average Vehicle Trips X = 1,000 sq. ft. GFA

The following assumptions were made as part of the trip generation analysis:

- The floor-area ratio (FAR) is assumed at 10% of the total area to estimate the gross floor area of the light industrial. The light industrial FAR was estimated by examining the existing developments at the New Horizon Business Park (12%) as well as similar development northwest of Regina in the RM of Sherwood, the Sherwood Industrial Park (7.8%), and the previously approved Chuka Creek Business Park (8%). It was assumed that the light industrial land use gross floor area would cover 10% of the total net land area allocated to light industrial.

Table 2 presents the total number of site generated trips and the directional allocation (entering or exiting) for the proposed industrial development for each peak hour.

TABLE 4: SITE-GENERATED TRIPS

Land Use	AM Peak Hour			PM Peak Hour		
	Trip In	Trips Out	Total Trips	Trip In	Trips Out	Total Trips
Light Industrial	77	11	88	7	40	47
Total	***77***	***11***	***88***	***7***	***40***	***47***

It is unlikely that any of the trips generated will be multi-use trips within the proposed development (i.e. vehicles stopping at one site before proceeding to work at another site within the proposed development) as it is a single-use site.

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This development is also not expected to generate any pass-by trips.

The estimated number of new trips generated at full build-out, includes **88 new trips (77 trips entering and 11 trips exiting)** during the weekday morning peak hour and **47 new trips (7 trips entering and 40 trips exiting)** during the weekday afternoon peak hour. Sites that generate less than 100 vehicle trips during the peak hours, are typically accepted as a minor traffic generator and have minimal impact on the adjacent road network.

TRIP DISTRIBUTION AND ASSIGNMENT

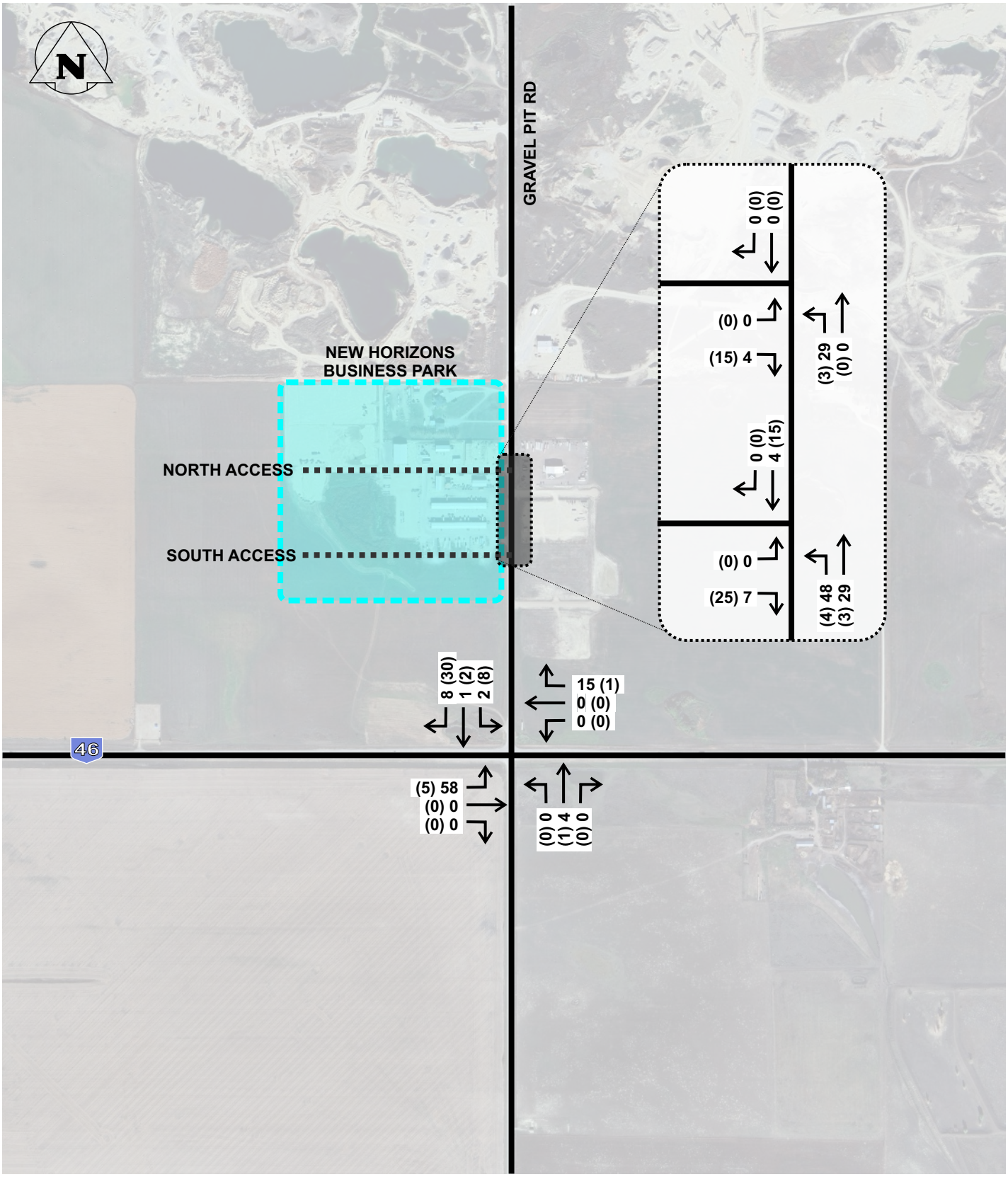
The traffic forecast was completed by distributing the site-related traffic volumes and assigning them to the road network based on an assessment of how people will access and egress the site. Trip distribution refers to the origins and destinations of the site-generated trips while trip assignment assesses the actual route that the vehicles will take between their origin and destination. The assignment process assumes that motorists will use the most efficient route.

To facilitate the trip distribution process, the surrounding area was divided into four zones with respect to the location of the proposed development. The trip distribution estimates are as follows:

- 0% will travel to / from the north
- 20% will travel to / from the east
- 5% will travel to / from the south
- 75% will travel to / from the west

The new vehicle trips were then assigned to the road network based on the distribution estimates. The vehicle assignment accounts for the routes that drivers will use to reach the site, and the access points that they will use.

The site-generated trips are illustrated in **Figure 5**.



LEGEND:

- PROJECT SITE
- XX (XX) AM PEAK HOUR (PM PEAK HOUR) SITE GENERATED TRIPS
- PROPOSED NEW ACCESS

KGS GROUP	WCE DESIGN INC
NEW HORIZON BUSINESS PARK TRANSPORTATION IMPACT ASSESSMENT	
SITE-GENERATED TRIPS	
JUNE_2023	FIGURE 5 REV. 0

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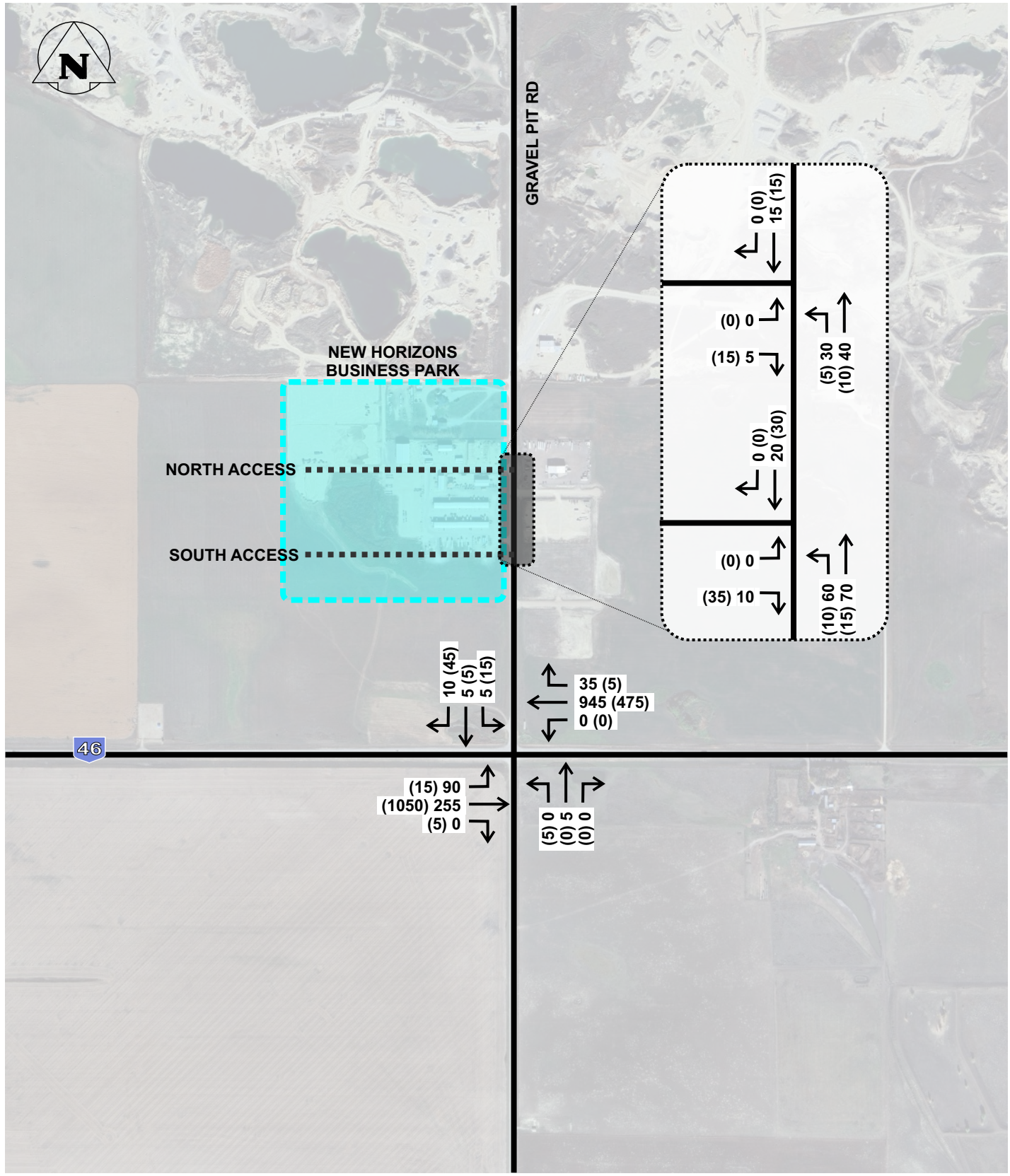
2038 Total Traffic

2038 TOTAL TRAFFIC FORECAST

The site-generated trips were added to the projected 2038 background traffic forecast volumes to obtain the 2038 total forecast traffic volumes, illustrated in **Figure 7**. The development traffic was assumed to be included within the 15-year growth rate. This means there will be fewer through vehicles when compared to the background forecast as they will be turning to go north instead.

The traffic forecast projects approximately 1,300 vehicles on Highway 46 during the morning peak hour, of which 88 trips will be generated by the proposed New Horizon Business Park. Similarly, the traffic forecast projects approximately 1,600 vehicles on Highway 46 during the afternoon peak hour, of which 47 trips are associated with the proposed New Horizon Business Park.



LEGEND:

PROJECT SITE

XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC VOLUMES
VOLUMES ROUNDED TO THE NEAREST FIVE (5).

PROPOSED NEW ACCESS

KGS GROUP

WCE DESIGN INC

NEW HORIZON BUSINESS PARK
TRANSPORTATION IMPACT ASSESSMENT

2038 TOTAL PEAK HOUR
TRAFFIC VOLUMES

JUNE_2023 | FIGURE 6 | REV. 0

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2038 TOTAL TRAFFIC OPERATIONS

The total capacity analysis evaluates the traffic conditions with the proposed industrial development. The Highway 46 and Gravel Pit Road intersection was modelled with existing geometry and as a two-way stop-controlled intersection and the new accesses were modeled as stop controlled intersections.

Table 5 summarizes the traffic operations during the morning peak hour and **Table 6** summarizes the traffic operations during the afternoon peak hour. The delay on the north and south approaches are anticipated to continue to increase, operating at a LOS E/D during the peak hours. The modeling indicates a queue of 195 m on the southbound approach during the afternoon peak hour. There are few gaps in traffic on Highway 46 for vehicles to proceed through the intersection, which is resulting in the delay and queueing on the southbound approach.

Both site accesses are expected to operate well (LOS A) during the peak hours.

TABLE 5: 2038 TOTAL MORNING PEAK HOUR TRAFFIC OPERATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Highway 46 & Gravel Pit Road	*LOS*	B	--	--	A	--	--		E			D	
	Delay (s)	12	--	--	0	--	--		44			26	
	V/C ratio	0.15	--	--	--	--	--		0.06			0.16	
	Queue (m)	44	--	--	--	--	1		4			44	
	Overall LOS	***A (2 s)***											
Gravel Pit Road & South Access	*LOS*		A						A			--	
	Delay (s)		9						7			--	
	V/C ratio		0.02						0.05			--	
	Queue (m)		10						3			--	
	Overall LOS	***A (3 s)***											
-Gravel Pit Road & North Access	*LOS*		A						A			--	
	Delay (s)		9						7			--	
	V/C ratio		0.01						0.02			--	
	Queue (m)		6						2			--	
	Overall LOS	***A (3 s)***											

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TABLE 6: 2038 TOTAL AFTERNOON PEAK HOUR TRAFFIC OPERATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Highway 46 & Gravel Pit Road	*LOS*	A	--	--	A	--	--		E			D	
	Delay (s)	9	--	--	0	--	--		38			32	
	V/C ratio	0.02	--	--	--	--	--		0.05			0.34	
	Queue (m)	11			1				8			195	
	Overall LOS	***A (2 s)***											
Gravel Pit Road & South Access	*LOS*		A						A			--	
	Delay (s)		9						7			--	
	V/C ratio		0.04						0.01			--	
	Queue (m)		13						0			--	
	Overall LOS	***A (4 s)***											
-Gravel Pit Road & North Access	*LOS*		A						A			--	
	Delay (s)		9						7			--	
	V/C ratio		0.02						0.01			--	
	Queue (m)		10						0			--	
	Overall LOS	***A (3 s)***											

HIGHWAY WARRANT ANALYSIS

Intersection Lighting Warrants

Highway 46 and Gravel Pit Road

There is corridor lighting along Highway 46 at the Highway 46 and Gravel Pit Road intersection. No delineation lighting is provided on the north or south approaches of the intersection.

The Ministry of Highways Design Manual for Partial or Area Lighting (DM 2621-1) considers delineation lighting to be warranted if one of the three warrant criteria are met:

- All provincial highway to highway intersections
- All intersections of the designated community access road with the provincial highway system
- All rural and urban public highway intersections with a provincial highway with an intersection roadway traffic volume greater than 150 AADT or 250 SADT for seasonal recreational roads.

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Intersection delineation lighting was found to be warranted at the Highway 46 and Gravel Pit Road intersection with the existing 2023 traffic volumes.

It is recommended that the lighting levels are reviewed to ensure appropriate illumination is provided, and if substandard, that a delineation light is installed on the north approach.

Gravel Pit Road & Site Access

Intersection illumination warrants were conducted for the Gravel Pit Road and site access intersection using the Ministry's design manual guidelines. It should be noted that the Ministry's warrants were developed for highways with a higher posted speed than Gravel Pit Road, but the warrants were used in the analysis as an indication of potential appropriateness of lights to improve visibility at night.

Intersection delineation lighting was found to be warranted at the Gravel Pit Road and site accesses at full build-out of the site. It is recommended that delineation lighting is installed at this intersection.

Turning Lane Warrants

At the Highway 46 and Gravel Pit Road intersection there are dedicated left-, through-, and right-turn lanes in the eastbound direction and a flared intersection treatment in the westbound direction. The current length of the westbound flare intersection treatment is approximately 115 m in storage and 60 m in taper, for a total length of 175 m.

The intersection treatment warrants outlined by the Ministry of Highways Design Manual was completed for the Highway 46 and Gravel Pit Road intersection. The Ministry's Standard Plan No. 20614 indicates that right turn lanes are warranted at intersections with industrial access roads. Gravel Pit Road intersection provides access to two operational aggregate pits and the future industrial business park, a westbound right turn lane would be considered warranted.

The Ministry's Geometric Design Guide Supplement, SKS 9.14-A (Flared Intersections and Auxiliary Lanes – Right Turn Lanes) indicates that right turn lanes may be combined with flared intersection treatments by lengthening the parallel auxiliary lane of the flared intersection on the upstream side.

Standard Plan 20618 describes the geometric characteristics of right turn lanes, which indicates that at a 100 km/h design speed, and a stop condition on the minor approach, the right turn lane should have a minimum of 85 m of storage and 75 m of taper, for a total length of 160 m.

The existing flare treatment exceeds the total length requirements, and no geometric changes are warranted.

At the time Highway 46 is widened to a four-lane road, a dedicated westbound right-lane would continue to be warranted as the intersection is serving an industrial development.

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SITE ACCESS

The Ministry has established access management levels on the rural highway system ranging from “R-1” to “R-5”. “R-1” represents the highest level of control and “R-5” represents the lowest level of control. Highway 46 is currently classified as an “R-2” and may increase to an “R-1” as traffic volumes continue to increase. “R-2” roadways have the following access management criteria:

- At-grade intersections are allowed only at road allowances at a minimum spacing of 3.2 km and a desirable spacing of 8 km.
- Sections of highways established at “R-2” access management level can be upgraded to an “R-1” access management level with minor disruptions.
- Direct access to the main highway is not permitted. All access to the main highway is from a public road access via a service road.
- Generally, it is applied to highways classified as expressways or major arterials.

The existing control of access plan for Highway 46 was reviewed to determine the access type for Gravel Pit Road. The control of access plan identifies temporary and permanent intersections along Highway 46. Temporary intersections may be removed in the future as the ultimate highway access management plan is implemented and permanent intersections are anticipated to remain either as at-grade intersections or grade separated interchanges. The closure of temporary access points can occur at any time, but typically happens when capacity is constrained due to traffic volumes or when safety concerns necessitate access modification.

The Highway 46 and Gravel Pit Road intersection is classified as temporary accesses and the Highway 46 and Pilot Butte Access intersection, located 1.6 km east of Gravel Pit Road, is classified as a permanent access. The current long-term plan would require a long service road from Pilot Butte Access Road to the proposed industrial development at the time the temporary accesses are closed.

At the site accesses, adequate site distance is particularly important for the entry and exit manoeuvres at industrial development accesses. Objects that can affect site distance include utility cabinets and landscaping within the right-of-way. It is also desirable to avoid placing driveways on horizontal or vertical curves due to the safety concerns that can arise. Driveways that intersect at less than 70 degrees can result in restricted sight-lines, which can create additional safety concerns and increase collision potential. Based on the site plan drawings, the site access intersects the surrounding roadways at 90 degrees.

It recommended that the sight-lines be kept free of obstructions (i.e. utility cabinets, landscaping) at the time of development.

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NETWORK MITIGATION MEASURES

The highway warrant analysis indicates that a westbound right-turn treatment is warranted at the Highway 46 and Gravel Pit intersection; however, it does not address the delay of the northbound or southbound approaches. The ultimate cross-section for Highway 46 will influence the mitigation measures needed to accommodate the proposed site development traffic, such as if Highway 46 has a wide median which allows two-stage crossing, or if a narrower, barrier median is used. The following intersection mitigation measures were assessed for the Highway 46 and Gravel Pit Road intersection.

- Option 1 – Single Lane Roundabout - Roundabouts channel traffic around a central island without traffic signals, which reduces driver delay by allowing motorists to yield rather than stop. Roundabouts can also serve to carry as much traffic as traffic signals while keeping all intersection legs moving safely. Option 1 is illustrated in **Figure 7**. There is the potential to stage the single lane roundabout to a two-lane roundabout at the time Highway 46 is expanded to a four-lane cross-section.

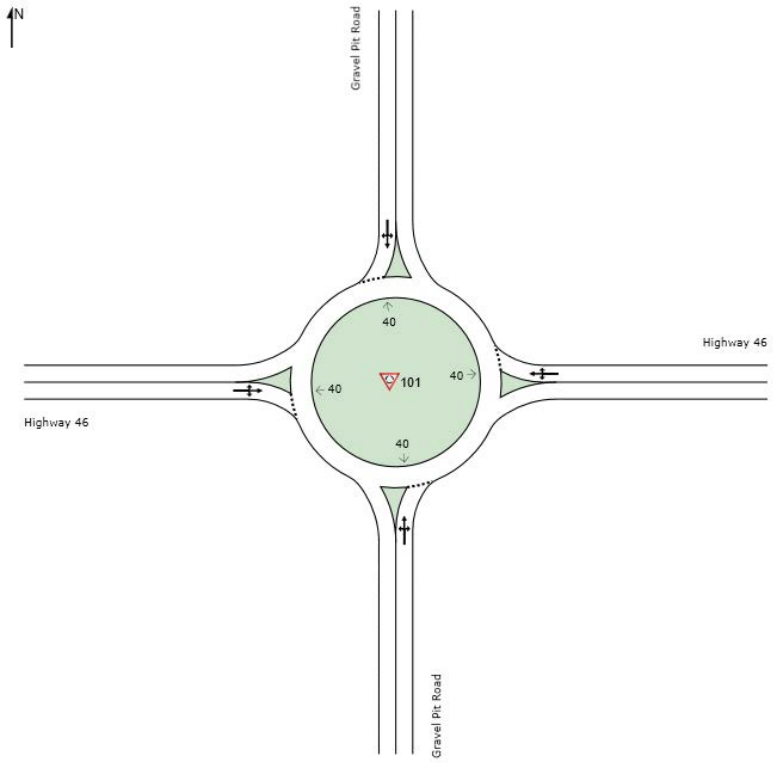

FIGURE 7: OPTION 1 – SINGLE-LANE ROUNDABOUT

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- Option 2 - Highway 46 Divided Median – This option assumes a wide divided median which will allow vehicles to complete the crossing in two-stages. An eastbound left-turn lane and a westbound right-turn lane are included. While acceleration lanes were not included in the model for this option, they may be needed beyond the 2038 horizon of this study if the average delay for the stop-controlled approach reduces to a LOS D or if the median is not wide enough to store a Super B within the median. Option 2 is illustrated in **Figure 8**.

FIGURE 8: OPTION 2 – HIGHWAY 46 DIVIDED MEDIAN

- Option 3 – Highway 46 Barrier Median – This option assumes a narrow median is selected for Highway 46 and vehicles will need to complete the crossing in one-stage. In addition to the westbound right-turn lane, this option also assumes a median eastbound acceleration lane and a westbound acceleration lane, which provides traffic their own lane to accelerate to highway speeds prior to merging with the mainline traffic. Option 3 is illustrated in **Figure 9**.

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FIGURE 9: OPTION 3 – HIGHWAY 46 BARRIER MEDIAN

Option 1 was modelled using SIDRA, an industry standard roundabout software tool. Option 2 was modeled as two separate intersections north and south of the median width. This two-stage crossing was modelled in SimTraffic and the delay from each intersection was combined to form the total delay. For example, the total delay for the southbound left-turn consists of the southbound through delay at the intersection with the westbound lanes and the southbound left-turn delay at the intersection with the eastbound lanes. The delay from SimTraffic was also used for Option 3 to provide a consistent comparison between the options.

The results of the capacity analysis for the various mitigation options are summarized in **Table 7** through **Table 9**.

TABLE 7: HIGHWAY 46 & GRAVEL PIT ROAD
OPTION 1 – SINGLE-LANE ROUNDABOUT

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*		A			A			A			B	
	Delay (s)		4			4			5			13	
	V/C ratio		0.24			0.72			0.01			0.07	
	Queue (m)		14			59			1			4	
	Overall LOS	***A (4 s)***											
PM Peak Hour	*LOS*		A			A			B			A	
	Delay (s)		3			3			16			7	
	V/C ratio		0.67			0.33			0.01			0.07	
	Queue (m)		62			17			1			3	
	Overall LOS	***A (3 s)***											

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TABLE 8: HIGHWAY 46 & GRAVEL PIT ROAD OPTION 2 - HIGHWAY 46 DIVIDED MEDIAN

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	C	A	A	A	A	A		C			C	
	Delay (s)	22	0	0	6	3	2		24			18	
	V/C ratio	--	--	--	--	--	--		--			0.08	
	Queue (m)	9	0	0	1	1	1		6			17	
	Overall LOS	***A (6 s)***											
PM Peak Hour	*LOS*	A	A	A	A	A	A		C			C	
	Delay (s)	5	1	1	9	2	1		15			20	
	V/C ratio	--	--	--	--	--	--		0.01			0.09	
	Queue (m)	2	0	0	0	0	0		7			13	
	Overall LOS	***A (4 s)***											

TABLE 9: HIGHWAY 46 & GRAVEL PIT ROAD OPTION 3 – HIGHWAY 46 BARRIER MEDIAN

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	F	A	A	A	A	A		F			F	
	Delay (s)	75	2	0	0	3	1		161			352	
	V/C ratio	0.16	--	--	--	--	--		0.06			0.15	
	Queue (m)	59	9	0	1	1	1		7			68	
	Overall LOS	***B (13 s)***											
PM Peak Hour	*LOS*	A	A	A	A	A	A		F			E	
	Delay (s)	9	3	1	0	2	1		171			47	
	V/C ratio	0.02	--	--	--	--	--		0.05			0.20	
	Queue (m)	11	1	0	0	0	0		7			22	
	Overall LOS	***A (4 s)***											

The capacity analysis demonstrates that Option 1 or Option 2 will accommodate the traffic from the proposed industrial site. Option 3 results in poor operation (LOS F) of the northbound and southbound approaches. The required solution will ultimately depend on the preferred cross-section for Highway 46.

An alternative intersection treatment to alleviate the southbound and northbound left-turn delay is the Restricted Crossing U-turn (RCUT). An example of an RCUT is illustrated in **Figure 11**. The RCUT combines a

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directional median, which allows direct left-turns from Highway 46 but prohibits Gravel Pit Road through and left-turning traffic from accessing Highway 46 at the intersection. The RCUT instead requires these movements from Gravel Pit Road to use downstream median U-turns. Gravel Pit Road left-turning and crossing traffic will be required to make these maneuvers indirectly by turning right, weaving to the left, making a downstream U-turn, and then returning to the intersection to complete their desired maneuver. RCUT intersections are typically used during the following conditions:

- Used in place of an interchange in that the merge control is similar to a freeway corridor but funding for an interchange is not available
- High volumes on the mainline and heavy left-turning volumes from the major street
- Typically used only for low left-turning volumes or through movements from minor street

FIGURE 10: EXAMPLE RCUT INTERSECTION CONFIGURATION

CONCLUSIONS & RECOMMENDATIONS

The following conclusions and recommendations are made for the proposed industrial development, based on the results of the transportation analysis:

- The proposed industrial development includes 11.4 ha of light industrial.
- The proposed development will be accessed via Gravel Pit Road, which will connect to Highway 46.
- The estimated number of new trips generated at full build-out, includes 88 new trips (77 trips entering and 11 trips exiting) during the weekday morning peak hour and 47 new trips (7 trips entering and 40 trips exiting) during the weekday afternoon peak hour.
- It is unlikely that any of the trips generated will be multi-use trips within the proposed development as it is a single-use site, and the development is not expected to generate any pass-by trips.

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- The Highway 46 and Gravel Pit Road intersection is expected to operate well overall (LOS A) during the peak hours at full build-out of the proposed industrial site. However, the northbound and southbound approaches will experience delay (LOS E or lower) during the peak hours with the existing intersection geometry.
- There is a potential for a residential commercial mixed-use site to be developed south of Highway 46 that would also use the Gravel Pit Road intersection. This development is anticipated to generate a substantial number of trips during the peak hours and will result in significant delay at the Highway 46 and Gravel Pit Road intersection. Additional analysis regarding this development is provided in **Appendix A**.
- The intersection delineation lighting warrants were completed for the Highway 46 and Gravel Pit Road intersection and the site accesses. Intersection delineation lighting was found to be warranted at full build-out at the three study intersections.
- The intersection treatment warrant analysis was completed for the Highway 46 and Gravel Pit Road intersection. The warrants identified that a westbound right-turn is warranted at the Highway 46 and Gravel Pit Road intersection. The Ministry's Design Guide indicates that right-turn lanes can be combined with a flared intersection treatment. The existing flare treatment exceeds the total length requirements as indicated by the Ministry's Design Manual, and no geometric changes are warranted. However, at the time Highway 46 is widened to a four-lane road, a dedicated westbound right-lane would be warranted and should be implemented.
- The future cross-section of Highway 46 is still being reviewed under a separate study. The intersection modifications will ultimately depend on the preferred cross-section for Highway 46.

Recommendations

- Coordinate with the Ministry of Highways to identify the future cross-section and the timing of widening of the Highway 46 corridor. Select a preferred intersection treatment that corresponds with the preferred highway cross-section.
- Implement intersection modifications to accommodate site traffic.
- Review illumination lighting at the Highway 46 and Gravel Pit Road intersection. If needed, install intersection delineation lighting at the Highway 46 and Gravel Pit Road intersection.
- Install delineation intersection lighting at the Gravel Pit Road and Site Accesses.
- Sight-lines at all intersections, accesses, driveways should be kept free of obstructions (i.e. utility cabinets, landscaping etc.).

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STATEMENT OF LIMITATIONS AND CONDITIONS

Limitations

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APPENDIX A

Network Analysis w Bamboo Nation Mixed-use Development

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BACKGROUND TRAFFIC

KGS coordinated with WSP Canada Inc., the consultant working on the proposed Bamboo Nation Mixed-use development to the south, to coordinate the estimated vehicle trips. This development is anticipated to be substantial in nature, including the following development:

- 225 single family detached residential units
- 107 townhomes
- 40 live / work townhomes
- 96 apartments
- Commercial under apartments - 1,300 sqm
- Commercial under live/work units – 350 sqm
- A clubhouse with an area of 2,600 sqm
- Primary school with kindergarten (350 students)
- Hotel with 20-30 rooms on top of the clubhouse
- 1 sports park which will include a soccer field
- 1 fieldhouse which will include a soccer field
- 1 hockey arena

The proposed residential and commercial development is anticipated to add an additional 328 trips (121 trips in, 207 trips out) during the morning peak hour and 389 trips (227 trips in, 162 trips out) during the afternoon peak hour to the Highway 46 and Gravel Pit Road intersection.

WSP provided the following site-generated trips and pass-by trips for the Bamboo Nation's Mixed-Use Development, which are presented in **Figure A-1** and **Figure A-2**, respectively.

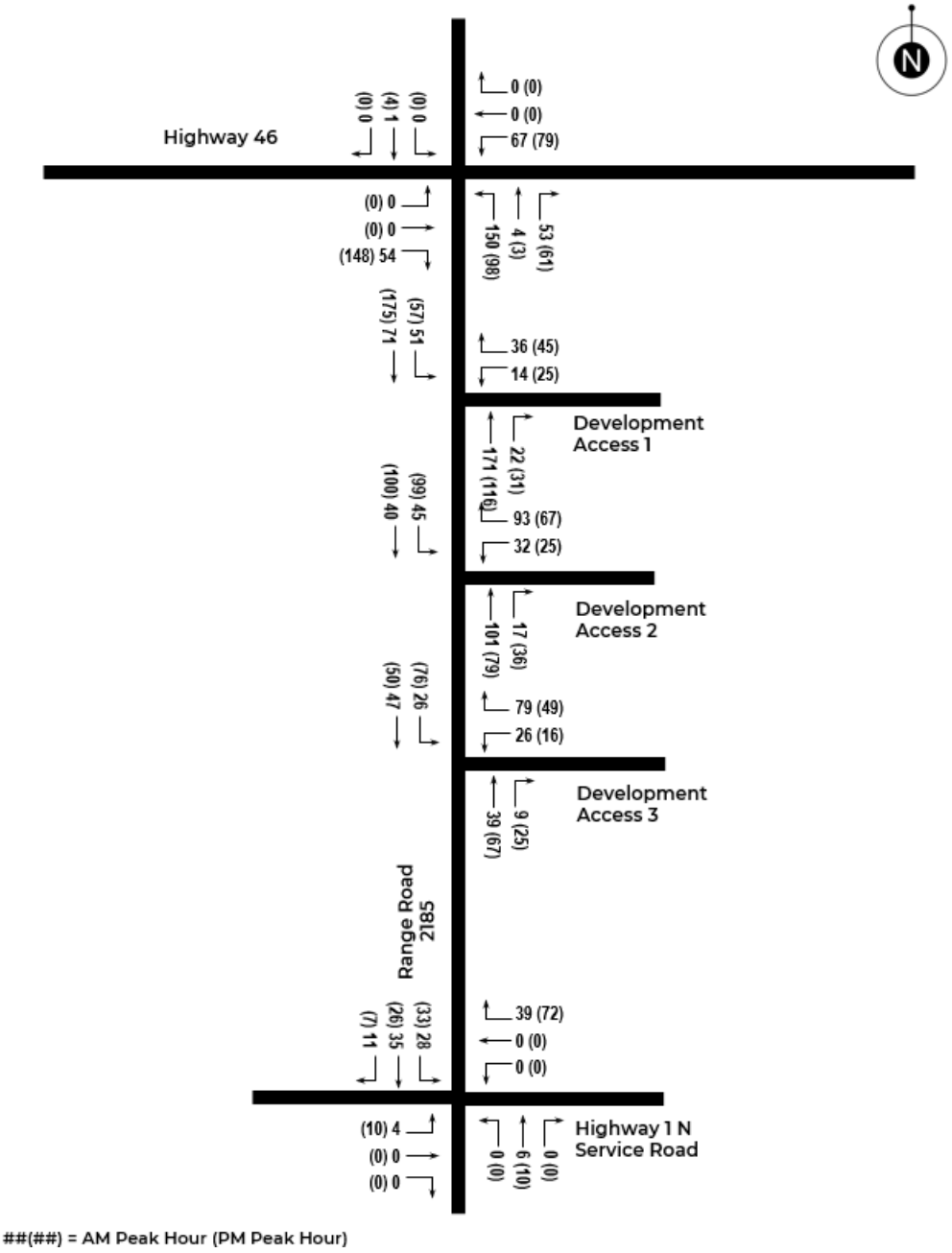


FIGURE A-1: BAMBOO NATION'S SITE-GENERATED TRIPS

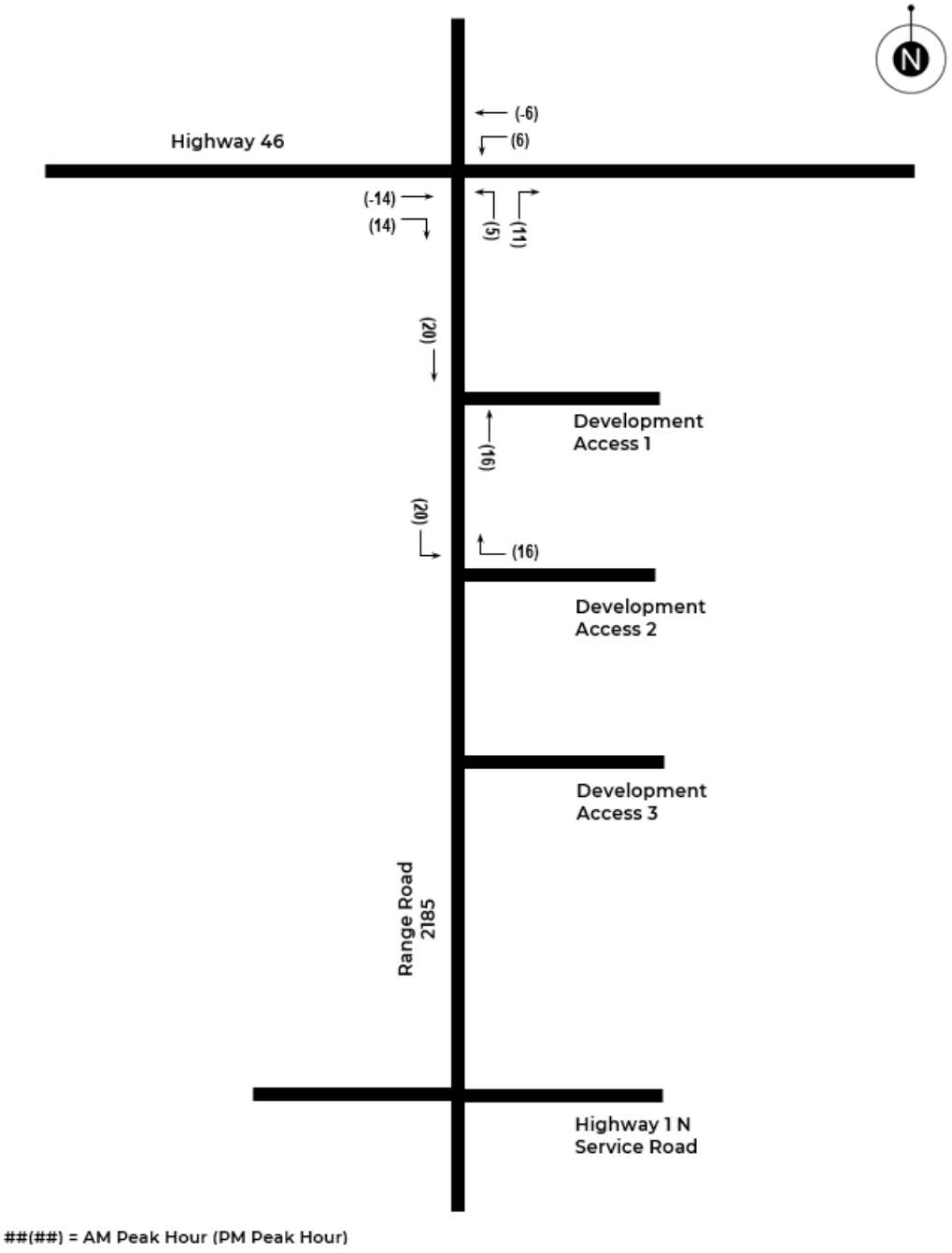


FIGURE A-2: BAMBOO NATION'S PASS-BY TRIPS

The 2038 background traffic volumes were estimated based on the 2023 existing traffic volumes, the anticipated residential and commercial development traffic provided by WSP, and the Ministry's 15-year growth factor for Highway 46 (1.60). The development traffic was assumed to be included within the 15-year growth rate as to

avoid over projecting traffic on this corridor. This means there will be fewer through vehicles when compared to the previous forecast as they will be turning to go south instead.

The 2038 estimated peak hour background traffic volumes, with the Bamboo Nations development, are illustrated in **Figure A-3**.

AM Peak Hour **PM Peak Hour**

FIGURE A-3: 2038 BACKGROUND PEAK HOUR TRAFFIC VOLUMES (WITH BAMBOO NATION'S TRAFFIC)

POST DEVELOPMENT TRAFFIC

The site-generated trips from **Figure 5** were added to the 2038 background traffic forecast to obtain the 2038 total peak hour traffic forecast, illustrated in **Figure A-4.** Again, the development traffic was assumed to be included within the 15-year growth rate to avoid over projecting traffic on this corridor. This means there will be fewer through vehicles when compared to the previous forecast as they will be turning instead.

AM Peak Hour **PM Peak Hour**

FIGURE A-4: 2038 TOTAL PEAK HOUR TRAFFIC FORECAST (WITH BAMBOO NATION'S TRAFFIC)

TRAFFIC OPERATIONS

Background Traffic

The background capacity analysis evaluates the traffic conditions in the area that would occur if just the proposed Bamboo Nations Mixed-Use Development proceeded. The study intersection was analyzed using the existing roadway geometry, traffic control, and the 2038 peak hour background traffic volumes. The results of the 2038 background traffic conditions operations analysis are summarized in **Table A-1**.

The capacity analysis results show that the northbound and southbound approaches will operate poorly with significant delays with the existing intersection geometry, and intersection modifications will be needed to address the traffic operations.

TABLE A-1: HIGHWAY 46 & GRAVEL PIT ROAD 2038 BACKGROUND INTERSECTION OPERATIONS WITH BAMOO NATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	B	--	--	A	A	--		F			D	
	Delay (s)	11	--	--	8	1	--		125			34	
	V/C ratio	0.06	--	--	0.06	--	--		1.06			0.16	
	Queue (m)	16	--	1	22	4	4		989			37	
	Overall LOS	***C (18 s)***											
PM Peak Hour	*LOS*	A	--	--	B	A	--		F			F	
	Delay (s)	9	--	--	12	1	--		285			52	
	V/C ratio	0.01	--	--	0.14	--	--		1.42			0.25	
	Queue (m)	9	--	3	103	100	100		1051			105	
	Overall LOS	***D (33 s)***											

Total Traffic

The total traffic capacity analysis evaluates the traffic conditions in the area if both the New Horizon Business Park and the Bamboo Nations Mixed-Use Development proceeded. The capacity analysis results are presented in **Table A-2**.

The capacity analysis results show that the northbound and southbound approaches will operate poorly with the existing intersection geometry and intersection modifications will be needed to address the traffic operations.

TABLE A-2: HIGHWAY 46 & GRAVEL PIT ROAD 2038 TOTAL INTERSECTION OPERATIONS WITH BAMOO NATIONS

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	B	--	--	A	A	--		F			E	
	Delay (s)	11	--	--	8	1	--		210			36	
	V/C ratio	0.15	--	--	0.06	--	--		1.27			0.24	
	Queue (m)	15	--	0	7	1	1		616			26	
	Overall LOS	***D (29 s)***											
PM Peak Hour	*LOS*	A	--	--	B	A	--		F			F	
	Delay (s)	9	--	--	12	1	--		354			68	
	V/C ratio	0.02	--	--	0.14	--	--		1.57			0.58	
	Queue (m)	11	--	3	89	83	83		1044			430	
	Overall LOS	***E (39 s)***											

Network Mitigation

The total traffic volumes were assessed within Option 1 – single lane roundabout and are presented in **Table A-3**.

TABLE A-3: HIGHWAY 46 & GRAVEL PIT ROAD
OPTION 1 – SINGLE-LANE ROUNDABOUT

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	A			A			A			B		
	Delay (s)	5			10			9			17		
	V/C ratio	0.28			0.85			0.19			0.13		
	Queue (m)	15			117			8			8		
	Overall LOS	***A (8 s)***											
PM Peak Hour	*LOS*	A			A			B			A		
	Delay (s)	4			5			14			8		
	V/C ratio	0.77			0.39			0.33			0.08		
	Queue (m)	73			24			18			4		
	Overall LOS	***A (5 s)***											

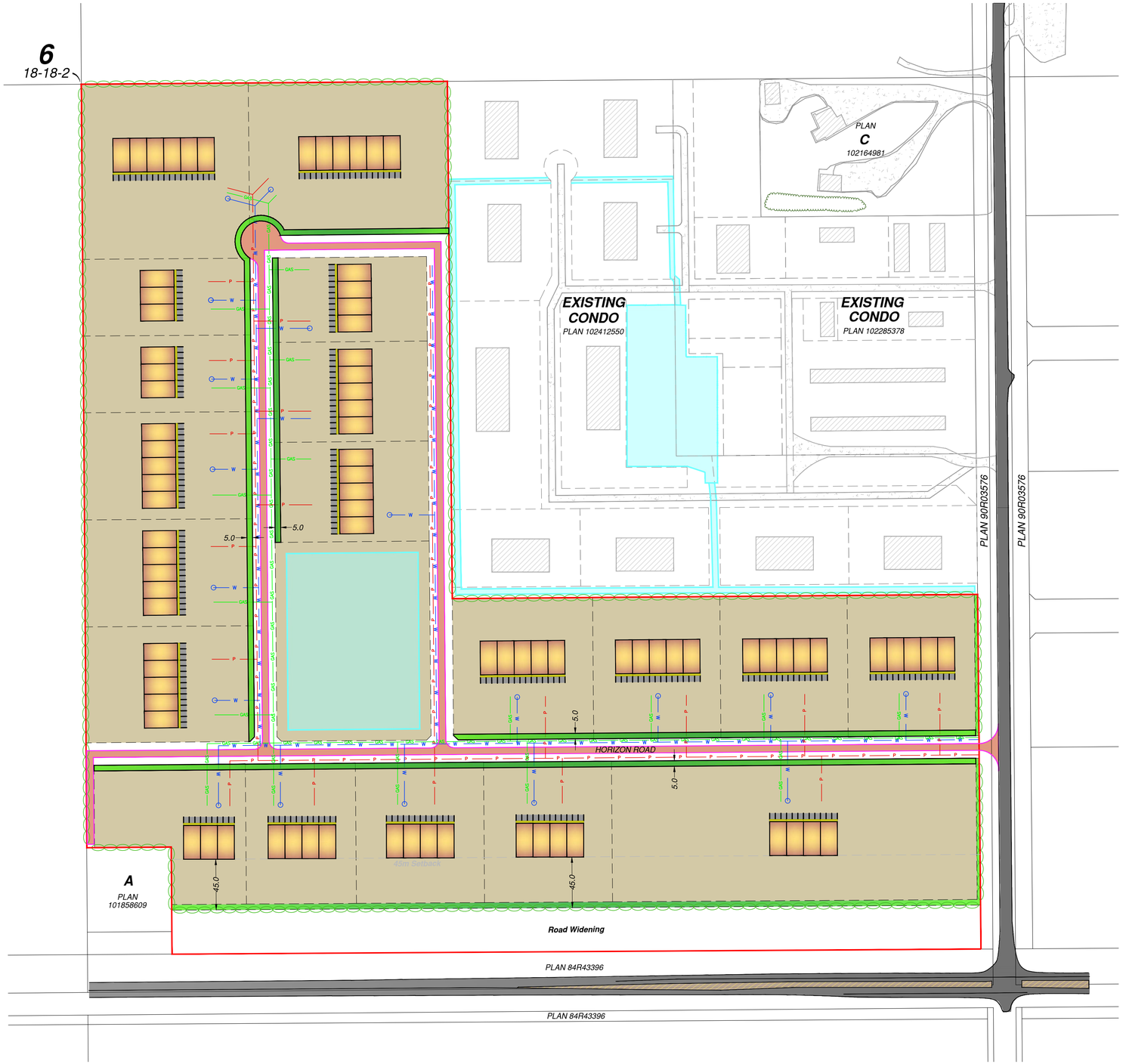
The total traffic volumes were assessed within Option 2 – Highway 46 Divided Median and are presented in **Table A-4.** This option also included a westbound median acceleration lane to accommodate the northbound left-turn traffic volumes.

TABLE A-4: HIGHWAY 46 & GRAVEL PIT ROAD
OPTION 2 - HIGHWAY 46 DIVIDED MEDIAN

Peak Hour	Measure	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour	*LOS*	D	A	A	A	A	A	D			E		
	Delay (s)	32	0	0	7	5	2	31			43		
	V/C ratio	--	--	--	--	--	--	0.25			0.08		
	Queue (m)	10	1	1	4	5	1.5	21			22		
	Overall LOS	***C (16 s)***											
PM Peak Hour	*LOS*	A	A	A	B	A	A	C			C		
	Delay (s)	8	2	2	11	4	1	20			23		
	V/C ratio	--	--	--	--	--	--	0.41			0.09		
	Queue (m)	1	2	2	2	4	1	17			13		
	Overall LOS	***A (8 s)***											

Option 1 – single lane roundabout provides better traffic operations than the Highway 46 divided median option. The single-lane roundabout can also be staged to a two-lane roundabout depending on the time of widening Highway 46.

APPENDIX M – UTILITIES PLAN



PLAN VIEW
SCALE: NOT TO SCALE

Legend

Landscaping		New Development	
Proposed Building		Condo Subdivision	
Gravel Road (Main Traffic)		Privacy Fence	
Lot Gravel		Existing Fence	
Parking Stall		Waterline	W W
Sidewalk		Powerline	P P
Drainage		Gasline	GAS GAS
Existing Building		Curbstop / Water Valve	
Existing Gravel Road		Existing Well	
Existing Paved Road			

NOTE: Saskpower to complete power design
Existing utilities not shown on plan.

Meridian Surveys Ltd.

UTILITY & WATER PLAN SHOWING
FOR PROPOSED DEVELOPMENT
ON
S.E.¼ SEC.6-TWP.18-RGE.18-W.2Mer.
RM OF EDENWOLD No. 158, SASKATCHEWAN

DRAWING:	RE232092-UTILITY & WATER-Rev3	DATE:	May 22, 2024	REV No.	3

APPENDIX N – WATER RIGHTS LICENCE AND APPROVAL TO OPERATE

File: E3/5074

WATER RIGHTS LICENCE
TO USE GROUND WATER

Licence No. E3/5074 issued on March 27, 2024

NEW HORIZON PARK INC. of **EMERALD PARK, SASKATCHEWAN**

hereinafter called the licensee, is granted the right to use water in accordance with this Licence subject to the conditions and restrictions contained in *The Water Security Agency Act* and the regulations under that *Act*, each as amended or replaced from time to time.

Annual Quantity of Water Allocated:	**3.25 cubic decametres (3,250 cubic metres)**
Well Name/Number:	PW1-2014
Point of Diversion:	SE 06-18-18 W2 (Condo Plan 102285378)
Point of Delivery:	SE 06-18-18 W2 (Condo Plan 102285378)
Purpose:	Municipal (Commercial Facility)
Expiration Date:	March 30, 2029

This Licence does not negate the licensee's responsibility to comply with the requirements of any other relevant municipal, provincial and/or federal legislation.

This Licence issued and recorded at Moose Jaw, Saskatchewan is subject to the conditions listed on the following page(s).

for Water Security Agency

Conditions (E3/5074)

General Conditions

1. This Licence is subject to cancellation, amendment or suspension on written notice pursuant to Section 53 of *The Water Security Agency Act* and the regulations under that *Act*.

2. In the event that the Water Security Agency determines that the effects of the project deviate significantly from those predicted in the studies which were the basis of the grant of the original or amended licence, the Water Security Agency may cancel this Licence.

3. This Licence does not guarantee that water will be available at all times during the currency of this licence. The Water Security Agency reserves the right to restrict the use of water under this Licence due to shortage or pressing necessity.

4. This Licence does not run with land tenure and automatically terminates on the date of disposition of the subject lands at the point of delivery. Any person who assumes ownership of or a legal interest in the lands at the point of delivery must file a new application for Water Rights Licence with the Water Security Agency. Upon acceptance of the application, a new Water Rights Licence may be issued.

5. The licensee shall pay such fees, levies, rates or charges as may be fixed from time to time by the Water Security Agency under the authority of *The Water Security Agency Act* for the privilege or authority granted by this licence.

6. No change in the purpose of the project, rate of diversion and/or annual quantity of water shall be made without prior authorization being obtained under *The Water Security Agency Act*.

Special Conditions

1. Water allocated under this licence will be delivered by water supply works owned by the licensee under the Approval to Operate for E3/5074. This Licence will automatically expire if the licensee does not maintain a valid Approval to Operate Works for such ground water supply works.

Water Security Agency

March 27, 2024 306.694.3433

New Horizon Park Inc. File: E3/5074
Box 558
PILOT BUTTE SK S0G 3Z0

Attention: Allen Kilback, CEO

Re: Renewed Water Rights Licence & Amended Approval to Operate Works

Enclosed is New Horizon Park Inc.'s amended Water Rights Licence to Use Ground Water (WRL) for the water supply well PW1-2014 and its associated non-potable water supply works at SE 06-18-18 W2 (Condo Plan 102285378).

The WRL grants New Horizon Park Inc. the right to use up to 3.25 cubic decametres (3,250 cubic metres or approximately 650,000 Imperial gallons) of groundwater annually from PW1-2014 as a non-potable municipal water supply to the buildings as shown on the Meridian Surveys Drawing RE213285-OVERALL-PLAN-21-22-R0 linked to the Approval to Operate Works (ATO) issued in April 2023.

The WRL has a five year term, expiring March 30, 2029. The Water Security Agency (WSA) can renew a WRL prior to its expiry provided the water use and water level data on file supports reissuance, and the licensee has adhered to the conditions of the WRL and ATO. WSA strongly recommends that you contact our office within 90 days of the expiry to confirm what information we may require to renew the WRL.

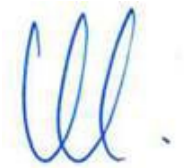
The Approval to Operate Works (ATO) for the well and its respective raw water supply pipeline does not expire and remains valid provided the works are consistent with what is noted on the ATO, and the proponent is adhering to the General and Special Conditions of the ATO. New Horizon Park Inc. is responsible for adhering to the General and Special Conditions on the reverse side of the WRL & ATO.

.../2

If you have any questions, I can be reached at 306.694.3433 or jayson.ford@wsask.ca.

Yours sincerely,

WATER SECURITY AGENCY



Jayson Ford, Senior Tech.
Water & Wastewater
Science & Licensing Division

Enclosure

APPENDIX O – SEWAGE HAULER

To Whom it May Concern:

Re: Septic waste removal from the proposed development by New Horizon Group of Companies

I have been contacted by New Horizon Group of Companies, with respect to the removal of septic waste from the proposed development located at land location SE¼ Sec 6, TWP 18, RGE 18, W2 Mer, within the R.M. of Edenwold. Please be advised that this type of service falls within our scope of work. We presently service this development and the proposed increases fall within our capabilities.

A venture of this size could easily be accommodated by AAA Sewer Service is on the Water Security Agency's list of approved haulers and has permits for the disposal of this material at the Kronau, Balgonie, and the City of Regina disposal systems. Other waste products (wash pits and sumps) from businesses in this area can be disposed of through Newalta or Travita?. This minimizes any possible effects that could possibly arise with respect to the environment.

This letter is being forwarded to you via New Horizon Group of Companies. Should you require any further information I may be contacted directly at kellykreutzer@sasktel.net or call Kelly at 1-306-552-8561