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REPORT

Zmanix Group Inc./Touchstone Enterprises Ltd.

Grasswood Junction Comprehensive Development Report



APRIL 2021

**A Carbon
Neutral
Company**



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1 INTRODUCTION

The purpose of this document is to support an application submitted by the Zmanix Group Inc. (Property Owner) to subdivide a portion of the SW 01-36-05-W3M to prepare the site for the development of a fee simple commercial lot development. The subject property is located within the RM of Corman Park (RM) in an area commonly known as the Grasswood Commercial Node, east of Highway 11 and north of Floral Road. (See Figure 1-1: Location Plan).

The subject property is designated for commercial land use by the Corman Park – Saskatoon District Official Community Plan Future Land Use Map. The subject property was previously re-zoned in July 2011 from D-Agricultural 1 District to D-Arterial Commercial 1 District following the submission and subsequent approval of the original Grasswood Junction Business Park Comprehensive Development Report (CDR), attached as Appendix A.

The site comprises 58.24 hectares (143.9 acres) and encompasses most of the quarter section with exception of an existing commercial subdivision situated in the southwest corner of the quarter section along Township Road 360. Subdivision within the subject property is intended to occur in multiple phases. The initial phase includes 11 lots encompassing 26.62 hectares (65.78 acres) of land with sites ranging in size from 1.10 hectares (2.72 acres) to 6.68 hectares (16.51 acres). An additional 7.83 hectares (19.35 acres) is proposed to be dedicated as a municipal utility parcel during the initial phase of subdivision to support the construction of a stormwater retention pond. The remaining lands within the subject property will be subdivided and developed in a future phase. The timing for future phases will depend upon market conditions and the rate of absorption of the initial phase. Figure 1-2 illustrates the conceptual site development plan.

Commercial development on this site is intended to be a continuation of the existing commercial development in the immediate vicinity; taking advantage of the improved highway access in the area and the site's visibility along Highway No. 11.

As the property has previously been rezoned, this CDR report focuses on confirming a basis for servicing the sites and does not directly consider land use compatibility.

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FIGURE 1-1: LOCATION PLAN

ZMANIX GROUP INC./TOUCHSTONE ENTERPRISES LTD.

CIVIL
 PLAN
 LOCATION

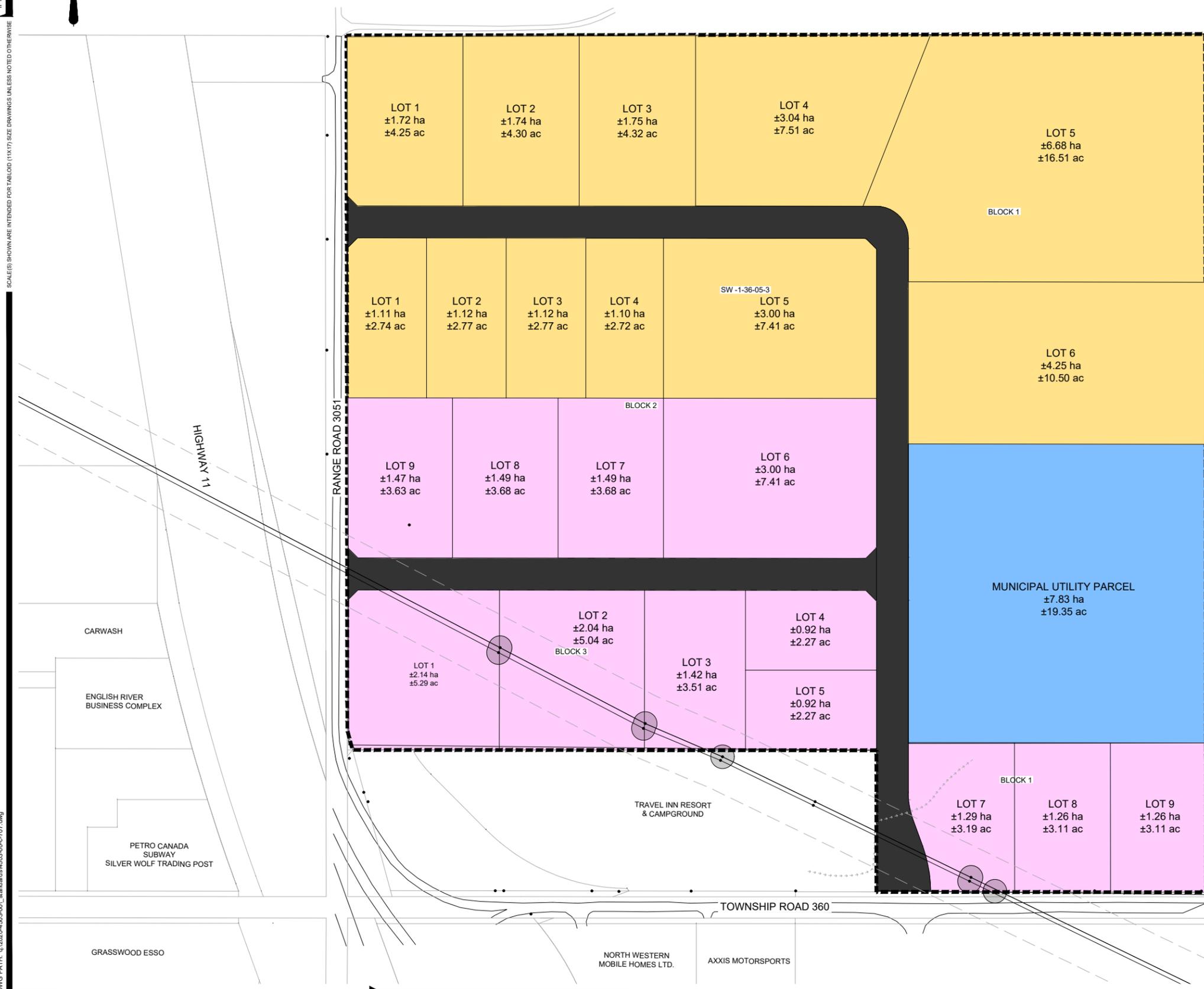
AE PROJECT No.	20204503-00
SCALE	NTS
APPROVED	B. DELAINEY
DATE	2020DEC10
REV	0
DESCRIPTION	ISSUED FOR REPORT

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LEGEND

- PHASE 1
- MUNICIPAL UTILITY/SWMF PARCEL
- INTERNAL ROAD RIGHT-OF-WAY
- FUTURE DEVELOPMENT
- SASKPOWER 138KV TRANSMISSION LINE AND EASEMENT
- OVERHEAD POLE
- SASKPOWER 10 m NO GROUND DISTURBANCE AREA

FIGURE 1-2: SITE DEVELOPMENT PLAN

ZMANIX GROUP INC. / TOUCHSTONE ENTERPRISES LTD.

CIVIL PLAN SUBDIVISION CONCEPT

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APPROVED	B. DELAINEY
DATE	2021APR12
REV	0
DESCRIPTION	ISSUED FOR CDR REPORT

2 PLAN CONTEXT

2.1 Land Ownership

Lands within SW 01-36-5-W3M are subject to the following ownership:

Parcel Number	Registered Owner	Area (ha)
119981256	Zmanix Inc.	58.236
161599786	Cory Park Mobile City Ltd.	6.269

For this report, the subject property includes all lands within the quarter section except for Parcel 161599786 which is an existing developed parcel.

2.2 Plan Location

The subject property is located east of Highway No. 11 and north of Township Road 360 (Floral Road) in the RM of Corman Park in an area commonly known as the Grasswood Commercial Node. The subject property is located in the Corman Park – Saskatoon Planning District and is currently zoned D-Arterial Commercial 1 (DC1) District. Planning for the subdivision of the subject property has considered the policies and regulations represented by the Corman Park – Saskatoon District Official Community Plan (DOCP) and Zoning Bylaw.

2.3 Adjacent and Nearby Land Uses

Commercial development has continued to expand in the surrounding area over time. Existing businesses situated west of Highway No. 11 include:

- Grasswood Esso gas and convenience store;
- English River Business Complex;
- Petro Canada gas and convenience store;
- Jemini Arena; and
- An RV storage and adjacent industrial business.

Four established commercial businesses are operating east of Highway No. 11 near the subject site including the Travel Inn Resort and Campground and Grasswood Auctions. The other two businesses include a motorsports dealer and mobile home manufacturer operating south of Township Road 360.

There are no intensive livestock operations (ILO) within 1.6 km of the site per Section 4 Figure 4-1 of the zoning bylaw.

There are two private two-cell sewage lagoons within 1.6 km of the site. One of these lagoons is located north of the Jemini Arena on the west side of Highway No. 11 and serves the English River development. The second lagoon is located within the quarter section proposed for subdivision and services the Travel Inn Resort and Campground. The lagoon appears to drain into the southeast corner of the subject property and contributes to the standing water in this area. Site development and the construction of a new storm retention pond within the subject property will ensure that the existing lagoon operates as designed and is provided a continued unencumbered path for discharge. It is noted that the provincial subdivision regulations do not define a setback distance between the commercial subdivision and a sewage lagoon.

The subject property is located approximately 1.4 km south of the Stonebridge neighbourhood in the City of Saskatoon (COS). There is an existing highway interchange constructed at this location providing residents with a means of entering and exiting this neighbourhood onto Highway No. 11. At the current time, the interchange does not enable traffic from the Stonebridge neighborhood to travel south from this interchange or for northbound traffic from the Grasswood area to enter the neighbourhood.

A CN rail line runs through the property directly north of the subject property. This facility has no impact on the use of the subject property or local traffic functions as Highway No. 11 includes an existing railway overpass.

The nearest rural residence lies directly north of the subject property in NW 1-36-5-W3M. An additional residence is situated approximately 900 m southeast of the site in NE 36-35-5-W3M. It is noted that there are no setbacks required between residential and commercial development in this jurisdiction. Commercial development in this property is intended to provide a higher standard of site landscaping and restrict outdoor processing activities typically generated by other forms of development. Consideration of land use compatibility with adjacent properties was ultimately considered during the adjudication of the 2011 CDR where the rezoning of this site was approved.

Existing land uses are illustrated in Figure 2-1: Land Use Context.

2.1 Hazard Lands

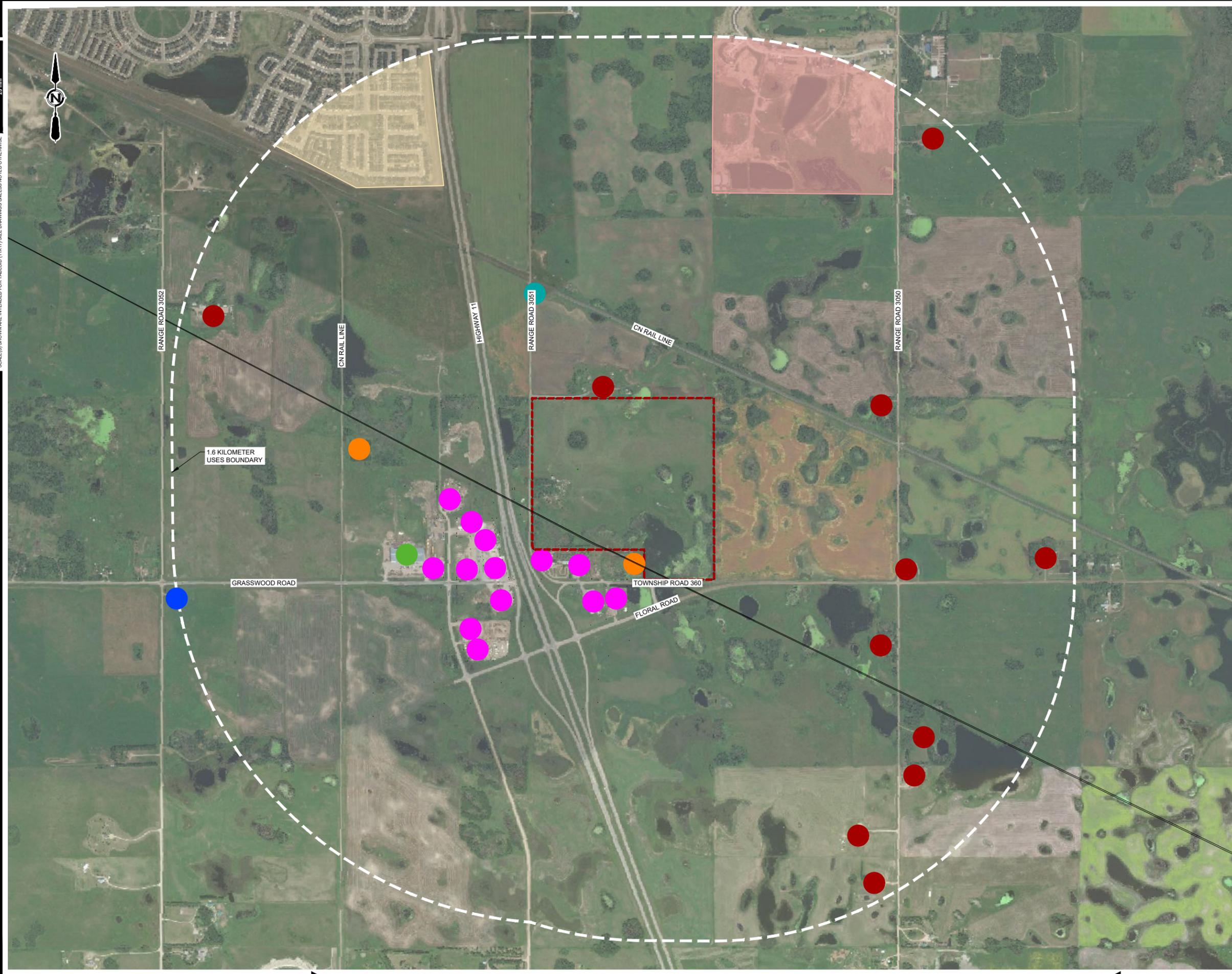
Hazard lands are assessed based on the criteria of flood susceptibility, evidence of slope instability, and potential for groundwater contamination. The subject property is relatively flat with a gentle slope to its southeast corner. Much like surrounding properties in this area, the site has seen some variability concerning the accumulation of surface water over the years depending upon the weather conditions during a given period. The site has a sufficient natural gradient to enable surface run-off to be naturally discharged to the southeast. A conceptual stormwater management plan has been prepared which demonstrates the effective management of a 1:100 year 24-hour storm event. This report also includes a conceptual grading plan identifying areas requiring excavation and fill to promote effective drainage of the properties. AE is confident that the site can be developed without having to import significant amounts of fill. Based upon a review of historical imagery dating back to 2002, there has been no evidence of widespread flooding in this property that would result in categorizing the site as flood-prone.

The existing lagoon owned and operated by the Travel Inn Resort and Campground has exhibited the propensity to overflow and inundate the surrounding lands within the subject property. Site grading along the southern end of the subject property will seek to ensure that the existing lagoon operates within its legal obligations and design without encumbering its natural path of discharge along the southern boundary of the quarter section.

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LEGEND

-  SUBJECT PROPERTY
-  CITY OF SASKATOON
-  GREENBRYRE ESTATES
-  RURAL RESIDENCE
-  COMMERCIAL DEVELOPMENT
-  RECREATIONAL FACILITY
-  SASKWATER PUMP HOUSE
-  DUNDURN WATER PUMP HOUSE
-  SEWAGE LAGOON
-  SASKPOWER 138kV TRANSMISSION LINE

FIGURE 2-1: LAND USE CONTEXT

ZMANIX GROUP INC./TOUCHSTONE ENTERPRISES LTD.

CIVIL
PLAN
LAND USE CONTEXT

AE PROJECT No.	20204503-00
SCALE	NTS
APPROVED	B. DELAINEY
DATE	2021FEB04
REV	0
DESCRIPTION	ISSUED FOR REPORT

As a part of the July 2011 CDR, a geotechnical review was completed by P. Machibroda Engineering (PMEL) to assess the suitability of the site for development. This report attached as Appendix E characterized local soils as consisting of variable deposits of clay, silt, and sand and described the area as being a region of groundwater recharge meaning that the accumulated surface water tends to re-enter the groundwater system at this location reducing the volume of runoff leaving the site. Recent groundwater testing within the low-lying areas intended to be used to construct the storm retention pond identified groundwater elevations between 2.25 and 1.7 mbgl. Recognizing that wastewater disposal within the proposed development will rely exclusively on the use of septic holding tanks and uses are unlikely to include industries managing hazardous materials, the risk of groundwater contamination by development in the area would be relatively low.

The report recommends that a more detailed geotechnical investigation be prepared to assess the alternatives and recommendations for constructing deep and shallow foundations within each lot before development and to confirm the construction standards for planned roadways. The preparation of site-specific geotechnical investigations before building design and construction is a common practice for commercial and industrial sites and will be the responsibility of future lot owners. AE anticipates that a comprehensive drilling program will occur during the next phase of design to inform a road surfacing design and to confirm the maximum depth of excavation for the storm retention pond.

2.2 Heritage Resources

The subject property was assessed using the developer's online screening tool to determine if the site is heritage sensitive. The query confirmed that the area is not designated as heritage sensitive and that no further investigation is required to proceed with development.

2.3 Biophysical Assessment

A desktop biophysical assessment was completed for the subject property to identify potential environmentally sensitive areas and natural features that would require additional considerations during the planning phase of development. This assessment utilized a variety of published databases and resources to characterize local habitat, vegetation and soils, and other natural features on the subject property.

The biophysical assessment concluded:

- The site includes cultivated land, modified grassland, trees, and wetland areas.
- There is no evidence of any native grasslands.
- The site presents a potentially suitable habitat for some bird species and that land clearing should be avoided during breeding periods (April – August) unless a breeding bird survey is first conducted by a qualified biologist.
- The site presents a potentially suitable habitat to support the Olive-backed pocket mouse and it is recommended that if this species is observed during construction, the MOE should be consulted to define a potential mitigative response.
- Construction of a wet pond including permanent and active storage is an effective way of lessening the impact of development on the existing wetland areas by enabling the re-establishment of riparian habitat around the pond.

Given the intention to alter the wetland areas within the site, AE contacted Alex Blais -Montpetit with the Water Use and Aquatic Habitat Protection Branch of the Water Security Agency (WSA) to confirm that an Aquatic Habitat Protection Permit (AHPP) would not be required for this development as the project does not meet the criteria for an AHPP as outlined under subsection 38(4) of *The Environmental Management and Protection Act, 2010* (EMPA). Appendix D includes a copy of this correspondence.

2.4 Phase 1 Environmental Site Assessment

The property owner retained AE to update the Phase I Environmental Site Assessment (ESA) originally conducted by PMEL in 2007 to assess whether previous uses of the site have resulted in any soil or groundwater contamination. A copy of the full report is attached as Appendix B.

The information reviewed for the ESA included Google Earth, Land Titles – Information Services Corporation (ISC), Previous Environmental Reports, SaskSpills, and Hazardous Substance Storage Program Database, and WSA Water Well Database. AE also interviewed a local contact who is familiar with the site to supplement the records review followed by an on-site inspection on October 20th, 2020.

The updated ESA concluded that the site offers a low potential for contamination of soil, vapour, or groundwater relative to applicable environmental standards and guidelines and that a Phase 2 ESA is not warranted.

2.5 Built Conditions and Legal Encumbrances

The subject property contains an abandoned residential yard site which includes several remaining outbuildings. These structures are intended to be removed from the property in conjunction with the initial phase of development of the site.

A 138kV SaskPower Transmission line extends through the southern portion of the subject property as illustrated in Figure 2-1. The easement associated with this transmission corridor is approximately 60 m wide (200 ft) with the power line centrally located within the easement.

Building construction is prohibited within the boundaries of the easement but traffic movements are not restricted. SaskPower has confirmed that final design elevations for property grading within the corridor will need to be shared with SaskPower to determine the potential need to raise the elevation of the poles and associated powerline to ensure that the appropriate clearance requirements continue to be met. The easement also prohibits any ground disturbance within 10 m of any of the poles, anchors, and guy wires.

The conceptual site development plan has been designed to ensure that sites impacted by this existing infrastructure are large enough to provide a suitable area for building construction. The site boundaries have also been defined to place the existing stanchions along property boundaries to limit the impact and potential disturbance of the stanchions resulting from lot development. Placing these poles along property boundaries also enables adjacent commercial properties to inset any perimeter fencing on their sites to provide SaskPower with unencumbered access to the poles regardless of the time of day. Appendix D includes the record of consultation with SaskPower.

3 POLICY CONTEXT

This section is intended to identify the various municipal policies and zoning regulations that would influence subdivision and servicing of the site. This section is intended to follow the Corman – Saskatoon District Official Community Plan and Zoning Bylaw; demonstrating conformity with the relevant policies and regulations.

**Table 3-1
Corman Park – Saskatoon District Official Community Plan Policies**

Policy	Complying Statement	Complete
Section 2: Future Growth Sector Policies		
2.1.4. Where a proposed commercial or industrial development is located within a Saskatoon Future Growth Sector it shall: a. be designed to allow for a transition to urban development; and b. when subdivision is involved, require an agreement acceptable to Corman Park and Saskatoon for servicing and infrastructure costs, including consideration for future cost recovery for urban infrastructure. (Bylaw 21/19, approved September 17, 2019).	This report acknowledges the possible transition of development and servicing into the COS in the future by describing the means of transition and ensuring that suitable land is protected to support the extension of urban infrastructure. As there are no existing urban services in the area, this report is limited to describing the basis for design and means of transition.	<input checked="" type="checkbox"/>
Section 7: Commercial Sector Policies		
7.2.4. Commercial developments shall, when deemed necessary by Corman Park, enter into servicing agreements, when subdivision is involved, including any considerations Corman Park deems necessary in accordance with <i>The Planning and Development Act, 2007</i> .	It is assumed the proponent and RM of Corman Park will enter into a servicing agreement as a part of this subdivision process.	<input checked="" type="checkbox"/>
Section 8: Servicing and Transportation Policies		
8.2.3. All developments in the District shall ensure safe access and egress from adjacent roadways without disrupting the roadway function, and limit the types and number of accesses provided onto municipal roadways by encouraging shared points of access along shared driveways or service roads.	The proposed subdivision will be accessed by a new internal road that will connect with Township 360 and Range Road 3051. The proposed site is situated at an existing fully improved highway access point along Highway 11.	<input checked="" type="checkbox"/>
8.2.4. All development proposed adjacent to a primary or secondary provincial highway shall be subject to approval from the Saskatchewan Ministry of Highways and Infrastructure.	MHI has been consulted and confirmed they have no concerns with the proposed subdivision and that a TIA is not required at this time.	<input checked="" type="checkbox"/>
8.2.6. All subdivision proposals shall allow for the expansion of abutting roads to standards as prescribed by Corman Park from time to time.	The Plan of Proposed Subdivision will provide for a 5-meter easement along segments of Township Road 360 and Range Road 3051 where the existing ROW is 20 metres to accommodate future road widening.	<input checked="" type="checkbox"/>

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Policy	Complying Statement	Complete
<p>8.3.5. Industrial and commercial developments shall, when deemed necessary by Corman Park, enter into servicing agreements, when subdivision is involved, to provide services that directly or indirectly serve the subdivision.</p>	<p>It is assumed the proponent and RM of Corman Park will enter into a servicing agreement as a part of this subdivision process.</p>	<p>☒</p>
<p>Section 10: Environmental and Heritage Resource Policies</p>		
<p>10.1.1. Where a natural or heritage resource is deemed significant to Corman Park or any provincial or federal government department or agency, Council will encourage the designation of such resources for conservation and management.</p>	<p>A desktop heritage review and biophysical assessment were completed and confirmed the absence of any conditions that would inhibit the development of the site or warrant additional review.</p>	<p>☒</p>
<p>10.1.5. Development shall endeavor to integrate and complement the natural features and landscapes of the District including the incorporation of natural vegetation as a buffer from adjacent development.</p>	<p>The stormwater retention pond will be located within a municipal utility parcel in a low-lying area on the quarter section where an existing wetland is present. Riparian habitat will be re-established around the SWMF.</p>	<p>☒</p>
<p>10.2.a.2. Potential flood risk areas are determined based upon historical information, in consultation with the Saskatchewan Watershed Authority and other provincial agencies, and confirmed through a site-specific legal land survey including contour lines provided by the proponent at the time of proposed development.</p>	<p>The subject property is relatively flat with a gentle slope to its southeast corner. Much like surrounding properties in this area, the site has seen some variability concerning the accumulation of surface water over the years depending upon the weather conditions during a given period. The site has a sufficient natural gradient to enable surface run-off to be naturally discharged to the southeast.</p>	<p>☒</p>
<p>Section 11: Aboriginal Involvement</p>		
<p>11.1.2. Where a Comprehensive Development Review is required, and the proposed development is adjacent to a reserve or adjacent to land that has been selected as Treaty Land Entitlement, Corman Park and Saskatoon shall seek to consult with the First Nation regarding the proposal.</p>	<p>As land zoning for this site was approved in 2012, there is no requirement to hold a public hearing or reinitiate consultation.</p>	<p>☒</p>
<p>11.1.3. New subdivision or development adjacent to existing reserve development shall endeavor to complement and, where possible, integrate with, the reserve development.</p>	<p>English River First Nation operates an urban reserve across Highway No.11. The use of these reserve lands is consistent with the intended uses within the subject site.</p>	<p>☒</p>

Policy	Complying Statement	Complete
Section 12: Plan Implementation		
12.9.2. To identify and address public concerns and prevent conflict, Council may require the proponents of significant development proposals that entail amendments to the Future Land Use Map attached to this plan as Appendix B, re-zoning, or the subdivision or re-subdivision of multiple lots, to undertake significant public consultation as part of the application process. Where Council deems public consultation to have been less than thorough or effective, additional consultation by the proponent may be required.	As land zoning for this site was approved in 2012, there is no requirement to hold a public hearing or reinitiate consultation.	☒

**Table 3-2
Corman Park – Saskatoon District Zoning Bylaw Regulations**

Regulation/Standard	Complying Statement	Complete
2. General Administration		
15. Servicing Agreements: 1. Where a development proposal involves a subdivision, the Municipality may require a developer to enter into a servicing agreement to ensure appropriate servicing pursuant to the Act, Council may direct the Administration to vary the agreement on a case-by-case basis, or not require it.	A servicing agreement is expected to be executed as a part of this subdivision application.	☒
15. 2. The agreement may provide for: a) specifications for the installation and/or construction of all services within the proposed subdivision as required by Council; b) for the payment by the applicant of fees that the Council may establish as payment in whole or in part for the capital cost of providing, altering, expanding or upgrading sewage, water, drainage, and other utility services, municipal roadway facilities, or park and recreation space facilities, located within or outside the proposed subdivision, and that directly or indirectly serve the proposed subdivision; c) time limits for the completion of any work or the payment of any fees specified in the agreement, which may be extended by agreement of the applicant and the Municipality; d) provisions for the applicant and the Municipality to share the costs of any work specified in the agreement; and e) any assurances as to performance that the council may consider necessary	These regulations are expected to be part of the servicing agreement negotiations between the municipality and the proponent.	☒

Regulation/Standard	Complying Statement	Complete
Section 3: General Regulations		
<p>11. Private Wastewater Treatment Systems: 1. The Development Officer, in conjunction with appropriate provincial regulatory agencies, shall determine the suitability of a site proposed for subdivision to accommodate a private wastewater treatment system within the subdivision review process.</p>	<p>Development within Grasswood Junction is intended to utilize septic holding tanks as the sole means of managing wastewater collection and disposal.</p>	<input checked="" type="checkbox"/>
<p>16. Grading and Levelling of Sites: 2. Where a proposed development alters site drainage potentially affecting adjacent or downstream properties, the applicant shall be required to submit an engineered design for the proposed drainage works incorporating sufficient capacity to accommodate the surficial water runoff for a 1:100 year storm event with no incremental increase in offsite flows in excess of what would have been generated from the property prior to the new development.</p>	<p>A conceptual stormwater management plan has been prepared to describe the basis for managing a 1:100-year 24-hour storm event and to ensure that a sufficient land area has been set aside for storage and conveyance facilities during the subdivision process.</p>	<input checked="" type="checkbox"/>
<p>16.3. Drainage works shall be constructed at the owner's expense to provide for adequate surface water drainage that does not adversely affect adjacent properties, or the stability of the land.</p>	<p>The conceptual stormwater management plan for this site follows current industry best practices and complies with current published provincial and municipal standards.</p> <p>The existing sewage lagoon on the adjacent commercial property has not operated effectively in the past and has resulted in an increase in surface water within the subject property. Site grading along the southern end of the subject property will seek to ensure that the existing lagoon operates within its legal obligations and design without encumbering its natural path of discharge along the southern boundary of the quarter section.</p>	<input checked="" type="checkbox"/>
<p>21. Municipal Services: Roadways: 1. Development adjacent to a provincial highway shall meet all provincial regulations respecting access to and siting of structures on the site.</p>	<p>The proposed subdivision is adjacent to a fully functional and improved permanent highway interchange which includes delineation lighting and turning and acceleration lanes. The Ministry of Highways and Infrastructure has been contacted regarding this file. Correspondence supported the development at this location.</p>	<input checked="" type="checkbox"/>
<p>21. 5. The requirement of a service road or internal subdivision roadway to provide access may be imposed as a condition of approval for any new development.</p>	<p>An internal road is planned to be developed for access to the lots. This road will be designed and constructed to the RM of Corman Parks commercial/industrial road standard.</p>	<input checked="" type="checkbox"/>

Regulation/Standard	Complying Statement	Complete
21. Approaches: 7. All approaches to municipal roadways require the approval of the Director of Operations.	The Director of Operations will be consulted regarding the location and approval of approaches.	☒
21. Water Supply: 12. No development or use of land shall be permitted where the proposal will adversely affect domestic or municipal water supplies, or where a suitable, potable water supply cannot be furnished to the requirements of the Saskatoon District Health Region and or SaskWater.	Commercial development within the site is not anticipated to include materials processing or activities that could impact groundwater resources. All domestic sewage will be managed by septic holding tanks. Two potential sources of potable water have been confirmed.	☒
Schedule M: D-Arterial Commercial 1 District (DC1)		
8. Site Development Standards: Minimum Site Area = 0.2 ha (0.5 ac)	Lots within the site range in size from 1.02 hectares (2.52 acres) to 6.68 hectares (16.51 acres).	☒
8. Site Development Standards: Minimum Frontage = 30 m (98.4 ft)	The lot frontages range from 73 m to 200 m.	☒

4 DEVELOPMENT CONCEPT

The subject property is currently zoned D-Arterial Commercial 1 District. As per the DOCP policies, development in this area will focus on uses that meet the commercial needs of nearby rural and suburban populations and the travelling public.

The types of uses attracted to this development would be similar to the profile of uses existing within the current Grasswood Commercial Node and may include any of the permitted or discretionary forms of development enabled by the Corman Park – Saskatoon Planning District Zoning Bylaw.

The gross development area and post-development allocation of land are summarized in Table 4-1 below.

**Table 4-1
Development Areas**

Description	Parcel Size (ha)	Percentage of GDA
Gross Development Area (GDA)	58.24	100%
Proposed Municipal Utility Parcel	7.84	13.4%
Proposed New Roadways	5.02	8.6%
Net Development Area	45.38	78%

The proposed commercial park development is planned to comprise a total of 23 lots ranging in size between 1 hectare (2.47 ac.) and 6.68 hectares (16.51 ac.). The proposed layout of the property generally aligns with the layout represented in the 2011 CDR report and intends to provide a wide variety of lot areas to meet the diverse needs of the commercial development market. It is our understanding that a new zoning bylaw is being prepared which may alter the available uses within the property. The specific use of these sites will be required to comply with the uses and site regulations in place at the time of development.

Based upon a net subdivision area of 50.40 hectares, the 5% municipal reserve dedication required by *The Planning and Development Act, 2007* is estimated to be 2.52 hectares. It is the developer's opinion that the dedication of land for public recreation within the site is undesirable and as such intends to provide a cash-in-lieu payment to satisfy the municipal reserve requirement. As municipal reserve will be dedicated during the rural phase of subdivision, no further dedication is anticipated to be required as a result of the further subdivision and transition of the properties to an urban standard.

The subject property is located within a designated future growth area of the City of Saskatoon and as such, the site design considers the potential transition of services from rural to urban in the future by ensuring that sufficient land is provided to accommodate the eventual construction of urban water, sanitary sewer and stormwater infrastructure within this property. Recognizing the lack of existing urban services in the vicinity, this plan does not include urban infrastructure designs but rather describes the basis for transition and the potential design criteria that would apply. It is noted that the timing for incorporation of this area into Saskatoon is unknown and likely to occur well into the future. As a result, the design criteria defined in this report are likely to have changed by the time the area is incorporated and will need to be verified in conjunction with a future Neighbourhood Concept Plan.

Although this plan anticipates the potential transition of servicing and development into COS, the commercial use of the property is not anticipated to change in the future so there is no consideration of transitional or interim uses within the site. Given the location of the site relative to the provincial highway corridor and future Saskatoon Freeway route, the nature of existing development in this area, and plans for the surrounding area to be developed as a new suburban residential neighbourhood, it is anticipated that the site would eventually transition from a D-Arterial 1 District under the current zoning bylaw to a Medium Density Arterial Commercial District (B3) or Arterial and Suburban Commercial District (B4) as the property is incorporated into the City of Saskatoon. We note that the properties as represented in this report comply with the site area requirements for both of the zoning districts noted above. Given the increased value of serviced land within the COS, it is expected that the larger properties could be further subdivided in the future using the existing roadway network.

5 SERVICING

5.1 Roadways

Primary access to the sites within the subdivision is intended to be provided from a newly constructed access to be situated along the south side of the subject property and connecting to Township Road 360; providing convenient and direct access to the internal road and nearby provincial highway network. Given the intention of this development to attract businesses catering to the travelling public, and the lack of any significant local population in the immediate vicinity, traffic to the site is expected to originate primarily from Highway No. 11 or Floral Road to the south and west of the site.

Township Road 360 is a rural grid road constructed within a 30-metre right-of-way. The portion of Township Road 360 extending east from the Highway No. 11 offramp to the entrance to Guertin Equipment (~190 m) is currently a paved surface transitioning to a gravel surface road from this point east to a paved connector that directs traffic south to the realigned segment of Floral Road which ultimately intersects with Highway No. 11. Approximately 230 metres of Township Road 360 extending east of this new property access will need to be upgraded to the same paved standard as the internal roadways to accommodate access to the three lots situated in the southeast corner of the property. (See Figure 5-1)

Approximately 1,100 m of the new road will need to be constructed to support the initial phase of the subdivision with the remaining segment to be added during the subsequent phase of the subdivision. The internal road network is planned to be constructed within a 30-metre right-of-way and to the RM's current industrial and commercial road standard as defined in Appendix C. The internal road layout has been designed to limit the length of new roadway construction required, to support the eventual transition of the development into COS without having to add new roads, and to support efficient navigation of the site. As the rural road standard includes ditches, there is no intention to provide an internal pathway or sidewalk within the plan area. It is expected that stop control signage will be placed along the westbound and southbound legs of the planned new internal subdivision roadway where they intersect with Township Road 360 and Range Road 3051.

Highway No. 11 is a four-lane divided highway with a posted speed limit of 100 km/hr at this location. The 2018 Traffic Volume Map, published by MHI, indicates the Annual Average Daily Traffic on this section of Highway is 11,760 vehicles per day. The intersection with Floral Road includes at-grade slip lanes, median acceleration lanes, and dedicated left-turn lanes designed to handle large volumes of turning traffic. The intersection has several safety improvements, including intersection lighting and flashing red beacons mounted to stop signs on the minor road. It is not expected that a Traffic Impact Assessment will be required based upon the current capacity and safety improvements that exist at this intersection.

5.1.1 Basis for Transition

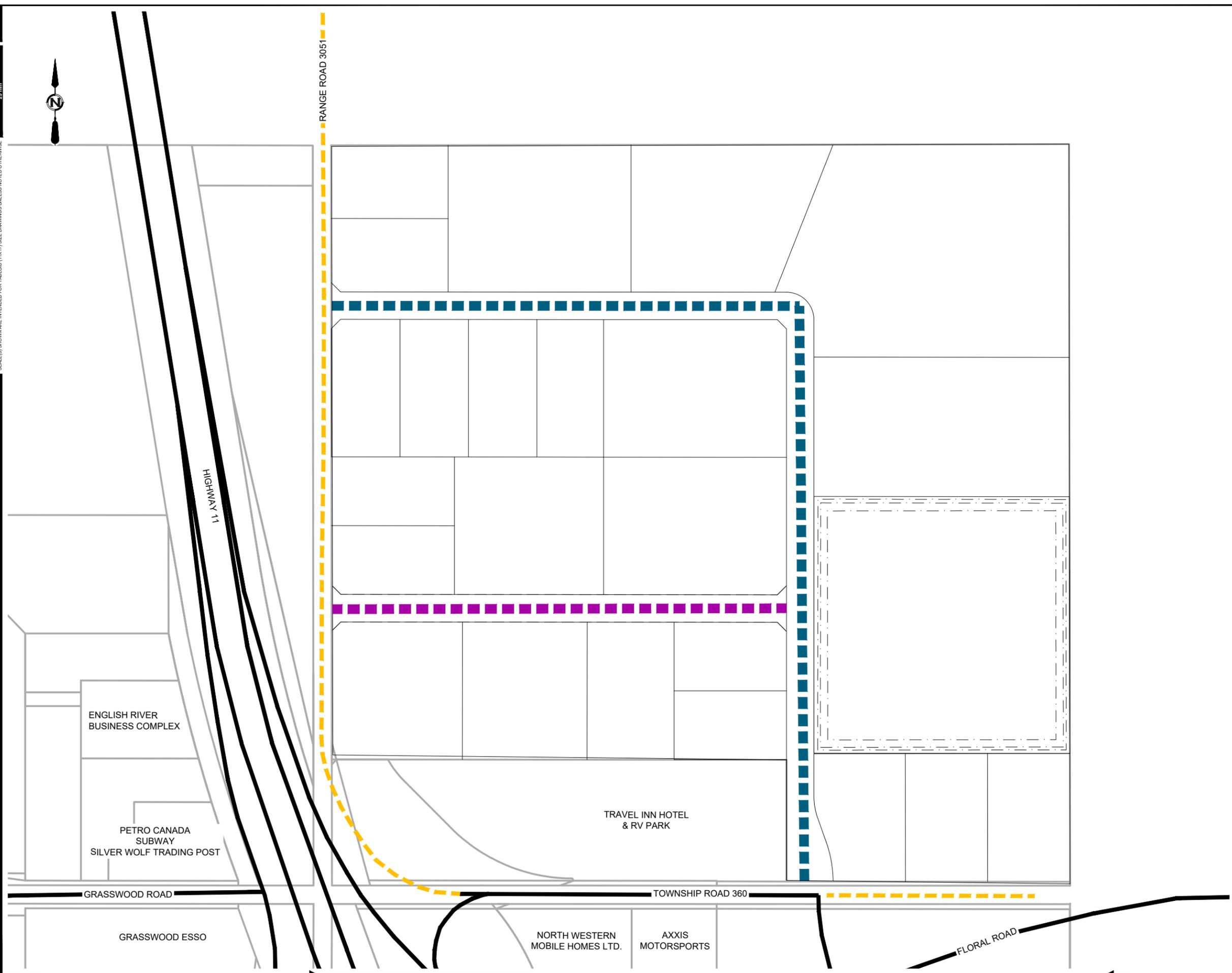
The proposed internal road network is intended to be constructed as a rural cross-section road within a 30-metre right-of-way to the RM's current paved road standard. It is anticipated that upon transition to an urban cross-section, the internal roads will be considered local commercial roads which are typically constructed within a 15-22 metre right-of-way. The RM's current surfacing design standard anticipates a useful life of 15-years with the potential for this life expectancy to extend up to 20 to 25-years depending on the local conditions and traffic volumes. It is expected that at the time of transition which may or may not coincide with the expiration of the useful life of the rural roadway, the existing dedicated right-of-way will be large enough to support a variety of urban road design standards

IF NOT 25 mm ADJUST SCALES

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



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 SAVER BY: PAVLUSKIM



LEGEND

- - - SUBJECT PROPERTY
- - - PHASE 1 ROAD
- - - PHASE 2 ROAD
- PAVED ROAD
- - - GRAVEL ROAD

FIGURE 5-1: TRANSPORTATION

ZMANIX GROUP INC. / TOUCHSTONE ENTERPRISES LTD.

CIVIL PLAN

AE PROJECT No.	20204503-00
SCALE	NTS
APPROVED	B. DELAINEY
DATE	2020MAR01
REV	0
DESCRIPTION	ISSUED FOR REPORT

that would apply and no additional land control would be required. The future transition of the roadway to an urban standard will require full road reconstruction enabling the concurrent installation of new water, sanitary sewer, and underground stormwater services as described in the sections following.

Based upon previous consultations with representatives from the COS, a 30.0 m wide roadway dedication provides a suitable area to accommodate the eventual conversion to an urban cross-section including 4.0 m driving lanes, 3.5 m parking/storage lanes for right turns, 1.5 m separated sidewalks on both sides and a landscaped boulevard.

An overlay of the proposed rural and urban road cross-sections is shown in Figure 5-2 and will include a combination of right-of-way dedication and easements to enable both the initial and future requirements. To accommodate the initial rural roadways, a 2.0 m wide easement along each side of the 30-metre right-of-way dedication is required to provide additional room for the ditches and backslope. These easements will be released upon the transition from the rural to urban cross-section and can be credited towards the provision any required boulevard dedications may be required by the presiding zoning standards that may apply.

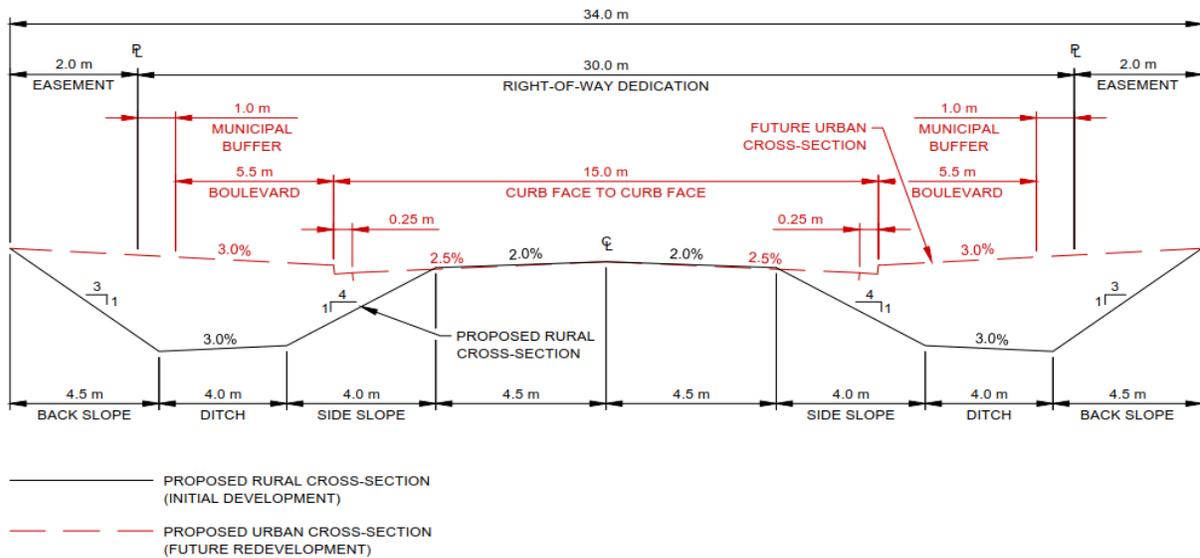


Figure 5-1
Proposed Rural and Urban Cross Sections

5.2 Drainage

Based upon the predevelopment topography within the subject property, run-off naturally flows from northwest to southeast. The natural topography of the land features knob and kettle landforms, resulting in localized ponding following extreme events and spring thaw. Based upon aerial imagery for the site, run-off discharged from this property drains to the south across two gravel roads and then enters the natural drainage course southeast of the site. The predevelopment topographic conditions within the site are illustrated in Figure 5-3.

Site development will need to provide storage volumes for:

- Natural storage volumes due to filling in natural low areas that exist on the site currently, as permanent storage;
- Permanent storage of the incremental increase in runoff generation from the development of the site and;
- Active storage for runoff associated with a 1:100-year 24-hour storm event.

The stormwater management plan accounts for the storage volumes required for the entire development. Table 5-1 summarizes the design parameters applied to the conceptual stormwater management plan.

**Table 5-1
SWMF Design Parameters**

Item	Value
Overall Catchment Area	187 ha
Design Storm Event	1:100 year, 24-hour
Pre-Development Runoff Coefficient	0.30
Pre-Development Time of Concentration (FAA Airport Method)	150.12 min
Pre-Development Peak Release Rate	3.74 m ³ /s
Pre-Development Pond Release Rate	0.57 m ³ /s
Post-Development Runoff Coefficient Undeveloped C (1:100 year)	0.3 (122.9 ha)
Post-Development Runoff Coefficient Highway 11 C (1:100 year)	0.9 (6.0 ha)
Post-Development Runoff Coefficient Heavy Industrial Development Parcels ¹ C (1:100 year)	0.70 (31.6 ha)
Post-Development Runoff Coefficient Road Carriageways C (1:100 Year)	0.90 (3.7 ha)
Post-Development Runoff Coefficient Landscaped and Grassed Areas C (1:100 Year)	0.40 (22.9 ha)
Post-Development Time of Concentration (FAA Airport Method)	254.65 min
Active Storage Volume (Modified Rational Method)	53,440 m ³
Permanent Storage Volume (Modified Rational Method)	59,000 m ³
Pond Depth ²	1.7 m

Item	Value
Freeboard ³	1.0 m
Pond Volume	112,440 m ³
MU 1 Area	78,400 m ²

Notes:

1. Assumes a maximum impervious site coverage of 60%.
2. Final pond depth and size to be confirmed during the detailed design phase.
3. As per Statements of Provincial Interest

In determining the portion of the permanent storage required to account for the existing natural storage, existing contours were used to determine the dead storage volume on-site. These areas and the existing contours and drainage directions can be seen in Figure 5-3.

In determining the permanent storage due to incremental development, and the active storage requirements, Shuttle Radar Topography Mission (SRTM) Worldwide Elevation Data (1-arc-second Resolution, SRTM Plus V3) was utilized to determine the contributing area and general drainage of the site and surrounding lands. The contributing area to the site is approximately 1.87 km² and can be seen in Figure 5-4. The design of the stormwater management system within the subject property recognizes that the area is considered to be an area of groundwater recharge where infiltration rates are quite high, reducing the propensity for and volume of run-off.

An outlet structure restricting the release rate to the average pre-development release rate of 0.57 m³/s is proposed. The stormwater would discharge across the east/west road into the existing natural drainage path. The exact location and elevation of the proposed outlet will be confirmed during detailed design to confirm it is not altering natural drainage patterns.

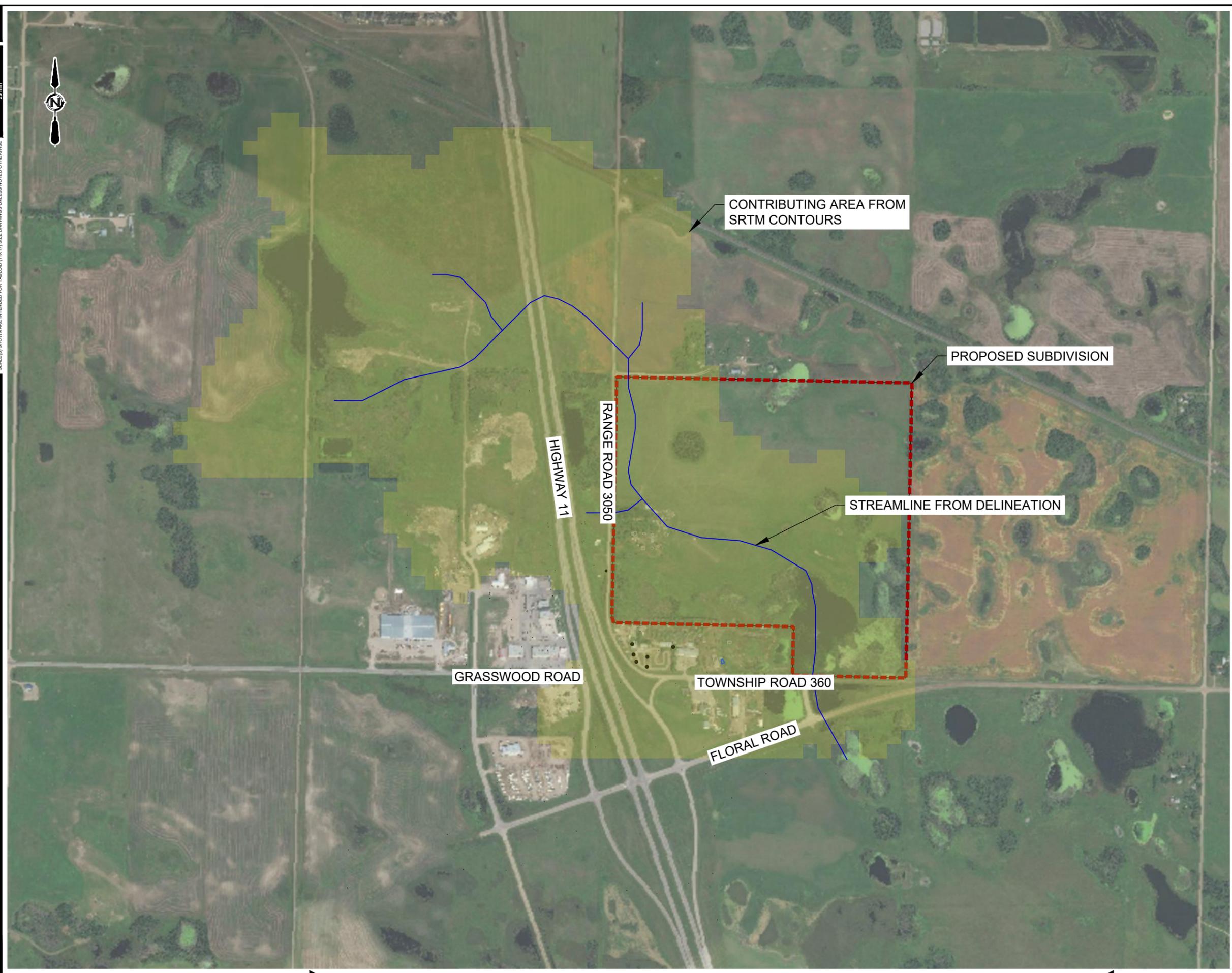
Drainage for the proposed development will be accommodated through a storage pond in addition to overland drainage. The stormwater drainage system will be comprised of ditches running parallel to the internal roadways and shallow swales between lots. The individual lot developers will be required to maintain proper site drainage to direct runoff to either the ditches or the swales. The conceptual stormwater management plan has the overland drainage routed to a pond in the southeast corner where existing natural storage is located, as seen in Figure 5-5. The pond area shown in the figure is conceptual and based on test holes drilled in February of 2021. An additional geotechnical investigation will be completed to confirm the maximum depth of the pond before initiating a detailed design. A cut and fill map has also been included (Figure 5-6) to define the anticipated redistribution of soil within the site.

WSA was consulted on the conceptual drainage plan discussed above and stated that the concept appears sound and follows generally established methods and procedures in the area. WSA will provide additional and final comments once a detailed design has occurred. A copy of this correspondence is attached as Appendix D.

5.2.1 Basis for Transition

The transition from rural to urban servicing will require some adjustments to the surface grades along the roadways to provide a minimum 0.50% slope along the curb and gutters. The creation of “low points” and a minor stormwater collection system will be required to provide an increase to the road surface slopes while maintaining the overall major system. Figure 5-7 illustrates how this transition will occur.

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CONTRIBUTING AREA FROM SRTM CONTOURS

PROPOSED SUBDIVISION

STREAMLINE FROM DELINEATION

HIGHWAY 11

RANGE ROAD 3050

GRASSWOOD ROAD

TOWNSHIP ROAD 360

FLORAL ROAD

FIGURE 5-4: CONTRIBUTING AREA

ZMANIX GROUP INC. / TOUCHSTONE ENTERPRISES LTD.

CIVIL
PLAN
CONTRIBUTING AREA

AE PROJECT No.	20204503-00
SCALE	1:5000
APPROVED	K. GRAY
DATE	2021JAN11
REV	0
DESCRIPTION	ISSUED FOR CDR



FIGURE 5-5: CONCEPTUAL SWMP

ZMANIX GROUP INC. / TOUCHSTONE ENTERPRISES LTD.

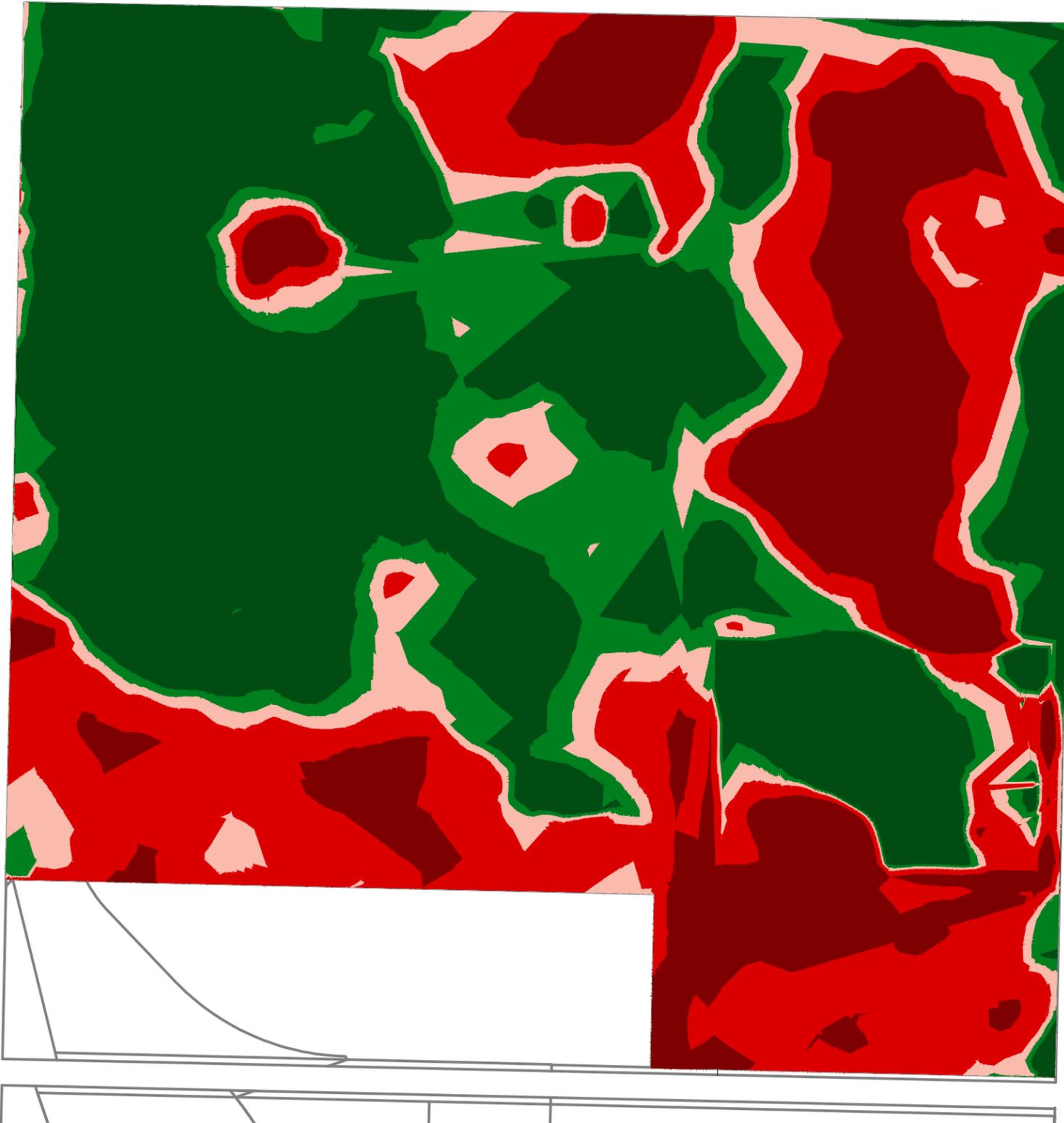
CIVIL
PLAN
CONCEPTUAL STORMWATER POND

AE PROJECT No.	20204503-00
SCALE	1:2000
APPROVED	K. GRAY
DATE	2021APR12
REV	0
DESCRIPTION	ISSUED FOR CDR

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IF NOT 25 mm ADJUST SCALES

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



CUT FACTOR	FILL FACTOR	2D AREA	CUT	FILL
1.000	1.200	582 176 sq. m.	210 000 cu. m.	290 000 cu. m.

NOTE:
THESE QUANTITIES ARE FOR CONCEPTUAL LEVEL PLANNING PURPOSES AND DO NOT REPRESENT THE LEVEL OF REFINEMENT AVAILABLE THROUGH DETAILED DESIGN; WHERE SURVEYED SURFACE, GEOTECHNICAL BACKGROUND, AND DETAILED ENGINEERING HAVE TAKEN PLACE.

FIGURE 5-6: CUT FILL MAP

ZMANIC GROUP INC. / TOUCHSTONE ENTERPRISES LTD.

CIVIL
PLAN
CUT / FILL MAP

AE PROJECT No.	20204503-00
SCALE	1:2000
APPROVED	S. TAYLOR
DATE	2021JAN29
REV	A
DESCRIPTION	ISSUED FOR INFORMATION

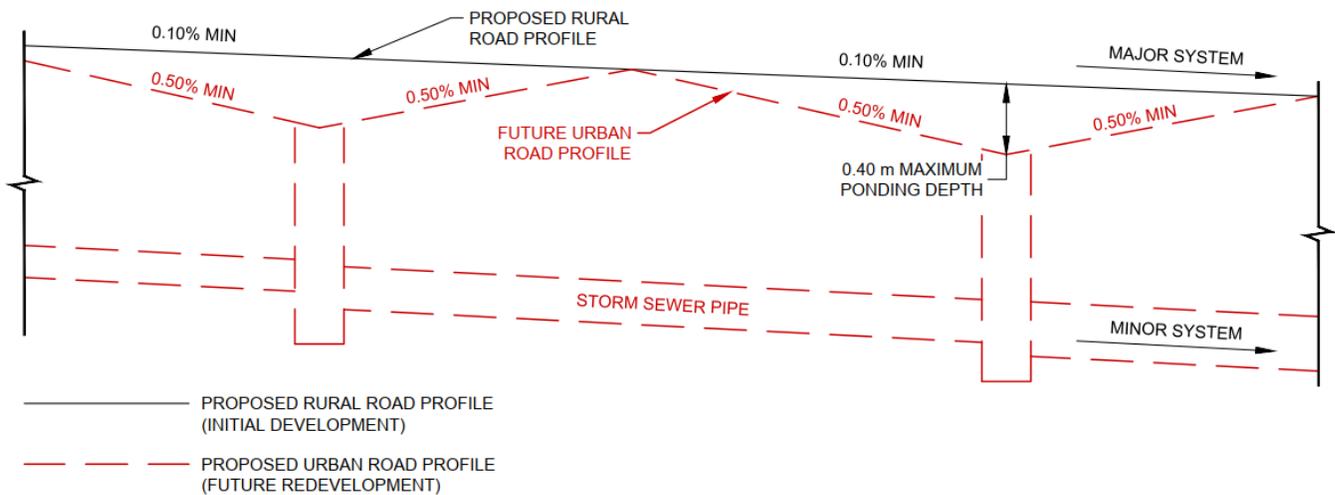


Figure 5-2
Proposed Rural to Urban Road Profile Transition

It is anticipated a minor stormwater collection system will be installed in conjunction with the other servicing and road reconstruction with the road rights-of-way as the development transitions from rural to urban. As per COS standards, the minor system will need to accommodate a 1:2-year event and include services into the lots so they can provide on-site stormwater management. For each site with 1500 m² or greater paved area, an oil/grit separator will be required to be installed at the interface of the connection to the COS storm network.

Similar to the redevelopment of the roadways and other underground services, it is anticipated the COS standards will evolve by the time this transition from rural to urban infrastructure occurs. Therefore, the design of any storm services included in the future urban redevelopment will need to be completed following the completion of a Neighbourhood Concept Plan and reflect the design and development requirements of the day.

5.3 Wastewater

This development is intended to exclusively utilize privately owned holding tanks to manage the collection and storage of wastewater. Future lot owners will be responsible for obtaining any permits necessary to install the holding tank on the site and coordinate regular evacuation. Where a different method of on-site wastewater treatment is being considered by a lot owner, it will be their sole responsibility to investigate and obtain all appropriate information, studies, and permits required to confirm their ability to proceed with an alternate method of disposal.

The frequency of holding tank pump-outs will vary by property, size of tank, and water consumption. As a low-pressure rural water service is planned for this development, it is highly unlikely that a heavy water user would be attracted to this location. According to Saskatchewan's Onsite Wastewater Disposal Guide, a commercial/industrial building is expected to generate 50 litres per person per day. As an example, based upon this per capita generation, domestic water use, and a normal workweek, a building with sixty (60) employees, would be expected to generate

3,000 litres of wastewater per day, requiring the evacuation of a 22,000-litre holding tank approximately once per week.

GFL Environmental Inc. has been contacted to confirm its ability to service this development. A letter from GFL confirming their ability to provide wastewater disposal services is attached as Appendix D.

5.3.1 Basis for Transition

In conjunction with the other services and road reconstruction, an underground wastewater collection system would be installed. The sanitary sewer mains will be installed within the road rights-of-way and follow the surface grading, directing wastewater flows to the nearest COS gravity collection system or lift station. The anticipated conceptual design criteria and assumptions for a future centralized wastewater collection system are defined in Table 5-2.

Table 5-2
Conceptual Wastewater Design Criteria & Assumptions for Future Urban Redevelopment

Item	Value
Net Development Area	45.38 ha
Equivalent Population	160 p/ha (Secondary Commercial)
Design Population	7260 people
Estimated Wastewater Generation	290 L/person/day
Infiltration Allowance	0.17 L/s/ha
Weeping Tile Flow allowance	0 L/s
Average Dry Weather Flow	24.4 L/s
Peaking Factor (using Harmon Formula)	3.10
Inflow & Infiltration (I&I)	7.71 L/s
Peak Design Flow	75.64 L/s

The standards for design represented in Table 5-2 are based on the current COS standards. Similar to the redevelopment of the roadways and other underground services, it is anticipated the COS standards will evolve by the time this transition from rural to urban infrastructure occurs. Given the lack of existing municipal infrastructure in this area to inform a formal design, the design of any future urban wastewater services will need to be completed in conjunction with the COS Neighbourhood Concept Plan process based upon the standards of the day.

5.4 Potable Water Supply

SaskWater was contacted and confirmed their ability to provide up to 50 imperial gallons per minute (ipgm) for the subdivision. However, as the connection would be within the P4G planning boundary, SaskWater needs to obtain approval from the City of Saskatoon before entering into a water service agreement with the proponent. Correspondence with SaskWater has been included in Appendix D.

Although SaskWater confirmed the availability of water, AE contacted the Dundurn Rural Water Utility (DRWU) as a potential alternate source. The DRWU operates a low-pressure potable water system with a booster station located along Grasswood Road west of the CN rail line. The letter received by the DRWU states they can supply 27 igpm to the subject property.

A 100 mm low-pressure service line will be extended south from the SaskWater pumphouse located directly north of the subject property to provide water services to the initial phase of development. This system will not be capable of providing fire flows to the parcels. The future lot owners will be responsible for constructing their private reservoirs and pressure systems if desired or required for their businesses. This low-pressure line is proposed to be installed along the roadway within one of the 2.0 metre easements. This will facilitate easy access to the line for future service connections without having to excavate within the paved roadway.

5.4.1 Basis for Transition

The proposed future urban redevelopment will include the installation of a full-pressure water distribution system to the COS's standards. The proposed water mains will be located within the road right-of-way and installed in conjunction with the reconstruction of the roadway to an urban cross-section.

The conceptual design criteria and assumptions for the water distribution system proposed for the future urban redevelopment are listed in Table 5-3. The design population, operating pressures, fire flow requirements, estimated water consumption, maximum daily, and peak hourly flow rates will all need to be developed in consultation with the COS at the time for urban redevelopment.

Table 5-3
Conceptual Water Design Criteria & Assumptions for Future Urban Redevelopment

Item	Value
Industrial Area (Net)	45.38 ha
Equivalent Population	160 p/ha (Secondary Commercial)
Design Population	7260 people
Estimated Water Consumption	290 L/person/day
Average Day Demand (ADD)	25.6 L/s
Maximum Daily Demand (2.26 x ADD)	57.8 L/s
Peak Hourly Demand (3.30 x ADD)	84.4 L/s
Operating Pressure	275-690 kPa
Fire Flow	220 L/s (140 kPa min pressure) for Commercial

The standards for design represented in Table 5-3 are based on the current COS standards. Similar with the redevelopment of the roadways and other underground services, it is anticipated the COS standards will evolve by the time this transition from rural to urban infrastructure occurs. Given the lack of existing municipal infrastructure in this area to inform a formal design, the design of any future urban water services will need to be completed in conjunction with the COS Neighbourhood Concept Plan process based upon the design and development requirements of the day.

5.5 Financing Transition

The Planning and Development Act, 2007 enables the preparation of a servicing agreement to provide services and facilities that directly or indirectly serve the subdivision. The servicing agreement defines the proponent's responsibility to install or construct the services required to support the proposed subdivision. It is our understanding that the current DOCP policies provide the ability for Corman Park to potentially include additional charges related to the future extension of urban water, road, sanitary, and storm sewer services into this property based upon the principle that growth should pay for growth.

The subject property is located outside of the growth to 700,000 area as represented by the proposed Regional Plan. This implies that incorporation of this site into the COS could potentially be deferred up to 50 years into the future. Upfront assignment of future urban servicing costs to the developer based upon a vague and long-term commitment for these services is not equitable. The potential benefits of this future infrastructure extend so far into the future that there is no way for this added premium cost to be justified in the purchase price of the lots today. Full assignment of future servicing costs today effectively eliminates the benefits derived by businesses seeking larger, rural serviced lots and forces these developments to compete with existing serviced commercial land in the COS without the ability to offer the same level of service. This approach also unfairly burdens the current developer based upon their inability to assign this premium to current lot sales.

It is expected that the RM of Corman Park and COS will consider the principle of equity to all parties when defining the basis for financing future urban services. Having the benefit of time enables the municipalities to effectively spread this contribution over an estimated 50-year period rather than assigning an immediate obligation to the developer today who will not benefit from these future services.

Based upon the premise that those who benefit from the services should pay for them, and that lot purchasers will ultimately be the benefactors, perhaps the municipalities would consider executing an agreement with each lot owner that would run with the land and assign an annual fee to be used to fund the extension of these services at a specific date in the future. Committing to a specific date for the services serves two purposes. Firstly, it establishes the term of financing which would define the annual fee/charge considering the interest earned by investing these payments and the inflationary effects on the cost of servicing over time. The second benefit associated with defining the timing for servicing is that it provides certainty to the property owners as to when the benefits of these annual payments would be realized and enable them to align their long-term plans accordingly (i.e. further subdivision of larger lots).

5.6 Shallow Utilities

SaskEnergy, SaskPower, and SaskTel all operate facilities near the proposed arterial commercial development.

5.7 SaskEnergy

SaskEnergy has several lines running near the site, including a high-pressure gas transmission line running through the parcel. SaskEnergy was contacted to confirm their current infrastructure in the area has enough capacity to service the development and if any upgrades are required. They confirmed gas mains in the area, but they are smaller diameter pipes. They may not have enough capacity for the type of loads needed for the development. Additional gas mains will likely need to be installed to get gas to the site, and then additional mains and services within the development at the developer's cost. An email from SaskEnergy confirming the above is attached in Appendix D.

Additional work is needed to confirm the cost of extending gas services to the area as SaskEnergy needs to analyze the system for some of these building loads to determine what is required to serve this development.

5.8 SaskPower

SaskPower has several lines running near the site that would allow for service to the area. A 25kv overhead SaskPower line runs parallel to the West side of the property is currently services the Travel Inn Resort and Campground. SaskPower was contacted to confirm their current infrastructure in the area has enough capacity to service the development and if any upgrades are required. They confirmed the subdivision could be serviced off of the 25kv overhead line that runs parallel to the property's west side.

A drawing from SaskEnergy confirming the above is attached in Appendix D.

5.9 SaskTel

SaskTel has existing infrastructure in the immediate area to provide telephone service but currently does not have Infrastructure in place to provide high-speed internet to this location. SaskTel can provide high-speed internet in the future by extending their GPON fibre network to the subdivision. There would be no charge for the extension of the fibre network to the subdivision. Individual services to the lots would be at the cost of the lot owner. The SaskTel fibre network would be extended concurrently with SaskPower's service extensions to the subdivision. A registered easement would be required for the utilities.

An email confirming SaskTel's current and future ability to provide telephone service and high-speed internet respectfully is attached in Appendix D.

5.10 Internet

Xplornet has existing infrastructure in place to provide high-speed internet and telephone service to the area. An email confirming Xplornet's ability to service the subdivision, including their current rates, is attached in Appendix D.

5.11 Solid Waste

The future lot/business owner(s) will be required to agree with a disposal company to haul their generated solid waste offsite. There are companies in the Saskatoon area that provide solid waste removal for a fee. Loraas Disposal Services Ltd. (Loraas) was contacted to ensure a licensed hauler could accommodate additional development in this area. A letter from Loraas confirming their ability to provide domestic waste management services is attached in Appendix D.

5.12 Municipal & Protective Services

The RM provides fire protection services to this area through an agreement with the Saskatoon Fire Department. There is no proposed change in use at this time, so the current level of service is understood to be sufficient. When the site's future uses are determined, the Saskatoon Fire Department will be engaged following the RM's established development permit application process. They will be able to provide comments on their ability to service the proposed development and suggest any upgrades required to source water for fire suppression.

Police services are expected to be provided by the Corman Park Police Service and the Saskatoon Detachment of the RCMP.

6 REGULATORY AGENCY CONSULTATIONS

Below is a list of the regulatory agencies which were contacted as a part of this CDR. The comments from these agencies can be viewed in Appendix D.

**Table 6-1
Regulatory Agencies**

Agency	Reason for Contact	Date
Water Security Agency	Stormwater management pond	Jan. 20, 2021
Water Security Agency	Aquatic Habitat Protection Permit	Jan. 25, 2021
Ministry of Highways and Infrastructure	Requirements for additional Transportation Impact Assessments	-
SaskPower	Confirmation of service in the area	Jan. 15, 2021
SaskPower	Development influences of the 138kV Transmission line	Feb. 4, 2021
SaskTel	Confirmation of telecommunications service to the subject site	Dec. 18, 2020
SaskEnergy	Confirmation of gas service to the subject site	Dec. 23, 2020
Xplornet	Confirmation of internet service to the area	Jan. 18, 2020
Loraas	Confirmation of solid waste service	Dec. 18, 2020
Green For Life Environmental	Confirmation of wastewater evacuation and hauling for disposal	Dec. 18, 2020
Dundurn Rural Water	Confirmation of water service to the site	Dec. 18, 2020

CLOSURE

This report was prepared for Zmanix Group Inc./Touchstone Enterprises Ltd. to support the subdivision of the SW 01-36-05-W3M for fee simple commercial lots. It demonstrates the proposed subdivision can be serviced, meets the current district policies and regulations, and is complementary to existing land uses in the area.

The services provided by Associated Engineering (Sask.) Ltd. in the preparation of this report was conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

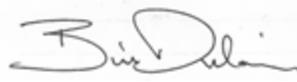
Respectfully submitted,

Prepared by:



Mike Pawluski, RPP
Project Planner
MP/BD/np

Reviewed by:



Bill Delainey
Project Manager

APPENDIX A – JULY 2011 GRASSWOOD JUNCTION CDR

**Grasswood Junction Business Park
Comprehensive Development Review
In Support of Rezoning Application
SW 1-36-5-W3
Rural Municipality of Corman Park**

Prepared by:

David Klippenstein and Associates Ltd.
236-200 Carnegie Drive
St. Albert, Alberta, T8N 1A7

Prepared for:

Zmanix Inc.
209-2920 Calgary Trail
Edmonton, Alberta T6J 2G4

July, 2011

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1.0 Introduction

1.1 Purpose

The purpose of this document is to support an application to rezone the subject property from D - Agricultural 1 District (DAG1) to D - Arterial Commercial 1 (DC1) District (**Figures 1 and 2**). The rezoning is consistent with the 'Future Commercial Areas' designation given by the Corman Park – Saskatoon Planning District Official Community Plan (OCP) (**Figure 3**).

The rezoning is an intermediate step in the planning and development process and follows the OCP designation approved in 2010. It is intended that the rezoning will be followed by the subdivision of the first stage of development along with the execution of a development agreement to confirm development standards and responsibilities for implementing development.

The subject property comprises 58.24 hectares (143.9 acres) of land, occupying much of the south-west quarter section of Section 1, Township 36, Range 5 West of the 3rd Meridian. It is located within the Rural Municipality of Corman Park, between one and two kilometres south of the City of Saskatoon. The property lies within the Corman Park - Saskatoon Planning District (**Figures 4 and 5**).

1.2 Proposed Development

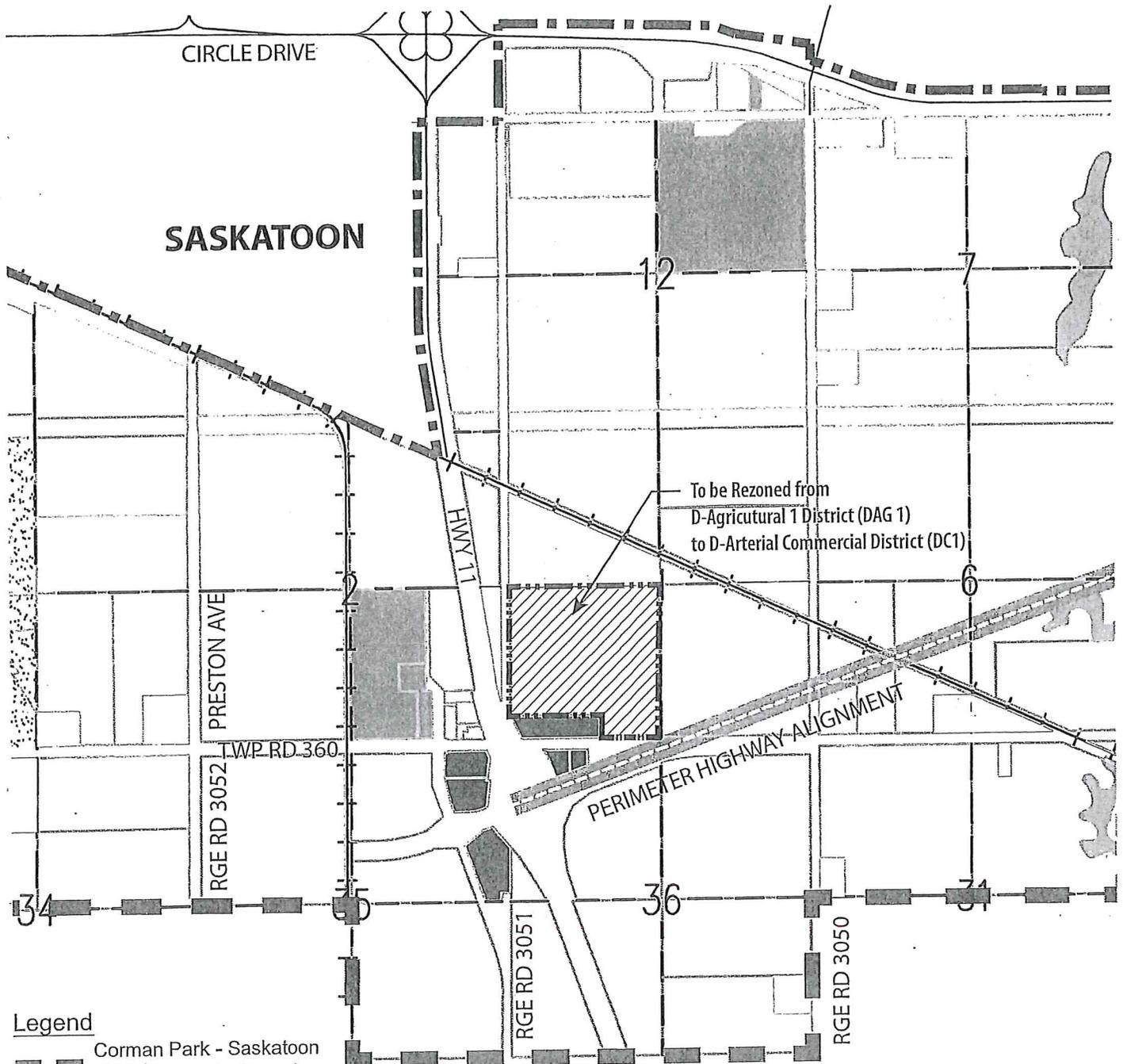
The proposed development will comprise a serviced business park providing commercial services to regional residents and the travelling public. The name 'Grasswood Junction Business Park' has been applied to the development on an interim basis.

The proposed development will also complement and enhance the commercial node that has evolved around the intersection of Highway 11 and Grasswood Road/Floral Road. Thus the development will provide the opportunity to expand the range of services available within this commercial node.

The possible businesses will conform to the range of permitted and discretionary uses that are listed in the D - Arterial Commercial 1 (DC1) District.

Permitted uses include the following: accommodation service, food service, automotive sales and service, veterinary clinics, auction facilities, retail stores up to 35,000 square feet and similar land uses. Discretionary uses include agricultural support service, commercial recreation, warehousing, wholesale trade up to 35,000 square feet and similar uses. Prohibited uses include noxious or nuisance uses, residential use, large retail establishments over 35,000 square feet and all uses not listed as permitted or discretionary uses.

Preliminary investigations have been conducted to evaluate the appropriate and cost-effective water, wastewater, stormwater, utility and emergency service systems (Associated Engineering, 2011). Further evaluation of the technical and financial feasibility will follow approval of this rezoning application. The appropriate systems will be confirmed prior to the approval of the first stage of subdivision and the signing of a servicing agreement for the first stage.



Legend

- Corman Park - Saskatoon Planning District Boundary
- Perimeter Highway Alignment
- City of Saskatoon Boundary
- D-Agricultural 1 District (DAG1)
- D-Country Residential 1 District (DCR1)
- D-Country Residential 3 Overlay District (DCR3)
- D-Country Residential 4 District (DCR4)
- D-Arterial Commercial 1 District (DC1)
- D-Rural Convenience Commercial 2 District (DC2)
- D-Recreational 1 District (DREC1)

SOURCE: District Zoning Map - Corman Park Saskatoon Planning District Zoning Bylaw 23/10

Figure 1

Proposed Rezoning

0 300 600 m scale 1:30,000



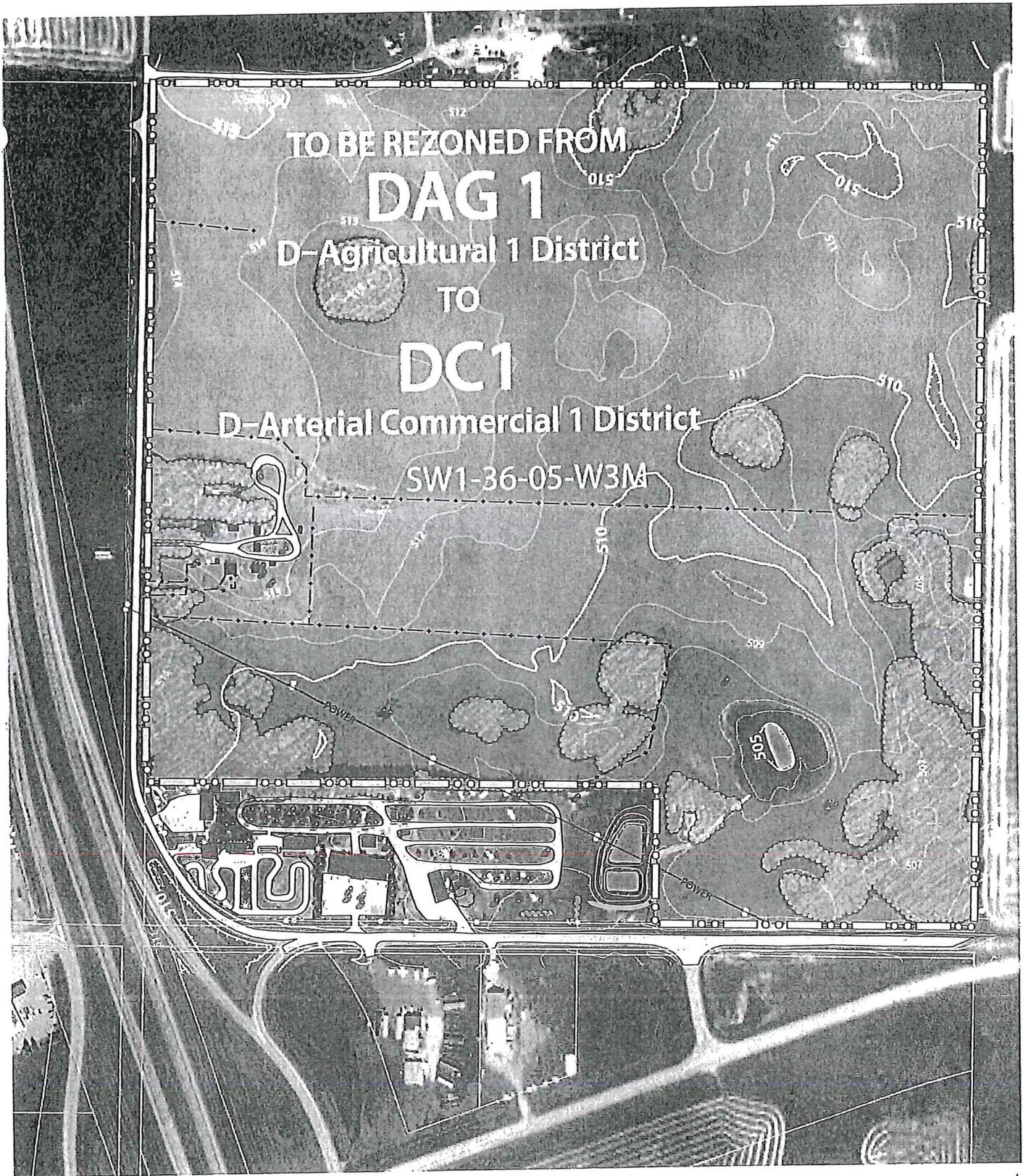


Figure 2

Proposed Rezoning

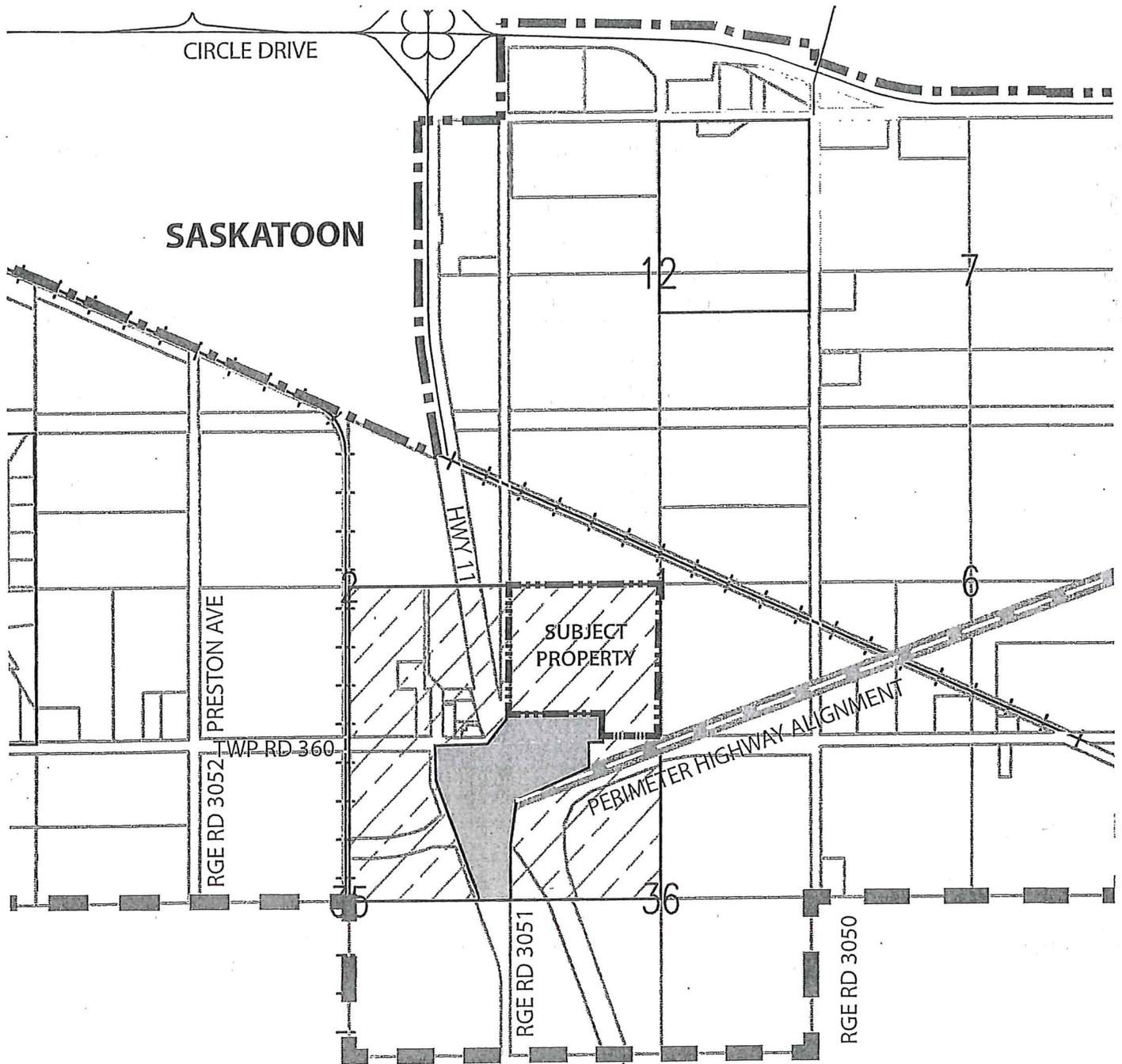
COMPREHENSIVE DEVELOPMENT REVIEW — July 2011

ZMANIX Inc. | Grasswood Junction Business Park
 Rural Municipality of Corman Park



image source: Google/DigitalGlobe

David Klippenstein
 and Associates Ltd.



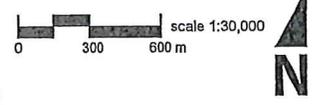
Legend

- Corman Park - Saskatoon Planning District Boundary
- Perimeter Highway Alignment
- City of Saskatoon Boundary
- Existing Residential Areas
- Future Residential Areas
- Existing Commercial Areas
- Future Commercial Areas

SOURCE: Future Land Use Map, Appendix B, Official Community Plan, Corman Park Saskatoon Planning District Official Community Plan - Bylaw 8844

Figure 3

Current Designation - Official Community Plan



COMPREHENSIVE DEVELOPMENT REVIEW — July 2011

ZMANIX Inc. | Grasswood Junction Business Park
Rural Municipality of Corman Park

David Klippenstein
and Associates Ltd.

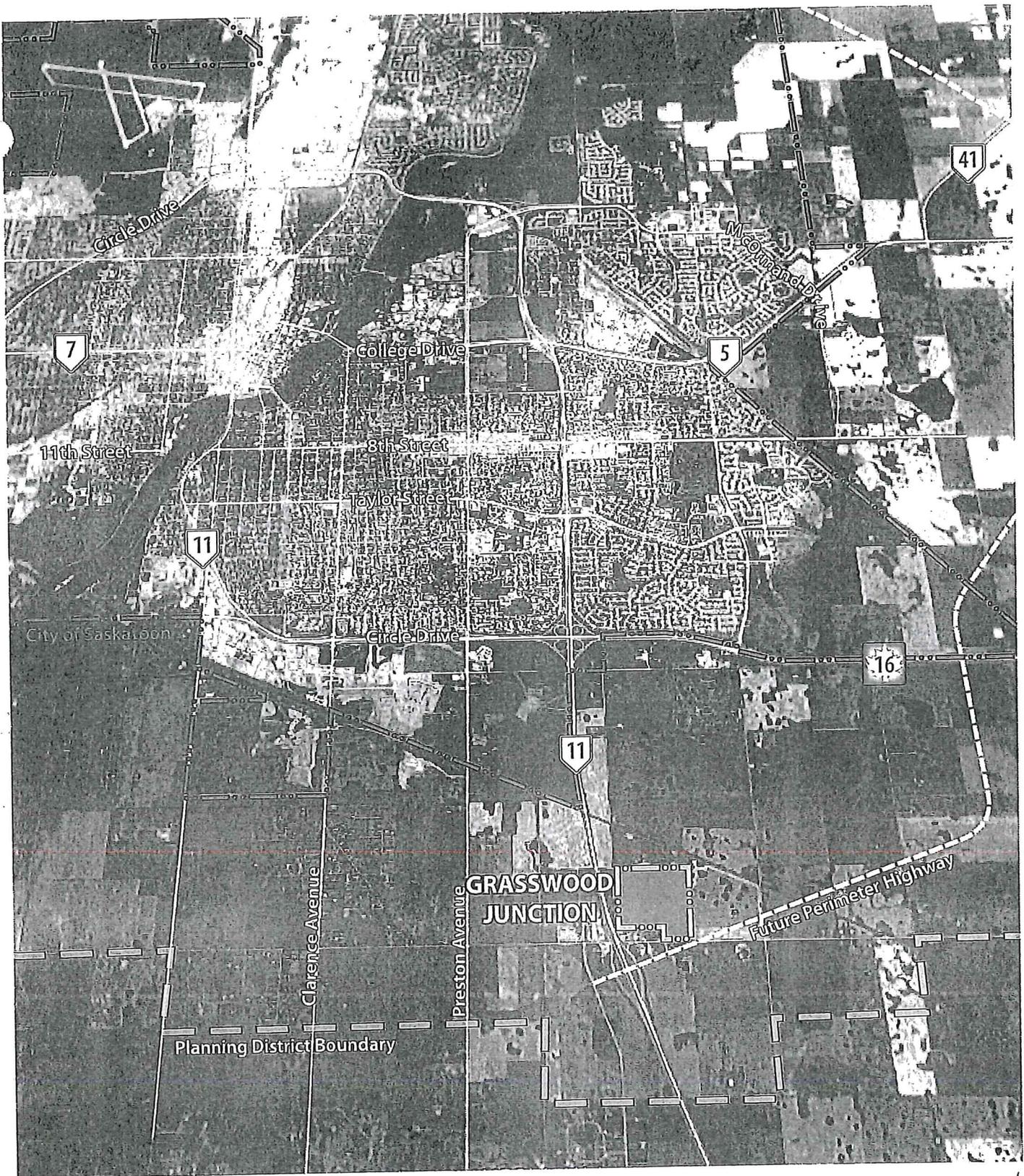


Figure 4

Location

image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — July 2011

ZMANIX Inc. | Grasswood Junction Business Park
 Rural Municipality of Corman Park

David Klippenstein
 and Associates Ltd.

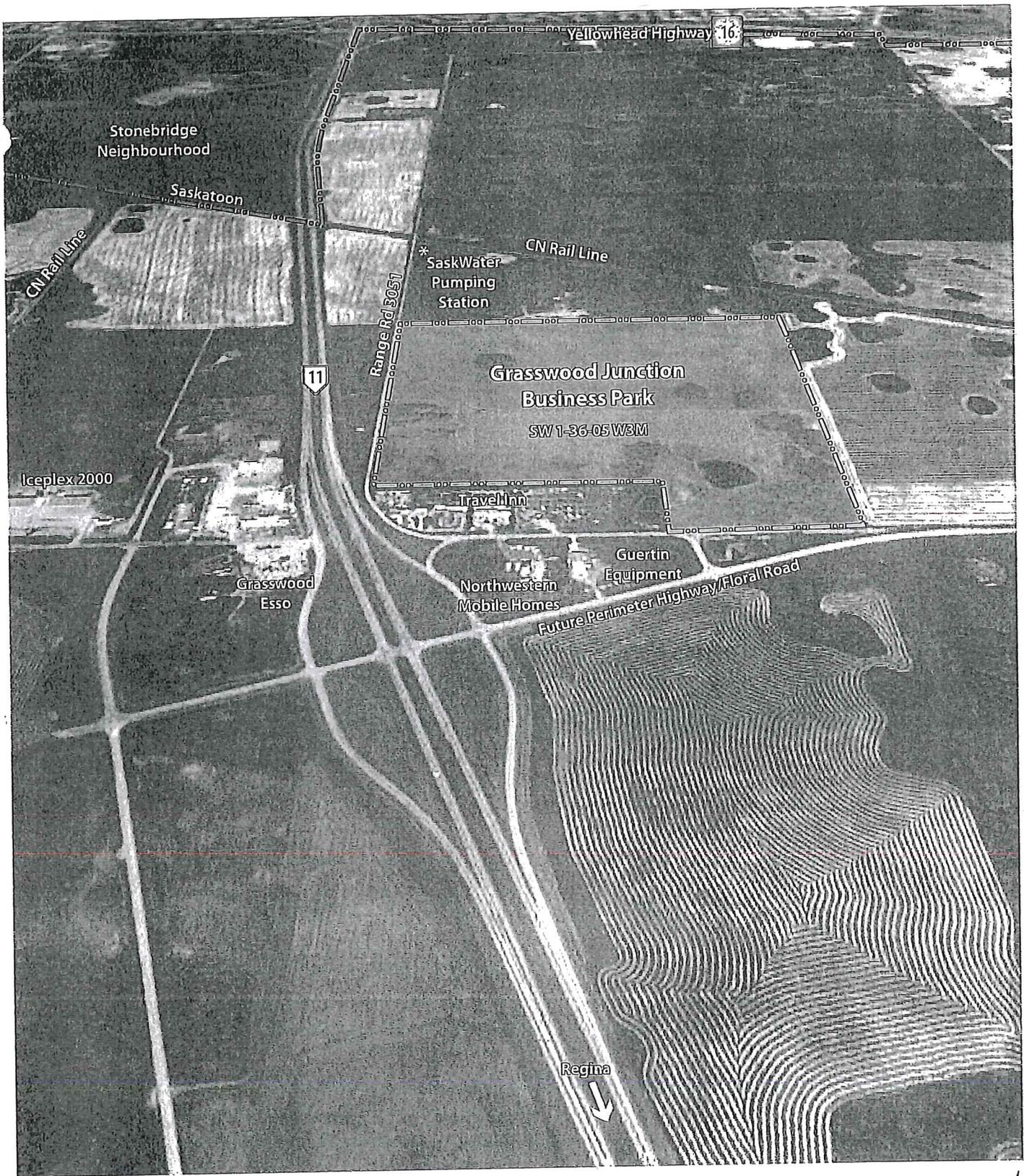


Figure 5

Site Context

image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — July 2011

ZMANIX Inc. | Grasswood Junction Business Park
Rural Municipality of Corman Park

David Klippenstein
and Associates Ltd.

At this time it is intended that the business park will be serviced by piped water and wastewater systems, surface drainage, a stormwater retention pond and rural cross-section roadways. Access will be from Floral Road to the south and Range Road 2051 to the west.

Lot sizes will be determined by market preferences and development feasibility, as discussed further in Section 3.0.

1.3 Land Use Context

The subject property is in the northeast quadrant of a developing commercial node centred at the intersection of Highway 11 and Grasswood/Floral Road (**Figure 5**). Grasswood Road is the name applied to the municipal road to the west of Highway 11 and Floral Road to the east. This node is located between one and two kilometres south of the City of Saskatoon. Highway 11 is the major highway linking Saskatoon and Regina, the two largest urban centres in Saskatchewan.

Development of the subject property will represent an expansion of this node. The first commercial business in the area was Grasswood Esso, a well-known landmark on the west side of Highway 11 south of Grasswood Road. Later, a campground, hotel and related businesses were developed east of Highway 11 and north of Floral Road on the site which shares the quarter section with the subject property. South of Floral Road and east of Highway 11, a farm implement dealership and automobile/recreational vehicle dealership have been established.

West of Highway 11, commercial development has expanded to include a four-sheet arena complex, another service station, a strip mall, a substantial office building and a recreational vehicle storage facility.

Commercial development now occupies all four quadrants around the intersection. The OCP gives recognition to this development node by designating the four quarter sections around the intersection as 'Existing Commercial Areas' and 'Future Commercial Areas'.

The existing commercial facilities, except for the arena and the English River First Nation lands are already zoned DC1. The arena and associated playing fields are zoned D- Recreational 1 District (DREC 1).

Land to the east and north of the subject property is in agricultural use. Except for one farm house immediately to the north, there are no occupied residences within 800 metres/a half mile of the subject property in any direction.

1.4 Locational Attributes

The subject land has several positive locational attributes for commercial development which are summarized as follows:

- The subject property has excellent connectivity to both the intra- and inter-provincial highway network; Highway 11, the Future Perimeter Highway and the inter-provincial Yellowhead Highway located several kilometres to the north;
- The subject property is adjacent to a growing cluster of commercial, industrial and recreational developments within the four quadrants of the Highway 11/Grasswood Road intersection; and
- The site is some distance from current or future country residential or urban expansion land uses, avoiding potential conflicts now and in the future. At the same time this commercial node is close enough to the country residential areas of south Corman Park to provide them with commercial services.

Given the excellent visibility and accessibility of the general area and the emerging cluster of commercial development, it is evident that the subject lands and surrounding development node are well-suited for economic development opportunities that will benefit the region. The rezoned land will be well integrated with its surroundings.

These opportunities were recognized in the Official Community Plan's designation of the equivalent of a section of land in the Official Community Plan for commercial purposes.

1.5 Policy Context

The Official Community Plan Bylaw was adopted through complementary bylaws by the Rural Municipality of Corman Park and the City of Saskatoon following a joint public hearing on June 28, 2010. Subsequently the OCP Bylaw was ratified by the Province of Saskatchewan.

This Comprehensive Development Review (CDR) document has been prepared to fulfill the requirements of Section 5 of the Corman Park – Saskatoon Planning District Zoning Bylaw relating to the requirements for a CDR.

The proposed rezoning addresses the policy framework of the new Official Community Plan. The following references demonstrate conformity with the relevant policies of the plan.

- **Policy 7.1. Comprehensive Development Review.**

A Comprehensive Development Review shall be completed by any person proposing to rezone or subdivide land for new commercial development prior to consideration of the application by Council.

This document is intended to fulfill that requirement with respect to the application for rezoning.

- **Policy 7.2.1 Servicing and Development Policies. Use and Enjoyment of Adjacent Properties.** *Commercial development shall be compatible with adjacent and nearby uses.*

The site is bordered to the south by commercial development, to the west by a highway with commercial development beyond and by agricultural land use to the north and east.

- **Policy 7.2.3. Servicing and Development Policies. Services Provided at Developers Expense.** *The developer shall be responsible for the construction of all infrastructure and services associated with the commercial development.*

The applicant is aware of this requirement which will be enforced through the servicing agreement required as part of the first and subsequent subdivision applications.

- **Policy 7.2.4. Servicing Agreements Required.** *Commercial developments shall, when deemed necessary by Corman Park, enter into servicing agreements, when subdivision is involved, including any considerations Corman Park deems necessary in accordance with The Planning and Development Act, 2007.*

It is understood that a servicing agreement will be required at the first and subsequent subdivision applications to ensure compliance with Policy 7.2.3 stating that the developer is responsible for the cost of all on-site infrastructure and services. It is also understood that the servicing agreement will assign developer responsibility for any off-site infrastructure improvements, such as road upgrades, that are attributable to the development.

- **Policy 7.2.1. Location and Access Policies. Designation on Future Land Use Map.** *Arterial commercial development shall locate in areas identified as Future Commercial Areas on the Future Land Use Map attached to this plan as Appendix B.*

The subject property along with properties to the west, southwest and south, are designated as Future Commercial Area on the Future Land Use Map as shown in Figure 3 of this document.

- **Policy 7.2.4. Location and Access Policies. Planned Commercial Nodes.**

Commercial development shall locate in planned nodes at or near key intersections of provincial highways, municipal roadways and the perimeter highway.

The subject property fulfills this policy admirably. It is near the intersection of Provincial Highway 11, the main Saskatoon-Regina highway and the initial stage of the future perimeter highway. The 'four corners' of this intersection comprise a developing commercial node that originated several decades ago with the development of Grasswood Esso at the southwest corner of Highway 11 and Grasswood Road.

- **Policy 7.2.5. Location and Access Policies. Locational Criteria.**

Commercial development shall be directed to locations where:

- a. existing roads and infrastructure are sufficient to support the development;*
- b. minimal roadway upgrading would be required;*
- c. any costs to Corman Park associated with the development are minimized; and*
- d. the lands are identified as 'marginal' according to the Canada Land Inventory (C.L.I.) Soil Class Rating System.*

The subject property has a direct paved connection to the future Perimeter Highway and Highway 11. A length of Range Road 3051 would require upgrading from the end of pavement on Floral Road to the westerly access point(s) to the subject property. This would constitute minimal roadway upgrading and would be the responsibility of the developer, to be implemented through servicing agreement at the time of subdivision. Some upgrading of the access and intersection as well as traffic control measures at Floral Road may also be required at various stages of development. The type and location of improvements will be identified through a Traffic Impact Assessment (TIA) for the entire development at the time of subdivision approval of the first stage of development. This will minimize cost to Corman Park.

The soils are classified as Class 4 under the CLI system which rates soils from Class 1 to Class 7 with Class 1 having the highest and Class 7 having the lowest capability for agriculture. Class 4 soils are those that have "severe limitations that restrict the range of crops or require special conservation practices, or both" (Canada Land Inventory – Soil Capability for Agriculture – Saskatoon Map Sheet 73B).

- **Policy 7.2.6. Location and Access Policies. Regulations for Providing Access.**

Commercial operations shall meet all municipal and provincial regulations respecting access to and from provincial highways and other municipal roads.

This policy will be implemented through the subdivision approval process. The application for the first stage of subdivision will be accompanied by a concept plan for the entire property and a Traffic Impact Assessment that identifies requirements for access management, road upgrading and traffic control for internal and external roads to conform to provincial and municipal regulation.

- **Policy 7.2.7. Location and Access Policies. Minimize New Roadway Construction.**

Commercial development shall be located in a manner which minimizes road construction and maintenance.

Road construction and maintenance will be limited to: (1) upgrading of Range Road 3051 to an appropriate municipal standard from Floral Road to the westerly access points, (2) construction of an internal roadway system as identified in a concept plan be submitted with the subdivision application for the first stage of development, (3) construction of any other off-site improvements as identified through the Traffic Impact Assessment (TIA) to be submitted with the subdivision application for the first stage of development.

The responsibility for on- and off-site road construction, as identified by the TIA, will rest with the developer and implemented through the servicing agreement, as per Policy 7.2.4.

- **Policy 7.4.1. Arterial Commercial. Arterial Commercial Development.**

Arterial Commercial developments shall include medium and large scale commercial activities where location adjacent to and exposure from major highways is essential.

The intent for Grasswood Junction Business Park is to accommodate uses such as hotels, automotive dealerships, similar to the uses that have already located in the area, that require and benefit from highway exposure, visibility and access. Other uses such as storage and warehousing uses would occupy internal sites, but would still benefit from access to Highway 11 connecting to the regional and provincial highway network.

In summary, the proposed rezoning complies with the policies of the Corman Park – Saskatoon Official Community Plan. In particular, the rezoning will implement the OCP designation of the land as 'Future Commercial' as shown on the Future Land Use Map that forms an integral part of the OCP (Policy 7.2.1).

2.0 Inventory and Analysis

2.1 Topography and Surface Drainage

The site has qualities that support its development capability. Topographically, the land slopes gently from northwest to southeast. Elevations exceed 515 metres in the northwest and dip below 505 metres in the lowest area of the southeast (**Figure 6**). Overall, topographic relief exceeds 10 metres within one kilometre, an average gradient of one per cent. This will provide positive drainage for wastewater and stormwater. Regionally, the land slopes west towards the South Saskatchewan River, about seven kilometres away.

Surface water accumulates in the low lying area in the southeast portion of the property in wetter years. This has been especially evident in 2011. This appears to be the site of a former farm dugout. This low area is the logical location for a storm pond.

2.2 Bedrock and Surficial Geology

A report on physiographic conditions of the site and entitled *Geotechnical Review – Proposed Grasswood Junction Business Park* was prepared by P. Machibroda Engineering Ltd. in December, 2010.

The report states that "The bedrock deposits at this site consist of approximately 75m of glacial till and stratified drift (sand, silt and clay) underlain by the noncalcareous silt and clay of the Lea Park Formation – Upper Colorado".

The report further indicates that the subject property lies within the Saskatchewan Rivers Plain, an area characterized as "gently undulating to rolling glacial lacustrine-alluvial (glacial lake) plains, aeolian plains (dunes) and till plains".

2.3 Groundwater

The Machibroda report (p. 4) states that a groundwater table in the order of 0 to 1.5 metres is anticipated. It appears likely that this condition applies especially in the low-lying southeast corner of the subject property.

2.4 Soils

The Regional Studies Program conducted in 1979 characterizes the soils of the biophysical unit within which the subject property is located as fine, silty sand soils formed on a lacustrine deltaic landform. These soils are rated as having a good suitability for light foundation construction and light foundation structures. There is good groundwater potential and low to moderate hazard potential.

2.5 Heritage Resources

Saskatchewan Heritage Conservation Branch was contacted for comment regarding any potential heritage resources on the subject property.

The response was received June 10, 2011 from Wade Dargin, Archaeologist with Archaeological Resource Management Branch stating that

"No known archaeological sites are in direct conflict with the proposed development. The property is cultivated. The likelihood that intact archaeological sites exist in this area is low. Therefore, our office has no further concerns with this development proceeding as planned."

A copy of the letter has been placed in Appendix 1.

2.6 Wildlife and Vegetation Resources – Rare or Endangered Species

A query was submitted to Saskatchewan Conservation Data Centre data base regarding records of rare or endangered species. No records were found for the subject property or for any property within a .75 kilometre radius of the perimeter of the site.

2.7 Current Land Use - Site

The subject property has been farmed in the past. The northern half of the quarter section has been in crop production; the southern half has been pasture (**Figure 6**). Several bluffs of aspen poplar are scattered throughout the site especially along the perimeter in the southwest and southeast portions of the property. These aspen bluffs tend to occupy depressional areas that are not suitable for cultivation. Treed areas cover less than fifteen per cent of the site.

An old farmstead comprising buildings and shelterbelts is located in the western portion of the subject property. Access to the farmstead is provided by a driveway from Range Road 3051.

A power line crosses the southern portion of the subject property with an east-south-east to west-north-westerly orientation. This power line will likely be incorporated into the subdivision plan for the property, as relocation could be prohibitively expensive.

A water line runs across the western portion of the subject property, connecting the SaskWater Regional line to the north with the hotel to the south. The location and size of the water line are unknown as no 'as-built' drawings have been located.

A pond, likely a former farm dugout, occupies a small site in the southeastern corner of the site. In a wet year such as the present, the pond expands onto adjacent low lands. In the summer of 2011 the water extended south to Floral Road, flooding a portion of the campsite to the west. As suggested previously, this is the logical location for a stormwater management facility.



LEGEND

- ○ ○ ○ ○ SITE BOUNDARY
- + — + EXISTING FENCE
- 511 — 1.0 m CONTOUR
- UTILITY POLE/LIGHT STANDARD
- EXISTING TREES
- WET AREAS
- EXISTING BUILDINGS
- DRAINAGE DIRECTION
- ▷ PROPOSED ACCESS POINTS
- POWER — POWER LINE

Figure 6
Site Conditions

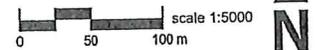


Image source: Google/DigitalGlobe

2.8 Current Land Use – Adjacent Lands

A seven hectare/17 acre parcel of land occupies the southwestern portion of the same quarter section as the subject property. This parcel is occupied by a hotel, campground, former go-kart operation and automobile sales centre. The parcel is designated as 'Existing Commercial' under the Official Community Plan, and as DC1 Arterial Commercial in the Zoning Bylaw.

The eastern end of this parcel contains a small sewage lagoon serving the hotel/campground complex. This lagoon occasionally discharges into the low area on the subject property. It is intended that a common wastewater treatment solution will be found.

As previously mentioned, the hotel complex is served by a water line crossing the subject property. Again, a common solution to water supply has been investigated for the proposed business park and the hotel site.

A farm equipment dealership and recreational vehicle/mobile home dealership are located to the south across the residual Floral Road. These properties are also designated as 'Existing Commercial' under the Official Community Plan, and as DC1 Arterial Commercial in the Zoning Bylaw.

A narrow, triangular sliver of undeveloped land separates the subject property from Highway 11 to the west. No residence is located on this parcel.

A former farmstead, now the site of a residence and landscaping business, occupies agricultural land immediately to the north. Land to the east is in agricultural use. There is no residence on this quarter section.

Aside from the residence to the north, the next nearest residence is located some 800 metres/half mile to the east at the intersection of Floral Road and Boychuck Drive/Range Road 3050. The nearest country residential development is about one mile/1.6 kilometres to the south and west, across Highway 11.

In summary, the subject property is located in an area of land uses compatible with the proposed commercial use.

2.9 Summary

The land is suitable for the proposed use. Soil conditions are suitable, access is good and topography is sufficient to provide positive drainage is positive. A solution to the flooding in the southeast corner will need to be addressed as part of the stormwater management plan for the property to be submitted with the application for subdivision for the first parcel.

The proposed land use is complementary to the existing land uses in the Grasswood Commercial node which have already been designated for the same zoning district that is being applied for.

The absence of nearby residences and country residential development avoids potential land use conflicts. The public participation process revealed no concerns with conflicting land use.

3.0 Development Considerations

3.1 Land Use Allocation

A preliminary allocation of land use for the site has been made as the basis for estimating the potential development yield. It is assumed that 75% of the land will be in commercial use, 10% in road rights of way, 10% for stormwater management and 5% for municipal reserve. The allocation for stormwater management is greater than the 7% that is used conventionally, but reflects the need to resolve the drainage and storage issues in the southeast corner of the property.

The land use allocation will be refined through the preparation of a concept plan for the entire property to accompany the subdivision application for the first stage of development. That concept plan will show lots of a size, frontage and depth that will meet the requirements of the permitted and discretionary uses provided in the DC1 district of the Zoning Bylaw.

Provincial legislation requires the dedication of five per cent of land in non-residential subdivisions for Municipal Reserve (*Planning and Development Act, 2007, Section 186*). The options for dedication are to dedicate land only, pay money in lieu of dedicated land or a combination of each. The form of dedication will be resolved and shown on the concept plan to accompany the subdivision application for the first stage.

3.2 Density and Lot Size

The minimum lot size permitted in the DC 1 District is .2 ha (.5 acre). All lots will be developed in accordance with the provisions of the D-Arterial Commercial 1 District (DC1) as set out in Schedule L of the Corman Park – Saskatoon Planning District Zoning Bylaw, Bylaw 23/10.

Assuming a net developable area of 75% or about 44 ha, the development yield if all lots were 2 ha (.5 acre) would be 220 lots. Realistically, typical lot sizes for uses in this zoning district are somewhat larger. From past experience, it appears that lot sizes ranging from .4 ha (1 acre) to 4 ha (10 acres), with the majority of lots in the range of .8 ha (2 acres) to 2 ha (5 acres) would be more typical.

A hypothetical mix of lots of these sizes would produce a lot yield in the range of 25 to 40 lots. This would allow larger sites to be created by 'doubling up' or 'tripling up' of smaller sites, a typical practice in the design of business parks.

To reiterate, a conceptual subdivision plan will accompany the subdivision application for the first stage of development. It will be based on further work to be done to consider and integrate:

- Market conditions and preferences for lot size and location;
- Development feasibility – best development yield relative to development costs;
- Roadway pattern – minimizing road construction and servicing costs relative to lot sizes and yield;
- Amount and location of land to be dedicated for utility lot (stormwater management) and Municipal Reserve (if any); and

- The effect of the diagonal power line traversing the southwest corner of the property on lot configuration.

3.3 Transportation

3.1.1 Access and Roadway Network

There will be an access point from the south directly opposite and continuous with the connector from the Future Perimeter Highway to Floral Road. There will be between one and three access points from the Range Road 3051 to the west and one from Floral Road to the south.

The internal street pattern will likely be a simple grid. An internal road will run north from Floral Road opposite the connector link. It will be intersected by east-west internal roads leading to Range Road 3051. The number of internal east-west roads will be determined through further market and feasibility investigations. As stated earlier, the internal roadway and lot network will be reflected in the concept plan to be submitted with the first stage subdivision application.

While the western portion of the subject property has excellent visibility from Highway 11, there will be no direct access to and from the highway due to proximity to a major intersection and possible future interchange.

If the first stage of development is in the southwest portion of the property, the section of Range Road 3051 linking the first stage with the end of pavement on Floral Road would be required to be constructed to municipal standard. This would be confirmed through the servicing agreement.

3.2.2 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) will be required to accompany the first stage of subdivision. The TIA will identify the increased traffic flows on municipal and provincial roads along with upgrades and improvements to roadways and traffic controls associated with staged development. This TIA will add to the preliminary work that has been already been undertaken (Associated Engineering, 2011).

3.4 Servicing

3.4.1 Water Supply and Distribution

Three options for water supply were identified: groundwater, a pipeline from the SaskWater Clarence Avenue Booster Station, and the SaskWater Saskatoon Potable Water Supply System (SPWSS) pipeline located 500 metres north of the subject property on the south side of the CN rail line.

SaskWater owns and operates regional potable water systems in the RM of Corman Park. SaskWater purchases potable water from the City of Saskatoon and delivers it to surrounding communities, industries and other commercial businesses and pipeline groups through an extensive pipeline network.

Preliminary analysis suggests that the most appropriate water supply for the subject property is the SPWSS pipeline. It is anticipated that planned system upgrades by SaskWater in 2011-2013 will increase pipeline capacity to enable an allocation for the subject property to be granted. However, pressure would not be sufficient to meet fire flow demand. Therefore an on-site reservoir would be required, as well as a supply line from the regional pipeline. A looped on-site water distribution line will service the commercial lots. The proposed water supply and distribution system would also meet the needs of the businesses on the Travel Inn property to the south.

It is anticipated that the water supply system would require a water utility, similar to other systems in the R.M. of Corman Park.

More detailed information on the water supply and distribution system will be provided with the subdivision application for the first stage of development. The water supply and distribution report will:

- Confirm the source and allocation of water and demonstrate that the flow and pressure are sufficient to provide domestic and fire flow needs;
- Provide drawings showing the preliminary routing of all supply and distribution lines;
- Identify the location, size, site requirements and pumping capacity of the on-site reservoir;
- Identify the staging of the complete system, if applicable;
- Address regulatory requirements and how they have or will be met
- Provide preliminary cost estimates at a sufficiently detailed level for the implementation of a servicing agreement between Corman Park and the developer; and
- Provide other information required by Corman Park.

3.4.2 Wastewater Collection and Disposal

Preliminary analysis has identified a number of options for wastewater collection and disposal. The options that were considered include (1) on-site septic fields, (2) on-site holding tanks, (3) lagoon treatment, (4) mechanical treatment and (5) piping to off-site treatment. A commentary on each option is provided below.

Option 1. On-site disposal fields.

This method would not be appropriate due to the proposed equivalent population density, smaller lot size and potential high groundwater table in lower areas.

Option 2A. On-site holding tanks – individual properties.

On-site holding tanks for individual businesses may be suitable for initial phases of development. The advantage of this approach is the low front-end capital cost. The disadvantage is the high continuing operations cost, especially for a water intensive user.

Option 2B. Piped Collection to Common Holding Tank.

This option features a piped collection system draining to a large common holding tank located at a low spot on the property. This would form the first phase of the ultimate wastewater system. Wastewater would then be hauled by truck to a wastewater treatment plant within the region. This would likely be the City of Saskatoon plant as smaller lagoons nearby may not have the treatment capacity required. This option would become increasingly expensive as development occurs. At some point therefore, conversion to an alternate system would be appropriate.

Option 3. Piped Collection to Sewage lagoon.

This option has the disadvantage of large land requirements for the facility itself plus the associated setbacks of 300 to 600 metres from areas of human use or occupancy. In addition, the lack of an apparent downstream drainage course may limit the opportunity to discharge sanitary effluent on a seasonal basis, increasing the storage requirements.

Option 4. Mechanical wastewater treatment plant.

This option would allow for the continuous drainage of sanitary effluent, eliminating the need for huge storage facilities. However, it would require that the effluent would be pumped to a suitable water or drainage course which does not appear to be available. Alternately, the effluent could be disposed of on-site or on adjacent land if it could be secured.

Option 5. Connection to City of Saskatoon Wastewater System.

The option of conveying wastewater to the City of Saskatoon for treatment at its wastewater treatment plant appears to be limited at present by policy and infrastructure capacity constraints.

Options 2, 3 and 4 are appropriate for further investigation, evaluation and resolution.

More detailed information on the wastewater collection and distribution system will be provided with the subdivision application for the first stage of development. The wastewater collection and treatment report will:

- Confirm the nature of the interim and long-term wastewater collection, treatment and disposal systems;

- Confirm the adequacy of collection and treatment systems to deal with the projected wastewater flow from the subject property and the site immediately to the south;
- Confirm conceptually the location and size of all elements of the system;
- Address regulatory requirements and how they have or will be met;
- Address staging of the system;
- Provide preliminary cost estimates of sufficient detail to enable the implementation of a servicing agreement between Corman Park and the developer; and
- Provide other information needed by Corman Park.

3.4.3 Stormwater Management

The topography of the site shows that the subject property drains naturally to the pond and surrounding low area in the southeastern corner of the property. The individual lot developers will be required to maintain proper site drainage and reduce conflicts according to a master grading and drainage plan. Storm water flows will be directed to a series of ditches running parallel to the internal roadways and ultimately to a storm pond to be located in the southeast corner of the property. Experience has shown that a storm pond may require a footprint of 7% of the net developable area. In this case the area required may be somewhat greater, possibly up to 10%, to address the flooding that has occurred in the past two years. A related challenge will be to provide an off-site channel to discharge water from the storm pond.

Further information on stormwater management for the entire property will be provided with the submission of the subdivision application for the first stage. The stormwater management component will:

- Provide a conceptual grading plan to identify areas of cut and fill and to demonstrate that earth balance can be achieved,
- Confirm storm water flow generation under pre- and post- development conditions
- Confirm the location and capacity of the storm water collection system –channels and ditches,
- Provide conceptual design parameters for the storm pond and information on interim stages if applicable,
- Address any regulatory requirements and their implications, and
- Address control of flows off-site and impacts of flow on downstream landowners.

3.4.4 Shallow and Franchise Utilities

Electricity

SaskPower currently provides electricity to various customers in the area. There is an existing 25 kV overhead line on the south side of the property that is capable of servicing a typical commercial development.

There is also a 38kV transmission that diagonally crosses the southwest corner of the development site. This line can be relocated at the developer's cost. Preliminary investigations suggest the costs could be high; therefore the line would remain and would be integrated into the subdivision plan.

Natural Gas

There is an existing high pressure natural gas transmission line passing through the development site. Detailed design will need to consider the location, easements and development constraints associated with this line.

An application has been submitted to SaskEnergy to determine the available capacity to service this development.

Telecommunications

SaskTel has existing infrastructure nearby to provide regular telephone service. Yourlink, a high speed wireless provider headquartered in Saskatoon, will be providing Voice over Internet protocol (VoIP) for the sum of 2011.

SaskTel currently does not offer high capacity broadband in rural development areas south of the City. Yourlink currently provides wireless high speed internet to several customers in the area and has additional capacity.

Public Safety – Fire and Police Protection

The City of Saskatoon Fire and Protective Services are reported to provide emergency services including fire protection in the area of the subject property by means of an existing agreement.

Evidence of these agreements will be required as part of the submission for approval of the subdivision application for the first stage.

3.5 Staging

It is intended that the Business Park will be developed in stages, with the staging sequence determined by market demand and the cost and direction of servicing. The initial stage may be in the southwest corner of the subject property.

A Staging Plan will be submitted concurrently with the subdivision application to for the first stage of development.

3.6 Implementation Strategy – Summary

The rezoning application is supported by sufficient technical analysis to identify technical issues related to lot density, conceptual planning and servicing. Optional approaches to resolving issues have been explored. However further analysis and resolution is required.

Therefore, outstanding technical requirements will be addressed prior to subdivision approval and servicing agreement for the first stage of development. These requirements have been stated in previous sections and are summarized here for clarity.

The technical requirements to be submitted with the first stage of development will include the following:

1. Overall concept plan, showing development density, lot size, roadway network, land use allocation, staging and power line integration (Sections 3.1, 3.2 and 3.5);
2. Traffic Impact Assessment(TIA) to address interim and long term traffic generation and its impact on provincial and municipal roadways (Section 3.3);
3. Traffic Impact Assessment (TIA) to identify upgrades and improvements to roadways and traffic control systems along with the thresholds for these improvements, to be implemented through the servicing agreements to accompany the first and subsequent stages (Section 3.3);
4. The standard of internal and external roadway to be constructed;
5. Confirmation of the water supply and distribution system and sufficient preliminary engineering for the servicing agreement for Stage 1 as per Section 3.4.1;
6. Confirmation of the wastewater collection, treatment and disposal system and sufficient preliminary engineering for the servicing agreement for Stage 1 as per Section 3.4.2; and
7. Provision of a stormwater management and grading/drainage plan for the entire development area and sufficient preliminary engineering for Stage 1 as per Section 3.4.3;

This effectively would constitute an addition to this Comprehensive Development Review document to support the subdivision of Stage 1.

4.0 Public Consultation

The primary focus of the public consultation program was a public open house held on June 20, 2011. Its purpose was to inform, receive comments and make any necessary modifications.

Copies of all materials prepared in connection with the open house have been placed in Appendix B. These include: list of landowners, map of landowners, letter of notice, initial information sheet, initial figures, newspaper advertisement, County Press article, sign-in sheet, information sheet for meeting, map package for meeting, photos of the venue and display panels and response form.

4.1 Notification

A letter, information sheet and two reference maps were sent to landowners within a 1.6 kilometre radius of the subject property. The letters were mailed May 31, 2011. Land owners were advised of the proposed rezoning and were invited to an open house to be held on June 20, 2011 at the Floral Community Centre. One phone call was received from an out-of-province land owner within the area in response to the letter.

Further notice of the proposed public meeting was given in an advertisement placed in the Country Press newspaper on June 15, 2011. It appeared on the seventh page of the paper, and was accompanied by an article with an illustrated aerial photograph of the site of the proposed rezoning.

4.2 Open House

The open house was held on June 20, 2011 at the Floral Community Centre, located about two and a half miles east of the subject property. A sign-in sheet, expanded information sheet and eight reference maps and a response sheet were provided. Eight display panels were arranged at the front of the hall for informal discussion. The meeting was attended by a reporter from the Country Press.

The format for the evening was a 'come and go' arrangement with a formal verbal presentation made at seven o'clock. The presentation addressed the following points:

- The commercial designation of the subject property in the OCP and the process that led to it in 2010;
- The characteristics of the site;
- The range of permitted and discretionary uses listed in the DC1 district;
- Potential development characteristics – access, circulation, lot size distribution;
- Servicing options; and
- Next steps in the approval and development process.

4.3 Response

The sign-in sheet contains sixteen names. About twenty people attended in total and about fourteen were present for the presentation. Most attendees were residents of the neighbouring farm or country residential properties.

The atmosphere of the meeting was cordial and congenial. Generally people were interested in what was being proposed and very few if any concerns were expressed.

Although the response sheet distributed to attendees, no completed sheets were returned.

Specific comments or questions that were raised during the course of the evening are summarized as follows:

- The development is sufficiently distant from my residence not to be a concern;
- It's about time that more development takes place on the south side;
- What's the timing for the perimeter highway?
- What's happening with the adjacent land to the east of the subject property?
- Who's the developer behind this proposal?

Two nearby land owners were interested in the development opportunities within the area. The meeting provided an opportunity to discuss mutual challenges regarding water supply and drainage with the owner of the balance of the quarter section.

5.0 References

1. Acton, D.F. and Ellis, J.G.. *The Soils of the Saskatoon Map Area 73B – Saskatchewan*. Saskatchewan Institute of Pedology Publication S4. 1978.
2. Associated Engineering Ltd. *Draft Grasswood Junction Business Park Servicing Study*. May, 2011.
3. Associated Engineering Ltd. *Draft Transportation Technical Memorandum*. May, 2011.
4. Canada Department of Energy, Mines and Resources. *Canada Land Inventory – Soil Capability for Agriculture – Saskatoon Map Sheet 73B*. Ottawa, 1971.
5. Machibroda Engineering Ltd. *Geotechnical Review - Proposed Grasswood Junction Business Park, SW1-36-5-W3*. December, 2010.

APPENDIX 1

CORRESPONDENCE - HERITAGE RESOURCE BRANCH

APPENDIX 2

OPEN HOUSE MATERIALS

David Klippenstein & Associates Ltd.
Planning and Development Consultants
236-200 Carnegie Drive,
St. Albert, AB T8N 5A7

May 31, 2011

Dear

**Re: Invitation to Open House Regarding Proposed Rezoning
Agricultural to Arterial Commercial
Grasswood Junction Business Park – SW 1-36-5-W3
Rural Municipality of Corman Park**

We are writing on behalf of the owners of this property, Zmanix Inc. of Edmonton, to advise you of our intent to submit a rezoning application for this 58.2 hectare parcel and to invite to an Open House.

The proposed rezoning is from the current 'D-Agricultural 1 District (DAG1) to 'D - Arterial Commercial 1 District (DC1). The property has been designated as Commercial by the Corman Park – Saskatoon Official Community Plan (OCP) adopted in 2010.

Please refer to the attached Information Sheet and maps for more details.

We plan to host an **Open House** to present additional information on the proposed rezoning and to receive your comments. The details of the **Open House** are as follows:

PLACE: Floral Community Centre
DATE: Monday, June 20, 2011
TIME: Open House from 5.00 p.m. to 8.00 p.m.
Brief presentation from 7.00 p.m. to 7.30 p.m.

This letter is being sent to all residents within one mile of the property. If you know of anyone else who would be interested please feel free to notify them.

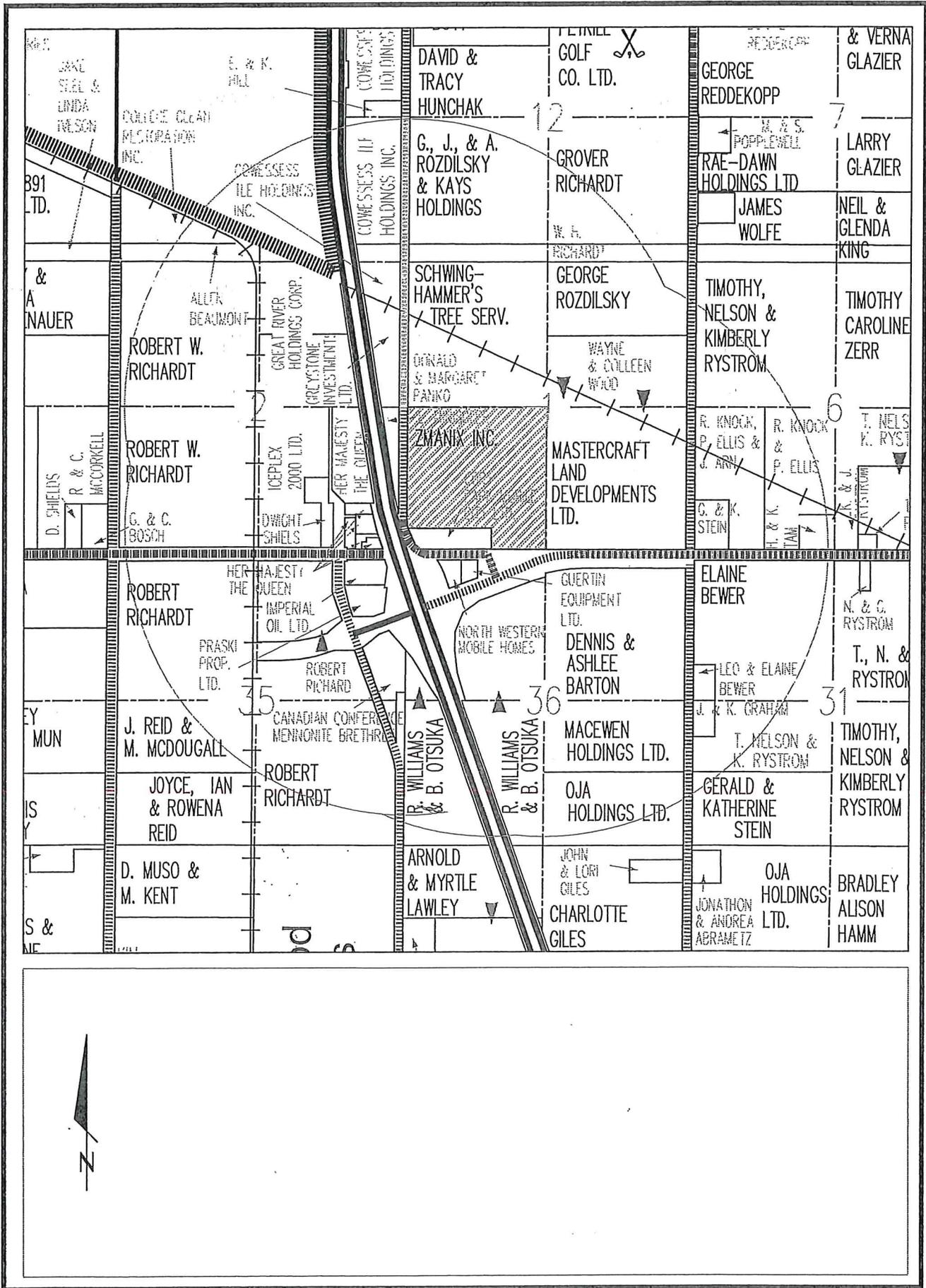
If you have advance questions or comments, please direct them to me at the e-mail address below or leave a voicemail message on either of the phone numbers. I will respond to voice mail messages within 24 hours. We could also arrange a 'one on one' meeting if you prefer.

The proposed rezoning will be the subject of a formal public hearing before Council following Municipal and District Planning Commission review later in the year.

We look forward to hearing from you and/or meeting about any comments you may have.

Yours sincerely,

David Klippenstein, RPP, Planning Consultant
236-200 Carnegie Drive
St. Albert, AB. T8N 5A7
Phone: office: 780.460.1001 cell: 780.819.3490 e-mail: david@dklipp.com



Zmanix Inc.

Roll No	Customer Name	Civic Address	Legal
000512300.01	101104333 SASKATCHEWAN LTD.	1265 8TH STREET E SASKATOON SK S7H 0S5	QTR: PTN OF SE;SEC: 12;TWP: 36;RNG: 5;MER: W3;
000236202.01	3687661 MANITOBA LTD.	35 MELNICK ROAD WINNIPEG MB R3X 1V5	PCL: B;QTR: NW;SEC: 36;TWP: 35;RNG: 5;MER: W3;PLAN: 101559876;
000236100.01 000236100.02	BARTON DENNIS L. & ASHLEE M.	BOX 7B RR 5 SASKATOON SK S7K 3J8	QTR: NE;SEC: 36;TWP: 35;RNG: 5;MER: W3; QTR: NE;SEC: 36;TWP: 35;RNG: 5;MER: W3;
000511402.01	BEAUMONT ALLEN	3162 EASTVIEW SASKATOON SK S7J 3J4	QTR: PTN OF SW;SEC: 11;TWP: 36;RNG: 5;MER: W3;
000131200.01	BEWER ELAINE F.	BOX 7 RR 5 SASKATOON SK S7K 3J8	QTR: NW;SEC: 31;TWP: 35;RNG: 4;MER: W3;
000131201.01	BEWER LEO J. & ELAINE F.	BOX 7 RR 5 SASKATOON SK S7K 3J8	QTR: PTN OF NW;SEC: 31;TWP: 35;RNG: 4;MER: W3;
000235106.01	CANADIAN CONFERENCE OF THE MENNONITE	BRETHREN CHURCH OF NORTH AMERICA 1310 TAYLOR AVENUE WINNIPEG MB R3M 3Z6	PCL: E;QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3;PLAN: 101911485;
000511401.01	COLLEGE CLEAN RESTORATION INC.	2101 EWART AVENUE SASKATOON SK S7J 1X8	PCL: B;QTR: SW;SEC: 11;TWP: 36;RNG: 5;MER: W3;PLAN: 101456568;
000501401.01 000501401.02	CORY PARK MOBILE CITY LTD.	SITE 513 COMP 1 RR 5 SASKATOON SK S7K 3J8	PCL: N;QTR: SW;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 101889917; PCL: N;QTR: SW;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 101889917;
000502102.01 000511300.01	COWESSESS TLE HOLDINGS INC.	BOX 139 COWESSESS SK S0G 5L0	QTR: PT LSD 16;SEC: 2;TWP: 36;RNG: 5;MER: W3; BLK: A;QTR: SE;SEC: 11;TWP: 36;RNG: 5;MER: W3;PLAN: 101456546;
000502308.01	FUN TIME JUNCTION RV PARK & CAMPGROUND LTD.	ATTN: DWIGHT SHIELS SITE 500 BOX 10 RR 5 SASKATOON SK S7K 3J8	PCL: T;QTR: SE;SEC: 2;TWP: 36;RNG: 5;MER: W3;PLAN: 101884541;
000131401.01	GRAHAM JEFFREY W. MUDHAR- GRAHAM KANWAL K.	BOX 7F RR 5 SASKATOON SK S7K 3J8	QTR: PTN SW;SEC: 31;TWP: 35;RNG: 4;MER: W3;
000502100.01 000502103.01	GREAT RIVER HOLDINGS CORP.	C/O TERRY LAMON BOX 397 MEADOW LAKE SK S9X 1Y3	QTR: LSD 15 & 16;SEC: 2;TWP: 36;RNG: 5;MER: W3; QTR: LSD 9 & 10;SEC: 2;TWP: 36;RNG: 5;MER: W3;
000502101.01	GREYSTONE INVESTMENTS LTD.	1171 - 8TH ST E SASKATOON SK S7H 0S3	PCL: A;QTR: NE;SEC: 2;TWP: 36;RNG: 5;MER: W3;
000502300.01 000502300.02	ICEPLEX 2000 LTD.	6501 SPROTT STREET BURNABY BC V5B 3B8	QTR: LSD 02&07;SEC: 2;TWP: 36;RNG: 5;MER: W3; QTR: LSD 02&07;SEC: 2;TWP: 36;RNG: 5;MER: W3;
000235101.01 000235101.02	IMPERIAL OIL LIMITED	PROPERTY TAX DEPARTMENT PO BOX 6384, STATION "D" CALGARY AB T2P 2C9	PCL: A;QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3;PLAN: 66S19390; PCL: A;QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3;PLAN: 66S19390;
000406400.01 000406401.01	KNOCK ROBERT ELLIS PATRICIA & ARN, JOYCE L.	47 DUMONT CRESCENT SASKATOON SK S7J 2X2	QTR: LSD 03&06;SEC: 6;TWP: 36;RNG: 4;MER: W3; QTR: LSD 04&05;SEC: 6;TWP: 36;RNG: 4;MER: W3;
000512301.01	KONDRATOWICZ KIM ROBYN	309 - 2305 ADELAIDE STREET E SASKATOON SK S7J 5H6	QTR: PTN OF SE;SEC: 12;TWP: 36;RNG: 5;MER: W3;
000236300.01	MACEWEN HOLDINGS LTD	3025 FAITHFULL AVENUE SASKATOON SK S7K 8B3	PCL: A;QTR: SE;SEC: 36;TWP: 35;RNG: 5;MER: W3;PLAN: 101964078;
000501300.01	MASTERCRAFT LAND DEVELOPMENTS LTD.	100 TARACOVE CRES. NE CALGARY AB T3J 4R2	QTR: SE;SEC: 1;TWP: 36;RNG: 5;MER: W3;
000502303.01	MINISOFER LAVERNE	BOX 8128 SASKATOON SK S7K 6C4	PCL: A;QTR: SE;SEC: 2;TWP: 36;RNG: 5;MER: W3;PLAN: 101884383;
000236201.01	NORTH WESTERN MOBILE HOMES	GROSVENOR PO BOX 21004 SASKATOON SK S7H 5N9	PCL: A;QTR: NW;SEC: 36;TWP: 35;RNG: 5;MER: W3;PLAN: 78S18213;
000501201.01	PANKO DONALD F. & MARGARET J.	2221 EASTHILL SASKATOON SK S7J 3E1	PCL: B;QTR: NW;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 101455534;
000235100.01	PRASKI PROPERTIES LTD.	ATTN: CARMAN PRASKI 8 HENRI CLOSE ST. ALBERT AB T8N 6B2	PCL: C;QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3;PLAN: 101889704;
000235102.01	PROVINCE OF SASKATCHEWAN	UNKNOWN CORMAN PARK SK H0H 0H0	LOT: X;PCL: X;QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3;PLAN: 78S06338;
000235400.01	REID JOYCE MCDOUGALL MAUREEN	5169 PRESTON AVENUE SASKATOON SK S7T 1C8	QTR: LSD 05&06;SEC: 35;TWP: 35;RNG: 5;MER: W3;

Zmanix Inc.

000235105.01 000235200.01 000235300.01 000502200.01 000502200.02 000502400.01	RICHARDT ROBERT W.	GROSVENOR RPO BOX 21058 SASKATOON SK S7H 5N9	QTR: NE;SEC: 35;TWP: 35;RNG: 5;MER: W3; QTR: NW;SEC: 35;TWP: 35;RNG: 5;MER: W3; QTR: SE;SEC: 35;TWP: 35;RNG: 5;MER: W3; QTR: NW;SEC: 2;TWP: 36;RNG: 5;MER: W3; QTR: NW;SEC: 2;TWP: 36;RNG: 5;MER: W3; QTR: SW;SEC: 2;TWP: 36;RNG: 5;MER: W3;
000501100.01 000512400.01 000512401.01	ROZDILSKY GEORGE, JOHN & ANDREW KAYS HOLDINGS LTD.	517 LAKE CRESCENT SASKATOON SK S7H 3A3	QTR: LSD 15&16;SEC: 1;TWP: 36;RNG: 5;MER: W3; QTR: PTN OF SW;SEC: 12;TWP: 36;RNG: 5;MER: W3; QTR: PTN OF SW;SEC: 12;TWP: 36;RNG: 5;MER: W3;
000131400.01 000406200.01	RYSTROM TIMOTHY W, NELSON D RYSTROM KIMBERLY H.	BOX 10 RR 5 SASKATOON SK S7K 3J8	QTR: N. HALF OF SW;SEC: 31;TWP: 35;RNG: 4;MER: W3; QTR: NW;SEC: 6;TWP: 36;RNG: 4;MER: W3;
000511301.01	SASK. POWER CORPORATION	EXEMPT PROPERTY CORMAN PARK SK H0H 0H0	PCL: B;QTR: SE;SEC: 11;TWP: 36;RNG: 5;MER: W3;PLAN: 101456557;
000501202.01	SASKATCHEWAN WATER CORPORATION	111 FAIRFORD ST E MOOSE JAW SK S6H 7X9	PCL: C;QTR: NW;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 101998402;
000501200.01	SCHWINGHAMMER'S TREE SERV. LTD	107 SASKATCHEWAN CRES. W. SASKATOON SK S7M 0A2	PCL: A;QTR: NW;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 101455523;
000236301.01	SIDHU PALVINDER	67 AMARANTH CRESCENT BRAMPTON ON L7A 0L4	PCL: B;QTR: SE;SEC: 36;TWP: 35;RNG: 5;MER: W3;PLAN: 101964078;
000131403.01 000406403.01	STEIN GERALD & KATHERINE	BOX 7E RR 5 SASKATOON SK S7K 3J8	PCL: Z;QTR: SW;SEC: 31;TWP: 35;RNG: 4;MER: W3;PLAN: 101411143; PCL: B;QTR: SW;SEC: 6;TWP: 36;RNG: 4;MER: W3;PLAN: 101444745;
000406402.01	TAM HUMPHREY & KIMBERLY A.	SITE 7 BOX 7G RR 5 SASKATOON SK S7K 3J8	BLK: A;QTR: SW;SEC: 6;TWP: 36;RNG: 4;MER: W3;PLAN: 101444734;
000236302.01	URMSON PAUL T. & SUSAN M.	119 LAKESHORE CRESCENT SASKATOON SK S7J 3T2	PCL: C;QTR: SE;SEC: 36;TWP: 35;RNG: 5;MER: W3;PLAN: 102011948;
000236200.01 000236400.01	WILLIAMS ROBERT, MAURICE R OTSUKA BEVERLEY	657 EAST PLACE SASKATOON SK S7J 2Z1	QTR: NW;SEC: 36;TWP: 35;RNG: 5;MER: W3; QTR: SW;SEC: 36;TWP: 35;RNG: 5;MER: W3;
000501101.01 000501301.01	WOOD WAYNE & COLLEEN	BOX 7C RR 5 SASKATOON SK S7K 3J8	QTR: LSD 09&10;SEC: 1;TWP: 36;RNG: 5;MER: W3; PCL: A;QTR: SE;SEC: 1;TWP: 36;RNG: 5;MER: W3;PLAN: 100048654;
000501400.01	ZMANIX INC.	209 - 2920 CALGARY TRAIL EDMONTON AB T6J 2G8	QTR: PTN OF SW;SEC: 1;TWP: 36;RNG: 5;MER: W3;
Division 1	Perry Ulrich	Box 13A RR 5 Saskatoon SK S7K 3J8	
Division 2	Craig Riddell	3589 Mount Royal Avenue Furdales SK S7T 1B1	
	City of Saskatoon Attention: Laura Hartney	City Planning Branch 222 - 3rd Avenue North Saskatoon SK S7K 0J5	
Highway 11	Lavern Yagelnesky Operations Division	Saskatchewan Highways & Transportation 2174 Airport Drive Saskatoon SK S7L 6M6	
CNR	Canadian National Railway	1701 Chappel Road Saskatoon SK S7M 5P5	

welcome! Please sign in!

Sign - in Sheet

Community Open House - Floral Community Centre - June 20, 2011

Proposed Rezoning - Grasswood Junction Business Park - SW 3-36-5-W3

NAME	ADDRESS	PHONE OR EMAIL
1. C. RIDDEHL		664-5089 CRAIG, RIDDEHL @ SHAW.C
2. Kyle Chatterson	1171 8th Street E	290-1025 kchatterson@concordynuffc
3. Tim Rystrom	SE 6-36-4 W 3	rystrom@954tel.net
4. Robert Knock	"	rknock@sasktel.net
5. Pat Ellis	"	PatEllis @ Live Rose
6. Tim Rystrom	SE 6 30 4 W3	rystromjk@sasktel.net
7. Bill Delaney	Corman Park R.A.	
8. Elaine Bewer	Box 7 R.R.#5, Steen	373-6967
9. DON SACKS	2301 GRASSWOOD RD.	955 3606 ext 112
10. Gloria Rystrom	Box 10 R.R.#5	955-2370
11. Nelson Rystrom	Box 10 R.R.#5	955 2370
12. Elmer Agnes Myca	Box 79 RR5	955-4331
13. Perry Ulrich	Box 130, R.R. 5	373-6561
14. Sheena Ny	Travel Inn	241-1674
15. Schwinghammer R.	107 Sask Crw.	244-4080.
16. J. Atin	RR5.	249-0717
17.		
18.		
19.		

Information Sheet – Public Open House – June 20, 2011
Proposed Rezoning – SW-1-36-5-W3
Grasswood Business Park- Zmanix Inc.
Rural Municipality of Corman Park

- **Proposed rezoning:** from current 'D-Agricultural 1 District (DAG1) to 'D - Arterial Commercial 1 District, (DC1) under the Corman Park – Saskatoon Planning District Zoning Bylaw to facilitate development of a Commercial Business Park
- **Land Area** to be Rezoned: SW 1-36-5-W3 – 58.2 hectares/143.8 acres
- **Location:** North of Travel Inn, northeast of intersection of Future Perimeter Highway and Highway 11
- **Purpose** of the DC1 District as per the Zoning Bylaw: to *'facilitate a diverse range of commercial activities serving the traveling public and the local populations, displaying a high standard of appearance and focused at points of intersection with primary municipal roadways, provincial highways and the perimeter highway.'*
- **Permitted uses** include: accommodation, food service, veterinary clinics, auction facilities, storage facilities, retail stores up to 35,000 square feet, automotive, vehicle and equipment service and other similar uses (please see pages 2 and 3 for more detail)
- **Prohibited uses** include: all nuisance or noxious uses, residences, large retail stores over 35,000 square feet
- **Lot Potential:** illustrative plan shows around 30 lots of various sizes, these could be 'doubled up' or 'tripled up' to create larger sites, or further subdivided if smaller sites are required
- **Designated 'Commercial'** in Corman Park – Saskatoon Planning District **Official Community Plan (OCP)** adopted by Corman Park and Saskatoon Councils in **June of 2010**, followed by provincial ratification
- **Rezoning:** a logical next step to OCP designation
- **Comprehensive Development Review (CDR)** document being prepared to support the rezoning application, including a **Servicing and Traffic Study** being prepared by Associated Engineering of Saskatoon
- **Access:** existing roadway system - Floral Road and Range Road 3051
- **Next steps:** formal application to be submitted late June, followed by municipal/provincial review, formal public hearing and adoption of rezoning bylaw by Corman Park Council
- **For more information contact:** David Klippenstein, RPP, Planning Consultant
236-200 Carnegie Drive
St. Albert, AB. T8N 5A7

Phone: 780.460.1001 - office
780.819.3490 - cell
E-mail: david@dklipp.com

Excerpts from Schedule L: D-Arterial Commercial 1 District (DC1) of the Corman Park – Saskatoon Planning District Zoning Bylaw – Bylaw 23/10 Rural Municipality of Corman Park.

Purpose or Intent:

The purpose of the D-Arterial Commercial 1 District (DC1) is to facilitate a diverse range of commercial activities serving the traveling public and the local populations, displaying a high standard of appearance and focused at points of intersection with primary municipal roadways, provincial highways and the perimeter highway.

Permitted Uses:

1. Accommodation service - including but not limited to hotels and motels, campgrounds, and including restaurants and recreational facilities as accessory uses
2. Amusement and entertainment service
3. Animal health care facility
4. Auction facility
5. Automotive, equipment and vehicle service – retailing, mechanical and electrical repairs refueling services and general maintenance for automobiles, motor homes, recreational trailers, campers, motorcycles, recreational watercraft, snowmobiles, off-road vehicles
6. Commercial storage centre – establishments engaged in renting or leasing space for self-storage
7. Community care facility
8. Food service use – preparing meals, snacks and beverages for immediate consumption on and off the premises
9. Internment service
10. Public market
11. Public utility or municipal facilities
12. Retail store – floor area not to exceed 35,000 square feet on a site

Discretionary Uses:

1. Agricultural support service – farm implement dealerships, feed mills, abattoirs, bulk fertilizer or fuel distributors
2. Commercial Complex – a group of two or more attached or detached principal buildings on the same site where each development is a permitted or approved discretionary use, not to exceed 35,000 square feet of floor space
3. Commercial recreation

4. Recycling depot or type 1 clean fill operation – where storage of recyclables is contained within an enclosed building or an area screened to Council's satisfaction
5. Telecommunications facility – structure for transmitting or receiving television, radio, or telephone communications
6. Warehousing – storage and distribution of goods, materials or merchandise, other than dangerous or hazardous materials and derelict vehicles – typical uses are moving companies, trucking terminals, RV storage, self-storage
7. Warehouse sales – wholesale or retail sale of bulky goods such as furniture, carpet, major appliances and building materials, not to exceed 35,000 square feet on a site
8. Wholesale trade – wholesaling merchandise and providing related logistics, marketing and support services, floor area not to exceed 35,000 square feet on a site

Prohibited Development:

1. Land uses that may be noxious, injurious or a nuisance because of emission of dust, smoke, refuse, odour, gas, fumes, noise, vibration or similar uses or conditions
2. Residential units
3. Outside storage other than the storage and display of finished goods essential to facilitate a permitted or approved discretionary use
4. Large retail establishments over 35,000 square feet of space on one site
5. All uses of land and buildings other than those listed as permitted or discretionary

Site Development Standards:

Minimum site area:	0.2 hectare/0.5 acre
Minimum frontage:	30 metres/98.4 feet
Front yard setback:	45 metres/147.6 feet from centre line of road allowance
Side yard setback:	8 metres/26.2 feet
Rear yard setback:	21 metres/68.9 feet
Maximum building height:	17 metres

Landscaping Standards:

A landscape plan is a requirement for the issuance of a development permit. The landscape plan shall be in compliance with the Commercial and Industrial Landscaping Requirements of the Zoning Bylaw.

Note: The above represents highlights only of the DC1 District. For more detail and/or greater clarity, please consult the Zoning Bylaw, Bylaw 23/10.



Figure 1
Location



image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
 Rural Municipality of Corman Park

David Klippenstein
 and Associates Ltd.

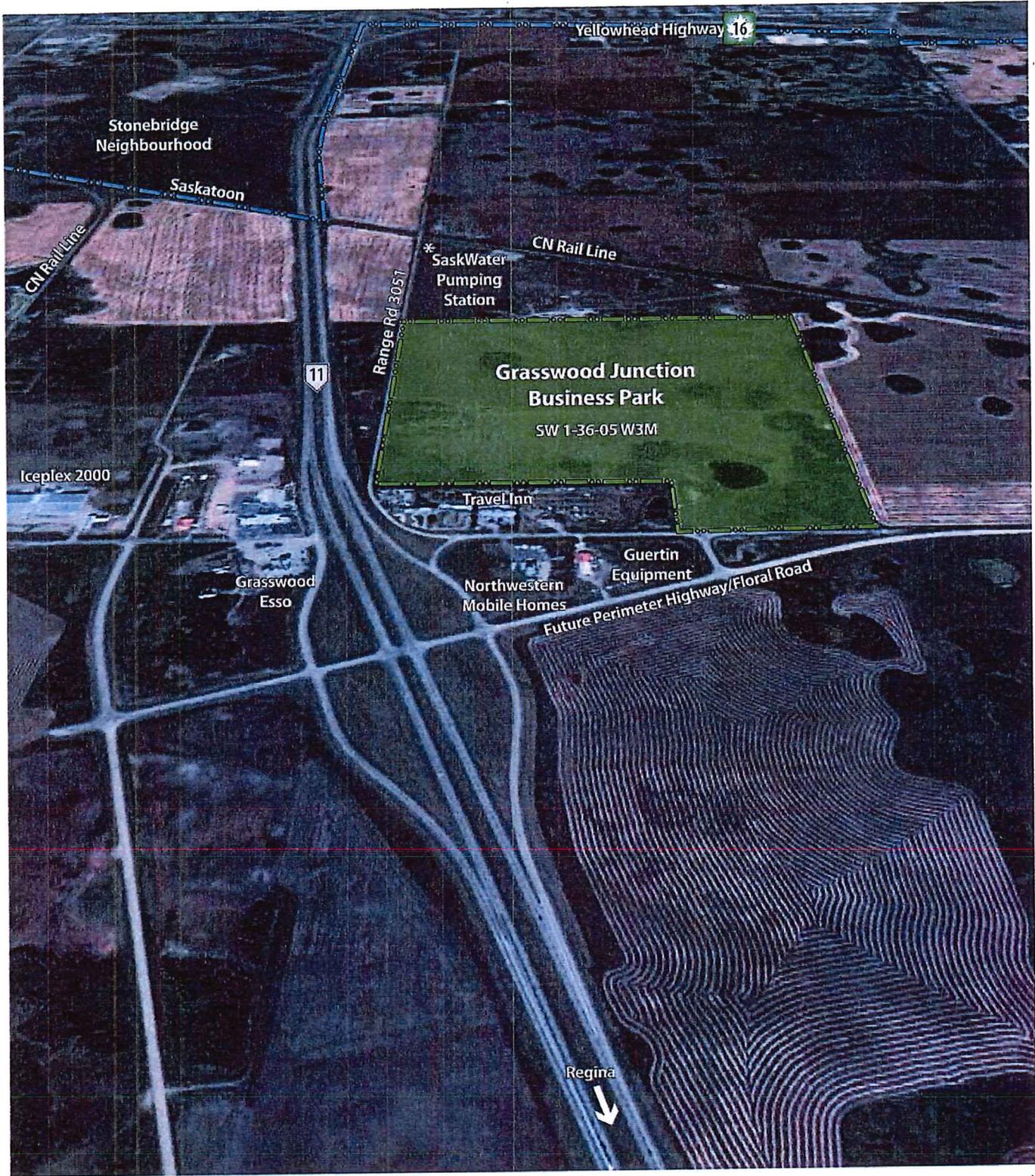


Figure 2
Site Context



Image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
 Rural Municipality of Corman Park

**David Klippenstein
 and Associates Ltd.**



LEGEND

- SITE BOUNDARY
- +—+—+ EXISTING FENCE
- ▶ DRAINAGE DIRECTION
- 1.0 m CONTOUR
- UTILITY POLE/LIGHT STANDARD
- ◻ PROPOSED ACCESS POINTS
- EXISTING TREES
- WET AREAS
- POWER— POWER LINE
- EXISTING BUILDINGS

Figure 3
Site Conditions

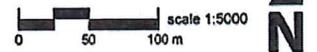


image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
 Rural Municipality of Corman Park

**David Klippenstein
 and Associates Ltd.**

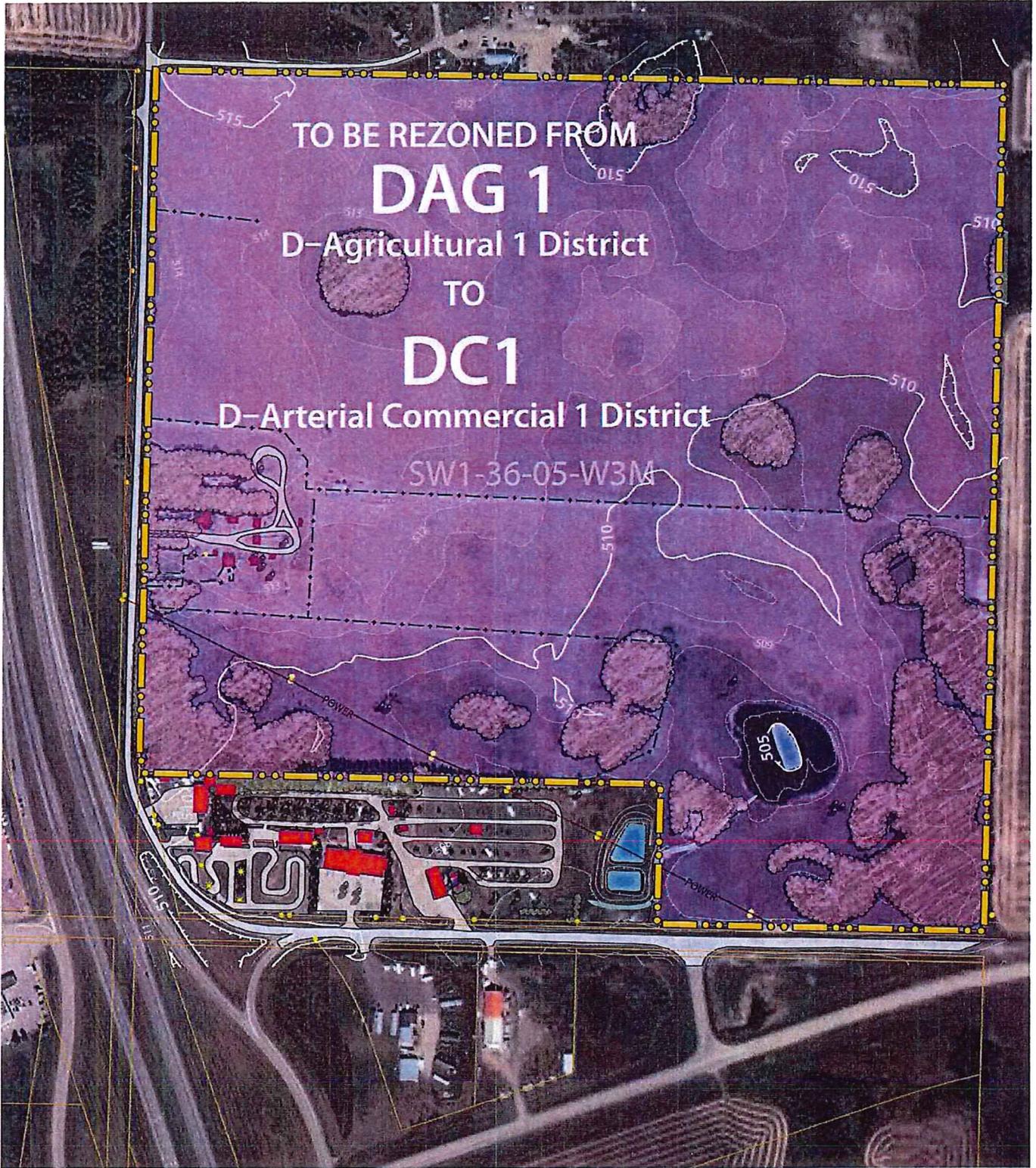


Figure 4

Area to be Rezoned

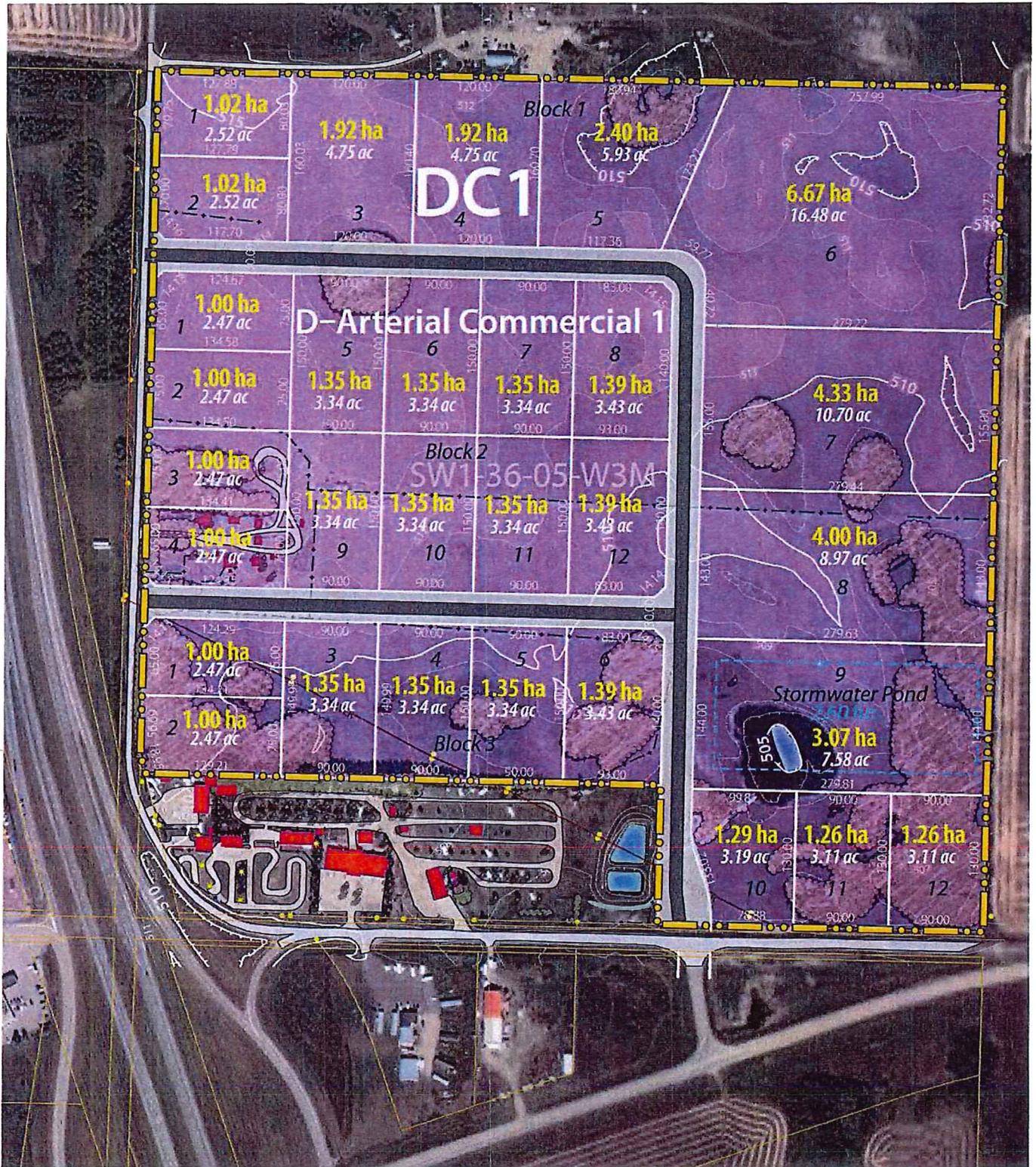
COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
Rural Municipality of Corman Park



image source: Google/DigitalGlobe

**David Klippenstein
and Associates Ltd.**



* Lot lines are conceptual only and may be modified at the time of subdivision.

Figure 5 Development Concept — Illustrative

0 50 100 m scale 1:5000

image source: Google/DigitalGlobe

COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
Rural Municipality of Corman Park

David Klippenstein
and Associates Ltd.



* Staging is conceptual only and may be modified at the time of subdivision.

Figure 6

Development Staging

COMPREHENSIVE DEVELOPMENT REVIEW — June 2011

ZMANIX Inc. | Grasswood Junction Business Park
Rural Municipality of Corman Park

0 50 100 m scale 1:5000



image source: Google/DigitalGlobe

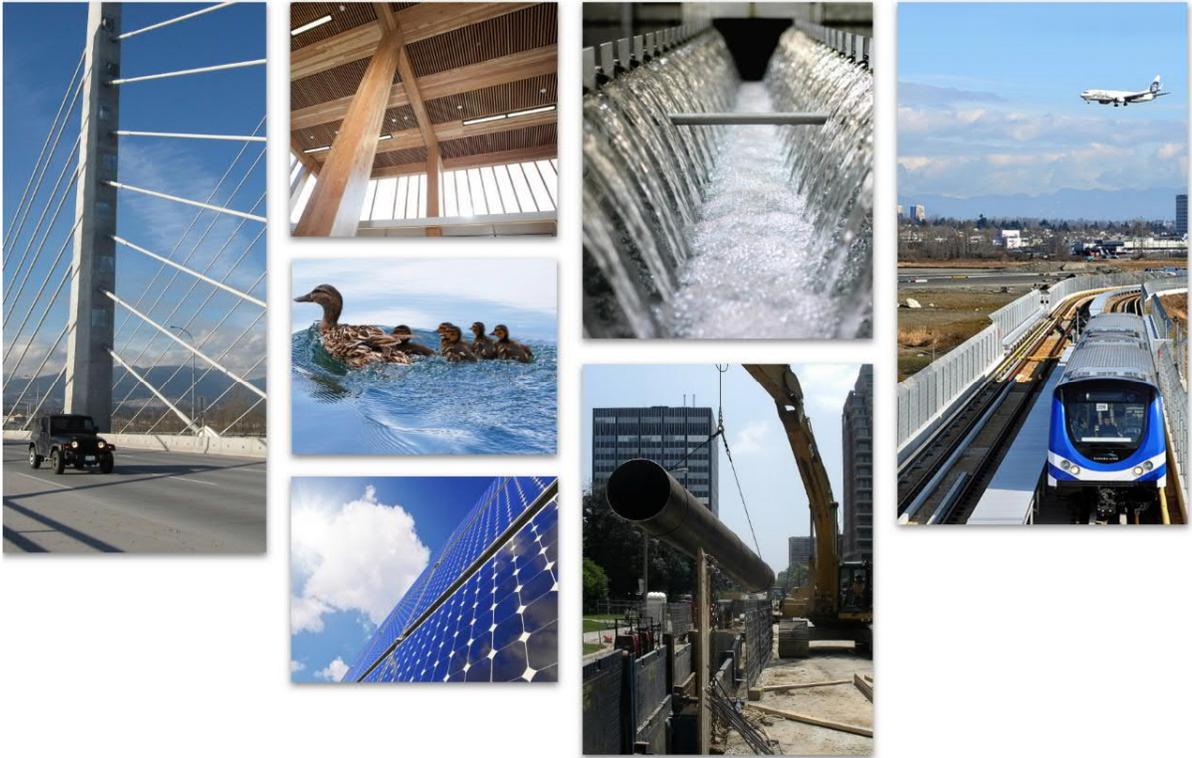
David Klippenstein
and Associates Ltd.

APPENDIX B - PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

REPORT

Zmanix Group Inc.
Grasswood Junction Commercial Park

SW 1-36-5-W3M
Phase I Environmental Site Assessment



DECEMBER 2020

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EXECUTIVE SUMMARY

Associated Environmental Consultants Inc. (Associated) was retained by Zmanix Group Inc. to provide an update to the previously conducted Phase I Environmental Site Assessment (ESA) at a surface parcel (section of land) on SW 1-36-5-W3, near the intersection of Grasswood/Floral Road and Highway No. 11 in an area commonly known as the Grasswood Commercial Node (Subject Site; Figure 1, Appendix A) by P. Marchibroda Engineering Ltd. (PMEL) in 2007. This Phase I ESA update was initiated to report the most current condition of the Subject Site as of the date of inspection and if there are any changes have occurred to the Subject Site since 2007. The assessment followed the protocols defined in the Canadian Standards Association, Standard CSA Z768-01 (R2016) – Phase I Environmental Site Assessment and was conducted in consideration of the legislation and regulations relevant to contaminated sites in Saskatchewan, as stipulated in the Saskatchewan Environmental Code (Government of Saskatchewan 2015); adhering to the Saskatchewan *Environmental Management and Protection Act* (RSS 2010 c. E-10.22).

The scope of work in this Phase I ESA included reviewing relevant historical documents, interviewing persons with knowledge of current and past activities at the Subject Site and neighbouring properties, and visually inspecting the Subject Site and surrounding area for signs of contamination (i.e., staining and odours) or areas of potential environmental concern (APECs).

The Subject Site was used primarily for agricultural cultivation before its development. The Subject Site is roughly square-shaped, or a section of land, except for a small rectangle of land in the southwest corner (which is not included as part of the Subject Site). The Subject Site covers an approximate area of 58.2 hectares. A large portion of the site is categorized as agricultural/pastureland. However, forested and sloughed areas are also located onsite. These forested and sloughed areas are most prominent in the southwest and southeast portions of the site. A farmyard can also be found along the west perimeter of the site (roughly the centre about north/south portions of the site). These site details are discussed further in Section 6.

The Subject Site is bordered by Grasswood/Floral Road and commercial/industrial properties to the south, a service road, Highway No. 11 and additional commercial/industrial properties to the west, a farmyard (or possibly commercial property), additional agricultural/pasture land and a rail line to the north and additional agricultural/pasture land to the east. Neighbouring properties are discussed further in Section 6.

Associated identified the following APECS onsite at the time of inspection:

- There is a 160 m by 160 m storage yard running parallel to the service road on the west, approximately 160 m north of the commercial property in the south. Several APECs are identified at this storage yard:
 - A minor oil spill was noted onsite at the time of inspection. The spill area was roughly 2.5 m by 1 m in size. The spill was a result of partially empty barrels of oil (which sat on top of a pallet). In total, four (4) 20 litre partially full barrels as well as one (1) smaller container were placed on the pallet area of 2.5 m by 2.5 m. The soil beneath the pallet (in the impacted area of 2.5 m by 1.0 m) was black. The barrels and soil also exhibited obvious olfactory signs (oily odours). In addition, another larger (approximately 210 litres) and unmarked barrel was noted on site. The barrel was roughly half full. The contents of the barrel could not be confirmed and although no immediate staining was noted around this larger barrel, the risk and potential for past and/or current leaks and/or spills still exists.

- Empty containers of architectural coatings. The exact type of material could not be confirmed (due to the substance being in a dried state) but it is assumed that the material is some sort of surface coatings such as paint, plaster, or exterior surface coating.
- Household appliances (stoves, fridges, etc.) that potentially contained hazardous substances.
- A 2,200-litre diesel fuel above-ground storage tank (AST) that was previously located to the northeast of the houses (on the Subject Site grounds). The AST was reportedly sold and removed from the property in 2000 (PMEL 2007).

Based on the results of Phase I ESA, Associated concludes that there is a moderate potential of contamination at the storage yard and a low potential of contamination at the remaining sections of the Subject Site and neighbouring properties caused by current or past land-use activities. Subsequently, the land use has a low potential for contamination of soil, vapour, and/or groundwater concerning applicable environmental standards and guidelines for agricultural land use and the protection of drinking water and aquatic life standards.

Further environmental assessment (i.e., a Phase II ESA) at the Subject Site is not warranted at this time. However, at the time that the Subject Site encounters further development or re-zoning, some cleanup efforts may be required.

This executive summary is subject to the same standard limitations described in Section 9 of this report.

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LIST OF ABBREVIATIONS

Acronym	Definition
APEC	Area of Potential Environmental Concern
AW	Aquatic Life
CL	Commercial land use
CSA	Canadian Standards Association
DW	Domestic Use Aquifer or Drinking Water
ESA	Environmental Site Assessment
IL	Industrial Land Use
NCSCS	National Classification System for Contaminated Sites
NL	Natural Area Land Use
NPRI	National Pollutant Release Inventory
RL/PL	Residential/Parkland Land Use
ROW	Road Right of Way
WSA	Water Security Agency

Units

°C	degrees Celsius
>, <	greater than, less than
%	percent
cm	centimeter
cm ²	square centimeter
ha	hectare (10,000 m ²)
kg	kilogram
km	kilometre
m	metre
m ²	square metre
masl	metres above sea level

1 INTRODUCTION

Associated Environmental Consultants Inc. (Associated) was retained by Zmanix Group Inc. to provide an update to the Phase I Environmental Site Assessment (ESA) conducted by PMEL in 2007 at a section of land on SW 1-36-5-W3, near the intersection of Grasswood/Floral Road and Highway No. 11 in an area commonly known as the Grasswood Commercial Node. This Phase I ESA update was initiated to report the most current condition of the Subject Site as of the date of inspection and record whether any changes have occurred to the Subject Site since 2007.

The objective of the Phase I ESA was to determine the potential that soil, groundwater, or vapour at the site is contaminated relative to applicable standards under current or intended land use. This report describes the methods and results of the Phase I ESA and, in consideration of the results, presents conclusions and recommendations.

2 SCOPE

The assessment followed the protocols defined in the Canadian Standards Association Standard CSA Z768-01 (R2016) – Phase I Environmental Site Assessment (CSA 2016) and was conducted in consideration of the legislation and regulations relevant to contaminated sites in Saskatchewan, as stipulated in the Saskatchewan Environmental Code (Government of Saskatchewan 2015); adhering to the Saskatchewan *Environmental Management and Protection Act* (RSS 2010 c. E-10.22).

The Subject Site property is described as follows:

- Surface parcel (section of land) on SW 1-36-5-W3 (Subject Site; Figure 1, Appendix A).

The scope of work included the following activities:

- A records review of the Subject Site and adjacent properties, including the previously completed Phase I ESA report.
- Interviews of persons with knowledge of current and/or historic operations at the Subject Site and neighbouring properties.
- A visual inspection of the Subject Site and adjacent properties visible from either the Subject Site or public property. A site inspection was conducted by Associated on October 15th, 2020.
- Preparation of this Phase I ESA update report, which includes a discussion of the risk of soil, groundwater, and vapour contamination at the Subject Site concerning provincial standards for the current or intended land use.

The scope of work for this Phase 1 ESA does not include sampling or testing of soil, groundwater, surface water, sediment, vapour, or building materials. As a result, potential environmental concerns related to undocumented historical use or unknown buried debris remain as possibilities, as an extensive investigation of these materials was beyond the scope of this project. For this reason, the potential exists for adverse environmental conditions to be encountered in locations not specifically investigated. Also, this Phase 1 ESA provides a judgment statement on whether or not hazardous building materials (HBMs) are likely present (based on the age of the building) but does not include a formal HBM Survey.

3 RELEVANT STANDARDS

Contaminated sites in Saskatchewan are governed by the Saskatchewan Environmental Code (Government of Saskatchewan 2015). Division B of the Code relates to unauthorized discharges and environmentally impacted sites.

The Environmental Spill Control Regulations (RSS c. E-10.22 Reg 2) of The Environmental Management and Protection Act 2010 (RSS 2010 c. E-10.22) are intended to protect the physical and biological environment in the event of a release of hazardous materials. The Regulations require that spills of hazardous material be reported immediately, be contained, and be properly cleaned up. A description of the substances and their quantities subject to a reportable spill is provided in the Regulations.

The applicable standards for soil and vapour depend on the primary land use on site. Standards for agricultural land use, as defined in the Canadian Council of the Ministers of Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, apply to the Subject Site and were used for interpretation purposes (CCME 2007).

Additional CCME guidelines and standards include:

- Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (CCME 1999); and
- Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (CCME 2008).

Additional standards for drinking water, aquatic life, and recreational water include:

- Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (Government of Canada 2012);
- Guidelines for Canadian Drinking Water Quality (Health Canada 2017); and
- Guidelines for Canadian Recreation Water Quality (Health Canada 2012).

The closest surface waterbody to the Subject Site (except for small localized sloughs) is the South Saskatchewan River, located approximately 8.5 km west of the Subject Site. Therefore, the Canadian Water Quality Guidelines for the Protection of Aquatic Life are not applicable (CCME 2003) due to the proximity.

4 METHODS

4.1 Records Review

The information reviewed for a Phase I ESA typically includes any available records, databases, maps, and reports relevant to the Subject Site and surrounding area, as summarized in Table 4-1. A selection of the historical aerial photographs reviewed by Associated is provided in Appendix B. Associated conducted a land title search of the Subject Site and obtain copies of the land titles (Appendix C).

Table 4-1
 Records Reviewed for a Phase I ESA

Record	
Google Earth™	Aerial photographs provide a visual history of the Subject Site and surrounding area, and typically show site features (e.g., buildings) and how the area has developed over time.
Land Titles - Information Services Corporation (ISC)	Land Titles indicate the registered owners of the Subject Site property over time.
Previous Environmental Reports	Previous reports can determine if or what environmental work has been conducted at the Subject Site and neighbouring properties.
SaskSpills and Hazardous Substance Storage Program Database	SaskSpills provides environmental records of reported spills and hazardous materials storage at the Subject Site and neighbouring properties. The database provides information on the reported type(s) of substance(s) spilled, the location and quantity of a spill, and any containment, disposal, and remediation activities relevant to the site and surrounding areas.
Water Security Agency Water Well Database	This database provides records of reported wells in the province and contains information such as spatial locations, local lithology, well completion dates, and well depths.

4.2 Interviews

Associated interviewed the following individual to obtain anecdotal and/or documented accounts of current and past uses of the Subject Site and neighbouring properties:

- Brian Peberdy; Vice President – Sales Associate. Interviewed on October 13, 2020.

4.3 Site Inspection

On Thursday, October 15th, 2020, Associated conducted a site inspection of the Subject Site and surrounding area. The objective of the inspection was to determine current conditions onsite and confirm the risk of contamination as defined in the PMEL's 2007 Phase I ESA.

The site inspection involved a visual examination of the grounds and building(s), and neighbouring properties visible from the Subject Site or public property. Surface and subsurface drainage patterns were also examined. Any evidence of contamination was noted (e.g., odours and staining), and materials and waste product handling, use, disposal methods, and storage vessels were also recorded (e.g., sumps and aboveground and underground storage tanks). These topics are explored in more detail in Section 6.

5 SITE DESCRIPTION

5.1 Location

The Subject Site is located at SW 1-36-5-W3, near the intersection of Grasswood/Floral Road and Highway No. 11, in an area commonly known as the Grasswood Commercial Node and approximately 1.0 km south of Saskatoon, Saskatchewan (Subject Site; Figure 1, Appendix A).

The Subject Site was used primarily for agricultural cultivation before its development. The Subject Site is roughly square-shaped, or a section of land, except a small rectangle of land in the southwest corner (which is not included as part of the Subject Site). The Subject Site covers an approximate area of 58.2 hectares. A large portion of the site is categorized as agricultural/pastureland. However, forested and sloughed areas are also located onsite. These forested and sloughed areas are most prominent in the southwest and southeast portions of the site. A farmyard can also be found along the west perimeter of the site (roughly the centre in reference to north/south portions of the site). The Subject Site is discussed further in Section 6.

The Subject Site is bordered by Grasswood/Floral Road and commercial/industrial properties to the south, a service road, Highway No. 11 and additional commercial/industrial properties to the west, a farmyard (or possibly commercial property), additional agricultural/pasture land and a rail line to the north and additional agricultural/pasture land to the east. Neighbouring properties are discussed further in Section 6.

5.2 Physiography

The Subject Site is in the Moist Mixed Grassland ecoregion (Prairie Ecozone), which is the northern extension of open grassland in the region and features semi-arid moisture conditions. The diverse landscapes of this ecoregion include glacial till and short, steep slopes and numerous undrained depressions or sloughs, as well as several large, level glacial lake plains (SKCDC 2019). The nearest climate station is the Saskatoon SRC Saskatchewan Weather Station (Weather Station ID: 4057180). The normal monthly annual temperature ranges from -13.9°C in January to 19.0°C in July. The mean annual precipitation is 340.4 mm, with a total of 263.8 mm falling as rain and the remainder falling as snow (Environment Canada 2018).

Surficial geology can be described as “surficial stratified deposits” occurring between the bedrock and surface (MDH 2011). The drift ranges in thickness and is comprised of an unsorted mixture of gravel, sand, silt, and clay (MDH 2011). The “surficial stratified deposits” also commonly known as drift are comprised of three formations: the Empress Group, the Sutherland Group, and the Saskatoon Group (MDH 2011). Bedrock geology beneath the Subject Properties and the area is defined by three formations including the Lea Park Formation, Judith River Formation, and Bearpaw Formation (MDH 2011).

PMEL summarized a 1970 Christiansen report which described the soils beneath the site as, “... consisting of approximately 70 m of glacial till and stratified drift (sand, silt, and clay) underlain by non-calcareous, silty clay-shale (bedrock) of the Bearpaw formation” (PMEL, 2007). The topography of the Subject Site and surrounding properties is generally flat. Ditches are located on the west perimeter of the Subject Site as well as past the commercial/industrial properties to the south. PMEL also summarized that from Christiansen’s report, “...drift aquifers above or between the glacial till and between the base of glacial till and the surface of the bedrock is the primary source of groundwater in this geographic region” (PMEL, 2007).

Groundwater is a common pathway for contaminant transport. Based on regional topography and the location and flow of surface water bodies, groundwater beneath the Subject Site is inferred to flow radially outwards from the Subject Site. The local flat topography and lack of surface water drainage complicate the estimation direction of groundwater flow beneath the Subject Site. Determining the precise direction would require field verification because localized variations in groundwater flow direction are possible.

The inferred groundwater flow direction for the general area is a good approximation, however, localized variations in actual flow direction may exist due to yet unverified sub-surface features, temporal variation, and influence from surface water bodies.

6 RESULTS

6.1 Records Review

6.1.1 Aerial Photographs

Air photos were ordered from Environmental Risk Information Services (ERIS) to confirm the approximate location of the APECs as identified in PMEL’s report. However, no valid information could be obtained due to the poor quality of the photo received. Therefore, only photos from Google Earth Imagery was used to identify whether there are charges applied to the Subject Site and potential impacts to the previously identified APECs.

PMEL provided descriptions for historic aerial photos dated from 1967, 1978, 1985, and 1994 (PMEL, 2007). PMEL stated that originally the Subject Site was under agricultural cultivation and that the farmyard was visible in 1976. In 1978, they reported that several buildings were added to the south of the Subject Site. Similarly, in 1985, PMEL stated that buildings were added to the south and southeast of the Subject Site. In 1994, PMEL stated that additional buildings were added across Highway 11 to the south and west of the Subject Site. Due to photo availability, no additional conclusions can be made from the years 1994 to 2002. Therefore, the summary in the table below includes aerial photo information from 2002 to the present. The results of the aerial photograph review from 2007 onwards are summarized in reverse chronological order in Table 6-1.

Table 6-1
 Aerial Photograph Analysis

Date	Subject Site		Surrounding Area
	Agricultural/Pastureland	Farmyard	
2002	The Subject Site is comprised mainly of agricultural/pastureland. Small sloughed/tree dense areas are also visible.	A farmyard is visible on the west perimeter of the site that includes structures and small piles of debris.	North: Farmyard (or possibly commercial property), additional agricultural/pastureland, and a rail line East: Additional agricultural/pasture South: Grasswood/Floral Road and commercial/industrial properties West: Service road, Highway No. 11, and additional commercial/industrial properties
2012	The sloughed areas have increased significantly in size, especially on the south portion of the site.	Additional debris and structures can be seen surrounding the farmyard.	North: Some additional minor development at the farmyard (or possibly commercial property) East: No visible changes South: No visible changes West: Additional development of commercial/industrial properties
2020	Sloughed areas appear smaller, especially on the south portion of the site.	Additional debris can be seen surrounding the farmyard. Some structures appear to have been removed.	North: Some additional minor development at the farmyard (or possibly commercial property) East: No visible changes South: Some additional minor development of the commercial/industrial properties West: Additional development of commercial/industrial properties

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6.1.2 Land Titles

The historical land title, obtained from Information Services Corporation (ISC), indicates that there have been six (6) owners of the Subject Site since its original change from historical Crown-owned land in 1952. Historical title information for the Subject Site is provided in Appendix C. The current registered owner for the Subject Site is Zmanix Group Inc.

6.1.3 Previous Environmental Reports

As previously mentioned, PMEL completed a Phase I ESA in April of 2007.

PMEL identified the following APECs onsite at the time of inspection, in 2007 (PMEL, 2007):

- Debris which included steel pieces (several vending machines), wooden pallets, and bicycles, were located close to the buildings/structures onsite.
- A 2,200-litre above-ground storage tank (AST) that was previously located to the northeast of the houses (on the Subject Site grounds). The AST was reportedly sold and removed from the property in 2000.
- Several HBMs were noted as APECS for their potential to be included in historic buildings and structures, which included:
 - Polychlorinated Biphenyls (PCBs), which were commonly included in electrical and mechanical equipment before the 1980s.
 - Asbestos Containing Materials (ACMs), which were commonly included in construction plans before the mid-1970s.
 - Lead paint was commonly included (to 0.5 percent by weight) before the mid-1970s.
 - Ozone Depleting Substances (ODSs), which were commonly included in the manufacturing of materials before the mid-1990s.

Associated has reviewed these previously identified APECs into consideration and included relevant information in the updated APEC list found in this report.

6.1.4 Spills and Hazardous Materials Storage

The SaskSpills database (data available from January 1, 1988, to present) revealed two (2) records of spills or hazardous materials storage associated with the Subject Site or neighbouring properties (Government of Saskatchewan 2018). No further spills or hazardous material storage were registered after 2007. The spills and hazardous material storage search results are provided in Appendix D but are also summarized below in Table 6-2.

Table 6-2
SaskSpills Records Within SW 1-36-5-3

Spill/Incident Number	Spill Date	Contaminant	Quantity	Location
40144	March 19, 2004	Road Salt	8800 kg	RM of Corman Park, Saskatoon
70431	October 5, 2007	Sewage	Unknown	Hwy 11 at Grasswood Road, Saskatoon

6.1.5 Groundwater Wells

A search of the Water Security Agency (WSA) Saskatchewan Ground Water Resources GIS Web Mapping application for water well drilling records (WSA 2018) identified twenty (20) wells potentially within a 500 m radius of the Subject Site. Two (2) wells within the twenty (20) identified are within the same quarter section as the Subject Site (WWDR No. 031933 and WWDR No. 058329).

The twenty (20) wells are as follows:

- WWDR No. 031921
- WWDR No. 031933
- WWDR No. 050675
- WWDR No.053882
- WWDR No. 053883
- WWDR No. 053904
- WWDR No. 058329
- WWDR No. 060571
- WWDR No. 063453
- WWDR No. 063462
- WWDR No. 080270
- WWDR No. 080636
- WWDR No. 081732
- WWDR No. 102024
- WWDR No. 103325
- WWDR No. 105762
- WWDR No. 106565
- WWDR No. 111076
- WWDR No. 208293
- WWDR No. 220027

The well logs are included in Appendix E. Note that this database does not contain or identify all wells that have been completed in the province, but rather contains only records that drillers have submitted. Also, all of the twenty (20) wells listed were plotted on the centre of their respective quarter sections. WSA uses this form of plotting to indicate that the well was not given an exact location within its respective quarter section. Therefore, all twenty (20) wells have the potential of being located within 500 m of the Subject Site. Table 6-3 lists the WSA wells that are potentially located within a 500 m radius of the Subject Site

Table 6-3
WSA Water Wells Potentially Within a 500 m Radius of the Subject Site

Well Identification	Use	Total Depth (ft.)	Year Completed
WWDR No. 031921	Domestic - Withdrawal	47	1969
WWDR No. 031933	Domestic - Withdrawal	32	1965
WWDR No. 050675	Domestic - Withdrawal	50	1977
WWDR No.053882	Domestic – Water Test Hole	32	1978
WWDR No. 053883	Domestic – Water Test Hole	37	1978
WWDR No. 053904	Domestic - Withdrawal	34	1978
WWDR No. 058329	Domestic - Withdrawal	50	1979

Well Identification	Use	Total Depth (ft.)	Year Completed
WWDR No. 060571	Domestic - Withdrawal	50	1979
WWDR No. 063453	Domestic - Withdrawal	42	1980
WWDR No. 063462	Domestic - Withdrawal	41	1980
WWDR No. 080270	Domestic – Water Test Hole	50	1984
WWDR No. 080636	Domestic - Withdrawal	76	1985
WWDR No. 081732	Domestic - Withdrawal	24	1985
WWDR No. 102024	Domestic - Withdrawal	49	1992
WWDR No. 103325	Domestic - Withdrawal	48	1993
WWDR No. 105762	Domestic - Withdrawal	27	1995
WWDR No. 106565	Domestic - Withdrawal	50	1995
WWDR No. 111076	Domestic - Withdrawal	62	1999
WWDR No. 208293	Domestic - Withdrawal	30	2007
WWDR No. 220027	Research - Soil Test Hole	32	1967

The above wells were not field verified or investigated in detail but are listed for completeness. The above wells (except for WWDR No. 208293) were all constructed before 2000. Given that a large portion of this area is now serviced by municipal potable water, it is unlikely that most of these wells are still used for potable purposes. However, some of these wells may still be in service for domestic withdrawal uses on private farmland.

6.1.6 National Classification System for Contaminated Sites

The National Classification System for Contaminated Sites (NCSCS) was developed by the CCME and is a method for screening and prioritizing contaminated sites according to their current or potential adverse impact on human health and the environment. The NCSCS was developed to establish a rational and scientifically defensible spreadsheet-based scoring system for comparable assessment of contaminated sites and a management tool for prioritizing the investigation and remediation of contaminated sites since 1992 (CCME 2008).

An NCSCS site classification was not completed in 2007. This NCSCS site classification spreadsheet was completed based on the PMEL’s Phase I ESA and site inspection conducted on October 15, 2020.

It should also be noted that since there is no testing completed for a Phase I ESA, no exceedances (i.e. soil, water) can be reported to the NCSCS report. As per the NCSCS review instruction, if there are no exceedances, the NCSCS review does not need to be proceeded through. A copy of the review result is provided in Appendix F.

6.2 Interviews

Associated interviewed with (Colliers International) Brian Peberdy. He knows the Subject Site's history and day-to-day operations. The information gathered is summarized below. This interview was conducted in conjunction with the site inspection to ensure necessary information regarding the Subject Site was recorded correctly. The remaining information retained for this report was obtained during the onsite inspection.

Brian Peberdy, Vice President – Sales Associate, Colliers International (October 13, 2020):

He confirmed the following information:

- The Subject Site was formerly owned by the Reed family, before roughly 2010, as their family homestead originally and then as their farm/storage space.
- Mr. Peberdy was not aware of any reported leaks or spills on site.

6.3 Site Inspection

Associated conducted the site inspection Thursday, October 15, 2020. At the time of the inspection, it was roughly -1°C with sunny conditions. The Subject Site was combined with an abandoned farm stand/storage yard and vacant farmland.

6.3.1 Buildings and Structures

PMEL identified, "... residential dwelling, storage buildings, grain bins, and several sheds" at the farmyard (PMEL, 2007). During the 2020 site inspection, it was determined that the structures on the abandoned storage yard consist of one (1) barn, two (2) houses, three (3) medium sheds, two (2) small sheds, and three (3) trailers (Appendix G, Photo 4, 8, 14, 17, 18 and 19). Although the property was recorded as being rented by tenants in the PMEL Phase I ESA, the structures onsite did not appear to be occupied by inhabitants at the time of inspection. These buildings are located along the west perimeter of the Subject Site (roughly centre about north/south portions of the Subject Site). The buildings appeared to be in dilapidated conditions with refuse scattered around the grounds, as described below (Appendix G, Photo 4-7, 9-13, 16).

6.3.2 Grounds

Grounds were inspected on and around the Subject Site. As noted in the PMEL Phase I ESA, there were multiple piles of debris noted onsite at the time of inspection (i.e. steel pieces, lumber, plastic jugs, wooden pallets, vending machines as well as old bicycles and vehicles). Some materials noted onsite at the time of inspection, in 2020, include but are not limited to: branches/tree cuttings, construction materials, asphalt shingles, household appliances, refuse, concrete, pallets, oil barrels/spilled material (as described above in Section 6.1.4), metals (including vending machines), tires, household furniture and empty containers of architectural coatings (as described below in Section 6.3.3). The tall grass was located throughout most of the surrounding grounds, with very few areas of pavement and/or gravel. Therefore, if additional surficial staining was present, it was not detectable. These areas were briefly discussed as per what was visible at the time of inspection. No storage of fill material and/or above ground storage tanks were noted on site.

Slough areas were observed onsite, particularly towards the southern portion of the Subject Site. No concerns were noted as per the condition of the sloughs onsite (i.e. no olfactory signs of concern).

A minor oil spill was also noted onsite at the time of inspection. The spill area was roughly 2.5 m by 1 m in size. The spill was a result of partially empty barrels of oil (which sat atop a pallet). In total, four (4) 20 litre partially full barrels as well as one (1) smaller container were placed on the pallet area of 2.5 m by 2.5 m. The soil beneath the pallet (in the impacted area of 2.5 m by 1.0 m) was black. The barrels and soil also exhibited obvious olfactory signs (oily odours). In addition, another larger (approximately 210 litres) and unmarked barrel was noted on site. The barrel was roughly half full. The contents of the barrel could not be confirmed and although no immediate staining was noted around this larger barrel, the risk and potential for past and/or current leaks and/or spills still exists (Appendix G, Photo 22-27).

6.3.3 Hazardous Substances Use and Storage

As noted above, there were multiple empty containers of architectural coatings found onsite at the time of inspection. The exact type of material could not be confirmed (due to the dried nature of the substance) but it is anticipated that the material is some sort of surface coatings such as paint, plaster, or exterior surface coating (Appendix G, Photo 20, 21). In total, four (4) 20 litre partially full barrels as well as one (1) smaller container were sat atop the pallet area of 2.5 m by 2.5 m. In addition, another larger and unmarked barrel was noted on site. Please see Section 6.1.4 for additional details on the oil and spill area (Appendix G, Photo 22-27).

6.3.4 Solid Waste Management

No solid waste collection bins were found on the Subject Site.

6.3.5 Wastewater Management

Water for the farmyard portion of the Subject Site is supplied by the City of Saskatoon. Wastewater was reportedly discharged to an onsite (below grade) septic tank historically (PMEL, 2007) and was taken offsite for disposal. The septic tank was reportedly located to the east of the house structures but could not be located at the time of inspection.

6.3.6 Heating and Cooling Systems

No heating and cooling systems were present in the structures.

6.3.7 Wells

The inspection found no surficial evidence of abandoned or existing wells (e.g., water, oil, gas) at the Subject Site. The WSA indicates there are twenty (20) water wells registered that are potentially located within a 500 m radius of the Subject Site (WSA 2018). The water wells were not field verified during the site inspection, and as stated previously in this report, water well locations are relative.

6.3.8 Stains and Odours

Except for the above-mentioned spill area surrounding the respective oil barrels, no additional stains or odors were encountered.

6.3.9 Above Ground or Below Ground Storage Tanks

PMEL reported that a 2,200-litre diesel fuel above-ground storage tank (AST) was previously located to the northeast of the houses (on the Subject Site grounds). The AST was reportedly sold and removed from the property in 2000. Potential contamination associated with this historic AST cannot be confirmed without additional subsurface investigations (PMEL 2007).

6.3.10 Mechanical Equipment

No mechanical equipment was found on the Subject Site.

6.3.11 Vegetation

A large portion of the Subject Site is categorized as agricultural/pastureland and is therefore covered in vegetation. Also, some more tree dense areas can be found on the Subject Site particularly towards the southwest and southeast portions of the site.

6.3.12 Hazardous Building Materials

Determining the presence of hazardous building materials (HBMs) such as asbestos-containing materials, lead-based paints, ozone-depleting substances, urea foam formaldehyde insulation, mercury in switches, and polychlorinated biphenyls are outside the scope of this Phase I ESA. These materials were mostly regulated in the 1980s, but some remained in use well into the 1990s. PMEL recommended that any materials potentially containing HBMs should be removed (in accordance with any and all respective provincial/federal regulations) before the redevelopment of the Subject Site.

6.3.13 Pits and Lagoons

No pits and lagoons were identified on the Subject Site during the time of inspection.

6.3.14 Neighbouring Properties

PMEL summarized surrounding land use in 2007 to be commercial properties (including K&L Trailers, Travelers Inn, Western Mobile Homes, and Guertin Construction) to the south, Range RD 2051/Highway 11 and commercial properties to the west, commercial property and CN rail line to the north and agricultural land to the east.

The Subject Site, at the time of inspection in 2020, was bordered by Grasswood/Floral Road and commercial/industrial properties to the south (Appendix G, Photo 28-34), a service road, Highway No. 11, and additional commercial/industrial properties to the west (Appendix G, Photo 35-38), a farmyard (or possibly commercial property), additional agricultural/pasture land and a rail line to the north (Appendix G, Photo 39, 40) and additional agricultural/pasture land to the east (Appendix G, Photo 41).

Surface runoff travelling from all remaining properties is highly unlikely to reach the Subject Site. The Subject Site is also surrounded by storm ditches to the west and south, which further protects the Subject Site should surface runoff be released. None of these surrounding properties produce or manufacture any hazardous materials onsite. The neighbouring properties, therefore, pose a low environmental risk to the Subject Site.

Table 6-4 lists the neighbouring properties at the time of the site inspection, and Figure 2 shows the location of neighbouring properties (Appendix A). Photos of the neighbouring properties can be found in Appendix G.

Table 6-4
Neighbouring Properties

Direction Relative to Subject Site	Description
South	Grasswood/Floral Road and commercial/industrial properties
West	A service road, Highway No. 11, and additional commercial/industrial properties
North	A farmyard (or possibly commercial property), additional agricultural/pastureland, and a rail line
East	Additional agricultural/pastureland

None of the operations or businesses are involved with the manufacture or production of products on-site, therefore, the potential impact to the Subject Site is considered low.

7 INDICATIONS OF ENVIRONMENTAL RISK

The potential for soil, vapour, and/or groundwater at the Subject Site to be contaminated to levels that exceed relevant provincial standards depends on current and past land use(s) at the Subject Site. Neighbouring properties can also pose environmental risk based on their current and past uses, and on their distance and relative position to the Subject Site concerning the groundwater flow gradient. Up-gradient, sites are generally associated with higher risk because of the potential for groundwater transport of contaminants to down-gradient locations.

7.1 Subject Site

Based on the results of the Phase I ESA, there is moderate potential¹ that current or past land use activities at the abandoned farmhouse, parallel to the west quarter section line, approximately 160 m north of the commercial property in the southwest corner on the Subject Site have resulted in contamination of soil, vapour, and/or groundwater concerning applicable environmental standards and guidelines. The remaining portions of the Subject Site post low potential based on the current and/or past land-use activities. Overall, there is a low potential¹ that current or past land-use activities on the Subject Site have resulted in contamination of soil, vapour, and/or groundwater concerning applicable environmental standards and guidelines.

7.2 Neighbouring Properties

Based on the results of the initial and subsequent Phase I ESAs, there is low potential¹ that current or past land use activities at properties neighbouring the Subject Site have resulted in contamination of soil, vapour, and/or groundwater concerning applicable environmental standards and guidelines.

¹ High potential means there is either physical or visual/olfactory evidence or very recent factual evidence of contamination on site. Moderate potential means there is evidence of past or current land uses or infrastructure with potential to release contaminant(s) into the environment. Low potential means there is little or no evidence of sources of contamination.

Additionally, the following recommendations for tasks to be undertaken by the property owner should be considered:

- The oil stain found at the abandoned farmyard should be cleaned;
- General cleanup of overall the abandoned farmyard is required to remove miscellaneous wastes, garbage, etc.;
- Construction wastes such as abandoned asphalt shingles, concrete pieces, metals, etc. should be properly disposed of;
- There are wastes found at the farmyard that potentially contain HBMs from previous building demolitions. These wastes should be re-examined to confirm an appropriate disposal method;
- Also, an HBM survey should be completed for the remaining buildings at the farmyard, before demolition due to the age of the structures and their potential to contain HBMs;
- The other hazardous wastes (barrels, containers, household appliances, etc.) also need to be properly disposed of.

9 DISCLAIMER

ASSOCIATED ENVIRONMENTAL CONSULTANTS INC.

STANDARD DISCLAIMER FOR CONTAMINATED SITE INVESTIGATIONS, MONITORING, AND CONFIRMATION OF REMEDIATION SERVICES

Subject to the following conditions and limitations, the investigation described in this report has been conducted by Associated Environmental Consultants Inc. (Associated) for Zmanix Group Inc. (the Client) in a manner consistent with a reasonable level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area.

1. The scope of the investigation described in this report has been limited by the budget set for the investigation in the work program. The scope of the investigation has been reasonable having regard to that budget constraint.
2. The investigation described in this report has been limited to the scope of work described in the work program.
3. The investigation described in this report has relied upon information provided by third parties concerning the history of the site. Except as stated in this report, we have not made independent verification of such historical information. Notwithstanding the foregoing, Associated may be under a legal obligation to report the discovery of all historical impacts, whether discovered directly or through a third party or third-party historical information, to the Government of Saskatchewan, Ministry of Environment.
4. The investigation described in this report has been made in the context of existing government regulations generally promulgated at the date of this report. Except as specifically noted, the investigation did not take account of any government regulations not in effect and generally promulgated at the date of this report.
5. All documents and drawings prepared by Associated, or by others on behalf of Associated, in connection with this Project, are instruments of professional service for the execution of the Project. Associated retains the property and copyright in these documents and drawings, whether the Project is executed or not.
6. The findings and conclusions are valid only for the specific site identified in the report.
7. Associated may be required under applicable laws and regulations to report the discharge or discovery of a contaminant to a regulator without notice to the Client.
8. Since site conditions may change over time, the report is intended for immediate use.
9. This report is intended for the exclusive use of the Client, including all successors and assigns. The material in it reflects Associated's best judgment, in light of the information available to it, at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Associated accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report and makes no representation of fact or opinion of any nature whatsoever to any person or entity other than the Client.

In accepting delivery of this report, the Client hereby agrees that:

1. Associated's liability for all claims of the Client, arising out of the agreement between Associated and the Client, under which this report has been prepared (the Agreement) shall cease to exist after six (6) years from the date of:
 - i. substantial completion of the investigation described in this report,
 - ii. termination of Associated's Services under the Agreement,
 - iii. commencement of the limitation period for claims prescribed by any statute of the Province or Territory for the site of the investigation described in this report,
 - iv. any significant alteration of the site of the investigation described in this report, and/or neighbouring properties after the date of the final report that would change the conclusions and recommendations of the final report,

whichever shall first occur, and following the expiration of such period, the Client shall have no claim whatsoever against Associated.

2. Associated may be under a legal obligation to report certain discoveries and as such will not be able to maintain the confidentiality of information but agrees to disclose only that information required by law to be disclosed.
3. Any claims which it may have against Associated's or any of its servants, agents, or employees arising out of or in any way connected with the investigation described in this report or the preparation of this report, whether such claims are in contract or tort, and whether such claims are based on negligence or otherwise, shall be limited to a total amount equal to the fees payable to Associated's under the contract with the Client. Associated's shall bear no liability whatsoever for any consequential loss, injury, or damage incurred by the Client including but not limited to claims for loss of profits and loss of markets.
4. Associated may be obligated to report discharges or discoveries of contaminants to a regulator or third party with or without notice to the Client or others and in such situation Associated shall not be liable for any liability, damages, injury, losses, costs, expenses (including without limitation legal fees on a solicitor and own client basis), consequential or indirect loss, lost profits or any liability whatsoever ("Damages") suffered or incurred as a result of any claims demands, actions, suits or proceedings which may be made, brought or prosecuted in any manner whatsoever by the Client or a third party and Client shall hold Associated harmless and indemnify Associated for any such Damages incurred.

CLOSURE

This report was prepared for the Zmanix Group Inc. Grasswood Junction Commercial Park to qualitatively assess the level of risk of soil, soil vapour, and/or groundwater contamination at the Subject Site as posed by current and past land uses at either the site or neighbouring properties.

The services provided by Associated Environmental Consultants Inc. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,
Associated Environmental Consultants Inc.

Prepared by:



Chelsea Cooke, B.Sc.
Environmental Scientist

Reviewed by:



Ash Starzynski, M.Sc., P. Geo.
Senior Environmental Scientist

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APPENDIX A - FIGURES

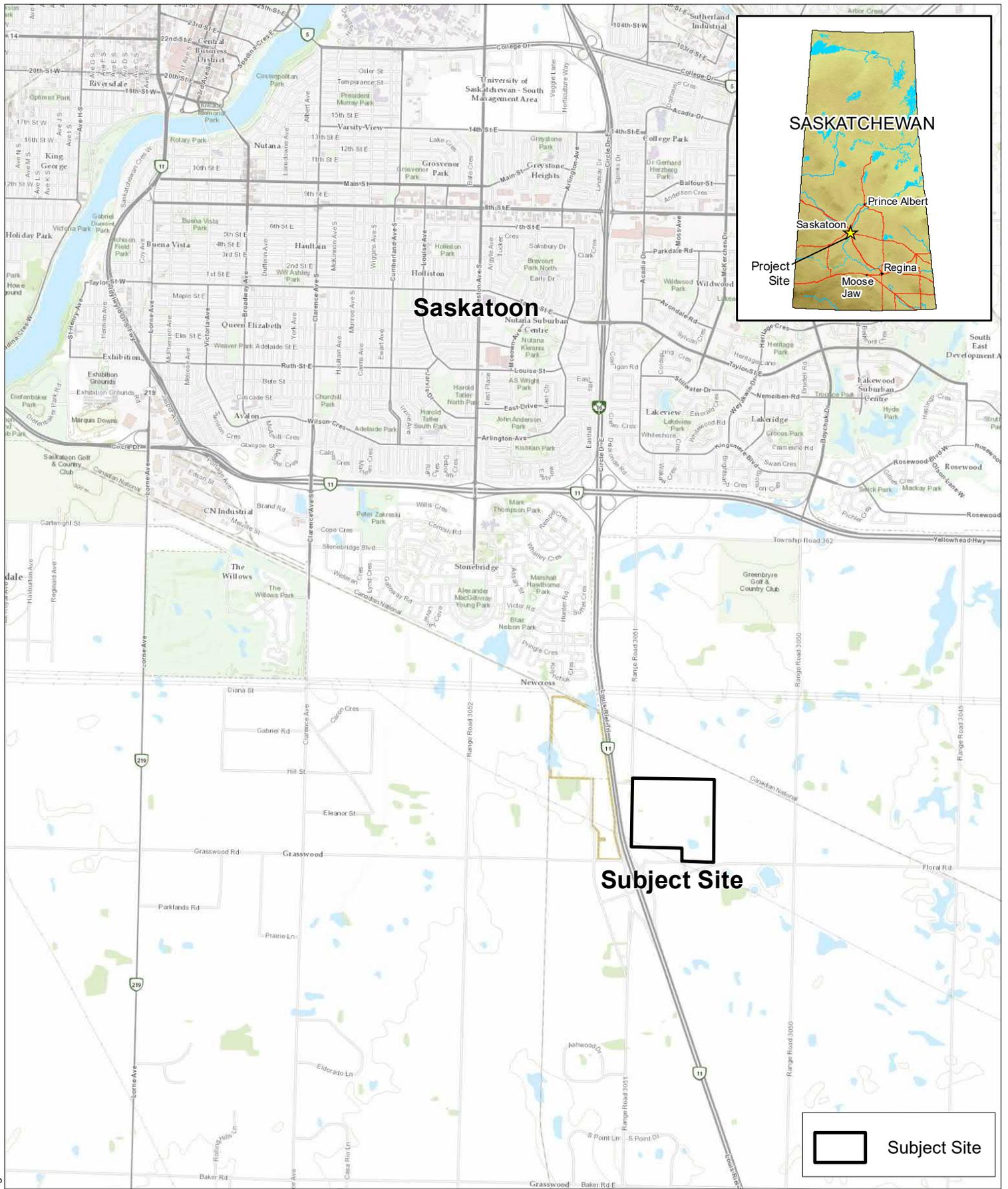


Figure 1 SK.mxd / 10/29/2020 / 2:55:48 PM



PROJECT NO.: 2020-4474.000.200
 DATE: October 2020
 DRAWN BY: DA
 0 1,000 m



FIGURE 1: PROJECT LOCATION

Zmanix Group Inc.

Phase I ESA for SW 1-36-5-W3



Figure 2.mxd / 11/3/2020 / 5:53:04 PM



PROJECT NO.: 2020-4474.000.200
 DATE: October 2020
 DRAWN BY: DA

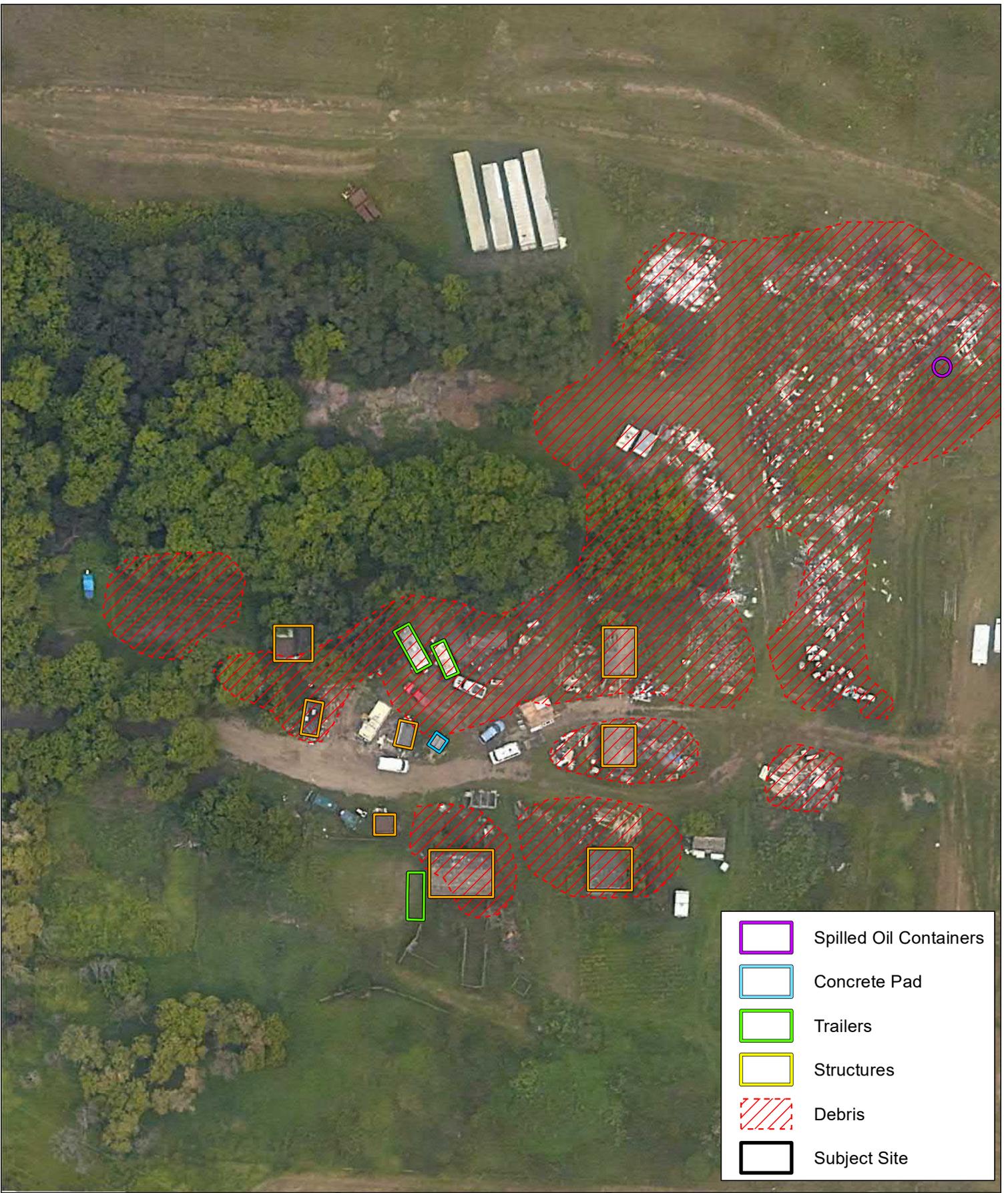
0 250 m



FIGURE 2: SUBJECT SITE AND SURROUNDING LAND USE

Zmanix Group Inc.
 Phase I ESA for SW 1-36-5-W3

Figure 3.mxd / 11/3/2020 / 5:57:03 PM



-  Spilled Oil Containers
-  Concrete Pad
-  Trailers
-  Structures
-  Debris
-  Subject Site



PROJECT NO.: 2020-4474.000.200
DATE: October 2020
DRAWN BY: DA



FIGURE 2A: SITE PLAN

Zmanix Group Inc.

Phase I ESA for SW 1-36-5-W3

APPENDIX B - HISTORICAL AERIAL PHOTOGRAPHS

Grasswood Phase I ESA (2002)

Legend

-  Travel Inn
-  Untitled Polygon



Google Earth

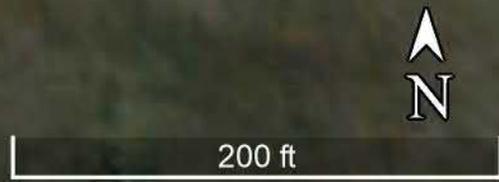
Image © 2020 Maxar Technologies

1000 ft



Grasswood Phase I ESA (Farmyard 2002)

Write a description for your map.



Grasswood Phase I ESA (2012)

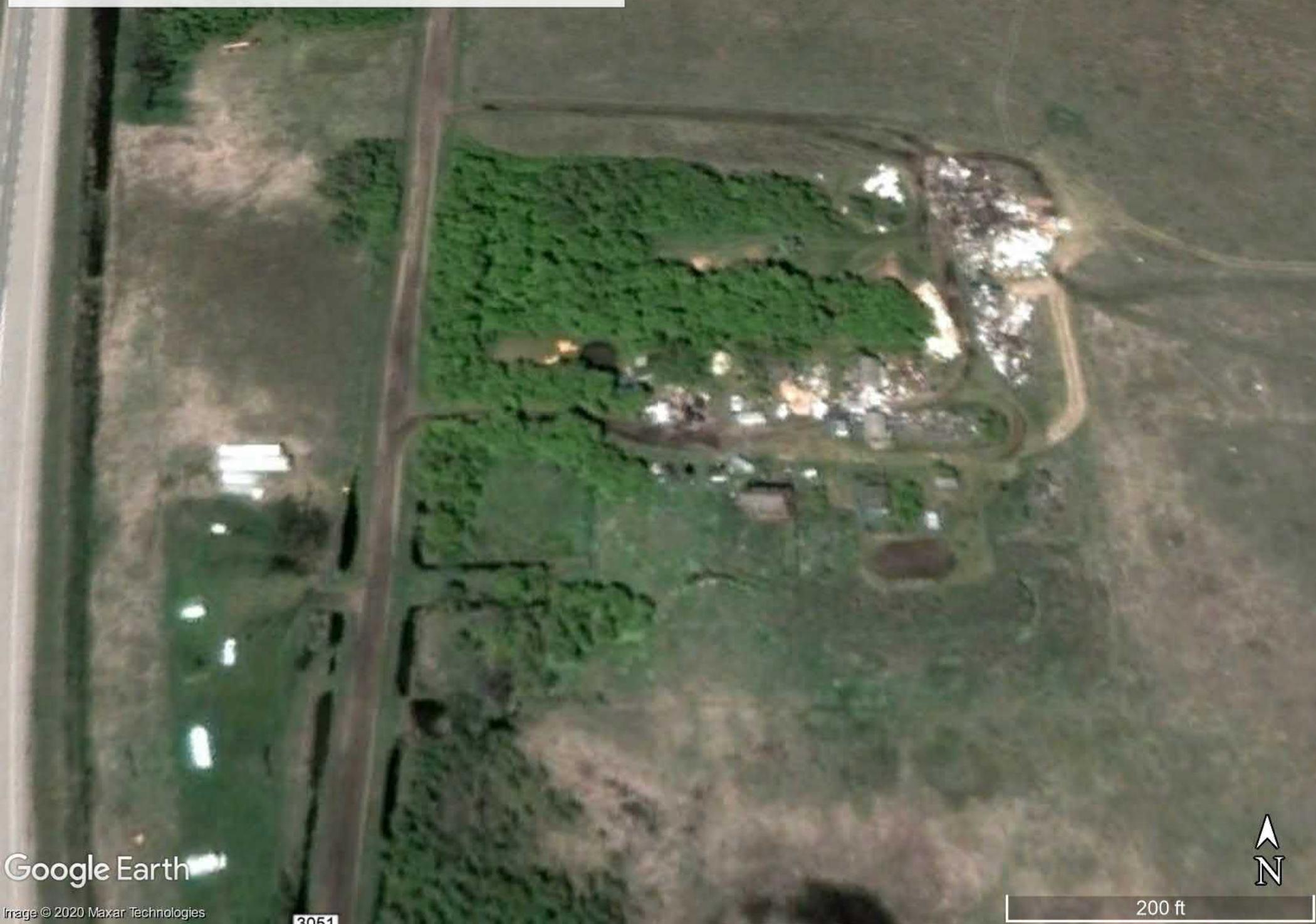
Legend

-  Travel Inn
-  Untitled Polygon



Grasswood Phase I ESA (Farmyard 2012)

Write a description for your map.



Grasswood Phase I ESA (2020)

Legend

-  Travel Inn
-  Untitled Polygon



Google Earth

Image © 2020 Maxar Technologies



1000 ft

Grasswood Phase I ESA (Farmyard 2020)

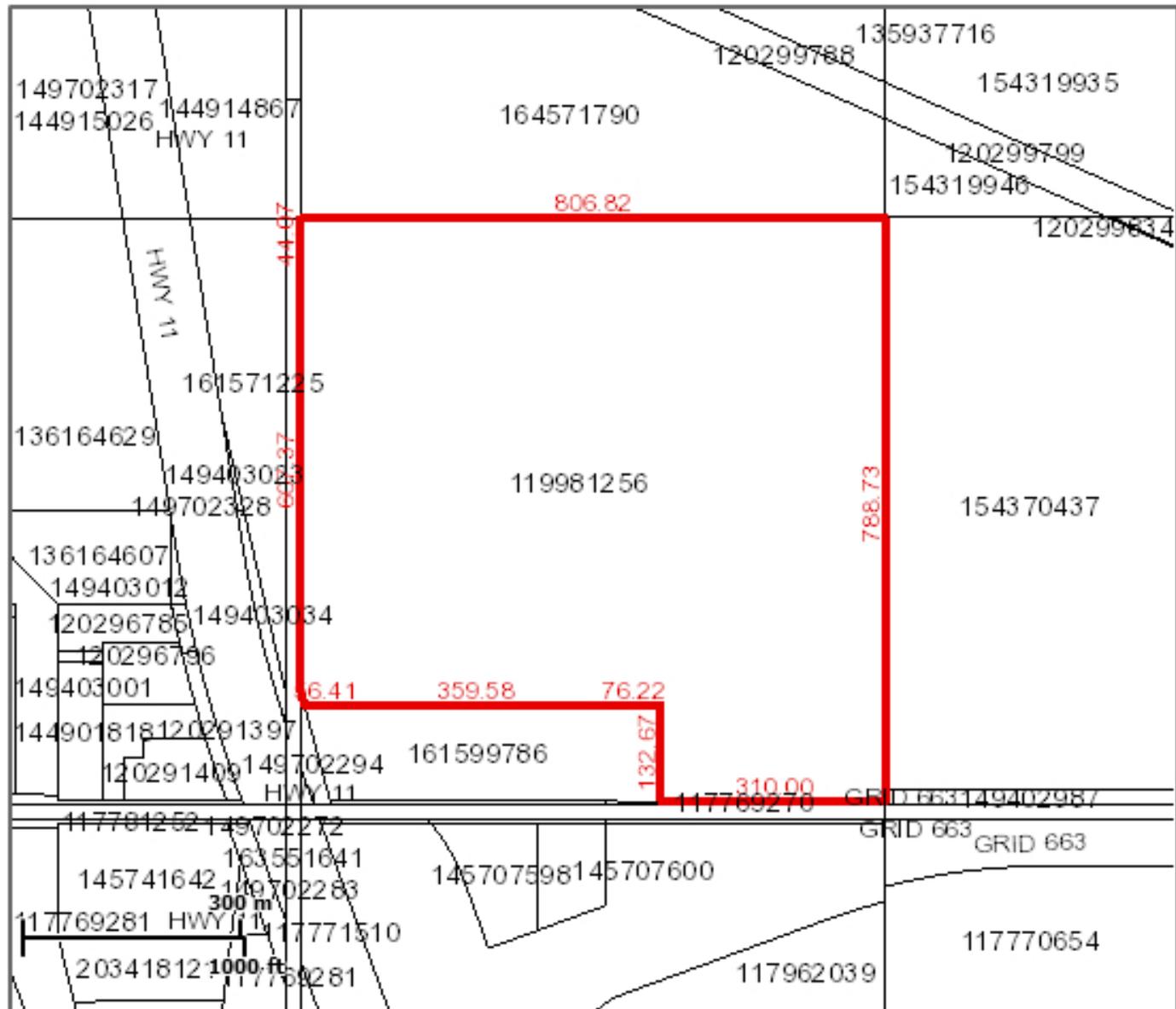
Write a description for your map.



APPENDIX C - LAND TITLES

Surface Parcel Number: 119981256

REQUEST DATE: Wed Oct 14 15:37:43 GMT-0600 2020



Scale: 1:18056

Owner Name(s): ZMANIX INC.

Municipality: RM OF CORMAN PARK NO. 344

Title Number(s): 134860237

Parcel Class: Parcel (Generic)

Land Description: SW 01-36-05-3 Ext 0

Source Quarter Section: SW-01-36-05-3

Commodity/Unit: Not Applicable

Area: 58.236 hectares (143.9 acres)

Converted Title Number: 99SA23564

Ownership Share: 1:1

Interest #:
166801495

Assignment of Rents

Value: N/A
Reg'd: 30 Apr 2014 08:20:44
Interest Register Amendment Date: N/A
Interest Assignment Date: N/A
Interest Scheduled Expiry Date: N/A
Expiry Date: N/A

Holder:
Concentra Bank
333-3rd Avenue North
Saskatoon, SK, Canada S7K 2M2
Client #: 129580544

Int. Register #: 119936447

Addresses for Service:

Name	Address
Owner: ZMANIX INC.	209, 2920 CALGARY TRAIL NW EDMONTON, AB, Canada T6J 2G8
Client #: 121892553	

Notes:

Parcel Class Code: Parcel (Generic)



[Back to top](#)



Search Results

Search By: Title Audit
 With Criteria: Title Number = 134860237

Audit Results

Date	Action/Request	Details
03 Dec 2007 13:58:04.427	Application for Transfer (Form II: Setup) 107802918	Type: Surface Regular Status: Active Share: 1/1 Title Value: \$1,800,000.00 CAD Commodity: N/A Unit: N/A Common Property: N/A
03 Dec 2007 13:58:05.833	Application for Transfer (Form II: Setup) 107802918	Number: 140911275 Description: CNV Ease
03 Dec 2007 13:58:06.910	Application for Interest Registration 107802921	Number: 140911646 Description: Mortgage - General
31 Jul 2008 14:12:09.967	Application for Interest Discharge 108204747	Number: 140911646 Description: Mortgage - General
31 Jul 2008 14:12:10.450	Application for Interest Registration 108204748	Number: 144031744 Description: Mortgage - General
26 Jan 2010 11:35:31.500	Application for Interest Registration 109025082	Number: 150306241 Description: Tax Lien
30 Apr 2014 08:20:43.990	Application for Interest Registration 111631348	Number: 166801462 Description: Mortgage - General
30 Apr 2014 08:20:44.333	Application for Interest Registration 111631349	Number: 166801495 Description: Assignment of Rents
09 Jul 2014 07:46:30.223	Application for Interest Discharge 111802688	Number: 150306241 Description: Tax Lien
29 Jul 2014 15:52:13.513	Application for Interest Discharge 111856553	Number: 144031744 Description: Mortgage - General
10 Jan 2017 07:49:43.417	Application for Interest Registration 113583652	Number: 177700462 Description: Tax Lien
14 Dec 2018 08:59:29.303	Application for Interest Discharge 114867356	Number: 177700462 Description: Tax Lien

Owner Changes

Date	Name	Address
16 Nov 2007 01:06:08.447	ZMANIX INC.	1400 CANADIAN WESTERN BANK PLACE, 10303 JASPER AVE., EDMONTON, AB, Canada, T5J3N6
20 Aug 2011 01:02:02.777	ZMANIX INC.	209, 2920 CALGARY TRAIL NW, EDMONTON, AB, Canada, T6J2G8
18 Jul 2012 05:06:46.207	ZMANIX INC.	1400 CANADIAN WESTERN BANK PLACE, 10303 JASPER AVE., EDMONTON, AB, Canada, T5J3N6
18 Jul 2012 05:06:46.650	ZMANIX INC.	209, 2920 CALGARY TRAIL NW, EDMONTON, AB, Canada, T6J2G8

[Back to top](#)



Search Results

Search By: Title History
 With Criteria: Title Number = 134860237
 As Of Date = 16 Oct 2020 14:51:25

Title History

Number	Type	Parcel	Owner(s)
134860237	Surface Regular	119981256	ZMANIX INC.

Transferred From

Number	Type	Parcel	Owner(s)
111516218	Surface Regular	119981256	June Gordichuk
111516229	Surface Regular	119981256	Dick Reed
111516230	Surface Regular	119981256	Diane McCallum
111516241	Surface Regular	119981256	Rhonda Kurenda
111516252	Surface Regular	119981256	Neil Reed

Transferred To

N/A

[Back to top](#)



Hazardous Substance Storage Facility Search

Hazardous Storage Search Results

Your search for Hazardous Storage matching keyword with the Legal Land Description SW-1-36-5-3 produced *no results*



Spill/Incident Number Operation ID	Operation Name	Address	Legal Land Description	Operation Status
--	----------------	---------	---------------------------	------------------

No Results were found matching your required search parameters.



Spills Search

Spills Search Results

Your search for spills with the Legal Land Description SW-1-36-5-3 produced the following results



Spill/Incident Number	Spill Date	Contaminant	Quantity	Address	Title Description	Lat/Long	Legal Land Description
40144	3/19/2004	OTHER - ROAD SALT	8800 KG	RM of CORMAN PARK			SW 1-36-5 3
70431	10/5/2007	SEWAGE - UNKNOWN QNTY.	0 NONE	HWY 11 AT GRASSWOOD ROAD, Saskatoon			SW 1-36-5 3



Saskatchewan Ministry of Environment

Search results for spills with the Legal

Land Description SW-1-36-5-3

Spill/Incident Number	Spill Date	Contaminant	Quantity	Address	Title Description	Lat/Long	Legal Land Description
40144	3/19/2004	OTHER - ROAD SALT	8800 KG	RM of CORMAN PARK			SW 1-36-5 3
70431	10/5/2007	SEWAGE - UNKNOWN QNTY.	0 NONE	HWY 11 AT GRASSWOOD ROAD, Saskatoon			SW 1-36-5 3

Grasswood PIESA - Surrounding Water Wells

Notes

Projection:

WGS_1984_Web_Mercator_Auxiliary_Sphere

Scale:

1: 18,056



Date

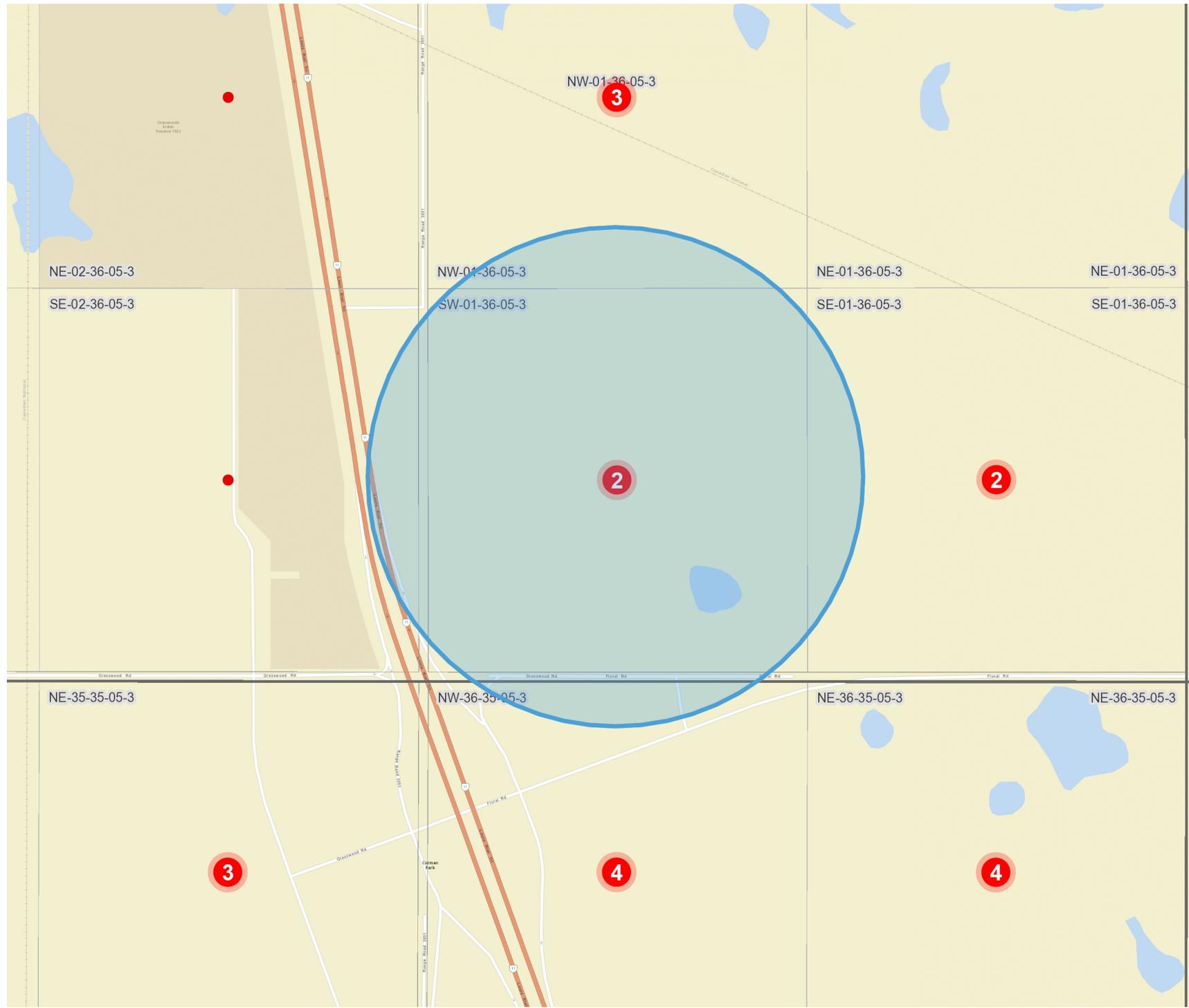
14-Oct-20

Copyright:

Map © 2015, Government of Saskatchewan
 All Datasets © 2014, Government of Saskatchewan.

Disclaimer:

WSA prepares maps with varying degrees of accuracy and completeness dependant on the circumstances and available data. WSA makes no representation that this map will be sufficient for all uses. The user is advised to confirm the information contained herein in the event that precision and currency of data are required.



Well Name: **WILLSON**

 WWDR #: **031921**
Well Location

Land Location	NE-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1690	SubBasin: 30
Aquifer		

Well Information

Driller	TORCHINSKY CONSULTING	Well Casings			
Completion Date	1969.07.11	Length (ft)	Btm (ft)	Dia (in)	Material
Hole #		0	37	4.5	Steel
Install Method	Drilled	0	0	0	
Borehole Depth (ft)	47	Well Screens			
Bit Dia (in)	4	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level	18	10	47	4	10
Flowing Head	0	0	0	0	0
Water Use	Domestic	Pump Test			
Well Use	Withdrawal	Draw Down	24 ft		
Completion Method	Well Screen	Duration	10 hrs		
E-Log	No	Pumping Rate	6 igpm		
		Temperature	43 deg. F		
		Rec. Pumping Rate	4 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
9	Sand	Brown	Silty
10	Clay	Brown	Unknown
18	Silt	Brown	Sandy
19	Clay	Brown	Unknown
20	Sand	Unknown	Medium
28	Silty Clay	Brown	Unknown
39	Sand	Unknown	Silty
40	Clay	Brown	Unknown
47	Sand	Unknown	Silty
49	Clay	Grey	Unknown



Well Name: **GRASSWOOD ESSO**

 WWDR #: **050675**
Well Location

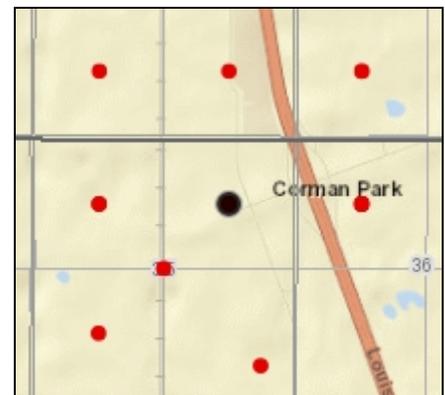
Land Location	NE-35-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1675	SubBasin: 30
Aquifer		

Well Information

Driller	WIG'S SANDPOINT DRILLING	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1977.07.01	0	50	30	Galvanized Iron
Hole #		0	0	0	
Install Method	Bored				
Borehole Depth (ft)	50				
Bit Dia (in)	30	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level	0	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic				
Well Use	Withdrawal	Draw Down	0 ft		
Completion Method	Curbed	Duration	0 hrs		
E-Log	No	Pumping Rate	9 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
2	Topsoil	Unknown	Unknown
8	Sand	Yellow	Dry
35	Sand	Yellow	Water
39	Clay	Blue	Hard
46	Sand	Black	Water
50	Clay	Blue	Hard



Well Name: **BARTON**

 WWDR #: **053882**
Well Location

Land Location	NE-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1685	SubBasin: 30
Aquifer		

Well Information

Driller	COMPUTER RESOURCES	Length (ft)	Well Casings	Btm (ft)	Dia (in)	Material
Completion Date	1978.04.27	0		0	0	
Hole #	002	0		0	0	
Install Method	Augered					
Borehole Depth (ft)	32		Well Screens			
Bit Dia (in)	0	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)	Material
Water Level	0	0	0	0	0	
Flowing Head	0	0	0	0	0	
Water Use	Domestic		Pump Test			
Well Use	Water Test Hole	Draw Down				0 ft
Completion Method		Duration				0 hrs
E-Log	No	Pumping Rate				0 igpm
		Temperature				0 deg. F
		Rec. Pumping Rate				0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
8	Till	Brown	Sandy
22	Clay	Brown	Unknown
32	Quicksand	Brown	Unknown



Well Name: **BARTON**

 WWDR #: **053883**
Well Location

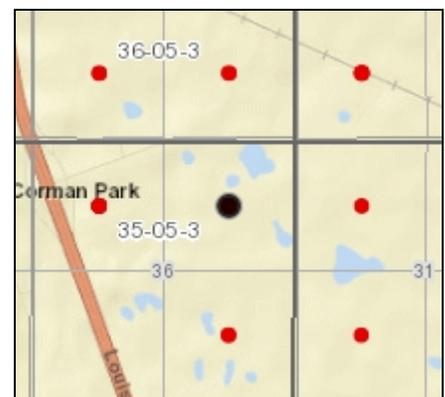
Land Location	NE-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1685	SubBasin: 30
Aquifer		

Well Information

Driller	COMPUTER RESOURCES	Length (ft)	Well Casings	Btm (ft)	Dia (in)	Material
Completion Date	1978.04.27	0		0	0	
Hole #	001	0		0	0	
Install Method	Augered					
Borehole Depth (ft)	37		Well Screens			
Bit Dia (in)	0	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)	Material
Water Level	0	0	0	0	0	
Flowing Head	0	0	0	0	0	
Water Use	Domestic		Pump Test			
Well Use	Water Test Hole	Draw Down				0 ft
Completion Method		Duration				0 hrs
E-Log	No	Pumping Rate				0 igpm
		Temperature				0 deg. F
		Rec. Pumping Rate				0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
9	Till	Brown	Sandy
20	Clay	Brown	Unknown
26	Clay	Blue	Unknown
32	Silt	Blue	Unknown
37	Clay	Blue	Unknown



Well Name: **BARTON**

 WWDR #: **053904**
Well Location

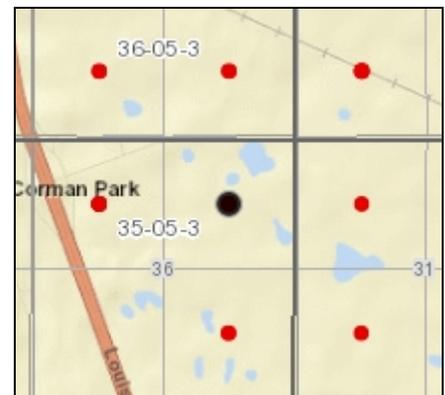
Land Location	NE-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1685	SubBasin: 30
Aquifer		

Well Information

Driller	PRAIRIE WATER LTD	Length (ft)	Well Casings	Btm (ft)	Dia (in)	Material
Completion Date	1978.04.27	36		34	36	Porous Concrete
Hole #		0		0	0	
Install Method	Bored					
Borehole Depth (ft)	34		Well Screens			
Bit Dia (in)	0	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)	Material
Water Level	0	0	0	0	0	
Flowing Head	0	0	0	0	0	
Water Use	Domestic		Pump Test			
Well Use	Withdrawal	Draw Down				0 ft
Completion Method	Curbed	Duration				0 hrs
E-Log	No	Pumping Rate				0 igpm
		Temperature				0 deg. F
		Rec. Pumping Rate				0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
10	Sandy Clay	Unknown	Unknown
20	Clay	Unknown	Unknown
25	Sandy Clay	Unknown	Unknown
34	Silt	Unknown	Unknown



Well Name: **CORY PARK MOBILE CITY**

 WWDR #: **060571**
Well Location

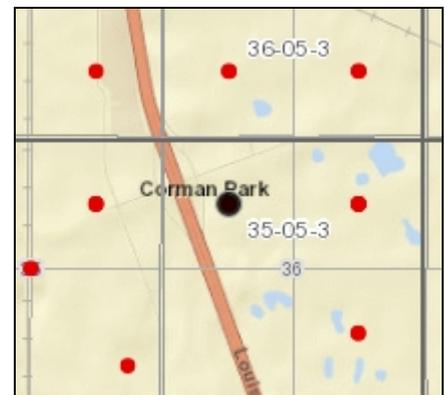
Land Location	NW-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1675	SubBasin: 30
Aquifer		

Well Information

Driller	TWEIDT WELLBORING SERVICING	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	LTD 1979.04.20	52	50	30	Galvanized Iron
Hole #		0	0	0	
Install Method	Bored	Well Casings			
Borehole Depth (ft)	50	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	42	0	0	0	0
Water Level	0	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic	Well Screens			
Well Use	Withdrawal	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Completion Method	Curbed	0	0	0	0
E-Log	No	Pump Test			
		Draw Down	0 ft		
		Duration	0 hrs		
		Pumping Rate	8 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	8 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
6	Sandy Clay	Unknown	Unknown
10	Sand	Unknown	Water
18	Clay	Black	Unknown
23	Sand	Yellow	Water
50	Clay	Unknown	Unknown



Well Name: **WESTERN MOBILE HOMES**

 WWDR #: **063453**
Well Location

Land Location	NW-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1665	SubBasin: 30
Aquifer		

Well Information

Driller	WELLEN BORING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1980.04.01	43	42	30	Galvanized Iron
Hole #		0	0	0	
Install Method	Bored				
Borehole Depth (ft)	42				
Bit Dia (in)	40				
Water Level	10				
Flowing Head	0				
Water Use	Domestic				
Well Use	Withdrawal				
Completion Method	Curbed				
E-Log	No				

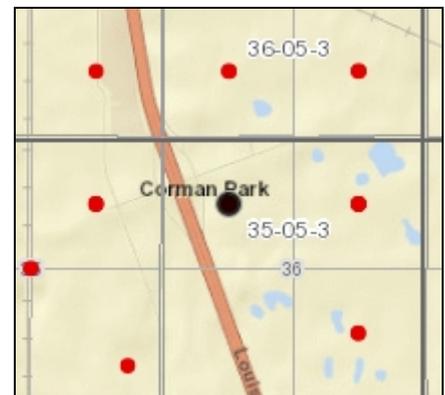
			Well Casings		
			Length (ft)	Btm (ft)	Dia (in)
			43	42	30
			0	0	0
			0	0	0

			Well Screens		
			Length (ft)	Bottom (ft)	Dia (in)
			0	0	0
			0	0	0
			0	0	0

			Pump Test		
			Draw Down		0 ft
			Duration		0 hrs
			Pumping Rate		0 igpm
			Temperature		0 deg. F
			Rec. Pumping Rate		0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
14	Sand	Brown	Fine
22	Sand	Grey	Clayey
42	Clay	Grey	Unknown



Well Name: **PANKO**

 WWDR #: **063462**
Well Location

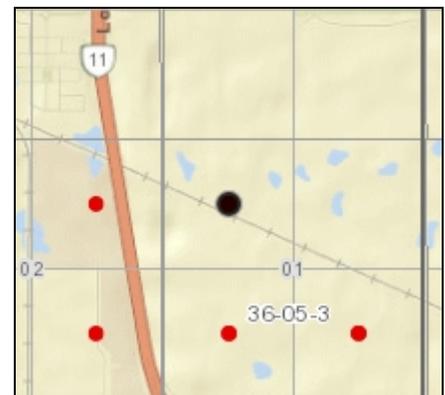
Land Location	NW-01-036 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1665	SubBasin: 30
Aquifer		

Well Information

Driller	WELLEN BORING LTD	Well Casings			
		Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1980.05.09	44	41	30	Galvanized Iron
Hole #		0	0	0	
Install Method	Bored	Well Screens			
Borehole Depth (ft)	41	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	40	0	0	0	0
Water Level	10	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic	Pump Test			
Well Use	Withdrawal	Draw Down	0 ft		
Completion Method	Curbed	Duration	0 hrs		
E-Log	No	Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
12	Sand	Brown	Fine
27	Sand	Grey	Fine
41	Clay	Grey	Unknown



Well Name: **GRASSWOOD ESSO**

 WWDR #: **080270**
Well Location

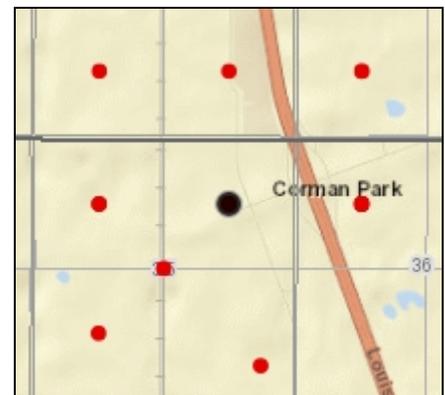
Land Location	NE-35-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:		
NTS Map:	73B00	Major Basin: 06
Elevation (ft)	1675	SubBasin: 30
Aquifer		

Well Information

Driller	TWEIDT WELLBORING SERVICING	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	LTD 1984.11.22	0	0	0	
Hole #		0	0	0	
Install Method	Augered				
Borehole Depth (ft)	50				
Bit Dia (in)	6	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level	6	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic				
Well Use	Water Test Hole				
Completion Method					
E-Log	No				
		Draw Down	0 ft		
		Duration	0 hrs		
		Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
6	Sand	Unknown	Dry
16	Sand	Yellow	Water
26	Sand	Grey	Water
36	Sand	Grey	Water
42	Sand	Unknown	Silty
50	Clay	Blue	Unknown



Well Name: REED	WWDR #: 080636
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Well Location

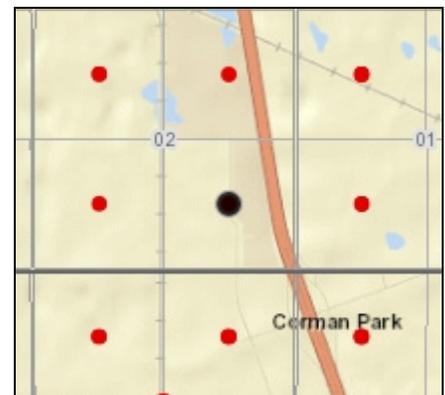
Land Location SE-02-036 -05 -W3	Location of Well (in Quarter)
LSD 00	0 ft from N/S Boundary
Reserve	0 ft from E/W Boundary
RM: 344	
NTS Map: 73B02	Major Basin: 06
Elevation (ft) 1675	SubBasin: 30
Aquifer	

Well Information

Driller TWEIDT WELLBORING SERVICING	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date LTD 1985.04.02	78	76	30	Galvanized Iron
Hole # 00000001	0	0	0	
Install Method Bored				
Borehole Depth (ft) 76	Well Screens			
Bit Dia (in) 42	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level 0	50	76	30	125
Flowing Head 0	0	0	0	0
Water Use Domestic	Pump Test			
Well Use Withdrawal	Draw Down			0 ft
Completion Method Well Screen And Gravel Pack	Duration			0 hrs
E-Log No	Pumping Rate			0 igpm
	Temperature			0 deg. F
	Rec. Pumping Rate			10 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
25	Silt	Unknown	Sandy
40	Sand	Unknown	Water
76	Silt	Unknown	Sandy



Well Name: **LARSEN**

 WWDR #: **081732**
Well Location

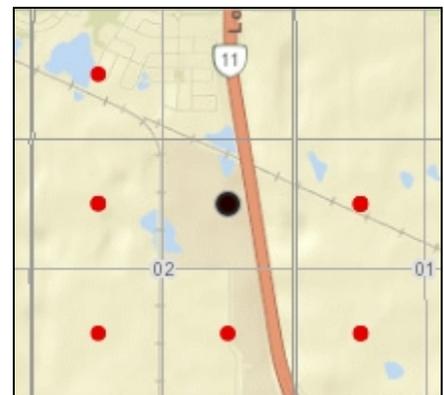
Land Location	NE-02-036 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1675	SubBasin: 30
Aquifer		

Well Information

Driller	PRAIRIE WATER LTD	Well Casings			
		Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1985.11.15	26	24	36	Porous Concrete
Hole #	00000001	0	0	0	
Install Method	Bored				
		Well Screens			
Borehole Depth (ft)	24	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	36	0	0	0	0
Water Level	0	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic	Pump Test			
Well Use	Withdrawal	Draw Down			0 ft
Completion Method	Curbed	Duration			0 hrs
E-Log	No	Pumping Rate			0 igpm
		Temperature			0 deg. F
		Rec. Pumping Rate			0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
7	Clay	Brown	Sandy
16	Sand	Brown	Unknown
24	Silt	Grey	Unknown



Well Name: WOOD	WWDR #: 102024
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Well Location

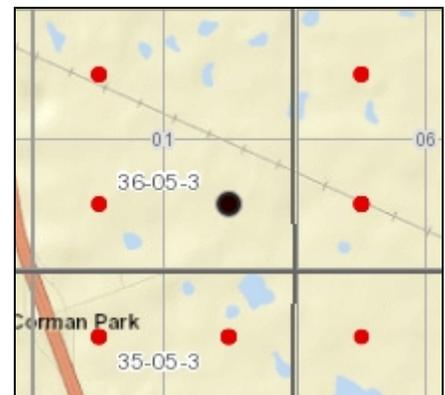
Land Location SE-01-036 -05 -W3	Location of Well (in Quarter)
LSD 00	0 ft from N/S Boundary
Reserve	0 ft from E/W Boundary
RM: 344	
NTS Map: 73B02	Major Basin: 06
Elevation (ft) 1675	SubBasin: 30
Aquifer	

Well Information

Driller PRAIRIE WATER LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date 1992.06.22	52	49	36	Porous Concrete
Hole # 00000001	0	0	0	
Install Method Bored				
Borehole Depth (ft) 49	Well Screens			
Bit Dia (in) 36	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level 0	0	0	0	0
Flowing Head 0	0	0	0	0
Water Use Domestic	Pump Test			
Well Use Withdrawal	Draw Down	0 ft		
Completion Method Curbed	Duration	0 hrs		
E-Log No	Pumping Rate	2 igpm		
	Temperature	0 deg. F		
	Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
20	Sand	Brown	Unknown
38	Clay	Grey	Unknown
49	Sand	Grey	Unknown



Well Name: **WESTERN MOBILE HOMES**

 WWDR #: **103325**
Well Location

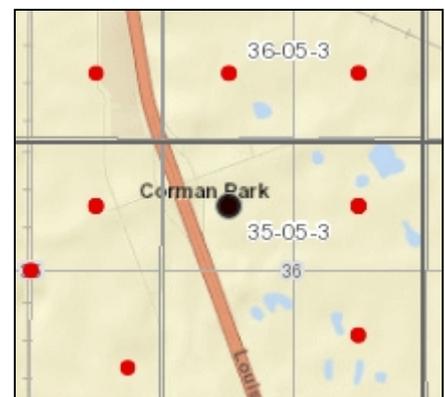
Land Location	NW-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary 0
Reserve		0 ft from E/W Boundary 0
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1650	SubBasin: 30
Aquifer		

Well Information

Driller	WELLEN BORING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1993.09.16	50	48	30	Fiberglass
Hole #		0	0	0	
Install Method	Bored	Well Casings			
Borehole Depth (ft)	48	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	0	30	48	30	70
Water Level	19	0	0	0	Fiberglass
Flowing Head	0	0	0	0	
Water Use	Domestic	Well Screens			
Well Use	Withdrawal	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Completion Method	Perforated Casing	0	0	0	0
E-Log	No	Pump Test			
		Draw Down	0 ft		
		Duration	0 hrs		
		Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	2 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
15	Sand	Brown	Unknown
28	Sand	Grey	Silty
35	Sand	Brown	Silty
48	Sand	Grey	Silty



Well Name: **STORE-RITE FARM SYSTEMS**

 WWDR #: **105762**
Well Location

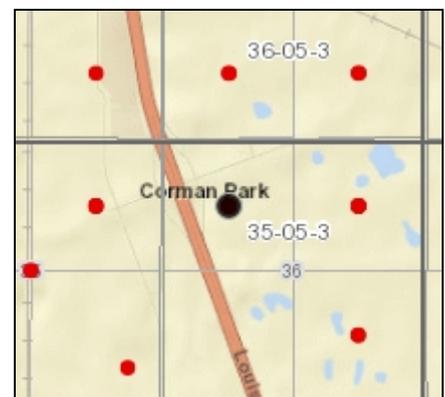
Land Location	NW-36-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1675	SubBasin: 30
Aquifer		

Well Information

Driller	PRAIRIE WATER LTD	Length (ft)	Well Casings	Btm (ft)	Dia (in)	Material
Completion Date	1995.06.06	28		27	36	Porous Concrete
Hole #	001	0		0	0	
Install Method	Bored	0		0	0	
Borehole Depth (ft)	27		Well Screens			
Bit Dia (in)	36	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)	Material
Water Level	0	0	0	0	0	
Flowing Head	0	0	0	0	0	
Water Use	Domestic		Pump Test			
Well Use	Withdrawal	Draw Down				0 ft
Completion Method	Curbed	Duration				0 hrs
E-Log	Unknown	Pumping Rate				3 igpm
		Temperature				0 deg. F
		Rec. Pumping Rate				0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
8	Clay	Brown	Sandy
20	Sand	Brown	Unknown
25	Silt	Brown	Unknown
27	Clay	Grey	Unknown



Well Name: PANKO	WWDR #: 106565
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Well Location

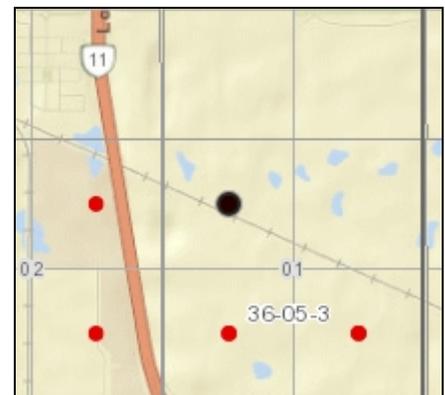
Land Location NW-01-036 -05 -W3	Location of Well (in Quarter)
LSD 00	0 ft from N/S Boundary
Reserve	0 ft from E/W Boundary
RM: 344	
NTS Map: 73B02	Major Basin: 06
Elevation (ft) 1675	SubBasin: 30
Aquifer Glac	

Well Information

Driller WELLEN BORING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date 1995.12.29	52	50	30	Fiberglass
Hole # 001	0	0	0	
Install Method Bored				
Borehole Depth (ft) 50	Well Screens			
Bit Dia (in) 42	Length (ft)	Bottom (ft)	Dia (in)	Slot (in) Material
Water Level 14	30	48	30	70 Fiberglass
Flowing Head 0	0	0	0	0
Water Use Domestic	Pump Test			
Well Use Withdrawal	Draw Down			0 ft
Completion Method Perforated Casing	Duration			0 hrs
E-Log Unknown	Pumping Rate			2 igpm
	Temperature			0 deg. F
	Rec. Pumping Rate			0 igpm

Lithology List

Depth (ft):	Material	Colour	Description
18	Sand	Brown	Silty
35	Sand	Grey	Fine
50	Clay	Grey	Unknown



Well Name: **WIG'S PUMPS & WATERWORKS**

 WWDR #: **111076**
Well Location

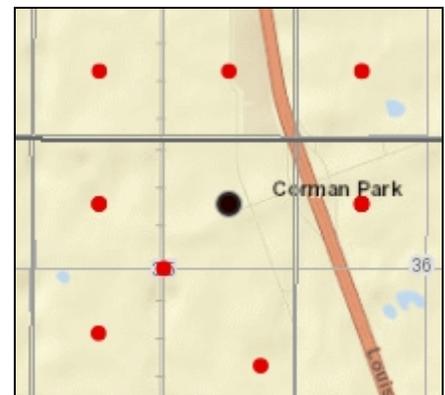
Land Location	NE-35-035 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1673	SubBasin: 30
Aquifer		

Well Information

Driller	WELLEN BORING LTD	Well Casings			
Completion Date	1999.09.13	Length (ft)	Btm (ft)	Dia (in)	Material
Hole #	001	62	60	30	Fiberglass
Install Method	Bored	0	0	0	
Borehole Depth (ft)	62	0	0	0	
Bit Dia (in)	42	Well Screens			
Water Level	7	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Flowing Head	0	44	58	30	70
Water Use	Domestic	0	0	0	Fiberglass
Well Use	Withdrawal	0	0	0	0
Completion Method	Perforated Casing	Pump Test			
E-Log	No	Draw Down	0 ft		
		Duration	0 hrs		
		Pumping Rate	20 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
5	Sand	Brown	Silty
21	Sand	Brown	Fine
28	Sand	Brown	Fine
32	Sand	Grey	Fine
39	Silt	Grey	Soft
53	Silt	Grey	Clayey
62	Clay	Grey	Firm



Well Name: O'DARE	WWDR #: 208293
--------------------------	-----------------------

Well Location

Land Location NW-01-036 -05 -W3	Location of Well (in Quarter)
LSD 00	0 ft from N/S Boundary
Reserve	0 ft from E/W Boundary
RM: 344	
NTS Map: 73B02	Major Basin: 06
Elevation (ft) 1673	SubBasin: 30
Aquifer	

Well Information

Driller WELLEN BORING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date 2007.11.01	32	30	30	Fiberglass
Hole #	0	0	0	
Install Method Bored				
Borehole Depth (ft) 30	Well Screens			
Bit Dia (in) 42	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level 12	16	28	30	70
Flowing Head 0	0	0	0	0
Water Use Domestic	Pump Test			
Well Use Withdrawal	Draw Down			0 ft
Completion Method Perforated Casing	Duration			1 hrs
E-Log No	Pumping Rate			2 igpm
	Temperature			0 deg. F
	Rec. Pumping Rate			2 igpm

Lithology List

Depth (ft):	Material	Colour	Description
12	Silty Clay	Brown	Unknown
22	Sand	Brown	Fine
28	Sand	Grey	Silty
30	Clay	Grey	Unknown



Well Name: **SRC**

 WWDR #: **220027**
Well Location

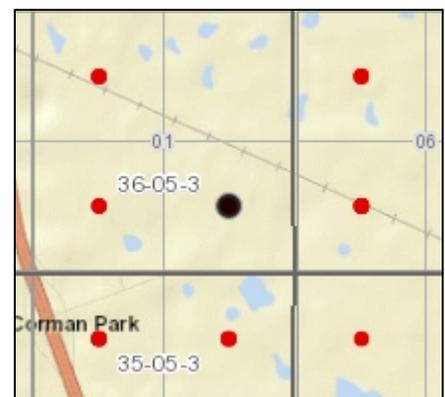
Land Location	SE-01-036 -05 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1666	SubBasin: 30
Aquifer		

Well Information

Driller	UNKNOWN	Well Casings			
		Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1967.11.23	0	0	0	
Hole #		0	0	0	
Install Method	Augered	Well Screens			
Borehole Depth (ft)	32	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	0	0	0	0	0
Water Level	0	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Research	Pump Test			
Well Use	Soil Test Hole	Draw Down	0 ft		
Completion Method		Duration	0 hrs		
E-Log	No	Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List

Depth (ft):	Material	Colour	Description
-------------	----------	--------	-------------



Zmanix Group Inc.
Grasswood Junction Commercial Park

APPENDIX F - NCSCS REPORT

**CCME National Classification System for Contaminated Sites (2008) version 1.3
Summary of Site Conditions**

Site:	Site will be identified by:	Site Common Name
Civic Address: <i>(or other description of location)</i>	near the intersection of Grasswood/Floral Road and Highway No. 11 south	
Site Common Name: <i>(if applicable)</i>	Grasswood Commercial Node	
Code identifier: <i>(e.g., FCSI 8-digit identifier)</i>		
Site Owner or Custodian: <i>(Organization and Contact Person)</i>	Zmanix Group Inc.	
Legal description or metes and bounds:	SW 1-36-5-W3M	
Approximate Site area:	58.2 acres	
Parcel Identifier(s) [PID]: <i>(or Parcel Identification Numbers [PIN] if untitled Crown land)</i>		
Centre of site: <i>(provide latitude/longitude or UTM coordinates)</i>		
Site Land Use:	Current:	Agricultural
	Proposed:	The area is proposed to be re-zoned under District Arterial Commercial 1 (DC1) zoning
Site Plan	To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.	
Provide a brief description of the Site:	Site description has been provided in a Phase I ESA report completed in April 2007 and an updated Phase I ESA report finished in Nov 2020.	

**CCME National Classification System for Contaminated Sites (2008) version 1.3
Summary of Site Conditions**

Affected media and Contaminants of Potential Concern (COPC):	N/A
--	-----

Please fill in the "letter" that best describes the level of information available for the site being assessed:

Site Letter Grade

If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	Chelsea Cooke
Date Scoring Completed:	14-Oct-20

CCME National Classification System (2008) version 1.3

Score Summary

Site: Grasswood Commercial Node

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCSCS completely.

I. Contaminant Characteristics

	Known	Potential
1. Residency Media	0	---
2. Chemical Hazard	2	---
3. Contaminant Exceedance Factor	2	---
4. Contaminant Quantity	2	---
5. Modifying Factors	0	---

Raw Total Score

6	---
---	-----

Raw Combined Total Score (Known + Potential)

6	---
---	-----

Adjusted Total Score (Raw Combined Total/40*33)

5.0	(max 33)
-----	----------

II. Migration Potential

	Known	Potential
1. Groundwater Movement	0	---
2. Surface Water Movement	0	---
3. Soil	0	---
4. Vapour	0	---
5. Sediment Movement	0	---
6. Modifying Factors	0	---

Raw Total Score

0	---
---	-----

Raw Combined Total Score (Known + Potential)

0	---
---	-----

Adjusted Total Score (Raw Combined Total/64*33)

0.0	(max 33)
-----	----------

III. Exposure

	Known	Potential		
1. Human Receptors				
A. Known Impact	<table border="1"><tr><td>0</td></tr></table>	0		
0				
B. Potential				
a. Land Use		<table border="1"><tr><td>---</td></tr></table>	---	

b. Accessibility		<table border="1"><tr><td>---</td></tr></table>	---	

c. Exposure Route				
i. Direct Contact		<table border="1"><tr><td>---</td></tr></table>	---	

ii. Inhalation		<table border="1"><tr><td>---</td></tr></table>	---	

iii. Ingestion		<table border="1"><tr><td>---</td></tr></table>	---	

2. Human Receptors Modifying Factors	<table border="1"><tr><td>0</td></tr></table>	0	<table border="1"><tr><td>---</td></tr></table>	---
0				

Raw Total Human Score	<table border="1"><tr><td>0</td></tr></table>	0	<table border="1"><tr><td>---</td></tr></table>	---
0				

Raw Combined Total Human Score (Known + Potential)

0

Adjusted Total Human Score

0

 (maximum 22)

3. Ecological Receptors				
A. Known Impact	<table border="1"><tr><td>0</td></tr></table>	0		
0				
B. Potential				
a. Terrestrial		<table border="1"><tr><td>---</td></tr></table>	---	

b. Aquatic		<table border="1"><tr><td>---</td></tr></table>	---	

4. Ecological Receptors Modifying Factors	<table border="1"><tr><td>0</td></tr></table>	0	<table border="1"><tr><td>---</td></tr></table>	---
0				

Raw Total Ecological Score	<table border="1"><tr><td>0</td></tr></table>	0	<table border="1"><tr><td>---</td></tr></table>	---
0				

Raw Combined Total Ecological Score (Known + Potential)

0

Adjusted Total Ecological Score

0

 (maximum 18)

5. Other Receptors	<table border="1"><tr><td>0</td></tr></table>	0	<table border="1"><tr><td>---</td></tr></table>	---
0				

Total Other Receptors Score (Known + Potential)

0

Total Exposure Score (Human + Ecological + Other)

0

Adjusted Total Score (Total Exposure/46*34)

0.0

 (maximum 34)

Site Score		
Site Letter Grade	<table border="1"><tr><td>E</td></tr></table>	E
E		
Certainty Percentage	<table border="1"><tr><td>100%</td></tr></table>	100%
100%		
% Responses that are "Do Not Know"	<table border="1"><tr><td>0%</td></tr></table>	0%
0%		
Total NCSCS Score for site	<table border="1"><tr><td>5.0</td></tr></table>	5.0
5.0		
Site Classification Category	<table border="1"><tr><td>N</td></tr></table>	N
N		

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)

Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)

Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)

Class N - Not a Priority for Action (Total NCS Score <37)

Class INS - Insufficient Information (≥15% of responses are "Do Not Know", or a site letter grade of F has been assigned)

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.

APPENDIX G - SITE PHOTOGRAPHS

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 01 - View Facing Southwest



Photo 02 - View Facing South

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 03 - Farmacyard: Gate from Service Road



Photo 04 - Farmacyard: Debris and Structures

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 05 - Farmyard: Debris and Structures



Photo 06 - Farmyard: Metals Debris

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 07 - Farmyard: Mixed Debris



Photo 08 - Farmyard: Trailers

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 09 - Farmyard: Construction Debris

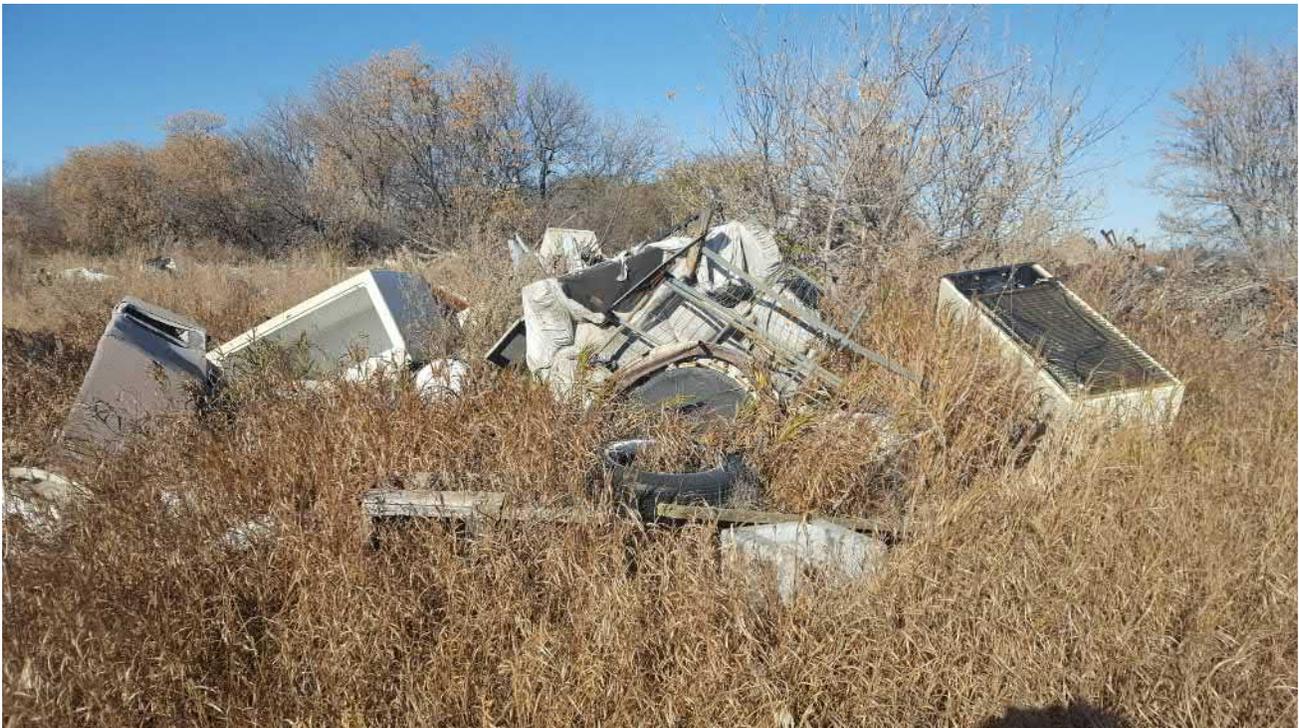


Photo 10 - Farmyard: Household Appliances

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 11 - Farmyard: Household Appliances



Photo 12 - Farmyard: Shingles

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 13 - Farmyard: Mixed Debris



Photo 14 - Farmyard: Small Shed

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 15 - Farmyard: Concrete Pad



Photo 16 - Farmyard: Mixed Debris

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)

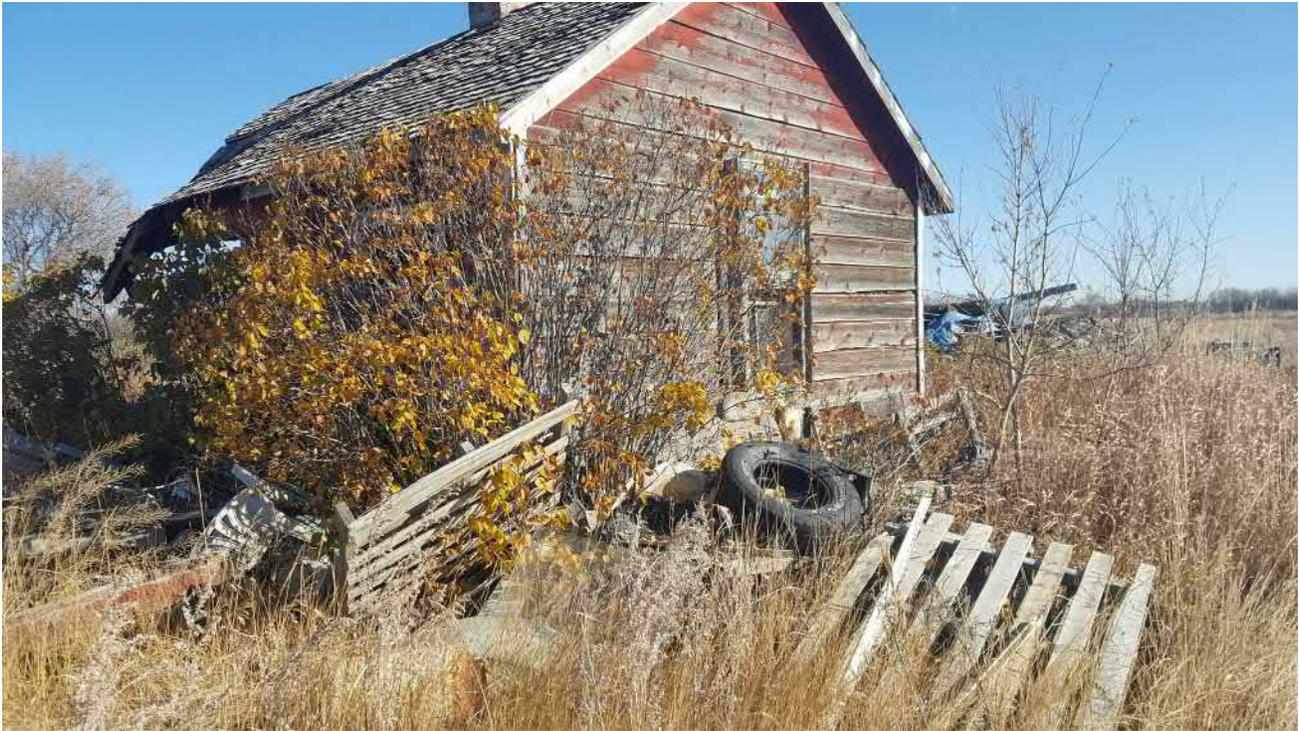


Photo 17 - Farmyard: Medium Shed



Photo 18 - Farmyard: Barn

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 19 - Farmyard: House



Photo 20 - Farmyard: Surface Coating (Empty Containers)

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 21 - Farmyard: Surface Coating



Photo 22 - Farmyard: Unmarked Barrel



Photo 23 - Farmyard: Stored Oil



Photo 24 - Farmyard: Stored Oil

Grasswood Phase I ESA: Subject Site Photos (October 15, 2020)



Photo 25 - Farmyard: Stored Oil



Photo 26 - Farmyard: Stored Oil



Photo 27 - Farmyard: Oil Staining

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 28 - South: Grasswood Auto and Grasswood Consignment/Storage



Photo 29 - South: Mobile Training Center

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 30 - South: Trans Industrial Safety Training



Photo 31 - South: Travel Inn

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 32 - South: Travel Inn RV Park Resort and Campground



Photo 33 - South: RTM Homes (Western)

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)

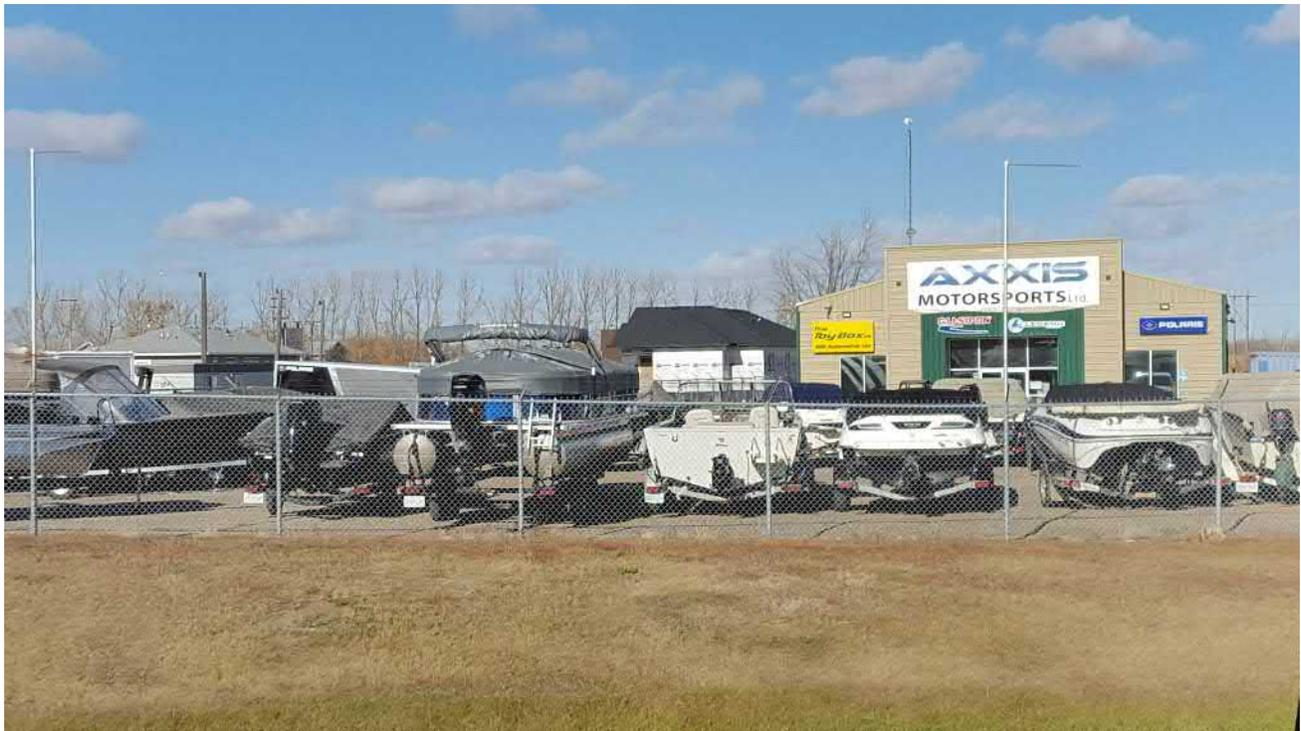


Photo 34 - South: Axxis Motorsports



Photo 35 - West: Highway 11 and Further Commercial/Industrial Properties

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 36 - West: ESSO Gas Station and Restaurant



Photo 37 - West: PetroCanada Gas Station and Subway

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 38 - West: Grasswood Business Complex



Photo 39 - North: Farmyard and Agricultural/Pasture Land

Grasswood Phase I ESA: Neighbouring Properties Photos (October 15, 2020)



Photo 40 - North: Farmyard and Agricultural/Pasture Land



Photo 41 - East: Agricultural/Pasture Land

APPENDIX H - PROVINCIAL HERITAGE SEARCH



Developers' Online Screening Tool

Inquiry was made on October 14, 2020 at 1:47 PM

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

Quarter- SW
section:
Section: 1
Township: 36
Range: 5
Meridian: 3

This quarter-section is NOT heritage sensitive.

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

[Refine Search](#)

[New Search](#)

[Log Out](#)

6.5KShare

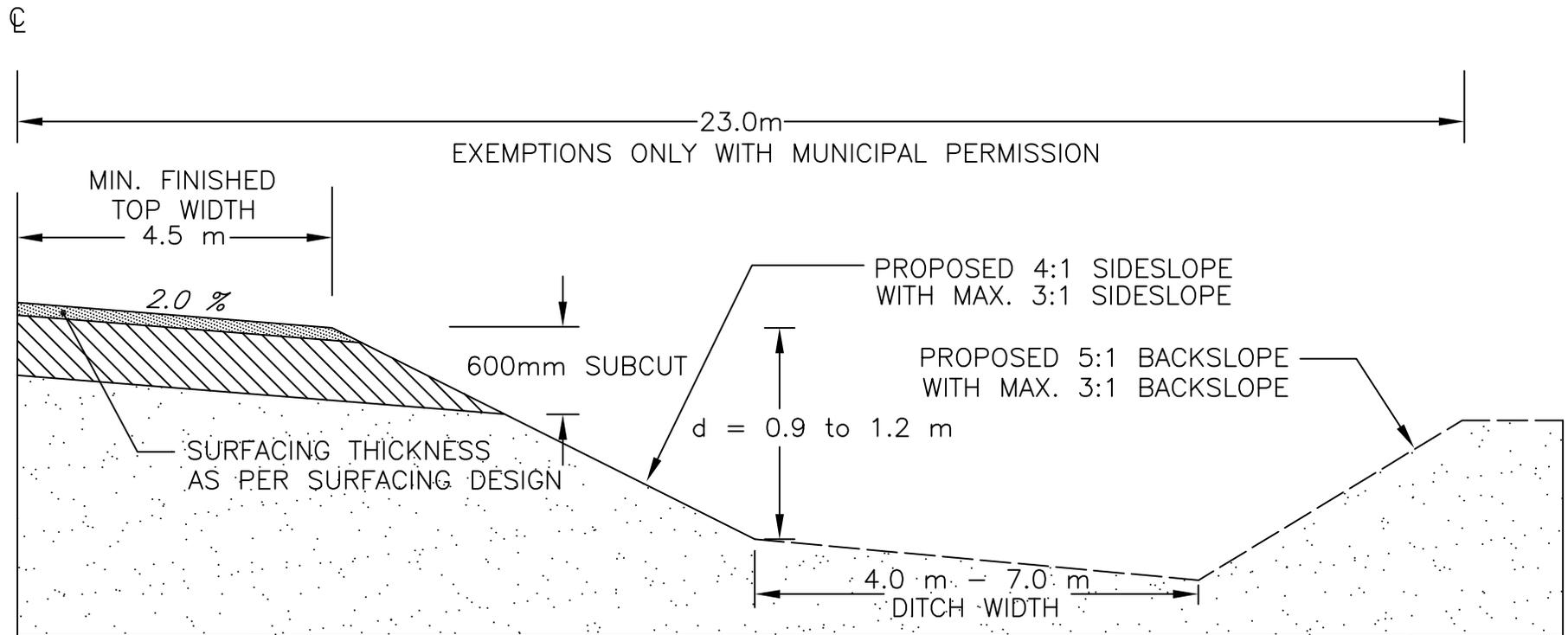
[Contact Us](#)

[Privacy](#)

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APPENDIX C - ROAD STANDARDS

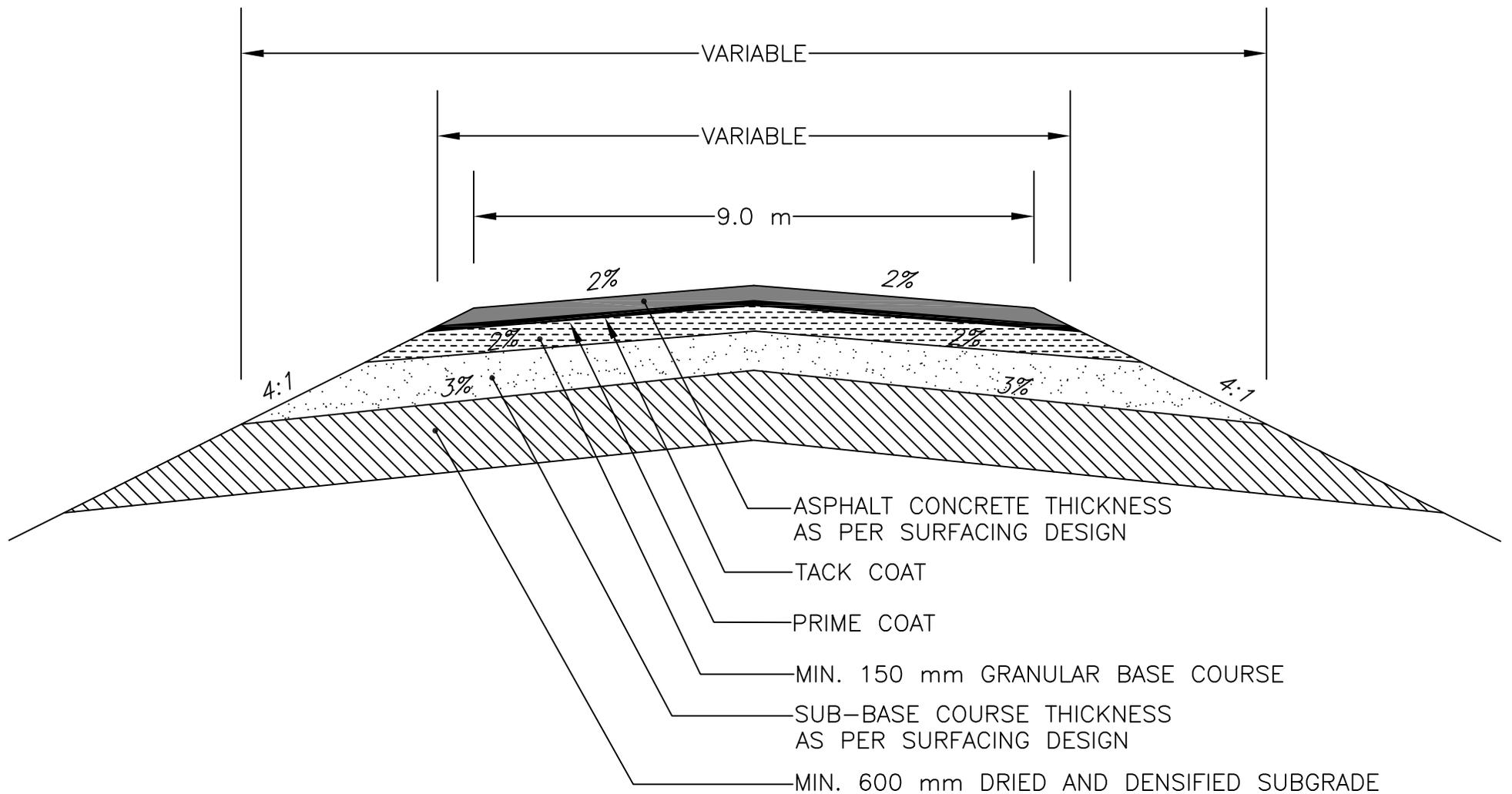


PUBLIC WORKS
 INDUSTRIAL PAVED - TYPICAL CROSS SECTION
 SUBGRADE

DATE: 2017

SCALE: NTS

DRAWN BY: WOOD E&I



PUBLIC WORKS
INDUSTRIAL PAVED - TYP. SURFACING STRUCTURE
ASPHALT CONCRETE

DATE: 2017

SCALE: NTS

DRAWN BY: WOOD E&I

1. **Description**

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

2. **Miscellaneous**

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

3. **Required Right-Of-Way Standards**

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

4. **Road Widths and Geometric Standards**

4.1. **Finished Road Width and Height**

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

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

4.2. Surfacing and Hydraulic Design

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

4.3. Sideslopes

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

4.4. Ditch Bottom Widths

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

4.5. Backslopes

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

4.6. Maximum Road Gradient

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

4.7. Stopping Sight and Intersection Distances

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

5. Snow Clearance Standards

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

6. Road Construction

6.1. Clearing and Grubbing

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

6.2. Removal and Replacement of Topsoil

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

6.3. Drainage (culvert) Installations

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

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

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

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

6.4. Subgrade Embankments

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

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

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

6.5. Traffic Gravel

- Traffic gravel shall comply with Type 106.

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

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

6.6. Traffic Gravel Behind Construction

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

6.7. Sub-Base Course

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

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

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

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

6.8. Granular Base Course

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

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

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

6.9. Asphalt Prime and Tack Coat

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

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

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

6.10. Asphalt Concrete

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

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

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

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

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

6.11. Seeding

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

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

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

7. Design and Construction Certification

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

APPENDIX D – CORRESPONDENCE





DUNDURN RURAL WATER UTILITY

PO BOX 442

DUNDURN SK S0K 1K0

Phone: 306-492-2566

Fax: 306-492-2564

E-mail: drwu@sasktel.net

December 18, 2020

Associated Engineering (Sask.) Ltd.

sent via e-mail

1 – 2225 Northridge Drive

Saskatoon, SK S7L 6X6

Attn.: Mike Pawluski, Project Planner

RE: Development in the SW 01 – 36 – 5 – W3 (immediately east of Highway #11 near Floral Road

The Dundurn Rural Water Utility would like to confirm the availability of treated potable water in principle for your new project. Details will need to be discussed prior to making any final commitment on water to be delivered. If we can supply water to this quarter section, we could supply 27 igpm.

The Utility will need to confirm that SaskWater will be able to provide the Dundurn Rural Water with the additional flow rate. The project also needs to be reviewed with our Engineering firm.

Thank you.

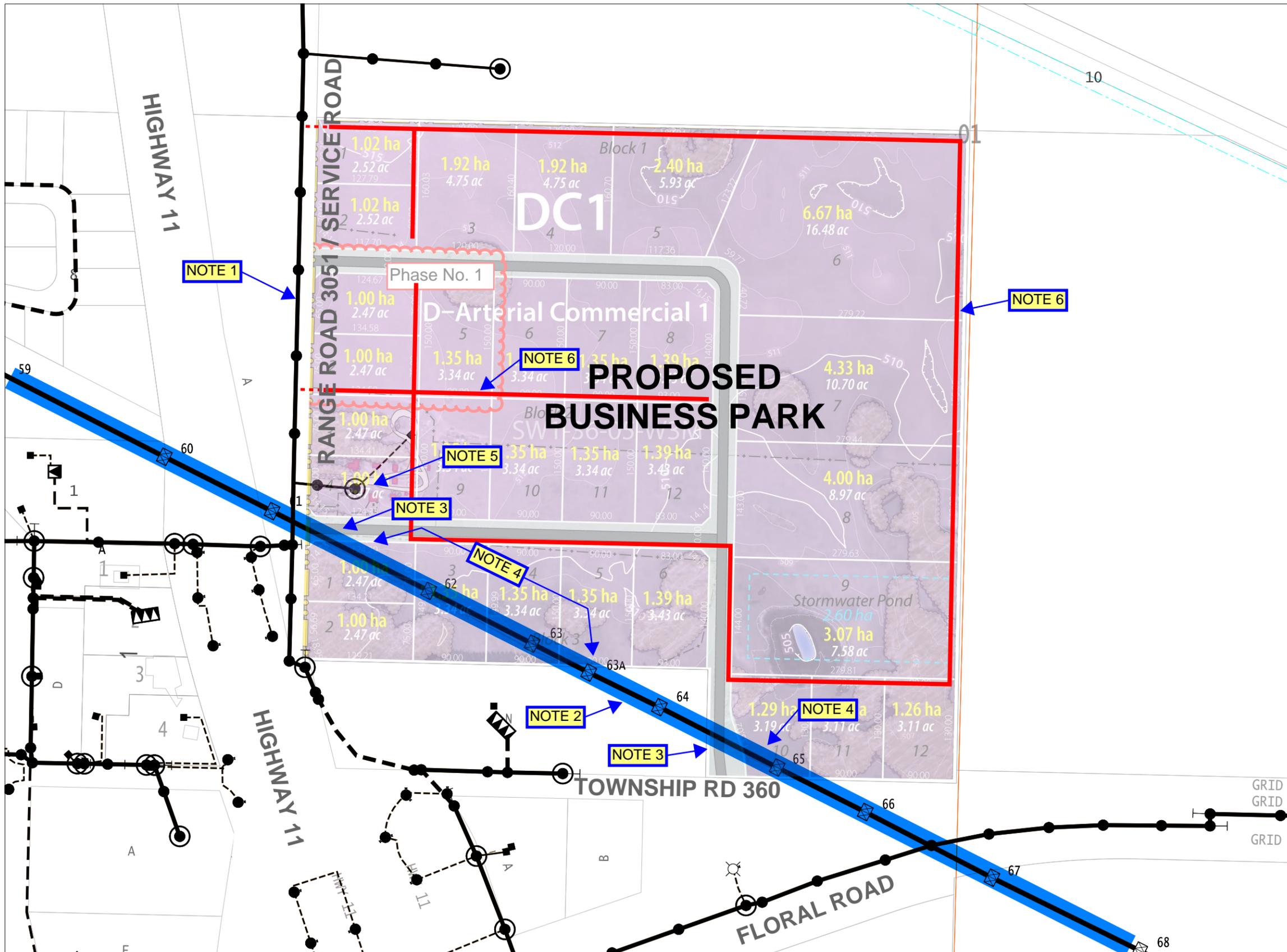
Yours truly,

DUNDURN RURAL WATER UTILITY

Rosalind Arndt (via e-mail)

Rosalind L. Arndt
Administrator

/rla



- ### NOTES:
- EXISTING 25kV OVERHEAD DISTRIBUTION LINES (—●—).
- SASKPOWER IS ABLE TO SERVICE PHASE 1 FROM THIS LINE.
 - EXISTING 138kV TRANSMISSION LINE (—■—).
 - PROPOSED ACCESS ROADS
- THE DEVELOPER IS RESPONSIBLE TO CONTACT SASKPOWER TO INITIATE THE DISCUSSION TO DETERMINE THE REQUIREMENTS NECESSARY TO GAIN PERMISSION TO CROSS THE SASKPOWER RIGHT-OF-WAY
- THERE MAY BE COSTS ASSOCIATED WITH THE REVIEW
- THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ANY ALTERATIONS TO THE TRANSMISSION LINE STRUCTURES
 - LOT 10 OF BLOCK 1 AND LOTS 1, 3, 4, 5 OF BLOCK 3
- THERE IS AN EXISTING SASKPOWER RIGHT-OF-WAY FOR THE TRANSMISSION LINE THAT WILL IMPACT THE DEVELOPMENT OF THESE FOUR LOTS
- THE DEVELOPER IS RESPONSIBLE TO REVIEW AND COMPLY WITH THE TERMS AND CONDITIONS OF THE RIGHT-OF-WAY AGREEMENT AND CONFIRM THE RIGHT-OF-WAY WIDTH
 - SASKPOWER SERVICE INFRASTRUCTURE TO THE EXISTING CUSTOMER. THE SERVICE WILL BE SALVAGED, WHEN THE DEVELOPMENT PROCEEDS.
 - FOR REFERENCE, THE RED LINES (—■—) REPRESENT A PROPOSED OPTION FOR ROUTING OVERHEAD DISTRIBUTION INFRASTRUCTURE TO SERVICE THE LOTS WITHIN THE DEVELOPMENT.
 - FOR REFERENCE ONLY, THE HIGH LEVEL ESTIMATED COST TO INSTALL THE ELECTRICAL, OVERHEAD DISTRIBUTION TO PHASE 1 IS **\$90,000**.
 - FOR REFERENCE ONLY, THE HIGH LEVEL ESTIMATED COST TO INSTALL THE ELECTRICAL, OVERHEAD DISTRIBUTION TO THE REMAINING DEVELOPMENT IS **\$600,000**.

FOR REFERENCE ONLY
01/14/2021 11:48:01 AM



Rev No.	Rev By	Date	Description

I HEREBY AGREE TO THE ROUTE OF THE PROPOSED POWER LINE AS SHOWN ON THIS PLAN. (SUBJECT TO OBTAINING ALL LAND RIGHTS AND REGULATORY APPROVALS).

CUSTOMER _____
DATE _____

DRAWING TITLE GSO GRASSWOOD JUNCTION BUSINESS PARK	
NOTIFICATION NUMBER 302699015	SERVICE ORDER NUMBER 20319529
LEGAL LAND DESCRIPTION OR CIVIC ADDRESS SW01-36-05-W3	LONG/LAT OF AREA -106.59279, 52.060113
CUSTOMER CONTACT ASSOCIATED ENGINEERING (SASK) LTD.	
EO PROJECT NUMBER SA13SK0100018167	
FEEDER NAME ENG-524	CIRCUIT NAME
DESIGNER NAME C. BABYAK	DISTRICT SASKATOON CITY
SITE CHECKED BY AND DATE	
RM NAME AND NUMBER CORMAN PARK 344	
PLOT DATE 2021-01-14	PLOT TYPE: B Plot
SHEET NO 1 of 1	REV 0



THIS MAP IS A VISUAL REPRESENTATION ONLY AND NOT TO BE USED FOR LOCATING FACILITIES. CONTACT SASK 1ST CALL AT 1-866-828-4888 FOR LOCATES.

Evan Latos

From: Brad Shotton <BShotton@saskenergy.com>
Sent: Wednesday, December 23, 2020 3:50 PM
To: Evan Latos
Subject: FW: Grasswood Junction Business Park - Natural Gas Servicing
Attachments: skt_grasswood_junction_business_park.pdf; SW 1-36-5-3 SaskEnergy.pdf

Hi Evan,

SaskEnergy does have gas mains in the area of your proposed development. However they are smaller diameter pipe and they may not have enough capacity for the type of loads you have listed below. Additional gas mains will likely need to be installed to get gas to your development, and then additional mains and services within the development.

We would need to analyze the system for some of these building loads in order to determine what is required on our end to serve this type of development.

The best way to do this is to initiate a conceptual estimate:

- Go to our website and initiate a new commercial development service request. (2nd one from the bottom)

https://www.saskenergy.com/natural_gas_service/ngservice.asp

- provide your drawings and the load information you have

- when our customer service reps contact you, you can tell them it is for a conceptual estimate

Then the file will come into us and we can take a look at the system and come up with some rough costs. Ideally, you would be able to have some rough ideas on what loads you may require. Obviously with this being very early in the development, you may not know the exact future loads. But something to start with is better than nothing.

Thanks,

Let me know of any questions.

Brad

Brad Shotton

Senior Engineer, Distribution Engineering - SaskEnergy

Ph: 306-281-4867

From: Andy Mievre <AMievre@saskenergy.com>
Sent: Monday, December 21, 2020 12:16 PM
To: Victor Marsollier <VMarsollier@saskenergy.com>
Cc: Brad Shotton <BShotton@saskenergy.com>
Subject: FW: Grasswood Junction Business Park - Natural Gas Servicing

Thanks,

Andy Mievre, P.Eng.
Sr. Engineer, Distribution Engineering
SaskEnergy Incorporated
(306) 292-9452

From: Evan Latos <latose@ae.ca>
Sent: Friday, December 18, 2020 10:36 AM
To: Andy Mievre <AMievre@saskenergy.com>

Cc: Mike Pawluski <pawluskim@ae.ca>; Victor Marsollier <VMarsollier@saskenergy.com>

Subject: Grasswood Junction Business Park - Natural Gas Servicing

WARNING: This email was not sent from SaskEnergy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning,

Associated Engineering (AE) has been retained by Touchstone Enterprise Ltd. to complete a Comprehensive Development Review (CDR) for the proposed Grasswood Junction Business Park in the RM of Corman Park. The proposed multi-phase sub-division is located just South of Saskatoon on parcel SW 1-36-5-W3M. The attached figures show the land location.

As a part of the CDR process, AE is inquiring to confirm that natural gas service could be provided for the proposed arterial commercial sub-division. It is our understanding at this time that the sub-division would include businesses such as retail stores, car dealerships, or community facilities like a banquet hall.

Would SaskEnergy have the capacity to meet this demand for the proposed arterial commercial sub-division in the RM of Corman Park? Could SaskEnergy comment on the potential cost of servicing Phase No. 1 of the sub-division as well as the entire sub-division including any upgrades that would be required to meet the demand?

The project is currently in the conceptual phase and the purpose of the CDR is to help understand the feasibility of this potential development.

If you have any questions, feel free to contact me or Mike Pawluski (CC'd in this email). I will be away on holidays between December 21st 2020 and January 8th, 2021.

Happy Holidays,

Evan Latos, Engineer-In-Training

Project Engineer

Associated Engineering (Sask.) Ltd.

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

Tel: 306.653.4969 | Cel: 780.808.9771



Associated

GLOBAL PERSPECTIVE.



I will be away on holidays between December 21st 2020 and January 8th, 2021. Please include Mike Pawluski (CC'd in this email) in your response.

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Evan Latos

From: Justin Bloor <Jbloor@saskpower.com>
Sent: Friday, January 15, 2021 3:02 PM
To: Evan Latos
Subject: RE: EXTERNAL EMAIL: RE: 302699015 - Grasswood Junction Business Park - Power Servicing
Attachments: GSO 302699015_20319529_Grasswood Junction Business Park_Reference Map.pdf

Hi Evan,

Please have a look at the attached drawing and let me know if you have any questions.

Justin

From: Evan Latos <latose@ae.ca>
Sent: Thursday, January 14, 2021 9:43 AM
To: Justin Bloor <Jbloor@saskpower.com>
Cc: Mike Pawluski <pawluskim@ae.ca>
Subject: EXTERNAL EMAIL: RE: 302699015 - Grasswood Junction Business Park - Power Servicing

EXTERNAL EMAIL: Take extra caution when clicking links or opening files. Report any suspected phishing.

Thanks Justin – I appreciate it.

Evan

From: Justin Bloor <Jbloor@saskpower.com>
Sent: Thursday, January 14, 2021 9:37 AM
To: Evan Latos <latose@ae.ca>
Subject: 302699015 - Grasswood Junction Business Park - Power Servicing

Hi Evan,

We created notification 302699015 on Dec 22 and sent it to engineering. I'll check with Chris to see where it is at.

Justin

From: Evan Latos <latose@ae.ca>
Sent: Wednesday, January 13, 2021 2:27 PM
To: Justin Bloor <Jbloor@saskpower.com>
Cc: Mike Pawluski <pawluskim@ae.ca>; Glenn Kessler <gkessler@saskpower.com>
Subject: EXTERNAL EMAIL: RE: Grasswood Junction Business Park - Power Servicing

EXTERNAL EMAIL: Take extra caution when clicking links or opening files. Report any suspected phishing.

Good Afternoon,

I hope you had a good Christmas break. I am just following to see if you have had a chance to review our request below.

To complete our report at this stage of the planning process, we are looking for:

- Confirmation that SaskPower would be able to service this location in the future
- Comments on any potential upgrades that may be required (assuming 30 lots with typical loads for retail stores, car dealerships, etc.)
- Confirmation that the major power transmission line running through the property line could be moved at the developers cost

If the developer continues to proceed with this project , a formal application will be submitted including more details, timelines, expected load capacities.

Feel free to give me a call to discuss (780-808-9771).

Thanks,

Evan Latos, Engineer-In-Training
Project Engineer

Associated Engineering (Sask.) Ltd.
1 - 2225 Northridge Drive, Saskatoon, SK S7L 6X6
Tel: 306.653.4969 | Cel: 780.808.9771



From: Evan Latos
Sent: Friday, December 18, 2020 10:47 AM
To: Justin Bloor <Jbloor@saskpower.com>
Cc: Mike Pawluski <pawluskim@ae.ca>
Subject: Grasswood Junction Business Park - Power Servicing

Good Morning,

Associated Engineering (AE) has been retained by Touchstone Enterprise Ltd. to complete a Comprehensive Development Review (CDR) for the proposed Grasswood Junction Business Park in the RM of Corman Park. The proposed multi-phase sub-division is located just South of Saskatoon on parcel SW 1-36-5-W3M. The attached figures show the land location.

As a part of the CDR process, AE is inquiring to confirm that power could be provided to the proposed arterial commercial sub-division. It is our understanding at this time that the sub-division would include businesses such as retail stores, car dealerships, or community facilities like a banquet hall. Typical power demands for these types of businesses could be assumed for the 30 lot sub-division.

Would SaskPower have the capacity to meet this demand for the proposed arterial commercial sub-division in the RM of Corman Park? Could SaskPower comment on the potential cost of servicing Phase No. 1 of the project as well as the sub-division including any upgrades that would be required to meet the demand?

We are currently in the conceptual phase and are performing our due diligence to understand the feasibility of this potential development at a high level.

If you have any questions, feel free to contact me or Mike Pawluski (CC'd in this email). I will be away on holidays between December 21st 2020 and January 8th, 2021.

Happy Holidays,

Evan Latos, Engineer-In-Training
Project Engineer

Associated Engineering (Sask.) Ltd.
1 - 2225 Northridge Drive, Saskatoon, SK S7L 6X6
Tel: 306.653.4969 | Cel: 780.808.9771



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Mike Pawluski

From: Tina Ekert <TEkert@saskpower.com>
Sent: Thursday, February 4, 2021 10:10 AM
To: Mike Pawluski
Subject: Grasswood Junction CDR

Hi Mike,

Please see the information provided below:

- The easement for this line is 200 ft wide (approx. 60 meters). It's assumed our Transmission line is centered in this easement.
- No structures are permitted to be installed within our easement. Grading within our easement may be allowed, but the final design elevations would need to be provided and checked by SaskPower first to confirm if they meet clearance requirements. If the clearances are insufficient, then a line raise could be an option, but it would be at the expense of the customer (rough estimate is \$30,000 - \$40,000 per structure).
- No ground disturbance is allowed within 10 meters of any of our structures (including poles, anchors and guy wires).
- SaskPower must always have clear access to each structure.
- Clearance checks must be performed by SaskPower on any road crossings. At a minimum, we would require survey drawings indicating the final design elevation of the road and the distance to our nearest structure (additional survey information could end up being required as well).

I haven't heard anything on the Agreement you're looking for, but I will let you know as soon as I do.

Have a great day,

Tina

From: Mike Pawluski <pawluskim@ae.ca>
Sent: Wednesday, January 27, 2021 3:12 PM
To: Justin Bloor <jbloor@saskpower.com>
Subject: EXTERNAL EMAIL: Grasswood Junction CDR

EXTERNAL EMAIL: Take extra caution when clicking links or opening files. Report any suspected phishing.

Hi Justin,

First off, thank you for the attached SaskPower confirmation map that was provide to Evan from our project engineering team on the Grasswood Junction Business Park. This is the exact information we were looking for. I called you this morning and left a voice message regarding notification number 302699015 – the attached map.

The purpose of ths communication is to gain a better understanding of the 138kV line that cuts across lot 10 of block 1 and lots 1, 3, 4, 5 of block 3. We have a few questions concerning this line as follows:

1. How tall is this line?
2. What are its impacts on development?
3. What uses can happen beneath this line?
4. Do you know the easement width? An easement does not show up on the ISC map online.
5. In the event we need to raise the lots mention above, how is that managed in relation to the 138kV overhead power line? Do these lines get raised a similar amount as the lot grades or does the lot grade elevation get closer to the power line?
6. Are you able to share a copy of the right-of-way agreement for this 138kV line?
7. What types of considerations should be made when looking at crossing the 138kV line with a road right-of-way?
8. Is there the potential of relocating this line underground within the property? If so, do you have an approximate cost you could provide us?

We want to be in a position to have an informed conversation with our clients on any recommendations concerning this 138kV line. If you could provide me with answers to these questions that would be much appreciated.

When your available, can you kindly give me a call to discuss this information at the office (306)653-4969 or on my cell at (306)280-7209.

Regards,

Mike Pawluski, RPP, MCIP

Project Planner

Associated Engineering (Sask.) Ltd.

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

Tel: 306.653.4969



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Evan Latos

From: Jeremy Van Caeseele <jeremy.vancaeseele@sasktel.com>
Sent: Friday, December 18, 2020 11:54 AM
To: Evan Latos; Corey Playford; Jonathan Klassen
Cc: Mike Pawluski
Subject: RE: Grasswood Junction Business Park - Internet and Telephone Servicing
Attachments: skt_grasswood_junction_business_park.pdf

Good Morning Evan,

Does SaskTel have the infrastructure in place to provide service for the proposed arterial commercial sub-division in the RM of Corman Park?

- Currently SaskTel currently does not have network capacity at this location and currently does not provide Highspeed Internet at this location.
- The current location would only have availability for phone service only.

Could SaskTel comment on the potential cost of servicing the sub-division including any upgrades that would be required to provide service?

- As part of the application process, SaskTel would work with SaskPower to jointly share the trench to provide distribution pathway to the entire sub division. SaskTel doesn't charge the to service sub divisions, there would just be costs to customers as the apply for service.
- SaskTel would serve this sub division with our GPON fibre network, due to no copper availability out here.
 - o With this build, it would then allow for both phone and internet.
- Work on this will no proceed until the application to sub divide is approved and SaskPower passes on their plans to SaskTel.
- As well SaskTel/SaskPower will require registered easement corridors for distribution.

Thank-you

Jeremy Van Caeseele

Engineering Manager (Access Network North)
SaskTel Technology Division
5th Flr – 140 1st Ave N
Saskatoon, SK

Phone: 306.260.3614

Email: jeremy.vancaeseele@sasktel.com

Website: www.sasktel.com



From: Evan Latos <latose@ae.ca>
Sent: Friday, December 18, 2020 10:52 AM
To: Corey Playford <corey.playford@sasktel.com>

Cc: Mike Pawluski <pawluskim@ae.ca>; Kim McQueen <kim.mcqueen@sasktel.com>; Jeremy Van Caesele <jeremy.vancaesele@sasktel.com>

Subject: Grasswood Junction Business Park - Internet and Telephone Servicing

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Good Morning,

Associated Engineering (AE) has been retained by Touchstone Enterprise Ltd. to complete a Comprehensive Development Review (CDR) for the proposed Grasswood Junction Business Park in the RM of Corman Park. The proposed multi-phase sub-division is located just South of Saskatoon on parcel SW 1-36-5-W3M. The attached figures show the land location.

As a part of the CDR process, AE is inquiring to confirm that internet and telephone service could be provided to the lots for the proposed sub-division.

Does SaskTel have the infrastructure in place to provide service for the proposed arterial commercial sub-division in the RM of Corman Park? Could SaskTel comment on the potential cost of servicing the sub-division including any upgrades that would be required to provide service?

If you have any questions, feel free to contact me or Mike Pawluski (CC'd in this email). I will be away on holidays between December 21st 2020 and January 8th, 2021.

Happy Holidays,

Evan Latos, Engineer-In-Training
Project Engineer

Associated Engineering (Sask.) Ltd.
1 - 2225 Northridge Drive, Saskatoon, SK S7L 6X6
Tel: 306.653.4969 | Cel: 780.808.9771



I will be away on holidays between December 21st 2020 and January 8th, 2021. Please include Mike Pawluski (CC'd in this email) in your response.

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Mike Pawluski

From: Alex Blais-Montpetit <Alex.Blais-Montpetit@wsask.ca>
Sent: Monday, January 25, 2021 8:56 AM
To: Mike Pawluski
Cc: Bill Delainey; Spencer McNie
Subject: RE: Grasswood Junction AHPP

Hi Mike,

Thank you for your inquiry on behalf of the RM of Corman Park (RM). Further to reviewing your figures and consulting WSA's GIS for additional spatial references, we have determined that the proposed Grasswood Junction project doesn't meet the three criteria triggering an Aquatic Habitat Protection Permit (AHPP) as outlined under subsection 38(4) of *The Environmental Management and Protection Act, 2010* (EMPA). Given that the RM obtains land control from the landowner to do the proposed work activities within the two small water bodies' bed, bank or boundary located [on SW 01-36-05-W3](#), the project can be exempted from an AHPP as per subsection 38(6)(a)&(b) of EMPA:

"38(6) Subsection 38(4) does not apply if:

(a) the watercourse or water body is located wholly within the boundaries of land that is owned by or in the lawful possession of the person carrying out any activity mentioned in subsection (4); and
(b) the surface water of that watercourse or water body does not flow directly or indirectly, other than by percolation, into other surface water that is not located wholly within the boundaries of that land."

Please let me know if you have any further questions about the Aquatic Habitat Protection program.

Thank you,

Alex Blais-Montpetit - EP, MEnv, CAN-CISEC

Aquatic Habitat Protection Specialist - Water Use & Aquatic Habitat Protection
300 - 2365 Albert Street
Regina, SK S4P4K1
Ph: 306.787.4337
wsask.ca | alex.blais-montpetit@wsask.ca



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Water Security
Agency

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From: Mike Pawluski <pawluskim@ae.ca>
Sent: Friday, January 22, 2021 3:17 PM
To: Alex Blais-Montpetit <Alex.Blais-Montpetit@wsask.ca>
Cc: Bill Delainey <delaineyb@ae.ca>
Subject: Grasswood Junction AHPP

Good Afternoon Alex,

Thank you for the brief telephone conversation regarding the Aquatic Habitat Protection Permit (AHPP) requirements. Attached are two figures for your review in determining whether an AHPP would be required for our clients' project in

the RM of Corman Park on the SW 01-36-05-W3M. Figure 5 is an existing conditions figure of the site which includes an aerial image and contours. Figure 6 includes the contributing area for runoff waters.

Can you confirm if an AHPP will be required for our clients project? As you had mentioned on the phone, if an AHPP is required, it will need to be completed before construction. Also, if an AHPP is required, can you kindly share a Terms of Reference for preparing the reporting documentation?

If you need any additional information kindly let me know.

Regards,

Mike Pawluski, RPP
Project Planner
Associated Engineering (Sask.) Ltd.
1 - 2225 Northridge Drive, Saskatoon, SK S7L 6X6
Tel: 306.653.4969



<https://www.ae.ca/sig/>

href="<http://www.linkedin.com/company/associated-engineering>" style='width:24pt;height:24pt;visibility:visible;mso-left-percent:-10001;mso-top-percent:-10001;mso-position-horizontal:absolute;mso-position-horizontal-relative:char;mso-position-vertical:absolute;mso-position-vertical-relative:line;mso-left-percent:-10001;mso-top-percent:-10001' o:button="t">

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Mike Pawluski

From: Spencer McNie <Spencer.McNie@wsask.ca>
Sent: Wednesday, January 20, 2021 11:10 AM
To: Kristin Gray
Cc: Alicia Masserey; Glen Merkley; Kevin Wingert
Subject: RE: Grasswood Junction CDR Conceptual Drainage Plan
Attachments: mem_Grasswoods_WSA_20200111.pdf

Kristin,

Good timing! I was just finalizing my response below.

I have reviewed the Grasswood Junction CDR Conceptual Drainage Plan memo. I can offer the following:

- No drainage approval is required for the proposed development if:
 - Permanent on site storage is created to offset the loss of natural storage due to development (44,100m³).
 - The permanent on site storage can also permanently retain the difference between pre and post development runoff volumes for the site (41,300m³).
 - Active storage for the 1:100 flood event is available. Generally a 1:100+25% volume has been used to provide a factor of safety (77,600m³+25%).
 - The outlet through which the area would normally drain is not altered and any discharge from the pond is conducted at the pre development rate (0.57m³/s).
- An Aquatic Habitat Protection Permit may be required. You may wish to contact Alex Blais-Montpetit (alex.blais-montpetit@wsask.ca), Habitat Protection Specialist for the area to confirm permit requirements.
- The area being developed does not benefit from well defined positive drainage. The topography is dominated by knob and kettle land forms which can lead to flooding during extreme events. A survey should be conducted to determine where the water will discharge during a storm event.
- The updated geotechnical investigation will be important to determine the size/surface area of the ponds. Groundwater could be an issue in the area.
- The concept appears sound and follows generally established methods/procedures in the area. We will await the detailed design information before providing additional or final comments.

Let me know if you need anything further.

Regards,

Spencer

Spencer McNie - A.Sc.T.

Senior Technologist, Rural Water Services - North
402 Royal Bank Tower 1101 - 101st Street
North Battleford, SK S9A0Z5
Ph: 306.490.7078 | Fax: 306.446.7461
wsask.ca | spencer.mcnie@wsask.ca



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From: Kristin Gray <grayk@ae.ca>
Sent: Wednesday, January 20, 2021 11:07 AM
To: Spencer McNie <Spencer.McNie@wsask.ca>
Cc: Alicia Masserey <massereya@ae.ca>
Subject: FW: Grasswood Junction CDR Conceptual Drainage Plan

Hi Spencer,

We were wondering if you had a chance to review the attached yet.

Thanks,

Kristin Gray, P.Eng.
Project Engineer

From: Kristin Gray
Sent: Thursday, January 7, 2021 9:10 AM
To: spencer.mcnie@wsask.ca
Cc: Alicia Masserey <massereya@ae.ca>
Subject: Grasswood Junction CDR Conceptual Drainage Plan

Good morning Spencer,

We are looking at a new development conceptually in the Grasswoods area just south of Saskatoon. I have attached a conceptual drainage approach memo for your review and we were hoping to discuss the approach and receive feedback on the drainage for this area.

If you are not the right person to contact for this area, please forward on to the correct person.

Thank you,

Kristin Gray, P.Eng.
Project Engineer
Associated Engineering (Sask.) Ltd.
1 - 2225 Northridge Drive, Saskatoon, SK S7L 6X6
Tel: 306.653.4969 | Cel: 306.541.4487



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As COVID-19 cases continue to increase, to support provincial governments' and health authorities' recommendations to limit interactions, our office will close from 5 pm Friday, December 18, 2020 to 8 am Monday, January 11, 2021. During this period, I will be working from January 4 to January 8. Please contact me with any concerns or urgent matters during that time.

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Evan Latos

From: Afolabi Sanni <Afolabi.Sanni@corp.xplornet.com>
Sent: Monday, January 18, 2021 10:17 AM
To: Evan Latos
Subject: RE: [EXTERNAL] - {Disarmed} RE: Info you requested about our Home Phone plans

Hello,

We can provide both fast speed internet and phone services at the address below.

Regards.

From: Evan Latos <latose@ae.ca>
Sent: January 18, 2021 11:51 AM
To: Afolabi Sanni <Afolabi.Sanni@corp.xplornet.com>
Subject: [EXTERNAL] - {Disarmed} RE: Info you requested about our Home Phone plans

Caution! This message was sent from outside your organization.

Thanks for talking to me on the phone.

For our report purposes, can you please confirm that the telephone and internet rates you provided are for parcel SW 1-36-5-W3M, just South of Saskatoon near Range Road 3051.

Cheers,

Evan Latos, Engineer-In-Training
Project Engineer

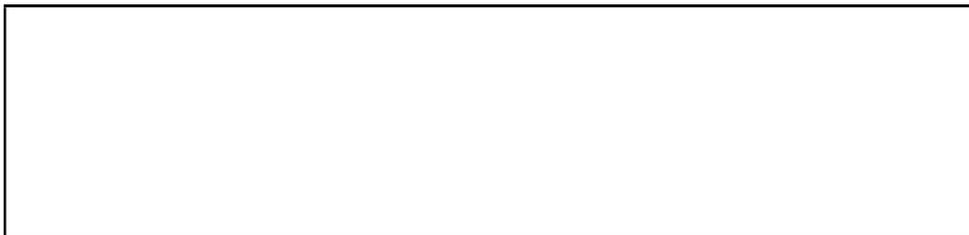
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From: noreply@salesforce.com <noreply@salesforce.com> **On Behalf Of** Afolabi Sanni
Sent: Monday, January 18, 2021 9:40 AM
To: Evan Latos <latose@ae.ca>
Subject: Info you requested about our Home Phone plans



Hello Evan .,

Thanks for taking the time to speak with me about our Home Phone service. As you requested, a summary of Xplornet's Home Phone packages are below.

If you have any questions or would like to subscribe to Xplornet Home Phone, you can reach me by phone at the number provided at the bottom of this email, or feel free to reply to this email with a convenient time for me to call you.

Our current Home Phone packages, excluding the discount, are:

For \$21.99/month:

Unlimited Provincial

- Receive unlimited calling in your home province
- Includes unlimited calling to the Canadian province
- Fully loaded with all available features, including voice mail, call display, call waiting & more
- Long distance calls within the Canadian provinces and the continental United States are 3¢/min.

For \$24.99/month:

Unlimited Canada & USA

- Receive unlimited calling in your home province
- Fully loaded with all available features, including voice mail, call display, call waiting & more
- Includes unlimited calling to the Canadian provinces and the continental United States

Remember: All packages come with no commitment, no equipment to buy and no activation fee.

Two additional notes for your information:

- We do not include a handset with our Home Phone service. If you do not currently have a handset, you can purchase one separately.
- VoIP phone emergency 9-1-1 features differ from traditional 9-1-1 emergency services. [Click here for more information.](#)

Thank you for your interest in Xplornet, and I hope to speak with you again soon.

Afolabi

Xplornet - Sales
1-866-841-6003 ext.4441214
Email: afolabi.sanni@corp.xplornet.com

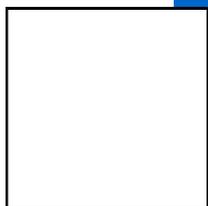
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Evan Latos

From: noreply@salesforce.com on behalf of Afolabi Sanni <afolabi.sanni@corp.xplornet.com>
Sent: Monday, January 18, 2021 9:39 AM
To: Evan Latos
Subject: Our Internet Packages and Promotions



Hello Evan .,

Thank you for contacting Xplornet. As requested, below is information about our available packages in your area, including details about our current promotions and installation fees.

Download / Upload Speed (Up To)	Monthly Data	Promotion Rate for the First 3 Months	Regular Rate
5 Mbps / 1 Mbps	150 GB	NA	\$59.99
5 Mbps / 1 Mbps	Unlimited	\$59.99	\$64.99
10 Mbps / 1 Mbps	350 GB	\$59.99	\$79.99
10 Mbps / 1 Mbps	Unlimited	\$59.99	\$84.99
25 Mbps/2.5 Mbps	500 GB	\$59.99	\$94.99
25 Mbps/2.5Mbps	Unlimited	\$59.99	\$99.99
50 Mbps / 3 Mbps	Unlimited	\$59.99	\$109.99

Please note that service and packages available at your exact location may vary based on signal quality and network conditions. Additional data options may not be available in all regions. To confirm the service type and plans available at your exact location, a site survey may be required (fee may apply – ask your technician for details). All offers are subject to change.

\$_49 Installation fee with a 1 yr contract

Thank you for your interest in Xplornet, and I hope to speak with you again soon.

Afolabi

Xplornet - Sales

1-866-841-6003 ext.4441214

Email: afolabi.sanni@corp.xplornet.com

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300 Lockhart Mill Rd. P.O. Box 9060

Woodstock, NB E7M 6B5





December 18, 2020

Evan Latos
Project Engineer
Associated Engineering

RE: Service Confirmation

Dear Evan Latos:

Please consider this letter as confirmation stating that GFL Environmental would be pleased to provide regular septic service for the proposed multi-phase sub-division located South of Saskatoon on parcel SW 1-36-5-W3M which is currently in the planning stages at this time. Once GFL can gain a rough estimate in respect to any septic tank location and capacities we will be able to provide you with a price estimate for the required septic service. All sewage waste recovered from this facility will be transported to the City of Saskatoon Waste Water Treatment Facility on Whiteswan Drive (Licenced Facility) unless otherwise stated (ie. onsite lagoon which has been approved by Sask. Environment).

GFL will ensure this facility is set up on a proper service rotation and that a schedule is set in place to ensure the facility owner and users can go about their daily lives without worrying about this component of the facility.

GFL also provides 24/7 Emergency Services to ensure the facility will not be put in a situation as to where the septic system would overflow, thus ensure no impact to the facility grounds.

If you have any immediate questions and/or concerns with this letter of confirmation please do not hesitate to contact us.

Sincerely,

Joe Harms
Operations Manager – Vacuum Truck Services



Associated Engineering
1-1-2225 Northridge Dr.
Saskatoon, SK S7L6X6

Dec 18/20

Attn: Evan Latos

Please accept this letter of confirmation in providing Waste/Recycle Removal Services in future for the proposed Grasswood Junction Business Park in the RM of Corman Park. SW 1 36 5 W3.

Any further questions please feel free in contacting us.

Thank you,

Jan Magnuson
Inside Sales
Loraas Division
306-242-2300

APPENDIX E – GEOTECHNICAL REVIEW



**P. MACHIBRODA
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GEOSCIENTISTS

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- Piezocone (CPTu) Testing
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- Concrete Testing
- Asphalt Testing



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**GEOTECHNICAL REVIEW
PROPOSED GRASSWOOD JUNCTION BUSINESS PARK
SW-1-36-5-W3M
NEAR SASKATOON, SASKATCHEWAN
PMEL FILE NO. S10-7572
DECEMBER 30, 2010**

PREPARED FOR:

**ASSOCIATED ENGINEERING (SASK) LTD.
#1 – 2225 NORTHRIDGE DRIVE
SASKATOON, SASKATCHEWAN
S7L 6X6**

ATTENTION: MR. DERRICK TANNAHILL, P. ENG.

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2.2 Site Topography.....	1
2.3 Physiography	2
2.4 Geology.....	2
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2.7 Surface Water Receptors.....	3
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LIST OF TABLES

Table I Summary of Water Well Records

LIST OF DRAWINGS

S10-7572-1 Key Plan and Surrounding Land Use

1.0 INTRODUCTION

The following report has been prepared to present geotechnical design considerations for the proposed Grasswood Business Park Development to be constructed on the subject property legally described as:

- SW-1-36-5-W3M, near Saskatoon, Saskatchewan

The subject property is located in the Rural Municipality of Corman Park No. 344 near the intersection of Highway 11 and Floral Road.

Authorization to proceed with this review was provided on December 6, 2010.

2.0 BACKGROUND

2.1 Site Location and Surrounding Land Use

The location of the subject property is shown on the Key Plan and Surrounding Land Use Drawing, Drawing No. S10-7572-1.

The subject property consists of approximately 58 hectares (144 acres) of agricultural lands. A farmyard (development includes: a residential dwelling, storage buildings, grain bins etc.) is located at the western edge of SW-1-36-5-W3M. Commercial development is located offsite adjacent to the southwest corner of the site, and across Highway No. 11 to the west. A commercial property is located to the north of the subject property.

2.2 Site Topography

The land surface elevation at this site is approximately 510 m (Geodetic). The South Saskatchewan River is located approximately 7 km to the west. Regionally, the land surface at the site slopes gradually west to 474 m (Geodetic) at the South Saskatchewan River.

2.3 Physiography

The subject property lies in the physiographic region known as the Saskatchewan Rivers Plain. The Saskatchewan Rivers Plain is characterized as gently undulating to rolling glacial lacustrine-alluvial (glacial lake) plains, aeolian plains (dunes) and till plains. The surficial soil deposits consist of variable textured lacustrine and alluvial sands, silts and clays, aeolian sands, glacial till and local bedrock exposures in the South Saskatchewan River (Acton et. al., 1960).

2.4 Geology

The bedrock deposits at this site consisted of approximately 75 m of glacial till and stratified drift (sand, silt and clay) underlain by the noncalcareous silt and clay of the Lea-Park Formation-Upper Colorado.

2.5 Hydrogeology

An examination of hydrogeological data (Christiansen, 1967) for this region revealed the following observations:

1. The primary source of water in this region is drift aquifers above or between glacial till strata and the Empress Group, (Tyner Valley Aquifer), between the base of the glacial till and the surface of the bedrock.
2. The Tyner Valley Aquifer system (Empress Group) is the most extensive and potentially productive aquifer in the Saskatoon region. The Tyner Valley Aquifer is utilized for dairy and stock raising operations outside the area where the Dalmeny Aquifer is present.

3. The South Saskatchewan River is a discharge receptor for many of the aquifer systems in the Saskatoon area. The inferred regional groundwater flow would be in a south-easterly direction towards the South Saskatchewan River.
4. The subject property is located in a region of groundwater recharge.

2.6 Water Well Records

The results of the water well record file search of the Saskatchewan Water Corporation (SaskWater) Water Well Database have been tabulated and have been presented in Table I while copies of the water well records are presented in Appendix A. A review of the water well and test records revealed that the subsurface soils consist of at least 15 metres of lacustrine silts and clays.

TABLE I. SUMMARY OF GROUNDWATER RECORDS

Well ID	Location	Type	Year Installed	Depth (m)	Diameter (m)	Pumping Rate (L/minute)
208293	NW-01-36-05-W3M	Domestic	2007	9.1	0.76	---
063462	NW-01-36-05-W3M	Domestic	1980	12.3	0.76	---
106565	NW-01-36-05-W3M	Domestic	1995	15.0	0.76	---
102024	SE-01-36-05-W3M	Domestic	1992	14.7	0.91	---
031933	SW-01-36-05-W3M	Domestic	1965	9.6	0.91	---
058329	SW-1-36-05-W3M	Domestic	1979	15.0	0.76	---

2.7 Surface Water Receptors

The closest major body of water to the site is the South Saskatchewan River, located at its closest point, approximately 7.7 km to the northwest of the subject property. The inferred regional groundwater flow is northwest towards the South Saskatchewan River.

3.0 GEOTECHNICAL DESIGN CONSIDERATIONS

Based on the foregoing outline of soil test results, the following geotechnical design considerations have been presented.

It is understood that site development will include, but not limited to: site servicing (water and sewer); roadways; storm water and/or treated waste water storage pond(s); and a treated water reservoir.

The subgrade soils at this site will consist of variable deposits of clay, silt and sand. The subgrade soils are frost susceptible and the average depth of frost penetration for the Saskatoon area is approximately 2.0 metres. A groundwater table in the order of 0 to 1.5 metres is anticipated.

Construction equipment trafficability on the surficial soils (particular vibratory equipment or large rubber tire equipment) will be extremely poor near the groundwater table and/or where soft/wet/loose soil conditions exist.

Deep foundations (piles) will be required to transfer concentrated structural loads down to the suitable bearing stratum. Pile foundations that have been used successfully in this area of Saskatoon consist of driven timber or steel, helical screw piles and continuous flight auger (CFA) piles. Shallow foundations (footing and raft) constructed on structural granular fill could perform satisfactorily for light to moderate foundation loads.

Sub-drainage systems will be required for excavations below the water table.

Detailed geotechnical investigations will be required to assess the foundation alternatives and recommendations for construction of deep and shallow foundations; roadways; and site servicing considerations.

4.0 LIMITATIONS

The presentation of the summary of findings of the review of information available for geotechnical considerations has been completed as authorized. The investigation involved a review of geological and hydrogeological reports and data, aerial photographs, topographic maps, and water well data. The site review is based on documented information and should be considered to serve as the framework for subsequent field exploration, which is required to determine the site geology to an acceptable level of confidence.

This report has been prepared for the exclusive use of Associated Engineering (Sask) Ltd. and their agents for specific application to the proposed Grassland Business Park Development to be constructed on the subject property legally described as:

- SW-1-36-5-W3M, near Saskatoon, Saskatchewan

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

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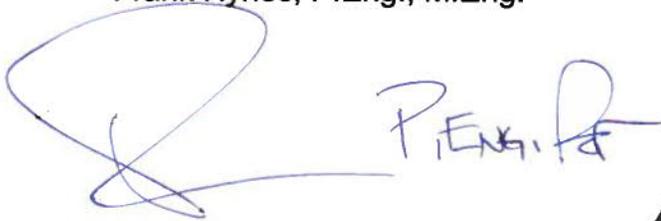
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We trust that this report fulfills your requirements for this project. Should you require additional information, please contact us.

P. MACHIBRODA ENGINEERING LTD.

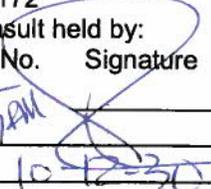


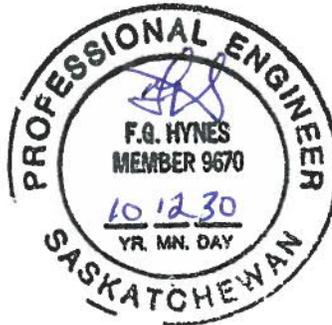
Frank Hynes, P.Eng., M.Eng.



Kelly Pardoski, P. Eng.

FH:KP:zz:clb

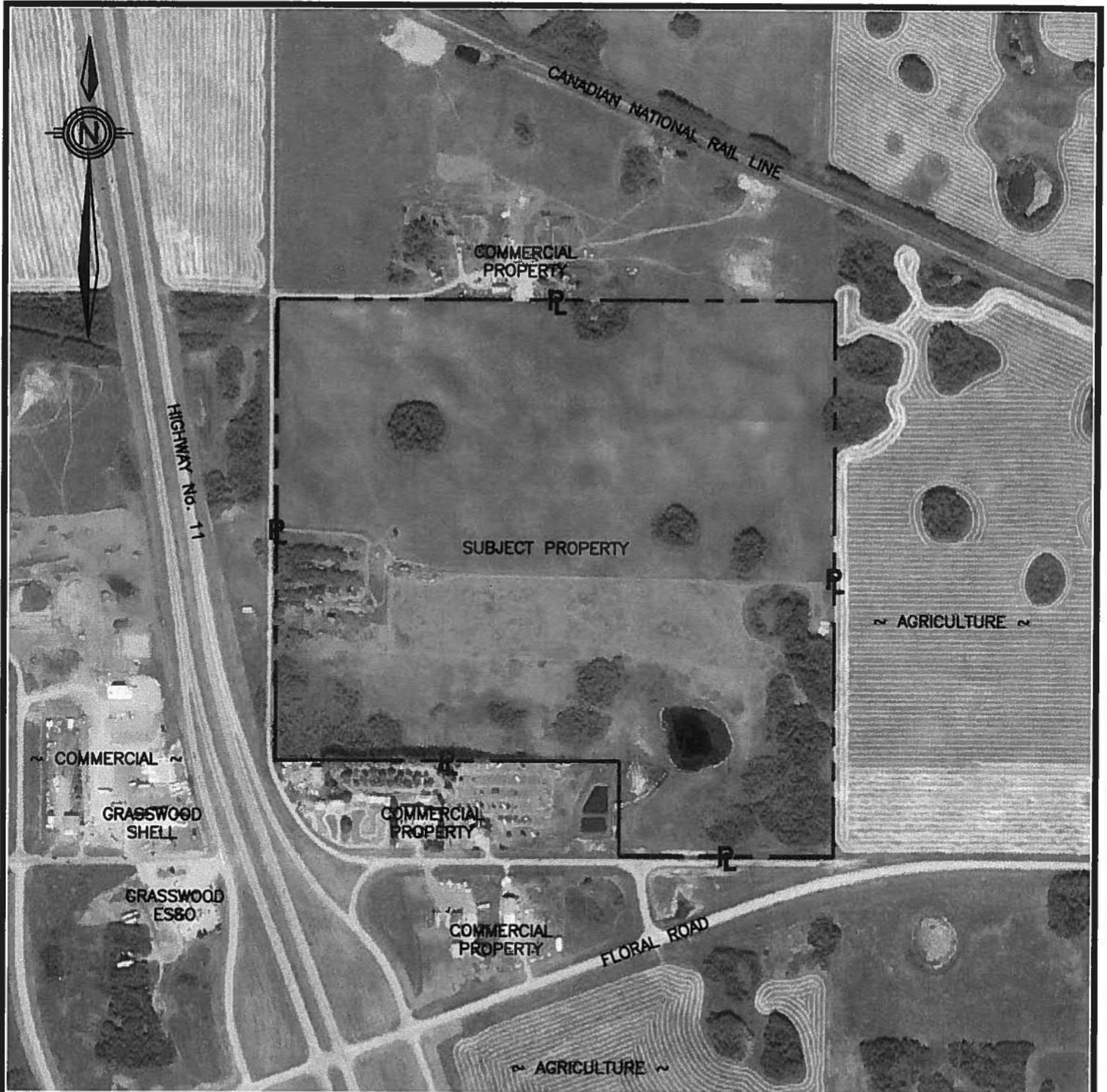
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DRAWINGS



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2623 B FAITHFULL AVENUE
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 S7K 5W2

DRAWING TITLE:

KEY PLAN AND SURROUNDING LAND USE

PROJECT:

**GEOTECHNICAL REVIEW - GRASSWOOD JUNCTION BUSINESS PARK
 SW-1-36-5-W3M, NEAR SASKATOON, SK**

APPROVED BY:
 F. HYNES

DRAWN BY:
 G. SOLTYS

DRAWING NUMBER:

DATE:
 DECEMBER, 2010

SCALE:
 NOT TO SCALE

S10-7572-1

APPENDIX A
WATER WELL RECORDS

WWDR # 106565

Client # 863462

Completion 29/12/1995
 RM 344
 MB 06
 SB 30
 NTSMAP 73B02

Well Location

LSD	Qtr	Sec	Twp	Rge	M	Reserve	RL	Location of Well (in Quarter)	
	NW1/4	01	36	05	3			0 ft from N/S Boundary	N/S Boundary
Zone Easting	Northing	Source	Accuracy					0 ft from E/W Boundary	E/W Boundary

Well Information

Driller #	002115	WELLEN BORING LTD							
Water Use	Domestic	Well Use	Withdrawal						
Hole #	001			Length (ft)	Btm (ft)	Dia (in)	Description		
Installation Method	Bored	Well Casings		52	50	30.0	Fiberglass		
Depth	50 ft								
Water Level	14 ft								
Bit	42.0 inches			Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description	
Struck	14 ft	Screens		30	48	30.0	70	Fiberglass	
Flowing Head	ft								
Completion Method	Perforated Casing								
Pump Test		Recommended							
Draw Down	ft	Rec Pumping Rate				igpm			
Duration	hrs	Intake	ft						
Pumping Rate	2.0 igpm	Aquifer	Glac						
Temp	deg. F	E-Log	Unknown						
Elevation	1675 ft	Phys	E03						

Lithology List

Depth to Base of (ft)	Material	Colour	Description
18	Sand	Brown	Silty
35	Sand	Grey	Fine
50	Clay	Grey	Unknown

WWDR # 063462

Client # 863462

Completion 09/05/1980
 RM 344
 MB 06
 SB 30
 NTSMAP 73B00

Well Location

LSD	Qtr	Sec	Twp	Rge	M	Reserve	RL	Location of Well (in Quarter)	
	NW1/4	01	36	05	3			0 ft from N/S Boundary	N/S Boundary
Zone Easting	Northing	Source	Accuracy					0 ft from E/W Boundary	E/W Boundary

Well Information

Driller #	002115	WELLEN BORING LTD
Water Use	Domestic	Well Use Withdrawal
Hole #		Length (ft) Btm (ft) Dia (in) Description
Installation Method	Bored	Well Casings 44 41 30.0 Galvanized Iron
Depth	41 ft	
Water Level	10 ft	
Bit	40.0 inches	Length (ft) Btm (ft) Dia (in) Slot (in) Description
Struck	10 ft	Screens
Flowing Head	ft	
Completion Method	Curbed	
Pump Test		Recommended
Draw Down	ft	Rec Pumping Rate igpm
Duration	hrs	Intake ft
Pumping Rate	igpm	Aquifer
Temp	deg. F	E-Log No
Elevation	1665 ft	Phys E03

Lithology List

Depth to Base of (ft)	Material	Colour	Description
1	Topsoil	Unknown	Unknown
12	Sand	Brown	Fine
27	Sand	Grey	Fine
41	Clay	Grey	Unknown

WWDR # 208293

Client # 066614

Completion 01/11/2007
 RM 344
 MB 06
 SB 30
 NTSMAP 73B02

Well Location

LSD	Qtr	Sec Twp	Rge	M Reserve	RL	Location of Well (in Quarter)	
	NW1/4	01 36	05	3		0 ft from N/S Boundary	N/S Boundary
Zone Easting	Northing	Source	Accuracy			0 ft from E/W Boundary	E/W Boundary

Well Information

Driller #	002115	WELLEN BORING LTD	
Water Use	Domestic	Well Use	Withdrawal
Hole #		Length (ft)	Btm (ft) Dia (in) Description
Installation Method	Bored	Well Casings	32 30 30.0 Fiberglass
Depth	30 ft		
Water Level	12 ft		
Bit	42.0 inches	Length (ft)	Btm (ft) Dia (in) Slot (in) Description
Struck	12 ft	Screens	16 28 30.0 70 Fiberglass
Flowing Head	ft		
Completion Method	Perforated Casing		
Pump Test		Recommended	
Draw Down	ft	Rec Pumping Rate	2.0 igpm
Duration	1 hrs	Intake	28 ft
Pumping Rate	2.0 igpm	Aquifer	
Temp	deg. F	E-Log	No
Elevation	1673 ft	Phys	E03

Lithology List

Depth to Base of (ft)	Material	Colour	Description
12	Silty Clay	Brown	Unknown
22	Sand	Brown	Fine
28	Sand	Grey	Silty
30	Clay	Grey	Unknown

WWDR # 102024

Client # 309611

Completion 22/06/1992
 RM
 MB 06
 SB 30
 NTSMAP 73B02

Well Location

LSD	Qtr	Sec Twp	Rge	M Reserve	RL	Location of Well (in Quarter)	
	SE1/4	01 36	05	3		0 ft from N/S Boundary	N/S Boundary
Zone Easting	Northing	Source	Accuracy			0 ft from E/W Boundary	E/W Boundary

Well Information

Driller #	002117	PRAIRIE WATER LTD
Water Use	Domestic	Well Use Withdrawal
Hole #	1	Length (ft) Btm (ft) Dia (in) Description
Installation Method	Bored	Well Casings 52 49 36.0 Porous Concrete
Depth	49 ft	
Water Level	ft	
Bit	36.0 inches	Length (ft) Btm (ft) Dia (in) Slot (in) Description
Struck	38 ft	Screens
Flowing Head	ft	
Completion Method	Curbed	
Pump Test		Recommended
Draw Down	ft	Rec Pumping Rate igpm
Duration	hrs	Intake ft
Pumping Rate	2.0 igpm	Aquifer
Temp	deg. F	E-Log No
Elevation	1675 ft	Phys E07

Lithology List

Depth to Base of (ft)	Material	Colour	Description
1	Topsoil	Unknown	Unknown
20	Sand	Brown	Unknown
38	Clay	Grey	Unknown
49	Sand	Grey	Unknown

WWDR # 031933

Client # 831933

Completion 22/07/1965
 RM
 MB 06
 SB 30
 NTSMAP 73B00

Well Location

LSD	Qtr	Sec	Twp	Rge	M	Reserve	RL	Location of Well (in Quarter)		
	SW1/4	01	36	05	3			850 ft from N/S Boundary	N	N/S Boundary
Zone Easting	Northing	Source	Accuracy					250 ft from E/W Boundary	W	E/W Boundary

Well Information

Driller #	002117	PRAIRIE WATER LTD
Water Use	Domestic	Well Use Withdrawal
Hole #		Length (ft) Btm (ft) Dia (in) Description
Installation Method	Bored	Well Casings 32 36.0 Porous Concrete
Depth	32 ft	
Water Level	ft	
Bit	36.0 inches	Length (ft) Btm (ft) Dia (in) Slot (in) Description
Struck	23 ft	Screens
Flowing Head	ft	
Completion Method	Curbed	
Pump Test		Recommended
Draw Down	ft	Rec Pumping Rate igpm
Duration	hrs	Intake ft
Pumping Rate	igpm	Aquifer
Temp	deg. F	E-Log No
Elevation	1680 ft	Phys E03

Lithology List

Depth to Base of (ft)	Material	Colour	Description
1	Topsoil	Unknown	Unknown
20	Sandy Clay	Brown	Unknown
25	Sandy Clay	Brown	Fine
32	Silty Clay	Grey	Unknown

WWDR # 058329

Client # 858329

Completion 20/04/1979
 RM
 MB 06
 SB 30
 NTSMAP 73B00

Well Location

LSD	Qtr	Sec Twp	Rge	M Reserve	RL	Location of Well (in Quarter)	
	SW1/4	01 36	05	3		0 ft from N/S Boundary	N/S Boundary
Zone Easting	Northing	Source	Accuracy			0 ft from E/W Boundary	E/W Boundary

Well Information

Driller #	043125	TWEIDT WELLBORING SERVICING LTD
Water Use	Domestic	Well Use Withdrawal
Hole #		Length (ft) Btm (ft) Dia (in) Description
Installation Method	Bored	Well Casings 52 50 30.0 Galvanized Iron
Depth	50 ft	
Water Level	6 ft	
Bit	42.0 inches	Length (ft) Btm (ft) Dia (in) Slot (in) Description
Struck	6 ft	Screens
Flowing Head	ft	
Completion Method	Curbed	
Pump Test		Recommended
Draw Down	ft	Rec Pumping Rate igpm
Duration	hrs	Intake ft
Pumping Rate	5.0 igpm	Aquifer
Temp	deg. F	E-Log No
Elevation	1675 ft	Phys E03

Lithology List

Depth to Base of (ft)	Material	Colour	Description
1	Topsoil	Unknown	Unknown
4	Fill	Blue	Unknown
6	Clay	Yellow	Sandy
10	Sandy Clay	Unknown	Water
38	Clay	Blue	Unknown
43	Clay	Unknown	Fractured
50	Clay	Blue	Unknown