

RELIABLE

practical

TRUSTWORTHY

honest



Former Prairie Plant Systems CDR

Prepared for:

RM of Corman Park

Contact

1231 - 8th Street East
Saskatoon, SK S7H 0S5

ph: 306.343.7280

email: www.cwce.ca



**CATTERALL
& WRIGHT**
CONSULTING ENGINEERS

December 17, 2024

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Comprehensive Development Review

CLIENT: ROUND TABLE MANAGEMENT LTD.

Former Prairie Plant Systems CDR

1 INTRODUCTION

This Comprehensive Development Review (CDR) has been prepared on behalf of Round Table Management Ltd. (RTM). RTM is the owner of #131812714 (Site A) and Parcel #131812703 (Site B), both within NW 09-36-04-3 in the RM of Corman Park. Site A is 22.95 ha in size and contains several buildings that are the former location of Prairie Plant Systems. Site A also has a lagoon and five low areas collecting storm water. Site B is 17.50 ha in size and is a vacant parcel.

The subject lands are within the P4G Planning District. Per Section 31.3.16 of the P4G District Official Community Plan, a CDR is required to support any application for rezoning industrial development. This CDR has been prepared according to the standards provided in Section 2.8 of the P4G Planning District Zoning Bylaw.

The subject lands are identified as “Urban Commercial/Industrial” on the District Land Use Map of the P4G District Official Community Plan. Furthermore, the subject lands are identified as a Future Urban Growth Area (Growth to 1,000,000).

Figure 1 shows the location of the parcel and its surrounding context.



Figure 1. Subject Parcel and Surrounding Context

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1.1 SIGNIFICANT ASPECTS

- The subject lands have permanent road access from both Haight Road and Melville Street. It also provides easy access to a Highway 16.
- The proposed rezoning of Site A will increase the tax base for the RM of Corman Park.
- There is currently no farming activity on the subject lands.
- The signalized Highway 16 and Zimmerman Road intersection provides adequate turning lane access to Melville Street
- The existing developed site and buildings on Site A are intended to be repurposed and utilized if the rezoning is approved.
- No subdivision is requested on either site.
- Site B may be rezoned in the future to accommodate future expansion from Site A.

2 PURPOSE

The purpose of the CDR is as follows:

1) Rezone Site A from D - Agricultural District (DAG2) to D – Light Industrial 1 District (DM1).

- The former Prairie Plant Solutions Facility operated under a discretionary use permit for their cannabis facility. RTM purchased the property for the purpose of utilizing the existing building structures to facilitate a wide range of new uses. However, within the DAG2 zoning district, there are no feasible uses for adaptive reuse of the numerous structures. For this reason, RTM is seeking a zoning amendment to DM1 which aligns with the draft Land Use map for the Southeast Concept Plan (SECP), which designates Site A as Urban Light Industrial.
- The vision of the overall site is to accommodate a variety of new users, utilizing the existing buildings as much as possible. Examples of possible re-uses for the site include, but are not limited to:
 - i. Agriculture product processing
 - ii. Industrial buildings
 - iii. Manufacturing facilities
 - iv. Research laboratories
 - v. Warehousing
 - vi. Administrative/Office uses in conjunction with the above uses
- RTM has entered into discussions with a group of interested parties that are seeking use of Site A and it's structures, but their use(s) are not permitted in DAG2. Additionally, the interested parties require significant room for expansion. Their expansions plans are as follows:
 - i. Lab, Research & Administrative Buildings..... 150,000 sq.ft.
 - ii. Warehousing & Storage 120,000 sq. ft.
 - iii. Specialty Buildings..... 30,000 sq.ft.

TOTAL POTENTIAL EXPANSION 295,000 sq.ft.

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- It is important to note that the interested parties have explored locating within the boundaries of Saskatoon, but this has been ruled unfeasible due to the inability to expand. As a result, Site A is the most viable option for this group given the existing structures and additional land to be made available (Site B) for their expansion plans.
- 2) **Redesignate Site B from Urban Residential to Urban Light Industrial on the DRAFT Southeast Concept Plan Land Use map.**
- As noted in #1 above, there are expansion plans for Site A that require all of Site B.
 - The designation of Urban Residential will prohibit RTM's ability to provide for future growth and expansion to their primary property's potential user, which is detrimental to attracting quality tenants at the initial lease-up and re-development of Site A. Matching Site B's land use designation to Site A is the most logical decision from a future land use point of view and provides more certainty for future tenants in their operations.
 - RTM wishes to keep Site B zoned as DAG2 – Agricultural 2 until such time that the Site A user is ready to expand.

3 DESCRIPTION OF PROPOSED DEVELOPMENT & LAND USE

3.1 LAND USE CONTEXT

Existing Land Use

3.1.1.1 Site A

Site A is designated as Urban Commercial/Industrial on the P4G District Land Use Map, as Urban Industrial on the draft SECP, and zoned as D - Agricultural District (DAG2) in the P4G District Zoning Bylaw.

Site A includes several structures that were part of the former Prairie Plant Systems facility. These structures consist of Growth Facilities and Administrative Offices. The site also consists of a lagoon, stormwater retention ponds, and various parking/loading areas.

3.1.1.2 Site B

Site B is designated as Urban Commercial/Industrial on the P4G District Land Use Map, but Urban Residential on the draft SECP. It was always the intent of the RM and P4G to have this site remain as industrial to match Site A. Site B is zoned as D - Agricultural District (DAG2) in the P4G District Zoning Bylaw.

Site B is a vacant parcel with no buildings. A stormwater retention pond is present in the southeast corner.

Adjacent Land Uses

The surrounding land is mainly comprised of agricultural, rural residential and the City of Saskatoon limits, which includes the Rosewood neighborhood. The subject property is located within 1.6 km of several notable existing land uses. These can be summarized as follows:

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- There are agricultural, residential, and commercial land uses within 1.6 km of the subject property.
- Saskatoon's city limits are approximately 300m northwest of the subject property.
- The Rosewood residential neighborhood comprised of single and multi-family homes, parks, and a school are located approximately 500m to the north.
- The Meadows Market is a large regional retail development located approximately 500m to the northwest.
- No intensive livestock operations or large bodies of water were identified within 1.6km.

The key adjacent land uses within 1.6 km of the proposed development are summarized in **Figure 2**.

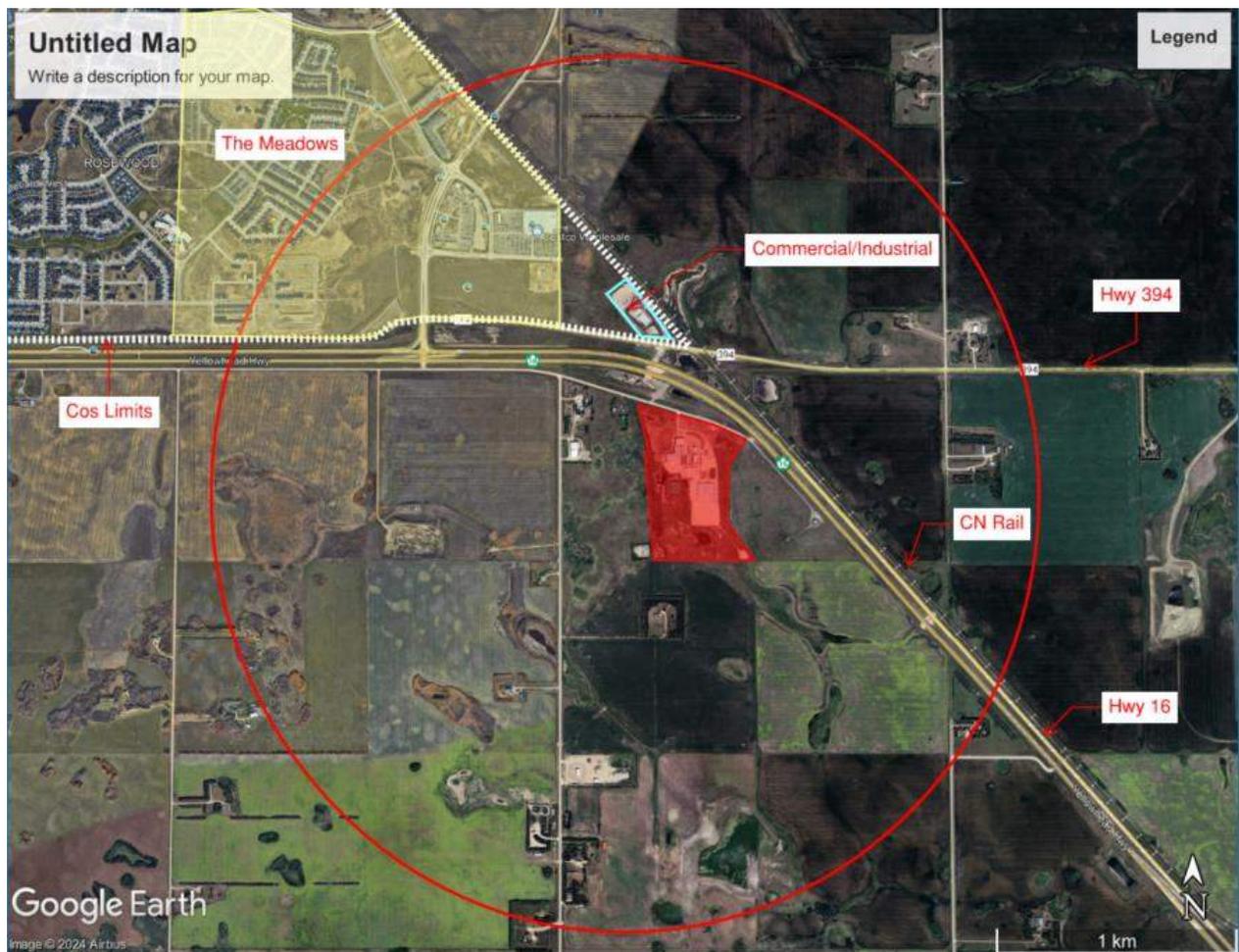


Figure 2. Summary of Surrounding Land Uses

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3.2 HAZARD LANDS

There are no known flooding, slope stability, or ground contamination issues on the subject parcels.

3.3 NATURAL AND HERITAGE RESOURCES SCREENING

As part of the CDR Process, a Heritage Screening and a Wildlife Application search were completed. No concerns were identified. The Heritage Sensitivity Screening Report can be found in **Appendix A**.

4 OFFICIAL COMMUNITY PLAN & ZONING BYLAW REVIEW

4.1 P4G DISTRICT OFFICIAL COMMUNITY PLAN

Policy	Application Compliance
<p>15.3.7 Interim Uses in Future Urban Growth Areas</p> <p>Interim uses on lands identified as Future Urban Growth Areas may be allowed prior to urban development, subject to consideration of:</p> <ul style="list-style-type: none">a) Whether the interim use has the potential to become permanent;b) Whether the interim use is for single parcel development or multi parcel development;c) Whether the interim use is inside or outside the 700,000 growth area;d) Whether the interim use has rural or urban densities, form, and servicing;e) The recovery of the cost of current and future infrastructure;f) The compatibility of current and future land uses; andg) Traffic effects on existing and future road networks.	<p>This application involves the adaptive re-use of existing buildings and potentially further buildings that adhere to DM1 zoning district. These buildings/uses are intended to become permanent and are within a single parcel.</p> <p>The subject parcels are outside the 700,000 growth area.</p> <p>Servicing includes a private water supply line and private onsite wastewater facilities.</p> <p>The subject parcels will be compatible as the buildings already exist and any proposed use consistent with DM1 zoning will be a similar intensity of use.</p> <p>Cost recovery is not applicable at this time because there is currently no proposal for new services. However, with the rezoning and adaptive re-use of the buildings will come further property tax revenue.</p> <p>Traffic effects are also not applicable as this site has previously been in full operation. Once the site is rezoned and the owner is able to secure tenants and apply for development/building permits, any effects on the traffic system will be noted.</p>

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<p>15.3.8 Single Parcel Interim Land Use in Future Urban Growth Areas</p> <p>Single parcel interim uses may be permitted in Future Urban Growth Areas provided that:</p> <ul style="list-style-type: none"> a) The proposal is consistent with more detailed planning for the area; b) A site design that limits fragmentation of the parcel is provided; and c) A subdivision design that allows for re-subdivision to urban-sized parcels is provided. 	<p>The application is consistent with the future land use of the SECP.</p> <p>The application involves a parcel already with multiple structures on it, therefore fragmentation is not an applicable issue.</p> <p>No subdivision is involved with the application.</p>
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4.2 P4G PLANNING DISTRICT ZONING BYLAW

Policy	Application Compliance
<p>3.10.1 Where development may alter site drainage potentially affecting adjacent, upstream or downstream properties, or the stability of the land, the applicant shall be required to construct engineered drainage works incorporating sufficient capacity to accommodate the surficial water runoff for a 1:100 year storm event with no incremental increase in offsite flows in excess of what would have been generated from the property prior to the grading and levelling.</p>	<p>Please refer to Section 5.2 of this report.</p>
<p>3.22.2 All development shall have frontage onto and direct physical and legal access to a maintained public roadway, except for:</p> <ul style="list-style-type: none"> a) agricultural operations; b) development internal to a condominium plan containing private roadways; and c) development internal to a dwelling group or multi-use development containing internal roadways as approved by the Development Officer. 	<p>Site A has physical and legal access, and no changes are proposed from an access perspective.</p>
<p>3.30.1 Where a development requires a means of sewage disposal or treatment, the developer shall be required to install a sewage disposal system in accordance with municipal and provincial</p>	<p>Please refer to Section 5.3 of this report.</p>

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requirements. The Development Officer, in conjunction with appropriate provincial regulatory agencies, shall determine the suitability of a site to accommodate a private wastewater treatment system.	
3.31.1 No development or use of land shall be allowed where the proposal will adversely affect domestic or municipal water supplies, or where a suitable, potable water supply cannot be furnished.	Please refer to Section 5.4 of this report.

5 SERVICING

5.1 ROADWAYS

Site A

Site A is accessible from Melville Street which is a single lane gravel roadway. Melville Street provides access to Zimmerman Road which intersects Highway 16 and Highway 394. The intersection of Zimmerman Road and Highway 16 is a signal-controlled intersection. The rezoning is expected to have a negligible impact on the surrounding transportation network. No new roadways will be constructed. A traffic review letter can be found in **Appendix E** for the analysis of Site A.

Site B

Site B is accessible from Haight Road which is a single lane gravel roadway. The change of land use designation on the draft SECP will have no impact on the surrounding transportation network since the zoning is not changing. No new roadways will be constructed.

5.2 DRAINAGE

Site A

A storm water retention pond on the south end of the site will be designed based on the R.M. of Corman Park Requirements to allow sufficient capacity to store 125% of the excess post-development runoff for the 1-in-100-year, 24-hour storm event. Site topography will distribute surface runoff toward the east and west property boundaries and south toward the storm water retention pond with the use of drainage ditches. Future site expansion will be subject to a drainage study in conjunction with R.M. of Corman Park regulations.

Site B

In the event of a future rezoning, storm water retention in the northeast corner and southwest corner are proposed for Site B to store surface runoff, in addition to existing storm ponds on the parcel. The storm

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water retention ponds will be designed based on the R.M. of Corman Park Requirements to allow sufficient capacity to store 125% of the excess post-development runoff for the 1-in-100-year, 24-hour storm event. Site topography will distribute surface runoff to these retention ponds with the use of drainage ditches. The north half of the site will drain to the northeastern pond and the south side of the site will drain to the southwest storm pond. Additional development of this site will be subject to a drainage study in conjunction with R.M. of Corman Park Regulations.

5.3 WASTEWATER

Site A

Wastewater facilities that exist on Site A will remain unchanged. All facilities are expected to be in good working condition. A wastewater permit (R104568) for the sewage lagoon was issued by the Saskatchewan Health Authority. A copy of this permit can be found in **Appendix F**. For future expansion areas, wastewater will be collected in holding tanks and removed on an as needed basis by a licensed hauler. The size of the holding tanks will be determined during the site development following applicable provincial legislation. The frequency of pump out will also be determined during site development as this will be influenced by the user and the size of holding tanks installed. Any new systems will have to be permitted, inspected and approved by the Health Authority when installation occurs.

Site B

No wastewater will be produced on Site B as there is only a request for revision of the draft SECP land use designation at this time.

5.4 POTABLE WATER SUPPLY

Site A

Site A is currently serviced via two private water service providers. The existing administration building is serviced through Site B to a Closed Creek Resources Incorporated Waterline located within Haight Road. Closed Creek Resources Incorporated Waterline has a supply capacity for 32.7 cubic metres per day. An easement is not required at this time for the water line as the two sites will remain under the same ownership. The remaining facilities on Site A are serviced via SaskWater. The agreement with Saskwater is for a minimum water use of 220cubic metres per month. All facilities on Site A have holding tank systems that are filled from the two water supply companies addressed above. Water supply is sufficient for the existing facility.

Site B

Site B will not be serviced; therefore, no potable water will be required. Site B only encompasses a request for revision of the draft SECP land use designation at this time.

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5.5 SHALLOW UTILITIES

Site A

Shallow utilities have been brought to the property to service the former Prairie Plant site. The SaskEnergy, SaskPower, and SaskTel utilities maps are in Appendix B.

Site B

There are currently no shallow utilities on Site B, and none are planned as there is only a request for revision of the draft SECP land use designation at this time.

5.6 SOLID WASTE

Site A

Solid waste will be contained using recycling and waste bins and then hauled to approved offsite facilities. Appendix C provides a letter from Loraas confirming service to this area.

Site B

No solid waste will be produced on this site at this time as Site B only encompasses a request for revision of the draft SECP land use designation.

5.7 MUNICIPAL & PROTECTIVE SERVICES

The Saskatoon Fire Department provides fire protection services through an agreement with the RM of Corman Park. The Corman Park Police Force and the Royal Canadian Mounted Police provide police services. MD Ambulance provides ambulance service, and patients are transported to the City of Saskatoon Hospitals.

6 PUBLIC CONSULTATION

6.1 PUBLIC CONSULTATION APPROACH

To meet the public consultation requirements of the CDR process, the applicant coordinated with the RM to determine an appropriate level of engagement for the proposed rezoning. Based on these discussions, Catterall & Wright created an information package which summarized the proposed rezoning, surrounding context, and site details. This letter also provided respondents with a method for providing feedback on the proposed rezoning. Information packages were distributed on April 26, 2025, to property owners within 1.6km of the proposed rezoning. Comments could be returned to Catterall & Wright by May 31, 2024. Note that this exercise was coordinated with the RM and the City of Saskatoon, as the 1.6km radius reached both municipalities.

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6.2 SUMMARY OF FEEDBACK RECEIVED

Three respondents provided comments regarding the proposed development, which can be found in **Appendix D**. These concerns and responses are summarized as follows:

The first respondent enquired about what land uses would be allowed under the proposed zoning. Catterall & Wright responded with links to the P4G zoning bylaw and appropriate section for DM1 zoning, as well as information on the draft SECP.

The second respondent enquired about what specific uses are being proposed for this property. Catterall & Wright responded, indicating that the intent of the rezoning is to re-purpose the existing buildings for a variety of potential light industrial uses.

The third respondent is a letter of support from the directly adjacent land owner.

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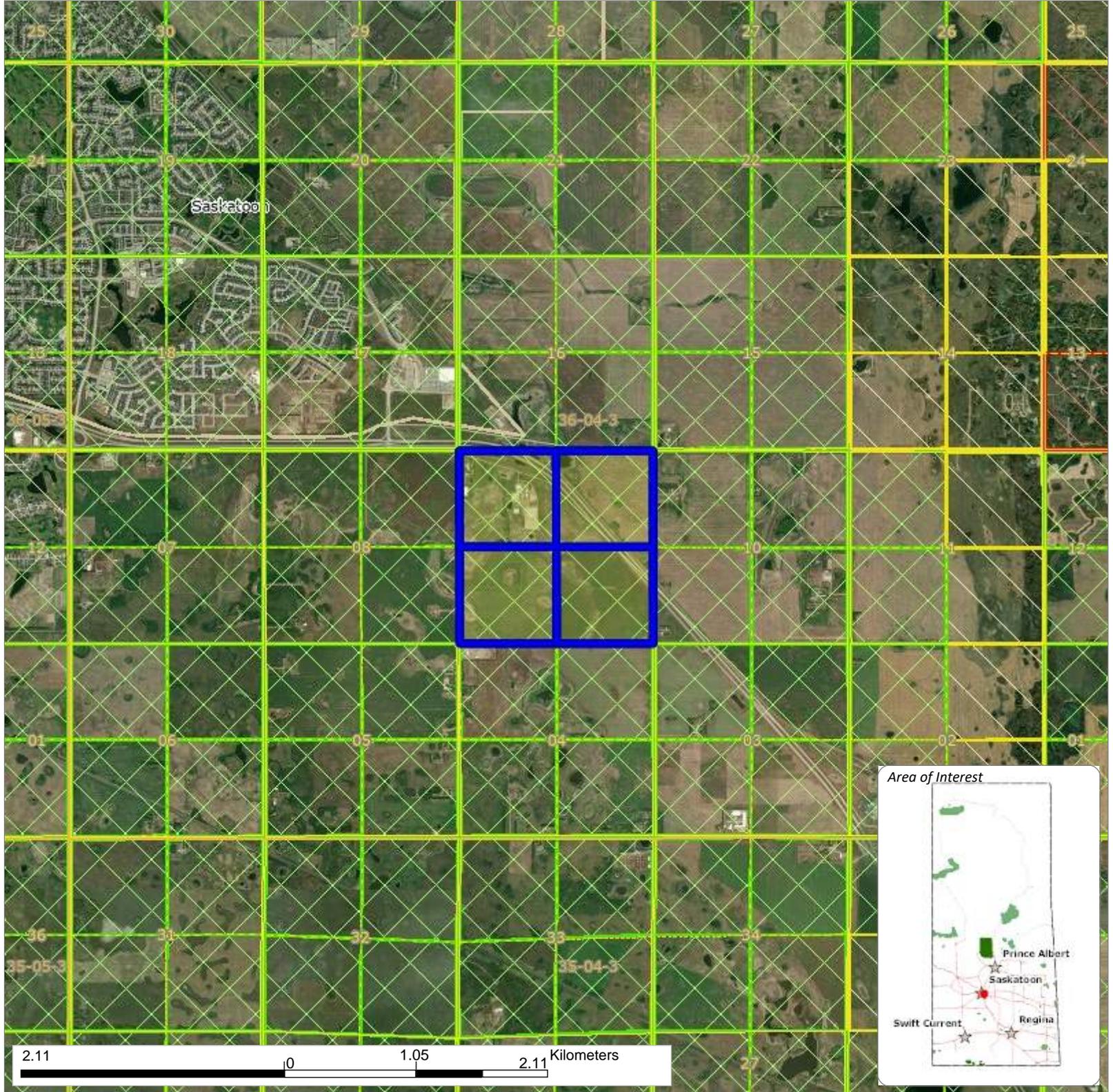
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Appendix A Natural and Heritage Resources

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

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

Report Generated
Jan/31/2024 9:13 AM



Heritage Sensitivity Screening Report

Parcel Description	Sensitivity	Parcel Description	Sensitivity
SW-09-36-04-3	N	NE-09-36-04-3	N
SE-09-36-04-3	N	NW-09-36-04-3	N

Sensitivity Legend:

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

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

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

Disclaimer:

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

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

Contact us:

For more information, please contact the Heritage Conservation Branch:

Email: arms@gov.sk.ca

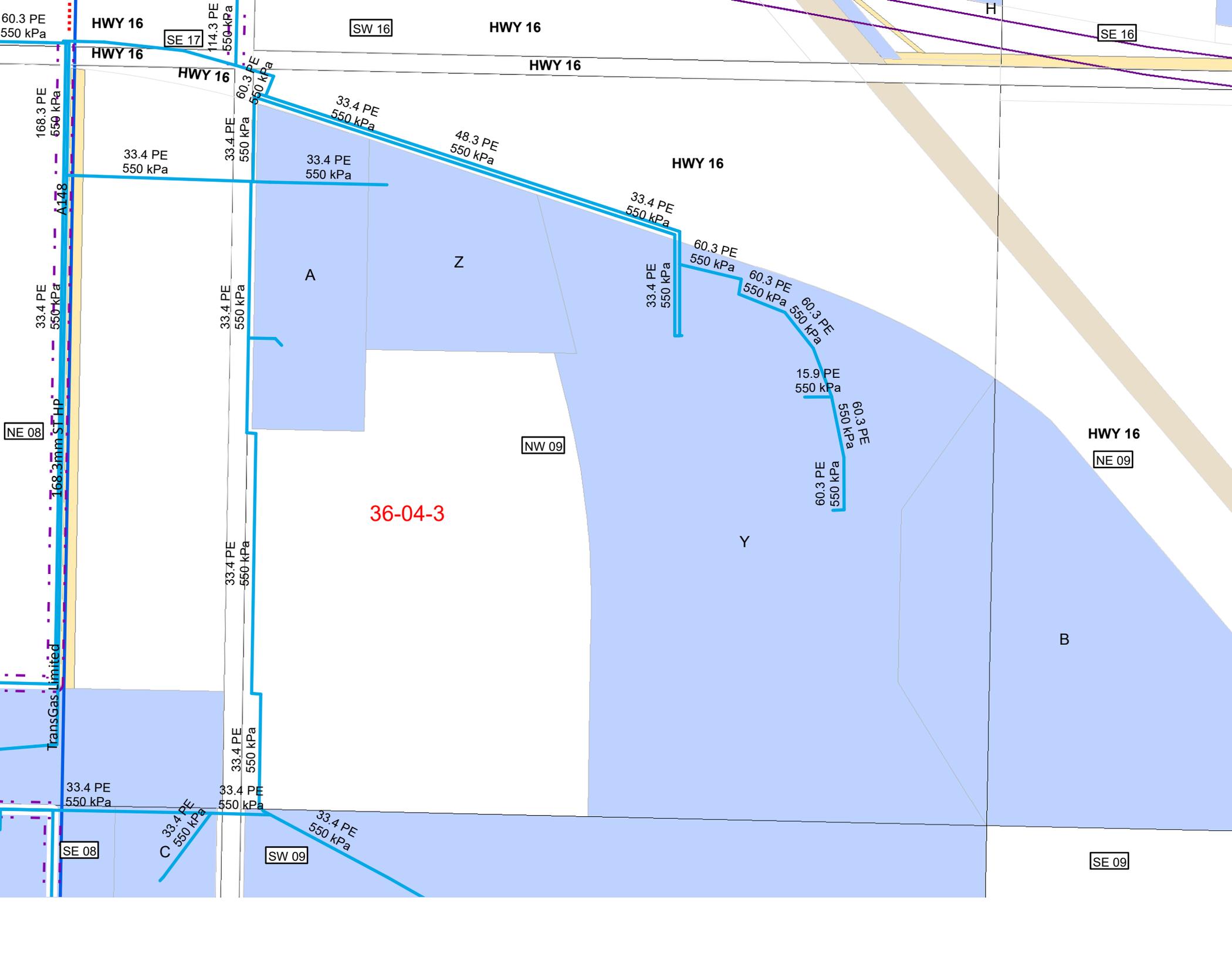
Tel 306-787-2817.

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Appendix B Shallow Utilities



HWY 16

HWY 16

HWY 16

HWY 16

HWY 16

SE 17

SW 16

SE 16

HWY 16

SW 09

SE 09

NE 08

NW 09

NE 09

SE 08

36-04-3

A

Z

Y

B

60.3 PE
550 kPa

168.3 PE
550 kPa

33.4 PE
550 kPa

114.3 PE
550 kPa

33.4 PE
550 kPa

C 33.4 PE
550 kPa

33.4 PE
550 kPa

48.3 PE
550 kPa

33.4 PE
550 kPa

33.4 PE
550 kPa

60.3 PE
550 kPa

60.3 PE
550 kPa

60.3 PE
550 kPa

15.9 PE
550 kPa

60.3 PE
550 kPa

60.3 PE
550 kPa

33.4 PE
550 kPa

33.4 PE
550 kPa

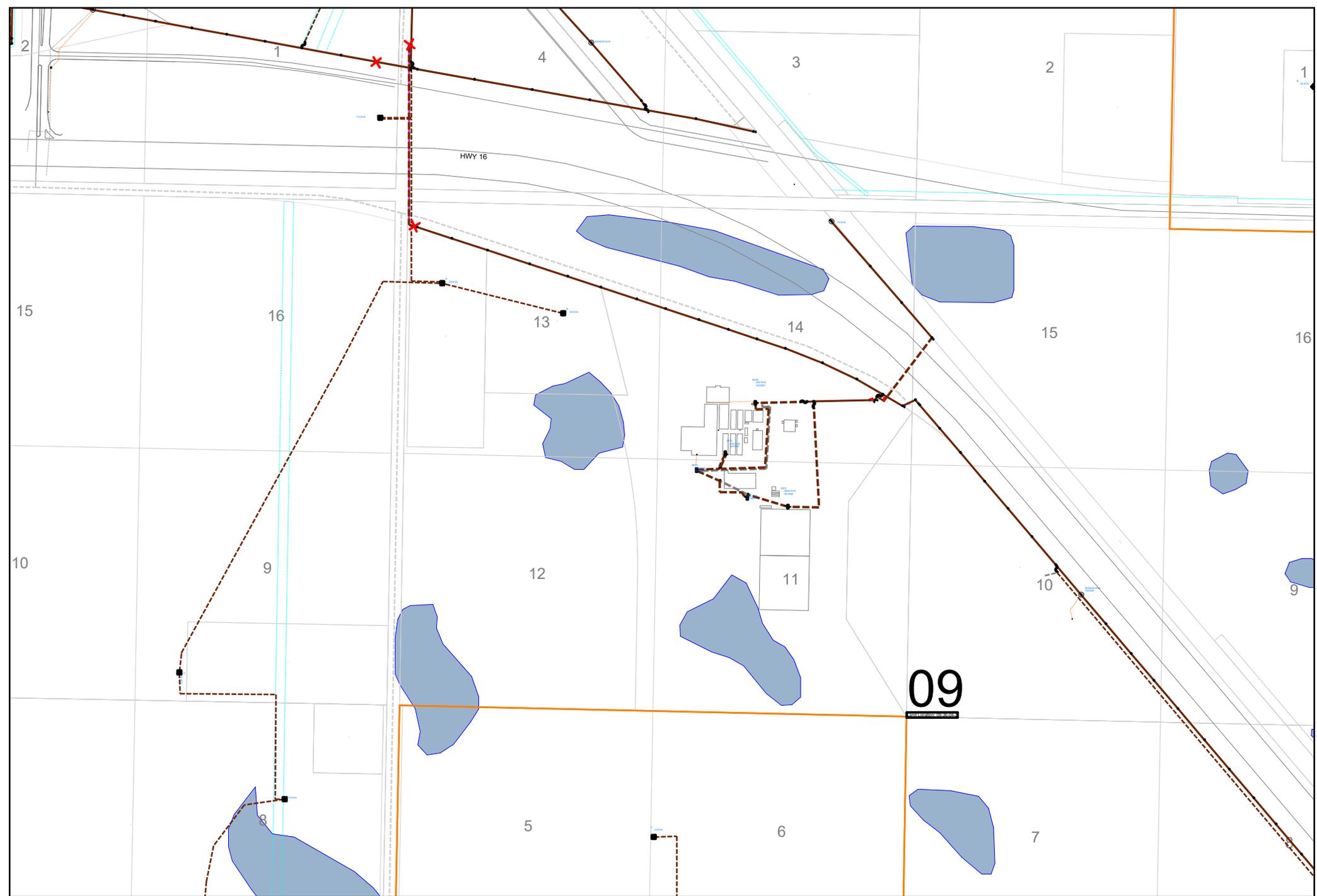
33.4 PE
550 kPa

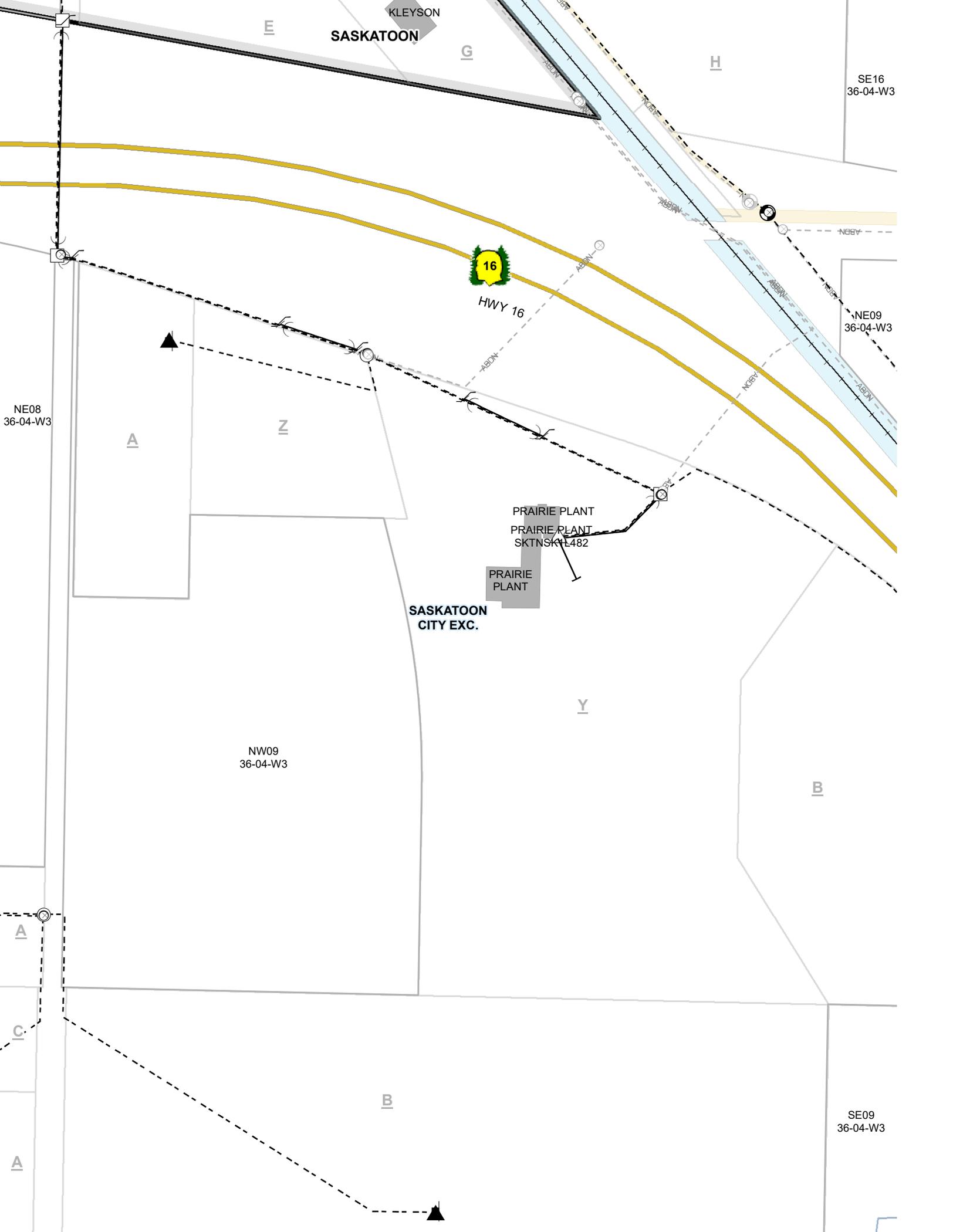
TransGas Limited

168.3mm ST HP

A148

H





SASKATOON

KLEYSON

SE16
36-04-W3

NE09
36-04-W3

NE08
36-04-W3

PRAIRIE PLANT
PRAIRIE PLANT
SKTNSK 482

PRAIRIE
PLANT

SASKATOON
CITY EXC.

NW09
36-04-W3

SE09
36-04-W3

16

HWY 16

A

Z

Y

B

B

A

C

A

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G

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A

C

A

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Former Prairie Plant Systems CDR

Appendix C Solid Waste Letter



**Loraas
Disposal**
Services Ltd.

805 47th Street East * Saskatoon SK * S7K8G7 * Tel:(306)242-2300 * Fax:(306)242-4994

March 8th, 2024

To Catterall and Wright,

This letter is confirmation that Loraas Disposal North LTD can provide garbage and recycling removal services for land parcels #131812714 and #131812703 off of Melville Street near Saskatoon on the highway to Clavet.

Cecil Peters
Sales Representative
Loraas Disposal North LTD

Comprehensive Development Review

CLIENT: ROUND TABLE MANAGEMENT LTD.

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Appendix D Public Consultation

April 26, 2024

To Whom It May Concern,

Catterall & Wright is representing Round Table Management Ltd. (the applicant), who is the registered owner of Parcel #131812714, Plan #95S22480, within NW 09-36-04-W3M, and Parcel #131812703 within NW 09-36-04-W3M (see attached map).

The applicant is applying to rezone Parcel #131812714, from D-Agricultural District 2 (DAG2) to D-Light Industrial 1 District (DM1). This parcel is the former Prairie Plant Systems facility which was operating under a discretionary use permit. The parcel has several vacant structures that were used as growth facilities and administrative offices. This parcel also includes a lagoon, stormwater retention ponds, and parking/loading areas. The rezoning is necessary to allow existing structures on the property to be used for light industrial uses. Potential uses of the parcel and its existing buildings and features include agriculture products processing, industrial buildings, manufacturing facilities, research laboratories, warehousing, and administrative/office uses. Discussions with prospective users of the site indicate the potential for expansion on this parcel, including 30,000 sq ft of warehousing/storage, 75,000 sq ft of research laboratories, 15,000 sq ft of specialty buildings, a lagoon expansion, and expanded storm water management areas.

The desired Light Industrial 1 (DM1) zoning is aligned with the P4G District Land Use Plan which designates this parcel as Urban Commercial/Industrial. Additionally, the draft Southeast Concept Plan (SECP) designates this parcel as Urban Light Industrial.

For Parcel #131812703, the applicant is also seeking public input on the parcel's SECP land use designation. The draft SECP currently designates this parcel as Urban Residential, and the applicant is making a formal request that the P4G Planning District revise the SECP designation to Urban Light Industrial. This redesignation would allow future light industrial zoning to be considered on this parcel.

Information on the draft SECP can be found here:

<https://storymaps.arcgis.com/stories/2b0f1554e3ea46848169e6da82144c1d>

<https://www.rmccormanpark.ca/318/South-East-Concept-Plan>

In support of the above request, the P4G District Land Use Plan designates this parcel as Urban Commercial/Industrial.

Please see the following pages displaying maps of the subject parcels.



The purpose of this letter is to give surrounding landowners the opportunity to provide feedback on this application. If you have any questions, concerns, or comments regarding this application, please provide them by **May 31, 2024**. Correspondence may be using one of the following methods:

Registered Mail

Please address your letter to:

Devin Clarke, RPP, MCIP
Catterall & Wright Consulting Engineers
1231 8th St East
Saskatoon, SK S7H 0S5

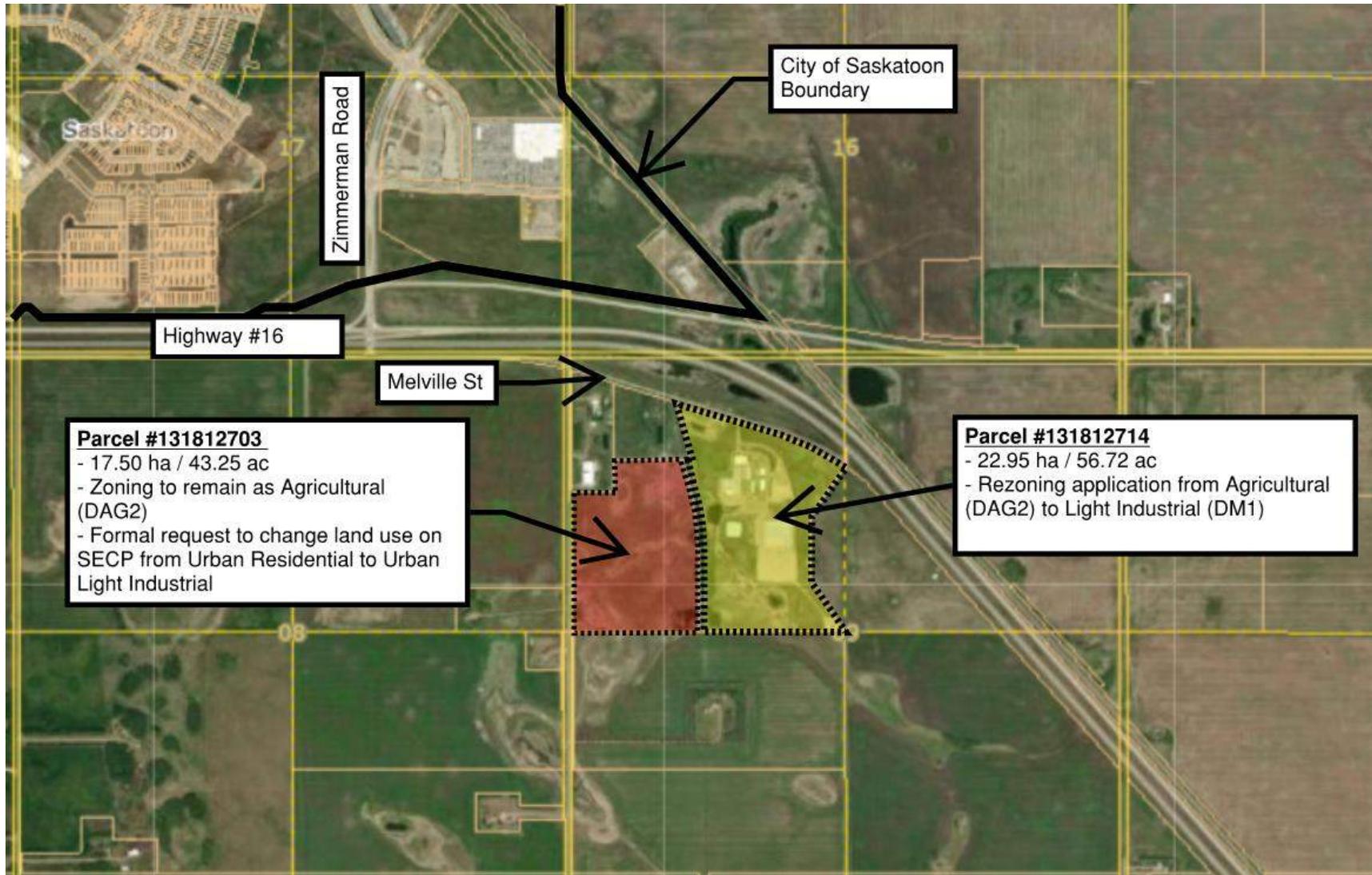
Email

Email correspondence can be addressed to cw@cwce.ca

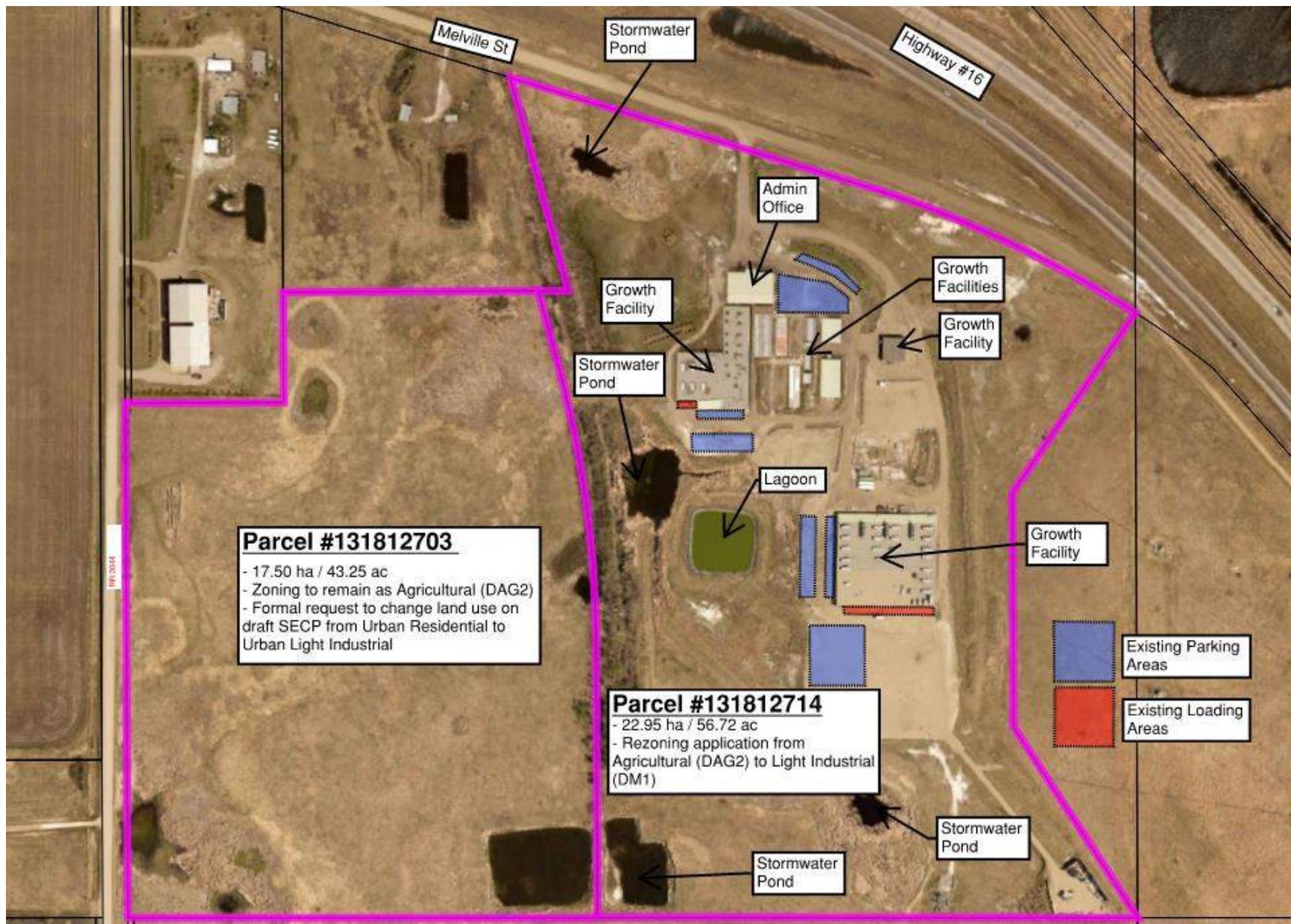
Feedback received from this engagement process will be summarized and submitted to the RM of Corman Park as part of the Comprehensive Development Review report.

We look forward to hearing from you.

Devin Clarke, RPP, MCIP
Catterall & Wright



Site Overview



Site Context

April 26, 2024

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The applicant is applying to rezone Parcel #131812714, from D-Agricultural District 2 (DAG2) to D-Light Industrial 1 District (DM1). This parcel is the former Prairie Plant Systems facility which was operating under a discretionary use permit. The parcel has several vacant structures that were used as growth facilities and administrative offices. This parcel also includes a lagoon, stormwater retention ponds, and parking/loading areas. The rezoning is necessary to allow existing structures on the property to be used for light industrial uses. Potential uses of the parcel and its existing buildings and features include agriculture products processing, industrial buildings, manufacturing facilities, research laboratories, warehousing, and administrative/office uses. Discussions with prospective users of the site indicate the potential for expansion on this parcel, including 30,000 sq ft of warehousing/storage, 75,000 sq ft of research laboratories, 15,000 sq ft of specialty buildings, a lagoon expansion, and expanded storm water management areas.

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Information on the draft SECP can be found here:

<https://storymaps.arcgis.com/stories/2b0f1554e3ea46848169e6da82144c1d>

<https://www.rm-cormanpark.ca/318/South-East-Concept-Plan>

In support of the above request, the P4G District Land Use Plan designates this parcel as Urban Commercial/Industrial.

Please see the following pages displaying maps of the subject parcels.



The purpose of this letter is to give surrounding landowners the opportunity to provide feedback on this application. If you have any questions, concerns, or comments regarding this application, please provide them by **May 31, 2024**. Correspondence may be using one of the following methods:

Registered Mail

Please address your letter to:

Devin Clarke, RPP, MCIP
Catterall & Wright Consulting Engineers
1231 8th St East
Saskatoon, SK S7H 0S5

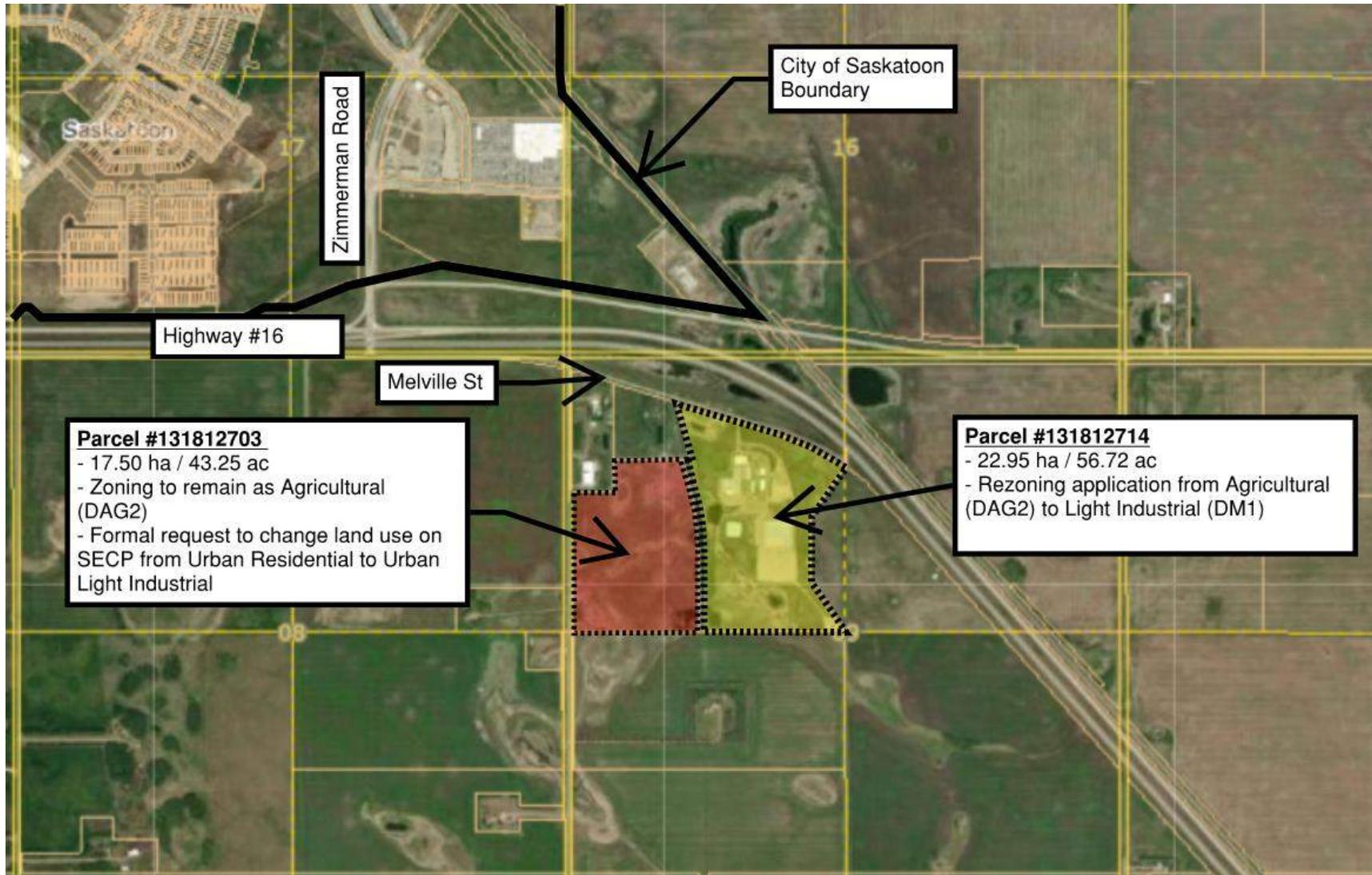
Email

Email correspondence can be addressed to cw@cwce.ca

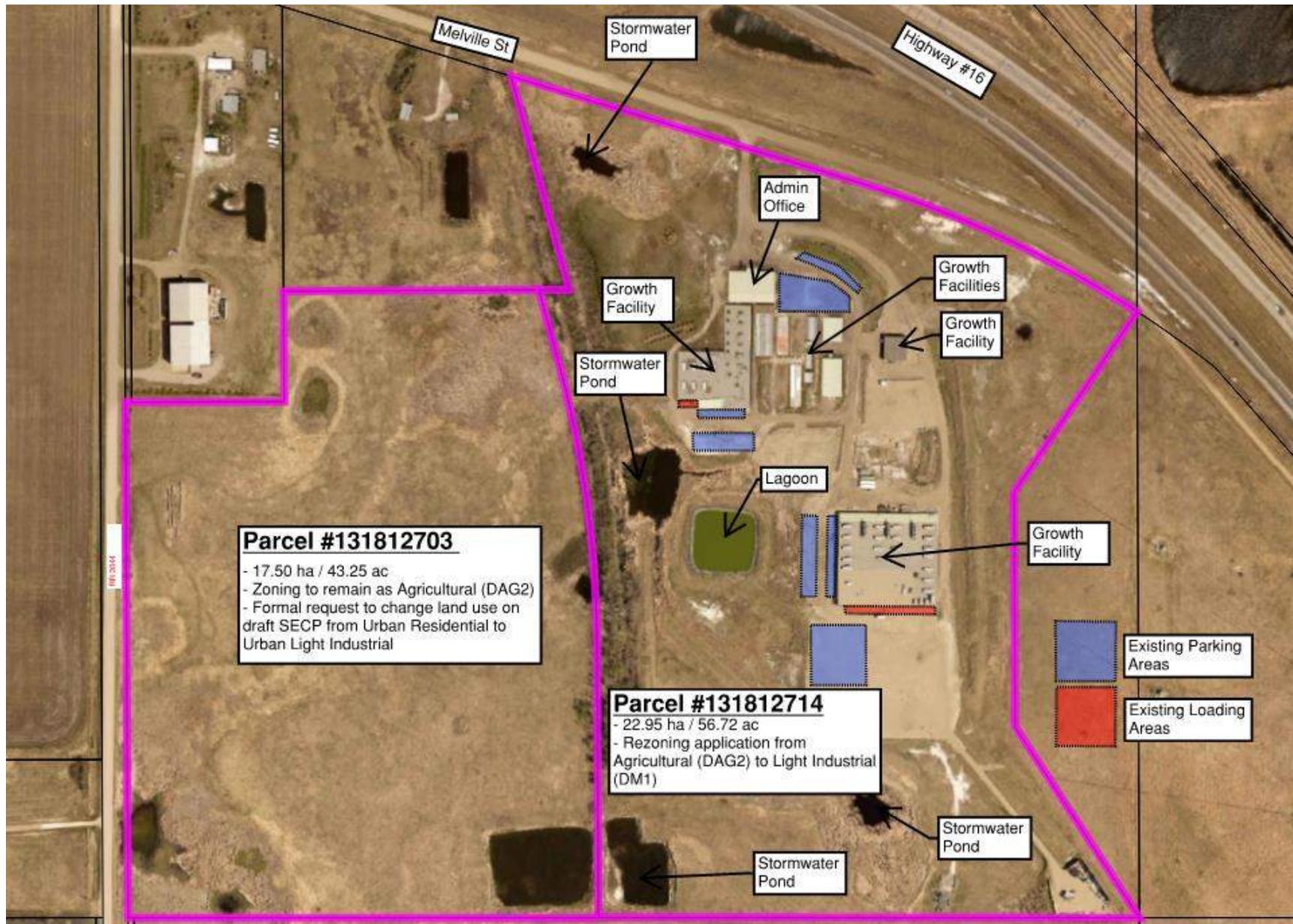
Feedback received from this engagement process will be summarized and submitted to the RM of Corman Park as part of the Comprehensive Development Review report.

We look forward to hearing from you.

Devin Clarke, RPP, MCIP
Catterall & Wright



Site Overview



Site Context

Devin Clarke

From: Devin Clarke
Sent: June 3, 2024 9:20 AM
To: 'klemwild@gmail.com'
Cc: Dayna Stasiuk
Subject: RE: Rezoning of Parcel #131812714

Hi Karl and Jody,

For Parcel 131812714, there are several buildings on the site (these are identified in the notice you received) that are currently unable to be utilized due to zoning. Those buildings were able to operate within the Agriculture zoning district, but the single tenant is no longer there. Therefore, the proposed zoning amendment to Light Industrial (DM1) will allow the existing buildings to be re-purposed for a variety of potential light industrial tenant uses.

If you are asking about Parcel 131812703, the applicant is seeking public input on the DRAFT SECP's land use designation. The applicant is requesting that the DRAFT SECP land use designation be Urban Light Industrial such that future rezoning may include Light Industrial (DM1).

DM1 zoning can be found in the P4G zoning bylaw – Section 6.13 [P4G-Planning-District-Zoning-Bylaw \(rmcormanpark.ca\)](#)

Information on the draft SECP can be found here [South East Concept Plan | Rural Municipality of Corman Park, SK \(rmcormanpark.ca\)](#)

I hope this helps.

Regards,

Devin Clarke, RPP, MCIP

Senior Planner

Catterall & Wright | Consulting Engineers
1231 8th Street East, Saskatoon, SK S7H 0S5
www.cwce.ca | [Facebook](#) | [LinkedIn](#)

Office: (306) 343-7280 | Direct: (306) 986-5906 | Cell: (306) 291-1668

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From: Karl Miller <klemwild@gmail.com>
Sent: Thursday, May 30, 2024 1:46 PM
To: General Mailbox <cw@cwce.ca>; Jody Miller Thauberger <learningleadership@shaw.ca>
Subject: Rezoning of Parcel #131812714

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Devin,

My name is Karl Miller. My sister Jody Thaugber and I are the registered owners the parcel west of #131812714.

I have gone through the details of the South East Concept Plan but I don't have a good understanding of what the impacts will be with respect to the actual land use. Can you give examples of what else would be allowed under this zoning? I do understand what the former Prairie Plants Systems operations were like.

Looking forward to your response.

Karl Miller

--

"There are no bad waves. Only a poor choice of equipment and a lousy attitude"
- Mickey Munoz

Devin Clarke

From: Devin Clarke
Sent: May 9, 2024 4:50 PM
To: sean.pratt@sasktel.net
Cc: General Mailbox
Subject: RE: Feedback

Hi Sean,

I wanted to follow up on this response as I missed a key point.

For Parcel 131812714, there are several buildings on the site (these are identified in the notice you received) that are currently unable to be utilized due to zoning. Those buildings were able to operate within the Agriculture zoning district, but the single tenant is no longer there. Therefore, the proposed zoning amendment will allow the existing buildings to be re-purposed for a variety of potential light industrial tenant uses.

I hope that helps. Please let me know if you have any further questions.

Regards,

Devin Clarke, RPP, MCIP

Senior Planner

Catterall & Wright | Consulting Engineers
1231 8th Street East, Saskatoon, SK S7H 0S5

www.cwce.ca | [Facebook](#) | [LinkedIn](#)

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From: Devin Clarke
Sent: Thursday, May 9, 2024 10:55 AM
To: sean.pratt@sasktel.net
Cc: General Mailbox <cw@cwce.ca>
Subject: RE: Feedback

Hi Sean,

Thanks for your enquiry.

For Parcel 131812703, we are not proposing any specific use. Zoning is to remain as Agriculture.

For Parcel 131812714, we are applying to rezone from Agriculture to Light Industrial. There is not a specific use being proposed at this time. The land owner wishes to secure the zoning first prior to finalizing any plans for specific uses.

Regards,

Devin Clarke, RPP, MCIP

Senior Planner

Catterall & Wright | Consulting Engineers

1231 8th Street East, Saskatoon, SK S7H 0S5

www.cwce.ca | [Facebook](#) | [LinkedIn](#)

Office: (306) 343-7280 | Direct: (306) 986-5906 | Cell: (306) 291-1668

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From: General Mailbox <cw@cwce.ca>

Sent: Thursday, May 9, 2024 8:47 AM

To: Devin Clarke <d.clarke@cwce.ca>

Subject: FW: Feedback

Dayna Stasiuk

Administrative Assistant

Catterall & Wright | Consulting Engineers

1231 8th Street East, Saskatoon, SK S7H 0S5

www.cwce.ca | [Facebook](#) | [LinkedIn](#)

Office: (306) 343-7280 ext: 100

CONFIDENTIALITY NOTICE: This email was intended for a specific recipient. It may contain information that is privileged and/or confidential. If the reader is not the intended recipient, use or distribution of this information is prohibited. If you have received this communication in error, please notify the sender by telephone or return email and delete or destroy all copies of the message.

From: Sean Pratt <sean.pratt@sasktel.net>

Sent: Wednesday, May 8, 2024 11:39 AM

To: General Mailbox <cw@cwce.ca>

Subject: Feedback

Hi,

I received a letter from you folks regarding parcel 131812714 and 131812703 seeking feedback on the proposed rezoning. It is hard to provide feedback on something nebulous. You provide a list of potential uses that covers the gamut from agriculture to manufacturing.

Can you provide more specifics on what exactly is being proposed for those two parcels?

Regards,

Sean

SCHEDULE "B"

Deplaedt Investments Ltd.

1731 Preston Avenue North, Saskatoon, Saskatchewan, S7N 4V2 (306)-227-5123

February 1, 2024

To: Whom it may concern:

I am the land owner of the 10-acre land parcel located at NW ¼ sec 9 Rge. 4 Mer. 3 in the RM of Corman Park #344. I have been made aware of an application to amend the future land use of the 40-acre property directly to the south of my property that is under the ownership of Round Table Management Ltd.

I wanted to express my support for this application specific to the Round Table Management property. This area is directly south of major highway #16 and is a parcel designated as future urban residential despite the adjacent property being identified as future urban industrial as part of the current draft of the South East Concept Plan. Based on the proximity to the highway as well as the proximity to the adjacent parcel that is proposed to be an urban industrial land designation it would seem to make sense that this parcel be designated the same. As a landowner with property attached to this proposal, I do not have any concerns with this request for this change on behalf of Round Table Management Ltd.

Please let me know if I can provide any further detail on this support or in this application for rezoning,

Best regards,



Dave Deplaedt
President: Deplaedt Investments Ltd.

Comprehensive Development Review

CLIENT: ROUND TABLE MANAGEMENT LTD.

Former Prairie Plant Systems CDR

Appendix E Traffic Review Letter

December 5, 2024

Round Table Management
70 24 Street E
Saskatoon SK
S7K 4B8

via email: dcalyniuk@picgroup.ca

Attention: David Calyniuk

RE: ROUND TABLE MANAGEMENT – FORMER PRAIRIE PLANT SYSTEMS CDR

This letter is in response to your request regarding the traffic volumes potentially generated by the former Prairie Plant Systems site and the requirement for paving the access road. After reviewing the potential future land uses in coordination with the Institution of Transportation Engineers (ITE) Trip generation manual, we confirm that the volumes do not warrant a paved surface. Below, we have outlined our rationale:

The trip generation rates based on ITE data are overly conservative for this development. Historical site operations, which included facilities such as a lagoon, were designed to accommodate 110 employees. This employee base would generate an estimated 220 daily trips to and from the site.

To determine the appropriate road structure for the development, we assumed that commercial vehicles would constitute 1.5% of the total trips and that the existing subgrade has a conservative California Bearing Ratio (CBR) value of 3%.

For a 10-year period with an assumed 1% annual traffic growth rate, the calculated design Equivalent Single Axle Loads (ESALs) per lane is 18,036. This requires a Structural Number (SN) of 48, which can be achieved with 375 mm of granular base alone.

The minimum pavement thickness for this design would be 65 mm, providing an SN of 26 alone. This pavement would require an adequate granular layer beneath it, further increasing the SN. As a result, the road structure would be oversized with a paved surface.

Yours truly,
Catterall & Wright



Eric Melendez-Duke, P.Eng.

Comprehensive Development Review

CLIENT: ROUND TABLE MANAGEMENT LTD.

Former Prairie Plant Systems CDR

Appendix F Wastewater Permit (R104568)

Regional Health Authority Plumbing/Sewage Disposal Permit Application

LAGOON

R 104568

In compliance with the provisions of The Plumbing Regulations and The Private Sewage Works Regulations application is hereby made for permission to: Construct Reconstruct Extend Connect the: plumbing system private sewage works on the premises or property of:

Location of Installation City, Town or Village		Street	
Lot R.M. # <u>344</u>	Block Township <u>36</u>	Plan Range <u>4</u> West of <u>3</u> Meridian	
Plumber / Sewage Works Installer <u>Prairie Plant Inc.</u> <u>Mechanical</u>		Certificate of Status # _____ <input type="checkbox"/> Journeyman <input checked="" type="checkbox"/> Other <u>Engineered plan</u>	
Permit Applicant <u>Jonathan Louie</u>		Signature <u>Jonathan Louie</u>	
Property Owner <u>Prairie Plant Inc</u>		Mailing Address <u>RM 364 NW 9-36-4-W3M</u>	
		<u>57K 378</u> <u>SASKATON, SK</u>	

Plumbing System - Number of fixtures to be installed

Kitchen Sinks _____	Shower Stalls _____	Laundry Tubs _____
Lavatories _____	Bath Tubs _____	Clothes Washer _____
Water Closets _____	Floor Drains (No Charge) _____	Other Fixtures _____

No part of the plumbing system shall be covered until permission is granted by the Local Authority.

Private Sewage Works

A. Expected Daily Sewage Volume (Litres) _____ # of Bedrooms _____

B. Soil classification: (attach Laboratory test results showing soil texture classification)
 Clay Loam Silt Sandy Clay Loam Silt Loam Loam Sandy Loam Loamy Sand Not Suitable

C. Depth to Water Table if less than 3 m from ground surface _____ m

D. Septic Tank Holding Tank Total Size _____ gal/litres Working Capacity _____ gal/litres

E. Disposal Systems: Jet Type Disposal Lagoon (Storage capacity) _____ m³
 Absorption Field (size) _____ m²
 Gravity Flow Chamber System Pressure Chamber System
 Chamber System (size) _____ m² # of Chamber Units _____ Size of each Chamber _____ m²
 Sewage Mound Type I (size) _____ m³ of clean graded stone. Sewage Mound Type II (size) _____ m²
 Other _____

F. Parcel Size _____ ha/acres

G. Detailed Site Plan to be provided on reverse side of public health officer copy

ENTERED

No part of the private sewage works shall be covered until permission is granted by the Local Authority.

Permit Fee

Total number of Fixtures _____	Fee \$ _____
Private Sewage Works <input checked="" type="checkbox"/>	Fee \$ <u>30.00</u>
Connection to pipeline system as described in S.7 of The Plumbing Regulations _____	Fee \$ _____
Total \$ <u>30.00</u>	

Detailed design work sheet required for this installation. Yes No Work sheet received (Date) July 18, 2013

Permission is hereby granted to construct the work indicated above.

Signature of Local Authority [Signature]

Date	<u>Aug. 6, 2013</u>
Fee Received \$	<u>30.00</u>

Plumbing System
Date(s) Inspected Jan 14/14 Site visit to see final of lagoon & liner installed

Approved _____
(Signature of Local Authority)

Regional Health Authority

Private Sewage Works
Date(s) Inspected _____

Approved _____
(Signature of Local Authority)

R 104568

SEE OTHER APP.
FOR TYPE II
MOUND



Onsite Sewage Works Application (Please Print on application)

Application forms that are not complete may result in delays

Applications, section and appendix references to the Sask. Onsite Wastewater Disposal Guide (Second Edition January 2009) available at www.saskatoonhealthregion.ca (search: sewage).

In compliance with the provisions of *The Private Sewage Works Regulations*, application is hereby made for permission to: Construct Reconstruct Extend Connect the private sewage works on the premises or property of:

Sewage Works Installer Information	Sewage Works Installer Summit Mechanical					
	Installer Address (Box #, Street) 221 44th St E			E-mail Address (preferred option) summitmechanical@gmail.com		
	Town/City Saskatoon	Postal Code S7K 8E4	Phone # 306-384-0043	Cell # 306-290-5579	Fax # 306-975-1052	
Property Owner Information	Property Owner Prairie Plant Inc C/O Jonathan Louie					
	Mailing Address Saskatoon			Phone # 306-975-1207		Cell #
	Town/City Saskatoon	Postal Code S7K 3J8				
Location Information	RM #	Subdivision Name	Lot Parcel	OR	Block	Plan
	- OR -					
	RM # 344	Subdivision Name	Section e.g. NE-15 NW-9		Township 36	Range 4 West of 3 Meridian

- A Expected Daily Sewage Volume 8090 L litres (gallons) # of bedrooms _____ Gaborator Yes No
- B1 Soil Classification: **Include laboratory test result showing soil texture classification** -OR-
- B2 Percolation Test? _____ minutes per 25 mm (1 inch) (See appendix 8)
- C Septic Tank (Section 6) Package Treatment Plant (Section 12)
First Compartment working capacity _____ litres (gallons) Manufacturer _____
- D Disposal Systems: _____
 Single Compartment Holding Tank (Section 5) _____ litres (gallons)
 Jet Type Disposal (Section 10) *Part B1 and B2 not required*
 Gravity Absorption Field (Section 8) - **Include completed appendix 3**
 Pressure Absorption Field (Section 8) - **Include completed appendices 3 and 17**
 Gravity Flow Chamber System (Section 7) - **Include completed appendix 3**
 Pressure Chamber System (Section 7) - **Include completed appendix 3A**
 Sewage Mound type I (Section 9.1) - **Include completed appendix 7A**
 Sewage Mound type II (Section 9.2) - **Include completed appendices 7 and 17**
 Enviro Septic System (include sizing information and soil particle count as required by manufacturer)
 Lagoon (Section 11) Intended for discharge: Yes No Volume _____ - **Include completed appendices 18 & 19 and engineered plan**
- E Depth to water table from ground surface: greater than 3 meters _____ m (ft) less than 3 meters _____ m (ft)
- F Size of parcel in acres / square metres: _____
- G **Detailed Site Plan must be provided (see page 2)**

Fee: \$30.00 (Applications will NOT be processed without complete payment from the applicant ONLY. See attached page 3.)

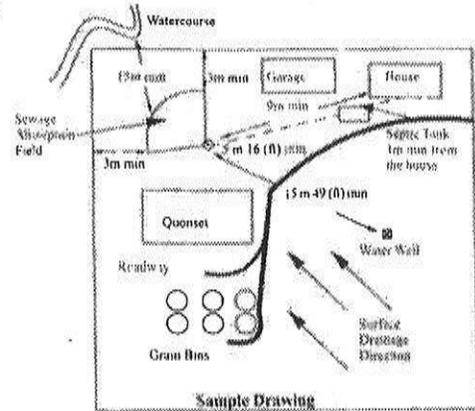
Applicant Name (please print) <u>Jonathan Louie</u>	Applicant Signature 	Date <u>July 18, 2013</u>
--	-------------------------	------------------------------

Applicant's Name:	Jonathan Lowe					
Legal Land Description:	RMA#	Subdivision Name	Lot Parcel	OR	Block	Plan
	- OR -					
	RMA#	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 4	West of 3 Meridian

Site Plan Diagram

Details to be included:

1. Property: size (hectares / acres); dimensions, boundaries
2. Location and distances of the tank and /or private sewage works from:
 - a. all water sources on that property or adjoining properties;
 - b. all buildings on that property or occupied dwelling on adjoining properties;
 - c. all water courses / sources within .5 kilometer;
 - d. all boundaries of that property.
3. Surface drainage direction.



North ↑
Diagram

Appendix 2 Waste Water Disposal guide (WWDG)

Commercial building with showers = 90 l/p/d
 Commercial building without showers = 50 l/p/d

Assume - 40 l/p/day due to showers, etc... → to Lagoon
 - 50 l/p/day due to toilets, etc... → to Mound

Lagoon

Employees - 50 existing + 60 new = 110 employees (40 l/p/d) = 4400 l/d

36 chambers - each using 1025 l/day for irrigation
 10% of irrigation goes to waste

$$(1025 \text{ l/day}) (36 \text{ chambers}) (10\%) = 3690 \text{ l/d}$$

Daily waste to Lagoon

$$V = 4400 \text{ l/d} + 3690 \text{ l/d} \\ = 8090 \text{ l/d or } 2,952,850 \text{ l/yr}$$

Evaporative Lagoon System (WWDG Appendix 18 & 19)

Saskatoon - evaporation = 913 mm
 precipitation = 360 mm

1) $Evap = 913 \text{ mm} - 360 \text{ mm} = 553 \text{ mm}$

2) $Evap = \frac{553 \text{ mm} \times 1,000,000 \text{ mm}^3/\text{m}^2}{1,000,000 \text{ mm}^3/\text{m}^2} = 553 \text{ l/m}^2$

3) $\text{Area of Lagoon} = \frac{2,952,850 \text{ l (1.25)}}{553 \text{ l/m}^2} \\ = 6675 \text{ m}^2$

Area of 1st Lagoon = 2072 m²
 Area of 2nd Lagoon = 8207 m²

Total Area = 10,359 m²

$10,359 \text{ m}^2 > 6,675 \text{ m}^2 \therefore \text{OK}$



Client Prairie Plant Inc

Project Lagoon

DATE July 17/13

BY Riley Jestin

JOB No. 121-19923-00

SHEET 1 OF 1

Liebelt, Dwayne PHS-SktnHR

From: Riley Jestin <Riley.Jestin@genivar.com>
Sent: Thursday, July 18, 2013 3:59 PM
To: Liebelt, Dwayne PHS-SktnHR
Subject: Prairie Plant Lagoon Application
Attachments: Lagoon Application Evap.pdf; 121-19723-00 C-1.pdf; 121-19723-00 C-2.pdf; 121-19723-00 C-3.pdf

Newest proposal

~~121-19723-00 C-3.pdf~~

Hi Dwayne,

Please find attached an application for the Lagoon at Prairie Plant. After much discussion, they decided to convert the existing borrow pit into an evaporative lagoon as shown in the site plan. Please contact me if you have any questions.

 **GENIVAR**
Riley Jestin P.Eng | Municipal Engineer
GENIVAR Inc.
#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8
T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

To Be reviewed by Brent Latner

Please consider the environment before printing...

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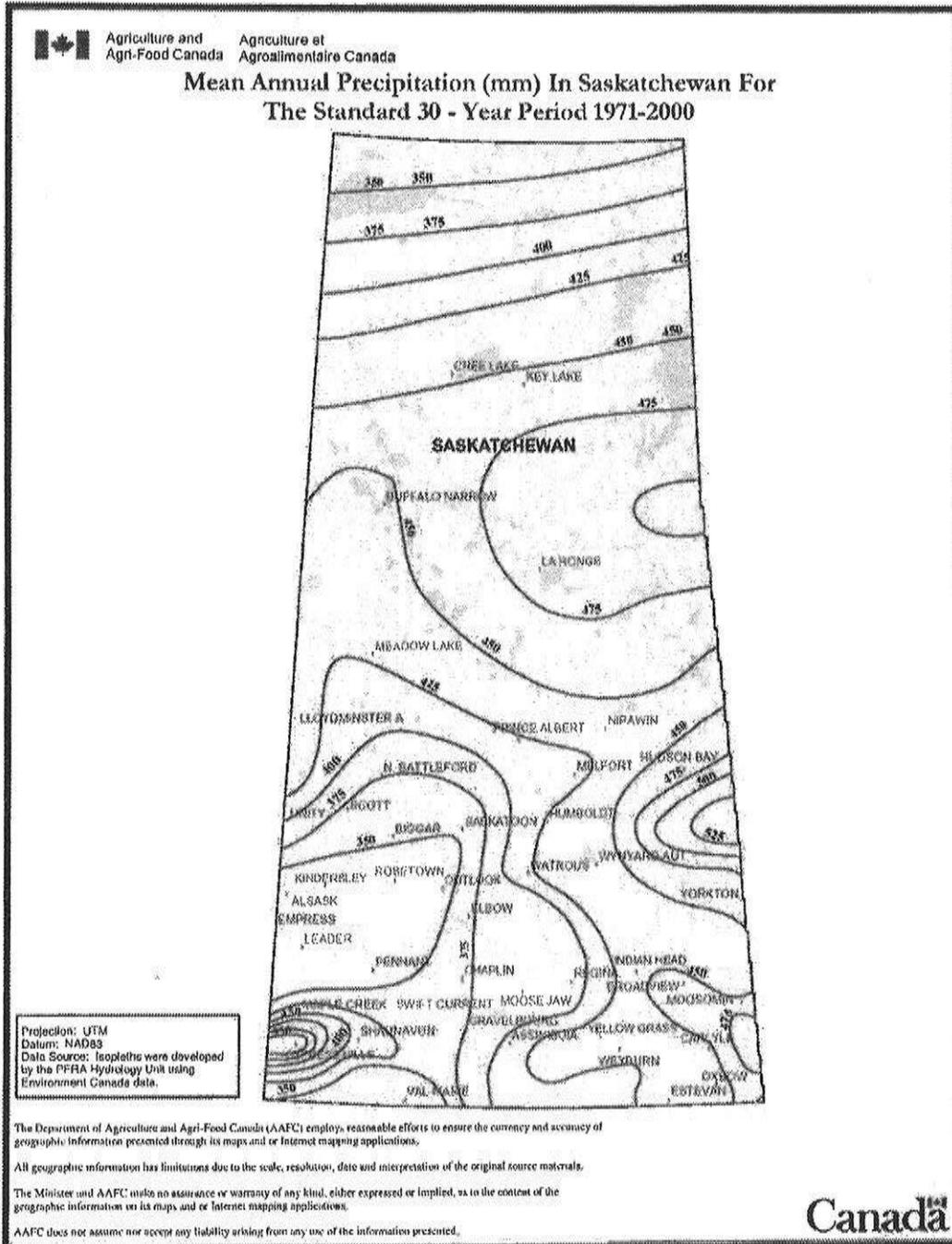
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APPENDICES

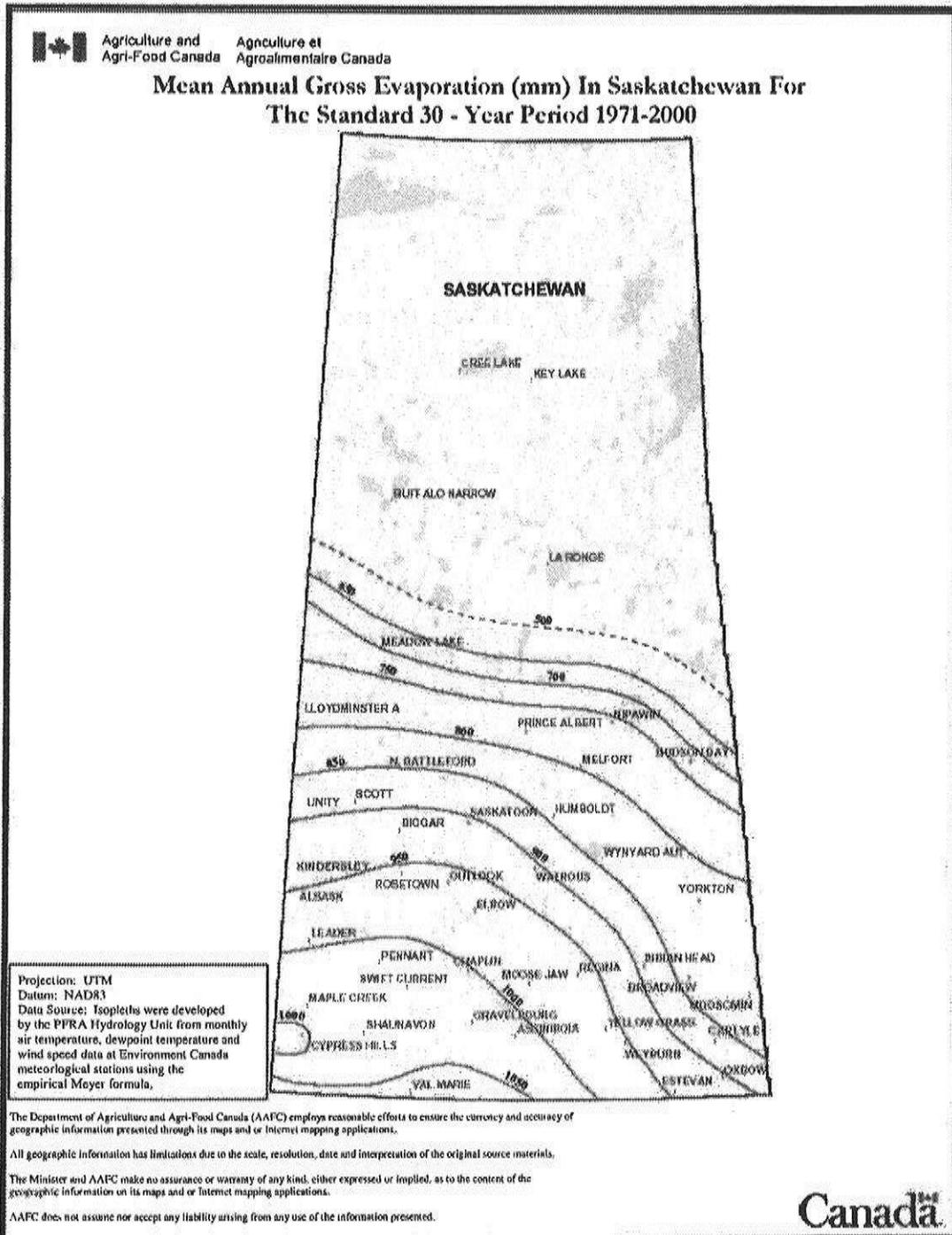
APPENDIX 2 -- EXPECTED VOLUME OF SEWAGE PER DAY

Facility	Expected sewage volume in litres (gallons) per day
Airport	10 (2.2) per passenger
Apartment	190 (42) per person
Assembly Hall/Town Hall/Churches	10 (2.2) per seat
Automotive Service Station/Garage/Gas Station	45 (10) per vehicle served 50 (11) per employee 550 (121) per double pump unit
Bar/Tavern/Cocktail Lounge	Customer 75 (16.5) Employee 50 (11)
Bowling Alley	400 (88) per lane
Cabin, Resort	150 (33) per person
Cafeteria (workplace -- no food service)	10 (2.2) per customer 40 (9) per employee
Camps: Campgrounds with flush toilets, showers Day camps (No Meals Served) Also see Picnic Parks, Youth Camp	130 (28.6) per person 50 (11) per person
Construction Camp (semi-permanent)	190 (42) per person
Cottages and Small Dwellings with Seasonal Occup.	150 (33) per person
Country Club	400 (88) member present 50 (11) per employee
Dance Halls	45 (10) per person
Dining Hall	30 (6.6) per meal served
Dormitory, Bunkhouse	150 (33) per person
<i>Dwelling</i> single family and duplex	340 (75) per person at 2 persons per bedroom 2 bedrooms and less, or at 1.5 persons per bedroom 3 bedrooms and more
<i>Dwelling</i> (includes Mobile Home Trailers) - other than single family or duplex	675 (150) per bedroom
Golf Club	45 (10) per member
Hospital	630 (139) per bed
Hotel/Motel -- Resort	200 (44) per person 40 (9) per employee
Industrial and Commercial <i>Building</i> (does not include process water, showers or a cafeteria)	50 (11) per employee
Industrial and Commercial <i>Building</i> (with showers)	90 (18) per employee
Laundry, Self Service	2100 (462) per machine
Mobile Home/Trailer Park	675 (150) per bedroom
Motel/Hotel	200 (44) per single bed
Nursing and Rest Homes	350 (77) per person
Office <i>Building</i>	50 (11) per employee
Picnic Parks:	toilets only bathhouses, showers, flush toilets
	20 (4.5) per picnicker 40 (9) per picnicker

APPENDIX 18 – MAPS



APPENDIX 18 – MAPS



**APPENDIX 19 - EXAMPLE OF CALCULATION METHOD FOR DETERMINING
LAGOON DIMENSIONS**

(Refer to Section 11, Page X1-7)

Note: The following is an example for an installation in the Saskatoon area. Annual evaporation and precipitation rates differ for other areas of the province. Refer to Appendix 18 for mean annual precipitation and evaporation rates throughout the province.

EXAMPLE:

A three bedroom house that will produce an estimated 1,380 L per day of sewage in the Saskatoon area.

The estimated 1,530 L per day is equivalent to 558,450 L/year.

In Saskatoon:

- The estimated average annual evaporation is 913 mm.
- The estimated average annual precipitation is 360 mm.

Step 1 $\text{Revap} = 913 \text{ mm} - 360 \text{ mm}$
 $= 553 \text{ mm}$

Step 2 $\text{Vevap} = \frac{553 \text{ mm} \times 1,000,000 \text{ mm per square metre}}{1,000,000 \text{ cubic mm per litre}}$
 $= 553 \text{ L/m}^2$

Step 3 $\text{Area of the Lagoon} = \frac{558,450 \text{ L} \times 1.25}{553 \text{ L/m}^2}$
 $= 1262 \text{ m}^2$

Lagoon surface area needed would be: 35.5 m x 35.5 m

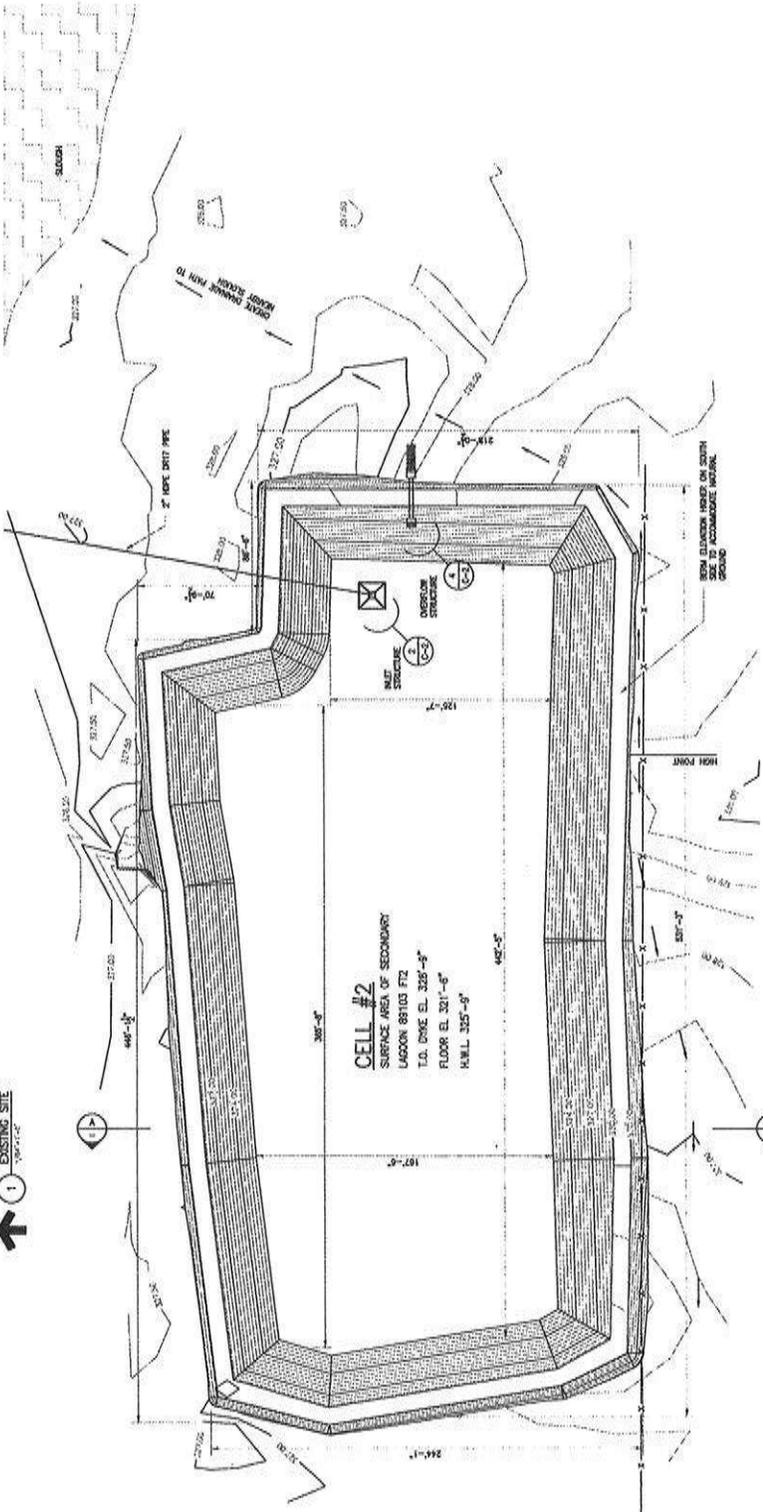
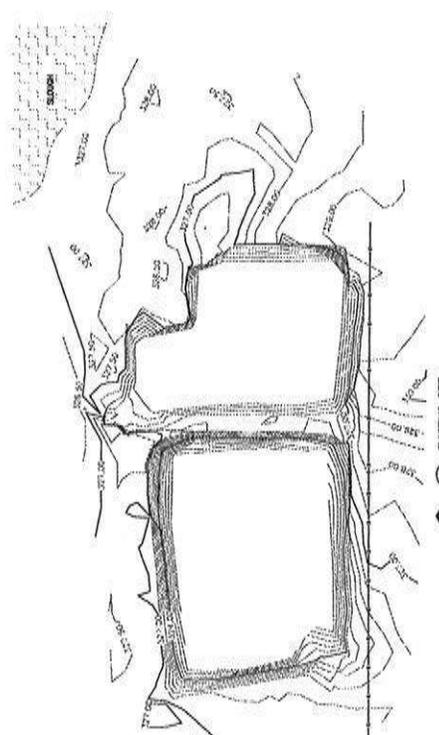
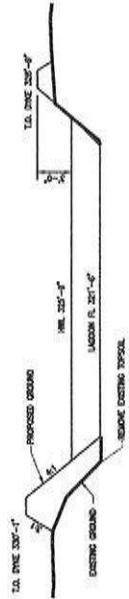
This would be the water surface size "B" at its operating depth.

Step 4 Size at center line of berm "C" length.
 $= B + (H:Vslope \times \text{Freeboard} \times 2) + (2 \times \frac{1}{2} (\text{berm width}))$
 $= 35.5 \text{ m} + (3 \times .5 \text{ m} \times 2) + (2 \times \frac{1}{2} (2 \text{ m}))$
 $= 40.5 \text{ m}$

Step 5 Select an operating depth (eg. 1.2 m) [A minimum operating depth of at least .6 m above the inlet is necessary to prevent frost damage.]
 $= 1.2 \text{ m}$

Step 6 Size at base "A" length
 $= B - (H:Vslope \times \text{Depth} \times 2)$
 $= 35.5 \text{ m} - (3 \times 1.2 \text{ m} \times 2)$
 $= 28.3 \text{ m}$

- NOTES**
1. Proposed site dimensions are approximate. Contractor to follow existing slopes as much as possible and build up berms with suitable material.
 2. Berms to be constructed to 80% D.S. Proctor density.
 3. A clay liner or geo-membrane will be added as required, pending detailed testing of upper layers and berms.



PROJECT DATA	
PROJECT NO.	2017/0172
DATE	2017/01/12
PROJECT NAME	WASTE SYSTEM SITE PLAN
CLIENT	GENIVAR
SCALE	AS SHOWN
DATE	2017/01/12
PROJECT NO.	2017/0172
DATE	2017/01/12
PROJECT NAME	WASTE SYSTEM SITE PLAN
CLIENT	GENIVAR
SCALE	AS SHOWN
DATE	2017/01/12

2 PROPOSED SITE
 2017/0172

1 EXISTING SITE
 2017/0172



Saskatoon Health Region
Population and Public Health
SAFE COMMUNITIES DEPT.
#101-310 Idylwyld Drive North
SASKATOON SK S7L 0Z2
Phone: 655-4605 Fax: 655-4699

To Summit Mechanical

Date: Aug 8, 2013

Fax No.: _____ RM: RM344 Legal Land Location: NW 9-36-4-W3M

Phone No.: _____ Subdivision: _____ Lot: _____ Block: _____
Plan #: _____

Mailed summitmechanical@gmail.com Owner: Prairie
Plant Inc

Permit #: R104568

From: Brent Latimer Fax No.: (306) 655-4699

RE: Plumbing/Sewage Permit Application (INCOMPLETE)

We have received your application for a permit.

Your application for a permit has not been approved because:

Information submitted on the form is either incomplete or incorrect (**see circled sections**), specifically:

As discussed with Genivar on Aug 6, 2013 soil information to be provided. Soil information will be used to provide details at to the type of liner. Liner Information must be provided prior to approval to construct.

Please complete the information that is requested and return this form with your corrections.
Incomplete applications will not be inspected or approved.

The inspector for your area is Dwayne Liebelt at phone number 306-655-4645 if you have any further questions.

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Latimer, Brent SktnHR

Lagoon
New Plans Sept 5/13

From: Riley Jestin <Riley.Jestin@genivar.com>
Sent: Thursday, September 05, 2013 9:25 AM
To: Latimer, Brent SktnHR; Liebelt, Dwayne PHS-SktnHR
Subject: Prairie Plant Lagoon Application
Attachments: Lagoon Application Evap.pdf; 121-19723-00 C-1-3.pdf; Prairie Plant Hydraulic Conductivity.pdf

Brent,

As we had discussed previously, I have had hydraulic conductivity tests completed for the in-situ material for the two lagoon cell sites at Prairie Plant. Our original assumption was that a liner would be required; however the tests show that the in-situ material has a very low hydraulic conductivity that would be suitable for containment. I have attached the tests results and design notes along with the application. I believe this was your main concern with the lagoons.

Could you please review the application and let me know if you require more information for the permit.

Thank you.



Riley Jestin P.Eng | Municipal Engineer

GENIVAR Inc.

#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8

T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

Please consider the environment before printing.

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Onsite Sewage Works Application (Please Print on application)

Application forms that are not complete may result in delays
Applications, section and appendix references to the Sask. Onsite Wastewater Disposal Guide (Second Edition January 2009) available at www.saskatoonhealthregion.ca (search: sewage).

In compliance with the provisions of *The Private Sewage Works Regulations*, application is hereby made for permission to: Construct Reconstruct Extend Connect the private sewage works on the premises or property of:

Sewage Works Installer Information	Sewage Works Installer Summit Mechanical				
	Installer Address (Box #, Street) 221 44th St E			E-mail Address (preferred option) summitmechanical@gmail.com	
	Town/City Saskatoon	Postal Code S7K 8E4	Phone # 306-384-0043	Cell # 306-290-5579	Fax # 306-975-1052

Property Owner Information	Property Owner Prairie Plant Inc C/O Jonathan Louie			
	Mailing Address Saskatoon		Phone # 306-975-1207	Cell #
	Town/City Saskatoon	Postal Code S7K 3J8		

Location Information	RM #	Subdivision Name	Lot Parcel	OR	Block	Plan
	- OR -					
	RM #	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 4	West of 3 Meridian

- A Expected Daily Sewage Volume 8090 L litres (gallons) # of bedrooms _____ Garborator Yes No
- B1 Soil Classification: **Include laboratory test result showing soil texture classification** -OR-
- B2 Percolation Test? _____ minutes per 25 mm (1 inch) (See appendix 8)
- C Septic Tank (Section 6) Package Treatment Plant (Section 12)
First Compartment working capacity _____ litres (gallons) Manufacturer _____
- D Disposal Systems:
 - Single Compartment Holding Tank (Section 5) _____ litres (gallons)
 - Jet Type Disposal (Section 10) *Part B1 and B2 not required*
 - Gravity Absorption Field (Section 8) - **Include completed appendix 3**
 - Pressure Absorption Field (Section 8) - **Include completed appendices 3 and 17**
 - Gravity Flow Chamber System (Section 7) - **Include completed appendix 3**
 - Pressure Chamber System (Section 7) - **Include completed appendix 3A**
 - Sewage Mound type I (Section 9.1) - **Include completed appendix 7A**
 - Sewage Mound type II (Section 9.2) - **Include completed appendices 7 and 17**
 - Enviro Septic System (include sizing information and soil particle count as required by manufacturer)
 - Lagoon (Section 11) Intended for discharge: Yes No Volume _____ - **Include completed appendices 18 & 19 and engineered plan**
- E Depth to water table from ground surface: greater than 3 meters _____ m (ft) less than 3 meters _____ m (ft)
- F Size of parcel in acres / square metres: _____
- G Detailed Site Plan must be provided (see page 2)

Fee: \$30.00 (Applications will NOT be processed without complete payment from the applicant ONLY. See attached page 3.)

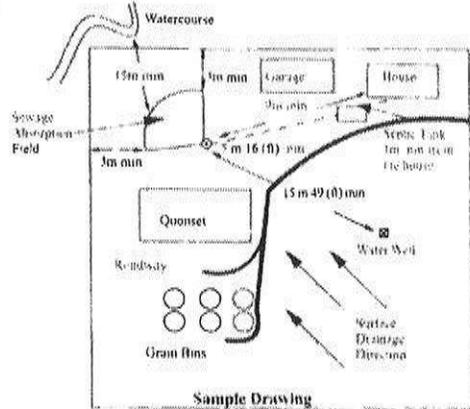
Applicant Name (please print) <i>Jonathan Louie</i>	Applicant Signature 	Date <i>July 18, 2013</i>
--	-------------------------	------------------------------

Applicant's Name:	Jonathan Louie					
Legal Land Description:	RM#	Subdivision Name	Lot Parcel	OR	Block	Plan
	- OR -					
	RM#	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 4	West of 3 Meridian

Site Plan Diagram

Details to be included:

1. Property: size (hectares / acres); dimensions, boundaries
2. Location and distances of the tank and /or private sewage works from:
 - a. all water sources on that property or adjoining properties;
 - b. all buildings on that property or occupied dwelling on adjoining properties;
 - c. all water courses / sources within .5 kilometer;
 - d. all boundaries of that property.
3. Surface drainage direction.

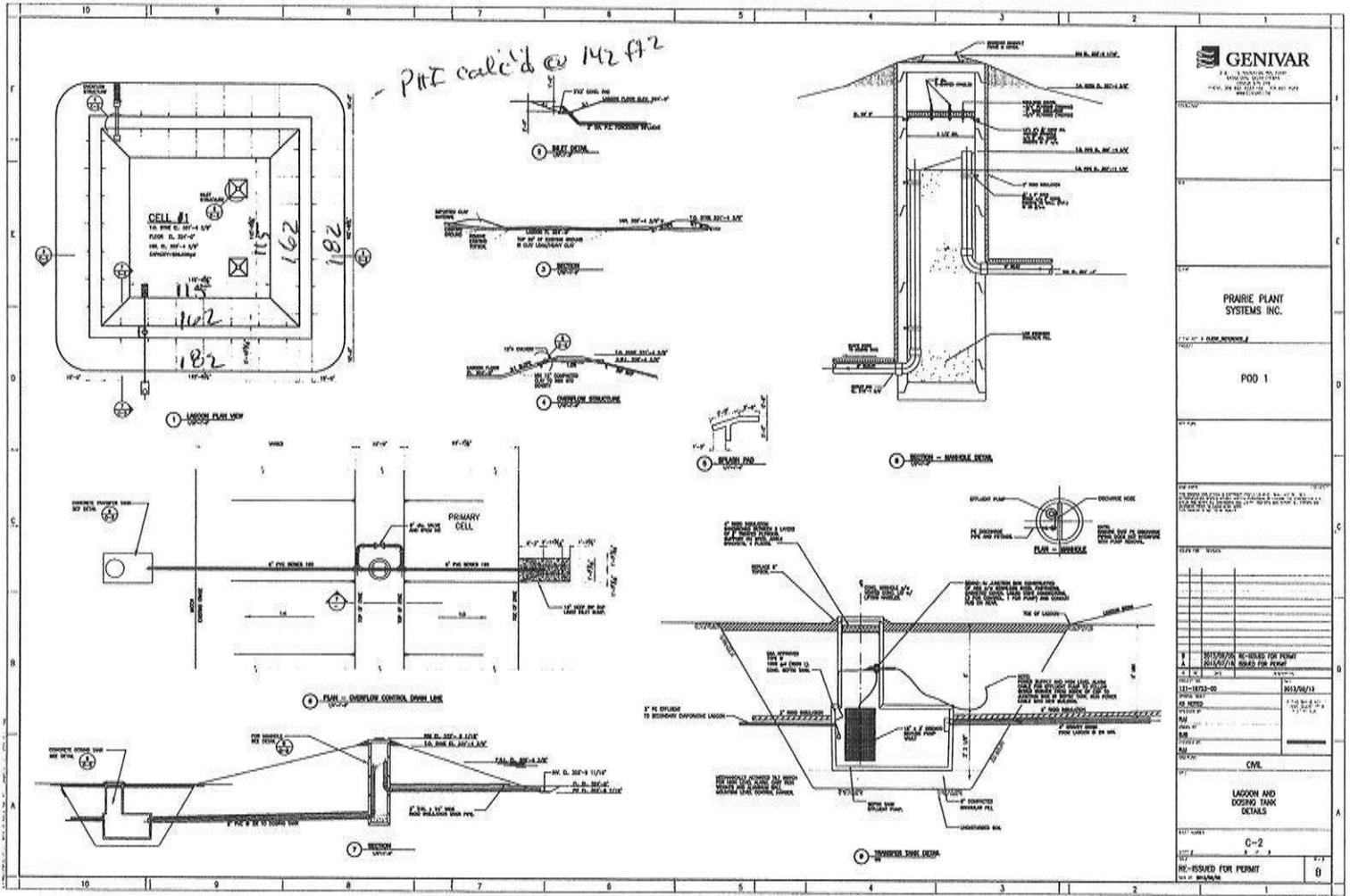


North ↑
Diagram

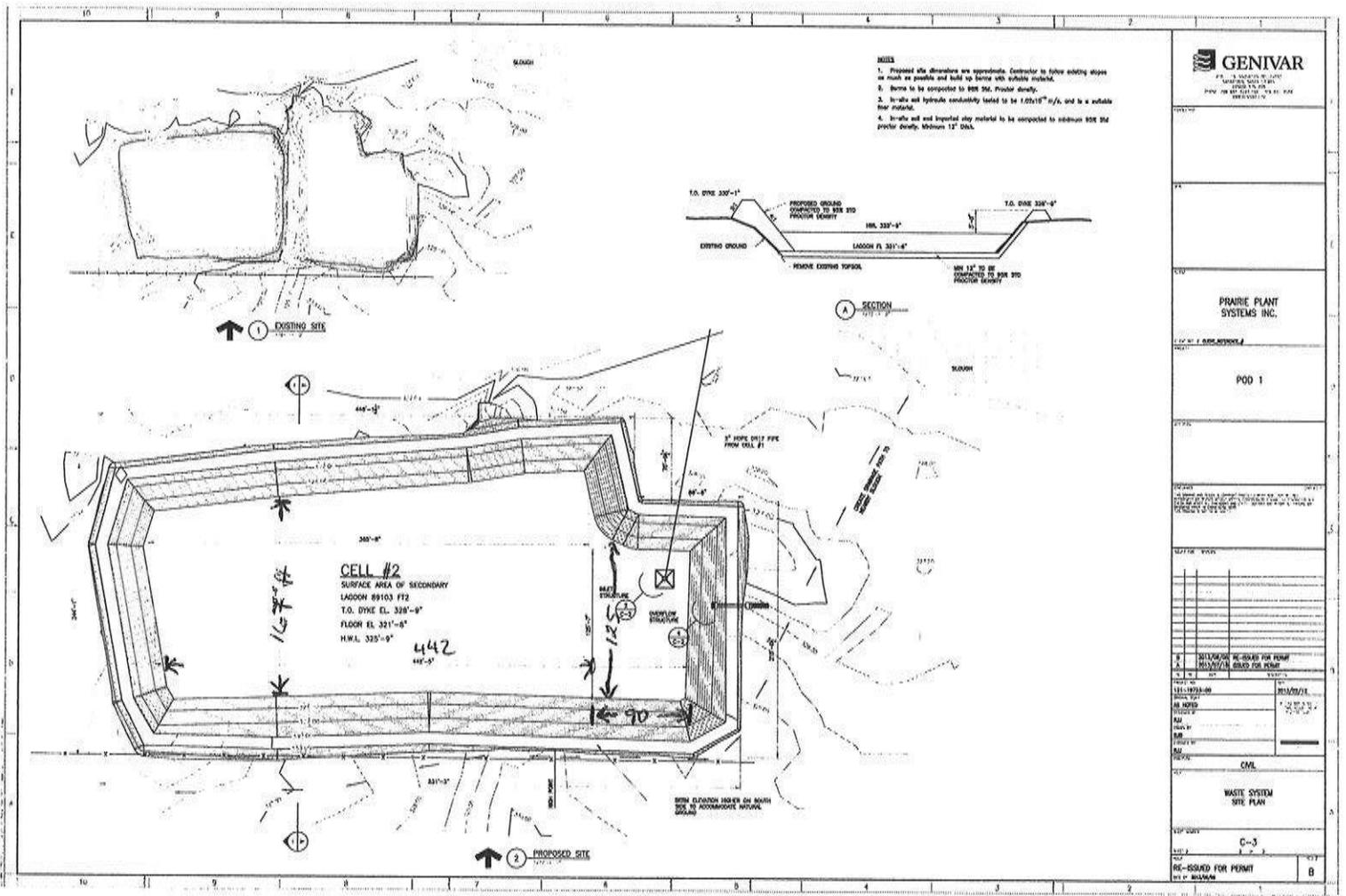
Cell 1

115ft x 115ft 35.05m

162 x 162 49.4m



Larger Lagoon
 $167 \text{ ft} \times 442 \text{ ft} = 73849 \text{ sq ft}$
 $+ 90 \text{ ft} \times 1125 \text{ ft} = 101250 \text{ sq ft}$
 $= 175099 \text{ sq ft}$
 $= 16134 \text{ m}^2$
 (approximately)
 Close to the
 calc'd size by
 engineer which
 has 8987 m^2



+ Vol-1 Lagoon 2072 m^2
 + Vol-2 Lagoon 8909 m^2
 $9981 \text{ m}^2 > \text{min area of Lagoon cal'd at } 6675 \text{ m}^2$

Appendix 2 Waste Water Disposal guide (WWDG)

Commercial building with showers = 90 l/p/d
 Commercial building without showers = 50 l/p/d

Assume - 40 l/p/day due to showers, etc... → to Lagoon
 - 50 l/p/day due to toilets, etc... → to Mound

Lagoon

Employees - (50) existing + 60 new = 110 employees (40 l/p/d) = 4400 l/d

36 chambers - each using 1025 l/day for irrigation
 10% of irrigation goes to waste

$$(1025 \text{ l/day}) (36 \text{ chambers}) (10\%) = 3690 \text{ l/d}$$

Daily waste to Lagoon

$$V = 4400 \text{ l/d} + 3690 \text{ l/d} \\ = 8090 \text{ l/d} \text{ or } 2,952,850 \text{ l/yr}$$

Evaporative Lagoon System (WWDG Appendix B 7.19)

Saskatoon - evaporation = 913 mm ✓
 precipitation = 360 mm ✓

1) $Revap = 913 \text{ mm} - 360 \text{ mm} = 553 \text{ mm} \checkmark$

2) $Ve_{evap} = \frac{553 \text{ mm} \times 1,000,000 \text{ mm}^3/\text{m}^2}{1,000,000 \text{ m}^3/\text{l}} = 553 \text{ l/m}^2 \checkmark$

3) $\text{Area of Lagoons} = \frac{2,952,850 \text{ l} (1.25)}{553 \text{ l/m}^2} \\ = 6675 \text{ m}^2 \checkmark$

Area of 1st Lagoon = 2072 m² (142 ft²)
 Area of 2nd Lagoon = 8207 m² (88,000 ft²)

$10,359 \text{ m}^2 > 6,675 \text{ m}^2 \therefore \text{OK}$

Total Area = 10,359 m²

in middle of small lagoons



Client Prairie Plant Inc

Project Lagoon

DATE July 17/13

BY Riley Jostm

JOB No. 121-19723-00

SHEET 1 OF 1

From Sask ministry of Environment

- seepage from Lagoon limited to $15 \text{ cm/yr} = 4.8 \times 10^{-7} \text{ cm/s}$
- lab tests $\times 10$ for in-situ materials

U.S.A. uses max $1 \times 10^{-7} \text{ cm/s}$ - no mention of in-situ material
 Manitoba uses max $1 \times 10^{-7} \text{ cm/s}$ - no mention of in-situ material

Cell #1

$$\text{Hydraulic conductivity} = 1.39 \times 10^{-8} \text{ cm/s}$$

$$\times 10 \text{ for in-situ material} = 1.39 \times 10^{-7} \text{ cm/s} < 4.8 \times 10^{-7} \text{ cm/s}$$

\therefore OK

Cell #2

$$\text{Hydraulic conductivity} = 1.02 \times 10^{-8} \text{ cm/s}$$

$$\times 10 \text{ for in-situ material} = 1.02 \times 10^{-7} \text{ cm/s} < 4.8 \times 10^{-7} \text{ cm/s}$$

\therefore OK

N Cell 1

TRIAxIAL HYDRAULIC CONDUCTIVITY TEST REPORT

Test reference: ASTM D 5084



SNC-LAVALIN Environment

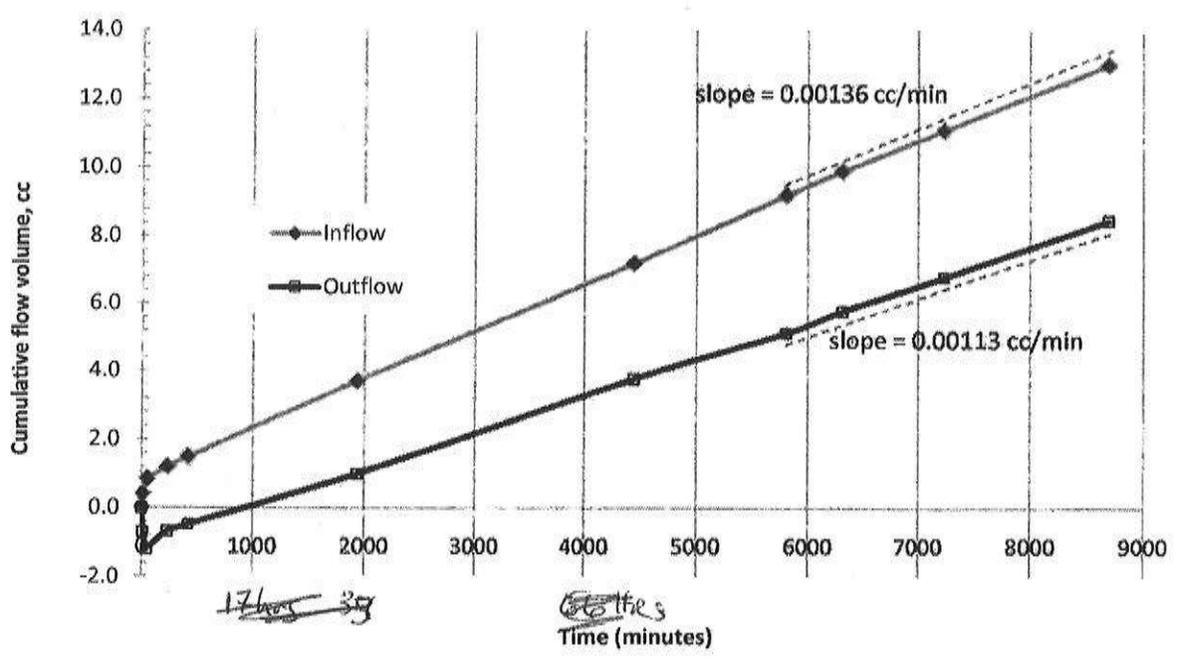
CLIENT:	Machibroda
PROJECT:	L13-3567
MDH Job No:	614924
DATE:	29-Aug-13

SAMPLE: SA#1 at 21% m/c Remolded, Standard Proctor Effort

Testing Summary:

Cell pressure =	230 kPa	Final Water Content =	26.2%
Average back pressure =	200 kPa	Final Dry Density =	1537 kg/m ³
Head across specimen =	70 cm	Final deg of saturation =	96%
Hydraulic gradient =	18.4		
Initial sample diameter =	101.50 mm	Inflow rate =	0.00136 cc/min
Initial sample height =	38.05 mm	Outflow rate =	0.00113 cc/min
Initial Water Content =	21.9%	Average flow rate =	0.00125 cc/min
Initial Dry Density =	1548 kg/m ³		
Initial Deg of saturation =	82%	Hydraulic Conductivity (based on average flow rate):	
Permeant:	de-aired tap-water	k = 1.39E-08 cm/s	

Comments:

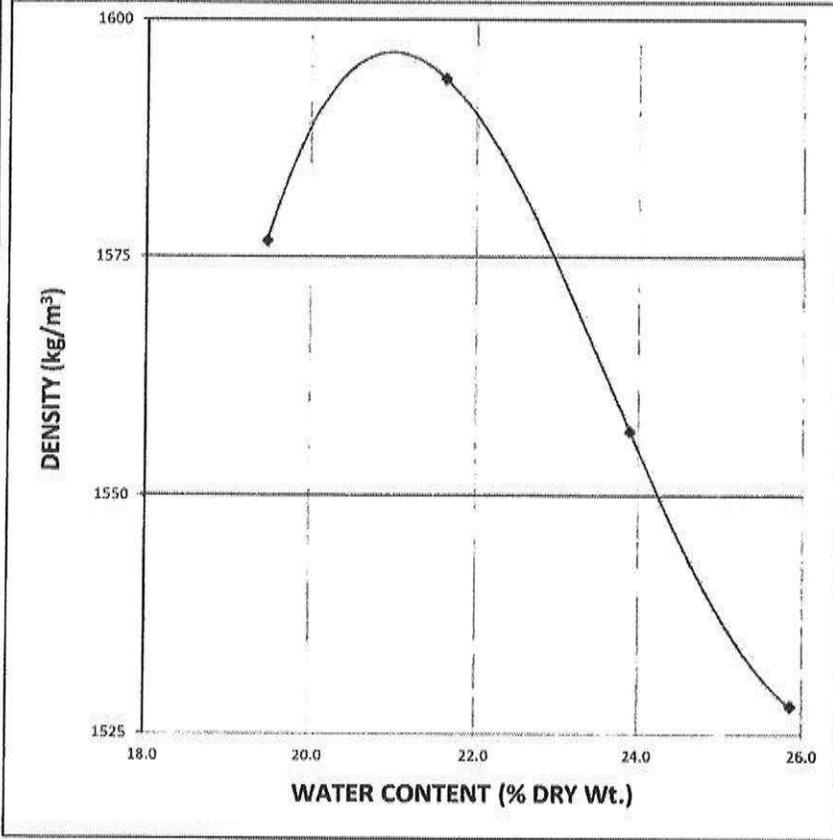


The testing services reported here have been performed in accordance with accepted local industry standards.
 The results presented are for the sole use of the designated client only.
 This report constitutes a testing service only. It does not represent any interpretation or opinion regarding specification compliance or material suitability.
 Engineering interpretation will be provided by MDH Engineered Solutions Corp upon request.

STANDARD PROCTOR MOISTURE-DENSITY ANALYSIS

PROJECT: Prairie Plant
 LOCATION: Highway 16, East of Saskatoon, Saskatchewan
 SITE: Sampled from Northern Borrow Pit - Cell 1
 HOLE: _____ SAMPLE: 1 DEPTH: _____
 TECHNICIAN: TB DATE: August 14, 2013

	TRIAL NUMBER	1	2	3	4	5	6
DENSITY DETERMINATION	Mold Number						
	Wt. Sample Wet + Mold						
	Wt. Mold (Grams)						
	Wt. Sample Wet (Grams)						
	Volume of Mold (cm ³)						
	Wet density (kg/m ³)						
	Dry density (kg/m ³)	1577	1594	1557	1528		
WATER CONTENT DETERMINATION	TARE NUMBER						
	Wt. Sample Wet + Tare (Grams)						
	Wt. Sample Dry + Tare (Grams)						
	Wt. Tare (Grams)						
	Wt. Dry soil (Grams)						
	Wt. Water (Grams)						
	Water content (%)	19.5	21.6	23.9	25.9		



AT OPTIMUM W% = 21.0
 DENSITY (Kg/m³) = 1597
 DENSITY (Kg/m³) - ROCK CORRECTION = N/A

METHOD OF COMPACTION STANDARD PROCTOR

DIA. MOLD(INS) = 4
 No. OF LAYERS = 3
 No. BLOWS PER LAYER = 25
 Ht. OF FREE FALL (INS) = 12
 Wt. OF TAMPER (lbs) = 5.5

SHAPE OF TAMPING FACE Circular Planar

DESCRIPTION OF SAMPLE Subgrade (Lagoon Liner)

DRY DENSITY = (100XWET DENSITY)/(100+W%)
 WET DENSITY = (Wt. compact soil)/(vol. compact soil)

REMARKS: _____

Reviewed By: _____



P. MACHIBRODA ENGINEERING LTD.

DRAWING NO.

L13-3567-1

5 - Cell 2

TRIAxIAL HYDRAULIC CONDUCTIVITY TEST REPORT

Test reference: ASTM D 5084

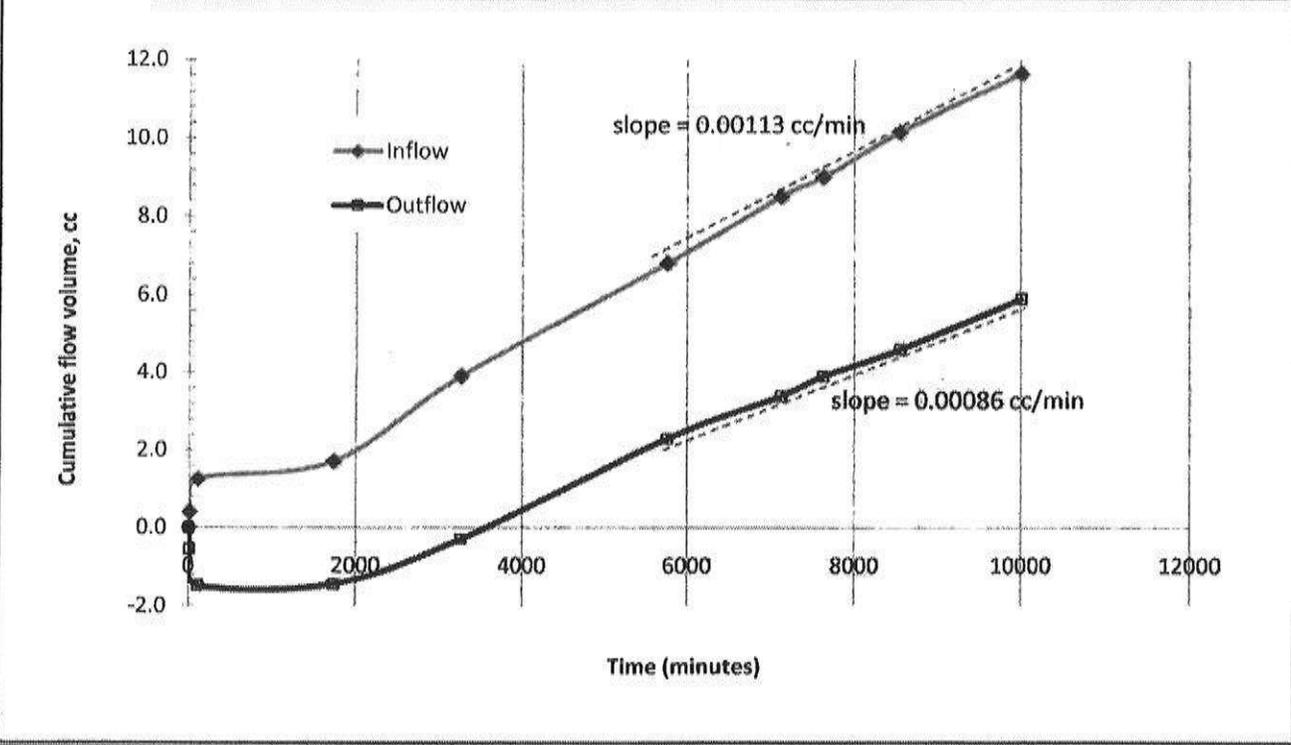
 SNC-LAVALIN Environment	CLIENT:	Machibroda
	PROJECT:	L13-3567
	MDH Job No:	614924
	DATE:	22-Aug-13

SAMPLE: SA#2 at 19.8% m/c Remolded, Standard Proctor Effort

Testing Summary:

Cell pressure =	230 kPa	Final Water Content =	22.5%
Average back pressure =	200 kPa	Final Dry Density =	1634 kg/m ³
Head across specimen =	64.1 cm	Final deg of saturation =	96%
Hydraulic gradient =	20.2		
Initial sample diameter =	101.54 mm	Inflow rate =	0.00113 cc/min
Initial sample height =	31.79 mm	Outflow rate =	0.00086 cc/min
Initial Water Content =	20.0%	Average flow rate =	0.00099 cc/min
Initial Dry Density =	1646 kg/m ³		
Initial Deg of saturation =	87%	Hydraulic Conductivity (based on average flow rate):	
Permeant:	de-aired tap-water	k =	1.02E-08 cm/s

Comments:



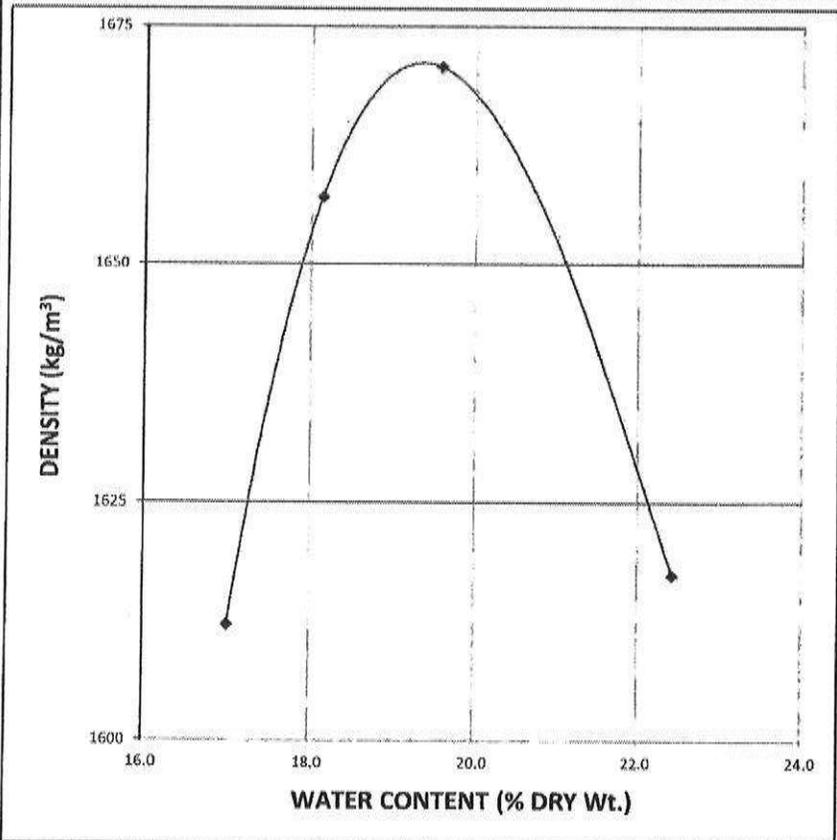
The testing services reported here have been performed in accordance with accepted local industry standards.
 The results presented are for the sole use of the designated client only.
 This report constitutes a testing service only. It does not represent any interpretation or opinion regarding specification compliance or material suitability.
 Engineering interpretation will be provided by MDH Engineered Solutions Corp upon request.

5

STANDARD PROCTOR MOISTURE-DENSITY ANALYSIS

PROJECT: Prairie Plant
 LOCATION: Highway 16, East of Saskatoon, Saskatchewan
 SITE: Sampled from South Borrow Pit - cell 2
 HOLE: _____ SAMPLE: 2 DEPTH: _____
 TECHNICIAN: GP/JK DATE: August 13/13

		1	2	3	4	5	6
DENSITY DETERMINATION	TRIAL NUMBER						
	Mold Number						
	Wt. Sample Wet + Mold						
	Wt. Mold (Grams)						
	Wt. Sample Wet (Grams)						
	Volume of Mold (cm ³)						
	Wet density (kg/m ³)						
	Dry density (kg/m ³)	1612	1657	1671	1617	1657	
WATER CONTENT DETERMINATION	TARE NUMBER						
	Wt. Sample Wet + Tare (Grams)						
	Wt. Sample Dry + Tare (Grams)						
	Wt. Tare (Grams)						
	Wt. Dry soil (Grams)						
	Wt. Water (Grams)						
	Water content (%)	17.0	18.1	19.6	22.4	18.1	



AT OPTIMUM W% = 19.8
 DENSITY (Kg/m³) = 1672
 DENSITY (Kg/m³) - ROCK CORRECTION = N/A

METHOD OF COMPACTION STANDARD PROCTOR

DIA. MOLD (INS) = 4
 No. OF LAYERS = 3
 No. BLOWS PER LAYER = 25
 Ht. OF FREE FALL (INS) = 12
 Wt. OF TAMPER (lbs) = 5.5
 SHAPE OF TAMPING FACE = Circular Planar

DESCRIPTION OF SAMPLE = Subgrade (Lagoon Liner)

DRY DENSITY = (100XWET DENSITY)/(100+W%)
 WET DENSITY = (Wt. compact soil)/(vol. compact soil)

REMARKS: _____

Reviewed By: _____



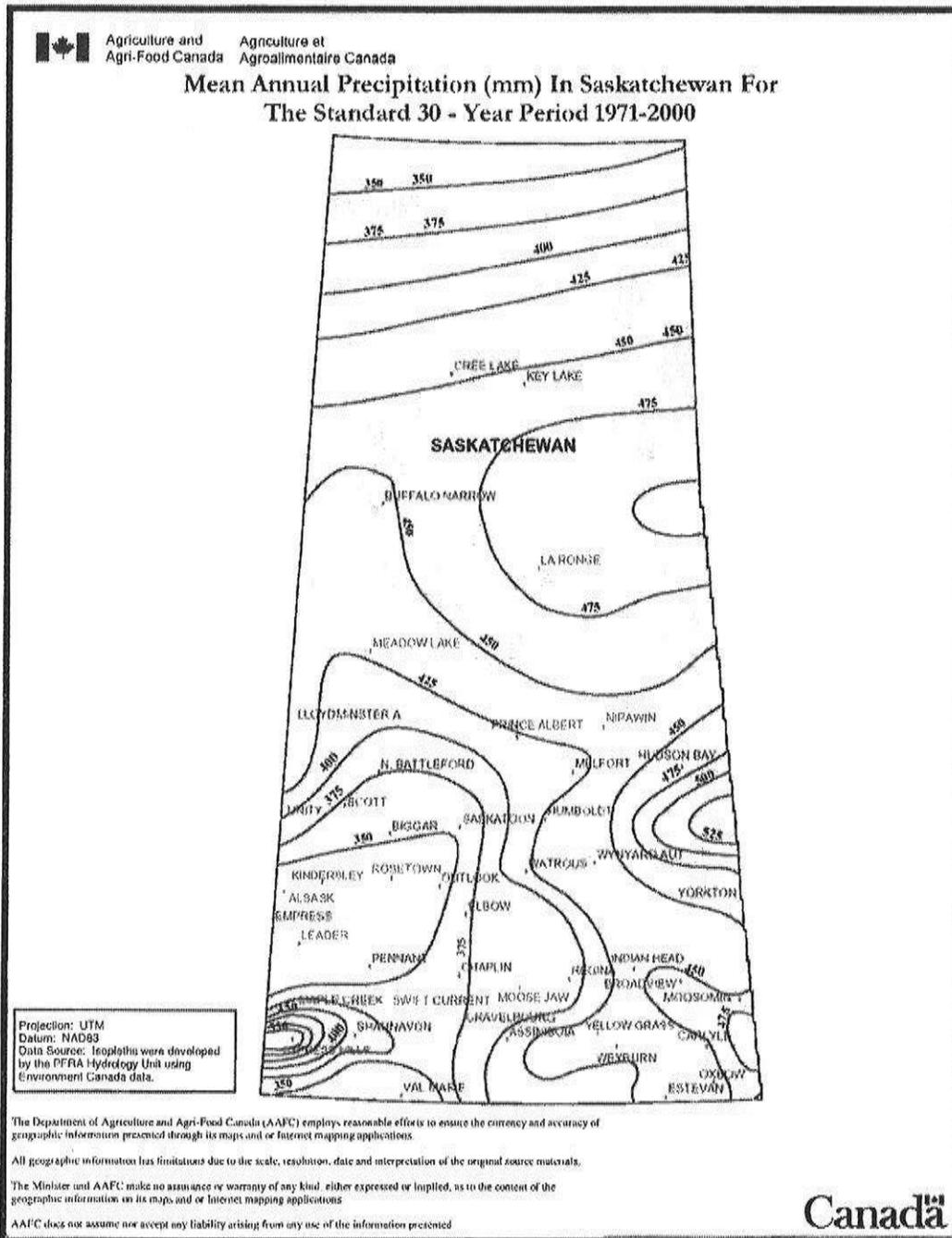
DRAWING NO. **L13-3567-2**

APPENDICES

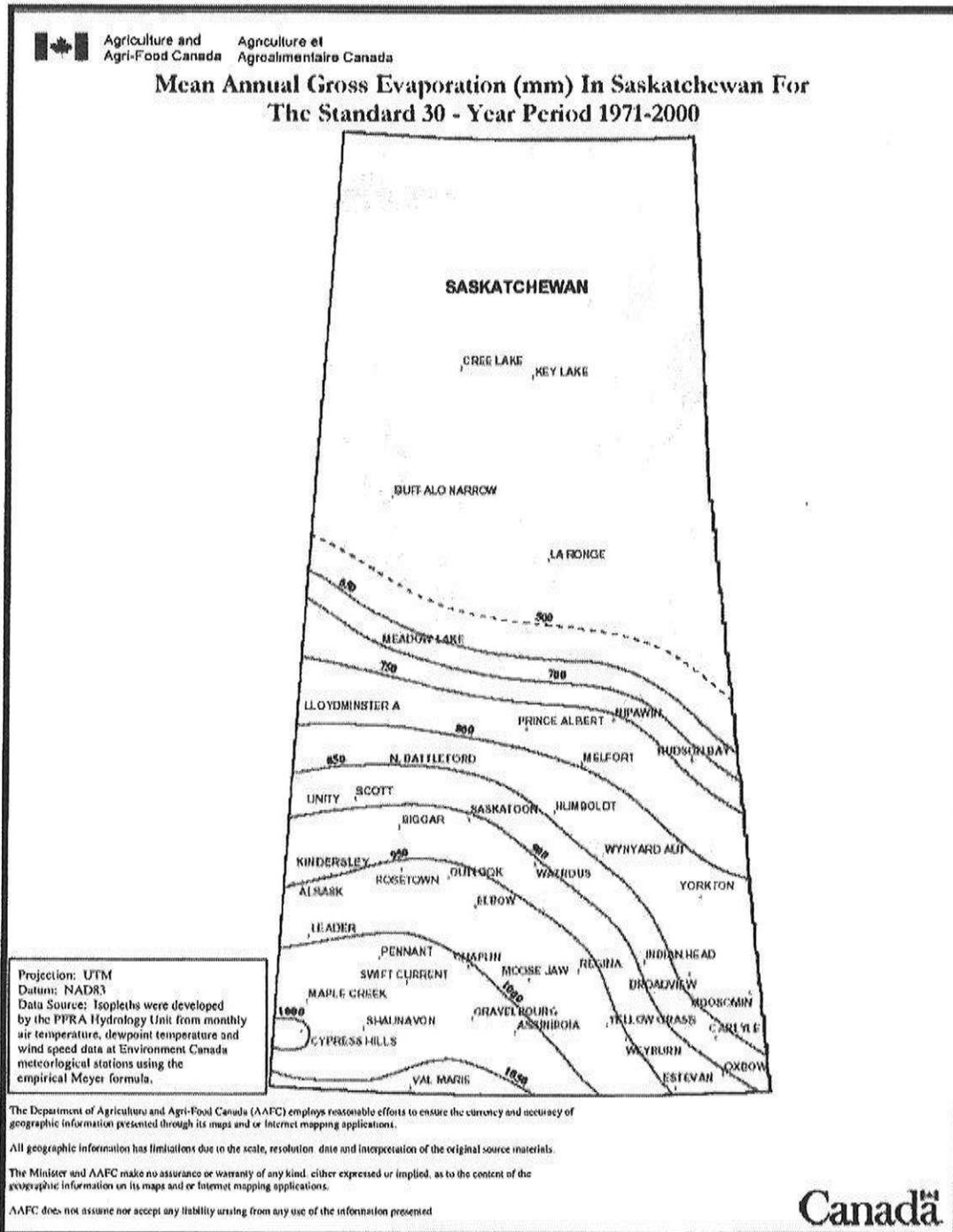
APPENDIX 2 – EXPECTED VOLUME OF SEWAGE PER DAY

Facility	Expected sewage volume in litres (gallons) per day
Airport	10 (2.2) per passenger
Apartment	190 (42) per person
Assembly Hall/Town Hall/Churches	10 (2.2) per seat
Automotive Service Station/Garage/Gas Station	45 (10) per vehicle served 50 (11) per employee 550 (121) per double pump unit
Bar/Tavern/Cocktail Lounge	Customer 75 (16.5) Employee 50 (11)
Bowling Alley	400 (88) per lane
Cabin, Resort	150 (33) per person
Cafeteria (workplace – no food service)	10 (2.2) per customer 40 (9) per employee
Camps: Campgrounds with flush toilets, showers Day camps (No Meals Served) Also see Picnic Parks, Youth Camp	130 (28.6) per person 50 (11) per person
Construction Camp (semi-permanent)	190 (42) per person
Cottages and Small Dwellings with Seasonal Occup.	150 (33) per person
Country Club	400 (88) member present 50 (11) per employee
Dance Halls	45 (10) per person
Dining Hall	30 (6.6) per meal served
Dormitory, Bunkhouse	150 (33) per person
<i>Dwelling</i> single family and duplex	340 (75) per person at 2 persons per bedroom 2 bedrooms and less, or at 1.5 persons per bedroom 3 bedrooms and more
<i>Dwelling</i> (includes Mobile Home Trailers) - other than single family or duplex	675 (150) per bedroom
Golf Club	45 (10) per member
Hospital	630 (139) per bed
Hotel/Motel – Resort	200 (44) per person 40 (9) per employee
Industrial and Commercial <i>Building</i> (does not include process water, showers or a cafeteria)	50 (11) per employee
Industrial and Commercial <i>Building</i> (with showers)	90 (18) per employee
Laundry, Self Service	2100 (462) per machine
Mobile Home/Trailer Park	675 (150) per bedroom
Motel/Hotel	200 (44) per single bed
Nursing and Rest Homes	350 (77) per person
Office <i>Building</i>	50 (11) per employee
Picnic Parks:	toilets only bathhouses, showers, flush toilets
	20 (4.5) per picnicker 40 (9) per picnicker

APPENDIX 18 – MAPS



APPENDIX 18 – MAPS



**APPENDIX 19 - EXAMPLE OF CALCULATION METHOD FOR DETERMINING
LAGOON DIMENSIONS**

(Refer to Section 11, Page X1-7)

Note: The following is an example for an installation in the Saskatoon area. Annual evaporation and precipitation rates differ for other areas of the province. Refer to Appendix 18 for mean annual precipitation and evaporation rates throughout the province.

EXAMPLE:

A three bedroom house that will produce an estimated 1,380 L per day of sewage in the Saskatoon area.

The estimated 1,530 L per day is equivalent to 558,450 L/year.

In Saskatoon:

- The estimated average annual evaporation is 913 mm.
- The estimated average annual precipitation is 360 mm.

$$\begin{aligned} \text{Step 1} \quad \text{Revap} &= 913 \text{ mm} - 360 \text{ mm} \\ &= 553 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{Step 2} \quad \text{Vevap} &= \frac{553 \text{ mm} \times 1,000,000 \text{ mm per square metre}}{1,000,000 \text{ cubic mm per litre}} \\ &= 553 \text{ L/m}^2 \end{aligned}$$

$$\begin{aligned} \text{Step 3} \quad \text{Area of the Lagoon} &= \frac{558,450 \text{ L} \times 1.25}{553 \text{ L/m}^2} \\ &= 1262 \text{ m}^2 \end{aligned}$$

Lagoon surface area needed would be: 35.5 m x 35.5 m

This would be the water surface size "B" at its operating depth.

$$\begin{aligned} \text{Step 4} \quad \text{Size at center line of berm "C" length.} \\ &= B + (H:Vslope \times \text{Freeboard} \times 2) + (2 \times \frac{1}{2} (\text{berm width})) \\ &= 35.5 \text{ m} + (3 \times .5 \text{ m} \times 2) + (2 \times \frac{1}{2} (2 \text{ m})) \\ &= 40.5 \text{ m} \end{aligned}$$

$$\begin{aligned} \text{Step 5} \quad \text{Select an operating depth (eg. 1.2 m) [A minimum operating depth of at least .6 m above} \\ \text{the inlet is necessary to prevent frost damage.]} \\ &= 1.2 \text{ m} \end{aligned}$$

$$\begin{aligned} \text{Step 6} \quad \text{Size at base "A" length} \\ &= B - (H:Vslope \times \text{Depth} \times 2) \\ &= 35.5 \text{ m} - (3 \times 1.2 \text{ m} \times 2) \\ &= 28.3 \text{ m} \end{aligned}$$



Saskatoon Health Region
 Population and Public Health
 SAFE COMMUNITIES DEPT.
 #101-310 Idylwyld Drive North
 SASKATOON SK S7L 0Z2
 Phone: 655-4605 Fax: 655-4699

To: Prairie Plant Inc

Date: Sept 10/13

□ Fax No.: _____

RM: 344 Legal Land Location: NW 9-36-4 W 3rd

□ Phone No.: _____

Subdivision: _____ Lot: _____ Block: _____

□ Mailed
elowe@prairieplant.com

Plan #: _____
 Owner: Prairie Plant Inc Permit #: R104568
 RE: Lagoons permit

From: Doreen Liebelt Fax No.: (306) 655-4699

RE: Plumbing/Sewage Permit Application Request (COMPLETED)

Your **application** for a plumbing/sewage permit has been approved. **Note that this does not mean that your installation is approved at this point.**

Your permit number is R104568

Contact information and instructions:

The inspector for your area is Doreen Liebelt at phone number (306) 655-4645.

1. When calling for an inspection please **state your permit number** and give a minimum of **48** hours notice.
2. Plumbing systems must be under a pressure test when the inspector arrives for inspection.

Additional instructions:

1. Please note a permit ceases to be valid if the work for which it is issued in not commenced within six months of the date of issue, (5(1)(5) of the Plumbing and Drainage Regulations 1997). The permit may cease to be valid after 1 year of issuance if no call for inspection or follow up is done by the permit applicant, (8(1)(a) of the Plumbing and Drainage Regulations 1997).
2. Where a permit to perform work is not obtained before the work is commenced, the fee for the permit to perform the work is to be doubled (9(1) (7) of the Plumbing and Drainage Regulations 1997).
3. Where it is necessary to re-inspect an installation connected to a communal sewage works or a communal waterworks due to non-compliance with the standards the permit holder may be charged an additional fee, equal to the lesser of: the amount of the original or \$100, (9(9) of the Plumbing and Drainage Regulations 1997).

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Wastewater lagoons

Draft for consultation

EPA 509/10: This guideline replaces EPA Guideline 509/04, Wastewater and evaporation lagoon construction. It advises those proposing to construct wastewater lagoons or similar infrastructure on construction techniques that should assist in meeting obligations under the Environment Protection Act 1993 and the Environment Protection (Water Quality) Policy 2003. The guideline is intended mainly for wastewater lagoon proponents and their engineers or consultants.

Introduction

Wastewater¹ management is an inherent aspect of many industrial operations. Lagoons (or ponds) have been used extensively in the past to naturally treat, store (prior to reuse or discharge) and dispose of wastewater via evaporation. The uses and applications of these lagoons have increased in recent times. However, poorly constructed lagoons can lead to surface and groundwater pollution as well as odour and health impacts.

The document provides basic guidance on the siting, construction and lining of wastewater lagoons and similar infrastructure. It covers:

- wastewater treatment, storage and evaporation lagoons used in sewage treatment facilities; food, beverage and agricultural processing industries; animal husbandry activities; and aquaculture purposes
- sedimentation basins, leachate ponds for composting and landfill activities, irrigation dams used for holding and mixing treated or untreated wastewater, and ponds on industrial sites used for capturing potentially contaminated stormwater runoff from their premises
- processing and wastewater lagoons for chemical, manufacturing and mining industries.

The term 'wastewater lagoon' will be used collectively in this document to refer to all of the above and other similar infrastructures.

The guideline does not include lagoon sizing, operation, biochemistry, sampling² and effluent reuse³. Proponents are advised to seek assistance from suitably qualified and experienced professionals⁴ when designing and constructing wastewater lagoons, as well as when addressing the other aspects mentioned above.

¹ Wastewater includes (a) sewage, and septic tank effluent, whether treated or untreated, and (b) water containing commercial or industrial waste.

² Guidance on wastewater and groundwater sampling are provided in EPA Guidelines, *Regulatory monitoring and testing—water and wastewater sampling* (June 2007) and *Regulatory monitoring and testing—groundwater sampling*, (June 2007) respectively.

³ Guidance on wastewater reuse for irrigation is provided in EPA Guideline, *Wastewater Irrigation Management Plan (WIMP)—a drafting guide for licensees* (June 2009).

Appendix 2 Table of suggested construction and lining categories

- 1 The EPA may consider an alternative lining technology other than those suggested in this table provided the proponent can demonstrate that it would achieve a similar or better outcome than that prescribed under the relevant category.
- 2 The EPA may consider an alternative level of supervision for clay lining if proper engineering controls are to be put in place for risk management.
- 3 Please refer to Appendix 3 for definition of key technical terminologies.

	Ponds lined with geomembrane materials					
	Category 1	Category 2	Category 3	Category 4	Category 5	
Suggested minimum requirements	<ul style="list-style-type: none"> • Minimum 300 mm thick low permeability clay liner (or 2 layers with minimum of 150 mm compacted thickness each) or 7 mm thick GCL. • Clay materials should be of such quality to prevent infiltration of wastewater beyond the thickness of the liner. • 150 mm of sand cushion above the subgrade if GCL is used. • Submit an As Constructed Report (ACR) to the EPA. 	<ul style="list-style-type: none"> • Minimum 300 mm thick compacted clay liner with $k \leq 1 \times 10^{-9}$ m/s* (or 2 layers with minimum of 150 mm compacted thickness each) or 7 mm thick GCL. • Clay materials used should have a Liquid Limit (LL) $\geq 30\%$ and a Plasticity Index (PI) ≥ 10. • Level 1 supervision for clay lining • Construction Quality Assurance (QCA) plan for GCL placement if GCL is used • 150 mm sand cushion above the subgrade if GCL is used. 	<ul style="list-style-type: none"> • 1 mm thick HDPE or greater[#] • Leakage detection required • Submit ACR to the EPA 	<ul style="list-style-type: none"> • 1 mm thick HDPE or greater[#] • CQA-plan for HDPE placement • CQA plan for subgrade preparation. • Leakage detection required. • Submit ACR to the EPA. 	<ul style="list-style-type: none"> • Double HDPE lining (1 mm thick or greater for each liner)[#] • A combination of HDPE liner as in category 4 with a clay liner as in category 2 • CQA plan for subgrade preparation. • CQA plan for HDPE placement. • Leakage detection required • Submit ACR to the EPA. 	<ul style="list-style-type: none"> • Site generally not suitable for wastewater lagoon construction unless effective drainage control is put in place • If to be allowed, apply category determined following question(a) plus drainage provision.



High Density Polyethylene (HDPE)

1. Product Description

The popularity of High Density Polyethylene (HDPE) is primarily due to its low initial material cost and excellent chemical resistance. This allows thicker sections to be used compared to other geomembrane materials. A thick, durable, HDPE liner can be placed in exposed applications where the cost of other materials would be prohibitive. HDPE has excellent chemical resistance which is often the driving force behind the selection of HDPE. HDPE is a field assembled lining material that cannot be practically fabricated in the shop. All HDPE projects, regardless of size, must be installed by trained installers.

HDPE is a versatile material which is used widely across all applications. One of the main uses of HDPE is for landfill base liners where its chemical resistance is used to good effect. HDPE can also be used in a multitude of secondary containments, pond linings, and water containment projects. HDPE is best used as an exposed lining material, and has the UV resistance required for many years of outstanding service.

2. Technical Data

Materials information is on page 2.

3. Installation

HDPE is a field fabricated material hence welding and testing need to be completed with great care. Field welding of HDPE is done with hot wedge welders as they are fast and produce excellent welds in sheets from 1.0 mm to 2.5 mm (40 to 100 mil). Hot wedge welders produce two weld tracks separated by a small unbonded channel. By sealing off both ends of this channel, and then pumping it full of air, entire seams can be checked quickly and effectively.

Weather is a major factor in all HDPE lining installations. Precipitation in any form, whether rain, snow, dew, or fog can bring HDPE installation to a halt. Cold weather can slow down an installation, however HDPE has been installed in temperatures as low as -30°C (-20°F). The presence of moisture in the form of frost, snow, and ice are bigger problems than outside air temperatures.

4. Availability and Cost

Available from Layfield or distributors. Call 425-254-1075 Pacific time
780-453-6731 Mountain time, or
905-761-9123 Eastern time



5. Manufactured For

Layfield Environmental Systems Corp.
Layfield Geosynthetics & Ind. Fabrics Ltd.

6. Warranty

Products sold will meet Layfield's published specifications. Any extended warranty required by the buyer must be negotiated at the time of order. Extended warranties may be available on this product and may be at extra cost. Full warranty details are available from Layfield.

7. Maintenance

Geomembranes should be inspected at least once per year for damage, stress, or any other detrimental condition. The entire containment area should be visually inspected annually. Layfield provides geomembrane maintenance services on request.

8. Designed and Installed By

Layfield Environmental Systems Ltd
Layfield Environmental Systems Corp

9. Filing Systems

www.LayfieldGroup.com
www.geomembranes.com

10. HDPE Material Properties

25 July 2013		HDPE 60 mil Minimum Material Properties		
Style	ASTM	HDPE 60 SMOOTH	HDPE 60 TEXTURED	
Thickness	D5199	60 mil 1.5 mm	60 mil 1.5 mm	
Lowest Individual of 10 readings	D 5199	54 mil 1.35 mm	54 mil 1.35 mm	
Density	D792	0.940	0.940	
Tensile Strength ASTM D 638; Modified Type IV Die	Stress at Yield	126 ppi 22 kN/m	90 ppi 16 kN/m	
	Stress @ Break	228 ppi 40 kN/m	126 ppi 22 kN/m	
	Strain @ Yield 33 mm G.L	12%	12%	
	Strain @ Break 50 mm G.L	700%	100%	
Tear Resistance	D1004	42 lbs 187 N	42 lbs 187 N	
Puncture Resistance	D4833	108 lbs 480 N	90 lbs 400 N	
Dimensional Stability	D1204 (Max)	± 2%	± 2%	
Oxidative Induction Time	D3895	> 100 mins	> 100 mins	
Stress Cracking	D5397	300 Hours	300 Hours	
Carbon Black Content	D1603	2.0 - 3.0%	2.0 - 3.0%	
Carbon Black Dispersion	D5596	CAT 1 or 2	CAT 1 or 2	
Typical Roll Dimensions				
Roll Length ³		560 ft 171 m	SST ⁴ - 540 ft (165 m) DST ⁴ - 520 ft (158 m)	
Roll Width		6.86 m 22.5 ft	6.86 m 22.5 ft	

¹ Tests results meet GRI GM17 standard specification

² Values are for single and double sided textured geomembrane

³ Roll lengths and widths have a tolerance of +/- 1%

⁴SST- Single Sided Textuted; DST- Double Sided Textured

11. Field Seam Strengths

18 Oct 2010		HDPE Minimum Field Seam Strengths				
Style	ASTM	HDPE 40 Smooth	HDPE 60 Smooth	HDPE 80 Smooth	HDPE 60 Textured	HDPE 80 Textured
Bonded Seam Strength Test Temp 23°C, 73°F	D6392	80 ppi 14 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm
		ETB	ETB	ETB	ETB	ETB

Layfield
Construction Materials

www.layfieldgeosynthetics.com
edmonton@layfieldgroup.com

Tel (US): 1-800-277-8298
Tel (Canada): 1-877-511-3078

Geomembranes | Erosion & Sediment Control | Soil Reinforcement | Industrial Fabrics & Enclosures | Construction Films | LEED Products



Products

High Density Polyethylene (HDPE)

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HDPE is a versatile material which is used widely across all applications. One of the main uses of HDPE is for landfill base liners, where its chemical resistance is used to good effect. HDPE can also be used in a multitude of secondary containments, pond linings, and water containment projects. HDPE is best used as an exposed lining material, and has the UV resistance required for many years of outstanding service.

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	Strain @ Yield 33 mm G.L.	12%	12%	
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Puncture Resistance	D4833	108 lbs 480 N	90 lbs 400 N	
Dimensional Stability	D1204 (Max)	± 2%	± 2%	
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Stress Cracking	D5397	300 Hours	300 Hours	
Carbon Black Content	D1603	2.0 - 3.0%	2.0 - 3.0%	
Carbon Black Dispersion	D5596	CAT 1 or 2	CAT 1 or 2	
Typical Roll Dimensions				
Roll Length ³		560 ft 171 m	SST ⁴ - 540 ft (165 m) DST ⁴ - 520 ft (158 m)	
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¹ Tests results meet GRI GM17 standard specification
² Values are for single and double sided textured geomembrane
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Style	ASTM	HDPE 40 Smooth	HDPE 60 Smooth	HDPE 80 Smooth	HDPE 60 Textured	HDPE 80 Textured
Bonded Seam Strength Test Temp 23°C, 73°F	D6392	80 ppl 14 N/mm	120 ppl 21 N/mm	160 ppl 28 N/mm	120 ppl 21 N/mm	160 ppl 28 N/mm
Peel Adhesion Test Test Temp 23°C, 73°F	D6392	FTB 52 ppl 9 N/mm	FTB 78 ppl 14 N/mm	FTB 104 ppl 18 N/mm	FTB 78 ppl 14 N/mm	FTB 104 ppl 18 N/mm

High-density polyethylene

From Wikipedia, the free encyclopedia

High-density polyethylene (HDPE) or **polyethylene high-density (PEHD)** is a polyethylene thermoplastic made from petroleum. Known for its large strength to density ratio, HDPE is commonly used in the production of plastic bottles, corrosion-resistant piping, geomembranes, and plastic lumber. HDPE is commonly recycled, and has the number "2" as its recycling symbol.

In 2007, the global HDPE market reached a volume of more than 30 million tons.^[1]



HDPE has SPI resin ID code 2

Contents

- 1 Properties
- 2 Applications
- 3 See also
- 4 References
- 5 External links

Properties

HDPE is known for its large strength to density ratio.^[2] The mass density of high-density polyethylene can range from 0.93 to 0.97 g/cm³.^[3] Although the density of HDPE is only marginally higher than that of low-density polyethylene, HDPE has little branching, giving it stronger intermolecular forces and tensile strength than LDPE. The difference in strength exceeds the difference in density, giving HDPE a higher specific strength.^[4] It is also harder and more opaque and can withstand somewhat higher temperatures (120 °C/ 248 °F for short periods, 110 °C /230 °F continuously). High-density polyethylene, unlike polypropylene, cannot withstand normally required autoclaving conditions. The lack of branching is ensured by an appropriate choice of catalyst (e.g., Ziegler-Natta catalysts) and reaction conditions.

Applications

HDPE is resistant to many different solvents and has a wide variety of applications, including:

- 3-D printer filament
- Arena Board (puck board)
- Backpacking frames
- Ballistic plates
- Banners
- Bottle caps
- Chemical resistant piping systems
- Coax cable inner insulator
- Food storage containers
- Fuel tanks for vehicles
- Corrosion protection for steel pipelines
- Electrical and plumbing boxes
- Far-IR lenses
- Folding chairs and tables
- Geomembrane for hydraulic applications (such as canals and bank reinforcements) and chemical containment
- Geothermal heat transfer piping systems



HDPE pipe installation in storm drain project in Mexico.

- Heat-resistant fireworks mortars
- Hard hats
- Hula hoops
- Natural gas distribution pipe systems
- Fireworks
- Plastic bags
- Plastic bottles suitable both for recycling (such as milk jugs) or re-use
- Plastic lumber
- Plastic surgery (skeletal and facial reconstruction)^[5]
- Root barrier
- Snowboard rails and boxes
- Stone paper
- Storage sheds
- Telecom ducts
- Tyvek
- Water pipes for domestic water supply and agricultural processes
- Wood plastic composites (utilizing recycled polymers)

HDPE is also used for cell liners in subtitle D sanitary landfills, wherein large sheets of HDPE are either extrusion or wedge welded to form a homogeneous chemical-resistant barrier, with the intention of preventing the pollution of soil and groundwater by the liquid constituents of solid waste.

HDPE is preferred by the pyrotechnics trade for mortars over steel or PVC tubes, being more durable and safer. HDPE tends to rip or tear in a malfunction instead of shattering and becoming shrapnel like the other materials.

Milk jugs and other hollow goods manufactured through blow molding are the most important application area for HDPE – More than 8 million tons, or nearly one third of worldwide production, was applied here. In addition to being recycled using conventional processes, HDPE can also be processed by recyclebots into filament for 3-D printers via distributed recycling.^[6]

Above all, China, where beverage bottles made from HDPE were first imported in 2005, is a growing market for rigid HDPE packaging, as a result of its improving standard of living. In India and other highly populated, emerging nations, infrastructure expansion includes the deployment of pipes and cable insulation made from HDPE.^[1] The material has benefited from discussions about possible health and environmental problems caused by PVC and Polycarbonate associated Bisphenol A, as well as its advantages over glass, metal and cardboard.

See also

- Cross-linked polyethylene (PEX)
- Linear low-density polyethylene (LLDPE)
- Low-density polyethylene (LDPE)
- Medium density polyethylene (MDPE)
- Phillips Disaster
- Plastic recycling
- Resin identification code
- Ultra-high-molecular-weight polyethylene (UHMWPE)
- Stretch wrap

References

- [^] ^a ^b "Market Study: Polyethylene HDPE" (<http://www.ceresana.com/en/market-studies/plastics/polyethylene-hdpe/>). Ceresana Research (<http://www.ceresana.com/en/>).

2. ^ Dermnet.org.nz (<http://www.peninsulaplastics.com/thermoforming-capabilities>). Thermoforming HDPE
3. ^ Typical Properties of Polyethylene (PE) (http://www.ides.com/generics/PE/PE_typical_properties.htm). Ides.com. Retrieved on 2011-12-30.
4. ^ Compare Materials: HDPE and LDPE (<http://www.makeitfrom.com/compare-materials/?A=High-Density-Polyethylene-HDPE&B=Low-Density-Polyethylene-LDPE>). Makeitfrom.com. Retrieved on 2011-12-30.
5. ^ Dermnet.org.nz (<http://www.dermnet.org.nz/procedures/polyethylene.html>). Dermnet.org.nz (2011-07-01). Retrieved on 2011-12-30.
6. ^ Christian Baechler, Matthew DeVuono, and Joshua M. Pearce, "Distributed Recycling of Waste Polymer into RepRap Feedstock (<http://dx.doi.org/10.1108/13552541311302978>)" *Rapid Prototyping Journal*, **19**(2), pp. 118-125 (2013). open access (http://www.academia.edu/2643418/Distributed_Recycling_of_Waste_Polymer_into_RepRap_Feedstock)

External links

HDPE for Robotics (http://www.societyofrobots.com/materials_hdpe.shtml)

HDPE Advantages & Disadvantages (<http://www.ides.com/pm/HDPE.asp>)

Retrieved from "http://en.wikipedia.org/w/index.php?title=High-density_polyethylene&oldid=575448240"

Categories: Plastics | Polyolefins

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Population and Public Health
 SAFE COMMUNITIES DEPT.
 #101-310 Idylwyld Drive North
 SASKATOON SK S7L 0Z2
 Phone: 306-655-4605
 Plumbing Line: 360-655-4657
 Fax: 306-655-4699

To: Riley Jestin

Date: Oct. 29, 2013

Fax No.: _____

RM: 344 Legal Land Location: NW 9 36 4 W3rd

Phone No.: _____

Subdivision: _____ Lot: _____ Block: _____

Plan #: _____

Mailed E-Mailed

Owner: Prairie Plant Inc. **Permit #:** R1094568

Revised bagoon application

From: Dwayne Liebelt

Fax No.: (306) 655-4699

RE: Plumbing/Sewage Permit Application Request (COMPLETED)

Your **application** for a plumbing/sewage permit has been approved. **Note that this does not mean that your installation is approved at this point.**

Your permit number is: R104568

Contact information and instructions:

The inspector for your area is Dwayne Liebelt at phone number 306 655 4645.

1. When calling for an inspection please **state your permit number** and give a minimum of **48** hours notice.
2. Plumbing systems must be under a pressure test when the inspector arrives for inspection.

Additional instructions:

1. Please note a permit ceases to be valid if the work for which it is issued in not commenced within six months of the date of issue, (5(1)(5) of the Plumbing and Drainage Regulations 1997). The permit may cease to be valid after 1 year of issuance if no call for inspection or follow up is done by the permit applicant,(8(1)(a) of the Plumbing and Drainage Regulations 1997).
2. Where a permit to perform work is not obtained before the work is commenced, the fee for the permit to perform the work is to be doubled (9(1) (7) of the Plumbing and Drainage Regulations 1997).
3. Where it is necessary to re-inspect an installation connected to a communal sewage works or a communal waterworks due to non-compliance with the standards the permit holder may be charged an additional fee, equal to the lesser of: the amount of the original or \$100, (9(9) of the Plumbing and Drainage Regulations 1997).

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Liebelt, Dwayne PHS-SktnHR

From: Jestin, Riley <Riley.Jestin@genivar.com>
Sent: Friday, October 25, 2013 2:38 PM
To: Latimer, Brent SktnHR
Cc: Liebelt, Dwayne PHS-SktnHR; Jonathan Louie
Subject: RE: Prairie Plant
Attachments: 121-19723-00 C-3.pdf; 121-19723-00 C-2.pdf

Brent,
Please find attached updated drawings regarding the lagoons as discussed in the previous emails.

 GENIVAR
Riley Jestin P.Eng | Municipal Engineer
GENIVAR Inc.
#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8
T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

Please consider the environment before printing...

From: Latimer, Brent SktnHR [mailto:Brent.Latimer@saskatoonhealthregion.ca]
Sent: October-25-13 8:23 AM
To: Riley Jestin
Cc: Liebelt, Dwayne PHS-SktnHR
Subject: RE: Prairie Plant

Alterations from the proposed plan should be submitted to our office for review and approval prior to construction, see the sewage regulations for greater detail. Reference your permit number so the change can be attached the permit.

The danger in providing as-built plans after the fact is if they do not conform to provincial standards additional alterations would be required prior to our final approval of the permit. As a professional engineering firm overseeing the project if you are confident that all alterations conform you can make a judgment call regarding submissions, if in your opinion it would be challenging to update that status of the application due to constant changes based on site conditions.

In this case I would advise that the most current as is plan be provided 2-3 business days prior to the request for inspection. We must confirm that the permit application and what is actually built are the same. If this is not the case that aspect of the work would not be approved, we would request the plan alterations and a re-inspection possibly would need to be done.

Brent Latimer
Supervisor, Safe Communities Department
Public Health Services
101-310 Idylwyld Drive North
Saskatoon, SK S7L 0Z2
Phone: (306) 655-4459
Facsimile: (306) 655-4498

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From: Riley Jestin [<mailto:Riley.Jestin@genivar.com>]
Sent: Thursday, October 24, 2013 11:12 AM
To: Liebelt, Dwayne PHS-SktnHR; Latimer, Brent SktnHR
Subject: Prairie Plant

Dwayne and Brent

Due to the season, prairie plant is having difficulties in drying and achieving compaction for the lagoon floor and berms. As such, they are willing to go to plan B and provide an HDPE Liner for the lagoons. This fall they will focus on installing the liner and overflow structure for Cell #1 with the intent to continue Cell #2 next spring when the soil is more workable.

Depending on soil conditions next spring, they may not need to install the liner in Cell #2. We can do additional testing next spring if necessary.

I will keep you up to date on progress and supply you with as-built drawings once construction is complete.

Is this acceptable for the SHR?

 **GENIVAR**
Riley Jestin P.Eng | Municipal Engineer
GENIVAR Inc.
#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8
T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

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Prairie Plant Lagoon
R104568

Liebelt, Dwayne PHS-SktnHR

From: Jonathan Louie <jcl@prairieplant.com>
Sent: Wednesday, November 20, 2013 11:35 AM
To: Liebelt, Dwayne PHS-SktnHR
Cc: Eugene Staudinger; Gerald Rousell; sbz@prairieplant.com
Subject: RE: Prairie Plant POD1 - Lagoon Cell#1 Compaction (Density) Test Reports
Attachments: Lagoon Permit_Signed off.pdf; Density Test_Lagoon_Bank_NESW.pdf; Density Test_Lagoon_Floor NE.pdf; Density Test_Lagoon_Floor NW.pdf; Density Test_Lagoon_Floor SE_SW.pdf; 121-19723-00 C-2RevC.pdf

Dwayne,

Please find attached are compaction test reports for the lagoon Cell#1. One test has been conducted for each side of the banks, and one test has been conducted for each quarter of the lagoon floor. All tests have met the 95% density requirement.

We will be completing the remainder of earthwork including the manhole and holding tank installation this week. Our liner contractor will start the liner installation next week.

The only deviation from the permit will be ZCT Construction to be our earthwork contractor to perform the earthwork and manhole/holding tank installation. Green Earth Environmental Solution Inc. will be the contractor for the liner installation.

If you have any question, please let me know.

Thanks,

Jonathan Louie

Infrastructure Project Manager, P. Eng.

Prairie Plant Systems Inc.

Saskatoon, SK

Phone: (306) 975-1207 Ext: 263

Fax: (306) 975-0440



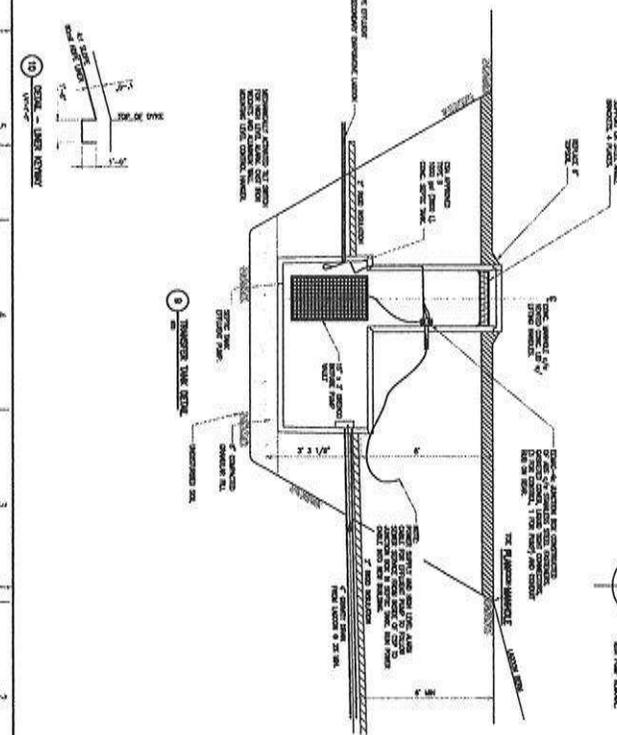
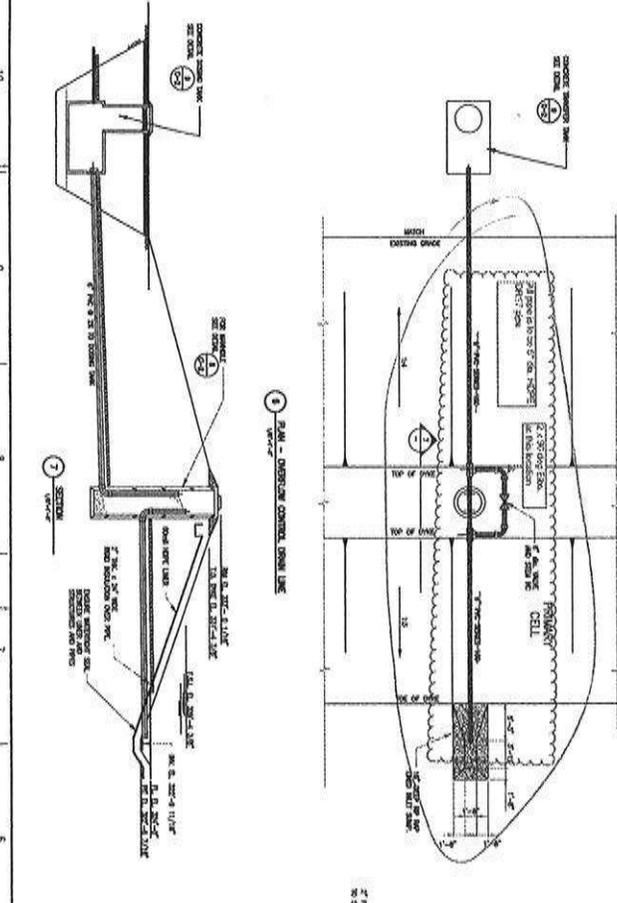
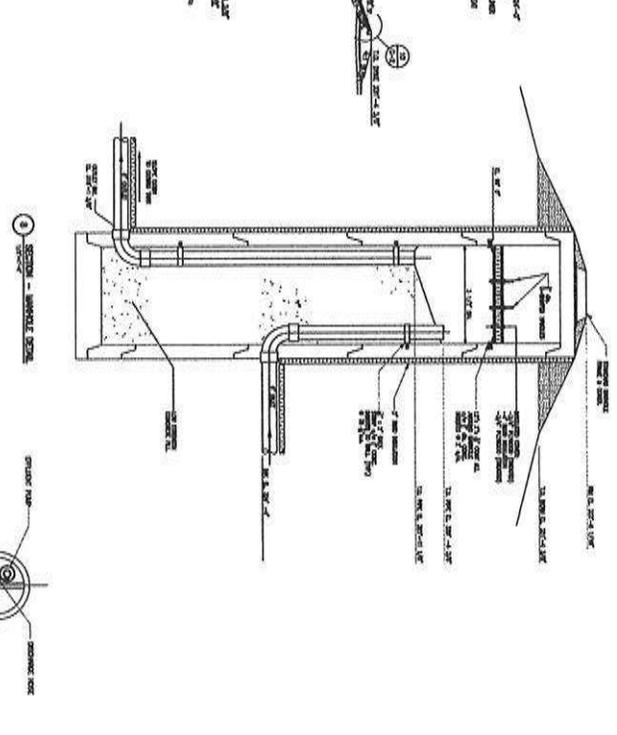
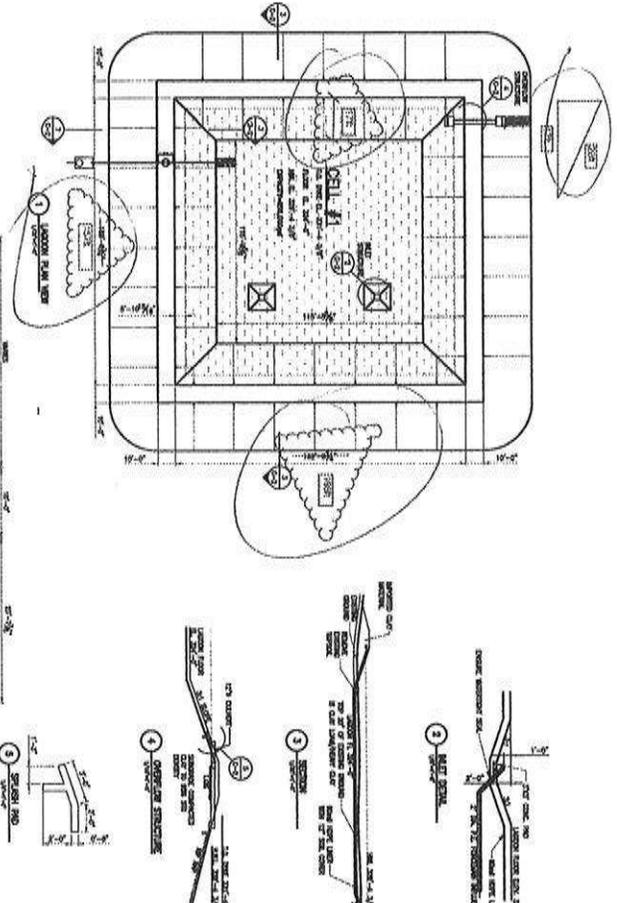
Prairie Plant
Systems Inc.

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NO.	DESCRIPTION	DATE	BY	CHKD.
1	ISSUED FOR PERMIT	05/15/02	JL	ML
2	ISSUED FOR CONSTRUCTION	05/15/02	JL	ML
3	ISSUED FOR AS-BUILT	05/15/02	JL	ML
4	ISSUED FOR RECORD	05/15/02	JL	ML
5	ISSUED FOR FINAL	05/15/02	JL	ML
6	ISSUED FOR ARCHIVE	05/15/02	JL	ML
7	ISSUED FOR	05/15/02	JL	ML
8	ISSUED FOR	05/15/02	JL	ML
9	ISSUED FOR	05/15/02	JL	ML
10	ISSUED FOR	05/15/02	JL	ML
11	ISSUED FOR	05/15/02	JL	ML
12	ISSUED FOR	05/15/02	JL	ML
13	ISSUED FOR	05/15/02	JL	ML
14	ISSUED FOR	05/15/02	JL	ML
15	ISSUED FOR	05/15/02	JL	ML
16	ISSUED FOR	05/15/02	JL	ML
17	ISSUED FOR	05/15/02	JL	ML
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31	ISSUED FOR	05/15/02	JL	ML
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43	ISSUED FOR	05/15/02	JL	ML
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91	ISSUED FOR	05/15/02	JL	ML
92	ISSUED FOR	05/15/02	JL	ML
93	ISSUED FOR	05/15/02	JL	ML
94	ISSUED FOR	05/15/02	JL	ML
95	ISSUED FOR	05/15/02	JL	ML
96	ISSUED FOR	05/15/02	JL	ML
97	ISSUED FOR	05/15/02	JL	ML
98	ISSUED FOR	05/15/02	JL	ML
99	ISSUED FOR	05/15/02	JL	ML
100	ISSUED FOR	05/15/02	JL	ML

DATE: 05-15-02
 DRAWN: JL
 CHECKED: ML
 LINES: ADDITION
 SHEET: C

PROJECT: LACON AND DOCKING TANK DETAILS
 SHEET: C-2
 OF: 3

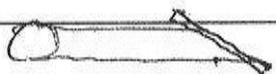


DATE: 05-15-02
 DRAWN: JL
 CHECKED: ML
 LINES: ADDITION
 SHEET: C

PROJECT: LACON AND DOCKING TANK DETAILS
 SHEET: C-2
 OF: 3

PROGRESS NOTES

Re: Prairie Plant System Lagoon install

DATE	COMMENTS	SIGNATURE
Nov 29/13	Site visit - Supervisor Brent Labner &	
	Jonathan Louie	
	Notes - sizing of lagoon close to what was	
	calculated by Pth. 58m top 36m bottom	
	1) overflow going in on North end of cell	
		
	liner of cell will be fixed to the above 2 ft oval	
	device	
	- No septic water going into 1st cell of lagoon	
	- incoming 2" line is pressurized from North	
	building & new east building (in 2 inlets)	
	- to move from 1st lagoon to 2nd lagoon is a man hole	
	that has 6" pipe in at the top and an outlet to	
	2nd lagoon 10" lower	
	- Safety wise will be a way to get out of	
	someone has fallen in (on 4 corners), fence around it	
	- discussed how to mark low & high level marks	
	in the lagoon	
	- liner is weighted down	
	- Discussed with project mgr about them deciding if they	

White Copy - Regional File

Yellow Copy - Staff File

Pink Copy - Supervisor

SC-A6 (White)
06/04

need to test the liner (the welds) to ensure they are getting the consistency that they want.

Liebelt, Dwayne PHS-SktnHR

To: Eugene Staudinger <eas@prairieplant.com>
Subject: Tank going in on South end of building

Hi Eugene

I was talking to my supervisor about the blue tank that we looked at yesterday at the end of the inspection (transfer tank to the lagoon). Does the tank have a standard that it meets, We are wondering if it meets B-66 M 90 standard for burial? If it has a different standard is it equivalent to this standard for sewage? I am also looking on the plans that were sent to me about where the tanks are all located and do not seem to see this one on any of the plans. (I see a concrete transfer tank, but not a fiberglass one.) We want to make sure that the file is complete and that we have this as part of the whole system. Do you have any specs on this tank that could be sent to us?

Thank you,

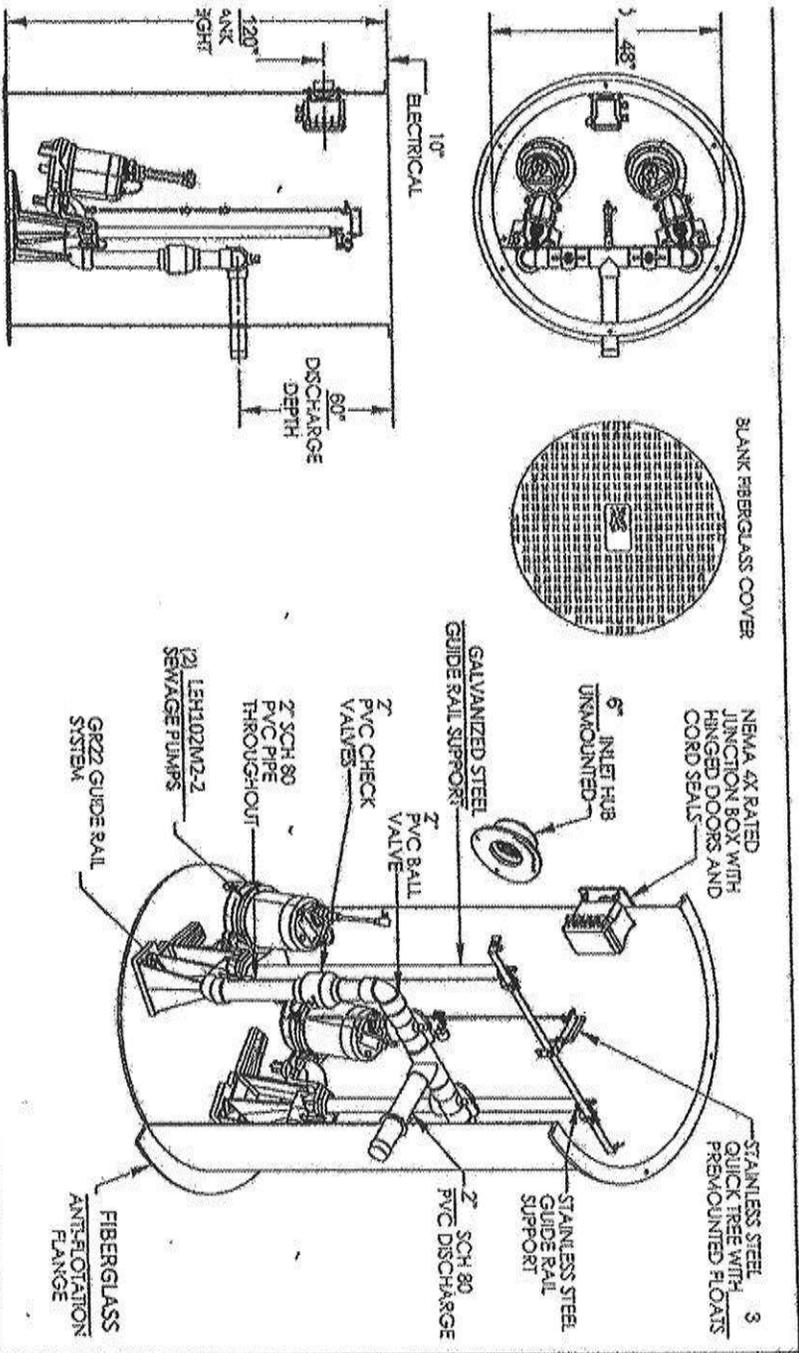
Dwayne Liebelt, CPHI(C)
Public Health Services
Saskatoon Health Region
101-310 Idylwyld Dr. N
Saskatoon, Saskatchewan S7L 0Z2
Phone: 655-4645
Fax: 655 4699

Email: Dwayne.liebelt@saskatoonhealthregion.ca

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Jan 17/14 - Information on

pump chamber outside
 of building that
 waste from Sinks & Showers
 goes into & then
 pumped into the new
 version.



CUSTOMER APPROVAL

NAME/PRINT: _____

NAME (SIGN): _____

DATE: _____

FINAL CONFIGURATION MAY VARY SLIGHTLY FROM THE ILLUSTRATIONS ON THIS PRINT.

NOTE: CONTROL PANEL, PUMP LITERCHANGING AND FLOATS NOT SHOWN. PUMPS SHIPPED SEPARATELY TO PREVENT SYSTEM DAMAGE.

7000 APPLE TREE AVENUE
 BERGEN, N.Y. 14416
 (585) 494-1817

Custom items are non-conceivable once order is placed. 100% reworking fee applies.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES

dwg title: **DUPLX SEWAGE PACKAGE**

EPSS52133 REV B

3000 200

dm by: JACOB C. CONE

DRAWING NOT TO SCALE

dwg title: **DUPLX SEWAGE PACKAGE**

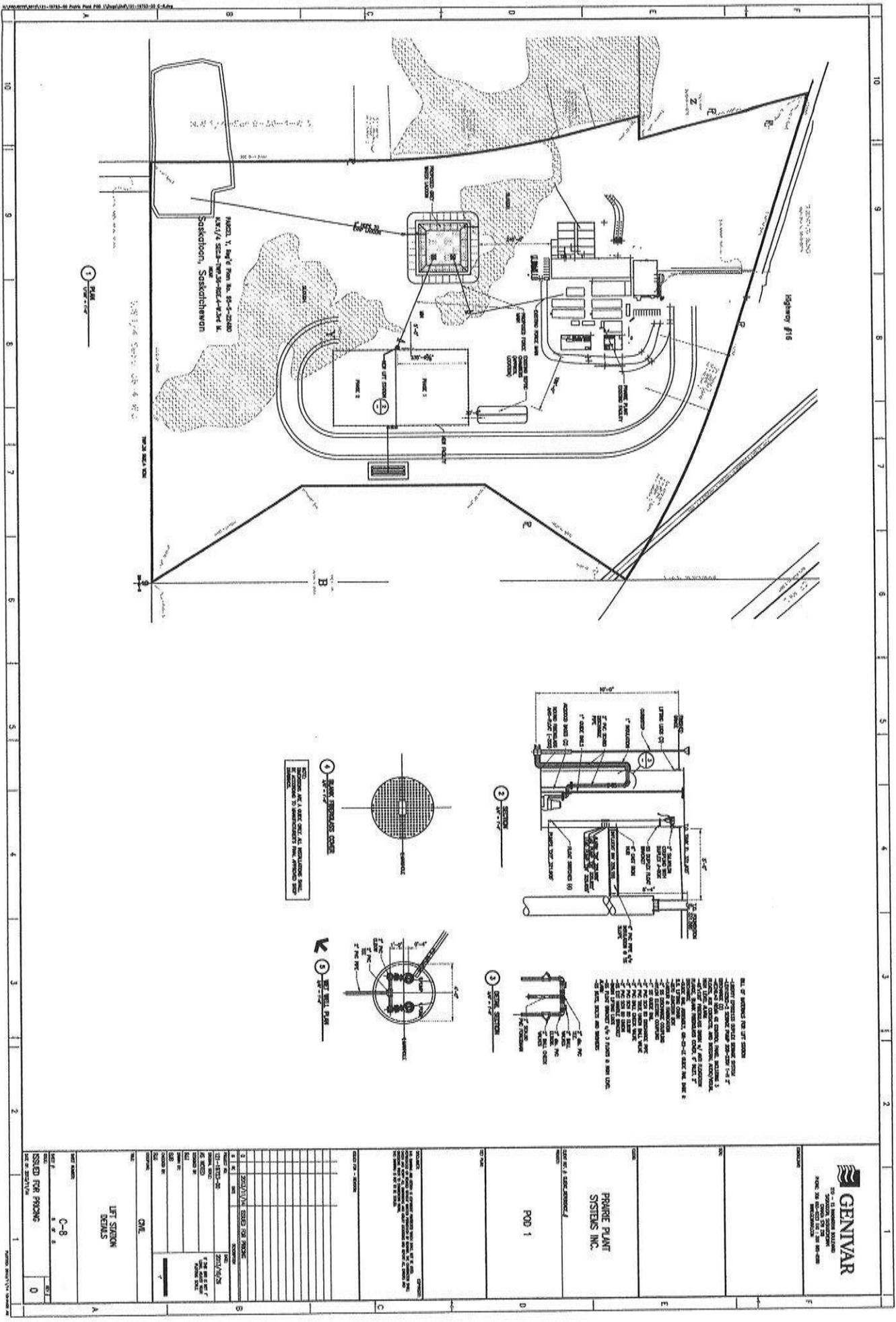
GENVAR

REVISIONS

DATE: 2/25/14

AS NOTED

RESUBMIT



GENNVAR
 25 - 11 BROADWAY EAST
 SUITE 200
 NEWTON, MASSACHUSETTS 02459
 TEL: 617-552-1100
 FAX: 617-552-1101
 WWW.GENNVAR.COM

**PRIME PLANT
 SYSTEMS INC.**

POD 1

NO.	DESCRIPTION	DATE	BY	CHECKED
1	ISSUED FOR PROPOSAL			
2				
3				
4				
5				
6				
7				
8				
9				
10				

DATE: 10/15/11
 DRAWN BY: C-8
 CHECKED BY: S. P. B.
 PROJECT: LIFT STATION DETAILS

Saskatoon Health Region
Nexus Issue Profile: Service Request

22-Jan-2014
3:29:38 PM

NX0148255086002

Status: Resolved Open
Severity: Normal

Client: Anonymous Contact Upon Resolution
(306) 220-4954

Reporting Method: Telephone
Date Reported: 18-Dec-2013 9:18:06 PM
Date Occurred: 18-Dec-2013 9:18:06 PM

Program Area: Sewage
Location Name: R104568
Location Address: RM 344-NW 9 36 4 W3rd
Saskatoon SK
Canada

Request Details:

Eugene from Prairie plants called to book an appointment to finish up on the lagoon permit at this location. NW 9 36 4 W3rd for Prairie Plants

Reported Problems:

- Request for Inspection

Issue History

Issue Created

Performed on 22-Jan-2014 9:18:06 PM by Dwayne Liebelt
Created on 22-Jan-2014 9:27:38 PM by Dwayne Liebelt

Assigned To: Dwayne Liebelt

Phone Call

Performed on 22-Jan-2014 9:22:37 PM by Dwayne Liebelt
Created on 22-Jan-2014 9:27:38 PM by Dwayne Liebelt

Assigned To: Dwayne Liebelt

Contact: Eugene Stadinger (306) 220-4954

Site walk through done with installer to see the final result. Jan 14, 2014

Walk through was done earlier prior to finishing the liner with Brent Latimer to check on size of the lagoon

Phone Call

Performed on 22-Jan-2014 9:24:40 PM by Dwayne Liebelt
Created on 22-Jan-2014 9:27:38 PM by Dwayne Liebelt

Assigned To: Dwayne Liebelt

Contact: Gordon

Gordon from Summit mechanical called this date to inform us that the final signed off copy for the lagoon permit was sent to him instead of to Prairie Plants.

Will make the necessary changes to the permit and send it to Prairie plants. Looking over the original permit Jonathan Louie still had the work being done by Summit Mechanical and that was not caught by us when processing the permit.

please note the change was made in ink on permit after signed

Issue Resolved

Performed on 22-Jan-2014 9:28:18 PM by Dwayne Liebelt
Created on 22-Jan-2014 9:29:05 PM by Dwayne Liebelt

Assigned To: Dwayne Liebelt

Site visit this date to verify the end of the work on the liner.

Will sign off permit this date

Liebelt, Dwayne PHS-SktnHR

Toy # 2 on Lagoon install & Permit application

From: Riley Jestin <Riley.Jestin@genivar.com>
Sent: Tuesday, February 05, 2013 4:17 PM
To: Latimer, Brent SktnHR
Cc: Liebelt, Dwayne PHS-SktnHR
Subject: Prairie Plant Lagoon Permit
Attachments: 121-19723-00 C-1 rev B.PDF; 121-19723-00 C-2 rev B.PDF; Lagoon Design Notes.pdf; Prairie Plant Lagoon Permit Application.pdf

R 104568

not considering this lagoon to be expensive. Oct 25/12 email.

Hi Brent,

It's been a while since this has come up, but I am still looking at getting the Lagoon permit for the Prairie Plant facility outside of Saskatoon. The last time we had discussed it, I was to check with the RM regarding land spreading on RM land. I had a discussion regarding this issue with the RM before Christmas and got a response in mid January stating the following:

"Just to confirm our conversation, the RM does not regulate the activities of waste water disposal within the municipality. As it pertains to development activities contained within the RM's Official Community Plan and Zoning Bylaw were refer the regulation of these activities and operations to the Ministry of Environment and the Saskatoon Health Region."

As you are aware I had discussions with the Ministry of Environment prior to the discussion with the RM and the flows are too small for the Ministry of Environment to have jurisdiction.

Attached is the Permit Application along with the drawings for the lagoon. The capacity is 2,982 Cu.m or 656,000gal and is sufficient for one year capacity. Also attached are the design notes.

Prairie plant owns the parcel of land immediately to the west of the property that the lagoon is on, and is prepared to use land spreading on that land when the lagoon requires emptying.

Considering that almost half of the expected liquid is waste irrigation water, and the sewage from toilets will be going to a mound system, the liquid domestic waste that will be use for land spreading will have far less BOD loading than typical lagoon effluents that use land spreading. I feel this should acceptable effluent to be used for land spreading.

Please contact me if you have questions.

GENIVAR
Riley Jestin P.Eng | Municipal Engineer
GENIVAR Inc.
#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8
T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

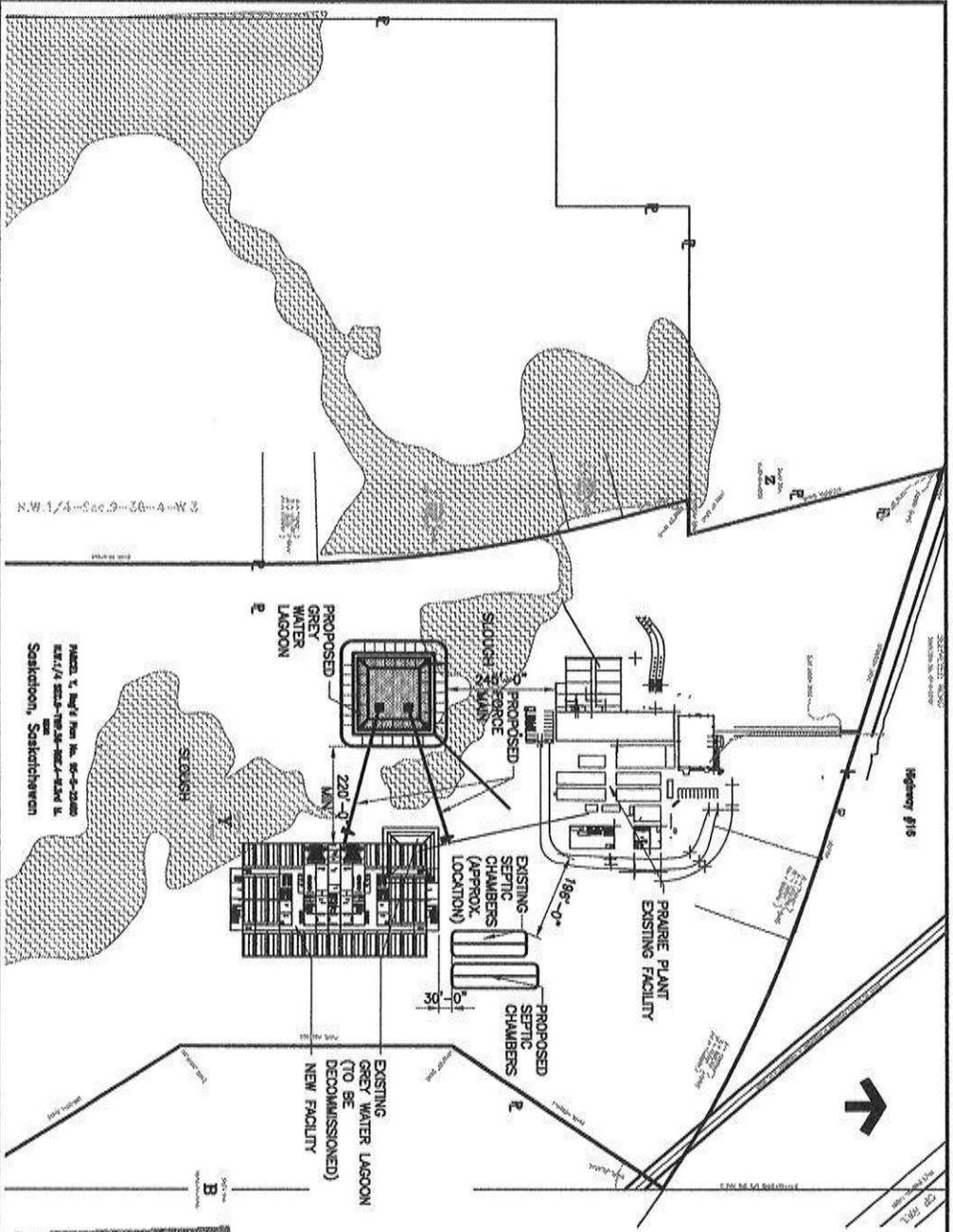
Please consider the environment before printing...

*- has to be expensive
- because Eault & the RM will not allow for this discharge
- discharge 740000gal open discharge for business not allowed*

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PROJECT:	PRRAIE PLANT POD LAGOON	PROJECT NO.:	121-19723-00
TITLE:	LAGOON SITE PLAN	SCALE:	1/256" = 1'-0"
		DRAWN BY:	RAU
		CHECKED BY:	RAU
		ISSUING NO.:	B
			C-1



PROFESSIONAL ENGINEER

REGULATED PROFESSION

REGISTERED PROFESSIONAL ENGINEER

REGISTRATION NO. 12345

DATE OF REGISTRATION 12/31/2011

EXPIRES 12/31/2012

PROFESSIONAL ENGINEER

REGULATED PROFESSION

REGISTERED PROFESSIONAL ENGINEER

REGISTRATION NO. 12345

DATE OF REGISTRATION 12/31/2011

EXPIRES 12/31/2012

PROFESSIONAL ENGINEER

REGULATED PROFESSION

REGISTERED PROFESSIONAL ENGINEER

REGISTRATION NO. 12345

DATE OF REGISTRATION 12/31/2011

EXPIRES 12/31/2012

- NOTES:
- LAGOON TO BE DISCHARGED ONCE PER YEAR FOLLOWING SASK ENVIRONMENT'S REGULATIONS AND TESTING
 - EXISTING TOPSOIL TO BE REMOVED.
 - NEW LAGOON TO BE CONSTRUCTED, BERMS TO BE COMPACTED TO 98% STD. PROCTOR DENSITY.
 - INCOMING EFFLUENT FROM EXISTING LAGOON TO BE DIVERTED TO NEW LAGOON.
 - EXISTING GREY WATER LAGOON TO BE DECOMMISSIONED.
 - RESEED AREAS DISTURBED BY CONSTRUCTION.
 - CLEAN-UP SITE REMOVE EXCESS MATERIAL.



Appendix 2 - Waste water Disposal guide

Commercial Building with showers = 90 l/p/d

Commercial Building without showers = 50 l/p/d

Assume - 40 l/p/d due to showers, etc... → to Lagoon

- 50 l/p/d due to toilets, etc... → to Chambers

Lagoon

Employees - 50 existing + 60 new = 110 employees

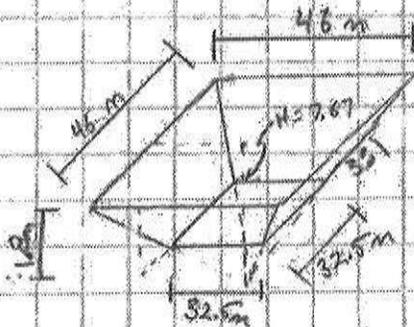
36 chambers - each using 10.25 l/day for irrigation

10% of irrigation goes to waste

Daily grey water (DGW)

$$\begin{aligned}
 DGW &= 110p(40 \text{ l/p/d}) + (10.25 \text{ l/d})(0.1)(36) \\
 &= 4400 \text{ l} + 3690 \text{ l} \\
 &= 8090 \text{ l/day} = 1780 \text{ gal/day}
 \end{aligned}$$

$$\begin{aligned}
 \text{Required capacity for 365 days} &= 650,000 \text{ gal} \\
 &= 2,453 \text{ m}^3
 \end{aligned}$$



Using subtraction of Pyramids method

$$V_L - V_S = V_T$$

$$V_L = \frac{46 \times 46 \times 2.67}{3} = 5407 \text{ m}^3$$

$$V_S = \frac{35.2 \times 35.2 \times 5.07}{3} = 2424 \text{ m}^3$$

$$V_T = 5407 \text{ m}^3 - 2424 \text{ m}^3$$

$$V_T = 2982 \text{ m}^3 \quad \text{OK}$$



Onsite Sewage Works Application (Please Print on application)

Application forms that are not complete may result in delays.

Applications, section and appendix references to the Sask. Onsite Wastewater Disposal Guide (Second Edition January 2009) available at www.saskatoonhealthregion.ca (search: sewage).

In compliance with the provisions of *The Private Sewage Works Regulations*, application is hereby made for permission to: Construct Reconstruct Extend Connect the private sewage works on the premises or property of:

Sewage Works Installer Information	Sewage Works Installer Summit Mechanical		Journeyman (print name) Brett Partke		Certificate of Status Number 107194	
	Installer Address (Box #, Street) 221 44th St. E		E-mail Address (preferred option) summitmechanical@gmail.com			
	Town/City Saskatoon	Postal Code S7K8E4	Phone # 306-384-0043	Cell # 306-290-5579	Fax # 306-975-1050	
Property Owner Information	Property Owner Prairie Plant Systems		E-mail address (preferred option) elowe@prairieplant.com			
	Mailing Address Box 19A, RR#5		Phone # 306-975-1207		Cell # 306-222-9491	
	Town/City Saskatoon	Postal Code S7K 8J8				
Location Information	RM #	Subdivision Name	Plan	Lot OR Parcel	Block	
	- OR -					
	RM #	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 04	West of Meridian 3rd

- A Expected Daily Sewage Volume 8090 litres (gallons) # of bedrooms _____
- B1 Soil Classification: Include laboratory test result showing soil texture classification
- B2 Percolation Test? _____ minutes per 25 mm (1 inch) (See appendix B)
- C - Septic Tank (Section 6) - Package Treatment Plant (Section 12)
First Compartment working capacity _____ litres (gallons) Manufacturer _____
- D Disposal Systems:
- Single Compartment Holding Tank (Section 5) _____ litres (gallons)
 - Jet Type Disposal (Section 10) Part B1 and B2 not required
 - Gravity Absorption Field (Section 8) - Include completed appendix 3
 - Pressure Absorption Field (Section 8) - Include completed appendices 3 and 17
 - Gravity Flow Chamber System (Section 7) - Include completed appendix 3
 - Pressure Chamber System (Section 7) - Include completed appendix 3A
 - Sewage Mound type I (Section 9.1) - Include completed appendix 7A
 - Sewage Mound type II (Section 9.2) - Include completed appendices 7 and 17
 - Enviro Septic System (include sizing information and soil particle count as required by manufacturer)
 - Lagoon (Section 11) Intended for discharge: Yes No Volume 2982 - Include completed appendices 18 & 19 and engineered plan
- E Depth to water table from ground surface: greater than 3 meters _____ m (ft) less than 3 meters 1 m (ft)
- F Size of parcel in acres / square metres: _____
- G Detailed Site Plan must be provided (see page 2)
see attached Design notes
- Fee: \$30.00 (Applications will NOT be processed without complete payment from the applicant ONLY. See attached page 3.)

Applicant Name (please print) ERVIN LOWE	Applicant Signature <i>Ervin Lowe</i>	Date Oct 16, 2012
--	--	-----------------------------

4.2 CSC Soil Classification

Grain size distribution analyses were performed on several soil samples taken during test drilling. The results have been summarized in Table II along with the soil classification in accordance with the Canadian System of Soil Classification (CSC).

TABLE II. CSC SOIL CLASSIFICATION

Test Hole No.	Depth (metres)	Grain Size Distribution Analysis (percent)			Saskatchewan Health Soil Texture Classification
		Sand & Gravel	Silt	Clay	
12-1	0.5	17	19	64	Heavy Clay ←
12-1	2	11	56	33	Silty Clay Loam ←
12-7	1.0	5	1	94	Heavy Clay ←
12-7	2.0	12	56	32	Silty Clay Loam ←
12-8	0.5	39	33	28	Loam/Clay Loam ←
12-8	1.0	60	27	13	Sandy Loam ←
12-8	2	12	67	21	Silt Loam ←

Liebelt, Dwayne PHS-SktnHR

Try #1 permit application for lagoon

From: Riley Jestin [Riley.Jestin@genivar.com]
Sent: October 26, 2012 2:49 PM
To: Liebelt, Dwayne PHS-SktnHR
Subject: RE: Permit Applicant for Prairie plant lagoon

I just talked to Prairie Plant, Apparently they will be doing most of the construction, with Summit doing the piping connections. In this case, I guess Prairie Plant would be the contractor.



Riley Jestin P.Eng | Municipal Engineer
GENIVAR Inc.
#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8
T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

Please consider the environment before printing...

From: Liebelt, Dwayne PHS-SktnHR [mailto:Dwayne.Liebelt@saskatoonhealthregion.ca]
Sent: October-26-12 1:55 PM
To: Riley Jestin
Subject: Permit Applicant for Prairie plant lagoon

Hi Riley

On this permit, someone from Summit Mechanical should be the one signing and paying for the permit. Our support staff will only issue a receipt when these two are the same. It would be a matter of having Summit filling the permit out. The property owner information is all good. We still have everything pending at this point.

You can certainly send it along with the recalculated numbers when ready.

Sorry for the extra work. I will be away from my desk for the rest of the day, back in on Monday.

Dwayne Liebelt, CPHI(C)
Public Health Services
Saskatoon Health Region
101 - 310 Idylwyld Drive North
Saskatoon, Saskatchewan S7L 0Z2
Phone: 655-4645
Fax: 655-4498
Email: dwayne.liebelt@saskatoonhealthregion.ca

*- 2 call ?
- land application ?
- get the application*

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Onsite Sewage Works Application (Please Print on application)

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In compliance with the provisions of *The Private Sewage Works Regulations*, application is hereby made for permission to: Construct Reconstruct Extend Connect the private sewage works on the premises or property of:

Sewage Works Installer Information	Sewage Works Installer Summit Mechanical		Journeyman (print name) Brett Partke		Certificate of Status Number 107194	
	Installer Address (Box #, Street) 221 44th. St. E		E-mail Address (preferred option) summitmechanical@gmail.com			
	Town/City Saskatoon	Postal Code S7K8E4	Phone # 306-384-0043	Cell # 306-290-5579	Fax # 306-975-1052	
	Property Owner Prairie Plant Systems		E-mail address (preferred option) elowe@prairieplant.com			
Property Owner Information	Mailing Address Box 19A, RR#5		Phone # 306-975-1207		Cell # 306-222-9491	
	Town/City Saskatoon	Postal Code S7K 3J8				
	RM #		Subdivision Name	Plan	Lot OR Parcel	Block
Location Information	- OR -					
	RM # 344	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 04	West of Meridian 3rd

- A Expected Daily Sewage Volume **4500** litres (gallons) # of bedrooms _____ Garborator Yes No
 B1 Soil Classification: Include laboratory test result showing soil texture classification
 B2 Percolation Test? _____ minutes per 25 mm (1 Inch) (See appendix 8) -OR- Heavy Clay / Clay loam
 C - Septic Tank (Section 6) - Package Treatment Plant (Section 12)
 First Compartment working capacity _____ litres (gallons) Manufacturer _____
 D Disposal Systems:
 - Single Compartment Holding Tank (Section 5) _____ litres (gallons)
 - Jet Type Disposal (Section 10) Part B1 and B2 not required
 - Gravity Absorption Field (Section 8) - Include completed appendix 3
 - Pressure Absorption Field (Section 8) - Include completed appendices 3 and 17
 - Gravity Flow Chamber System (Section 7) - Include completed appendix 3
 - Pressure Chamber System (Section 7) - Include completed appendix 3A
 - Sewage Mound type I (Section 9.1) - Include completed appendix 7A
 - Sewage Mound type II (Section 9.2) - Include completed appendices 7 and 17
 - Enviro Septic System (include sizing information and soil particle count as required by manufacturer)
 - Lagoon (Section 11) Intended for discharge: Yes No Volume **1962** - Include completed appendices 18 & 19 and engineered plan
 E Depth to water table from ground surface: greater than 3 meters _____ m (ft) less than 3 meters **1** m (ft)
 F Size of parcel in acres / square metres: _____
 G Detailed Site Plan must be provided (see page 2)
see attached Design notes
 Fee: \$30.00 (Applications will NOT be processed without complete payment from **the applicant ONLY**. See attached page 3.)

Summit has to apply a Policy due to our policy.

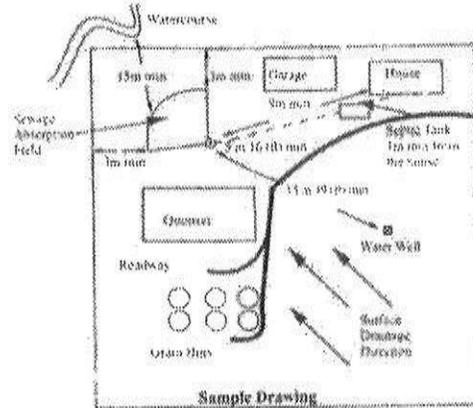
Applicant Name (please print) ERVIN LOWE	Applicant Signature <i>Ervin Lowe</i>	Date Oct. 16, 2012
--	--	------------------------------

Applicant's Name: Ervin Lowe - Prairie Plant Systems					
Legal Land Description:	RM#	Subdivision Name	Plan	Lot OR Parcel	Block
	- OR -				
	RM#	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 4 West of Meridian 3

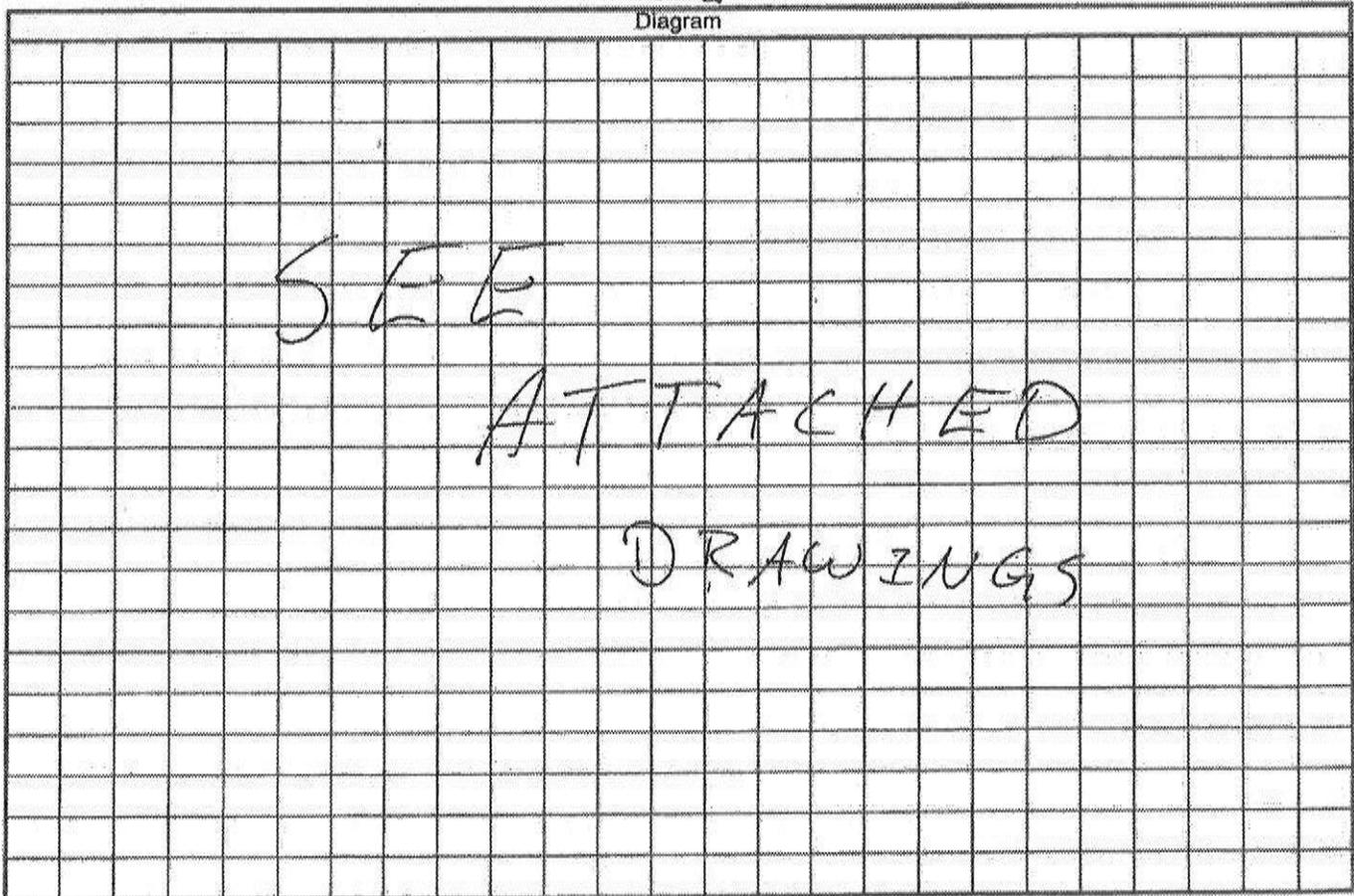
Site Plan Diagram

Details to be included:

1. Property: size (hectares / acres); dimensions, boundaries
2. Location and distances of the tank and /or private sewage works from:
 - a. all water sources on that property or adjoining properties;
 - b. all buildings on that property or occupied dwelling on adjoining properties;
 - c. all water courses / sources within .5 kilometer;
 - d. all boundaries of that property.
3. Surface drainage direction.



**North &
Diagram**



- Equip Rate Appendix 18
Eq Appendix 19

USE 11.33

Clean out



PROJECT: Prairie Plant

Sheet no. 1 of 1

PROJECT NUMBER:

Date Oct 10/12

SUBJECT: Grey water Lagoon

By RJJ

Appendix 2 - Waste water Disposal guide
Commercial Building with showers = 90 l/p/d
Commercial Building without showers = 50 l/p/d

Table 11.1 w/ evaporative
- Is this sized for evaporative or discharged.

more in depth information justify

Assume - 40 l/p/d due to showers, etc... → to Lagoon how long showers
- 50 l/p/d due to toilets, etc... → to chambers

Lagoon ? recydlm of water → plg code
? ppt'n rate evaporative Lagoon - calc'n

3000 of waste
? granules feed & pumped

Employees - 50 existing + 60 new = 110 employees

has pits well around

36 chambers each using 10.25 l/day for irrigation = 36900 l/day
10% of irrigation goes to waste = 3690 l/day
↳ goes to Lagoon.

Daily grey water (DGW)

4000 gal = 365000
18 m³ x

$$DGW = 110p(40 \text{ l/p/d}) + (10.25 \text{ l/d}) 0.1 = 4400 + 3690 = 8090 \text{ l/day}$$

$$= 4502 \text{ l} \approx 4400 + 3690 \text{ l/day} = 1779 \text{ gal/day}$$

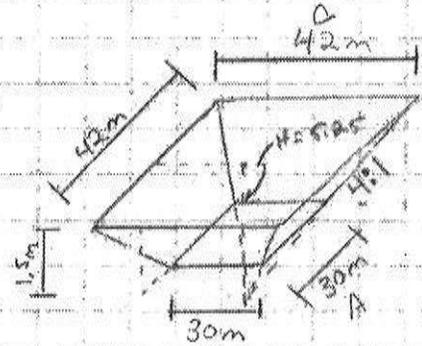
Imp volume

$$= 990 \text{ gal/day} \approx 1000 \text{ gal/day}$$

1 yr x 365

$$649335 \text{ gal/yr} = 2952 \text{ m}^3$$

Required capacity for 365 days = 365,000 gal
= 1,660 m³



Using subtraction of Pyramids method.

$$V_h - V_s = V_T$$

$$V_L = \frac{42 \times 42 \times 1.5}{3} = 3087 \text{ m}^3$$

$$V_s = \frac{30 \times 30 \times 1.5}{3} = 1125 \text{ m}^3$$

$$V_T = 3087 \text{ m}^3 - 1125 \text{ m}^3$$

$$V_T = 1962 \text{ m}^3 \text{ OK}$$

Average strength BOD = 300 ppm
350 ppm TSS

DISTRIBUTION:

APPENDICES

APPENDIX 2 – EXPECTED VOLUME OF SEWAGE PER DAY

Facility	Expected sewage volume in litres (gallons) per day
Airport	10 (2.2) per passenger
Apartment	190 (42) per person
Assembly Hall/Town Hall/Churches	10 (2.2) per seat
Automotive Service Station/Garage/Gas Station	45 (10) per vehicle served 50 (11) per employee 550 (121) per double pump unit
Bar/Tavern/Cocktail Lounge	Customer 75 (16.5) Employee 50 (11)
Bowling Alley	400 (88) per lane
Cabin, Resort	150 (33) per person
Cafeteria (workplace – no food service)	10 (2.2) per customer 40 (9) per employee
Camps: Campgrounds with flush toilets, showers Day camps (No Meals Served) Also see Picnic Parks, Youth Camp	130 (28.6) per person 50 (11) per person
Construction Camp (semi-permanent)	190 (42) per person
Cottages and Small Dwellings with Seasonal Occup.	150 (33) per person
Country Club	400 (88) member present 50 (11) per employee
Dance Halls	45 (10) per person
Dining Hall	30 (6.6) per meal served
Dormitory, Bunkhouse	150 (33) per person
<i>Dwelling</i> single family and duplex	340 (75) per person at 2 persons per bedroom 2 bedrooms and less, or at 1.5 persons per bedroom 3 bedrooms and more
<i>Dwelling</i> (includes Mobile Home Trailers) - other than single family or duplex	675 (150) per bedroom
Golf Club	45 (10) per member
Hospital	630 (139) per bed
Hotel/Motel – Resort	200 (44) per person 40 (9) per employee
Industrial and Commercial <i>Building</i> (does not include process water, showers or a cafeteria)	50 (11) per employee
Industrial and Commercial <i>Building</i> (with showers)	90 (18) per employee
Laundry, Self Service	2100 (462) per machine
Mobile Home/Trailer Park	675 (150) per bedroom
Motel/Hotel	200 (44) per single bed
Nursing and Rest Homes	350 (77) per person
Office <i>Building</i>	50 (11) per employee
Picnic Parks:	toilets only bathhouses, showers, flush toilets
	20 (4.5) per picnicker 40 (9) per picnicker

4.2 CSC Soil Classification

Grain size distribution analyses were performed on several soil samples taken during test drilling. The results have been summarized in Table II along with the soil classification in accordance with the Canadian System of Soil Classification (CSC).

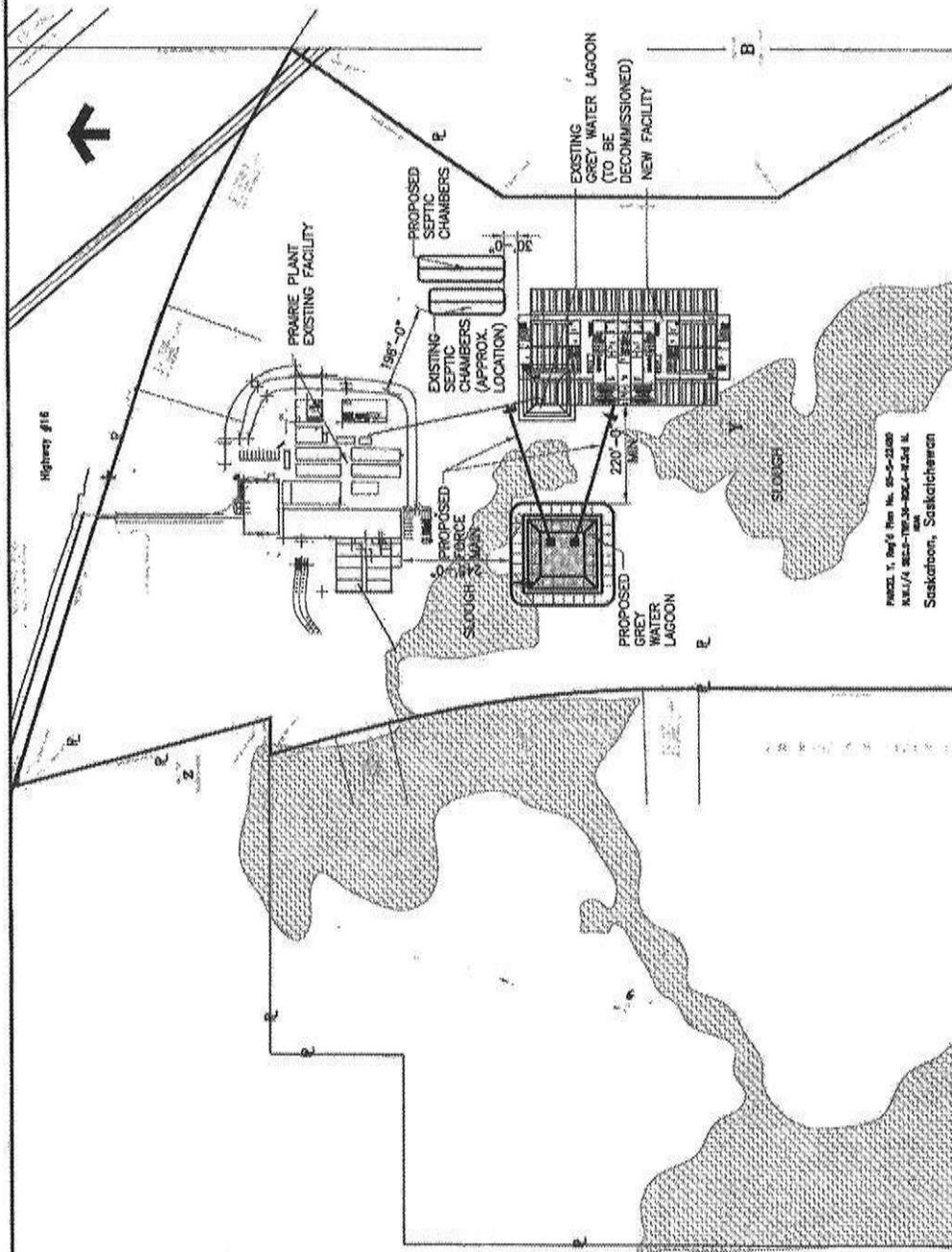
TABLE II. CSC SOIL CLASSIFICATION

Test Hole No.	Depth (metres)	Grain Size Distribution Analysis (percent)			Saskatchewan Health Soil Texture Classification
		Sand & Gravel	Silt	Clay	
12-1	0.5	17	19	64	Heavy Clay ←
12-1	2	11	56	33	Silty Clay Loam
12-7	1.0	5	1	94	Heavy Clay ←
12-7	2.0	12	56	32	Silty Clay Loam
12-8	0.5	39	33	28	Loam/Clay Loam ←
12-8	1.0	60	27	13	Sandy Loam
12-8	2	12	67	21	Silt Loam

*was will be the restriction
 limit - permeability of the soil
 - pressure
 - bearing material
 impacting it or using in other soils*

1. EXISTING TOPSOIL TO BE REMOVED.
2. NEW LAGOON TO BE CONSTRUCTED, BERMS TO BE COMPACTED TO 98% STD. PROCTOR DENSITY.
3. INCOMING EFFLUENT FROM EXISTING LAGOON TO BE DIVERTED TO NEW LAGOON.
4. EXISTING GREY WATER LAGOON TO BE DECOMMISSIONED.
5. RESEED AREAS DISTURBED BY CONSTRUCTION.
6. CLEAN-UP SITE REMOVE EXCESS MATERIAL.

clean out



PROJECT: T. 201/4 Site No. 05-0-2200
 N.W. 1/4 SEC. 2-100-20-20-1-02-04 N.
 SASKATOON, Saskatchewan



Association of Professional Engineers & Geoscientists
 of Saskatchewan
 CERTIFICATE OF AUTHORIZATION
 Genivar Inc.
 New Contract
 Permission to Contract held by:
 Designee: Genivar (1740)

PROJECT NO. 121-19725-00	PERSON:	A
	SCALE 1/250' = 1'-0"	
DRAWN BY: RAJ	CHECKED BY: RAJ	DRAWING NO. C-1
TITLE: PRAIRIE PLANT Poo LAGOON LAGOON SITE PLAN		
<p>254 - 15 HURWITZ BOULEVARD SASKATOON, SASKATCHEWAN CANADA S7N 2W6 PHONE 306 655-0223 FAX 306 655-0226 WWW.GENIVAR.COM</p>		

reworked
with new
Chamber #13
Oct 26/12

15 12 15 20 42 62 59 36 31 18 16 17 342 man.

Example of Prairie Plant

Step 1 $900 - 342 = 558$

Step 2 $558 \text{ l/m}^2/\text{yr}$

Step 3 $\frac{2952 \text{ m}^3 \times 1.25}{558} \text{ l/m}^2/\text{yr} = \frac{3690}{558 \text{ l/m}^2/\text{yr}} = 6.61 \times 1000 \frac{\text{m}^3}{\text{m}^2} = 6610 \text{ m}^2$
Area of lagoon

$\sqrt{6610} = 81 \text{ m} \times \boxed{81 \text{ m Top of berm} = \underline{B}}$

Step 4 $B + (H : V \text{ slope} \times \text{freeboard} \times 2) + 2 \times \frac{1}{2} (\text{berm width})$
 $81 + (3 \times 1.5 \times 2) + 2 \times \frac{1}{2} (2)$

$81 + 3 + 2 = \boxed{86 \text{ m} = \underline{C}}$

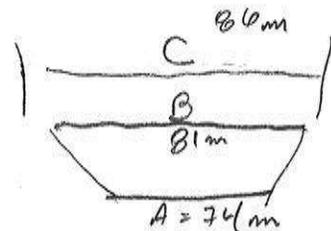
Step 5 1.2 m operating depth

Step 6 $A = B - (H : V \text{ slope} \times \text{Depth} \times 2)$

$81 - (3 \times 1.2 \times 2)$

$81 - 7$

$A = 74 \text{ m}$



- DGW calculation is off.
- Is this evaporative lagoon
- Is there plans to discharge?
- Justify the 40 l/day & 50 l/day
- Have to use Appendix 18 & 19 as examples to do this calculation
- Use 11.3.3 for non-discharge sizing
- Hold on to understand the 3m chambers at 1025 l/day.
- Is this going to be pumped or by gravity
- Have clean outs
- toilets
- showers
- BOD

Liebelt, Dwayne PHS-SktnHR

From: Liebelt, Dwayne PHS-SktnHR
Sent: October 25, 2012 3:34 PM
To: 'Riley Jestin'
Subject: Lagoon at Prairie Plant

Hi Ryley

I was going over the information that you sent in and have some questions for you.

Is this system designed as an evaporative lagoon? Is there any plans to discharge the lagoon say once a year or not?

Can you expand on the water usage of the 40 l/day /person and the 50 l/person/day. Do they expect all staff to be using the showers or not. Is there going to be low flow shower heads and toilets, are the showers for quick rinse offs and is there expected to be lots of BOD coming off in the showers or from the water that is used in the irrigation. Do you think that this is an over estimate of what the real water usage would be?

Can you help us understand the 36 chambers and them using 1025 liters /day. What are the 36 chambers used for?, Are these chambers growing chambers that are being watered daily and the thinking is that 10% of this is going to waste, and this waste is going to the Lagoon?

For an evaporative lagoon you would need to include values from appendix 18 and 19 of the wastewater disposal guide and plug these precipitation and evaporation values into the procedure in Sec. 11.3.3. There is an example calculation that is done in the appendix after the second map in Appendix 19. This calculation results in a larger system than what you have calculated, but is the method used to come up with the dimensions for an evaporative lagoon that is not to be discharged.

Can you make a comment on the liner of the lagoon, will it be the native soil, or 6 mil poly liner, what would be the permeability of the liner? What does it mean to be compacted to 98% STD Density? Would the berm be made of the material removed from the inside of the lagoon?

Lastly, I see that Summit Mechanical is the the Installer, but Prairie Plant is the property owner and signing authority, I cant remember everything that was discussed earlier, but I though that Prairie Plant was also to be the installer, can you verify who the installer would be, if it is Prairie Plant then they would be the installer and not Summit Mechanical.

Was there a plan to recycle water at some point? I can't recall if this was from this permit or another one. If there is going to be any recycling, at what point would this be taking place?

Most of this is still new to me so I don't have all the information as this is my first go at a lagoon permit.

Dwayne Liebelt, CPHI(C)
Public Health Services
Saskatoon Health Region
101 - 310 Idylwyld Drive North
Saskatoon, Saskatchewan S7L 0Z2
Phone: 655-4645
Fax: 655-4498
Email: dwayne.liebelt@saskatoonhealthregion.ca

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Liebelt, Dwayne PHS-SktnHR

From: Riley Jestin [Riley.Jestin@genivar.com]**Sent:** October 26, 2012 9:55 AM**To:** Liebelt, Dwayne PHS-SktnHR**Subject:** RE: Lagoon at Prairie Plant

Hi Dwayne,

Please find my responses to your questions below in red.

**Riley Jestin P.Eng** | Municipal Engineer

GENIVAR Inc.

#210 - 15 Innovation Boulevard Saskatoon Saskatchewan S7N 2X8

T (306) 665-6223 ext. 11554 | F (306) 665-8589 | www.genivar.com

Please consider the environment before printing...

From: Liebelt, Dwayne PHS-SktnHR [mailto:Dwayne.Liebelt@saskatoonhealthregion.ca]**Sent:** October-25-12 3:34 PM**To:** Riley Jestin**Subject:** Lagoon at Prairie Plant

Hi Ryley

I was going over the information that you sent in and have some questions for you.

Is this system designed as an evaporative lagoon? Is there any plans to discharge the lagoon say once a year or not? Yes, it is designed to discharge the lagoon once per year. Currently they use a pump to empty the lagoon. I could put a drain pipe along the north berm by the overflow.

Can you expand on the water usage of the 40 l/day /person and the 50 l/person/day. Do they expect all staff to be using the showers or not. Is there going to be low flow shower heads and toilets, are the showers for quick rinse offs and is there expected to be lots of BOD coming off in the showers or from the water that is used in the irrigation. Do you think that this is an over estimate of what the real water useage would be? I noticed in Appendix 2 of the Disposal Guide there is "Industrial and Commercial Building(does not include process water and showers)" was rated for 50L per employee, While the one right below it is "Industrial and Commercial Building(includes showers)" and is rated for 90 L per employee. Since we have two systems, one for toilets (chambers) and one for showers, sinks, etc... I found it reasonable that 40 L/employee would be due to showers and would therefore go to the lagoon, while the 50 L/employee for toilets, etc. would go to the chamber system. As for the shower heads and toilet, I don't know if they have decided on the type of heads yet.

Can you help us understand the 36 chambers and them using 1025 liters /day. What are the 36 chambers used for?, Are these chambers growing chambers that are being watered daily and the thinking is that 10% of this is going to waste, and this waste is going to the Lagoon? Yes, they are plant growing chambers. I think they currently have 8 chambers. At full capacity, they plan to have 36. And you are correct, plants are watered daily, 10% is assumed waste that goes to the lagoon.

For an evaporative lagoon you would need to include values from appendix 18 and 19 of the wastewater disposal guide and plug these precipitation and evaporation values into the procedure in Sec. 11.3.3.

26/10/2012

There is an example calculation that is done in the appendix after the second map in Appendix 19. This calculation results in a larger system than what you have calculated, but is the method used to come up with the dimensions for an evaporative lagoon that is not to be discharged. (Not evaporative.)

Can you make a comment on the liner of the lagoon, will it be the native soil, or 6 mil poly liner, what would be the permeability of the liner? What does it mean to be compacted to 98% STD Density? Would the berm be made of the material removed from the inside of the lagoon? The existing material seems to be a clay material for the first 0.5m. They do plan on importing clay till material for the bottom of the lagoon and the berms and building on the existing clay material once the topsoil has been removed. The liner is technically the 300mm of compacted clay. When compacting soil, tests are done to the soil being worked with to determine the maximum density and optimum water content. It's kind of like figuring out the perfect amount of water to be used to make the best sandcastle. Too little water, it doesn't compact, too much and it turns runny. The right amount will allow you to get the maximum density. The test is called a Proctor and gives you the standard (STD) proctor density. We try to compact the soil to 98% of what the test says that soil can be compacted to.

Lastly, I see that Summit Mechanical is the the Installer, but Prairie Plant is the property owner and signing authority, I cant remember everything that was discussed earlier, but I though that Prairie Plant was also to be the installer, can you verify who the installer would be, if it is Prairie Plant then they would be the installer and not Summit Mechanical. I believe that Prairie Plant will do some of the work, as in soil stripping, and importing the clay material. Summit Mechanical will be doing the placing, compacting and shaping of the lagoon.

Was there a plan to recycle water at some point? I can't recall if this was from this permit or another one. If there is going to be any recycling, at what point would this be taking place? Not that I am aware of.

Most of this is still new to me so I don't have all the information as this is my first go at a lagoon permit. Fair enough, I'll do my best to help where I can.

Dwayne Liebelt, CPHI(C)
Public Health Services
Saskatoon Health Region
101 - 310 Idylwyld Drive North
Saskatoon, Saskatchewan S7L 0Z2
Phone: 655-4645
Fax: 655-4498
Email: dwayne.liebelt@saskatoonhealthregion.ca

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Liebelt, Dwayne PHS-SktnHR

From: Jestin, Riley <Riley.Jestin@wspgroup.com>
Sent: Tuesday, September 16, 2014 11:35 AM
To: Liebelt, Dwayne PHS-SktnHR
Subject: Permit Applicant for Prairie plant lagoon

Lagoon R104568
Type II R104552

Hi Dwayne,

Hope your summer has gone well. This is just a heads up that I will be submitting another application for Prairie Plant.

If you recall from last year, Prairie Plant was granted a permit to construct two lagoons to act as one large evaporative lagoon. The idea was that they would use the existing borrow pit as the second evaporative lagoon. They finished lining the smaller lagoon by the end of last year and were going to complete the second lagoon this year. As we had a large amount of rain this year the borrow pit didn't dry out for them to work on it they are now wanting to try the other option we had presented, which was to use the first lagoon as a partial evaporative lagoon and design a Type II mound to handle the rest. I know we had talked about this before and thought that the plan would work.

I have gone through the calculations for the mound system and just need to complete an infiltration test to determine the thickness of the sand layer. I will hopefully have something to you by the end of this week, or early next week.



Riley Jestin, P.Eng
Municipal Infrastructure Manager

WSP Canada Inc.
203 Wellman Crescent
Saskatoon, Saskatchewan S7T 0J1 Canada
T +1 306-665-6223 #11554
F +1 306-665-8589
C +1 306-260-9678

www.wspgroup.com

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October 24, 2012

File No. 121-19723-00

Safe Communities Department
Population and Public Health
101-310 Idylwyld Drive N
Saskatoon, SK S7L 0Z2

RE: Prairie Plant Lagoon Permit Application

Please find enclosed an application to build a private lagoon for Prairie Plant System near Saskatoon. Included with the application are design notes, site plans, details and appendices from the Wastewater disposal guide. I have been in discussion with Dwayne Liebelt of the Saskatoon Health Region and have also emailed him a copy of the application.

Please note that this lagoon is the first step to a new facility and further construction is on hold until it is complete. We understand that this time of year is busy, but would greatly appreciate this application be reviewed in a timely manner.

Please contact me with any questions or concerns regarding the design of the lagoon.

Yours truly,

A handwritten signature in black ink, appearing to read "Riley Jestin", with a long horizontal line extending to the right.

Riley Jestin, P.Eng
Civil Engineer
GENIVAR
665-6223 ext 11554



Onsite Sewage Works Application (Please Print on application)

Application forms that are not complete may result in delays.

Applications, section and appendix references to the Sask. Onsite Wastewater Disposal Guide (Second Edition January 2009) available at www.saskatoonhealthregion.ca (search: sewage).

In compliance with the provisions of *The Private Sewage Works Regulations*, application is hereby made for permission to: Construct Reconstruct Extend Connect the private sewage works on the premises or property of:

Sewage Works Installer Information	Sewage Works Installer Summit Mechanical		Journeyman (print name) Brett Parfke		Certificate of Status Number 107194	
	Installer Address (Box #, Street) 221 44th. St. E		E-mail Address (preferred option) summitmechanical@gmail.com			
	Town/City Saskatoon	Postal Code S7K8E4	Phone # 306-384-0043	Cell # 306-290-5579	Fax # 306-975-1052	
Property Owner Information	Property Owner Prairie Plant Systems		E-mail address (preferred option) elowe@prairieplant.com			
	Mailing Address Box 19A, RR#5		Phone # 306-975-1207		Cell # 306-222-9491	
	Town/City Saskatoon	Postal Code S7K 3J8				
Location Information	RM #	Subdivision Name	Plan	Lot OR Parcel	Block	
	- OR -					
	RM #	Subdivision Name	Section e.g. NE-15 NW-9	Township 36	Range 04	West of Meridian 3rd

- A Expected Daily Sewage Volume **4500** litres (gallons) # of bedrooms _____ Garborator Yes No
 B1 Soil Classification: Include laboratory test result showing soil texture classification
 B2 Percolation Test? _____ minutes per 25 mm (1 inch) (See appendix 8) -OR- Heavy Clay / Clay loam
 C - Septic Tank (Section 6) - Package Treatment Plant (Section 12)
 First Compartment working capacity _____ litres (gallons) Manufacturer _____
 D Disposal Systems:
 - Single Compartment Holding Tank (Section 5) _____ litres (gallons)
 - Jet Type Disposal (Section 10) Part B1 and B2 not required
 - Gravity Absorption Field (Section 8) - Include completed appendix 3
 - Pressure Absorption Field (Section 8) - Include completed appendices 3 and 17
 - Gravity Flow Chamber System (Section 7) - Include completed appendix 3
 - Pressure Chamber System (Section 7) - Include completed appendix 3A
 - Sewage Mound type I (Section 9.1) - Include completed appendix 7A
 - Sewage Mound type II (Section 9.2) - Include completed appendices 7 and 17
 - Enviro Septic System (include sizing information and soil particle count as required by manufacturer)
 - Lagoon (Section 11) Intended for discharge: Yes No Volume **162m³** - Include completed appendices 18 & 19 and engineered plan
 E Depth to water table from ground surface: greater than 3 meters _____ m (ft) less than 3 meters **1** m (ft)
 F Size of parcel in acres / square metres: _____
 G Detailed Site Plan must be provided (see page 2)
see attached Design notes
 Fee: **\$30.00** (Applications will NOT be processed without complete payment from the applicant ONLY. See attached page 3.)

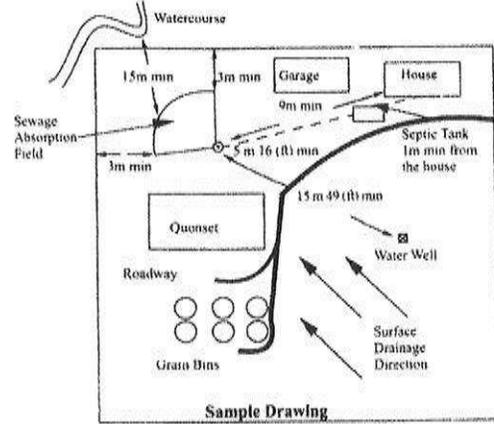
Applicant Name (please print) ERVIN LOWE	Applicant Signature <i>Ervin Lowe</i>	Date Oct. 16, 2012
--	--	------------------------------

Applicant's Name: <u>Ervin Lowe - Prairie Plant Systems</u>					
Legal Land Description:	RM#	Subdivision Name	Plan	Lot OR Parcel	Block
	- OR -				
	RM#	Subdivision Name	Section e.g. NE-15 <u>NW-9</u>	Township <u>36</u>	Range <u>4</u>

Site Plan Diagram

Details to be included:

1. Property: size (hectares / acres); dimensions, boundaries
2. Location and distances of the tank and /or private sewage works from:
 - a. all water sources on that property or adjoining properties;
 - b. all buildings on that property or occupied dwelling on adjoining properties;
 - c. all water courses / sources within .5 kilometer;
 - d. all boundaries of that property.
3. Surface drainage direction.



North ~~to~~
Diagram

<p style="font-size: 2em; font-family: cursive;">SEE ATTACHED DRAWINGS</p>																			
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Appendix 2 - Waste water Disposal guide

Commercial Building with showers = 90 l/p/d

Commercial Building without showers = 50 l/p/d

Assume - 40 l/p/d due to showers, etc... → to Lagoon
 - 50 l/p/d due to toilets, etc... → to chambers

Lagoon

Employees - 50 existing + 60 new = 110 employees

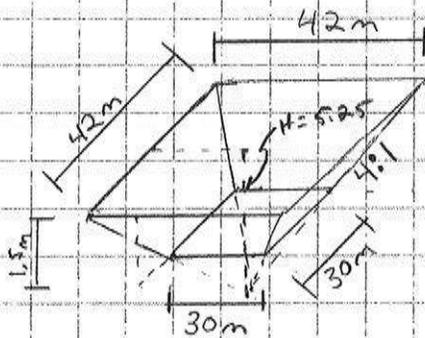
36 chambers - each using 1025 l/day for irrigation

10% of irrigation goes to waste

Daily grey water (DGW)

$$\begin{aligned} DGW &= 110p(40 \text{ l/p/d}) + (1025 \text{ l/d}) 0.1 \\ &= 4500 \text{ l} \\ &= 990 \text{ gal/day} \approx 1000 \text{ gal/day} \end{aligned}$$

$$\begin{aligned} \text{Required capacity for 365 days} &= 365,000 \text{ gal} \\ &= 1,660 \text{ m}^3 \end{aligned}$$



Using subtraction of Pyramids method

$$V_L - V_S = V_T$$

$$V_L = \frac{42 \times 42 \times 5.25}{3} = 3087 \text{ m}^3$$

$$V_S = \frac{30 \times 30 \times 3.75}{3} = 1125 \text{ m}^3$$

$$V_T = 3087 \text{ m}^3 - 1125 \text{ m}^3$$

$$V = 1962 \text{ m}^3 \quad \text{OK}$$

APPENDICES

APPENDIX 2 – EXPECTED VOLUME OF SEWAGE PER DAY

Facility	Expected sewage volume in litres (gallons) per day
Airport	10 (2.2) per passenger
Apartment	190 (42) per person
Assembly Hall/Town Hall/Churches	10 (2.2) per seat
Automotive Service Station/Garage/Gas Station	45 (10) per vehicle served 50 (11) per employee 550 (121) per double pump unit
Bar/Tavern/Cocktail Lounge	Customer 75 (16.5) Employee 50 (11)
Bowling Alley	400 (88) per lane
Cabin, Resort	150 (33) per person
Cafeteria (workplace – no food service)	10 (2.2) per customer 40 (9) per employee
Camps: Campgrounds with flush toilets, showers Day camps (No Meals Served) Also see Picnic Parks, Youth Camp	130 (28.6) per person 50 (11) per person
Construction Camp (semi-permanent)	190 (42) per person
Cottages and Small Dwellings with Seasonal Occup.	150 (33) per person
Country Club	400 (88) member present 50 (11) per employee
Dance Halls	45 (10) per person
Dining Hall	30 (6.6) per meal served
Dormitory, Bunkhouse	150 (33) per person
<i>Dwelling</i> single family and duplex	340 (75) per person at 2 persons per bedroom 2 bedrooms and less, or at 1.5 persons per bedroom 3 bedrooms and more
<i>Dwelling</i> (includes Mobile Home Trailers) - other than single family or duplex	675 (150) per bedroom
Golf Club	45 (10) per member
Hospital	630 (139) per bed
Hotel/Motel – Resort	200 (44) per person 40 (9) per employee
Industrial and Commercial <i>Building</i> (does not include process water, showers or a cafeteria)	50 (11) per employee
Industrial and Commercial <i>Building</i> (with showers)	90 (18) per employee
Laundry, Self Service	2100 (462) per machine
Mobile Home/Trailer Park	675 (150) per bedroom
Motel/Hotel	200 (44) per single bed
Nursing and Rest Homes	350 (77) per person
Office <i>Building</i>	50 (11) per employee
Picnic Parks:	toilets only bathhouses, showers, flush toilets
	20 (4.5) per picnicker 40 (9) per picnicker

4.2 CSC Soil Classification

Grain size distribution analyses were performed on several soil samples taken during test drilling. The results have been summarized in Table II along with the soil classification in accordance with the Canadian System of Soil Classification (CSC).

TABLE II. CSC SOIL CLASSIFICATION

Test Hole No.	Depth (metres)	Grain Size Distribution Analysis (percent)			Saskatchewan Health Soil Texture Classification
		Sand & Gravel	Silt	Clay	
12-1	0.5	17	19	64	Heavy Clay ←
12-1	2	11	56	33	Silty Clay Loam
12-7	1.0	5	1	94	Heavy Clay ←
12-7	2.0	12	56	32	Silty Clay Loam
12-8	0.5	39	33	28	Loam/Clay Loam ←
12-8	1.0	60	27	13	Sandy Loam
12-8	2	12	67	21	Silt Loam

