

City of Portage la Prairie



2025 Residual Biosolids Land Application Program

As per Environment Licence 1907

2025 Residual Biosolids Land Application Program
Water Pollution Control Facility, City of Portage la Prairie

Report to Province of Manitoba- Environment and Climate Change

Introduction

The City of Portage la Prairie (the City) owns and operates a wastewater treatment system known as the Water Pollution Control Facility (WPCF). Flows from the McMillan Industrial Park as well as Poplar Bluff Industrial Park are received into and pre-treated in the Low-Rate Anaerobic Reactor (LRAR). This pre-treated wastewater is combined with municipal flows and conveyed to the Sequencing Batch Reactors (SBRs) that provide secondary treatment. Waste Activated Sludge (WAS) is the residual solids that are generated through this process and required to be removed from the SBRs to ensure ongoing treatment. WAS is thickened through the addition of polymer and dewatered by a gravity belt. The material is then stabilized in the anaerobic digester to produce biosolid material that is suitable for land application as a fertilizer. Biosolids are stored throughout the year in the Biosolids Storage Tanks (BSTs) as well as the LRAR. Solids also accumulate within the LRAR and require removal to ensure adequate capacity and sludge depth within the Reactor. The process of removing the material to inject on agricultural land as a soil enhancement product begins once weather and harvest conditions allow. Injection of material helps to reduce runoff, prevent vector attraction, and minimize odours.

Biosolids material that has been contained within the Bulk Volume Fermenter (BVF) since it stopped being used in 2020 was scheduled for removal as well. This is similar biosolids material that had accumulated while the BVF was in use and is to be removed prior to decommissioning. There are approximately 1000 tonnes of material in the BVF to be removed, and the intent was to remove 500 tonnes through typical means via the existing piping network to fill trucks as has been completed for many years. It is assumed that the remaining 500 tonnes is beneath the piping and will have to be removed through other means.

The removal, hauling, analyses, and injection of this stored material constitutes the Biosolids Land Application program and is regulated under Environment Act License (EAL) #1907. During the fall of 2025, the City conducted its annual Residual Biosolids Land Application program and applied 920.6 dry tonnes of material to farmland.

Field Selection Process

After calculating the number acres of land needed based on the quantity of biosolids to be removed, the City of Portage la Prairie administration contacted owners of land located in the Rural Municipality of Portage la Prairie. Initial screening consisted of reviewing the proposed land application area and determining the subsurface geological formation. This was obtained from a map of the Rural Municipality of Portage la Prairie which was superimposed areas that had met the requirements under EAL 1907. The criteria can be listed as follows:

- i) Depth of clay or clay till of less than 1.5 metres between the soil surface and the water table.
- ii) Within 100 metres of an identifiable boundary of an aquifer which is exposed to the ground surface.
- iii) Where, prior to the application of biosolids, the soil pH is less than 6.0.
- iv) Where the surface slope of the land is greater than 5 percent.
- v) where, prior to application of biosolids, the level of nitrate-nitrogen exceeds 100 kilograms per hectare in the upper 60 cm of the soil: or
- vi) Where, prior to the application of biosolids, the concentration of sodium bicarbonate extractable phosphorous, as P, exceeds 60 micrograms per gram in the upper 15 centimetres of the soil.

Sites that met the above criteria were considered for biosolids application. Potential fields for use were advertised in the local newspaper as well as on the City of Portage la Prairie website. Letters of notification were also sent to the department of Environment and Climate Change and the Rural Municipality of Portage la Prairie. Copies of the ad and letters are included in this report. Areas selected were then subject to soil testing processes and final selection.

Nutrient Testing

Soil testing was conducted on all usable fields to determine the pH, sodium bicarbonate extractable phosphorous, as P, and nitrate nitrogen according to the following criteria as specified in EAL #1907.

Parameter	Depth of Analysis (cm)
Phosphorous	15
pH	15
Potassium	15
Nitrate-Nitrite	60
Total Nitrogen	60

Core samples were obtained from the selected application sites, as per license requirements. One core sample was collected for each 2-hectare area and combined to form a composite sample for analysis. A separate sample for clay analyses and

verification of the water table was also taken. The City of Portage la Prairie contracted an external laboratory for soil testing.

Heavy Metals

Soil samples were collected and analyzed for background heavy metal concentrations. Heavy metal application was limited to one-third of the initial maximum addition of each heavy metal to be applied in any single application period per the environment license. All heavy metal analysis was conducted by an external laboratory. See Appendix B for background heavy metal concentration results. Background heavy metal concentrations in the soil not exceeding the following:

Metal	Background Concentration (kg/h)
Cadmium	2.88
Copper	90
Nickel	90
Lead	90
Zinc	270
Mercury	0.9
Chromium	216

Land sections **W 35-11-5, NW 1-13-7, SW 33-12-8, and SE 31-12-8** were sampled, analyzed, and approved for use. Once a field has been evaluated and selected for application, before application, landowners are required to sign a contract which outlines the process and indicates their agreement to receive biosolids, as well as information on growing restrictions. Copies of these agreements are also included in this report.

Biosolids Sampling and Testing

It is necessary to sample and analyze the residual solids material to determine nutrient and metal levels. This is used to firstly- confirm the material contains levels lower than the maximum allowable concentration before applying and secondly- to determine the application rate that the material can be applied to ensure the cumulative amounts are below license limits.

The BSTs and LRAR biosolids were sampled and analyzed per Clause 1, Appendix A of EAL 1907, for the following components:

- | | |
|----------------------------|--------------|
| a. conductivity | j. lead |
| b. pH | k. mercury |
| c. total solids | l. nickel |
| d. volatile solids | m. potassium |
| e. nitrate nitrogen | n. cadmium |
| f. total Kjeldahl nitrogen | o. copper |
| g. ammonia nitrogen | p. zinc |
| h. organic nitrogen | q. chromium |
| i. total phosphorous | |

Based on the reported results, the materials contained in the BSTs and LRAR met the required criteria and were available for land application.

Sludge Handling

Biosolids Storage Facility

No concerns were noted from the Biosolids Storage Facility. Any spillage observed was attributed to material dripping from the hose after a truck was filled. All material that drips from the overhead filling hose is collected on the concrete spill pad that is washed down into a pit that conveys all material back to the Biosolids Storage Tanks.

Low-Rate Anaerobic Reactor

Sludge was withdrawn from the LRAR using internal lateral sludge lines that are normally used for sludge recirculation within the LRAR. Sludge was pumped directly to the trucks through a sludge transfer port and an overhead fill pipe. City staff continuously monitored the entire filling process and operation of the sludge pumps. Communication was maintained utilizing two-way radios.

Any spillage observed was attributed to material dripping from the hose after a truck was filled. All spillage that occurred was contained on a concrete spill pad that was washed after each load was hauled. The spilled material and wash water were conveyed to the headworks of the LRAR by a pumping station located at the fill site.

Bulk Volume Fermenter

The intent was to remove 500 tonnes of biosolids from the BVF. After many days of recirculating material and trying different laterals to find the material, efforts to remove solids above the minimum 3% requirement were not successful. Less than 9 tonnes were removed, and the decision was made to stop this work.

Biosolids Transportation and Transfer Station

Application began on September 8, 2025. Biosolids were removed simultaneously from the BSTs as well as LRAR and BVF. Separate trucks were dedicated to each storage location and the contractor at the field recorded information to determine where the material was being injected. Composite samples from each storage location were also analyzed separately.

The biosolids were hauled via tanker truck to the fields. Transportation routes were determined before application and Manitoba Environment and Climate Change, and the RM of Portage la Prairie were notified of the intended routes. Copies of these notification letters are included with this report.

Biosolids were transferred from the tanks via a sludge transfer pump to the nurse tank. The nurse tank can hold approximately four tank loads. Cam-lock connections were used for all hose connections mitigating any spillage, which may have occurred during the sludge transfer stage. The nurse tank directly feeds the Drag-Line injection system.

Injection

All biosolids injection was conducted by a Drag-Line injection system which had been modified to allow for injection and to allow for a furrow spacing of 0.50 metres (20 inches). A total of six furrows were created with each pass.

The injection rate was based on the ground speed of the Dragline and the solids and ammonia information of the sludge. The concentration of percent solids and ammonia data was transferred to the field utilizing two-way radio. This data was used by the operator of the Drag-Line equipment to estimate the speed of the unit using an injection rate chart. Approximately 100 kg/ha of plant-available nitrogen was applied to each application area as based on the following formula:

$$S = \frac{N_p}{(\text{NO}_3\text{-N} + \text{NH}_3\text{-N} + F \times \text{Org-N})}$$

Where:

S= sludge application rate (dry kg/ha)

N_p= plant available nitrogen requirement (kg/ha) = 100 kg/ha

NO₃-N= nitrate nitrogen content of sludge (kg/kg sludge)

NH₃-N= ammonia nitrogen content of sludge (kg/kg sludge)

F= organic nitrogen mineralization factor (0.2 dimensionless)

Org-N= organic nitrogen content of sludge (kg/kg sludge)

Biosolids Testing During Land Application

During the land application program, ongoing testing of samples from the BSTs and LRAR are conducted. One grab sample is collected from every tanker to form a composite sample of five tankers. Each composite is analyzed for solids and ammonia content.

The ammonia and solids testing that occurs during the biosolids hauling process are analyzed in-house by City of Portage staff. Solids are determined using a moisture balance and ammonia is determined via Flow Injection Analysis following APHA Standard Methods for the Examination of Water and Wastewater 20th Ed, 1998 Method 4500-NH₃ H. Flow Injection Analysis.

The ongoing testing of ammonia and solids for each composite sample ensures that the application rate is being adjusted accordingly as the program proceeds. The spreadsheets used to determine rates also calculate the applied quantity of metals, phosphorus, and Nitrogen along with the background soil composition to ensure the cumulative values do not exceed license requirements. This information is documented in the Biosolids Application Recording sheets which are included in this report. A copy of this report is also given to each landowner.

Summary

Residual solids were removed and transported for land application between September 8, 2025, and September 25, 2025. In total, 920.6 dry tonnes were removed and injected including 467.9 tonnes from the LRAR, 321.8 dry tonnes from the Biosolids Storage Tanks, and 8.7 tonnes from the BVF. Although there were slight overapplications of Nitrogen from the material from the BST and solids from the LRAR, these were quickly corrected and the overall average for the field was well within all application limits. There were no incidents or spills that occurred during the land application process. With the inability to effectively remove the material from the BVF, fields SW 33-12-8, and SE 31-12-8 were not required. These fields will be considered first for 2026. Follow-up with the landowner indicated they were content with the application process and are willing to have residual solids applied in future years.

APPENDIX A
LAND SOLICITATION AND ADVERTISING

February 27, 2025

Mr. Tyler Kneeshaw
Regional Supervisor
Manitoba Environment, Climate and Parks
25 Tupper Street North
Portage la Prairie, MB R1N 3K1

Re: 2025 Residual Biosolids Application Program

Dear Tyler Kneeshaw,

The City of Portage la Prairie intends to conduct land application of residual biosolids in the fall of 2025. The following land areas that have been identified as potential application sites and pending soil analysis, biosolids may be applied to the following agricultural lands:

LEGAL LAND DESCRIPTIONS

Owner: MacDonald – NW 1-13-7

Owner: Norquay – W 35-11-7

Owner: Westroc – SE 31-12-8
SW 33-12-8
NW 23-12-8
NW 22-12-8

As required in Environment Act License 1907, Clause 17, notice of intent to land apply to the above noted sites will be printed in the Herald Leader, on February 27, 2025. The notice will also be posted to the City website. A copy of the intended routes of transport as well as a confirmation of start date will be sent once they are confirmed by the contractor. Please contact me at 204-239-8359 if you have or receive any concerns regarding the above sites.

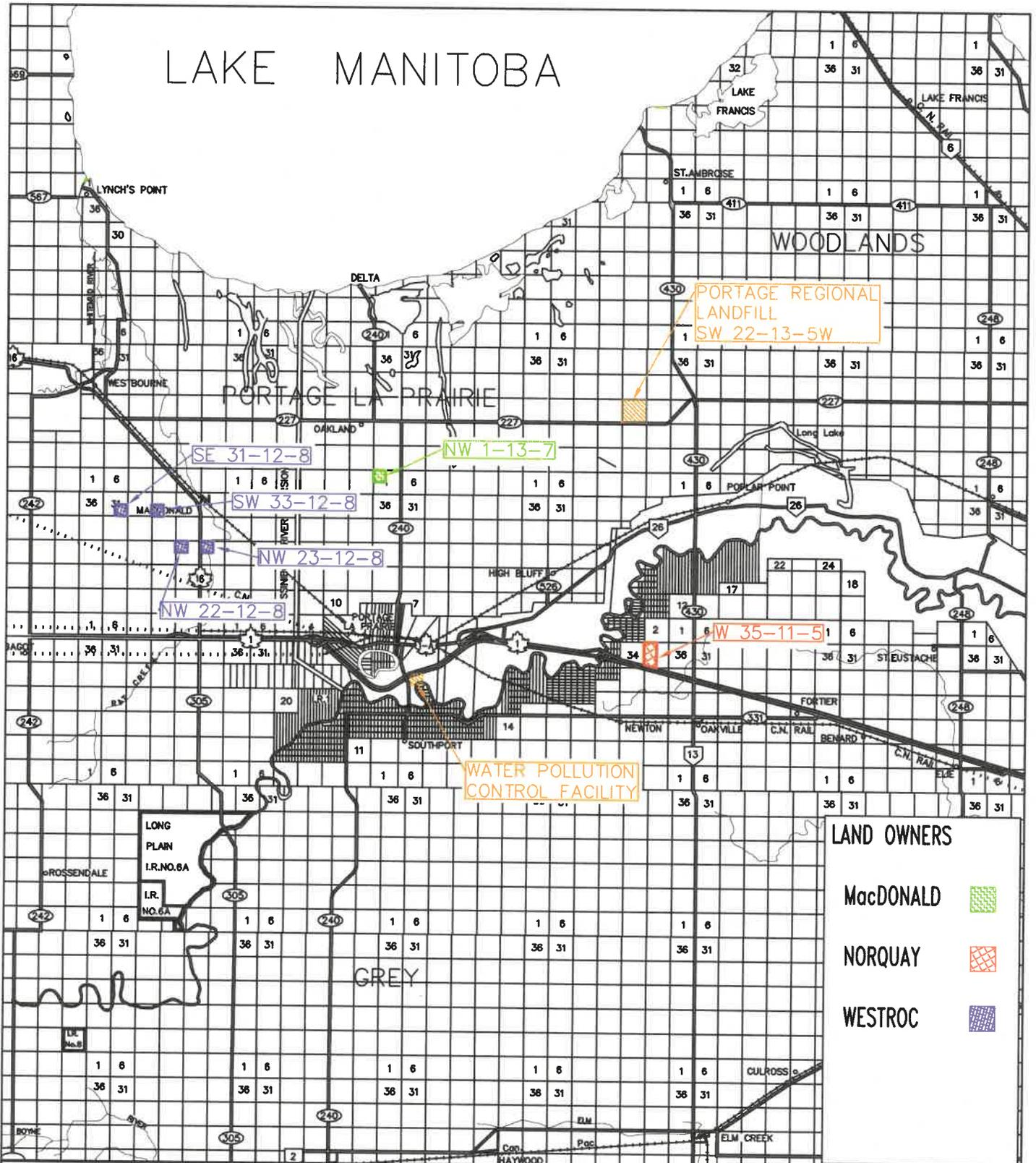
A map of the Portage la Prairie region with fields identified has been included with this letter.

Sincerely,



Karly Friesen
Director of Utility

LAKE MANITOBA



Portage la Prairie
City of Possibilities

Project
**2025
BIOSOLIDS
APPLICATION
LAND DESCRIPTION**

Sheet	1	y/m/d	25/01/2e
Scale	N.T.S		
Drawing No.	M-214	Rev.	0

February 27, 2025

Kyle Hamilton
Chief Administrative Officer
Rural Municipality of Portage la Prairie
35 Tupper Street South
Portage la Prairie, MB R1N 1W7

Re: 2025 Residual Biosolids Application Program

Dear Kyle Hamilton,

The City of Portage la Prairie intends to conduct land application of residual biosolids in the fall of 2025. The following land areas that have been identified as potential application sites and pending soil analysis, biosolids **may** be applied to the following agricultural lands:

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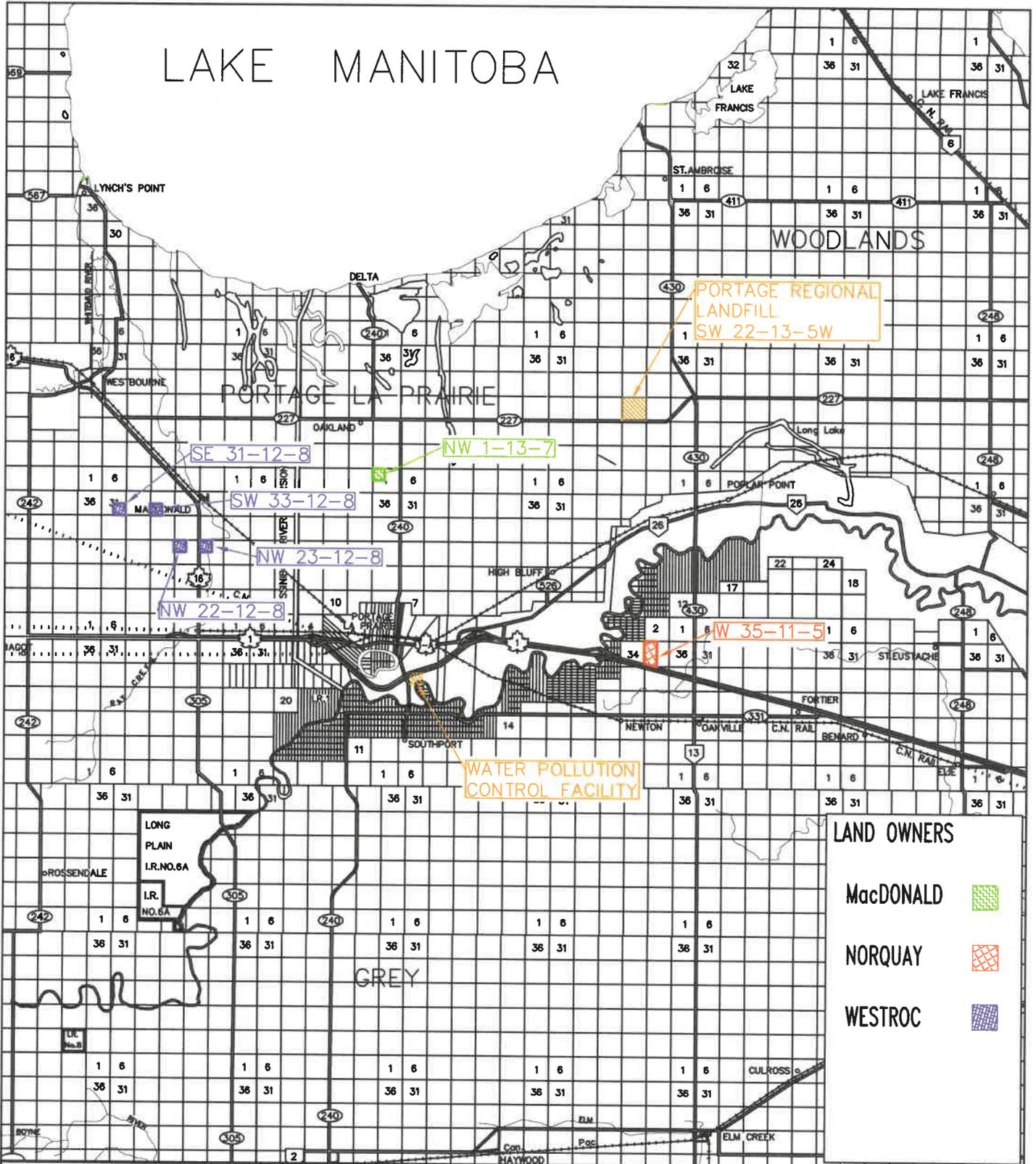
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Sincerely,



Karly Friesen
Director of Utility

LAKE MANITOBA



Portage la Prairie
City of Possibilities

Project 2025
BIOSOLIDS
APPLICATION
LAND DESCRIPTION

Sheet	1	ym/d	25/01/29
Scale	N.T.S		
Drawing No.	M-214	Rev.	0

The City of Portage la Prairie intends to conduct the Residual Biosolids Land Application Program commencing in the fall of 2025.

Pending soil analysis, biosolids **may** be applied to the following agricultural lands:

LEGAL DESCRIPTION

SW 33-12-08, NW 22-12-08, NW 23-12-08, SE 31-12-8, W 35-11-5, NW 1-13-7

A map of land locations can be found at www.city-plap.com

Please contact Karly Friesen, Manager, Director of Utility at 204-239-8359 if you have or receive any concerns regarding the above sites.

APPENDIX B
APPLICATION AREA SUMMARY, SOIL TESTING, BIOSOLIDS TESTING AND
ANALYTICAL RESULTS

FALL

SE 1-13-7

S 33-12-8

July 22, 2025

Tyler Kneeshaw
Regional Supervisor
Manitoba Environment, Climate and Parks
25 Tupper Street North
Portage la Prairie, MB R1N 3K1

Re: Truck Routes for 2025 Residual Biosolids Application Program

Dear Mr. Kneeshaw,

Please find the enclosed route maps for the fall Residual Biosolids Land application for review and comment. The following four fields have been pre-selected for use;

MacDonald- NW 1-13-7

Norquay- W 35-11-5

Westroc- SE 31-12-8, SW 33-12-8 (NW 23-12-8 & NW 22-12-8 are available if needed)

Please note the final field selection is dependant on soil testing as well as the quantity of material to be applied. The start date as well as the order of field use will be communicated to you once it has been confirmed. Please contact me if you have any concerns with the routes provided. I can be reached via phone at 204-239-8359 or email at kfriesen@city-plap.com.

Sincerely,

Karly Friesen
Director of Utility
City of Portage la Prairie

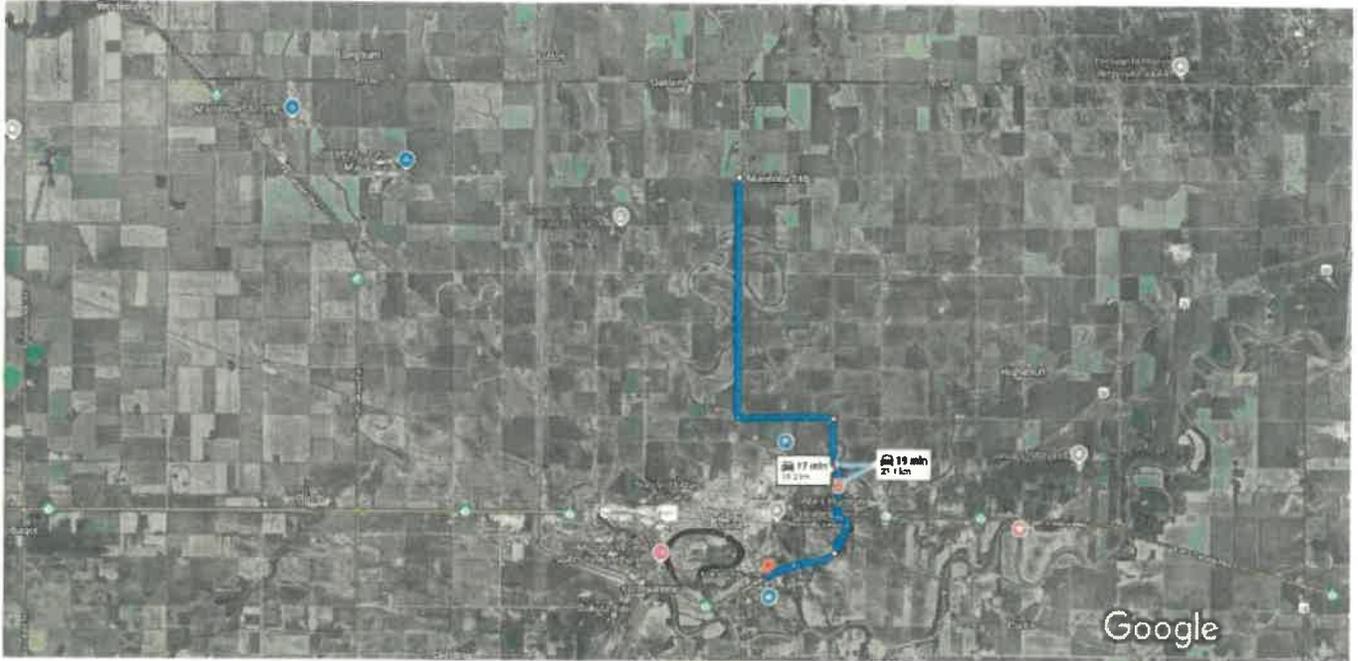


Map data ©2025, Map data ©2025 Google 2 km

 **via Rd 33W** **20 min**
20 min without traffic 22.2 km

Explore nearby MB-240

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More



Map data ©2025, Map data ©2025 Google 2 km

-  **via 240 Rd/MB-240 S** **17 min**
16 min without traffic 19.2 km
-  **via 240 Rd/MB-240 S and 68 Rd N** **19 min**
18 min without traffic 21.1 km

Explore nearby River Rd

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

To Norquay W 35-11-5



Imagery ©2025 Airbus, CNES / Airbus, Landsat / Copernicus, Maxar Technologies, Map data ©2025 Google 1 km



via Trans-Canada Hwy/MB-1 E

13 min

Fastest route, the usual traffic

18.5 km

Explore nearby Rd 26 W



Restaurants



Hotels



Gas stations



Parking Lots



More



River Rd, Southport, MB R0H 1N0 to Rd 46 W, Macdonald, MB R0H 0G0 Drive 28.9 km, 22 min

From WPCF to SE 31-12-8



Map data ©2025, Map data ©2025 Google 2 km



via Trans-Canada Hwy/MB-1 W
and Rd 46 W

22 min

28.9 km

21 min without traffic

Explore nearby Rd 46 W



Restaurants



Hotels



Gas
stations



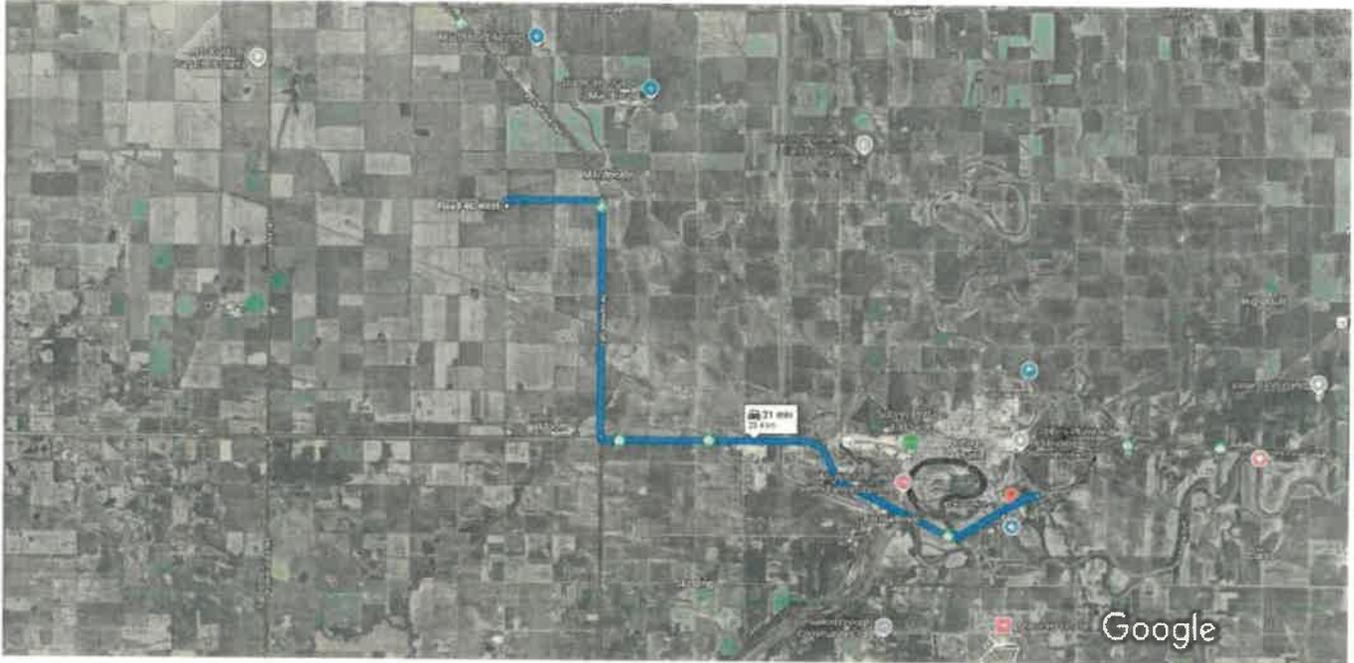
Parking
Lots



More

Rd 46 W, Macdonald, MB R0H 0G0 to River Rd, Drive 29.4 km, 21 min
Southport, MB R0H 1N0

From SE 31-12-8 to WPCF



Map data ©2025, Map data ©2025 Google 2 km



via MB-16 E and Trans-Canada Hwy/MB-1 E

21 min

29.4 km

Fastest route, the usual traffic

Explore nearby River Rd



Restaurants



Hotels



Gas stations



Parking Lots



More

SW 33-12-8



Map data ©2025, Map data ©2025 Google 2 km

 via MB-16 E and Trans-Canada Hwy/MB-1 E **21 min**
29.1 km
20 min without traffic

Explore nearby River Rd

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

July 22, 2025

Mr. Kyle Hamilton
Chief Administrative Officer
Rural Municipality of Portage la Prairie
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Westroc- SE 31-12-8, SW 33-12-8 (NW 23-12-8 & NW 22-12-8 are available if needed)

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Sincerely,



Karly Friesen
Director of Utility
City of Portage la Prairie

River Rd, Southport, MB R0H 1N0 to MB-240, High Bluff, MB R0H 0K0 Drive 22.2 km, 20 min



WPCF to NW 1-13-7



Map data ©2025, Map data ©2025 Google 2 km

 **via Rd 33W** **20 min**
20 min without traffic 22.2 km

Explore nearby MB-240

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

MB-240, High Bluff, MB R0H 0K0 to River Rd, Southport, MB R0H 1N0 Drive 19.2 km, 17 min



From NW 1-13-7



Map data ©2025, Map data ©2025 Google 2 km

-  **via 240 Rd/MB-240 S** 17 min
16 min without traffic 19.2 km
-  **via 240 Rd/MB-240 S and 68 Rd N** 19 min
18 min without traffic 21.1 km

Explore nearby River Rd

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

Work (390 River Rd) to Rd 26 W, Newton, MB Drive 18.5 km, 13 min
ROH OKO



To Norquay W 35-11-5



Imagery ©2025 Airbus, CNES / Airbus, Landsat / Copernicus, Maxar Technologies, Map data ©2025 Google 1 km

 **via Trans-Canada Hwy/MB-1 E** **13 min**
Fastest route, the usual traffic 18.5 km

Explore nearby Rd 26 W

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

River Rd, Southport, MB R0H 1N0 to Rd 46 W, Macdonald, MB R0H 0G0 Drive 28.9 km, 22 min



From WPCF to SE 31-12-8



Map data ©2025, Map data ©2025 Google 2 km

 **via Trans-Canada Hwy/MB-1 W and Rd 46 W** 22 min
28.9 km
21 min without traffic

Explore nearby Rd 46 W



Restaurants



Hotels



Gas stations



Parking Lots



More

Rd 46 W, Macdonald, MB R0H 0G0 to River Rd, Drive 29.4 km, 21 min
Southport, MB R0H 1N0

From SE 31-12-8 to WPCF



Map data ©2025, Map data ©2025 Google 2 km

 via MB-16 E and Trans-Canada Hwy/MB-1 E **21 min**
29.4 km
Fastest route, the usual traffic

Explore nearby River Rd

-  Restaurants
-  Hotels
-  Gas stations
-  Parking Lots
-  More

SW 33-12-8



Map data ©2025 Map data ©2025 Google 2 km



via MB-16 E and Trans-Canada
Hwy/MB-1 E

21 min

29.1 km

20 min without traffic

Explore nearby River Rd



Restaurants



Hotels



Gas
stations



Parking
Lots



More

LETTER OF AGREEMENT

I, on my part, agree to:

- a) Plant a cereal, oilseed, forage, field pea, or lentil crop at the beginning of the next growing season. Only these listed crops will be grown for three seasons following biosolids application. A crop will not be grown that is a vegetable or a fruit and livestock will not be allowed to graze for three growing seasons after biosolids application on the land.
- b) Provide crop information to the City on an annual basis.
- c) Consider the soil and biosolids test results before applying nitrogen fertilizer in the growing season following biosolids application and restrict the addition of plant-available nitrogen to a maximum of 100 kg/ha, including that derived from the application of biosolids. Fertilizers, including those derived from biosolids, will be applied at the recommended agronomic rates.
- d) Release and discharge the City of Portage la Prairie of and from all claims, demands, actions or causes of actions which I have or may have as the result of the application of wastewater biosolids to my land.
- e) Provide the City with a letter of acceptance upon completing the biosolids application indicating my acceptance of field conditions.
- f) Notify the lessee of the land (if applicable) of this agreement.

South Paw Potato Ltd

Land Owner Name

[Signature] (President)

Land Owner Signature

Feb 26/25

Date

Karly Friesen

City Representative Name

[Signature]

City Representative Signature

19/02/2025

Date

Land Location(s): ___ NW 1-13-7

2025 Bio-Solid Application Recording Sheet

Reference Sample Soil Material Criteria is SRM 1646a/SRM2709

See Appendix Section for Information

Name of Land Owner

MacDonald

Legal Description

NW 1-13-7

Land Owner Authorization

Yes

Dist. >300m from residences

Yes

Map Enclosed

Yes

Year Field previously Used

GPS

Lat

Long

Date	Date	Date	Date	Date	Date
BST 16/9/20225	BST 16/9/2025lbs/ ac	LRAR 25/9/2025	LRAR 25/9/2025 lbs/ac		

Comments

Field Soil Analysis mg/kg 0-15 cm

Cadmium	0.54		0.54		
Calcium					
Chromium	28		28		
Copper	23		23		
Lead	12		12		
Mercury	0.066		0.066		
Nickel	30		30		
pH	7.25		7.25		
Phosphorus < 60 ug/g	690		690		
Potassium	3200		3200		
Soil Nitrate Nitrogen 0-60cm<100kg/ha	3.3		3.3		
Zinc	97		97		

Bio-Solids Analysis mg/kg

Ammonia Nitrogen	490		190		
Cadmium	0.061		0.089		
Chromium	2.4		1.2		
Conductivity	5100		3400		
Copper	32		5.9		
Lead	0.92		0.32		
Mercury	0.0036		0.38		
Nickel	2.8		1.6		
Nitrate Nitrogen	0.084		0.040		
Organic Nitrogen	974		1500		
pH	7.24		6.97		
Potassium	950		490		
Total Nitrogen	1500		1700		
Total Phosphorus	290		570		
Total Solids	17800		57400		
Volatile Solids	11900		30200		
Zinc	23		24		

Cumulative Results Kg/Hectare

Cadmium < 2.88	0.972	0.867	0.973	0.868	
Chromium < 216	50.407	44.97	50.412	44.98	
Copper < 90	45.002	40.15	41.460	36.99	
Lead < 90	21.603	19.27	21.603	19.27	
Mercury < 0.9	0.119	0.11	1.123	1.00	
Nickel < 90	54.008	48.18	54.016	48.19	
Nutrient Appl. Rate PA-N<100/kg	100.006	89.22	79.118	70.59	
Solids <10	2.757	2.46	10.095	9.01	
Zinc < 270	174.621	155.79	174.842	155.99	
Phosphorus	1242.800	1108.80	1247.754	1113.22	

Comments

CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

DATE FALL of 2025

FARMERS NAME: DARREN MACDONALD

^{NW} FIELD SEC. 01 TWP 13 RGE 07

APPLICATION TYPE: INJECTION

DEPTH: 6' HA: _____ CM3: _____

N

SEPT 8
BST

184,832 GALLONS

17 ACRES

SEPT 8
LAAR

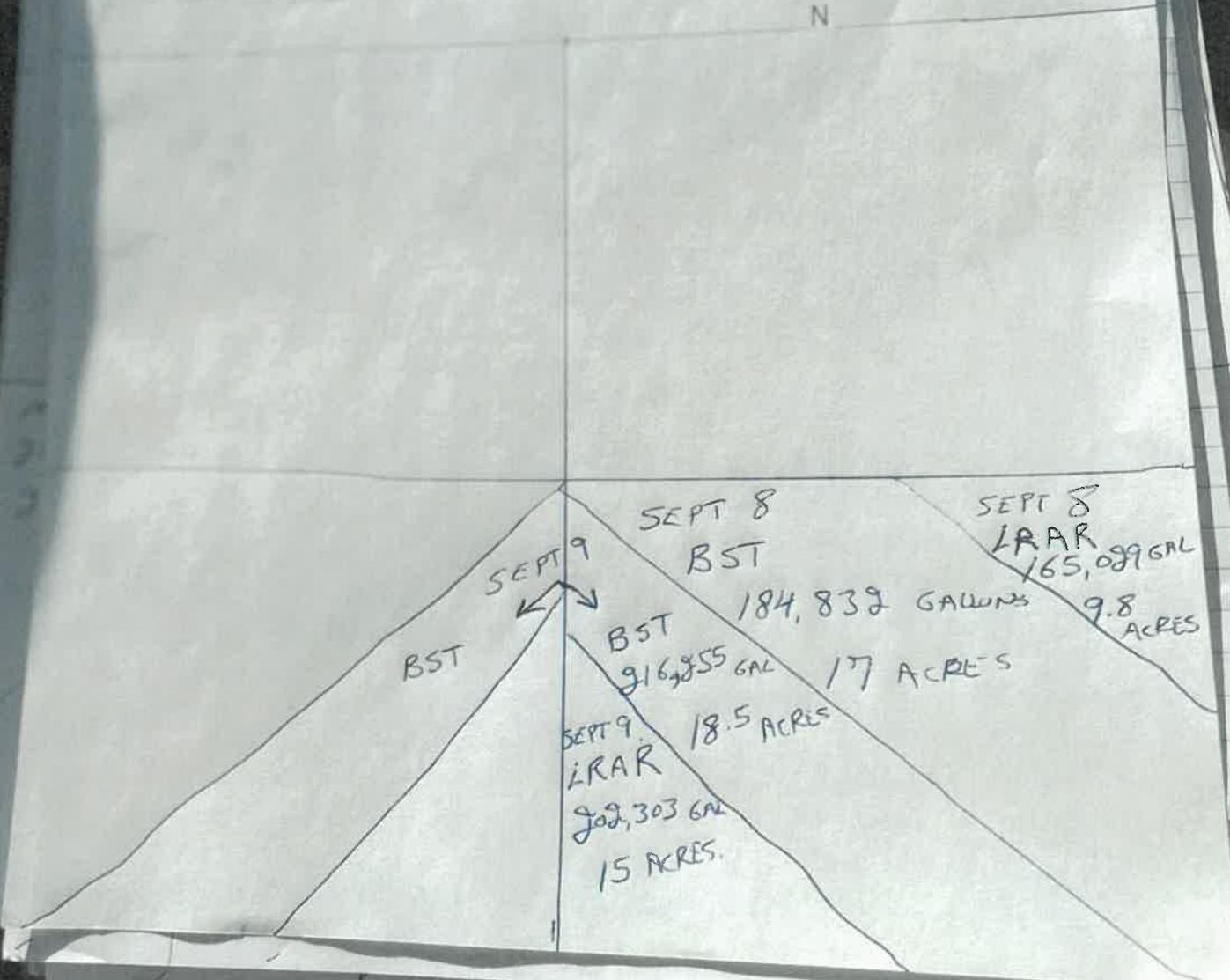
165,099 GAL

9.8 ACRES

ASSINIBOINE INJECTIONS LTD

NEW BRITAIN, MANITOBA
DATE: SEP 15 1955
APPLICANT: ASSINIBOINE INJECTIONS LTD
ADDRESS: 100 ST. JAMES ST. W. WINNIPEG
OFFICIALS: _____
CLASS: _____

N



CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

DATE: FALL of 2025

FARMERS NAME: DARREN MACDONALD

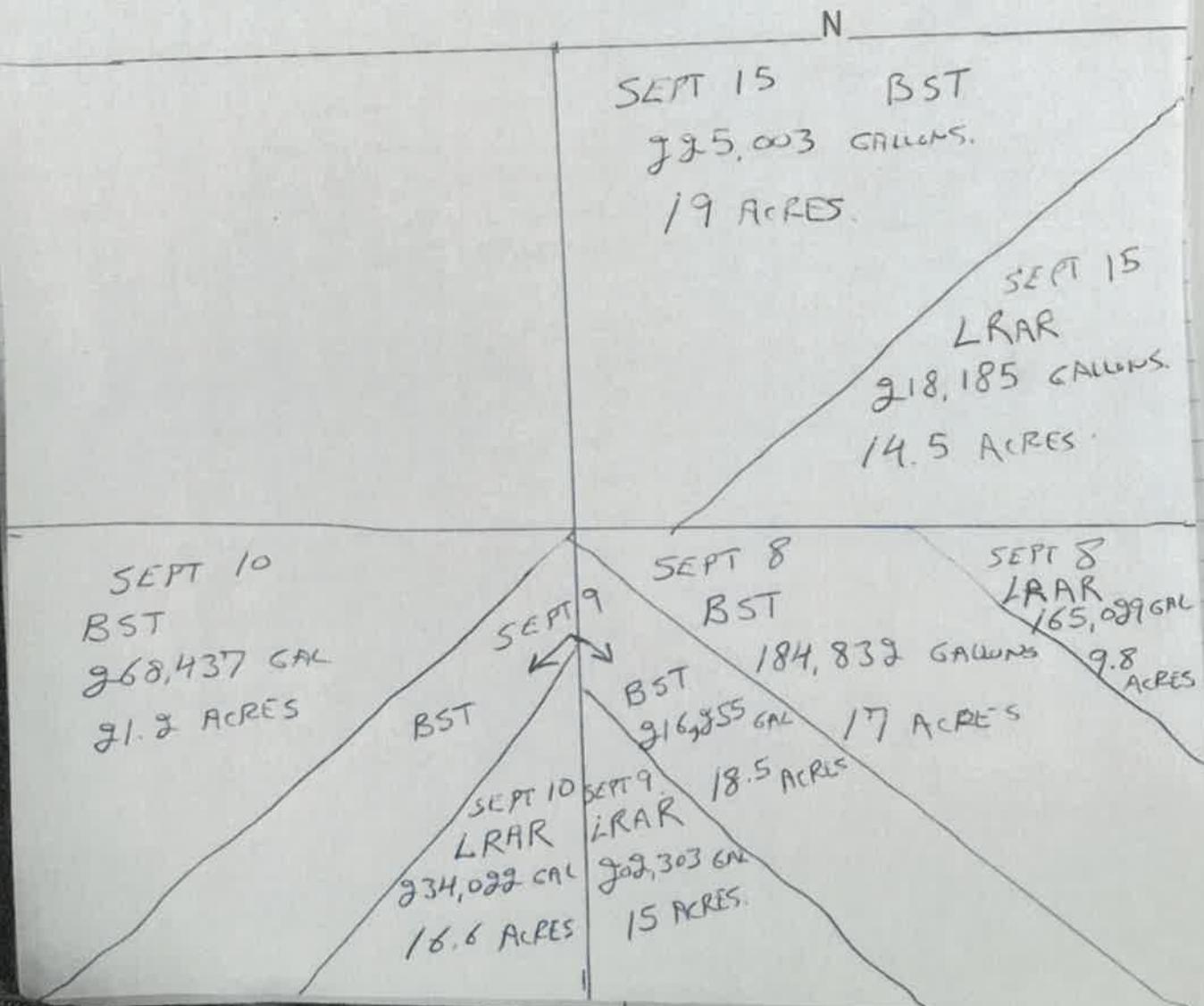
^{NW}
FIELD: SEC. 01 TWP 13 RGE 07

APPLICATION TYPE: INJECTION

DEPTH: 6"

HA: _____

CM3: _____



NAME - Portage
Maps - 10

CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

DATE: FALL OF 2025

FARMERS NAME: DARREN MACDONALD

FIELD: SEC. 01 TWP 13 RGE 07

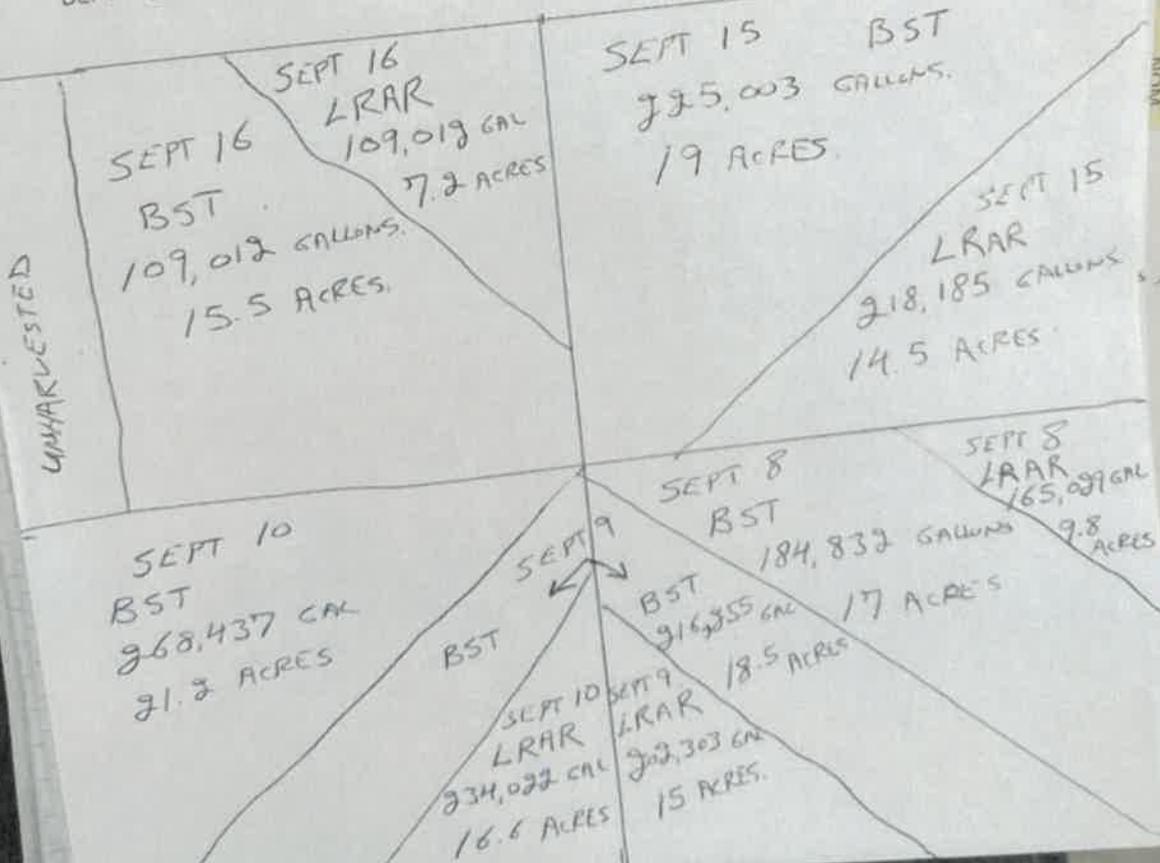
APPLICATION TYPE: INJECTION

DEPTH: 6"

HA: _____

CM3: _____

N





Your P.O. #: W25026
Your C.O.C. #: 112413

Attention: Aaron Stechesen
CITY OF PORTAGE LA PRAIRIE
97 SASKATCHEWAN AVE E.
PORTAGE LA PRAIRIE, MB
Canada R1N 0L8

*NW 1-13-7
MacDonald Final Complete*

Report Date: 2025/09/18
Report #: R3711716
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C574115

Received: 2025/08/28, 16:00

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Hexavalent Chromium (1, 3)	1	2025/09/02	2025/09/03	AB SOP-00063	SM 24 3500-Cr B m
Carbon, Nitrogen, Sulphur - Combustion (1)	1	N/A	2025/09/08	CAL SOP-00263	AN-A-030609-E-01 m
Atterberg Limits (Wet) SubC (2)	1	N/A	N/A		
Elements by ICP -Soils (1)	1	2025/09/04	2025/09/05	AB SOP-00001 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Soils (1)	1	2025/09/04	2025/09/05	AB SOP-00001 / AB SOP-00043	EPA 6020b R2 m
Moisture (1)	1	N/A	2025/08/31	AB SOP-00002	CCME PHC-CWS m
Soluble NO2 (N);Soluble NO2 (N) + NO3(N) (1)	1	2025/09/04	2025/09/04	AB SOP-00091	SM 24 4500 NO3m
Nitrate-N (soluble) (1)	1	2025/08/29	2025/09/04		Auto Calc
pH (Soluble) (1)	1	2025/09/03	2025/09/04	AB SOP-00033 / AB SOP-00006	SM 24 4500 H+B m
Phosphorus, Potassium - Available (1)	1	2025/09/05	2025/09/05	AB SOP-00028 / AB SOP-00042	EPA 6010d R5 m
Soluble Paste (1)	1	2025/09/03	2025/09/03	AB SOP-00033	Carter 2nd ed 15.2 m
Soluble Paste (1)	1	2025/09/04	2025/09/04	AB SOP-00033	Carter 2nd ed 15.2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope



Your P.O. #: W25026
Your C.O.C. #: 112413

Attention: Aaron Stechesen
CITY OF PORTAGE LA PRAIRIE
97 SASKATCHEWAN AVE E.
PORTAGE LA PRAIRIE, MB
Canada R1N 0L8

Report Date: 2025/09/18
Report #: R3711716
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C574115

Received: 2025/08/28, 16:00

dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) This test was performed by Bureau Veritas Fuels Testing Canada, Inc., 6744 50 St NW , Edmonton, AB, T6B 3M9

(3) Some soil samples may react with the Cr(VI) spike reducing it to Cr(III). These samples are highly unlikely to contain native hexavalent chromium. Thus a failed spike recovery does not invalidate a negative result on the native sample.

Encryption Key



AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
18 Sep 2025 17:26:48

Please direct all questions regarding this Certificate of Analysis to:
Morgan Melnychuk, Customer Solutions Representative
Email: Morgan.MELNYCHUK@bureauveritas.com
Phone# (604)638-8034 Ext:8034

=====

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Manitoba Environmental laboratory operations.



BUREAU VERITAS

Bureau Veritas Job #: C574115
 Report Date: 2025/09/18

CITY OF PORTAGE LA PRAIRIE
 Your P.O. #: W25026
 Sampler Initials: AS

RESULTS OF CHEMICAL ANALYSES OF SOIL

Bureau Veritas ID		DRV344			DRV345			DRV346	
Sampling Date		2025/08/28 11:50			2025/08/28 11:50			2025/08/28 11:50	
COC Number		112413			112413			112413	
	UNITS	25-08-54	RDL	QC Batch	25-08-55	RDL	QC Batch	25-08-56	QC Batch
Calculated Parameters									
Soluble Nitrate (N)	mg/L				3.3	0.20	C067261		
Elements									
Hex. Chromium (Cr 6+)	mg/kg	<0.080	0.080	C070213					
Misc. Inorganics									
Total Nitrogen (N ₂)	mg/kg				<2000	2000	C072904		
Nutrients									
Available (Mod Kel) Phosphorus (P)	mg/kg	14	4.0	C074619					
Available (Mod Kel) Potassium (K)	mg/kg	310	4.0	C074619					
Soluble Parameters									
Soluble pH	pH	7.25	N/A	C072519					
Soluble Nitrite (N)	mg/L				0.92	0.20	C073475		
Saturation %	%	82	N/A	C069063	66	N/A	C070346		
Internal Sublet Analysis									
Subcontract Parameter	N/A							ATTACHED	C091357
RDL = Reportable Detection Limit N/A = Not Applicable									



BUREAU
VERITAS

Bureau Veritas Job #: C574115

Report Date: 2025/09/18

CITY OF PORTAGE LA PRAIRIE

Your P.O. #: W25026

Sampler Initials: AS

PHYSICAL TESTING (SOIL)

Bureau Veritas ID		DRV344		
Sampling Date		2025/08/28 11:50		
COC Number		112413		
	UNITS	25-08-54	RDL	QC Batch
Physical Properties				
Moisture	%	31	0.30	C068897
RDL = Reportable Detection Limit				



BUREAU
VERITAS

Bureau Veritas Job #: C574115
Report Date: 2025/09/18

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		DRV344		
Sampling Date		2025/08/28 11:50		
COC Number		112413		
	UNITS	25-08-54	RDL	QC Batch
Elements				
Total Calcium (Ca)	mg/kg	12000	50	C073677
Total Phosphorus (P)	mg/kg	690	20	C073677
Total Potassium (K)	mg/kg	3200	50	C073677
Total Cadmium (Cd)	mg/kg	0.54	0.050	C073653
Total Chromium (Cr)	mg/kg	27	1.0	C073653
Total Copper (Cu)	mg/kg	23	1.0	C073653
Total Lead (Pb)	mg/kg	12	0.50	C073653
Total Mercury (Hg)	mg/kg	0.066	0.050	C073653
Total Nickel (Ni)	mg/kg	30	1.0	C073653
Total Zinc (Zn)	mg/kg	97	10	C073653
RDL = Reportable Detection Limit				



**BUREAU
VERITAS**

Bureau Veritas Job #: C574115
Report Date: 2025/09/18

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

GENERAL COMMENTS

Results relate only to the items tested.



Bureau Veritas Job #: CS74115
Report Date: 2025/09/18

QUALITY ASSURANCE REPORT

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
C068897	Moisture	2025/08/31					<0.30	%	0.38	20		
C069063	Saturation %	2025/09/03							3.6	12	103	75 - 125
C070213	Hex. Chromium (Cr 6+)	2025/09/03	0 (1)	75 - 125	91	80 - 120	<0.080	mg/kg	NC	35	78	75 - 125
C070346	Saturation %	2025/09/04							2.2	12	102	75 - 125
C072519	Soluble pH	2025/09/04			100	97 - 103			1.2	N/A	102	97 - 103
C072904	Total Nitrogen (N ₂)	2025/09/08			99	75 - 125	<2000	mg/kg	NC	30	103	75 - 125
C073475	Soluble Nitrite (N)	2025/09/04	96	75 - 125	100	80 - 120	<0.20	mg/L	NC	30		
C073653	Total Cadmium (Cd)	2025/09/05	97	75 - 125	100	80 - 120	<0.050	mg/kg	4.5	30	108	56 - 147
C073653	Total Chromium (Cr)	2025/09/05	124	75 - 125	101	80 - 120	<1.0	mg/kg	0.62	30	90	65 - 136
C073653	Total Copper (Cu)	2025/09/05	93	75 - 125	101	80 - 120	<1.0	mg/kg	1.9	30	98	83 - 117
C073653	Total Lead (Pb)	2025/09/05	92	75 - 125	96	80 - 120	<0.50	mg/kg	2.3	35	113	87 - 113
C073653	Total Mercury (Hg)	2025/09/05	97	75 - 125	101	80 - 120	<0.050	mg/kg	4.3	35	103	71 - 129
C073653	Total Nickel (Ni)	2025/09/05	97	75 - 125	101	80 - 120	<1.0	mg/kg	4.4	30	104	85 - 115
C073653	Total Zinc (Zn)	2025/09/05	NC	75 - 125	97	80 - 120	<10	mg/kg	2.5	30		
C073677	Total Calcium (Ca)	2025/09/05	NC	75 - 125	99	80 - 120	<50	mg/kg	1.6	30	101	84 - 106
C073677	Total Phosphorus (P)	2025/09/05	NC	75 - 125	105	80 - 120	<20	mg/kg	1.5	30	104	86 - 114
C073677	Total Potassium (K)	2025/09/05	NC	75 - 125	102	80 - 120	<50	mg/kg	1.3	35	93	56 - 144
C074619	Available (Mod Kel) Phosphorus (P)	2025/09/05	85	75 - 125	91	80 - 120	<4.0	mg/kg	NC	35		
C074619	Available (Mod Kel) Potassium (K)	2025/09/05	84	75 - 125	90	80 - 120	<4.0	mg/kg	1.3	35		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C574115

Report Date: 2025/09/18

CITY OF PORTAGE LA PRAIRIE

Your P.O. #: W25026

Sampler Initials: AS

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Rochelle Pacheco, Project Solutions Representative

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Bureau Veritas Certified by Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

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CS74115
2025/08/25 16:00

Custody Tracking Form



Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: 25-08-24
Last Sample: 25-08-26
Sample Count: 3

Aron Gustafsson	Aron Gustafsson	Date	2025-08-24	Kazi Sultan	A	Date	2025-08-24
		Time (24 HR)	13:2			Time (24 HR)	13:2
		Date		Aron Gustafsson	B	Date	2025-08-24
		Time (24 HR)				Time (24 HR)	13:00
		Date				Date	
		Time (24 HR)				Time (24 HR)	

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Sampled By (Print): # of Coolers/Pkgs:

Intermediate Test: Rush:
Micro:

Received At

Lab Comments:

First Comparison Number

107183

med



MCAI-2025-08-2211

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	N	Y	10.7	18.3	16.1
Y	Y	Y	3	3	2

COR FCD-00383/5

Page 1 of 1



eCOC: W112413



Project Information: C574115
 Job Received: 2025/08/25 16:00
 Expected TAT: Standard TAT
 Expected Arrival: 2025/08/28 13:00
 Submitted By: Aaron Stechesen
 Submitted To: Winnipeg

Invoice Information

Attn: Aaron Stechesen
 CITY OF PORTAGE LA PRAIRIE
 97 SASKATCHEWAN AVE E.
 PORTAGE LA PRAIRIE , MB , R1N 0L8
 Email to:
 astechesen@city-plap.com

Report Information

Attn: Aaron Stechesen
 CITY OF PORTAGE LA PRAIRIE
 97 SASKATCHEWAN AVE E.
 PORTAGE LA PRAIRIE , MB , R1N 0L8
 Email to:
 astechesen@city-plap.com

Project Information

Quote #: C50652
 PO/AFE#: W25026
 Project #:
 Site Location:

Analytical Summary

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix #Cont	Nitrogen in Soil	Selected Heavy metals - soil	Atterberg Limits (Dry) SubC	Atterberg Limits (Wet) SubC	Moisture	Nitrate-N (soluble)	PH (Soluble)	Phosphorus, Potassium - Available	Saturated Paste	Soluble NO2 (N);Soluble NO3 (N) + NO3(N)	Set Number
25-08-54	1	2025/08/28 11:50	SOIL 1		A					A	A	A		1
25-08-55	2	2025/08/28 11:50	SOIL 2	A				A	A				A	2
25-08-56	3	2025/08/28 11:50	SOIL 2			A	A							3

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix #Cont	Soluble Paste	Set Number
25-08-54	1	2025/08/28 11:50	SOIL 1	A	1
25-08-55	2	2025/08/28 11:50	SOIL 2	A	2
25-08-56	3	2025/08/28 11:50	SOIL 2		3

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

Submission Information

of Samples: 3



eCOC: W112413



Project Information: CS74115
Job Received: 2025/08/25 16:00
Expected TAT: Standard TAT
Expected Arrival: 2025/08/28 13:00
Submitted By: Aaron Stechesen
Submitted To: Winnipeg

Sample Set Listing

Set 1 (1 sample)
25-08-54

Set 2 (1 sample)
25-08-55

Set 3 (1 sample)
25-08-56



Your Project #: BV CALGARY JOB# C574115
 Site Location: JOB# C574115
 Vendor # 123456789

Attention: Morgan Melnychuk

Bureau Veritas Canada (2019) Inc.
 2021 - 41 AVENUE N.E.
 CALGARY, AB
 CANADA T2E 6P2

Report Date: 2025/09/18
 Report #: R3689615
 Version: 1 - Final

Job/Sample	Analysis Type	Well Name/Sample ID	Sample Point
G506509/ DOQ774	Certificate of Analysis	BUREAU VERITAS CANADA	DRV346-25-08-56

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Encryption Key

Gladys Raymundo
 Customer Service Associate
 18 Sep 2025 15:30:30

Please direct all questions regarding this Certificate of Analysis to:
 Gladys Raymundo, Customer Service Associate
 Email: gladys.raymundo@bureauveritas.com
 Phone# (780) 378-8500

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Report Distribution

1	Reports(G506509)Morgan Melnychuk	Bureau Veritas Canada (2019) Inc.	2021 - 41 AVENUE N.E.	CALGARY, CANADA
0	Reports(G506509)CUSTOMER SOLUTIONS	Bureau Veritas Canada (2019) Inc.	2021 - 41 AVENUE N.E.	CALGARY, CANADA



CERTIFICATE OF ANALYSIS

G506509:DOQ774-01

Maxid _____ Client ID _____ Meter Number _____ Laboratory Number _____

Bureau Veritas Canada (2019) Inc.

Operator Name _____ LSD _____ Well ID _____
 BUREAU VERITAS CANADA AS BUREAU VERITAS CANADA

Well/Plant/Facility _____ Initials of Sampler _____ Sampling Company _____
 Bag _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type _____ No. _____ Multiple Recovery _____ From: _____ To: _____ KB _____ GRD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

Water m³/d _____ Oil m³/d _____ Gas 1000 m³/d _____ Source _____ As Received _____ Source _____ As Received _____ Gas or Condensate Project _____ Licence No. _____

2025/08/28 11:50 _____ 2025/09/03 _____ 2025/09/18 _____ SSS _____
 Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ Analyst _____

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Physical Properties				
Liquid Limit	63	wt%	ASTM D4318	1.0
Plastic Limit	23	wt%	ASTM D4318	1.0
Plasticity Index	40	wt%	ASTM D4318	1.0
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.



CERTIFICATE OF ANALYSIS

MaxID _____ Client ID _____ Meter Number _____ Laboratory Number **G506509:DOQ774-01**
Bureau Veritas Canada (2019) Inc.
 Operator Name **BUREAU VERITAS CANADA** LSD _____ Well ID **BUREAU VERITAS CANADA**
 Well/Plant/Facility _____ Initials of Sampler **AS** Sampling Company _____
 Field or Area _____ Pool or Zone _____ Sample Point **DRV346-25-08-56** Bag _____ Container Identity _____ Percent Full _____
 Test Recovery _____ Interval _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____
 Test Type _____ No. _____ Multiple Recovery _____ From: _____ To: _____ KB _____ GRD _____ Well Fluid Status _____ Well Status Made _____
 Production Rates _____ Gauge Pressures kPa _____ Temperature °C **23.0** Well Status Type _____ Well Type _____
 Water m³/d _____ Oil m³/d _____ Gas 1000 m³/d _____ Source _____ As Received _____ Source _____ As Received _____ Gas or Condensate Project _____ Licence No. _____
 Date Sampled Start **2025/08/28 11:50** Date Sampled End _____ Date Received **2025/09/03** Date Reported **2025/09/18** Date Reissued _____ Analyst **SSS**

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Physical Properties				
Liquid Limit	63	wt%	ASTM D4318	1.0
Plastic Limit	23	wt%	ASTM D4318	1.0
Plasticity Index	40	wt%	ASTM D4318	1.0
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

**Delta Ag Services
City of Portage
MacDonald NW 01-13**

Test Date Aug 28 2026



Clay Test Site 1&2 had no detectable water at the 1.5 m depth.

- NW 1-13-7
- Clay Water test
- Portage Soils-Clip
- 2020 SamplePointsrw

LETTER OF AGREEMENT

Karly Friesen
Director of Utility
City of Portage la Prairie
97 Saskatchewan Ave. E.
Portage la Prairie, MB
R1N 0L8



Dear Land Owner:

I hereby agree to permit the City of Portage la Prairie to apply wastewater treatment residual biosolids to the land, which I own as described below, on the understanding that:

1. The biosolids will be injected approximately 15 cm below the surface.
2. The biosolids will be injected at a maximum rate of 10 dry tonnes per hectare. (Maximum allowable over 4 years.)
3. Application will occur in the 2025 crop year, or as otherwise indicated.
4. Biosolids application will not be closer than 300 meters to a dwelling not belonging to the owner or lessee of the land on which biosolids are applied.
5. Biosolids will not be applied within 15 meters of a ditch draining less than one section and 30 meters from drains serving a larger watershed.
6. All roadways, access roads, and ditches will be repaired to the original condition upon completion of the application program, to the satisfaction of the City, municipality and the landowner.
7. The City makes no warranties or representations regarding the fertilizer content nor any soil conditioning effect of the biosolids.
8. The City will determine background levels of nutrients, heavy metals, pH, and clay depth before the application of biosolids. This information will be provided to the landowner.
9. The City will assess the quality of the biosolids before the application program and will monitor it throughout the program. Test results will be provided to the landowner.
10. Temporary halting of the application due to wet field conditions will occur upon mutual agreement between representatives of the City, contractor and landowner.
11. Biosolids may be injected at a maximum rate of addition of plant-available nitrogen of 100 kilograms per hectare.
12. The cumulative mass per hectare of each heavy metal in the soil does not exceed the respective value stipulated in the City's Environment Act License, and not more than one-third of the initial maximum addition of each heavy metal will be applied in this year's program.
13. The City will restore the field to a condition similar to that as found before the application program.

LETTER OF AGREEMENT

I, on my part, agree to:

- a) Plant a cereal, oilseed, forage, field pea, or lentil crop at the beginning of the next growing season. Only these listed crops will be grown for three seasons following biosolids application. A crop will not be grown that is a vegetable or a fruit and livestock will not be allowed to graze for three growing seasons after biosolids application on the land.
- b) Provide crop information to the City on an annual basis.
- c) Consider the soil and biosolids test results before applying nitrogen fertilizer in the growing season following biosolids application and restrict the addition of plant-available nitrogen to a maximum of 100 kg/ha, including that derived from the application of biosolids. Fertilizers, including those derived from biosolids, will be applied at the recommended agronomic rates.
- d) Release and discharge the City of Portage la Prairie of and from all claims, demands, actions or causes of actions which I have or may have as the result of the application of wastewater biosolids to my land.
- e) Provide the City with a letter of acceptance upon completing the biosolids application indicating my acceptance of field conditions.
- f) Notify the lessee of the land (if applicable) of this agreement.

Norquay Colony

Land Owner Name

[Signature]

Land Owner Signature

March 4/2025

Date

Karly Friesen

City Representative Name

[Signature]

City Representative Signature

19/2/2025

Date

Land Location(s): W 35-11-5

2025 Bio-Solid Application Recording Sheet

Reference Sample Soil Material Criteria is SRM 1646a/SRM2709

See Appendix Section for Information

Name of Land Owner

Norquay

Legal Description

W 35-11-5

Land Owner Authorization

Yes

Dist. >300m from residences

Yes

Map Enclosed

Yes

Year Field previously Used

GPS

Lat

Long

Date	Date	Date	Date	Date	Date
BVF 25/9/20225	BVF 25/9/2025lbs/ac	BST 25/9/2025	BST 25/9/2025 lbs/ac	LRAR 25/9/2025	LRAR 25/9/2025 lbs/ac

Comments

Field Soil Analysis mg/kg 0-15 cm

Bio-Solids Analysis mg/kg

Cumulative Results Kg/Hectare

Cadmium	0.54		0.54		0.54		
Calcium							
Chromium	24		24		24		
Copper	25		25		25		
Lead	12		12		12		
Mercury	0.059		0.059		0.059		
Nickel	30		30		30		
pH	7.88		7.88		7.88		
Phosphorus < 60 ug/g	820		820		820		
Potassium	2700		2700		2700		
Soil Nitrate Nitrogen 0-60cm<100kg/ha	2.6		2.6		2.6		
Zinc	92		92		92		
Ammonia Nitrogen	250		490		190		
Cadmium	0.028		0.061		0.089		
Chromium	0.64		2.4		1.2		
Conductivity	4000		5100		3400		
Copper	1.8		32		5.9		
Lead	0.160		0.92		0.32		
Mercury	0.00417		0.0036		0.38		
Nickel	0.51		2.8		1.6		
Nitrate Nitrogen	0.180		0.084		0.040		
Organic Nitrogen	883		974		1500		
pH	7.04		7.24		6.97		
Potassium	110		950		490		
Total Nitrogen	1200		1500		1700		
Total Phosphorus	250		290		570		
Total Solids	40900		17800		57400		
Volatile Solids	11800		11900		30200		
Zinc	7.70		23		24.000		
Cadmium < 2.88	0.972	0.867	0.972	0.867	0.973	0.868	
Chromium < 216	43.201	38.54	43.207	38.55	43.212	38.553	
Copper < 90	45.002	40.15	45.093	40.23	45.059	40.201	
Lead < 90	21.600	19.27	21.603	19.27	21.603	19.274	
Mercury < 0.9	0.106	0.09	0.106	0.09	0.110	0.098	
Nickel < 90	54.001	48.18	54.008	48.18	54.016	48.192	
Nutrient Appl. Rate PA-N<100/kg	98.37	87.77	100.030	89.24	79.240	70.696	
Solids <10	1.047	0.93	2.454	2.19	9.97	8.898	
Zinc < 270	165.608	147.75	165.622	147.76	165.842	147.961	
Phosphorus	1476.262	1317.09	1476.846	1317.61	1481.684	1321.929	
Comments							

CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2558 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

DATE: FALL OF 2025

FARMERS NAME: McQUAY COLONY

FIELD: SEC. ^{SOUTH} 33 TWP 11 RGE 05

APPLICATION TYPE: INJECTION

DEPTH: 6" HA: _____ CM3: _____

N

SEPT 17
BST
266,058 GAL.
24.8 ACRES.

SEPT 17
LRAR
252,414 GAL
16.5 ACRES.

CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB ROG 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

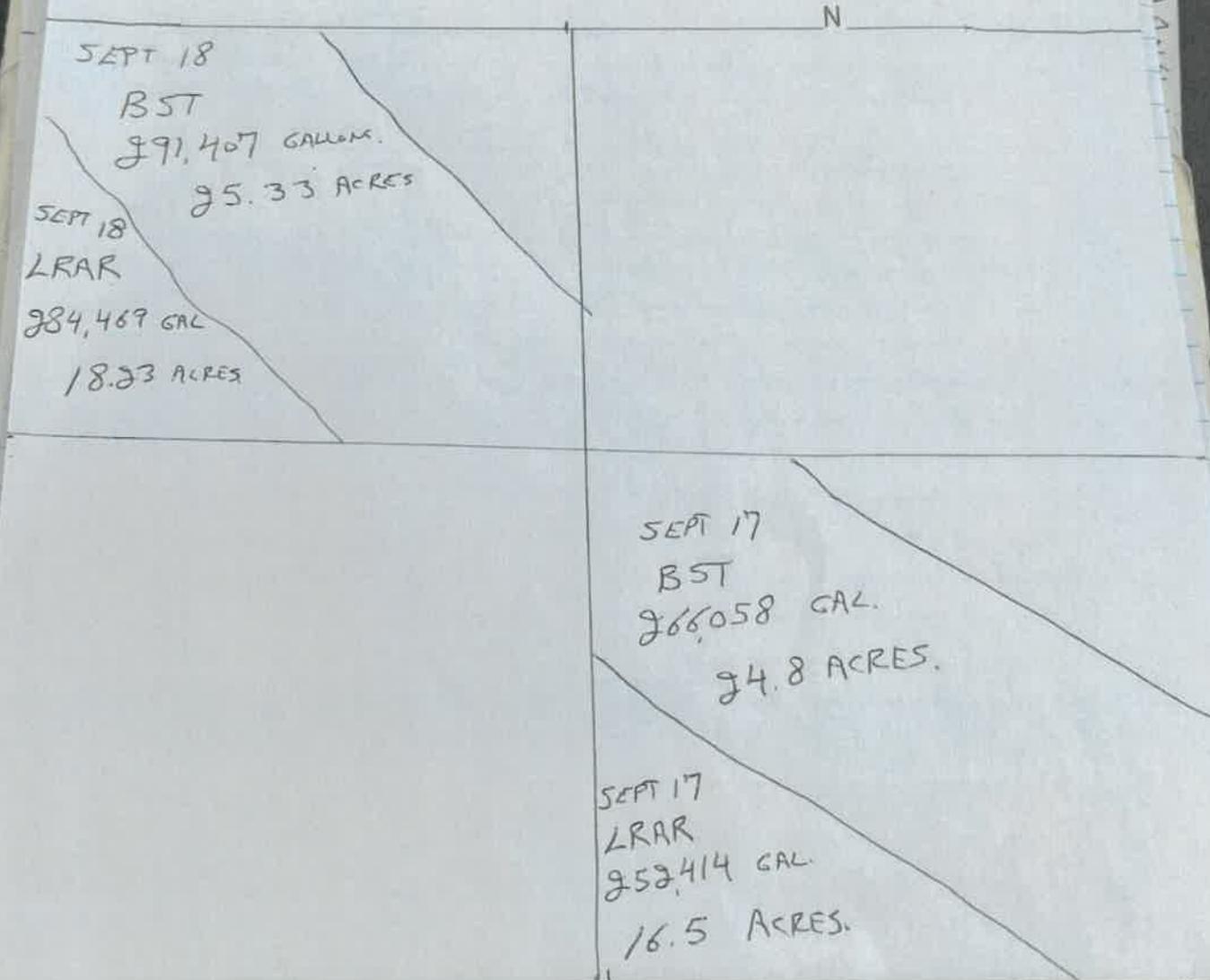
DATE: FALL OF 2025

FARMERS NAME: NORQUAY COLONY

FIELD SEC. 33 TWP 11 RGE 05

APPLICATION TYPE: INJECTION

DEPTH: 6" HA: _____ CM3: _____



SEPT 18

BST

291,407 GALLONS.

25.33 ACRES

SEPT 18

LRAR

284,469 GAL

18.23 ACRES

SEPT 17

BST

266,058 GAL.

24.8 ACRES.

SEPT 17

LRAR

252,414 GAL.

16.5 ACRES.

CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

BOX 180 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

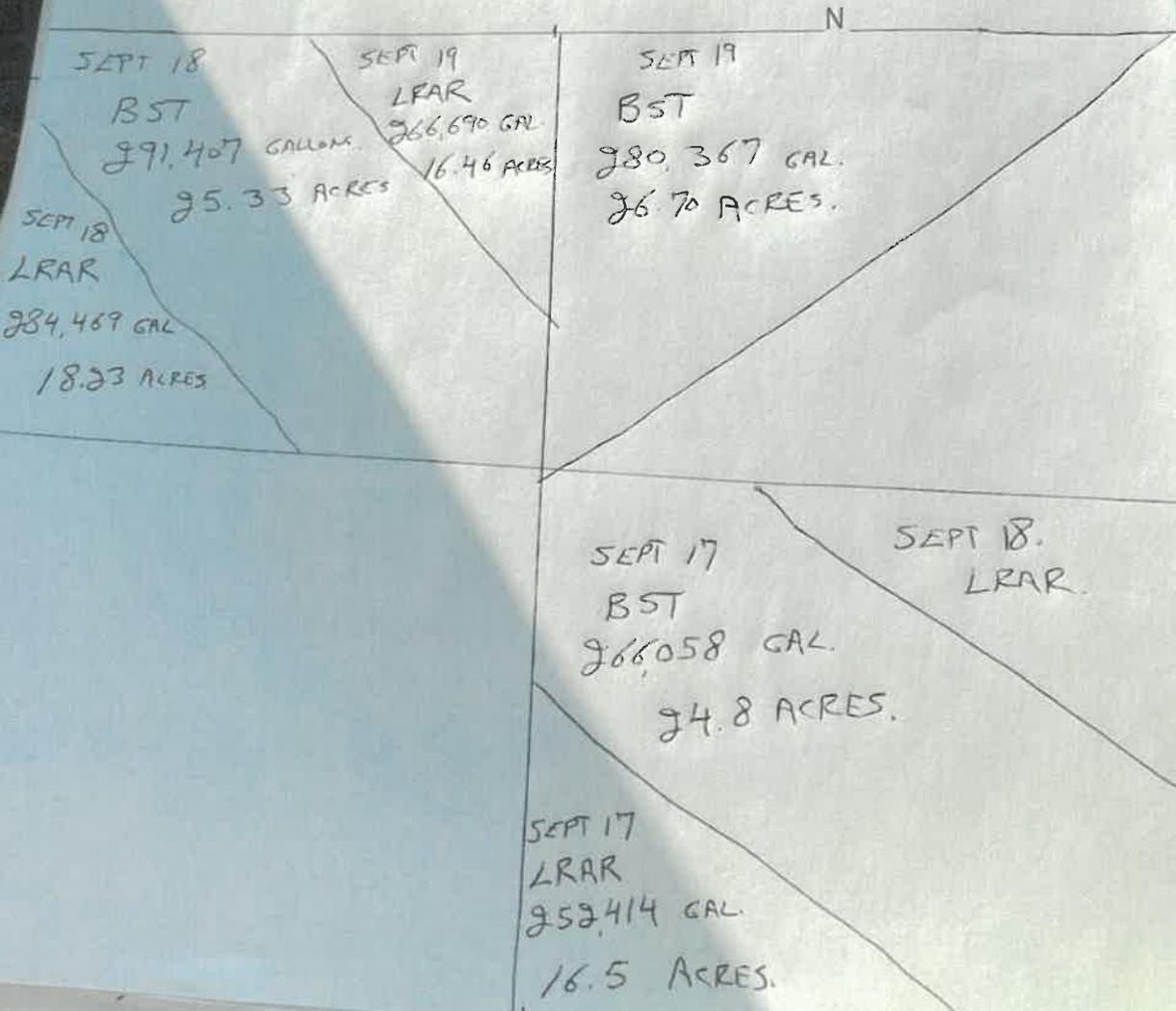
DATE FALL OF 2025

FARMERS NAME MORQUAY COLONY

^{SOUTH}
FIELD SEC. 33 TWP 11 RGE 05

APPLICATION TYPE: INJECTION

DEPTH 6" HA: _____ CM3 _____



CITY OF PARTRAGE

ASSINIBOINE INJECTIONS LTD

804 TWP 177 NOTRE DAME AVE NOTRE DAME MB R0G 1M0 PH 204-248-2559 FAX 204-248-2709

DAILY SLUDGE APPLICATION PLAN

DATE FALL OF 2025

FARMERS NAME McRQUAT COLONY

SOUTH FIELD SEC 33 TWP 11 RGE 05

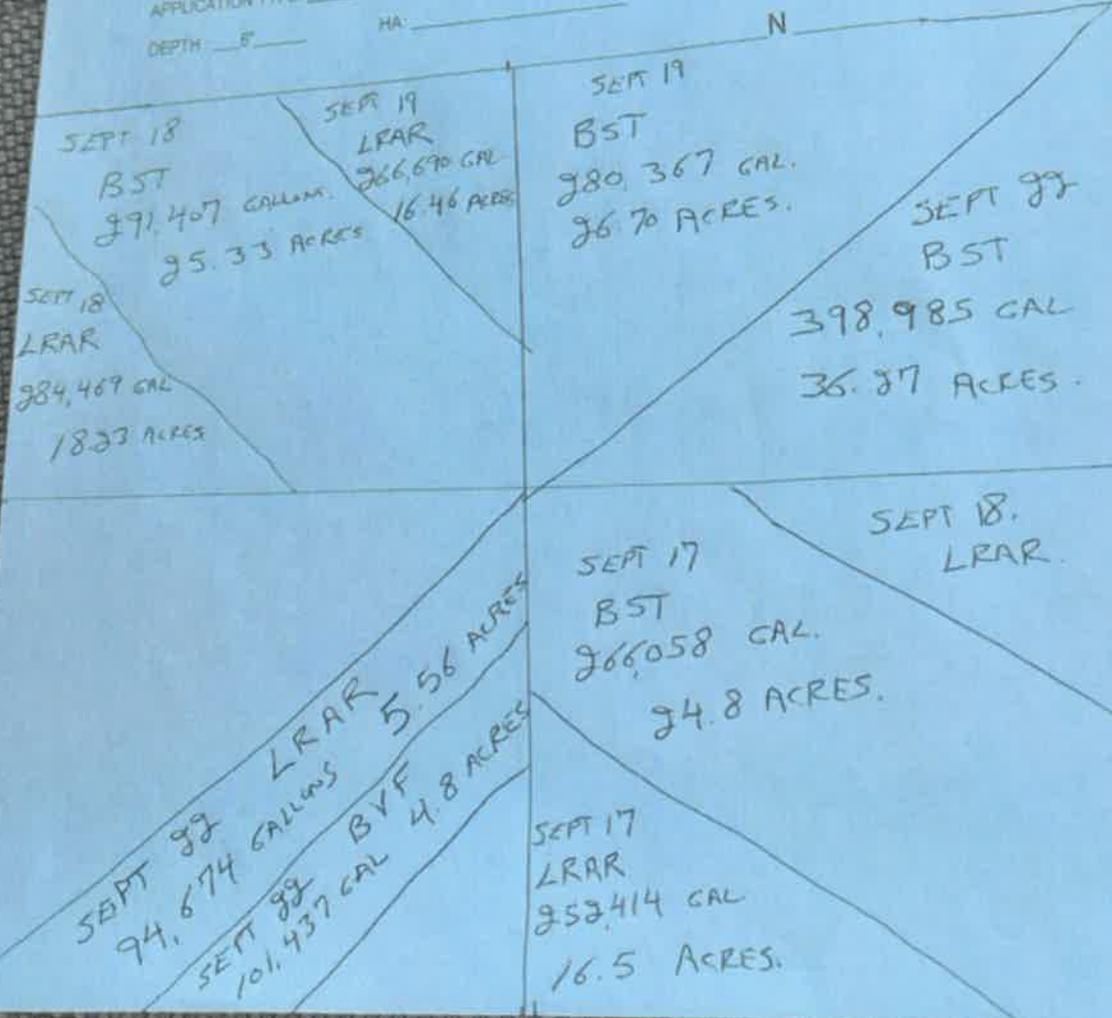
APPLICATION TYPE INJECTION

DEPTH 8'

HA _____

CM3 _____

N



CITY OF PORTAGE

ASSINIBOINE INJECTIONS LTD

FAX 204-248-2799

BOX NO. 177 NOTRE DAME AVE NOTRE DAME MB R0G 1M0 PH 204-248-2559

DAILY SLUDGE APPLICATION PLAN

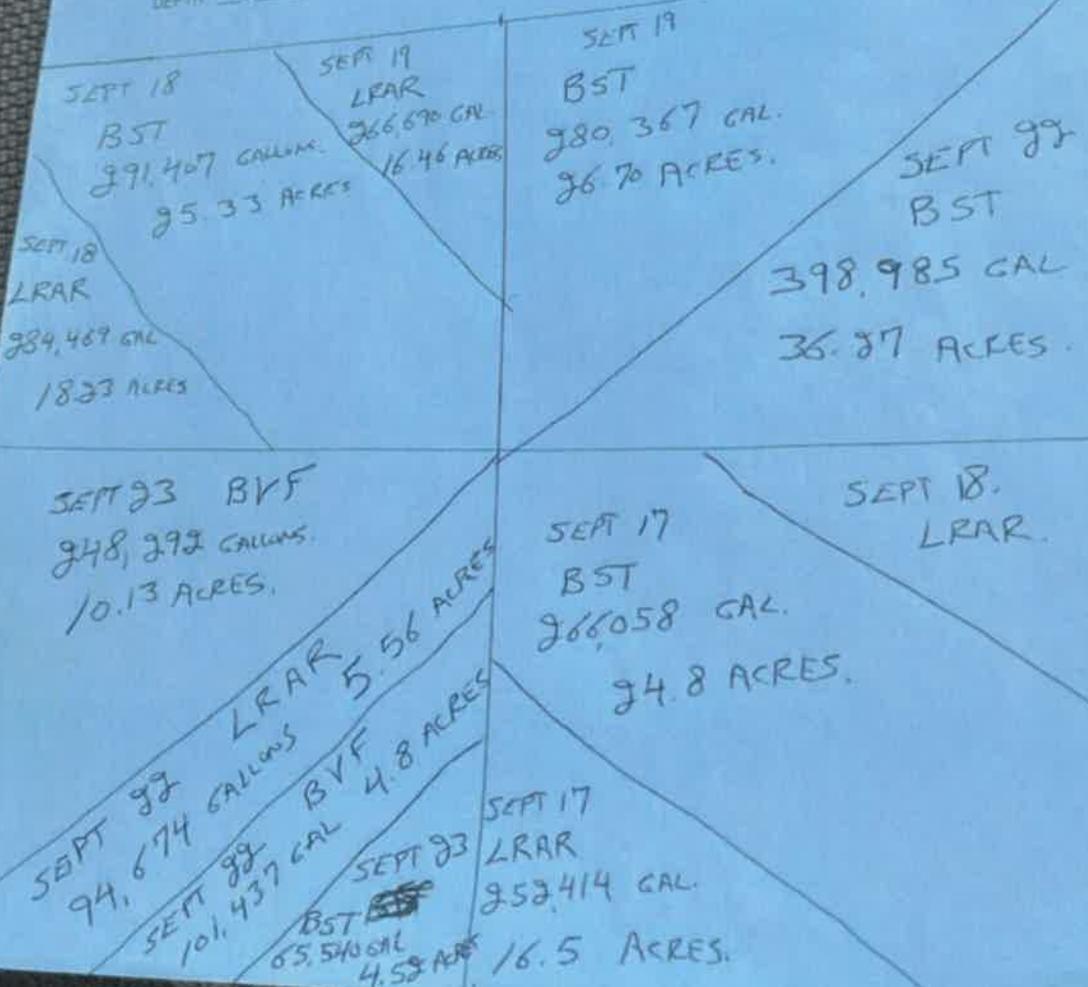
DATE FALL OF 2025

FARMERS NAME M. ROUAT COLONY

^{SOUTH} FIELD SEC 33 TWP 11 RGE 05

APPLICATION TYPE: INJECTION

DEPTH 8 HA _____ CM3 _____



CITY of PORTAGE

ASSINIBOINE INJECTIONS LTD

FAX: 204-248-2700

BOX 140 177 NOTRE DAME AVE NOTRE DAME MB R00 1M0 PH: 204-248-2509

DAILY SLUDGE APPLICATION PLAN

DATE Fall of 2025

FARMERS NAME McKouak Colony

North
FIELD SEC 33 TWP 11 RGE 05

APPLICATION TYPE INJECTION

DEPTH: 8

HA: _____

CM3: _____

N

SEPT 23
BST
30.18 ACRES
293,105 GALLONS

CITY OF PORTAGE

REVISED FORM.

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2700

DAILY SLUDGE APPLICATION PLAN

DATE: FALL of 2025

FARMERS NAME: NOROUAY COLONY

NORTH
FIELD: SEC. 33 TWP. 11 RGE. 05

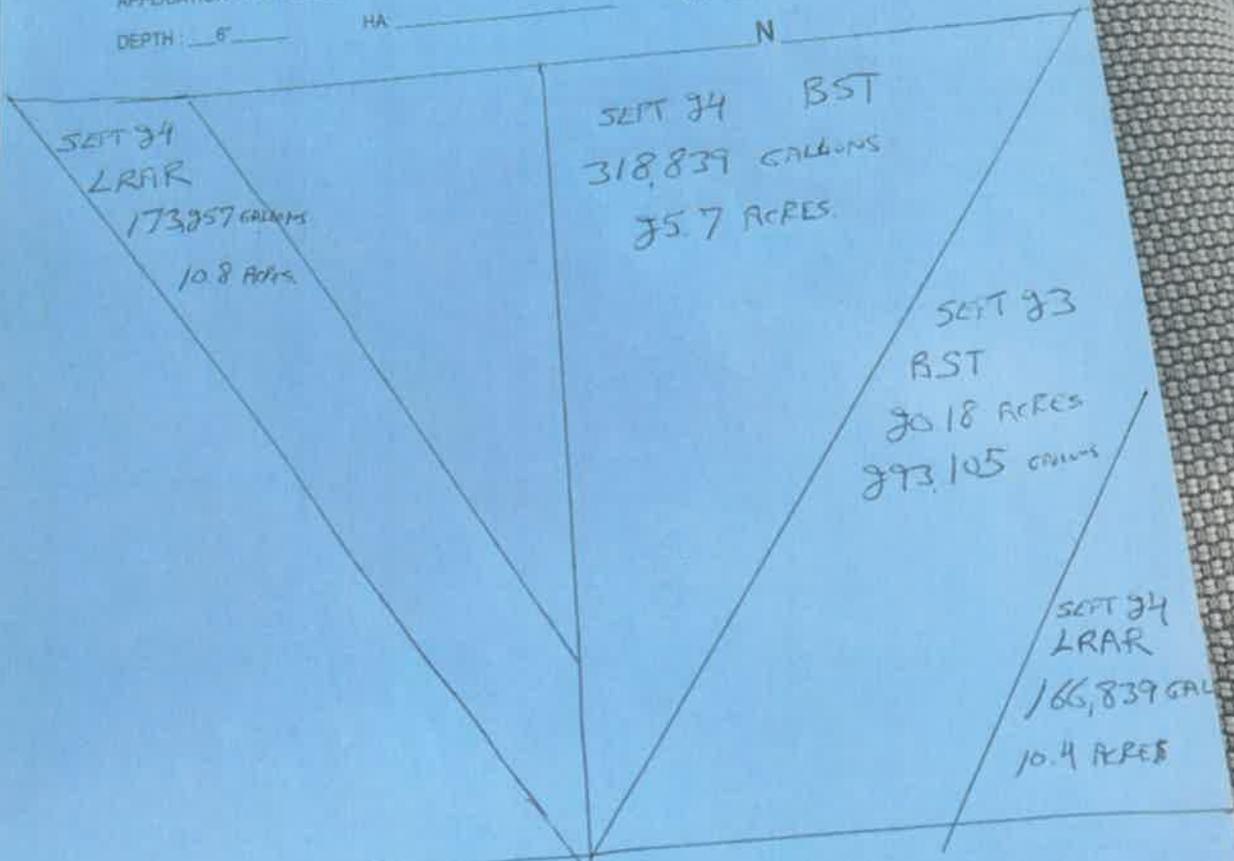
APPLICATION TYPE: INJECTION

DEPTH: 6

HA

CM3

N



SEPT 24
LRAR
173,957 GALLONS
10.8 ACRES

SEPT 24 BST
318,839 GALLONS
25.7 ACRES

SEPT 23
BST
2018 ACRES
293,105 GALLONS

SEPT 24
LRAR
166,839 GAL
10.4 ACRES

CITY OF PORTAGE

REVISED FORM

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB R0G 1M0 PH: 204-248-2559 FAX: 204-248-2799

DAILY SLUDGE APPLICATION PLAN

DATE: FALL OF 2005

FARMERS NAME NORQUAY COLONY

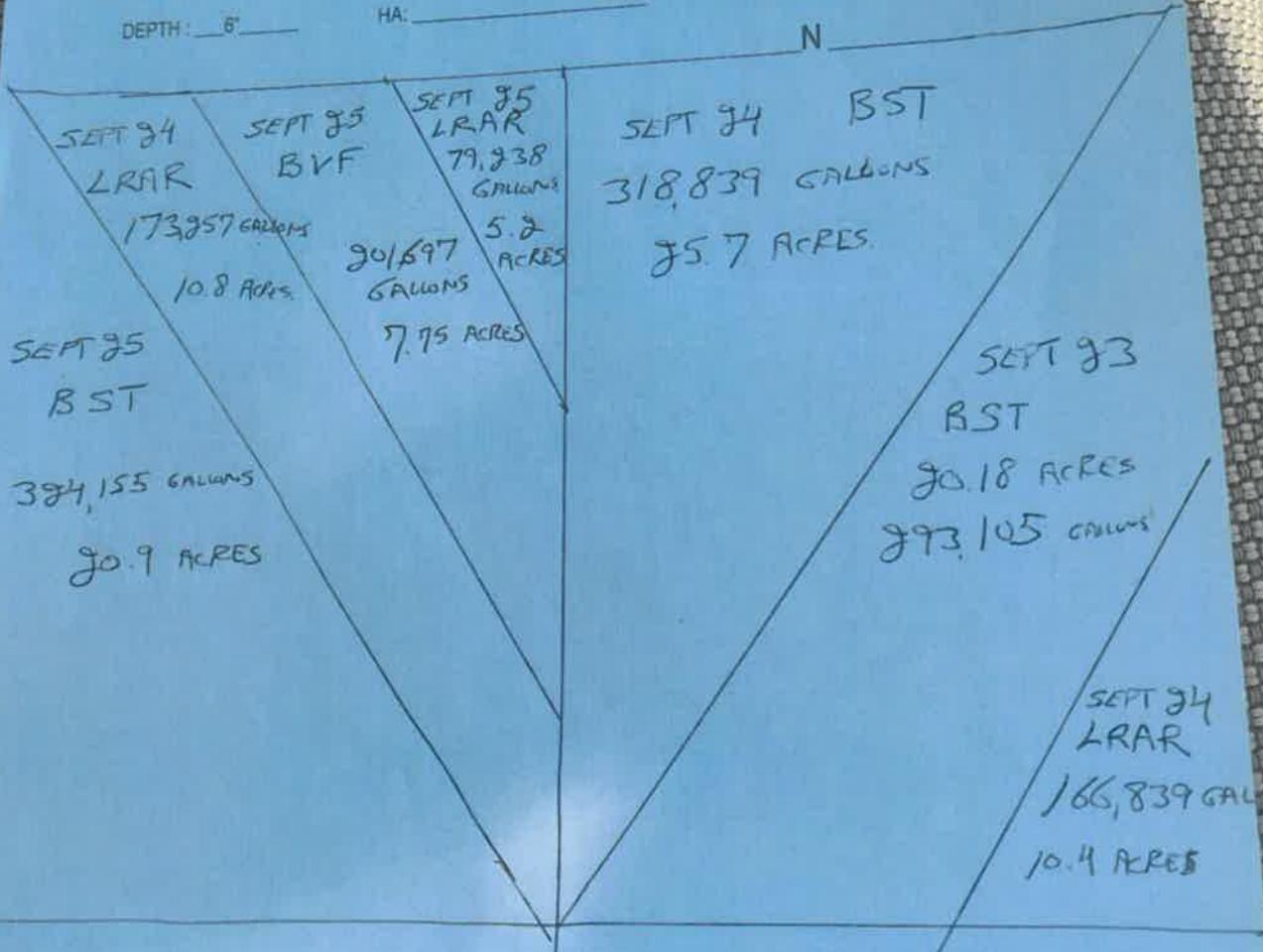
NORTH
FIELD: SEC. 33 TWP. 11 RGE. 05

APPLICATION TYPE: INJECTION

DEPTH: 6"

HA: _____

CM3: _____





Your P.O. #: W25026
Your C.O.C. #: 112701

Attention: Aaron Stechesen
CITY OF PORTAGE LA PRAIRIE
97 SASKATCHEWAN AVE E.
PORTAGE LA PRAIRIE, MB
Canada R1N 0L8

Norway W35-11-5

Report Date: 2025/09/19
Report #: R3712079
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: CS75062

Received: 2025/09/02, 15:15

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Hexavalent Chromium (1, 3)	1	2025/09/08	2025/09/08	AB SOP-00063	SM 24 3500-Cr B m
Carbon, Nitrogen, Sulphur - Combustion (1)	1	N/A	2025/09/08	CAL SOP-00263	AN-A-030609-E-01 m
Atterberg Limits (Dry) SubC (2)	2	N/A	N/A		
Atterberg Limits (Wet) SubC (2)	2	N/A	N/A		
Elements by ICP -Soils (1)	1	2025/09/08	2025/09/08	AB SOP-00001 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Soils (1)	1	2025/09/08	2025/09/08	AB SOP-00001 / AB SOP-00043	EPA 6020b R2 m
Moisture (1)	2	N/A	2025/09/06	AB SOP-00002	CCME PHC-CWS m
Soluble NO2 (N);Soluble NO2 (N) + NO3(N) (1)	1	2025/09/06	2025/09/07	AB SOP-00091	SM 24 4500 NO3m
Nitrate-N (soluble) (1)	1	2025/09/03	2025/09/08		Auto Calc
pH (Soluble) (1)	1	2025/09/06	2025/09/06	AB SOP-00033 / AB SOP-00006	SM 24 4500 H+B m
Phosphorus, Potassium - Available (1)	1	2025/09/08	2025/09/08	AB SOP-00028 / AB SOP-00042	EPA 6010d R5 m
Soluble Paste (1)	2	2025/09/06	2025/09/06	AB SOP-00033	Carter 2nd ed 15.2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope



Your P.O. #: W25026
Your C.O.C. #: 112701

Attention: Aaron Stechesen
CITY OF PORTAGE LA PRAIRIE
97 SASKATCHEWAN AVE E.
PORTAGE LA PRAIRIE, MB
Canada R1N 0L8

Report Date: 2025/09/19
Report #: R3712079
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: CS75062

Received: 2025/09/02, 15:15

dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) This test was performed by Bureau Veritas Fuels Testing Canada, Inc., 6744 50 St NW , Edmonton, AB, T6B 3M9

(3) Some soil samples may react with the Cr(VI) spike reducing it to Cr(III). These samples are highly unlikely to contain native hexavalent chromium. Thus a failed spike recovery does not invalidate a negative result on the native sample.

Encryption Key



AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
19 Sep 2025 12:58:07

Please direct all questions regarding this Certificate of Analysis to:
Morgan Melnychuk, Customer Solutions Representative
Email: Morgan.MELNYCHUK@bureauveritas.com
Phone# (604)638-8034 Ext:8034

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Manitoba Environmental laboratory operations.



Bureau Veritas Job #: C575062
 Report Date: 2025/09/19

CITY OF PORTAGE LA PRAIRIE
 Your P.O. #: W25026
 Sampler Initials: AS

RESULTS OF CHEMICAL ANALYSES OF SOIL

Bureau Veritas ID		DSB350			DSB351			DSB352			DSB353		
Sampling Date		2025/09/02 11:30			2025/09/02 11:30			2025/09/02 11:30			2025/09/02 11:30		
COC Number		112701			112701			112701			112701		
	UNITS	25-09-04	RDL	QC Batch	25-09-05	RDL	QC Batch	25-09-06	RDL	QC Batch	25-09-07	RDL	QC Batch
Calculated Parameters													
Soluble Nitrate (N)	mg/L				2.6	0.20	C071318						
Elements													
Hex. Chromium (Cr 6+)	mg/kg	<0.080	0.080	C077145									
Misc. Inorganics													
Total Nitrogen (N ₂)	mg/kg				<2000	2000	C072904						
Nutrients													
Available (Mod Kel) Phosphorus (P)	mg/kg	8.1	4.0	C077278									
Available (Mod Kel) Potassium (K)	mg/kg	360	4.0	C077278									
Soluble Parameters													
Soluble pH	pH	7.88	N/A	C076366									
Soluble Nitrite (N)	mg/L				2.3	0.20	C076957						
Saturation %	%	76	N/A	C074913	76	N/A	C074927						
Internal Sublet Analysis													
Subcontract Parameter	N/A										ATTACHED	ATTACHED	C092407
RDL = Reportable Detection Limit N/A = Not Applicable													



**BUREAU
VERITAS**

Bureau Veritas Job #: C575062
Report Date: 2025/09/19

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

PHYSICAL TESTING (SOIL)

Bureau Veritas ID		DSB350	DSB351		
Sampling Date		2025/09/02 11:30	2025/09/02 11:30		
COC Number		112701	112701		
	UNITS	25-09-04	25-09-05	RDL	QC Batch
Physical Properties					
Moisture	%	27	26	0.30	C073978
RDL = Reportable Detection Limit					



BUREAU
VERITAS

Bureau Veritas Job #: C575062
Report Date: 2025/09/19

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		DSB350		
Sampling Date		2025/09/02 11:30		
COC Number		112701		
	UNITS	25-09-04	RDL	QC Batch

Elements				
Total Calcium (Ca)	mg/kg	25000	50	C077259
Total Phosphorus (P)	mg/kg	820	20	C077259
Total Potassium (K)	mg/kg	2700	50	C077259
Total Cadmium (Cd)	mg/kg	0.54	0.050	C077253
Total Chromium (Cr)	mg/kg	24	1.0	C077253
Total Copper (Cu)	mg/kg	25	1.0	C077253
Total Lead (Pb)	mg/kg	12	0.50	C077253
Total Mercury (Hg)	mg/kg	0.059	0.050	C077253
Total Nickel (Ni)	mg/kg	30	1.0	C077253
Total Zinc (Zn)	mg/kg	92	10	C077253

RDL = Reportable Detection Limit



BUREAU
VERITAS

Bureau Veritas Job #: C575062
Report Date: 2025/09/19

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

GENERAL COMMENTS

Results relate only to the items tested.



Bureau Veritas Job #: C575062
Report Date: 2025/09/19

QUALITY ASSURANCE REPORT

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
C072904	Total Nitrogen (N ₂)	2025/09/08			99	75 - 125	<2000	mg/kg	NC	30	103	75 - 125
C073978	Moisture	2025/09/05					<0.30	%	3.9	20		
C074913	Saturation %	2025/09/06							3.7	12	103	75 - 125
C074927	Saturation %	2025/09/06							3.3	12	104	75 - 125
C076366	Soluble pH	2025/09/06			100	97 - 103			0.13	N/A	101	97 - 103
C076957	Soluble Nitrite (N)	2025/09/07	93	75 - 125	103	80 - 120	<0.20	mg/L				
C077145	Hex. Chromium (Cr 6+)	2025/09/08	52 (1)	75 - 125	103	80 - 120	<0.080	mg/kg	NC	35	96	75 - 125
C077253	Total Cadmium (Cd)	2025/09/08	91	75 - 125	97	80 - 120	<0.050	mg/kg	7.2	30	104	56 - 147
C077253	Total Chromium (Cr)	2025/09/08	100	75 - 125	95	80 - 120	<1.0	mg/kg	7.2	30	81	65 - 136
C077253	Total Copper (Cu)	2025/09/08	88	75 - 125	96	80 - 120	<1.0	mg/kg	14	30	103	83 - 117
C077253	Total Lead (Pb)	2025/09/08	87	75 - 125	92	80 - 120	<0.50	mg/kg	0.28	35	110	87 - 113
C077253	Total Mercury (Hg)	2025/09/08	69 (1)	75 - 125	95	80 - 120	<0.050	mg/kg	NC	35	107	71 - 129
C077253	Total Nickel (Ni)	2025/09/08	90	75 - 125	95	80 - 120	<1.0	mg/kg	6.3	30	99	85 - 115
C077253	Total Zinc (Zn)	2025/09/08	83	75 - 125	91	80 - 120	<10	mg/kg	0.85	30		
C077259	Total Calcium (Ca)	2025/09/08	NC	75 - 125	100	80 - 120	<50	mg/kg	5.4	30	100	84 - 106
C077259	Total Phosphorus (P)	2025/09/08	106	75 - 125	107	80 - 120	<20	mg/kg			107	86 - 114
C077259	Total Potassium (K)	2025/09/08	120	75 - 125	104	80 - 120	<50	mg/kg	1.3	35	85	56 - 144
C077278	Available (Mod Kel) Phosphorus (P)	2025/09/08	118	75 - 125	107	80 - 120	<4.0	mg/kg	1.2	35		
C077278	Available (Mod Kel) Potassium (K)	2025/09/08	116	75 - 125	105	80 - 120	<4.0	mg/kg	1.7	35		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an Independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



Bureau Veritas Job #: C575062
Report Date: 2025/09/19

CITY OF PORTAGE LA PRAIRIE
Your P.O. #: W25026
Sampler Initials: AS

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Janet Gao, B.Sc., QP, Supervisor, Organics

Rochelle Pacheco, Project Solutions Representative

Sandy Yuan, M.Sc., QP, Scientific Specialist

Bureau Veritas Certified by Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Manitoba Environmental laboratory operations.



Custody Tracking Form



Please use this form for custody tracking when submitting the work. Instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: 25-02-04
 Last Sample: 25-09-07
 Sample Count: 4

Submitted By		Date	Time (24 HR)	Signature	Date	Time (24 HR)
[Signature]	[Signature]	25-09-07	15:15	Kari Sultano	25-09-07	15:15
				AMNRI SYUKRIYATI	25-09-07	05:45
				VICCOFF		

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bv.com.

Sampled By (Print): [Signature] # of Coolers/Pkgs: 1

Immediate Test: Rush: Micro:

Received At

Lab Comments:



MWNP-2025-09-016

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
N	N	N	18.8	18.8	17.8
N	N	N	19	19	20

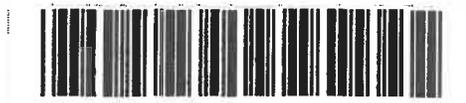
C575062
2025/09/02 15:15

COR FIC 00382/5

Page 1 of 1



eCOC: W112701



Project Information: C575062
 Job Received: 2025/09/02 15:15
 Expected TAT: Standard TAT
 Expected Arrival: 2025/09/02 16:00
 Submitted By: Aaron Stechesen
 Submitted To: Winnipeg

Invoice Information

Attn: Aaron Stechesen
 CITY OF PORTAGE LA PRAIRIE
 97 SASKATCHEWAN AVE E.
 PORTAGE LA PRAIRIE , MB , R1N 0L8
 Email to:
 astechesen@city-plap.com

Report Information

Attn: Aaron Stechesen
 CITY OF PORTAGE LA PRAIRIE
 97 SASKATCHEWAN AVE E.
 PORTAGE LA PRAIRIE , MB , R1N 0L8
 Email to:
 astechesen@city-plap.com

Project Information

Quote #: C50652
 PO/AFE#: W25026
 Project #:
 Site Location:

Analytical Summary

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Nitrogen in Soil	Selected Heavy metals - soil	Atterberg Limits (Dry) SubC	Atterberg Limits (Wet) SubC	Moisture	Nitrate-N (soluble)	PH (Soluble)	Phosphorus, Potassium - Available	Saturated Paste	Soluble NO2 (N);Soluble NO2 (N) + NO3(N)	Set Number
25-09-04	1	2025/09/02 11:30	SOIL	3		A					A	A	A		1
25-09-05	2	2025/09/02 11:30	SOIL	4	A				A	A				A	2
25-09-06	3	2025/09/02 11:30	SOIL	1			A	A							3
25-09-07	4	2025/09/02 11:30	SOIL	1			A	A							3

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Soluble Paste	Set Number
25-09-04	1	2025/09/02 11:30	SOIL	3	A	1
25-09-05	2	2025/09/02 11:30	SOIL	4	A	2
25-09-06	3	2025/09/02 11:30	SOIL	1		3
25-09-07	4	2025/09/02 11:30	SOIL	1		3

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

Submission Information

of Samples: 4



eCOC: W112701



Project Information: C575062
Job Received: 2025/09/02 15:15
Expected TAT: Standard TAT
Expected Arrival: 2025/09/02 16:00
Submitted By: Aaron Stechesen
Submitted To: Winnipeg

Sample Set Listing

Set 1 (1 sample)
25-09-04

Set 2 (1 sample)
25-09-05

Set 3 (2 samples)
25-09-06
25-09-07



CERTIFICATE OF ANALYSIS

MaxID _____ Client ID _____ Meter Number _____ G506755:DOR730-01
 Laboratory Number

Bureau Veritas Canada (2019) Inc.

Operator Name DSB352-25-09-06 Meter Number AS LSD Well ID

Well/Plant/Facility _____ Initials of Sampler _____ Sampling Company CITY OF PORTAGE LA PRAIRIE

Field or Area _____ Pool or Zone _____ Sample Point DSB352-25-09-06 Bag _____ Container Identity

Percent Full _____

Test Recovery _____ Interval _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type _____ No. _____ Multiple Recovery _____ From: _____ To: _____ KB _____ GRD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

Water m³/d _____ Oil m³/d _____ Gas 1000 m³/d _____ Source _____ As Received _____ Source _____ As Received _____ 23.0 _____

2025/09/02 11:30 _____ 2025/09/05 _____ 2025/09/19 _____ Gas or Condensate Project _____ Licence No. _____

Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ SSS _____ Analyst

PARAMETER DESCRIPTION RESULT UNIT METHOD RDL

Physical Properties

Liquid Limit	83	wt%	ASTM D4318	1.0
Plastic Limit	35	wt%	ASTM D4318	1.0
Plasticity Index	48	wt%	ASTM D4318	1.0

Results relate only to items tested

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

2025/09/19 09:07



Your Project #: BV CALGARY JOB# C575062
 Site Location: JOB# C575062
 Vendor # 123456789

Attention: Morgan Melnychuk

Bureau Veritas Canada (2019) Inc.
 2021 - 41 AVENUE N.E.
 CALGARY, AB
 CANADA T2E 6P2

Report Date: 2025/09/19
Report #: R3689702
Version: 1 - Final

Job/Sample	Analysis Type	Well Name/Sample ID	Sample Point
G506755/ DOR730	Certificate of Analysis	DSB352-25-09-06	DSB352-25-09-06
G506755/ DOR731	Certificate of Analysis	DSB353-25-09-07	DSB353-25-09-07

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Encryption Key

Gladys Raymundo
 Customer Service Associate
 19 Sep 2025 09:37:33

Please direct all questions regarding this Certificate of Analysis to:
 Gladys Raymundo, Customer Service Associate
 Email: gladys.raymundo@bureauveritas.com
 Phone# (780) 378-8500

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Report Distribution

1	Reports(G506755)Morgan Melnychuk	Bureau Veritas Canada (2019) Inc.	2021 - 41 AVENUE N.E.	CALGARY, CANADA
0	Reports(G506755)CUSTOMER SOLUTIONS	Bureau Veritas Canada (2019) Inc.	2021 - 41 AVENUE N.E.	CALGARY, CANADA



CERTIFICATE OF ANALYSIS

<u>MaxiD</u>		<u>Client ID</u>	<u>Meter Number</u>	<u>GS06755:DOR730-01</u>
Bureau Veritas Canada (2019) Inc.				<u>Laboratory Number</u>
<u>Operator Name</u>		<u>LSD</u>	<u>Well ID</u>	
DSB352-25-09-06		AS	CITY OF PORTAGE LA PRAIRIE	
<u>Well/Plant/Facility</u>		<u>Initials of Sampler</u>	<u>Sampling Company</u>	
		DSB352-25-09-06	Bag	
<u>Field or Area</u>	<u>Pool or Zone</u>	<u>Sample Point</u>	<u>Container Identity</u>	<u>Percent Full</u>
<u>Test Recovery</u>		<u>Interval</u>	<u>Elevations (m)</u>	<u>Sample Gathering Point</u>
<u>Test Type</u>	<u>No. Multiple Recovery</u>	<u>From:</u>	<u>KB</u> <u>GRD</u>	<u>Solution Gas</u>
	<u>Production Rates</u>	<u>To:</u>		<u>Well Fluid Status</u>
<u>Water m³/d</u>	<u>Oil m³/d</u> <u>Gas 1000 m³/d</u>	<u>Gauge Pressures kPa</u>	<u>Temperature °C</u>	<u>Well Status Mode</u>
		<u>Source</u> <u>As Received</u>	<u>23.0</u>	<u>Well Status Type</u>
			<u>Source</u> <u>As Received</u>	<u>Well Type</u>
<u>2025/09/02 11:30</u>	<u>2025/09/05</u>	<u>2025/09/19</u>	<u>SSS</u>	<u>Gas or Condensate Project</u>
<u>Date Sampled Start</u>	<u>Date Sampled End</u>	<u>Date Received</u>	<u>Analyst</u>	<u>Licence No.</u>

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Physical Properties				
Liquid Limit	83	wt%	ASTM D4318	1.0
Plastic Limit	35	wt%	ASTM D4318	1.0
Plasticity Index	48	wt%	ASTM D4318	1.0
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.



CERTIFICATE OF ANALYSIS

G506755:DOR731-01
Laboratory Number

MaxID _____ Client ID _____ Meter Number _____
Bureau Veritas Canada (2019) Inc.
 Operator Name _____ LSD _____ Well ID _____
 DSB353-25-09-07 _____ AS _____ CITY OF PORTAGE LA PRAIRIE
 Well/Plant/Facility _____ Initials of Sampler _____ Sampling Company _____
 _____ DSB353-25-09-07 _____ Bag _____
 Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____
 Test Recovery _____ Interval _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____
 Test Type _____ No. _____ Multiple Recovery _____ From: _____ To: _____ KB _____ GRD _____ Well Fluid Status _____ Well Status Made _____
 Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____
 Water m³/d _____ Oil m³/d _____ Gas 1000 m³/d _____ Source _____ As Received _____ Source _____ As Received _____ 23.0 _____ Gas or Condensate Project _____ Licence No. _____
 2025/09/02 11:30 _____ 2025/09/05 _____ 2025/09/19 _____ SSS _____
 Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ Analyst

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Physical Properties				
Liquid Limit	58	wt%	ASTM D4318	1.0
Plastic Limit	29	wt%	ASTM D4318	1.0
Plasticity Index	29	wt%	ASTM D4318	1.0

Results relate only to items tested

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.



CERTIFICATE OF ANALYSIS

Maxid _____ Client ID _____ Meter Number _____ Laboratory Number **G506755:DOR731-01**
Bureau Veritas Canada (2019) Inc.

Operator Name **DSB353-25-09-07** LSD _____ Well ID **CITY OF PORTAGE LA PRAIRIE**
 Well/Plant/Facility _____ Initials of Sampler **AS** Sampling Company _____

Field or Area _____ Pool or Zone _____ Sample Point **DSB353-25-09-07** Bag _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____
 Test Type _____ No. _____ Multiple Recovery _____ From: _____ To: _____ KB _____ GRD _____ Well Fluid Status _____ Well Status Mode _____
 Production Rates _____ Gauge Pressures kPa _____ Temperature °C **23.0** Well Status Type _____ Well Type _____
 Water m³/d _____ Oil m³/d _____ Gas 1000 m³/d _____ Source _____ As Received _____ Source _____ As Received _____ Gas or Condensate Project _____ Licence No. _____
 2025/09/02 11:30 _____ 2025/09/05 _____ 2025/09/19 _____ SSS _____
 Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Released _____ Analyst _____

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Physical Properties				
Liquid Limit	58	wt%	ASTM D4318	1.0
Plastic Limit	29	wt%	ASTM D4318	1.0
Plasticity Index	29	wt%	ASTM D4318	1.0
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Test Date: Sept 2 2025



Clay Test Site 1&2 had no
detectable water
at the 1.5 m depth.

- Boundary
- Clay Samples
- GridPoints
- Portage Soils-Clip