



Portage la Prairie Regional Landfill Authority

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June 15, 2017

Ms. Tracey Braun
Director
Environmental Assessment & Licensing
Manitoba Sustainable Development
123 Main Street, Suite 160
Winnipeg, MB R3C 1A5

Re: Environmental Act Proposal for the Portage la Prairie Regional Landfill Site

Dear Ms. Braun:

The Portage la Prairie Regional Land has completed the Environmental Act Proposal for a Class 1 Landfill which is a Class 2 Development under the Act. The Landfill was operated by City of Portage la Prairie prior to 2012. The Landfill is run in a clean and efficient manner with protection of the Environment as our top priority. The Portage la Prairie Regional Landfill has continued to have yearly reviews with our local Sustainable Development Officer to ensure that we are operating within the requirement of our Operating Permit. I will continue to err on the side of caution when it comes to waste disposal issues and have often used the expertise of our local Sustainable Development Officer to confirm that we are handling the product in a safe manner both from an environmental and human health perspective.

I personally have only been in this industry for the last 5 years and have learnt and will continue to learn a lot about waste and the environment. I have become a certified Manager of Landfill Operation through the Swana Northern Lights Branch. One of the equipment operators has recently completed the Landfill Basics Course and wrote the exam to become certified.

Please advise if you require any additional information to complete the Environmental Act Proposal.

Yours truly,

Robert Pohl
Manager
Portage la Prairie Regional Landfill Authority

2017

PORTAGE LA PRAIRIE REGIONAL LANDFILL



Robert Pohl

Environmental Act Proposal

6/13/2017

Environment Act Proposal Form



Name of the development: The Portage la Prairie Regional Landfill	
Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): Class 1 Landfill	
Legal name of the applicant: The Portage la Prairie Regional Landfill Authority Inc.	
Mailing address of the applicant: Box 626	
Contact Person: Robert Pohl	
City: Portage la Prairie	Province: MB Postal Code: R1N 3B9
Phone Number: 204-871-4549	Fax: n/a email: rpohl@city-plap.com
Location of the development: 26095 PR 227	
Contact Person: Robert Pohl	
Street Address: 26095 PR 227	
Legal Description: SW 22-13-5	
City/Town: Portage la Prairie	Province: MB Postal Code: R1N 3B9
Phone Number: 204-871-4549	Fax: n/a email: rpohl@city-plap.com
Name of proponent contact person for purposes of the environmental assessment: Robert Pohl	
Phone: 204-871-4549	Mailing address: Box 626
Fax:	Portage la Prairie, MB
	R1N-3B9
Email address: rpohl@city-plap.com	
Webpage address: NA	
Date: June 13, 2017	Signature of proponent, or corporate principal of corporate proponent: <i>Robert Pohl</i>
	Printed name: ROBERT POHL

Executive Summary

The Portage la Prairie Regional Landfill accepts residential and commercial wastes at a rate approximately 22,000 tonnes per year and septic sludge at a rate of 1,760,000 gallons per year. It is considered a Class 1 Waste Disposal Ground under Manitoba Regulation 150/91 because it services a population greater than 5000 people. The site is the southwest quarter and the south 600 meters of the northwest quarter of Section 22 in Township 13 and Range 5. The site is composed of 3 cells, a retention pond and 4 septic lagoons.

The Portage la Prairie Regional Landfill operates under a Waste Disposal Ground Regulation 150/91 Operating Permit under Manitoba's Environment Act. Manitoba Sustainable Development has since required the Portage la Prairie Regional Landfill to obtain a Class 2 Environment Act License.

The landfill was commissioned in 1991 and is expected to reach capacity in 2040. In 2015 the landfill received 21,200 tonnes of waste and is expected to hold an additional 538904 tonnes at closure.

The Portage la Prairie Regional Landfill provides the City of Portage la Prairie, the RM of Portage la Prairie, the Long Plain Reserve, the Dakota Tipi Reserve, and the Municipality of Norfolk Treherne with an environmentally safe method of disposing household and commercial waste. The Landfill accepts Propane bottles, Batteries, Appliances containing Freon, bulk metals, paint cans and tires which are recycled in an environmentally responsible manner. The landfill provides customers with a location for the safe disposal of asbestos. The Landfill accepts chemical jugs which are picked up by Miller Environment and participant in the Cleans Farms program which recycles bale or silage wrap, twine and grain bags.

The Landfill is located in the Lake Manitoba Plain Ecozone of the Prairie Ecozone of southcentral Manitoba. The landfill was used as pastureland prior to construction of the landfill and septic lagoons. Site drainage is controlled by a retention pond, properly graded land surface and perimeter ditch. All leachate is directed to the retention pond in the south east corner of the landfill and is pumped into the septic lagoon. The landfill has evolved over the years as new technologies have become available and will continue to employ the latest waste diversion strategies and tools in an effort to extend the life of the current cells beyond 2040.

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1. INTRODUCTION

1.1 PROJECT OVERVIEW

The Portage la Prairie Regional Landfill accepts residential and commercial wastes at a rate approximately 22,000 tonnes per year and septic sludge at a rate of 1,760,000 gallons per year. It is considered a Class 1 Waste Disposal Ground under Manitoba Regulation 150/91 because it services a population greater than 5000 people. The site is the southwest quarter and the south 600 meters of the northwest quarter of Section 22 in Township 13 and Range 5. The site is composed of 3 cells and 4 lagoons.

The Portage la Prairie Regional Landfill provides the City of Portage la Prairie, the RM of Portage la Prairie, the Long Plain Reserve, the Dakota Tipi Reserve, and the Municipality of Norfolk Treherne with an environmentally safe method of disposing household and commercial wastes. The Landfill accepts Propane bottles, Batteries, Appliances containing Freon, bulk metals, paint cans and tires which are recycled in environmentally responsible programs.

1.2 PROPONENT

Project Name: The Portage la Prairie Regional Landfill
Proponent: The Portage la Prairie Regional Landfill Authority
Contact: Robert Pohl, Manager
26095 PR 227
Portage la Prairie MB R1N 3B9
Phone: 204-871-4549
E-mail: rpohl@city-plap.com

1.3 STATEMENT OF NEED AND ALTERNATIVES

The landfill provides a critical public service by allowing the City of Portage la Prairie and the Rural Municipality of Portage la Prairie to properly dispose of its refuse. The site was selected for its clay subsurface.

1.4 REGULATORY FRAMEWORK

1.4.1 Provincial

The Portage la Prairie Regional Landfill currently operates under a Waste Disposal Grounds Regulation 150/91 Operating Permit under Manitoba's *Environment Act*. The landfill began operation prior to the enactment of the Manitoba *Environment Act* licensing requirements, however, Manitoba Conservation and Water Stewardship have since required the Portage la Prairie Regional Landfill obtains a Class 2 *Environment Act License*. The landfill also operates in accordance with the following permits and license:

- Portage la Prairie Regional Landfill Waste Disposal Ground Operating Permit No. RR-04 (2008).

1.4.2 Federal

The landfill is not subject to federal permitting under the *Canadian Environmental Assessment Act*.

1.5 SCOPE OF THE ASSESSMENT

1.5.1 Geographic Boundaries

The scope of the assessment is limited to the property boundaries of the landfill.

1.5.2 Temporal Boundaries

The landfill is expected to operate until 2041 on the existing cells. The Landfill has room for the development of additional cells. This will be followed by a closure/post closure period of 25 years.

1.6 DOCUMENT ORGANIZATION

This document has been organized under the following headings:

Executive Summary

Section 1: Introduction

Section 2: Project Description

Section 3: Existing Environment

Section 4: Effects Assessment and Mitigation

Section 5: Public Engagement

Section 6: Monitoring

2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Portage la Prairie Regional Landfill is located 26095 PR 227 in Portage la Prairie, Manitoba. The legal description is SW ¼ Section 22, Township 13, Range 5 .

2.2 PROJECT LIFE

The Portage la Prairie Regional Landfill was commissioned in 1991 and is expected to reach capacity in 2041 followed by a closure/post closure period of 25 years. The landfill has evolved over the years as new technologies have become available and the Portage la Prairie Regional Landfill Authority will continue to employ waste diversion strategies and tools in an effort to extend the life of the landfill beyond 2041.

2.3 OWNERSHIP OF LAND AND MINERAL RIGHTS

The registered owner of the property is the R.M of Portage la Prairie. The Certificate of Title is included in **Appendix A**. The mineral rights corresponding to the lands described above are owned by the R.M. of Portage la Prairie.

2.4 MATERIAL ENTERING LANDFILL

The landfill is open to the public as outlined below:

HOURS OF OPERATION FOR THE LANDFILL

Winter Hours – Effective November 1 to March 31

Tuesday to Saturday 8:30 to 4:30 p.m.

Summer Hours – Effective April 1 to October 31

Tuesday to Saturday 10:00 a.m. to 6:00 p.m.

Closed Sunday & Monday & All Statutory Holidays

2.4.1 Waste Screening

All waste entering the facility is screened to ensure no prohibited wastes are allowed to enter the landfill. It is the responsibility of all staff to prevent prohibited wastes from entering the landfill and take the necessary precautions should any prohibited waste enter the site unknowingly. The Landfill staff is trained to ensure materials entering the landfill are allowed in accordance with our operating permit and other regulatory requirements.

The first stage of control begins with the scale operator who visually inspects loads as they enter the landfill to determine acceptance. The next stage of this control mechanism is with the equipment operators within the tipping face and the areas where certain materials are segregated to ensure prohibited wastes do not enter the site. Materials delivered to the tipping face are inspected by the heavy equipment operator. Any prohibited materials found within the active cell or other areas where materials are dropped are identified and removed using the proper handling procedures. When the material is not easily identified or no policy exists for its disposal, the material is isolated until a plan is developed for the proper handling and removal of material. The local Manitoba Sustainable Development representative may be contacted to determine the best course of action for disposing of this material.

2.4.1.1 Accepted Wastes

The landfill accepts:

- Residential waste;
- Construction & demolition waste (C&D);
- Industrial, commercial & institutional Waste
- Various types of segregated waste.

The Landfill accepts Propane bottles, Batteries, Appliances containing Freon, bulk metals, paint cans and tires which are recycled in environmentally responsible programs.

2.4.1.2 Prohibited Wastes

In general, the following materials are prohibited from entering the landfill:

- Any material entering the site without proper documentation/MSDS sheets, or in the case of contaminated soil or asbestos a permit allowing disposal, until the proper documentation is provided;
- Any waste in a sealed container in which the identity of material is unknown to the person(s) delivering;
- Liquid industrial wastes;
- Liquid wastes;
- Radioactive waste or material;
- Unbagged asbestos;

Soils or sediments containing contaminants at concentrations in excess of the criteria specified for industrial occupancy in the Canadian Council of Ministers of the Environment (CCME), Environmental Quality Guidelines and the CCME Canada Wide Standards.

2.4.2 Material Quantities

The Portage la Prairie Regional Landfill installed a scale weigh system at the Landfill that allows for effective measurement of all material entering the site along with the type of materials entering (**Tables 1.1**). The weigh scales utilizes a PC Scale software program which tracks and can generate reports on material entering landfill based on a variety of parameters.

2.5 LANDFILL COMPONENTS

The Landfill includes the following components. Photographs of the site are included in **Appendix C**:

- Office building
- Scale
- Landfill cells:
 - Three active cells
- Segregated waste piles
- Chemical jug compound
- Hot spot
- Lime sludge pile
- Ponds
- Parking lot
- Site roads
- Drainage ditches

Table 1.1 Waste Code Summary



Portage La Prairie Regional Landfill Authority

Box 626 26095 PR 227
 Portage la Prairie, MB R1N 3B9
 Ph: 204-871-4549 Email : rpohl@city-plap.com



15-Jun-2017 06:23 AM

Waste Code Summary Report

Summary Report on: "ALL WASTE CODES" [Transfers IN]

From: 01-Jan-2016 To: 01-Jan-2017

	<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
101 - COMMERCIAL HAULERS			
Count: 1149	0	6,568,464	\$ 203,922.33
102 - SMALL PERSONAL VEHICLE (CASH			
Count: 715	0	125,511	\$ 6,261.61
103 - SEPTIC WASTE WATER			
Count: 1013	1,013	0	\$ 30,390.00
104 - CLEAN COVER MAT'L			
Count: 156	0	3,268,720	\$ 0.00
105 - CHEMICAL CANS			
Count: 82	0	6,928	\$ 0.00
106 - ORGANIC COMPOSTABLE (AGRICULTURAL			
Count: 133	0	2,254,582	\$ 22,578.27
107 - ORGANIC COMPOSTABLE			
Count: 62	0	104,813	\$ 3,338.53
108 - ROADSIDE CLEAN-UP - NO CHARGE			
Count: 26	0	7,940	\$ 0.00
109 - CONSTRUCTION/DEMOLITION			
Count: 1603	0	2,282,743	\$ 72,086.64
110 - CLEAN FARMS WRAP, TWINE, BAGS			
Count: 12	0	5,361	\$ 0.00



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	<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
200 - RM RESIDENTIAL			
Count: 2991	0	1,555,076	\$ 57,834.69
201 - CITY RESIDENTIAL			
Count: 302	0	2,292,811	\$ 71,077.35
202 - CITY APARTMENTS			
Count: 206	0	1,036,825	\$ 32,141.82
301 - LONG PLAIN RESERVE			
Count: 10	0	87,470	\$ 2,711.57
401 - OUTSIDE RM BOUNDARY AND DAKOTA TIPI			
Count: 286	0	631,606	\$ 29,464.87
501 - HAZARDOUS WASTE OR WASTE			
Count: 4	0	11,170	\$ 949.45
502 - HAZARDOUS WASTE (COST PLUS)			
Count: 3	3	0	\$ 2,106.00
601 - METALS (IN)			
Count: 435	0	37,108	\$ 0.00
603 - APPLIANCES WITH FREON REMOVED			
Count: 1	1	0	\$ 9.00
604 - APPLIANCES WITH FREON			
Count: 24	25	0	\$ 1,125.00
701 - TIRES (IN)			
Count: 47	0	13,676	\$ 0.00



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802 - UNSECURED LOAD	<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
Count: 17	17	0	\$ 425.00
<hr/>			
999 - WASTE REDUCTION & RECYCLING LEVY	<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
Count: 7328	0	0	\$ 144,119.12
<hr/>			
GRAND TOTALS:		20,290,804	\$ 680,541.25

----- End of Listing -----

- Fence
- Groundwater monitoring wells
- Fences to catch flying debris
- Shed with pump and small equipment

2.5.1 Landfill General Waste Cells

The Portage la Prairie Regional Landfill currently has 3 waste cells, including one cells currently being filled. Over time, the Landfill has improved environmental protection measures used during closure capping retired cells. Garbage is compacted daily and covered periodically as per the Waste Disposal Ground Operation Requirements.

2.5.2 Compost Program

The compost area is made up of potato waste and mud, screening from seed cleaning plants, contaminated and old seed and culled vegetables. The Landfill currently uses the majority of finished product internally, either as final cover or temporary cover.

2.5.3 Segregated Waste

The landfill operates numerous segregated waste piles in an effort to divert waste as well as for safety reasons.

Tires: Tires Stewardship Manitoba was launched in April 2008. Tires are stored on-site and picked up by Reliable Tire Recycling and OTR Tire Recycling.

Freon devices: The landfill accepts refrigerators and air conditioners for a fee. A contractor is paid to degas the Freon and the devices then go to the scrap metal pile.

White goods: The landfill accepts white goods, such as stoves and other large metal items that can be sold as scrap metal.

Metal: Scrap metal is stored on-site and purchased and picked up by Gerrard Scrap Metal.

Trees/wood: There is a tree, post, and timber area on site

Concrete: There is a concrete area on site.

Propane tanks: Propane tanks are accepted and picked up by companies that inspect them, refurbish them, and put them back into use.

Hot spot: There is a 'hot spot' on-site for hot materials and ashes so that it is not exposed to the other waste.

(Table 2.1) is a list of Recycled Material. At this time chemical jugs, twine, bale or silage wrap, grain bags, propane tanks, and paint cans do not appear on this report

2.5.4 Asbestos

The landfill accepts double-bagged asbestos and buries it in a specific area on the north side of the landfill. Customers are required to adhere to the following procedure before delivering asbestos to the landfill to ensure the health and safety of all visitors to the landfill:

Table 2.1



Portage La Prairie Regional Landfill Authority

Box 626 26095 PR 227
Portage la Prairie, MB R1N 3B9
Ph: 204-871-4549 Email : rpohl@city-plap.com

Page: 1



15-Jun-2017 06:31 AM

Waste Code Summary Report

Summary Report on: "ALL WASTE CODES" [Transfers OUT]

From: 01-Jan-2016 To: 01-Jan-2017

602 - METALS (OUT)		<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
Count:	3	0	41,780	\$ 4,178.00
702 - TIRES (OUT)		<u>Qty</u>	<u>Weight [kg]</u>	<u>Revenue</u>
Count:	5	0	19,950	\$ 0.00
GRAND TOTALS:			61,730	\$ 4,178.00

----- End of Listing -----

- Contact scale operator 24 hours prior to delivery and notify scale operator of the estimated amount and number of loads;
- Delivery during regular operating hours. Tuesday to Saturday (no deviance from this unless approved by the Director);
- Asbestos entering landfill must be double bagged;
- Upon entrance to the landfill inform scale operator who will contact equipment operator;
- Person shall be directed to meet with equipment operator to direct the person to the designated location for disposal;
- Delivery personnel are requested to dump bags of asbestos in a tight pile;
- If Landfill staff determines that the person(s) delivering are doing so in an unsafe manner they have the right to stop the delivery until such time as safe work procedures are adhered to. Once the final load is delivered, the asbestos is buried with 1.5 to 2 feet of clean fill material and then the area is marked.

2.5.5 Hydrocarbon Impacted Soils

The landfill is permitted to receive hydrocarbon impacted soils under its Operating Permit. Customers are required to adhere to the following procedure before delivering hydrocarbon impacted soils to the landfill:

- Contact scale operator 24 hours prior to delivery and notify scale operator of the estimated amount and number of loads;
- Delivery during operating hours Tuesday to Saturday (no deviance from this unless approved by the Director);
- Upon entrance to the landfill inform scale operator who will contact equipment operator(s);
- Person shall be directed to meet with an equipment operator to determine the proper location for disposal.

The landfill has soil analysis sent to Manitoba Sustainable Development for proper handling.

2.5.6 Clean Fill

The landfill accepts and manages clean fill. Clean fill includes material from excavations, streets or driveway renovations, cinder blocks, asphalt, gravel, dirt, or other similar biologically and chemically inert materials, and includes industrial fill material and residential fill material. Materials such as concrete, asphalt and cinder blocks are segregated within the landfill as follows:

- Concrete is currently stockpiled west of the active cells.

2.6 FUEL STORAGE

There is one 4500 L diesel storage tank on site for use in heavy equipment. The tank is a steel aboveground tank. Fuel is handled and stored in accordance with the Storage and Handling of Petroleum Products and Allied Products Regulation MR 188/2001 under the *Dangerous Goods*

Handling and Transportation Act. All spills are reporting in accordance with the Environmental Accident Reporting Regulation MR 439/87.

2.7 POWER AND WATER

Power is delivered to the site and metered by Manitoba Hydro. Water supply is provided and serviced by South Paw Potato Ltd.

2.8 SITE DRAINAGE, PONDS AND LEACHATE

Site drainage is controlled by drainage ditches which have been constructed to control surface run off. Drainage is directed to the retention ponds and is then pumped into the secondary lagoon.

2.8.1 Compost Area Runoff

All drainage from the compost pad is directed to the collection pond at the south west corner of the active cell. A retaining wall has been constructed to contain any run off. If the pond water gets too high, it is pumped into the secondary lagoon. Regular ground water testing is conducted to ensure there are no negative environmental impacts resulting from the composting operation.

2.8.2 Segregated Waste Area Runoff

All surface water from the recycling area is captured in the collection pond and pumped into the secondary lagoon as needed.

2.9 CLOSURE PLAN

The Portage la Prairie Regional Landfill has implemented a waste disposal closure plan. The remaining capacity in 2016 was (1,074,164 m³ airspace). The closure costs and post-closure costs are expected to be approximately \$345,000.

2.9.1 Closure Procedure

The majority of the grading and reshaping of the landfill will be done while the site is still operating by judicious placement of incoming waste over the site life. The final contours of the landfill will promote drainage away from the site to minimize infiltration and leachate production while also preventing erosion. A 4:1 slope is recommended for the side slopes with 2 % grade upwards to the landfill crown in order to direct drainage to the northeast. The final cover will be constructed as follows:

- 0.15 m of topsoil over subsoil;
- 0.35 m of subsoil over protection layer;

- Barrier layer that is constructed by compacting clay soils to a thickness of not less than 0.60m measured perpendicular to the compacted waste surface to achieve a maximum permeability of 1×10^{-7} m/s;
- Contoured such that no water pools over the landfill cells; and
- Grade to achieve a minimum slope of 2 % and a maximum of 30 %.

2.9.2 Post-Closure

A post-closure care period should operate for a period of no less than 25 years to ensure the structural integrity and contamination management of the facility. The following should occur by the end of this period:

- Ground water quality standards are met at the points of compliance;
- The leachate constituents are lower than the groundwater performance standard criteria concentrations; or
- The accumulated volume of leachate is equal to or less than the previous years accumulated volume of leachate for five consecutive years.
- During the post-closure care period, the landfill is responsible for protecting and maintaining the integrity of the final cover system; providing repairs to the final cover system as issues arise in order to correct settlement, subsidence, erosion, leachate break-out; and protecting, maintaining, and monitoring groundwater, surface water, leachate using the monitoring systems of the day.

The landfill should also inspect the final cover system at least two times per year during this period and complete an annual report that includes:

- Groundwater monitoring;
- Leachate monitoring;
- Records of any maintenance and repairs completed; and
- Report of any remedial or corrective action taken.

2.9.3 Implementation Plan

In order to prepare for the closure of the landfill, the landfill must complete the following: Develop a capital planning strategy that will ensure adequate funds are in reserve for this project;

- Conduct a geotechnical assessment of future development areas to assess the subsurface soil and groundwater conditions;
- Complete an updated Master Plan for the existing facilities and the future development;
- Conduct regular topographical surveys to assess the waste elevation and monitor remaining site capacity.

2.10 SECURITY

There are cameras located at the scale for security purposes. The site is surrounded by a security fence with barbed wire along the lines.

2.11 EMERGENCY RESPONSE PLAN AND CONTINGENCY PLAN

The Landfill has an Emergency Response Plan for the Landfill Facility to lay out

procedures, actions, and lines of authority in the event of an emergency that may affect the building, site, and its occupants.

2.12 HEALTH AND SAFETY

Weekly health and safety meetings are held with all staff to discuss safety concerns, learn new processes, and discuss better ways to be safe.

3 EXISTING ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

The landfill is located in the Rural Municipality of Portage La Prairie in the central Manitoba. Land use within the rural municipality is predominantly agriculture. The RM of Portage La Prairie can be divided into four physiographic regions; Lower Assiniboine Delta, Red River Valley, Interlake Plain and Woodlands Plain (Canada-Manitoba Soil Survey, 1980). The Interlake Plain can be found in the north east corner of the RM of Portage la Prairie. Soils in this area are developed on gently undulating, extremely calcareous, loamy glacial and water-worked stony till. Soils in this area are dominantly well drained loamy textured Isafield series (Rego Black). A significant portion of the area is mapped as the imperfectly drained Lundar Series (gleyed Rego Black) and the poorly drained Clarkleigh series (Rego Humic Gleysol). All three soils can be found in complex soil unit in which Lundar and Clarkleigh represent major inclusions. Localized areas of coarse textured sand gravel deposits are mapped as Agassiz Series (Orthic Black).

3.1.1 Climate

Based on climatic data from Portage La Prairie mean annual temperature is 2.7 C; mean annual precipitation is 538.7 mm (Environment Canada, 1993); average frost-free period of 126 days and growing degree days above 5 C is 1692 (Ash, 1991).

3.1.2 Air Quality

Environment Canada (2012) describes the air quality overall in Manitoba to be generally good with the exception of localized sources including proximity to transportation networks and industrial operations such as smelters and/or intensive livestock operations. Air quality and greenhouse gas (GHG) emissions within the region are affected primarily by the agricultural, urban, rural, industrial and transportation activities as well as the gases arising from the landfill. Landfill gas, generated during the natural process of bacterial decomposition of organic material, contains about 50 % methane and 50 % carbon dioxide, along with trace amounts of nitrogen, oxygen, hydrogen and non-methane organic compounds (NMOCs) (USEPA 2014). Methane gas is a potent greenhouse gas that has 21 times more global warming potential than carbon dioxide. Municipal solid waste landfills are the largest source of human related methane emissions in the world and are responsible for almost 40 % of human-related methane emissions in North America.

Other potential factors include: vehicle exhaust and road dust from traffic on city streets and rural roads surrounding the landfill; seasonal applications of fertilizers and manure as part of local agricultural practices; smoke from seasonal burning of cropped lands as part of agricultural

practices; particulate matter from dust from windblown soils; and transportation of airborne pollutants from surrounding commercial/industrial/urban activities (e.g., manufacturing, transportation services). The effect of these activities on air quality will typically vary with seasonal weather patterns.

Air quality has been monitored by the Province of Manitoba at a number of locations throughout the province since 1968. Urban air quality monitoring is a joint effort of the Federal/Provincial National Air Pollution Surveillance (NAPS) program. (Manitoba Conservation 2014a). Air dispersion modeling was conducted for the landfill gas collection and flaring system (Comcor 2010a). The emission rates and maximum calculated point of impingement (POI) concentrations for each of the landfill gas constituents and combustion by-products at the maximum ground level concentration were modeled. The POI concentrations were compared to the *Ontario Summary of Standards and Guidelines to Support Ontario Regulation 419* and the most stringent Manitoba standards from the *Manitoba Ambient Air Quality Criteria*. The maximum POI concentrations for all compounds modeled were well below the standards

3.1.3 Surficial Geology and Soils

The landfill is located in the Interlake Plain that can be found in the north east corner of the RM. Soils in this area are developed on gently undulating, extremely calcareous, loamy glacial and water-worked stony till. Soil in this area are dominantly well drained loamy textured Isafield series (Rego Black). A significant portion of the area is mapped as the imperfectly drained Lunder Series (gleyed Rego Black) and the poorly drained Clarkleigh series (Rego Humic Gleysol). All three soils can be found in complex soil unit in which Lunder and Clarkleigh represent major inclusions. Localized areas of coarse textured sand gravel deposits are mapped as Agassiz Series (Orthic Black).

3.1.4 Hydrogeology

Manitoba may be divided into four physiographic regions: the Precambrian Shield which covers about 60% of the province, the Hudson Bay Lowland, the Manitoba Lowland and the Manitoba Upland. The Landfill is located in the Manitoba Lowland which is an area of gentle relief lying to the east of the Manitoba Escarpment. This area is underlain by gently southwestward dipping Paleozoic and Mesozoic sediments consisting mainly of carbonate rocks with some clastic and argillaceous units. Bedrock is overlain by glacial tills and proglacial lacustrine sediments. The major lakes of Manitoba occupy portions of this lowland area.

Waste Disposal of all types of wastes carries the potential for impacts on the quality of underlying ground waters. The potential for impact depends on the geology and hydrogeology of the waste disposal site, the engineering of the site, the types of wastes and surrounding groundwater use.

Most municipal waste disposal grounds in Manitoba are operated by local governments. A number of sites are also operated in parks by provincial or federal governments and by Indian reserves. A federal-provincial study carried out in 1982 identified 760 active and inactive municipal waste disposal grounds. Of these, 94 were identified as being worthy of further study to evaluate whether significant environmental effects had or could result from these operations. Thirty-eight of the 94 sites were examined in some detail, including test drilling and groundwater sampling at a few sites. Although many of these sites were found to be poorly located from a potential groundwater contamination viewpoint, recognizable groundwater contamination was found at only a small number of sites and none was found to have produced a significant environmental impact.

Manitoba is not a highly industrialized province but a number of significant groundwater contaminations have occurred due to spills or improper disposal of industrial wastes. Contamination of the carbonate rock aquifer with the solvents trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA) has occurred near the Town of Stony Mountain about 20 km north of Winnipeg (UMA Engineering Ltd., 1992). The area is characterized by generally thin deposits of clays and tills overlying limestones and dolostones of the Stony Mountain and Red River Formations. These carbonate rocks form the sole source of water supply in the area. Solvents have been detected in groundwater underlying an area of approximately 25 km² with about 9 km² of this area having TCE concentrations exceeding the MAC of 50 µg/L. TCA concentrations exceeding 40,000 µg/L have been detected in the most heavily contaminated areas. Contaminants entered the aquifer at a number of locations within the plant site over many years and have migrated to the south and east as two distinct contaminant plumes. Migration rates are estimated to be a few hundred meters/year. Contaminants have migrated up to 7 km from the industrial site, affecting the water quality in 37 private wells. This contamination has forced the construction of a piped water system to service the affected areas at a cost in excess of \$800,000. The plant has since modified their methods of handling solvents to prevent further losses to the environment. Following an extensive investigation of the extent of contamination, a pump and treat source control remediation program is currently being carried out.

The landfill has 4 ground water well which are tested and analyzed every three years as per the direction on Sustainable Development. The amount of contaminants found in these samples are within the acceptable levels for a Landfill.

3.1.1 Surface Hydrology

The aquatic environment within the region is primarily represented by the Assiniboine River and its tributaries. The Assiniboine River is located approximately 12 km south of the landfill. It serves as the raw water source for the city of Portage la Prairie and other municipalities in the area. Water drawn from the river is also used for irrigation and for facilities such as food processing industries (Armstrong 2005). The Assiniboine River originates near Kelvington, Saskatchewan, and flows southeast 1,070 km to the confluence with the Red River at Winnipeg. The Assiniboine River basin is approximately 41,500 km² in size (Armstrong 2005). On-site landfill drainage is controlled by the use of a retention pond, a properly graded land surface, and a drainage ditch around the perimeter designed to contain internal storm runoff and seepage.

3.1.2 Aquatic Biota

The Assiniboine River in the vicinity of the landfill is a typical low-gradient, low-velocity, meandering prairie river (Stewart and Watkinson 2004). This reach of the Assiniboine River has been classified by DFO as a type A habitat – complex habitat with the presence of indicator (large-bodied) fish species (Milani 2013); the majority of the fish habitat in this reach consists of low-velocity runs with occasional snags of large woody debris. Channel substrate ranges from clay and silt to sand, gravel, cobble, boulders, and submerged large woody debris (Stewart and Watkinson 2004). Fifty species are known to occur in the Assiniboine River. This includes many large-bodied species such as walleye (*Sander vitreus*), sauger (*Sander canadensis*), yellow perch (*Perca flavescens*), burbot (*Lota lota*), northern pike (*Exos lucius*), white sucker (*Castostomus commersoni*) as well as a number of Cyprinid species and sticklebacks (Stewart and Watkinson 2004). Most of these fish species spawn in the spring or summer; the exception

is Burbot which spawns in midwinter, broadcasting semi pelagic, non-adhesive eggs over sand or gravel substrates (Stewart and Watkinson 2004). The drainage ditch within the landfill is classified as a Type E habitat – indirect habitat with no fish presence (Milani 2013).

3.2 TERRESTRIAL ENVIRONMENT

3.2.1 Vegetation

The landfill vegetation includes trembling aspen and shrubs occur on moist sites, while bur oak and grassland communities occupy increasingly drier areas. Dominant grasses include fescue grasses wheat grasses, June grass and Kentucky bluegrass. A wide variety of deciduous scrubs and herbs are abundant. Poorly drained areas support slough grasses. Marsh reed grass, sedges, cattails, sedge and shrubby willow. Most of the area is now farmland but in its native state the landscape was characterized by trembling aspen (*Populus tremuloides*), bur oak (*Quercus macrocarpa*) groves, mixed tall shrubs, and intermittent fescue grasslands. Where the land has not been replaced by cultivated fields, open stands of trembling aspen and shrubs occur on most sites, with bur oak and grassland communities occupy increasingly drier sites. Poorly drained sites in the region support willow (*Salix spp.*), alder (*Alnus spp.*) and red-osier dogwood (*Cornus sericea*) shrubs, with a grass and sedge (*Carex spp.*) groundcover (Smith et al. 1998). The Landfill cells and lagoon area was cleared of all native vegetation prior to construction of the landfill. Natural vegetative re-colonization has occurred in some areas around waste piles, ditches and the property boundary. The majority of re-colonization is from invasive species such as smooth brome (*Bromus inermis*), foxtail barely (*Hordeum jubatum*), sweet clover (*Melilotus officinalis*), wormseed mustard (*Erysimum cheiranthoides*) and leafy spurge (*Euphorbia esula*) that rapidly establish on disturbed soils. Leafy spurge was very abundant, especially along the roadways. Along the drainage ditch that runs the length of the south and east boundary of the site, the vegetative community was composed primarily of cattail (*Typha latifolia*), soft-stem bulrush (*Scirpus validus*), and scouring rush (*Equisetum hyemale*). Smooth brome, sweet clover and leafy spurge dominated in more upland sites with some patches of stinging nettle (*Urtica dioica*).

3.2.2 Wildlife

The native wildlife in the region has been greatly affected by agricultural development. Both grassland and wetland habitat loss has affected the distribution and abundance of species and wildlife populations. The white-tailed deer (*Odocoileus virginianus*), are widespread, particularly in areas which provide both grazing and cover habitat. Other mammals common to the area include, coyote (*Canis latrans*), red fox (*Vulpes vulpes*), cottontail rabbit (*Sylvilagus floridanus*), striped skunk (*Mephitis mephitis*), American badger (*Taxidea taxus*), and Richardson (*Urocyon richardsonii*) and Franklin's (*Poliocitellus franklinii*) ground squirrel. Various bird species are still found throughout the area, including various raptors such as bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*). Even though a significant reduction in acreage and numbers of wetlands has occurred over the years, the region continues to provide major breeding, staging and nesting habitat for ducks, geese, other waterfowl and shorebirds. The region also provides major breeding habitat for Wild Turkey (*Meleagris gallopavo*) and a number of songbirds (Environment Canada 1996). The red-sided (*Thamnophis sirtalis parietalis*) and western plains garter snakes (*Thamnophis radix*) are common in the area and widespread and various toads and frogs (Environment Canada 1996; Preston 1982). Due to the undisturbed nature of some areas of the site and ongoing activities,

there is an abundance of wildlife habitat and occurrences at the Portage la Prairie Landfill. Bird species observed daily are Franklin's gulls (*Leucophaeus pipixcan*), American crows (*Corvus brachyrhynchos*), red-winged blackbirds (*Agelaius phoeniceus*), Canada geese (*Branta canadensis*) and barn swallows (*Hirundo rustica*).

3.3 SPECIES AT RISK

The landfill is not aware of any of Manitoba's Species at risk on the Sustainable Development website being sited at the landfill.

3.4 SOCIO-ECONOMIC ENVIRONMENT

3.4.1 Current Population Trends

Data from the 2016 census show the City of Portage la Prairie grew by 308 to 13304 people while the RM's population's grown to 6975 with a 450 person increase. Portage is now the fifth-largest city in Manitoba.

3.4.2 Stakeholders

Stakeholders within the region include:

- Private landowners and farmers;
- City of Portage la Prairie and the RM of Portage la Prairie;
- Residents and business owners.
- Residential users of the landfill for personal disposal needs.

3.4.3 First Nations

The First Nations in the region include:

- Dakota Tipi First Nation
- Long Plains First Nation

3.4.4 Regional Economy

The regional area was historically developed through the presence of fertile agriculture lands. Although agri-food products and related services still represent the area's largest industrial economic base, Portage La Prairie has experienced economic growth and diversification in recent years.

3.4.5 Land Use, and Resource Use

The landfill is located in an area overseen by the Portage la Prairie and Area Planning District. The landfill has a designation of Rural/ Agricultural and is zoned AG – Agriculture General. The Landfill is surrounded of all sides by community pasture which limits the exposure to any residential issues.

3.5.6 Heritage Resources

The landfill has been in existence for many year and no Heritage issues have been reported.

3.5.7 Human Health and Safety

Most of the human health problems associated with landfills comes from landfill gas, its nonmethanic volatile organic compounds, leachates and hazardous air pollutants. It is known that such releases contain a wide variety of potential carcinogens and toxic chemicals that represent a threat to public health. Although little quantitative data exists on the effect that landfill hazards have on those who live near landfills, exposure to these hazards may lead to an increase in birth defects, asthma, respiratory disease and cancer (Enviros Consulting Ltd and University of Birmingham 2004). Toxic chemicals from soil can be vaporized in areas such as basements, causing high concentrations of hazardous chemical gases in people's homes. If harmful chemicals are present in the soil surrounding a water supply, they can seep into the water and cause harmful effects. If waste is not properly contained, it has the potential to leak into the surrounding properties and contaminate the area (Enviros Consulting Ltd and University of Birmingham 2004). Hazardous materials such as asbestos mold, and hydrocarbon impacted soils are permitted to be received by the landfill. Volatile toxins from these materials can become airborne and have the potential to pose significant adverse health risks. When inhaled in significant quantities, asbestos fibers can cause asbestosis (a scarring of the lungs), mesothelioma (a rare cancer of the lining of the chest or abdominal cavity) and lung cancer (Government of Canada 2012b). Inhaling excessive quantities of airborne mold particles may lead to allergic illness, asthma, respiratory infection or mycotoxin poisoning (NC Department of Health and Human Services 2014). Benzene, toluene, ethylbenzene and xylenes (BTEX) are known carcinogens found in petroleum and can be released through the soil, air and water (CCME 2008).

Since the potential for environmental and health effects of landfills and hazardous waste sites can be extensive, government regulations of such sites are stringent and have been put in place with public safety in mind. Some of these regulations (CCME 2006) include:

- Monitoring of groundwater to ensure that chemical levels are within acceptable ranges;
- Location restrictions to ensure that no potential leakage hazard could come from nearby geological attributes such as wetlands;
- Safe operating practices regarding the control of waste exposure;
- Closure regulations concerning the safe maintenance and monitoring of closed landfills and hazardous waste sites; and
- Corrective action for any potential leakages from waste sites

Although the overall health risk may be slightly increased by living close to a landfill, if properly maintained, the risk is very minimal. The development plan ensures that any Waste Disposal Ground (WDG) is located where impacts to human health or the environment are minimized. Development near the WDG will be restricted to agricultural uses and those types of industrial development that would not be adversely affected by being located adjacent to a WDG.

4 ENVIRONMENTAL EFFECTS ASSESSMENT & MITIGATION

The landfill continues to develop programs to increase diversion from the landfill and to efficiently manage products in the most environmentally friendly way possible. These efforts help to extend the life of the landfill. Waste handling is approached by the following methods

from preferred to least favored: prevention, minimization, reuse, recycling, energy recovery and disposal.

4.1 EFFECTS ASSESSMENT APPROACH

This environmental effects assessment details the interactions between the project and the natural and human environment, and in most cases describes how adverse effects have been avoided through design.

4.2 PHYSICAL ENVIRONMENT

4.2.1 Air Quality

Potential effects to air quality include:

- Production of landfill gas;
- Release of particulate matter from exposed surfaces.

The release of greenhouse gases to the atmosphere is considered a residual effect, however, the Portage la Prairie Regional Landfill has implemented a composting program which reduces the production of greenhouse gases.

4.2.1.1 Particulate Matter

Material deposited in the active cell by residential or commercial haulers is compacted in place and covered on a periodic basis to reduce the release of airborne particulate matter. To ensure that waste is contained within the property, a fence surrounds the landfill and portable litter-control bins with fencing are located around the active areas to capture wind-blown debris and can be moved around the landfill as needed. Particulate emissions are minimal.

4.2.2 Noise

The use of heavy equipment at the facility is the chief noise-producing activity heard at the landfill other local sources of noise may include traffic to and from the site. Due to the distance of receptors, the incidence of nuisance noise generated at the site is considered infrequent and minimal.

4.2.3 Soils and Groundwater

Potential effects to soils and groundwater include leachate generated from precipitation that percolates through solid waste. Once in contact with decomposing solid waste, the percolating water becomes contaminated and is termed leachate when it flows out of the waste material. Management of leachate and mitigation of its harmful effects on the surrounding environment is controlled through the use of the clay liners and the drainage management. The Portage la Prairie Regional Landfill began using clay liners in 1980, to protect the underlying soil and groundwater. Leachate is contained within the cells. The Portage la Prairie Regional Landfill conducts groundwater monitoring every 3 years to identify negative effects to groundwater where possible. The effect of leachate on groundwater is a residual effect, however, is considered minor and restricted to the landfill site.

4.3 AQUATIC ENVIRONMENT

4.3.1 Surface Hydrology

Surface water has the potential to be affected by migration of leachate from the landfill. The drainage plan for the landfill was designed to ensure all surface water is directed to the southeast corner of the site and discharged to the wastewater secondary lagoon. Residual effects to surface water quality resulting from the migration of leachate is restricted to the landfill site.

4.3.2 Aquatic Biota

There is no aquatic biota present within the landfill and the drainage channel adjacent to the landfill is considered to be of poor to nil habitat quality for fish. There are no anticipated effects on aquatic biota.

4.4 TERRESTRIAL ENVIRONMENT

4.4.1 Vegetation

The landfill was used as pastureland prior to construction of the landfill and cleared of all native Vegetation on the active cells. Natural vegetative re-colonization has occurred in some areas around waste piles, ditches and the property boundary, though the majority of re-colonization is from invasive species.

Permanent loss of native vegetation on the landfill property is a residual effect, however, the site will be re-vegetated in accordance with the closure plan.

4.4.2 Wildlife

The landfill was used as pastureland prior to construction of the landfill and cleared of all native wildlife habitat on the active cells, however, some wildlife still exists on-site. Some disturbance or mortality of small mammals (e.g., mice, voles) is expected due to standard facility operations such as soil removal, grading, excavation and other construction and equipment activities. Permanent loss of wildlife habitat on the landfill property is a residual effect. Residual effects to wildlife are considered minor and localized due to standard operating procedures and site infrastructure (e.g., fencing) designed to limit the interaction of wildlife with the facility. Regular inspection of the integrity of perimeter fencing by landfill operations staff aids in continuing to limit interaction with large-bodied mammals such as white-tailed deer.

4.5 SPECIES AT RISK

There are no recorded occurrences of plant or animal species at risk within the landfill, hence, no measurable or residual effects are anticipated.

4.6 SOCIO-ECONOMIC ENVIRONMENT

The landfill is an existing development, hence, there are no anticipated effects on the socioeconomic environment. All stakeholders in the region are aware of its existence and activities.

4.6.1 Land Use

The Portage la Prairie Regional Landfill and adjacent properties are zoned as Agricultural pasture land and strategically separated from residential zones to reduce adverse effects on residents. The landfill collects approximately 22,000 tonnes of waste per year and is continuously evolving to improve its environmental stewardship as new technologies become available and will continue to employ the latest waste diversion strategies and tools. The landfill is an existing development hence there are no anticipated effects on the surrounding land use, however, residual waste will persist indefinitely post-closure and the land will become permanently unusable, unable to be reclaimed for another use.

4.6.2 Heritage Resources

The past and future operation of the Portage la Prairie Regional Landfill facility is not anticipated to have any effect on heritage resources due to the absence of previously recorded sites on site.

4.6.3 Aesthetics

The physical presence of the site, visibility of operating areas and generation of litter are aspects of the development which contribute to negative visual impacts. The site is highly visible, particularly from the south by motorists travelling along Provincial Road 227. A natural tree line has been maintained around the landfill perimeters of the facility to ensure that the visual impacts of the site are minimized. The active cells are covered periodically. The presence of the landfill has a residual effect on aesthetics; however, this is considered minor due to its location in a community pasture area away from residential areas.

4.6.4 Human Health and Safety

Potential effects to human health and safety as a result of the Project were identified as follows:

- Use of heavy equipment and large machinery;
- Handling of special waste (e.g., asbestos, hydrocarbon impact soils, hazardous waste); and
- Exposure to respirable particulate matter and landfill gas emissions.

To ensure the health and safety of all visitors to the landfill an attendant is on site at all times during regular working hours. When the site is not in operation all entrance gates are locked. Emergency contact information is located at the main gate in the case of an emergency. The Portage la Prairie Regional Landfill has developed an emergency response plan for the landfill. These documents provide long-term planning, guidance and prescriptions for operations, safety and emergency response. Currently the Portage la Prairie Regional Landfill is permitted to receive hazardous materials including Household Hazardous Waste (HHW), asbestos, mold, and hydrocarbon contaminated soils. There are strict procedures in place for handling these materials to ensure safety of the landfill employees and Public. Concerns about health risks from long-term exposure to carcinogenetic gases emitted from landfills have long been discussed. During the Environmental Impact Assessment of Brady Road Landfill and Future Resources Management Facility (Stantec 2011), there was no evidence of any

significant health risk to the nearest neighbors to the landfill for reportable respiratory diseases after almost four decades of landfill operations. In addition, the landfill is located a mile from any residential property which further reduced the exposure to potential carcinogens. With the implementation of hazardous material collection and disposal guidelines, solid waste management protocols, operations, safety, and emergency response plans, and the setting of the landfill located away from residential areas, the Project is not anticipated to have a residual effect on human health and safety.

4.6.5 Accidents and Malfunctions

Potential accidents and malfunctions can be severe and must be considered. The most probable accidents and malfunctions for the Portage la Prairie Regional Landfill include:

- A major landfill fire;
- A major spill on- or off-site; and
- Flooding of the landfill.

4.6.5.1 Landfill Fires

The risk of a major landfill fire has been reduced by a combination of design and operational features, and the Portage la Prairie Regional Landfill's commitment to the development of improved emergency-response procedures. A small, short-lived and easily managed fire occurred at the landfill in 2014 which was routinely contained, smothered and extinguished within a couple of hours. Landfill fires, if not extinguished quickly, can become dangerous because they can emit clouds of chemical-containing smoke and because they can be hard to fully extinguish (Sperling 2001). Landfill fire risk is typically managed through a multiple lines of defense including prevention, early detection and rapid response. A rapid response is critical to effectively manage landfill fires and can include several subsurface landfill fire control techniques such as excavation, smothering and extinguishing with injections of water or inert gas (Stearns and Petoyan 1984). As a result of appropriate planning and timely response, the consequence of landfill fires is not anticipated to result in residual effects.

4.6.5.2 Spills

The risk of a spill of hazardous material within the landfill has the potential to impact the surrounding environment. Several mitigation measures are in place to reduce the risk of spills and in the unlikely event that one will occur, will limit the extent of disturbance. Vehicle and equipment access is limited to the existing roads and paths. All mobile and stationary equipment on site is kept in good condition, properly maintained, free of leaks and spill kits are available. Storage and handling of dangerous goods is conducted in accordance with the *Dangerous Goods Handling and Transportation Act* and associated regulations. Any reportable spills of a hazardous substance will be immediately cleaned up and reported to Manitoba Conservation Emergency Spill line at (204) 944-4888. In the event that a release did occur, it would have the potential to have lasting effects, however, the probability of a large release is low and there are no anticipated residual effects due to an accidental release.

4.7 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

Potential effects of the environment on the landfill include flooding. Portage la Prairie Regional Landfill has withstood several major flood events, most notably in 2011. The Portage la Prairie Regional Landfill has employed several flood protection measures over the year to protect

against flooding. With the flood protection measures, the potential for flooding of the landfill is low and there are no anticipated residual effects.

4.8 SIGNIFICANCE OF RESIDUAL EFFECTS

4.8.1 Residual Effects Assessment Criteria

Residual effects are effects remaining after application of mitigation measures. Residual effects were assessed for significance using the following criteria:

Direction - the direction of the effect may be positive, neutral, or negative with respect to beneficial or adverse effects from the Project on the existing environment.

Magnitude - a measure of the degree or intensity of change that can occur as the Project proceeds, which can be: low (above background conditions, but within established criteria or scientific threshold and the range of natural variability); medium (substantially above background conditions, but within established criteria or scientific threshold and the range of natural variability); or high (predicted to exceed established criteria or scientific threshold and will likely cause detectable change beyond the range of natural variability).

Geographic extent - refers to the area potentially affected by the effect, whether it is on-site, or some area beyond the landfill property.

Duration - refers to the length of time the environmental effect occurs and whether the effect is reversible once the disturbance has been completed (i.e., reclamation of disturbed areas). Duration can be: short-term (less than one year); medium-term (throughout operation); or long-term (continues beyond site closure and reclamation).

Frequency - refers to the frequency at which the effect occurs over the specified duration and is described as: infrequent (occurs once over the duration of the disturbance); frequent (occurs periodically over the duration of disturbance); or continuous (occurs continuously over the duration of disturbance).

Likelihood - refers to the probability of occurrence (i.e., the risk of an event occurring) and is described as very unlikely, unlikely, likely and very likely.

The activities associated with the Project were first assessed according to the above criteria, and then evaluated together to predict the overall environmental consequence. Environmental consequence was determined as:

Minimal - effects with a low magnitude, short- to medium-term duration, infrequent to continuous occurrence, and restricted to the landfill in geographic extent. The potential effect may result in a slight decline in the resource of the landfill during the life of the Project, but the resource should return to pre-construction levels.

Low - effects with a low magnitude, short- to long-term duration, infrequent to continuous occurrence, and restricted to the landfill in geographic extent. The potential effect may result in a slight decline in the resource in the landfill during the life of the Project. Research, monitoring, and/or recovery initiatives would not normally be required.

Moderate - effects with a medium magnitude, short- to long-term duration, frequent to continuous occurrence, and extend off-site to adjacent areas. Potential effect could result in a decline in resource to lower-than-baseline but stable levels in the region after Project closure and into the foreseeable future. Regional management actions such as research, monitoring, and/or recovery initiatives may be required.

High - refers to major effects that are long-term in duration, continuous in occurrence, and extend off-site to adjacent areas. Potential effect could threaten sustainability of the resource and should be considered a management concern. Research, monitoring, and/or recovery initiatives should be considered.

The effect is considered to be significant if the environmental consequence is determined to be moderate or high, and is considered to be not significant if the environmental consequence is determined to be minimal or low.

4.8.2 Summary of Residual Effects

Residual effects, i.e., effects that remain after application of mitigation measures, are expected to occur to air quality, ground water and soil, surface water, vegetation, wildlife, aesthetics, and land use. The residual effects were assessed in terms of their direction, magnitude, geographic extent, duration, frequency and likelihood. **Table 3.1** provides a summary of the residual effects and significance for each of the environmental components.

Table 3.1 Residual effects and significance

Project Component	Predicted Residual Effect	Direction	Magnitude	Geographic Extent	Duration	Frequency	Likelihood	Significance
Air quality	Production of landfill gas, dust, and particulate	negative	medium	region	Medium-term	continuous	Very likely	low
Groundwater and soils	Leachate migration into subsurface water	negative	low	Project site	Long-term	frequent	likely	low
Surface water	Leachate migration into surface water	negative	low	Project site	Long-term	frequent	likely	low
Vegetation	Loss of native vegetation	negative	low	Project site	Medium-term	infrequent	very likely	minimal
Wildlife	Loss of wildlife habitat	negative	low	Project site	Long-term	infrequent	very likely	minimal
Aesthetics	Visual appearance of the landfill	negative	low	Project site	Long-term	continuous	very likely	minimal
Land use	Persistence of thousands of tonnes of garbage and waste on site	negative	medium	Project site	Long-term	continuous	very likely	minimal

5 PUBLIC ENGAGEMENT

No formal public engagement process has taken place regarding the application for an Environment Act License for the landfill. It is an existing facility and well known to the City of Portage la Prairie and RM of Portage la Prairie residents. The public is made aware of any ongoing developments at the landfill, such as new operating procedures and regulations by media, website, and Portage la Prairie Regional Landfill Authority board meetings. The public has also been made aware of the need to increase the useful life of the landfill by diverting more solid waste from the tipping face.

6 ENVIRONMENTAL MONITORING

The Portage la Prairie Regional Landfill will continue its existing monitoring programs and report any findings of such programs to the Director when issues arise.

6.1.1 Ground Water Monitoring and Analysis

The Portage la Prairie Regional Landfill conducts monitoring and analysis of ground every 3 years including 4 groundwater monitoring wells. Groundwater monitoring consists of measuring static water levels and collecting field parameters with a multi-parameter meter including: dissolved oxygen, conductivity, salinity, specific conductivity, pH, temperature, total dissolved solids and oxidation reduction potential. Samples are sent to an accredited laboratory for analysis of the parameters listed in **Table 6.1**. All monitoring wells have been designed and constructed in accordance with the guidelines for the siting of a Class 1 Waste Disposal Ground in the Province of Manitoba (Manitoba Environment 1994). As future development of the site occurs, the need to relocate existing monitoring wells will arise with the intent of decommissioning the old monitoring wells such that impact to local groundwater is minimized.

7 REFERENCES

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Appendix A Certificate of Title

STATUS OF TITLE

Title Number **1921165/3**
Title Status **Accepted**
Client File **143000**

The Property Registry

A Service Provider for the Province of Manitoba



<p>1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION</p> <p>THE RURAL MUNICIPALITY OF PORTAGE LA PRAIRIE</p> <p>IS REGISTERED OWNER, SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:</p> <p>SW 1/4 22-13-5 WPM</p> <p>The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of <i>The Real Property Act</i>.</p>
<p>2. ACTIVE INSTRUMENTS</p> <p>Instrument Type: Caveat Registration Number: 1003173/3 Instrument Status: Accepted</p> <p>Registration Date: 1997-03-24 From/By: THE MANITOBA HYDRO-ELECTRIC BOARD To:</p> <p>Amount: Notes: No notes Description: PORTIONS REQUIRED FOR EASEMENT PLANS 34281 AND 34349</p>
<p>3. ADDRESSES FOR SERVICE</p> <p>R. M. OF PORTAGE LA PRAIRIE 35 TUPPER STREET SOUTH PORTAGE LA PRAIRIE MB R1N 1W7</p>
<p>4. TITLE NOTES</p> <p>No title notes</p>
<p>5. LAND TITLES DISTRICT</p> <p>Portage</p>

6. DUPLICATE TITLE INFORMATION	
Duplicate Produced for:	HOLD FOR PROD OF DUPL CT NO(S) 65575
7. FROM TITLE NUMBERS	
65575/3	All
8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS	
No real property application or grant information	
9. ORIGINATING INSTRUMENTS	
Instrument Type:	Request To Issue Title - Internal
Registration Number:	1060940/3
Registration Date:	2002-12-30
From/By:	PLTO CONVERSION
To:	
Amount:	
10. LAND INDEX	
SW 22-13-5W	

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 1921165/3

STATUS OF TITLE

Title Number **2202651/3**
Title Status **Accepted**
Client File **143000**

The Property Registry

A Service Provider for the Province of Manitoba




<p>1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION</p> <p>THE RURAL MUNICIPALITY OF PORTAGE LA PRAIRIE</p> <p>IS REGISTERED OWNER, SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:</p> <p>NW 1/4 22-13-5 WPM</p> <p>The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of <i>The Real Property Act</i>.</p>
<p>2. ACTIVE INSTRUMENTS</p> <p>Instrument Type: Miscellaneous Registration Number: 26224/3 Instrument Status: Accepted</p> <p>Registration Date: 1944-05-08 From/By: R.M. OF PORTAGE LA PRAIRIE To:</p> <p>Amount: Notes: No notes Description: BY-LAW ESTABLISHING COMMUNAL PASTURE</p>
<p>3. ADDRESSES FOR SERVICE</p> <p>THE R.M. OF PORTAGE LA PRAIRIE 35 TUPPER STREET SOUTH PORTAGE LA PRAIRIE MB R1N 1W7</p>
<p>4. TITLE NOTES</p> <p>No title notes</p>
<p>5. LAND TITLES DISTRICT</p> <p>Portage</p>

6. DUPLICATE TITLE INFORMATION	
Duplicate Produced for:	HOLD FOR PROD OF DUPL CT NO(S) 59907
7. FROM TITLE NUMBERS	
59907/3	All
8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS	
475 477	
9. ORIGINATING INSTRUMENTS	
Instrument Type:	Request Electronic Title Conversion
Registration Number:	1100839/3
Registration Date:	2007-01-12
From/By:	PLTO CONVERSION
To:	
Amount:	
10. LAND INDEX	
NW 22-13-5W	

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 2202651/3

Appendix B Operating Permit

WASTE DISPOSAL GROUND OPERATING PERMIT

Manitoba 
Department of Conservation

Permit No. RR-004

In accordance with the Waste Disposal Grounds Regulation made under The Environment Act, The Portage la Prairie Landfill Authority is hereby permitted to operate a Class 1 Waste Disposal Ground, to be known as The Portage la Prairie Regional Landfill situated at SW 22-13-5 WPM in the R.M. of Portage la Prairie, Province of Manitoba.

THIS OPERATING PERMIT is subject to being AMENDED, SUSPENDED or REVOKED under Section 6 of the Waste Disposal Grounds Regulation.

THIS OPERATING PERMIT is subject to the following TERMS and CONDITIONS:

DEFINITIONS

In this Operating Permit,

"access road" means a road that leads from a Provincial Trunk Highway, Provincial Road, or a municipal road;

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"active area" means a designated trench or berm confined area of a waste disposal ground in which solid wastes are deposited;

"approved" means approved in writing;

"authorized personnel" means persons, companies or firms authorized by the Operator to have access to the waste disposal ground;

"background water quality" means the quality of water in any geologic zone monitored with regards to the chemical and microbiological parameters specified in the Operator Permit;

Appendix C

Septic Lagoons



Third Lagoon



Retention Pond



Pesticide Container Compound



Propane Tanks, Batteries, Refrigerator, and Metal collection areas



Paint Cans



Tires



Hot Spot, Burning barrels, and Ashes



Concrete and Trees, Poles and Timbers Areas



Temporary Cover on Active Face



Covered Cell and Wind Fences



Organic Compostable Area



Appendix D 2016 Year End Report



Portage la Prairie Regional Landfill Authority



P.O. Box 626

Tel: (204) 871-4549

Portage la Prairie Landfill Authority 2016 Year End Review

The Portage la Prairie Landfill Authority has completed its twelfth year of operation as a Class 1 Facility operated by the Board. The investment in roads and drainage at the Landfill kept the site in very good condition despite some very challenging weather conditions in 2016. Our customers often compliment the staff on the condition of the roads and how clean the site is kept. The following are the highlights of the 2016 year:

- **The Landfill accepted 20290 tonnes of solid waste in 2016 which is down from 21,200 tonnes received in 2015.**
 - **The Landfill accepted 3269 tonnes of Clean Cover Material which is 534 tonnes more than what was received in 2015.**
- **The Landfill accepted 1013 loads of Septic Waste which is down 114 loads from 2015.**
- **The Landfill diverted 74 tonnes of recyclable materials including metals, tires, chemical jugs, bale wrap, twine, and grain bags in 2016.**
- **The landfill hauled and buried 6000 tonnes of septic waste from the primary lagoon.**
- **The Board and Landfill staff continued to aggressively pursue a program that required that all loads must be tarped and strapped or the offender would be charged a \$25.00 fee. The program resulted in sixteen offenders being charged and the roadside clean up being 8 tonnes in 2016.**
- **The Board did not record any user operational concerns or complaints at the Landfill.**
- **The Board agreed to increase tipping fees by \$1.00 per tonne on solid waste and increases the minimum charge by \$1.00 from our 2016 rates.**

The Landfill's operational success is attributed to the Landfill staff and management. This success would not be possible without the support of the Board and the Operational and Administrative Staff of both the City and Rural Municipality of Portage la Prairie.

The management and staff look forward to serving the municipal waste needs of the City and Rural Municipality of Portage la Prairie. This service will emphasize the education and communication programs ensuring waste is being disposed in the most efficient and environmentally sustainable manner possible. We thank our customers for their cooperation and support in building a program that we can all be proud of.

Robert Pohl
Landfill Manager

Garth Asham, Chairman
Portage la Prairie Regional Landfill Authority

**WASTE DISPOSAL GROUND
OPERATING PERMIT**

Manitoba 
Department of Conservation

Permit No. RR-004

In accordance with the Waste Disposal Grounds Regulation made under The Environment Act, **The Portage la Prairie Landfill Authority** is hereby permitted to operate a **Class 1 Waste Disposal Ground**, to be known as **The Portage la Prairie Regional Landfill** situated at **SW 22-13-5 WPM** in the **R.M. of Portage la Prairie**, Province of Manitoba.

THIS OPERATING PERMIT is subject to being AMENDED, SUSPENDED or REVOKED under Section 6 of the Waste Disposal Grounds Regulation.

THIS OPERATING PERMIT is subject to the following TERMS and CONDITIONS:

DEFINITIONS

In this Operating Permit,

"access road" means a road that leads from a Provincial Trunk Highway, Provincial Road, or a municipal road;

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"active area" means a designated trench or berm confined area of a waste disposal ground in which solid wastes are deposited;

"approved" means approved in writing;

"authorized personnel" means persons, companies or firms authorized by the Operator to have access to the waste disposal ground;

"background water quality" means the quality of water in any geologic zone monitored with regards to the chemical and microbiological parameters specified in the Operator Permit;

"body of water" means any body of flowing or standing water whether natural or artificially created;

"bulky metallic waste" means, but is not limited to, derelict vehicles, farm machinery, and large appliances which are capable of being salvaged for recycling or reuse;

"cell" means a deposit of waste that has been covered by cover material so that no waste deposited in the cell is directly exposed to the atmosphere;

"Class 1 Waste Disposal Ground" means a waste disposal ground serving a population in excess of 5,000 persons or is receiving solid waste in excess of 4000 tonnes per year;

"closure plan" means a plan indicating the actions to be taken for the closure of the waste disposal ground;

"concentration value" means a restriction established by an Operating Permit issued pursuant to regulation under The Environment Act by the Director on quantities, discharge rates and concentrations of pollutants;

"cover material" means material which is free of roots, vegetation and frozen material, or other material as approved by the Director, that is used to cover compacted solid waste;

"Director" means an employee so designated pursuant to The Environment Act;

"Environment Officer" means an employee so designated pursuant to the Environment Act;

"groundwater" means water below the surface of the ground and within a zone of saturation;

"hazardous waste" means any substance or group of substances that meets the criteria of a hazardous waste as determined by Manitoba Regulation 282/87, as amended from time to time;

"leachate" means liquid that has percolated through solid waste, and that contains dissolved and suspended materials from such matter;

"liner" means a continuous layer of reworked soil, or man-made or natural materials beneath and on the sides of a land disposal facility, compost facility, or storage area and that restricts the downward or lateral escape of solid waste, leachate and gas;

"liquid industrial waste" means waste generated by industrial processes that has a slump of more than 150 mm using the slump test method (slump test, C.S.A. Standards Test Method A 23.1-5C), and does not include hazardous waste or industrial waste;

"liquid waste" means sewage, sewage effluent and sludge from septic tanks, holding tanks and municipal sewage treatment systems and that has a slump of more than 150 mm using the slump test method (slump test, C.S.A. Standard Test Method A 23.2-5C);

"noise nuisance" means an unwanted sound, in an affected area, which is annoying, troublesome, or disagreeable to a person:

- (a) residing in an affected area;
- (b) working in an affected area; or
- (c) present at a location in an affected area which is normally open to members of the public;

if the unwanted sound

- (d) is the subject of at least 5 written complaints received by the Director in a form satisfactory to the Director, and within a 90 day period, from 5 different persons falling within clauses (a), (b), or (c), who do not live in the same household; or
- (e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses (a), (b), or (c), and the Director is of the opinion that if the noise had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons who do not live in the same household;

"odour nuisance" means a continuous or repeated odour, smell or aroma, in an affected area which is offensive, obnoxious, troublesome, annoying, unpleasant or disagreeable to a person:

- (a) residing in the affected area;

if the odour, smell or aroma

- (b) is the subject of at least 5 written complaints received by the Director in a form satisfactory to the Director, and within a 90 day period, from 5 different persons falling within clauses (a) who do not live in the same household; or
- (c) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses (a) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons who do not live in the same household;

"operator" means the person or owner who is legally responsible for the day to day operation of the waste disposal ground

"particulate matter" means any finely divided liquid or solid matter other than water droplets;

"particulate residue" means that part or portion of an atmospheric emission which is deposited onto a surface;

"post-closure plan" means a plan indicating the actions to be taken for the care, maintenance, and monitoring of the waste disposal ground after closure, that will prevent, mitigate, or minimize the threat to public health and the environment;

"radioactivity" means the spontaneous decay or disintegration of an unstable atomic nucleus, accompanied by the emission of radiation;

"site" means the area both permanent and temporary which is required for the construction and operation of the waste disposal ground;

"Standard Methods for the Examination of Water and Wastewater" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation; and

"water storage area" means an area constructed in a manner approved by the Director to retain storm water runoff, for a limited time, for the purpose of chemical and bacterial analysis prior to disposal in a manner approved by the Director.

GENERAL TERMS AND CONDITIONS

This Section of the Operating Permit contains terms and conditions intended to provide guidance to the Operator in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. The Operator shall direct all solid waste generated within its jurisdiction to this waste disposal ground facility unless otherwise approved by the Director
2. The Operator shall deposit all waste, other than material intended for recycling, in an active area within the waste disposal ground.
3. The Operator shall ensure that unless otherwise approved by the Director that the active area is maintained free of standing water.
4. The Operator shall ensure that permanent and temporary dyke structures and surface drainage shall be constructed to divert surface runoff from active area.
5. Unless otherwise approved by the Director the Operator shall ensure that an internal perimeter drain system is constructed to divert surface runoff from the waste disposal ground or to a water storage area.
6. The Operator shall not discharge water stored in the water storage area unless approved by the Director.

7. The operator shall ensure that groundwater monitoring wells are installed around the boundary of the waste disposal site property; a minimum of one well up gradient and two wells down gradient of the site.
8. The Operator shall ensure that no alteration to the waste disposal ground is initiated unless approved by the Director.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

General

9. In addition to any of the following specifications, limits, terms and conditions specified in this Operating Permit, the Operator shall, upon the request of the Director:
 - a) sample, monitor, analyze or investigate specific areas of concern regarding any seepage and discharge for such duration and frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant from the waste disposal ground; or
 - c) provide the Director within such time as may be specified, with such reports, drawings, specifications, analytical data, flow rate measurements corrective actions and such other information as may from time to time be requested.
10. The Operator shall, unless otherwise specified in this Operating Permit:
 - a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in "Standard Methods for the Examination of Water and Wastewater" or in accordance with an equivalent analytical methodology approved by the Director;
 - b) ensure that all analytical determinations are undertaken by an accredited laboratory, and
 - c) report the results to the Director, in writing or in a format acceptable to the Director, within 60 days of the samples being taken.
11. The Operator shall not cause or permit a noise nuisance to be created as a result of the construction, operation or alteration of the waste disposal ground, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.
12. The Operator shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the waste disposal ground, and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.

13. The Operator shall ensure that at least one sign is posted along the primary access road to the waste disposal site indicating the location of the site and the hours of operation.
14. The Operator shall ensure that adequate signage is posted at the entrance to the waste disposal ground indicating, but not limited to the following:
 - a) the types of wastes not accepted at the site;
 - b) authorized personnel to the site;
 - c) the hours and days of operation;
 - d) telephone numbers that should be called in the event of an emergency occurring at the site; and
 - e) unsecured load requirements.

Construction/Site Development

15. The Operator shall:
 - a) erect a fence with a minimum height of 1.5 metre or as otherwise approved by the Department around the waste disposal ground; and
 - b) provide gates for all access locations to the site.
16. The Operator shall ensure that all active areas developed subsequent to the date of this Operating Permit are located a minimum of 100 metres from the property boundary of the waste disposal ground.
17. The Operator shall ensure that all new disposal cells are designed and constructed:
 - a) with a synthetic liner or a recompacted clay liner that has a hydraulic conductivity of 1×10^{-7} cm/sec or less; and
 - b) with leachate collection system.
18. Unless otherwise approved, the Operator shall ensure that the final finishing grade of a completed disposal cell shall not exceed the surrounding grade by more than 10 metres.
19. The Operator shall ensure that fuel storage and equipment servicing areas established for the construction and operation of the waste disposal ground are located a minimum distance of 100 metres from any water body, and shall comply with the requirements of Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products Regulation.
20. The Operator shall ensure that a building of sufficient size, insulated, heated, and ventilated to allow all-weather use, is provided on site for landfill personnel.

21. The Operator shall ensure that all active areas are enclosed with a fence at least 2 metre above the highest point of the solid waste in the active area and is constructed in such a manner as to contain the solid waste within the active area.

Operation

22. The Operator shall ensure that no burning of waste at the waste disposal sites takes place unless otherwise approved by the Director.
23. Unless otherwise approved by the Director, the Operator shall ensure that the following wastes are not accepted at the waste disposal ground:
 - a) liquid industrial waste;
 - b) liquid waste;
 - c) soils or sediments containing contaminants at concentrations that do not meet Guideline 2002-02E, May 2002, Criteria for Acceptance of Contaminated Soil at Licensed Waste Disposal Grounds; and
 - d) hazardous wastes.
24. The Operator shall ensure that animal carcasses & offal is disposed of as described in Manitoba Conservation's Protocol for Offal & Carcass Disposal at Landfills.
25. The Operator shall ensure that a metallic waste reclamation site is established with proper signage. All metallic waste shall be collected at this site and removed for recycling at regular intervals and shall not exceed one year storage time
26. The Operators shall ensure that vehicles transporting wastes to the waste disposal ground are secured to prevent the spread of litter on transportation routes and the surrounding areas.
27. The Operator shall ensure that wastes deposited in the active areas are compacted and covered daily or as otherwise approved by the Environment Officer.
28. The Operator shall ensure that all roads are kept accessible throughout all weather conditions.
29. The Operator shall ensure the site is maintained free from litter to the satisfaction of the Environment Officer.
30. The Operator shall ensure that adequate portable litter fences are positioned around the active area or such other locations where unloading and handling occurs.
31. The operator shall ensure that scavenging is not permitted at the landfill site.

32. The Operator shall ensure that particulate matter is not being emitted from the waste disposal ground such that particulate matter:
 - a) exhibits a visible plume with an opacity of greater than 5 percent when observed at any point beyond the property boundary of the waste disposal ground; or
 - b) results in the deposition of visible particulate residue at any point beyond the property boundary of the waste disposal ground.
33. The Operator shall ensure that leachate is contained within the boundary of the waste disposal ground and does not contaminate any body of water, or groundwater.
34. The Operator shall ensure that leachate and contaminated water collected at the site are not recirculated through the landfill cells and shall transport all such leachate and contaminated water to a disposal and treatment facility approved by the Director.
35. The Operator shall ensure that:
 - a) an attendant is on duty at the gate at all times during hours of operation;
 - b) the gates are kept locked when the attendants are not on duty or the waste disposal ground is closed;
 - c) other attendants to direct traffic and operate equipment are put on duty as required.
36. The Operator shall ensure that:
 - a) recycling activities are carried out in a location separate from the active area(s);
 - b) appropriate signs are posted indicating which material will be accepted for recycling; and
 - c) appropriate containers or storage compound are provided for all materials being recycled.
37. The operator shall ensure that a pesticide container collection depot is constructed and operated according to the attached Operating Order.

Monitoring and Reporting

38. The Operator shall within 6 months of the issuance of this Operating Permit submit a performance monitoring program to the Director for approval. The performance monitoring program shall address, but not limited to:
 - a) obtaining background information on surface water and groundwater quality as it related to the operation of the waste disposal ground;
 - b) ongoing monitoring during operation; and
 - c) frequency of monitoring.

39. Unless otherwise approved by the Director, the Operator shall undertake a monitoring program of the groundwater monitoring wells for the chemical and microbiological parameters as listed in Appendix 1 of this Operating Permit every three years with the next sample to be collected in 2008. All samples shall be collected, stored and analyzed using proper field and laboratory techniques for dissolved analyses. The analysis results shall be retained in a format acceptable to Manitoba Conservation that shows previous samples and trends.
40. The Operator shall develop an action plan to be implemented in the event that the monitoring program identifies any contamination of surface water or groundwater, as a result of the operation of the waste disposal ground. The plan shall be submitted to the Director for approval within 6 month of the date of this Operating Permit.
41. The Operator shall ensure that records are kept for inspection for the following information:
 - a) the daily quantity of waste deposited at the site;
 - b) all monitoring, testing and analytical data generated; and
 - c) details of all incidents requiring the implementation of the contingency action plan regarding groundwater or surface water contamination.
42. The Operator shall submit to the Environment Officer the following information:
 - a) the results of the analysis of the chemical and microbiological parameters listed in Appendix 1 to this Operating Permit, from the monitoring wells within 60 days from the end of each calendar year;
 - b) the annual quantity of wastes deposited at the waste disposal ground within 60 days from the end of each calendar year; and
 - c) the details of all incidents requiring contingency action regarding groundwater or surface water pollution within 21 days from the occurrence of such incidents.

Financial Assurance/Insurance

43. The Operator shall within 6 months of the date of this Operating Permit, provide to the Director confirmation of the following financial insurance coverage:
 - a) Environmental Impairment Liability insurance providing coverage subject to a minimum limit of \$1.0 million per occurrence or claim, including coverage for gradual, and sudden and accidental pollution. Coverage to include on-site and off-site clean up costs, and be placed with insurers satisfactory to the Province of Manitoba. The Province of Manitoba is to be added as an Additional Insured on the policy. The policy shall contain a clause stating that the Insurer will give Manitoba 60 days prior written notice in case of significant reduction in coverage or policy cancellation.
44. The Operator shall provide the Director with a certificate of insurance as written evidence of required coverage.

Contingency/Emergency Response Plans

45. The Operator shall within 6 month of the date of this Operating Permit, submit for the approval of the Director, a contingency plan relating to emergency planning and response at the waste disposal ground. The plan shall be developed and maintained in accordance with the Industrial Emergency Response Planning Guide (MIAC September, 1996) or other equivalent standard approved by the Director.

Closure and Post Closure

46. The Operator shall submit, within two year of the date of issuance of this Operating Permit, for the approval of the Director, a Preliminary Closure and Post Closure Plan for the waste disposal ground. The plan shall include, but not limited to, information with respect to:
- a) final cover design and maintenance;
 - b) maintenance of the leachate collection system;
 - c) groundwater monitoring;
 - d) landfill gas monitoring;
 - e) final grading of the site; and
 - f) financial assurance/insurance required to implement the plan.
47. The Operator shall submit for the approval of the Director, within one year prior to imminent closure of the waste disposal ground, a formal detailed Closure and Post Closure plan for the waste Disposal ground.
48. The Operator shall implement and maintain the approved Closure and Post Closure Plan for the waste disposal ground.

As-Constructed Drawings

49. The Operator shall:
- a) submit site plans for the waste disposal ground and
 - b) provide to the Director, within 6 months of the date of this Operating Permit, two sets of site plans of the waste disposal ground and all appurtenances and monitoring well locations.

REVIEW

50. This operation and Operating Permit will be reviewed in five years from the date of the issuance of this Permit.

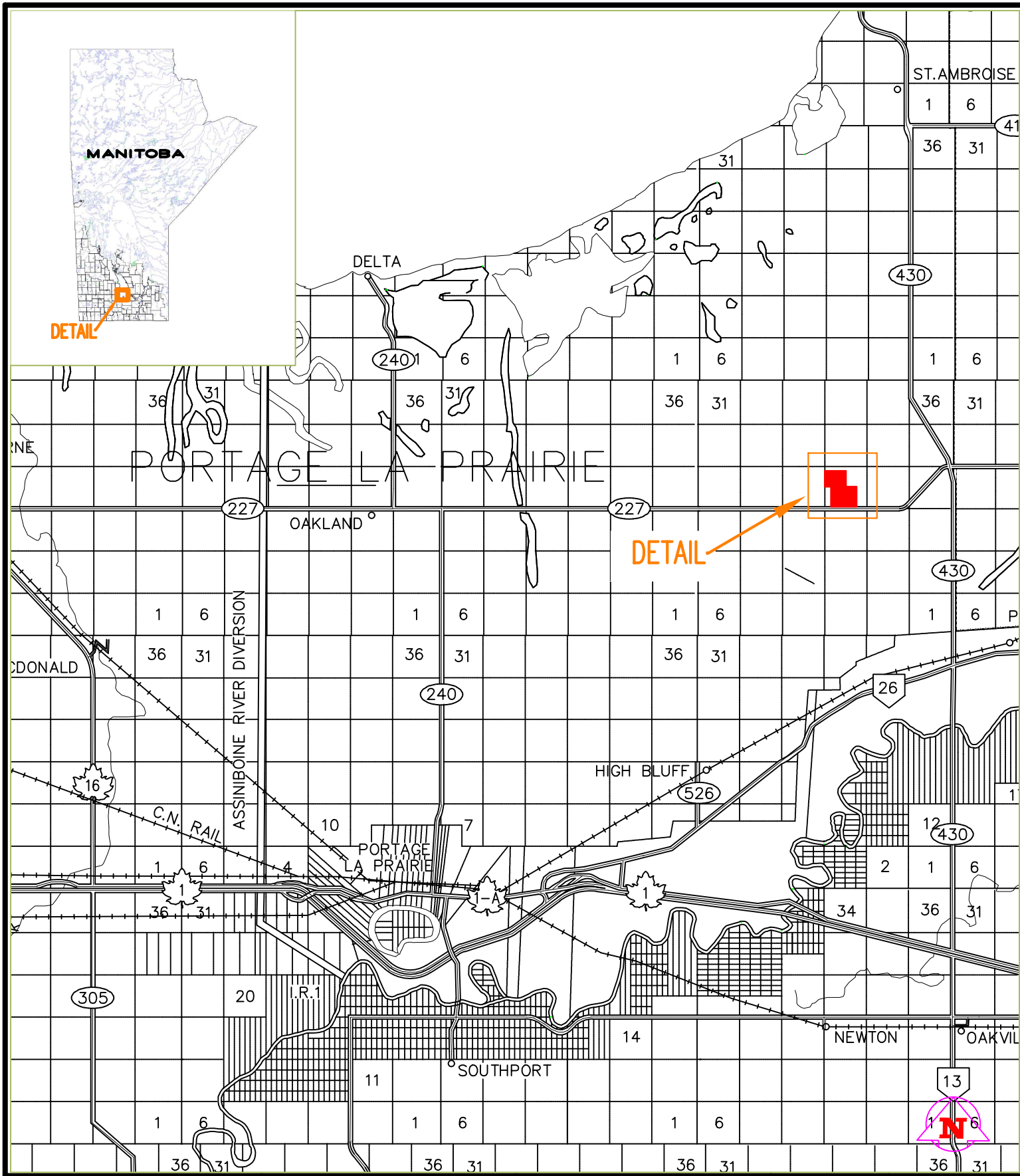
February 16, 2006

Original Signed by Cliff Lee for
 Brian Gillespie
 Regional Director

Appendix 1

Baseline Ground Water Chemistry Parameters

Chemical Parameter	Abbrev.
Alkalinity - Bicarbonate	HCO ₃
Alkalinity - Carbonate	CO ₃
Alkalinity - Hydroxide	OH
Alkalinity - Total	CACO ₃
Ammonia	NH ₃ -N/MR
Arsenic - Total	As-T
Benzene	BTEX-B
Cadmium - dissolved	Cd-E
Calcium - dissolved	Ca-E
Chemical Oxygen Demand	COD
Chloride	CL/HR
Chromium - Total	Cr-T
Copper - dissolved	Cu-T
Cyanide - Free	Cn-F
Ethylbenzene	BTEX-E
Hardness	
Iron - dissolved	Fe-E
Lead - dissolved	Pb-E
Magnesium - dissolved	Mg-E
Manganese - dissolved	Mn-E
Nickel - dissolved	Ni-E
Nitrate-Nitrite-Nitrogen	NO ₃ /NO ₂ /N
pH	
Phosphorus –dissolved	P-T/MR
Potassium - dissolved	K-E
Residue - Filterable	FR
Sodium –dissolved	Na-E
Specific Conductivity	
Sulfate	SO ₄ /HR
Toluene	BTEX-T
Total Nitrogen	TKN
Turbidity	
Xylene - Total	BTEX-X
Zinc –dissolved	Zn-E



WATERMAIN	VALVE	POLE
SANITARY SEWER	HYDRANT	ANCHOR
FORCEMAIN	CURB STOP	LIGHT STANDARD
PROPERTY LINES	MANHOLE	TRAFFIC SIGNAL
GAS	CURB INLET	STREET SIGN
TELEPHONE	CATCH BASIN	HYDRO PEDESTAL
HYDRO	SURVEY BAR	SWALE/DITCH
CENTER LINE OF ROAD	ELEVATION	←
existing	existing	existing
plan - legend	plan - legend	plan - legend
proposed	proposed	proposed

0	17/10/27	ISSUED FOR REVIEW	M.H.	I.M.
No.	y/m/d	Revision	By	App.

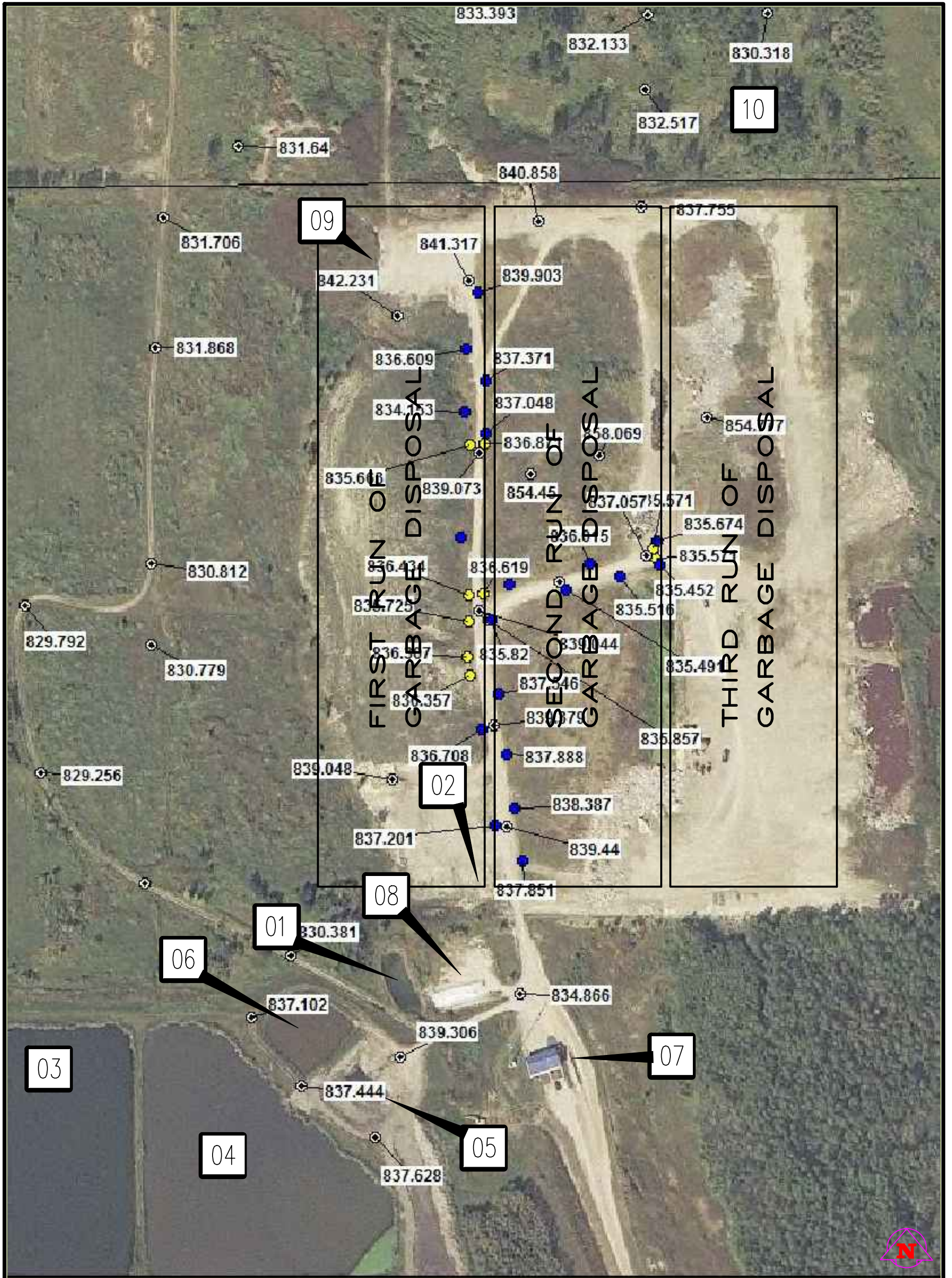


OPERATIONS DEPARTMENT
ENGINEERING DIVISION

Project	PORTAGE REGIONAL LAND FILL
SITE LOCATION	

Drawn	M. HEINTZ	Sheet	1 of 1	y/m/d	17/10/26
Checked	I. MILNE	Scale	NTS		
Designed	M. HEINTZ	Drawing No.		Rev.	
Checked	I. MILNE				
FB No.	-				
Project No.					
		M-674-1			0

ISSUED FOR REVIEW



DETAILS

- | | |
|----------------------------|------------------------------|
| 1: COLLECTION POND | 6: SECONDARY SEPTIC LAGOON |
| 2: SEGREGATED WASTE PILES | 7: OFFICE BUILDING |
| 3: FOURTH EVAPORATION POND | 8: CHEMICAL JUG COMPOUND |
| 4: THIRD EVAPORATION POND | 9: ORGANIC COMPOSTABLE WASTE |
| 5: PRIMARY SEPTIC LAGOON | 10: HAZARDOUS WASTE AREA |

No.	17/10/27	ISSUED FOR REVIEW	M.H.	I.M.
	y/m/d	Revision	By	App.



OPERATIONS DEPARTMENT

ENGINEERING DIVISION

Project
PORTAGE REGIONAL LAND FILL

SITE DETAIL

Drawn M. HEINTZ
Checked I. MILNE
Designed M. HEINTZ
Checked I. MILNE
FB No. -
Project No.

Sheet	1 of 1	y/m/d	17/10/26
Scale	NTS		
Drawing No.	M-674-2	Rev.	0

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