



ENVIRONMENTAL LEGACY MANAGEMENT GROUP

1271 Beechwood Road
Napanee, ON K7R 3L1
(613) 388-1057
(613) 388-2785 fax

April 30, 2020

Director, Environmental Approvals – Client Services and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
TORONTO, ON
M4V 1P5

Re: Application for Amendment to Environmental Compliance Approval No. A371203
Modifications to Leachate Storage System, Richmond Landfill Site
Waste Management of Canada Corporation

Dear Sir/Madam:

Please find enclosed the Application for an Amendment to Environmental Certificate of Approval No. A371203, complete with supporting documentation and payment for the Richmond Landfill Site.

This application requests approval of various changes to previously approved leachate storage system under Condition 5.5. These include, among others, an increase in the size and type of storage tank from a 500 m³ buried unit to a 3,000 m³ glass fused steel (GFS) above ground facility.

In support of this application, please find enclosed the following documents:

- Attachment 1 – Proof of Legal Name
- Attachment 2 – Design Brief – Modifications to Leachate Storage System
- Attachment 3 – Proof of Consultation/Notification

It is noted that the site plan with georeferencing points is included in Attachment 2 (Figure 2).

We trust that the enclosed information meets your requirements and will facilitate approval. A copy of this application, minus payment information, has been submitted to the distribution list as noted below.

Yours truly,

A handwritten signature in blue ink, appearing to read 'Bill McDonough'.

Bill McDonough
Senior Project Manager
Waste Management of Canada Corporation
Encl.

cc Mr. Trevor Dagilis, District Manager, MECP – Kingston District
Mr. David Arnott, Senior Environmental Officer, MECP - Kingston District
Mr. William McDonough, Senior Project Manager, WM
Mr. Jim Forney, Director, Environmental Legacy Management Group, WM
Public Liaison Committee
Mayor Marg Isbester, Town of Greater Napanee
Mr. Raymond Callery, CAO, Town of Greater Napanee
Reeve Rick Phillips, Tyendinaga Township
Mr. Brad Roach, CAO, Tyendinaga Township
Chief R. Don Maracle, Mohawks of the Bay of Quinte
Mr. David Souliere, CAO, Mohawks of the Bay of Quinte



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General Information and Instructions

General Information

Information requested in this form is collected under the authority of the *Environmental Protection Act* (EPA), *Ontario Water Resources Act* (OWRA) and Environmental Bill of Rights (EBR), and will be used to evaluate applications for Environmental Compliance Approvals (ECAs) issued under Part II.1 of the EPA. This application form should not be used for mobile PCB destruction facilities.

For all questions related to preparing or submitting this form or about the Ministry's collection of information related to applying for an ECA, contact:

Client Services and Permissions Branch
135 St. Clair Ave. West, 1st Floor
Toronto Ontario M4V 1P5
Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001.

Instructions

1. Applicants are responsible for ensuring that they complete the most recent application form. Application forms and information about the required supporting documentation and technical requirements are available from the Client Services and Permissions Branch (the address and phone number are provided in the General Information on this page). As well, you can get this information from your local District Office of the Ministry of the Environment and Climate Change, and online at: <https://www.ontario.ca/page/environmental-approvals>
2. A complete application consists of:
 - a completed and signed application form;
 - all required supporting documents and technical requirements identified in:
 - i. this form,
 - ii. Ministry guidance,
 - iii. the Applications for Environmental Compliance Approvals regulation, and
 - payment of the application fee (in Canadian funds) by certified cheque or money order made payable to the Minister of Finance, or credit card payment (for payments up to \$10,000). For Transfer of Review, make the cheque or money order payable to the appropriate municipality. **The Ministry may return or refuse incomplete applications to the applicant.** The Director may require additional information of any application initially accepted as complete.
3. Submit the complete application as follows:
 - One (1) paper copy (unless the application is a Transfer of Review), one (1) electronic copy and the fee to the Director, Client Services and Permissions Branch at the address provided in the General Information on this page.
 - If the application is a Transfer of Review, the applicant must submit two (2) copies of the completed application and the fee to the designated municipal authority.
4. The applicant must also send a copy of the application without the fee to the local Ministry District Office that has jurisdiction over the area where the facilities are located. DO NOT send payment to the District Office.
 - To locate the appropriate local Ministry District Office, visit the Ministry of the Environment and Climate Change website at: <http://www.ontario.ca/environment-and-energy/ministry-environment-and-climate-change-regional-and-district-offices>
5. For Waste Disposal Sites the applicant must also send a copy of the application without the fee to the Clerk's office of the local municipality (both upper and lower tier) in which the facility/proposed facility is located unless the application is for a revocation or an amendment that is environmentally insignificant or the applicant is a municipality. DO NOT send any payment information to the municipality.

Information collected by the Ministry of the Environment and Climate Change is subject to the *Freedom of Information and Protection of Privacy Act (FIPPA)*. If the applicant is of the view that any part of the application is confidential on the grounds that such information constitutes a trade secret or scientific, technical, commercial, financial or labour relations information, please make this known now. Otherwise, the Ministry may make the information available to the public without further notice to the applicant.

It is an offence under the EPA and OWRA to provide false or misleading information in this application and/or accompanying documents.

Complete the sections as shown below.

- Section 1: Applicant Information
- Section 2: Project Information
- Section 3: Regulatory Requirements
- Section 4: Site Information
- Section 5: Facility Information
- Section 6: Supporting Documentation
- Section 7: Payment Information
- Section 8: Authorization

Fields marked with an asterisk (*) are mandatory.

1. Applicant Information

1.1 Applicant Information

Applicant Type *

- Corporation Individual Federal Government Municipal Government
 Partnership Provincial Government Sole Proprietor
 Other (specify) _____

Applicant Name (Legal name of individual or organization as evidenced by legal documents) *

Waste Management of Canada Corporation

Select if Business Name same as Applicant Name

Business Name *

Waste Management of Canada Corporation

Business Number *

1600554

Business Website Address

Primary North American Industry Classification System (NAICS) Code *

562210

Other NAICS Code

Separate list attached?

Yes No

Business Activity Description

✓ Completion Status (1.1 Applicant Information)

1.2 Applicant Physical Address

Address Type? *

Civic Address Survey Address

Civic Address

Unit Number	Street Number *	Street Name *
	1271	Beechwood Road

Survey Address

Enter Lot and Concession or Part and Reference Plan

Lot	Concession	Part	Reference Plan
-----	------------	------	----------------

Municipality/Unorganized Township *	County/District		
Town of Greater Napanee	County of Lennox and Addington		
Province/State *	Country *	Postal/Zip Code *	
Ontario	Canada	K7R 3L1	
Telephone Number *	Fax Number	Mobile Number	Email Address *
613-388-1057 ext.	613 388-2785	226-280-1795	wmcdonou@wm.com

Geo Reference

Description of location	Map Datum	Zone	Accuracy Estimate	Geo-Referencing Method	UTM Easting	UTM Northing
Southwest corner of property	NAD83	18	+/- 10 m	online map	334,808.00	4,902,407.00
Physical location of front door or main entrance	NAD83	18	+/- 10 m	online map	335,356.00	4,902,585.00

✓ Completion Status (1.2 Applicant Physical Address)

1.3 Applicant Mailing Address Select if same as Physical Address

Unit Number	Street Number *	Street Name *
	1271	Beechwood Road

Delivery Designator	Delivery Identifier	Postal Station
---------------------	---------------------	----------------

Municipality/Unorganized Township *	County/District		
Town of Greater Napanee	County of Lennox and Addington		
Province/State *	Country *	Postal/Zip Code *	
Ontario	Canada	K7R 3L1	
Telephone Number *	Fax Number	Mobile Number	Email Address *
613-388-1057 ext.	613 388-2785	226-280-1795	wmcdonou@wm.com

✓ Completion Status (1.3 Applicant Mailing Address)

2. Project Information

2.1 Project Name and Description

Project Name *

Application to Amend ECA Approval No. A371203 - Richmond Landfill - Modifications to Leachate Storage System

Project Description Executive Summary *

The Richmond Landfill operates under Environmental Compliance Approval (ECA) No. A371203 and has an approved fill area of 16.2 hectares within a total site area of 138 hectares. The site has approved capacity of 2,842,700 m³. The landfill ceased to accept waste on June 30, 2011, as per Condition 4.4 of the ECA.

Waste Management of Canada Corporation is requesting an amendment for approval of modifications to the previously approved leachate storage system under Condition 5.5 of the ECA. It is proposed to increase the size of the leachate storage tank from 500 m³ to 3,000 m³ to provide extra storage capacity during seasonal high flow periods.

Other system modifications include, among others:

- modifications to truck loading facility including pumping station PS3
- update forcemain and pumps at PS1, PS2 and PS4 to make them suitable for servicing of larger, above ground leachate storage tank

No changes to tonnages, service area, or hours of operation are requested under this proposal.

Supplemental Application Information (select information button for required information for this field) *

Proposed Start Date: as soon as possible

Copies to:

District Manager, MECP – Kingston District
Senior Environmental Officer, MECP - Kingston District
Senior Project Manager - Waste Management
Group Director - Closed Sites Group, Waste Management
Public Liaison Committee
Mayor and CAO, Town of Greater Napanee
Reeve and CAO, Tyendinaga Township

✓ Completion Status (2.1 Project Name and Description)

2.2 Application Type

Type *

- | | |
|---|---|
| <input type="checkbox"/> New ECA | <input checked="" type="checkbox"/> Amendment to existing ECA |
| <input type="checkbox"/> Revocation of existing ECA | <input type="checkbox"/> Administrative amendment to existing ECA |
| <input type="checkbox"/> Application for renewal of limited operational flexibility | <input type="checkbox"/> Consolidation of existing ECAs |

Is this application for the addition of a new project type to the site or a new municipal waste category/class code to the waste management systems or a new sewage facility type? *

Yes No

Is this application for Transfer of Review? *

Yes No

✓ Completion Status (2.2 Application Type)

2.3 Project Type

Project Type (Select all that apply) *	Limited Operational Flexibility?	Pilot Project?
<input type="checkbox"/> Air - Stationary	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Air - Mobile	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Noise	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Vibration	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Waste Disposal Site - Landfill site	N/A	<input type="checkbox"/>
<input type="checkbox"/> Waste Disposal Site - Transfer site	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Waste Disposal Site - Processing site	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Waste Disposal Site - Composting site	N/A	<input type="checkbox"/>
<input type="checkbox"/> Waste Disposal Site - Thermal Treatment site	N/A	<input type="checkbox"/>
<input type="checkbox"/> Sewage - Industrial	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sewage - Municipal	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sewage - Private	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Waste Management System – General Waste Management System	N/A	<input type="checkbox"/>
<input type="checkbox"/> Waste Management System - Hauled Sewage (Septage)	N/A	<input type="checkbox"/>
<input type="checkbox"/> Waste Management System – Soil Conditioner for transport to a site for Application on Land	N/A	<input type="checkbox"/>
<input type="checkbox"/> Waste Management System - Mobile Waste Processing	N/A	<input type="checkbox"/>
<input type="checkbox"/> Cleanup of contaminated sites - Mobile	N/A	<input type="checkbox"/>
<input type="checkbox"/> Cleanup of contaminated sites - Site specific	N/A	<input type="checkbox"/>

Completion Status (2.3 Project Type)

2.4 Approval Information

Application initiated by *

- Applicant
 S. 20.18 Order (attach copy)
- Condition of existing approval
 Provincial Officer Order (attach copy)
- Inspection Report (attach copy)
 Other (specify) _____

Current Environmental Compliance Approvals that may be changed or amended by this application: N/A

Environmental Compliance Approval Number *	Date of Issuance (yyyy/mm/dd) *
A371203	2017/07/14

Separate list attached?

- Yes No

Proposed Environmental Compliance Approvals related to this project: N/A

Project Type	Ministry Reference Number (if applicable)	Have Submitted	Have not Submitted
		<input type="checkbox"/>	<input type="checkbox"/>

Separate list attached?

- Yes No

Completion Status (2.4 Approval Information)

2.5 Other Approval/Permits for Facility N/A

List all other instruments (approvals or permits) issued by the Ministry of the Environment and Climate Change or applied for under the *Environmental Protection Act*, *Environmental Assessment Act*, *Ontario Water Resources Act* and *Safe Drinking Water Act, 2002* and any Environmental Activity and Sector Registrations that are relevant to this application.

Instrument Type	Instrument Number/ Application Reference Number	Approval or Application Date (yyyy/mm/dd)
Sewage Works	1688-8HZNJG	2012/01/10
Air (LFGCS)	5970-9HKP3V	2014/04/29
Industrial Sewage Works	4-0129-94-956	1995/01/24
Soil Recycling	A710003	1993/12/20
ERT - Settlement Minutes	Case 12-033	2013/04/26

Separate list attached?

Yes No

List all other instruments (approvals or permits) issued by an agency, municipality or another ministry that are relevant to this application.

Issuing Agency	Approval or Permit Name	Approval or Permit Number	Issued Date (yyyy/mm/dd)

Separate list attached?

Yes No

Completion Status (2.5 Other Approval/Permits for Facility)

2.6 Technical Contacts

Technical Contact 1

Area of Responsibility (Select all that apply) *

Air Noise/Vibration Sewage Waste

Name of Technical Contact

Last Name *

Brodzikowski

First Name *

Peter

Company *

WSP Canada Inc.

Address Information

Select if same as Applicant Mailing Address

Civic Address

Unit Number

101

Street Number *

1450

Street Name *

1st Avenue West

Delivery Designator

Delivery Identifier

Postal Station

Municipality/Unorganized Township *

Owen Sound

County/District

Grey

Province/State *

Ontario

Country *

Canada

Postal/Zip Code *

N4K 6W2

Telephone Number *

519-379-0329

ext.

Fax Number

519 376-8008

Mobile Number

519-379-6106

Email Address *

peter.brodzikowski@wsp.com

✓ Completion Status (2.6 Technical Contacts)

3. Regulatory Requirements

3.1 Environmental Bill of Rights (EBR) Requirements

Is this a proposal for a prescribed instrument under the EBR? *

Yes No

If yes, is this proposal exempted from the EBR requirements? *

Yes No

If yes, please check one of the following (Please provide supporting information.)

This proposal has been considered in a substantially equivalent process of public participation. (EBR, 1993, s.30.)

Was the public participation process carried out in fulfillment of the requirements related to an approval under the *Planning Act*?

Yes No

If yes, was the *Planning Act* approval related to a plan of subdivision?

Yes No

This proposal is for an emergency situation. (EBR, 1993, s. 29.)

This proposal is for an amendment to or revocation of an existing Environmental Compliance Approval that is not environmentally significant. (EBR, 1993, s. 22 (3).)

This proposal has been subject to or exempted from EAA Requirements or considered in a decision of a tribunal. (EBR, 1993, s. 32.)

Completion Status (3.1 Environmental Bill of Rights (EBR) Requirements)

3.2 Environmental Assessment Act (EAA) Requirements

Is the proposed undertaking subject to the requirements of the EAA? *

Yes No

If yes, please select one of the following:

The proposed undertaking has fulfilled the requirements of the EAA through the completion of a Class EA process

Name of Class EA _____

Schedule/Group/Category (if applicable) _____

If applicable, please submit a copy of the proof of completion (for example, Notice of Completion).

Was the undertaking subject of a Part II Order request(s)?

Yes No

If yes, please submit a copy of the Director's or Minister's decision letter.

The proposed undertaking has fulfilled all of the requirements for the EAA through:

Select all that apply:

completion of an Environmental Screening Process pursuant to O. Reg. 101/07 of the EAA

completion of an Environmental Screening Process pursuant to O. Reg. 116/01 of the EAA

Was the undertaking subject of an elevation request(s)?

Yes No

If yes, please submit a copy of the Director's decision letter. If an appeal was made to the Director's decision, please also submit a copy of the Minister's decision letter.

completion of an Environmental Screening Process pursuant to O. Reg. 231/08 of the EAA

Was the undertaking subject of an objection(s)?

Yes No

If yes, please submit a copy of the Minister's decision letter.

The proposed undertaking has fulfilled the requirements of the EAA through the completion of an individual Environmental Assessment.

Please submit a copy of the signed Notice of Approval.

Was the undertaking exempted from the requirements of the EAA? *

Yes No

The proposed undertaking has fulfilled the requirements of the EAA through an exemption provided under:

Select one of the following

Section _____ of Ontario Regulation No. _____ or

Declaration/Exemption Order Number _____

If Regulation, Declaration Order or Exemption Order does not refer directly to this undertaking, please provide supporting documentation to explain why it applies to this facility

✓ Completion Status (3.2 *Environmental Assessment Act* (EAA) Requirements)

3.3 Consultation/Notification

Indigenous Consultation:

Is the proposed project/activity on Crown land or does/would it alter access to Crown land? * Yes No

Is the proposed project/activity in an open or forested area where hunting, trapping or plant gathering could occur? * Yes No

Does the proposed project/activity involve the clearing of forested land? * Yes No

Could the proposed project/activity impact a water body (e.g., direct discharge) or alter access to a water body? * Yes No

Could the proposed project/activity impact cultural heritage or archaeological resources, or access to them? * Yes No

Is the proposed project/activity adjacent or close to a First Nation Reserve? * Yes No

Is the applicant aware of any concerns from Indigenous communities about this proposed project/activity? * Yes No

Were there conditions placed, or direction provided, in another (or previous) permit or approval for consultation in relation to this project/activity? * Yes No

Based on the online Guide to Applying for an Environmental Compliance Approval, or direction provided by the ministry or another agency, are Indigenous consultation activities likely required as part of this application process? * Yes No

If Yes to the question above, please describe the consultation/notification activities undertaken for this application or as part of another process (e.g., EAA) in relation to the proposed project/activity, including a summary of the notification/consultation, First Nation and Métis communities contacted, key issues raised and how they were addressed, any changes to the project as a result of these activities, and any planned consultation/notification activities in the future.

Please attach supporting documents (e.g., record of consultation, delegation letter and/or direction provided by the Crown, materials provided to communities, meeting notes and agendas, correspondence with communities as appropriate).

If the applicant has determined that consultation with First Nation and Métis communities is not likely required for the proposed project/activity, please provide a rationale why: *

Notice of this application is being provided to Mohawks of the Bay of Quinte. This First Nation community is identified as a stakeholder in the ECA.

Other Consultation/Notification:

Has the applicant had a ministry pre-application consultation in relation to the proposed project? *

Yes No

If this application is for a waste disposal site, have the neighbour notification requirements been completed? *

Yes No

If yes, please attach a Public Consultation/Notification Report that includes the notice and list of recipients.

If no, please select the reason for not undertaking neighbour notification:

Application is for an administrative amendment

The proposal was subject to public consultation through an Environmental Assessment process

other, please explain _____

Are there any other consultation/notification activities that have been undertaken to fulfill requirements by other legislation or through voluntary efforts? *

Yes No

If yes, please:

1. describe the consultation/notification activities below; and
 2. attach documents describing each of these consultation/notification activities, any changes to the project as a result of these activities and any planned consultation/notification activities in the future.
-

✓ Completion Status (3.3 Consultation/Notification)

4. Site Information

4.1 Site Address or Storage Location

Will the vehicles or equipment be stored at more than one location?

Yes No

(If yes, please enter all vehicle or equipment storage locations below and attach separate list, as necessary.)

Select if same as Applicant Physical Address

Address Type? *

Civic Address Survey Address

Primary Civic Address

Unit Number	Street Number *	Street Name *
	1271	Beechwood Road

Additional Civic Addresses

Unit Number	Street Number	Street Name

Separate list attached?

Yes No

Primary Survey Address

Enter Lot and Concession or Part and Reference Plan

Lot	Concession	Part	Reference Plan

Additional Survey Address

Enter Lot and Concession or Part and Reference Plan

Lot	Concession	Part	Reference Plan

Separate list attached?

Yes No

Municipality/Unorganized Township *	County/District
Town of Greater Napanee	County of Lennox and Addington

Province/State *	Country *	Postal/Zip Code *
Ontario	Canada	K7R 3L1

Non-address Information (includes any additional information to clarify the physical location)

Geo Reference (required)

Select if same as Applicant Physical Geo Reference

Description of location	Map Datum *	Zone *	Accuracy Estimate *	Geo-Referencing Method *	UTM Easting *	UTM Northing *
Southwest corner of property	NAD83	18	+/- 10 m	online map	334,808.00	4,902,407.00
Physical location of front door or main entrance	NAD83	18	+/- 10 m	online map	335,356.00	4,902,585.00

Completion Status (4.1 Site Address or Storage Location)

4.2 Site or Storage Location Information

Site Name *

Richmond Landfill

Days and Hours of Operation *

Mon to Fri 8 a.m. to 5 p.m., Saturday 8 a.m. to 1 p.m.

Ministry of the Environment and Climate Change District Office *

Kingston District Office

Is the site (property) that is the subject of this application owned by the applicant? *

Yes No

If no, please include the owner's name, address and a signed document indicating that the applicant has the authority to install and operate the proposed activity, or store vehicles or equipment on the land.

Is the applicant the operating authority of the site that is the subject of this application? *

Yes No

If no, please include the operating authority name, address and phone number.

Is the site located in an area of development control as defined by the *Niagara Escarpment Planning and Development Act* (NEPDA)? *

Yes No

If yes, please attach a copy of the NEPDA permit for proposed activity.

Is the site within an area covered by the Oak Ridges Moraine Conservation Plan? *

Yes No

If yes, please attach proof of municipal planning approval for the proposed activity/work (for example, zoning by-law, letter from municipality, etc.).

Completion Status (4.2 Site or Storage Location Information)

4.3 Site Zoning and Classification N/A

Current Land Use *

Landfill

Official Plan Designation *

Waste Management

Current Zoning (Please attach zoning map, if available.) *

Waste Management

Adjacent Land Use (select all that apply) *

Industrial Agricultural Commercial Recreational Residential

Other (specify) _____

Adjacent Land Zoning *

Residential, Agricultural

Does the current zoning permit the proposed activity? *

Yes No

Does the applicant have correspondence from the municipality to confirm that the current zoning of the property permits the proposed use? *

Yes No If yes, please attach correspondence from the municipality.

Does the official plan designation support the proposed activity? *

Yes No N/A

Completion Status (4.3 Site Zoning and Classification)

4.4 Point of Entry into Ontario N/A

(for waste management system vehicles that are stored at an address outside of Ontario)

City in closest proximity to the point of entry

Description of Point of Entry

✓ Completion Status (4.4 Point of Entry into Ontario)

4.5 Source Protection/Drinking Water Threats (sewage or waste disposal site applications only) N/A

Check the source protection area(s) where the activity is/will be located *

- | | | |
|---|--|--|
| <input type="checkbox"/> Ausable Bayfield | <input type="checkbox"/> Cataraqui Region | <input type="checkbox"/> Catfish Creek |
| <input type="checkbox"/> Central Lake Ontario | <input type="checkbox"/> Credit Valley | <input type="checkbox"/> Crowe Valley |
| <input type="checkbox"/> Essex | <input type="checkbox"/> Ganaraska | <input type="checkbox"/> Grand River |
| <input type="checkbox"/> Grey Sauble | <input type="checkbox"/> Halton | <input type="checkbox"/> Hamilton |
| <input type="checkbox"/> Kawartha-Haliburton | <input type="checkbox"/> Kettle Creek | <input type="checkbox"/> Long Point |
| <input type="checkbox"/> Lakehead | <input type="checkbox"/> Lake Simcoe and Couchiching/Black River | <input type="checkbox"/> Lower Trent |
| <input type="checkbox"/> Lower Thames Valley | <input type="checkbox"/> Maitland Valley | <input type="checkbox"/> Mattagami |
| <input type="checkbox"/> Mississippi Valley | <input type="checkbox"/> Niagara | <input type="checkbox"/> North Bay Mattawa |
| <input type="checkbox"/> Northern Bruce Peninsula | <input type="checkbox"/> Nottawasaga Valley | <input type="checkbox"/> Rideau Valley |
| <input type="checkbox"/> Raisin Region | <input type="checkbox"/> South Nation | <input type="checkbox"/> Saugeen Valley |
| <input type="checkbox"/> Sault Ste. Marie | <input type="checkbox"/> Severn Sound | <input type="checkbox"/> Sudbury |
| <input type="checkbox"/> St. Clair Region | <input type="checkbox"/> Toronto and Region | <input type="checkbox"/> Otonabee-Peterborough |
| <input type="checkbox"/> Outside a source protection area | <input checked="" type="checkbox"/> Quinte | <input type="checkbox"/> Upper Thames River |

Is the proposed activity located or planned to be located in a vulnerable area identified in a local assessment report source protection plan under the *Clean Water Act, 2006*? *

Yes No

If yes, what is/are the vulnerable area(s)/zone(s)?

- Wellhead Protection Areas Surface Water Intake Protection Zones Highly Vulnerable Aquifers
 Significant Groundwater Recharge Areas

Is the activity being applied for identified as a significant drinking water threat in the assessment report for the local source protection area? *

Yes No

✓ Completion Status (4.5 Source Protection/Drinking Water Threats)

4.6 Receiver of Effluent Discharge (sewage applications only) N/A

Intermediate Receiver Name

Watershed Name

Type of Receiver

- Surface Water Groundwater Other (specify) _____

Has the facility received local Conservation Authority clearance? (for stormwater management facility discharging to the natural environment)

Yes No

If yes, please include a copy of the Conservation Authority clearance.

Final Receivers N/A

Will the proposed activity discharge sewage to any of the following critical receivers?

Lake Simcoe

Rideau River

Detroit River

Great Lakes

Rouge River

Bay of Quinte

Other (specify) _____

Is the receiver a Policy 2 receiver?

Yes No

Does the applicant have a Policy 2 deviation approval from the directors?

Yes No

If yes, please attach a copy of the Director's approval.

Completion Status (4.6 Receiver of Effluent Discharge)

5. Facility Information

5.1 Air Note** - If the application does not have air emissions please proceed to Section 5.2

Information

5.1.1 Summary of Equipment that Discharges Contaminants to the Air

Select Type of Equipment	Number of Pieces of Equipment
<input type="checkbox"/> Combustion equipment that uses natural gas, propane, no. 2 oil, landfill gas or sewage treatment gas for fuel for the purpose of providing comfort heating or emergency power, producing hot water or steam, or heating material in a system that does not discharge to the atmosphere (Total Heat input of all units: ≤ 50,000,000 kJ/hr)	N/A
<input type="checkbox"/> Storage tanks	N/A
<input type="checkbox"/> Welding operations that use a maximum of 10 kilograms of welding rod per hour	N/A
<input type="checkbox"/> Combustion equipment that uses waste-derived fuel for the purpose of providing comfort heating, burning ≤ 15 litres per hour	
<input type="checkbox"/> Heat cleaning ovens used for parts cleaning and associated parts washers or degreasing equipment, other than solvent degreasing equipment	
<input type="checkbox"/> Cooling towers	
<input type="checkbox"/> Equipment used to control emissions of contaminants, other than a fume incinerator	
<input type="checkbox"/> Laboratory fume hoods	
<input type="checkbox"/> Paint spray booths and associated equipment that have a design capacity of up to 8 litres per hour of paint	
<input type="checkbox"/> Grain dryers	
<input type="checkbox"/> Any other equipment not listed above with a flow rate of less than or equal to 1.5 m ³ /second	
<input type="checkbox"/> Any other equipment not listed above with a flow rate of greater than 1.5 m ³ /second	
<input type="checkbox"/> Equipment that is subject to an Environmental Compliance Approval, and from which there is no proposed increase in the discharge of any contaminant that was previously reviewed by the Director.	N/A

✓ Completion Status (5.1.1 Summary of Equipment that Discharges Contaminants to the Air)

5.1.2 Emission Summary and Dispersion Modelling (ESDM) Report

Is the review of an existing, approved ESDM required as part of this proposed application?

Yes No

If yes, identify the number of emission sources described in the existing ESDM Report that emit contaminants in common with the sources forming the subject of the application (if none, enter zero).

Have all of these emission sources been described in an ESDM Report that was previously reviewed as part of an application for an existing Environmental Compliance Approval?

Yes No

✓ Completion Status (5.1.2 ESDM Report)

5.1.3 O. Reg. 419/05 Requirements

Which of the following sections of O. Reg. 419/05 applies to the facility?

s.19 (Schedule 2)

s. 20 (Schedule 3)

Does not apply. Please indicate reason _____

Has an instrument under O. Reg. 419/05 been issued?

Yes No

If yes, what type(s) of instruments (including any notices, orders or approvals) has (have) been issued? (select all that apply)

ss. 4(2) Adjacent Properties

ss. 7(1) Specified Dispersion Models

ss. 8(2) Negligible Sources

ss. 10(2) Operating Conditions

ss. 11(2) Refined Emission Rates

ss. 13.1 Value of Dispersion Modeling Parameters

ss. 13(1) Meteorological Data

ss. 14(6) Area of Modelling Coverage

ss. 20(4) Speed-up Request

ss. 20(5) Speed-up Order

s. 35 Site-specific Standard

ss. 35(14) Site-specific Standard Order

ss. 39(3) Technical Standard Registration (Industry Standard)

ss. 39(4) Technical Standard Registration (Equipment Standard)

Other (list all that have been issued) _____

Is an instrument under O. Reg. 419/05 being requested as part of this application?

Yes No

If yes, what type(s) of notice, order or approval is (are) being requested?

ss. 7(1) Specified Dispersion Models

ss. 8(2) Negligible Sources

ss. 10(2) Operating Conditions

ss. 11(2) Refined Emission Rates

ss. 13(1) Meteorological Data

ss. 14(6) Area of Modelling Coverage

ss. 20(4) Speed-up Request

s. 32 Request for a Site-specific Standard Order

ss. 39(1)(a) Application for Technical Standard Registration (Industry Standard)

ss. 39(1)(b) Application for Technical Standard Registration (Equipment Standard)

Other (list all that have been issued) _____

Please attach the form(s) requesting the notice(s) and/or order(s) and any additional supporting information.

Has an s. 30 Upper Risk Threshold (Schedule 6) been exceeded?

Yes No

If yes, please include additional supporting information.

Is the facility located in a multi-tenant building?

Yes No

If yes, additional information may be requested.

Are all of the contaminants to which the application relates represented in the Ministry of the Environment and Climate Change publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution- Local Air Quality" or have they been screened out based on the publication titled " Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality"?

Yes No

(If no, please attach Supporting Information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no Ministry POI Limit - Supplement to Application for Approval, EPA S. 9).

✓ Completion Status (5.1.3 O. Reg. 419/05 Requirements)

✓ Completion Status (5.1 Air)

5.2 Noise Note** - If the application does not have noise emissions please proceed to Section 5.3

5.2.1 Noise Assessment Information

Has an Acoustic Assessment Report (AAR) been completed in relation to the proposed project/activity?

Yes No

If yes, please attach the Acoustic Assessment Report

Does the AAR show that applicable limits are met?

Yes No

If no, please attach the Acoustic Assessment Report including the Noise Abatement Action Plan

If no, is the application eligible for Primary or Secondary Noise Screening?

Yes No

Note that if the proposed activity is not eligible for either of the screenings, an AAR must be submitted.

If yes, is the proposed activity eligible for the Primary Noise Screening?

Yes No

If yes, is the actual separation distance between the facility and the nearest noise sensitive point of reception (POR) greater than the minimum required separation distance calculated from the Primary Noise Screening?

Yes No

If yes, please attach the Primary Noise Screening form and supporting documentation.

Note that if the Primary Noise Screening is not successful then the applicant may attempt to proceed with the Secondary Noise Screening.

If no, does the Secondary Noise Screening Form show that the applicable sound level limits are met?

Yes No

If yes, please attach the Secondary Noise Screening Form and supporting documentation.

Note that if meeting the applicable sound level limits cannot be demonstrated, then an AAR must be submitted.

✓ Completion Status (5.2.1 Noise Assessment)

5.2.2 Equipment Subject to Noise Review

Description	Number of Pieces of Equipment
<input type="checkbox"/> Arc Furnaces	
<input type="checkbox"/> Asphalt Plants	
<input type="checkbox"/> Blow-down Devices	
<input type="checkbox"/> Co-Generation Facilities	
<input type="checkbox"/> Crushing Operations	
<input type="checkbox"/> Flares	
<input type="checkbox"/> Gas Turbines	
<input type="checkbox"/> Pressure Blowers or Large Induced Draft Fans (flow rate > 47 m ³ /second or static pressure > 1.25 kilopascals)	
<input type="checkbox"/> Any other equipment not listed above that has not previously been reviewed by the Director in connection with an application for an Environmental Compliance Approval with respect to the facility	
<input type="checkbox"/> Any other equipment not listed above that is identical to equipment for which a noise assessment was previously reviewed by the Director in connection with an application for an Environmental Compliance Approval with respect to the facility	

Completion Status (5.2.2 Equipment Subject to Noise Review)

Completion Status (5.2 Noise)

5.3 Sewage Works Information

Note** - If the application does not contain Sewage Works please proceed to Section 5.4

5.3.1 Facility Type - Sewage Works

Select the type of facility that is the subject of the application (select all that apply).

- Sewage Treatment Plant (STP) Stormwater Management Facility

For the following, the applicant must complete and attach the relevant sections of the pipe data form:

- Storm Sewers Ditches Combined Sewers
 Force mains Sanitary Sewers Pumping Station

Sewage Treatment Plant Details

- Primary Secondary Tertiary
 Receives septage Constructed/Engineered Wetlands On-site system

Lagoons (check all that apply below)

- Septage Municipal Other (specify) _____

Facility Type

- Municipal or private facility
 Category: New 1 2 3 4

Please indicate the maximum design capacity of the municipal or private sewage treatment plant:

- ≤ 4,500 m³/day > 4,500 m³/day

- Facility for the treatment of leachate
 Category: New 1 2 3 4

Facility for the treatment of industrial process wastewater

Category: New 1 2 3 4

Facility for the disposal of non-contact cooling water

Subsurface disposal

Please indicate the design capacity of the subsurface disposal:

$\leq 15\text{m}^3/\text{day}$ $> 15\text{m}^3/\text{day}$ and $< 50\text{m}^3/\text{day}$ $> 50\text{m}^3/\text{day}$

Stormwater Management Facility Details

Category: New 1 2 3 4

Pond Type

Wet Pond Dry Pond Other (specify) _____

What is the drainage area (in hectares) associated with the proposed activity? _____

Does the applicant own all, or part of the drainage area?

Applicant owns all of the drainage area

Applicant owns part of the drainage area

Applicant does not own the drainage area

For the drainage area land that the applicant does not own, does the applicant have an agreement with the owner(s) of the drainage area?

Yes No

What is the predominant type of land use in the drainage area?

Rural or Agricultural Commercial or Industrial Residential

Is a Hydrogeological Assessment required?

Yes No

(If yes, please attach the hydrogeological assessment.)

Is a review of effluent criteria assessment for stormwater management, cooling water or soil remediation facilities required?

Yes No

(If yes, please attach the final effluent criteria accepted by the Regional Office of the Ministry.)

Is a review of effluent criteria assessment for municipal or private sewage, industrial process wastewater or leachate treatment plant required?

Yes No

(If yes, please attach the final effluent criteria accepted by the Regional Office of the Ministry.)

Note: The Hydrogeological Assessment, effluent criteria, and surface water assessment must be discussed and prepared with the Ministry's regional technical support section during a pre-application meeting(s) and consultation(s) with the Ministry. A proof of concurrence from technical support must be included as part of the ECA application package.

✓ Completion Status (5.3.1 Facility Type - Sewage Works)

5.3.2 Servicing

The works will provide sewage servicing for (select all that apply):

Residential

Residential Type

Subdivision

Condominium

Institutional

Other (specify) _____

Is there a Municipal Responsibility Agreement in place?

Yes No N/A

(If yes, please attach a copy of the Municipal Responsibility Agreement.)

Commercial

Commercial Type

Hotel, Motel, Inn

Campground, Park

Rental Cabins

Resort

Shopping Malls

Restaurant

Highway Service Station/Gas Bars Other (specify) _____

Industrial

Describe _____

✓ Completion Status (5.3.2 Servicing)

5.3.3 Sewage Servicing for Waste Disposal/Landfill Sites

Does/Will the sewage treatment facility receive waste disposal/landfill site leachate?

Yes No

If yes, please identify the site(s) below.

Name of Site Contributing Leachate	Environmental Compliance Approval Number	Volume of Leachate (m ³)
1.		

✓ Completion Status (5.3.3 Sewage Servicing for Waste Disposal/Landfill Sites)

✓ Completion Status (5.3 Sewage Works)

5.4 Waste Disposal Site

Note** - If the application is not for a waste disposal or processing site please proceed to Section 5.5

5.4.1 Facility Description - Waste Disposal Site (information on the nature of the proposed business or activity at this site)

Service Area *

Province of Ontario

Total Area of Site (hectares) *

138

Monitoring (select all that apply) *

Groundwater

Surface Water

Landfill Gas

Leachate

None

Other (specify) _____

Type(s) of waste to be accepted at this site (select all that apply) *

Subject:

Non-subject:

Hazardous Waste

Municipal (non-hazardous)

Liquid Industrial Waste

Other Liquid Waste

Municipal waste categories to be accepted at this site (select all that apply) *

All Categories

Contaminated Soil

Domestic Sources

IC & I Sources

Source Separated Organics

Tires

Leaf and Yard Waste

Wood Waste

Blue Box Materials

Other (specify) _____

Other liquid waste categories to be accepted at this site (select all that apply)

- Processed Organics
 Hauled Sewage
 Waste from Food Processing/Preparation Operations
 Other (specify) _____

Hazardous Waste / Liquid Industrial Waste

Class Code	Class Code	Class Code	Class Code	Class Code

✓ Completion Status (5.4.1 Facility Description - Waste Disposal Site)

5.4.2 Waste Transfer/Processing/Composting - Complete this information if waste transfer and/or processing and/or composting take(s) place at this facility

Waste Type to be Transferred or Processed

- Hazardous waste or liquid industrial waste

Design Capacity

- ≤ 100 tonnes per day
 > 100 tonnes per day

- Waste other than hazardous waste and liquid industrial waste

Design Capacity

- ≤ 100 tonnes per day
 > 100 tonnes per day

Change to Operations

- No Change Proposed
 Change does not require fundamental design review
 Change requires fundamental design review

Liquid Waste

Maximum Storage Capacity (m³)

Hazardous	Liquid Industrial	Other Liquid Waste
-----------	-------------------	--------------------

Maximum Residual for Final Disposal (m³)

Hazardous		Liquid Industrial Waste		Other Liquid Waste	
Daily	Annually	Daily	Annually	Daily	Annually

Solid Waste

Maximum Storage Capacity (tonnes)

Hazardous	Non-Hazardous
-----------	---------------

Maximum Residual for Final Disposal (tonnes)

Hazardous		Non-hazardous	
Daily	Annually	Daily	Annually

Maximum Amount of Waste to be Received Daily

Liquid (m ³)			Solid (tonnes)	
Hazardous	Liquid Industrial	Other Liquid Waste	Hazardous	Non-hazardous

✓ Completion Status (5.4.2 Waste Transfer/Processing/Composting)

5.4.3 Thermal Treatment Facility - Complete this information if thermal treatment takes place at this facility

Waste Type for Thermal Treatment

Hazardous waste or liquid industrial waste

Design Capacity

≤ 100 tonnes per day > 100 tonnes per day

Waste other than hazardous waste and liquid industrial waste

Design Capacity

≤ 100 tonnes per day > 100 tonnes per day

Change to Operations

No Change Proposed

Change does not require fundamental design review

Change requires fundamental design review

Liquid Waste

Maximum Storage Capacity (m³)

Hazardous	Liquid Industrial	Other Liquid Waste
-----------	-------------------	--------------------

Maximum Residual for Final Disposal (m³)

Hazardous		Liquid Industrial Waste		Other Liquid Waste	
Daily	Annually	Daily	Annually	Daily	Annually

Solid Waste

Maximum Storage Capacity (tonnes)

Hazardous	Non-Hazardous
-----------	---------------

Maximum Residual for Final Disposal (tonnes)

Hazardous		Non-hazardous	
Daily	Annually	Daily	Annually

Maximum Amount of Waste to be Received Daily

Liquid (m ³)			Solid (tonnes)	
Hazardous	Liquid Industrial	Other Liquid Waste	Hazardous	Non-hazardous

Maximum Daily Feed Rate (tonnes/m³)

Hazardous Waste (tonnes)	Non-hazardous Waste (tonnes)	Liquid Industrial Waste (m ³)	Other Liquid Waste (m ³)
--------------------------	------------------------------	---	--------------------------------------

Completion Status (5.4.3 Thermal Treatment Facility)

5.4.4 Landfill Site - Complete this information if this facility operates as a landfill site

Waste Types to be accepted at the Landfill *

Hazardous waste or liquid industrial waste

Design Capacity

≤ 40,000 m³ > 40,000 m³ ≤ 3 million m³ > 3 million m³

Waste is only uncontaminated tree stumps, leaves, branches, concrete and rocks

Design Capacity

- ≤ 40,000 m³ > 40,000 m³ ≤ 3 million m³ > 3 million m³

Waste other than hazardous waste and liquid industrial waste, other than uncontaminated tree stumps, leaves, branches, concrete and rocks.

Design Capacity *

- ≤ 40,000 m³ > 40,000 m³ ≤ 3 million m³ > 3 million m³

Change to Operations *

- No Change Proposed
 Change does not require fundamental design review or hydrogeological assessment
 Change requires fundamental design review or hydrogeological assessment

Note: The Hydrogeological Assessment, effluent criteria, and surface water assessment must be discussed and prepared with the Ministry's regional technical support section during a pre-application meeting(s) and consultation(s) with the Ministry. A proof of concurrence from technical support must be included as part of the ECA application package.

Maximum Landfilling Capacity (m³)

Hazardous Waste	Non-hazardous Waste *	Liquid Industrial Waste	Other Liquid Waste *
	2,842,700		0

Maximum Amount of Waste to be Received

Hazardous Waste (tonnes)		Non-hazardous Waste (tonnes)		Liquid Industrial Waste (m ³)		Other Liquid Waste (m ³)	
Daily	Annually	Daily *	Annually *	Daily	Annually	Daily *	Annually *
		400	125,000			0	0

Landfill Information

Area to be Landfilled (hectares) *	16.2	Total Site Area including Buffer Area (hectares) *	138
Estimated Date of Closure (yyyy/mm/dd) *	2011/06/30	Population Served	13,600,000

Control Types (select all that apply) *

- Leachate Collected and Treated Off-site Leachate Collected and Treated On-site
 Landfill Gas Collected and Flared Landfill Gas Collected for Energy Generation
 Other (specify) _____

- Completion Status (5.4.4 Landfill Site)
 Completion Status (5.4 Waste Disposal Site)

5.5 Waste Management Systems (Except Mobile Waste Processing)

Note**- If the application is not for a waste management system please proceed to Section 5.7.

5.5.1 Fleet List (all vehicles and equipment to be used in the operation of the Waste Management System)

Year	Make	Model	Vehicle Identification Number (VIN)	License Plate Number	Province/State

Separate list attached?

- Yes No

- Completion Status (5.5.1 Fleet List)

5.5.2 Vehicle Information

Are all the vehicles to be used owned by the applicant?

- Yes No

If no, please include additional information about ownership arrangements for each vehicle not owned by the applicant.

Has a minimum of \$1,000,000.00 liability insurance been obtained for all vehicles for which it is required?

- Yes No

Describe any additional insurances that are held (for example, environmental impairment liability insurance).

✓ Completion Status (5.5.2 Vehicle Information)

5.5.3 General Waste Management System

Type(s) of Waste to be Transported by the General Waste Management System (select all that apply)

Subject:

- Hazardous Waste
 Liquid Industrial Waste

Non-subject:

- Municipal (non-hazardous)
 Other Liquid Waste

Non-subject Categories to be Transported by the General Waste Management System (select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Blue Box Materials | <input type="checkbox"/> Domestic Sources |
| <input type="checkbox"/> Commercial | <input type="checkbox"/> Non-Hazardous Solid Industrial |
| <input type="checkbox"/> Leaf/Yard Waste | <input type="checkbox"/> Wood Waste |
| <input type="checkbox"/> Spill Cleanup Material | <input type="checkbox"/> Contaminated Soil |
| <input type="checkbox"/> Tires | <input type="checkbox"/> Asbestos Waste in Bulk |
| <input type="checkbox"/> Waste Wash Water | <input type="checkbox"/> Grease Trap Waste |
| <input type="checkbox"/> Waste from Food Processing/ Preparation Operations | <input type="checkbox"/> Dewatered Catch Basin Clean-out Material |
| <input type="checkbox"/> Processed Organics (not for land application) | <input type="checkbox"/> Other (specify) _____ |

Subject Waste Categories to be Transported by the General Waste Management System

Hazardous Waste / Liquid Industrial Waste

Class Code	Class Code	Class Code	Class Code	Class Code

Separate list attached?

- Yes No

- All drivers are/will be trained in accordance with O. Reg. 347 and all pertinent environmental legislation.
 Each vehicle used to transport a specific subject waste class is suitable for that waste transportation in order to protect the health and safety of the public and the natural environment.

Note: For transporters of pathological waste and PCBs (waste classes 243 and 312) Operations Manual and Driver Training Manual must also be attached and Financial Assurance must be provided.

General Waste Management System - Disposal Site Information

What is the Final Destination of Waste to be Transported by the General Waste Management System? (select all that apply)

- A disposal site in Ontario approved by the Ministry of the Environment and Climate Change
 Disposal sites outside of Ontario approved by another regulatory agency

List the destination province(s)/state(s)

Province/State	Province/State	Province/State	Province/State

✓ Completion Status (5.5.3 General Waste Management System)

5.5.4 Soil Conditioner Waste Management System (includes non-agricultural source material (NASM) that is waste and processed organic waste (biosolids) destined for land application only)

Has the applicant received recommendation from Biosolids Utilization Committee (BUC) for land application of processed organic waste (biosolids) or NASM?

Yes If yes, please provide a copy of the BUC recommendation.

No If no, please clarify _____

Spreading equipment (land application only)

Equipment Type	Make and Model	Description

Separate list attached?

Yes No

Method of system operation (land application only)

Estimated quantity to be handled on an annual basis (cubic metres/litres/tonnes)

Please describe the loading procedures:

Please describe the spreading methods:

Please describe the storage facilities (tanks, lagoons, etc.):

Soil Conditioner Waste Management System - Land Application Sites

What is the final destination of waste to be transported by the soil conditioner waste management system? (must include for land application only)

Non-agricultural land

Agricultural land

Both agricultural and non-agricultural land

✓ Completion Status (5.5.4 Soil Conditioner Waste Management System)

5.5.5 Hauled Sewage (Septage) Waste Management System

Type(s) of hauled sewage (septage) to be transported

Portable toilet waste

Septic tank waste

Holding tank waste

Other (specify) _____

Spreading equipment (land application only)

Equipment Type	Make and Model	Description

Separate list attached?

Yes No

Does this system include in-transit storage?

Yes No

If yes:

a) What is the duration of storage? Please specify (Maximum period of in-transit storage should not exceed more than two weeks):

b) Is the storage tank a prefabricated tank with the capacity < 100,000 L, designed and constructed in accordance with a Class 5 Sewage System under the Ontario Building Code or CAN/CSA B66-05?

Yes No If no, please provide a copy of the design of the storage tank signed and dated by a professional engineer.

Does this system include in-transit processing?

Yes No

If yes:

a) Location of in-transit processing:

In Vehicle In-storage Tank

b) Describe the method of in-transit processing:

Does this system use barge/boat to transport hauled sewage (septage)?

Yes No

If yes:

a) Has a minimum of \$1,000,000.00 liability insurance been obtained for the barge/boat for which it is required?

Yes No

b) Does the barge/boat have an engine of 10 horsepower (hp) or more, for which a commercial vessel license is required from Transport Canada?

Yes No If yes, please include a copy of the commercial vessel license.

Note: For in-transit storage or processing the applicant must include with the application the consent of the landowner, if the landowner is different than the applicant. A financial assurance estimate must be provided by applicants using in-transit storage or using in-transit processing where processing is conducted in the in-transit storage tanks.

Hauled Sewage (Septage) Waste Management System - Land Application Sites N/A

List the Environmental Compliance Approval Number(s) of all disposal site(s) approved by the Ministry of the Environment and Climate Change for land application of hauled sewage in association with this waste management system.

Instrument Type	Instrument Number	Approval or Application Date (yyyy/mm/dd)

✓ Completion Status (5.5.5 Hauled Sewage (Septage) Waste Management System)

✓ Completion Status (5.5 Waste Management Systems (Except Mobile Waste Processing))

5.6 Waste Management System - Mobile Waste Processing

Note**: If the application is not for the use and operation of mobile waste processing equipment, proceed to Section 5.7

5.6.1 Mobile Waste Management System Process and Equipment Description

Type(s) of Waste to be Processed (select all that apply)

Subject:

- Hazardous Waste
- Liquid Industrial Waste

Non-subject:

- Municipal (non-hazardous)
- Other Liquid Waste

Type of Waste to be Processed by the Unit(s)	Number of Units	Financial Assurance (per unit)	Financial Assurance Required
Non-hazardous Solid Waste		\$5,000	
Hazardous Waste		\$20,000	
Liquid Industrial Waste		\$20,000	
Other Liquid Waste		\$20,000	
Multiple Types of Waste from the Categories Above		\$20,000	

Total Financial Assurance

Municipal (non-hazardous) Waste Categories to be Processed (select all that apply)

- Contaminated Soil at Cleanup Site
- Wood Waste
- Construction and Demolition Waste
- Asbestos Waste
- Tires
- Domestic Waste
- Other (specify) _____

Other Liquid Waste Categories to be Processed (select all that apply)

- Hauled Sewage
- Waste from Food Processing/Preparation Operations
- Processed Organic
- Other (specify) _____

Hazardous / Liquid Industrial Waste Types to be Processed

Class Code	Class Code	Class Code	Class Code	Class Code

Completion Status (5.6.1 Mobile Waste Management System Process and Equipment Description)

5.6.2 Equipment Information - Please attach a separate list if more space is required.

Equipment List

Unit No.	Unit Type	Process Description	Equipment Type	Make	Model	Serial Number	Equipment Capacity (including unit of measurement)

Separate list attached?

- Yes No

Completion Status (5.6.2 Equipment Information)

Completion Status (5.6 Waste Management System - Mobile Waste Processing)

5.7 Cleanup of Contaminated Sites

Note** - If the application is not for a cleanup of a contaminated site please proceed to Section 6.

Type of Cleanup

- In-situ
- Ex-situ
- Both

Contaminated media to be treated:

Groundwater

Surface water

Sediment

Soil

Waste Type

Subject:

Hazardous Waste

Liquid Industrial Waste

Non-subject:

Municipal (non-hazardous)

Other Liquid Waste

Type of discharge

Air

Groundwater

Storm or sanitary

Surface water

Noise

Completion Status (5.7 Cleanup of Contaminated Sites)

6. Supporting Documentation and Technical Requirements

6.1 General

This is a list of supporting information to this application and is subject to the FIPPA and EBR.

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Proof of legal name	Optional	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Enhanced EBR description	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Provincial Officer Notice	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Inspection Report	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Detailed project and process description	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Pre-application Consultation Record	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Legal Survey(s)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Site Plan(s)	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Scaled area location plan(s) with geo-referencing points identified	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Documentation in support of EBR Exception	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Proof of Compliance with EAA Requirements	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Proof of Consultation/Notification	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Financial Assurance Estimate	Optional	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not applicable	<input type="checkbox"/>
Name, address and consent of land/site owner for the installation and operation of the proposed activity or storage location of equipment or vehicle	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Name, address and phone number of the Operating Authority	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of NEPDA Permit	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy/Proof of Municipal Planning Approval (ORMCA, general)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Municipal Zoning Confirmation Letter	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Zoning map	Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not available	<input type="checkbox"/>
Conservation Authority Clearance	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Director's approval for Policy 2 Deviation	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Application Fee	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
A copy of this application has been sent to the Ministry Local District Office	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.1 General)

6.2 Air

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Emission Summary and Dispersion Modelling (ESDM) Report prepared in accordance with s. 22 and of O. Reg. 419/05 (including signed checklist)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Electronic copy of the Dispersion Modelling input and output files prepared in accordance with s. 26 of O. Reg. 419/05	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Supporting Information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no Ministry POI Limit - Supplement to Application for Approval, EPA S. 9	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copies of forms requesting O. Reg. 419/05 instruments and supporting documentation	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.2 Air)

6.3 Noise and Vibration

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Primary Noise Screening		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Secondary Noise Screening	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Acoustic Assessment Report including signed checklist (AAR)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Vibration Assessment Report	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Noise Abatement Action Plan	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.3 Noise and Vibration)

6.4 Sewage Works

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Signed Municipal Responsibility Agreement	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Detailed description of the proposed activities/works	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Notice of Completion for the Environmental Study Report (ESR)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Design Brief	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Preliminary Engineering Report	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Final Plans	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Engineering Drawings and Specifications	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Sewage quantity and quality characteristics	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Stormwater Management Report	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Stormwater Management Plan	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Hydrogeological Assessment with proof of concurrence from the Ministry's Regional technical support section	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Environmental Impact Analysis	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Final effluent criteria accepted with proof of concurrence from the Ministry's Regional Technical Support Section	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Sewage Works Limited Operational Flexibility Requirements - Engineer's Report	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Sewage Works Limited Operational Flexibility Requirements - Declarations	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Pipe Design Data Form	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.4 Sewage)

6.5 Waste Disposal Sites

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Design and Operations Report	Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Design Brief - Attachment 2	<input type="checkbox"/>
Stormwater Management Report	Optional	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not applicable	<input type="checkbox"/>
Hydrogeological Assessment with proof of concurrence from the Ministry's Regional technical support section	Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not applicable	<input type="checkbox"/>
Assessment of Physical and Water Use Conditions	Optional	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not applicable	<input type="checkbox"/>
Waste Limited Operational Flexibility Requirements - Engineer's Report	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Waste Limited Operational Flexibility Requirements - Declarations	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of notification to adjacent landowners	Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.5 Waste Disposal Sites)

6.6 Waste Management Systems

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Proof of vehicle and/or equipment ownerships	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Complete Fleet List (list of all vehicles, trailers and equipment used)	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of the Liability Insurance for all vehicles for which insurance is required	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of BUC recommendation	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of the storage tank design	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Copy of commercial vehicle licence	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Description of the physical location where the vehicles transporting biomedical waste are being disinfected	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Drivers Training Manual (for PCB/ Biomedical Waste)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
A copy of the applicant's Operation Plan including detailed packaging and biomedical waste handling methods	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Contingency and Emergency Procedures Plan (for PCB/ Biomedical Waste/Hauled Sewage (Septage))	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.6 Waste Management Systems)

6.7 Mobile Waste Processing N/A

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Design and Operations Report - Mobile Waste Processing of General Waste	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Design and Operations Report - Mobile Waste Processing of Liquid Waste	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.7 Mobile Waste Processing)

6.8 Cleanup of Contaminated Sites N/A

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Design Report for Cleanup of Contaminated Sites	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
Other (please describe)	Optional	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.8 Cleanup of Contaminated Sites)

6.9 Other Attachments N/A

Title	Reference	Confidential
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

Is there an attachment of an additional list of attachments?

Yes No

If there is not enough space to list all of the attachments included in this application package, please include an additional listing of these attachments.

✓ Completion Status (6.9 Other Attachments)

6.10 Confidentiality

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential
Explanation for confidentiality	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>

✓ Completion Status (6.10 Confidentiality)

Please note: The collection of personal information in this application is necessary to administer the Ministry's approvals program, which is authorized pursuant to the *Environmental Protection Act* and the *Ontario Water Resources Act*. The personal information collected in this application will be used to administer the program, including for the purposes of the Ministry's

compliance and enforcement activities under the aforementioned acts, and for the purposes of making information in respect of Environmental Compliance Approvals available to the public with the exception of payment information. Questions about the collection of the information can be directed to a Client Service Representative, Client Services and Permissions Branch, 135 St. Clair Avenue West, 1st Floor, Toronto ON M4V 1P5; Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001 or Fax 416-314-8452.

7. Authorization

7.1 Statement of the Applicant

I am authorized to prepare and submit this application and to make this certification. I have reviewed the complete application and I have made all inquiries that are necessary to declare to the best of my knowledge, information and belief:

- The information contained in this application is complete and accurate.
- The Technical Contact(s) identified in this application has/have been authorized to prepare certain technical material, and act on behalf of the applicant to discuss this application with the Ministry of the Environment and Climate Change and to provide additional information about this application to the Ministry on request.
- The information provided to the Technical Contact(s) in relation to this application is complete and accurate.

Name of Signing Authority (Please print) *

William McDonough

Title *

Senior Project Manager

Telephone Number

613-388-1057

ext.

Mobile Number

226-280-1795

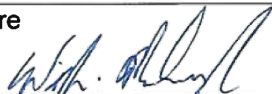
Fax Number

613-388-2785

Email Address

wmcdonou@wm.com

Signature



Date (yyyy/mm/dd)

2020/04/30

✓ Completion Status (7.1 Statement of the Applicant)

7.2 Statement of the Municipality N/A

I, the undersigned hereby declare on behalf of the Municipality, that the Municipality has no objection to the construction of the works in the Municipality.

Name (Please print)

Title

Name of Municipality

Signature

Date (yyyy/mm/dd)

✓ Completion Status (7.2 Statement of the Municipality)

7.3 Statement of Technical Contacts

Technical Contact 1

I have been authorized by the applicant to prepare the technical materials for the area(s) of responsibility identified in section 2.6 that are included in the application. I have reviewed those technical materials and I have made all inquiries that are necessary to declare to the best of my knowledge, information and belief:

- The technical materials contained in this application in respect of the area(s) of responsibility identified in section 2.6 are complete and accurate.
- I have the relevant education and experience necessary to provide this certification.

Name of Technical Contact (Please print) *

Peter Brodzikowski

Signature



Date (yyyy/mm/dd)

2020/04/30

✓ Completion Status (7.3 Statement of Technical Contacts)

8. Payment Information - Application for an Environmental Compliance Approval

Please Note:

1. If this form has been completed by hand, the fee calculations must be completed and attached separately. The supplemental fee calculations do not need to be included if this form has been completed electronically.
2. If this form has been completed electronically, the fees for this application have been calculated based on the information provided. The Ministry may require additional information during the review of the application that could impact the total fee required.
3. All fees should be paid in Canadian funds, payable to the *Minister of Finance*, except fees for *Transfer of Review*, which are payable to the local municipality.
4. Credit card payments are accepted for payments under \$10,000 only. **Never email credit card information.**
5. If payment is being made by certified cheque or money order, please staple the payment to this page.
6. The information collected in this section of the form is considered confidential and will only be used to process the application fee.
7. To protect credit card information, do not submit this page containing payment information via e-mail or any other electronic means if it includes credit card information. Credit card information should be submitted only by mail, facsimile, or hand-delivery. Applications containing payment information that are submitted via e-mail or any other electronic means will not be processed and will be destroyed.

Do not include this page in the copies of the application that are being provided to the Local Ministry District Office.

Amount Enclosed

1,400

Method of Payment *

Certified Cheque Money Order VISA MasterCard

Credit Card Information (if paying by VISA or MasterCard)

Name of Cardholder (Please print) *

Peter S Brodzikowski

Card Number *

Expiry Date (mm/yy) *

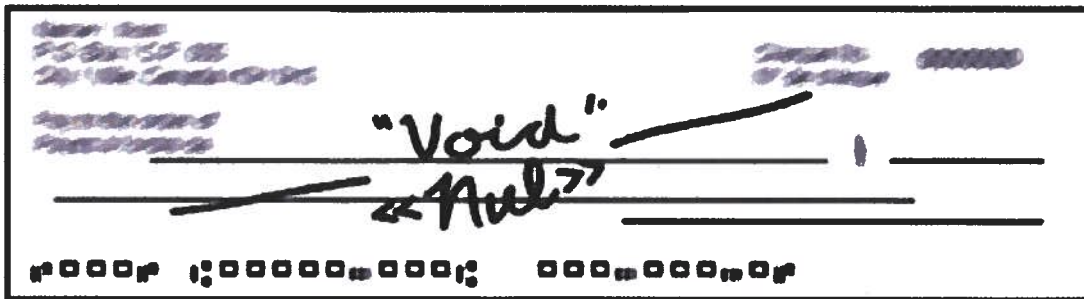
10/22

Card Holder's Signature

Date (yyyy/mm/dd)

X Completion Status (8 Payment Information)

If paying by certified cheque or money order, please attach it here.



Application Summary

For Office Use Only

Reference Number	Payment Received (\$)	Date (yyyy/mm/dd)	Initials

Applicant Name

Waste Management of Canada Corporation

Project Name

Application to Amend ECA Approval No. A371203 - Richmond Landfill - Modifications to Leachate Storage System

Project Description Executive Summary

The Richmond Landfill operates under Environmental Compliance Approval (ECA) No. A371203 and has an approved fill area of 16.2 hectares within a total site area of 138 hectares. The site has approved capacity of 2,842,700 m³. The landfill ceased to accept waste on June 30, 2011, as per Condition 4.4 of the ECA.

Waste Management of Canada Corporation is requesting an amendment for approval of modifications to the previously approved leachate storage system under Condition 5.5 of the ECA. It is proposed to increase the size of the leachate storage tank from 500 m³ to 3,000 m³ to provide extra storage capacity during seasonal high flow periods.

Other system modifications include, among others:

- modifications to truck loading facility including pumping station PS3
- update forcemain and pumps at PS1, PS2 and PS4 to make them suitable for servicing of larger, above ground leachate storage tank

No changes to tonnages, service area, or hours of operation are requested under this proposal.

Supplemental Application Information

Proposed Start Date: as soon as possible

Copies to:

District Manager, MECP – Kingston District
Senior Environmental Officer, MECP - Kingston District
Senior Project Manager - Waste Management
Group Director - Closed Sites Group, Waste Management
Public Liaison Committee
Mayor and CAO, Town of Greater Napanee
Reeve and CAO, Tyendinaga Township

Application Status

Section	Completed?			
1. Application Information	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
2. Project Information	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
3. Regulatory Requirements	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
4. Site Information	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5. Facility Information	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
6. Supporting Documentation	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7. Payment Information	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
8. Authorization	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No

Fee Summary

Activity	Amount (\$)
Administrative Processing	\$200.00
Review of EPA s. 9 activities	\$0.00
Review of EPA s. 27 activities	\$1,200.00
Review of OWRA s. 53 activities	\$0.00
Total Fee	\$1,400.00

The Ministry may request additional fees upon review of this application.

If this form is submitted in print version only and the smart calculation feature is not used, please attach the fee calculation separately.

ATTACHMENT

1 PROOF OF LEGAL NAME

Ministry of
Consumer and
Business Services

Ministère des Services
aux consommateurs
et aux entreprises



Registration Division
Companies and Personal
Property Security Branch
393 University Ave., Suite 200
Toronto ON M5G 2M2

Division de l'enregistrement
Direction des compagnies et
des sûretés mobilières
393, av. University, bureau 200
Toronto ON M5G 2M2

January 8, 2004

Corporations Information Act

Your Reporting Requirements

WASTE MANAGEMENT OF CANADA
CORPORATION
NICOLA QASEM
20 SIMMONDS DRIVE
DARTMOUTH NS B3B 1R3

This is your Ontario Corporation Number (OCN)

1600554

Regulations require that this number is stated in all notices submitted under the *Corporations Information Act*. This number must be stated in ALL correspondence with the Companies and Personal Property Security Branch.

Initial Return

The *Corporations Information Act* states that every extra-provincial corporation, other than a corporation of a class exempted by the Regulations, that begins to carry on business in Ontario shall file an Initial Return, Form 2, within sixty (60) days after the date the corporation begins to carry on business in Ontario. The Initial Return you have just filed has generated an Ontario Corporation Number and created a file for the public record for your corporation.

Notice of Change

In addition to the Initial Return you have recently filed, you are required to file a Notice of Change for every change in the information within 15 days after the change or changes take place. There is no fee for filing these notices.

Forms

Forms may be obtained from the Ministry at the above noted address or by calling (416) 314-8880, 1-800-361-3223 or TDD (416) 212-1476. Forms are also available on the Ministry's website at www.cbs.gov.on.ca. To access the forms, select the 'Business Information' option at the top of the Ministry's home page.

Business Name

- (a) No corporation shall carry on business in Ontario or identify itself to the public in Ontario by a name other than its corporation name unless the name is first registered. The appropriate registration form may be obtained from the Companies and Personal Property Security Branch or by calling one of the above noted telephone numbers.
- (b) A corporation which has registered and uses a name other than its corporate name is required to set out its corporate name and all registered business names on all contracts, invoices, negotiable instruments and orders for goods or services.

Penalties

Sections 13 and 14 of the *Corporations Information Act* provide penalties for contravening the Act or Regulations.

Section 18(1) of the Act provides that a corporation that is in default of a requirement under this Act to file a notice or that has unpaid fees or penalties is not capable of maintaining a proceeding in a court in Ontario in respect of the business carried on by the corporation except with leave of the court.

ATTACHMENT

2 DESIGN BRIEF – MODIFICATIONS TO LEACHATE STORAGE SYSTEM

WASTE MANAGEMENT OF CANADA CORPORATION
RICHMOND LANDFILL

DESIGN BRIEF

MODIFICATIONS TO LEACHATE STORAGE SYSTEM

APRIL 2020





DESIGN BRIEF

MODIFICATIONS TO LEACHATE STORAGE SYSTEM

WASTE MANAGEMENT OF CANADA
CORPORATION
RICHMOND LANDFILL

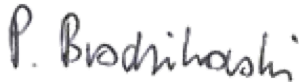
PROJECT NO.: 081-12493-01 (8570G)
DATE: APRIL 2020

WSP
SUITE 101
1450, 1ST AVENUE WEST
OWEN SOUND, ON, CANADA N4K 6W2

T: +1 519 376-7612
F: +1 519 376-8008
WSP.COM

SIGNATURES

PREPARED BY



Peter Brodzikowski, P. Eng.
Senior Environmental Engineer

April 30, 2020

Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, WASTE MANAGEMENT OF CANADA CORPORATION, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP Canada Inc. at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP Canada Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

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FIGURES

FIGURE 1	SITE AREA PLAN
FIGURE 2	LANDFILL SITE LOCATION PLAN

DRAWINGS

LS101	JUNE 2017 EXISTING CONDITIONS
LS102	PROPOSED LEACHATE STORAGE SYSTEM – OVERALL PLAN
LS103	PROPOSED LEACHATE STORAGE SYSTEM – TANK PLAN AND DETAILS
LS104	PROPOSED LEACHATE STORAGE SYSTEM – PS4 PLAN, SECTIONS & DETAILS
LS105	PROPOSED LEACHATE STORAGE SYSTEM – PS2 PLAN, SECTIONS & DETAILS
LS106	PROPOSED LEACHATE STORAGE SYSTEM – PS1 PLAN, SECTIONS & DETAILS
LS107	PROPOSED LEACHATE STORAGE SYSTEM – FORCEMAIN PLAN AND PROFILE
LS108	PROPOSED LEACHATE STORAGE SYSTEM – FORCEMAIN PLAN AND PROFILE



APPENDICES

- A ENVIRONMENTAL COMPLIANCE APPROVAL (WASTE DISPOSAL SITE) NO. A371203, DATED JULY 14, 2017
- B HYDRAULIC CALCULATIONS
- C DESIGN BRIEF LEACHATE STORAGE SYSTEM – JANUARY 2015, PREPARED BY WSP (TEXT ONLY)

1 INTRODUCTION

Waste Management of Canada Corporation's (WM) Richmond Landfill site is located within Part of Lots 1, 2, and 3, Concession IV, Former Township of Richmond, now the Town of Greater Napanee. Refer to **Figures 1 and 2** for site location plans. **Figure 2** includes the site georeference information. The landfill site consists of a 16.2 hectare (ha) waste disposal area within a total site area of 138 ha, and operates under Environmental Compliance Approval (ECA) No. A371203 (refer to **Appendix A**). The Richmond Landfill ceased to accept waste for final disposal on June 30, 2011.

The landfill is equipped with a leachate collection system consisting of a perimeter leachate collector. The oldest northwest quadrant of the landfill is unlined, while the remaining landfill area has a clay or HDPE base liner. Leachate is currently removed from two (2) separate withdrawal points; pumping station PS1, which is located on the south side of the landfill, and PS2 chamber, located on the north side.

Normally leachate from the site is hauled to Napanee Water Pollution Control Plant (WPCP) for treatment. Truck loads are manifested and discharged at the septage receiving facility. WM has approval to discharge leachate elsewhere, further away, in case Napanee WPCP is unable to accept leachate from the site. In the past, Cobourg and Kingston plants have been utilized for this purpose. In addition, at times of high flows, the existing lagoon is used for leachate storage as well.

High leachate flows have been observed more frequently, usually in the spring, in recent years. This was also the case in January 2020 when the problems with the existing leachate collection system were reported in the Provincial Officer's Order (POO) 3623-BL33DW. As a result, WM has committed to various short term and long term measures to mitigate problems associated with the leachate collection system. Upgrade to leachate collection system and installation of a leachate storage tank have been included on the list of long term work items.

The leachate storage system has been approved for the site under Condition 5.5 of the ECA. This system has not been constructed to date but WM wants to proceed with this work with some modifications as follows:

- 1 Replace 500 m³ underground leachate storage tank with a larger, approximately 3,000 m³ aboveground glass fused to steel (GFS) tank. The tank will be equipped with GFS secondary containment well.
- 2 Modify design of truck loading facility including pumping stations PS3 and PS4 due to change in storage tank under item 1.
- 3 Change pumps at PS1 and PS2 to make them suitable for pumping leachate into the aboveground storage.
- 4 Increase size of forcemain between PS2 and storage tank from 75 mm to 100 mm diameter in order to maintain reasonable pumping rates.
- 5 Other minor miscellaneous changes resulting from change in size and location of the storage tank and truck loading facility.

The historic text from the "Design Brief, Leachate Storage System" for the Richmond Landfill site from a 2015 ECA application, prepared by WSP, is included in **Appendix C** for easy reference and to better illustrate the proposed system modifications.

2 PROPOSED MODIFICATIONS TO LEACHATE STORAGE SYSTEM

2.1 RATIONALE

In response to POO 3623-BL33DW, WM has committed to long term action plan which includes the following items:

- 1 Installation of leachate storage system including upgrades to the existing leachate collection system.
- 2 Prepare ECA application and plans for construction of forcemain between pumping chamber PS2 and leachate holding lagoon.
- 3 Evaluation of the existing leachate collection system with focus on groundwater intrusion and integrity of the landfill final cover (clay cap). This task will be undertaken by BluMetric Environmental.

This application deals only with the first item while the ECA application for the second item has already been submitted to the Ministry of the Environment, Conservation and Parks (MECP).

Following review of historic leachate generation/haulage records and in view of ongoing problems with access to Napanee WPCP during high flow periods, WM wants to proceed with construction of the modified leachate storage system as outlined in Section 1.

A larger leachate storage tank would allow for safe storage of extra leachate, particularly during high flow periods when access to the closest treatment facility in Napanee is restricted. In addition, extra leachate storage volume would allow to keep leachate levels lower within the landfill, thus reducing leachate spill potential and providing better protection of groundwater and surface water resources.

2.2 PROPOSED SYSTEM COMPONENTS

The proposed system will be similar to the originally approved system and consist of the following main components:

- Existing pumping station PS1.
- Existing chamber PS2 which will be converted into pumping station.
- Leachate storage tank having capacity of approximately 3,000 m³.
- Truck loading pumping station PS3.
- Pumping station PS4 associated with truck loading area.
- Common leachate forcemain connecting pumping stations PS1, PS2 and PS4 with the leachate storage tank.

The entire system is outlined on the enclosed drawings. The overall plan of the proposed system is shown on **Drawing LS102**. Modifications to the originally approved system are described in the remaining part of this report.

2.2.1 PUMPING STATION PS1

The only significant change at PS1 is that now it is proposed to replace both existing Grundfos pumps with a larger EPG Surepump WSD 31-2 having 5 hp three-phase motor. The proposed pump is capable to deliver leachate to the top of the new storage tank. Installation details are provided on **Drawing LS106**.

2.2.2 PUMPING STATION PS2

No design changes are proposed except that the originally proposed pump will be replaced with a larger EPG unit Surepump Size 6 VSD 47-2 having 7.5 hp three-phase motor. Again, the size of the pump was increased to make it suitable for pumping at reasonable rate to the top of the new storage tank. Installation details are presented on **Drawing LS105**.

2.2.3 LEACHATE STORAGE TANK

The proposed tank plan and miscellaneous details are shown on **Drawing LS103**.

Aquastore GFS bolted, aboveground tank having useable capacity of 3,015 m³ (20.46 m diameter, 9.47 m height and 0.3 m freeboard) is proposed in lieu of the previously approved 500 m³ buried Weholite tank. GFS is impermeable to liquids and vapors, corrosion resistant and suitable for liquids having a pH range between 4 and 11. The proposed new tank location is approximately 100 m east of the originally approved tank. All Aquastore tank components are factory manufactured in accordance with professional engineer stamped detailed design drawings and customer specifications. The entire tank meets applicable standards including National Building Code of Canada and Ontario Building Code, latest edition.

The tank sidewalls are erected using a series of motorized jacks. Each GFS panel is bolted and sealed into place. The tank base and foundation will be custom designed in compliance with geotechnical engineer recommendations based on the site-specific investigation. The roof (OptiDome) will be constructed of triangular aluminum sealed panels that are firmly clamped in an interlocking manner to an aluminum truss system forming a dome structure. The entire tank unit will be insulated (bottom, walls and roof) and cladded on the outside. Insulation should prevent ice formation inside the tank during winter months when the water level in the tank is relatively low and liquid retention time is quite long. The tank will be equipped with the following accessories:

- manway and dome access hatch
- ladder with dome walkway and step off platform
- vent
- cathodic protection
- pipe overflow

The tank will be protected against catastrophic spill by a GFS secondary containment ring wall having inside diameter of 32.4 m and height of 4.47 m. The secondary containment storage (3,689 m³) is in excess of 110% of the tank capacity. The secondary containment area will be concrete surfaced and equipped with catchbasin and drain line with a normally closed valve. The secondary containment ring wall will also include a ladder and suitable, easy to open manway. The tank interior will contain pipe inlet and outlet, both penetrating through the floor in accordance with the details shown on the drawings. Vertical stilling well pipe is proposed under the tank inlet line to prevent liquid splash and foaming. The tank will also be equipped with a pressure sensor to facilitate continuous water level monitoring. The tank, once complete, will be subject to a hydrostatic leakage test.

The tank detailed design and construction will be carried out by Greatario Engineered Storage Systems of Innerkip, Ontario. Greatario is a well qualified firm which has completed hundreds of Aquastore tank installations across Ontario.

2.2.4 PUMPING STATION PS3

The truck loading pumping station is completely redesigned due to the change in the size and type of leachate storage facility. PS3 schematic is shown on the **Drawing LS103**. Leachate will be drawn from the tank by end suction, variable speed drive (VFD) Smart Turner pump. Preliminary pump selection is Model 4x3x10 horizontal, heavy duty, frame mounted, stainless steel construction, suitable for leachate application with a three-phase 7.5 hp motor.

Smart Turner pumps will be housed in a conventional, small slab on grade, heated building approximately 5 x 6 in size. The building is proposed nearby, on the west side of the storage tank. The proposed finished floor elevation (126.60 m) is slightly lower than the tank bottom to improve system hydraulics. The entire PS3 building is subject to detailed design and will require a building permit. Pump suction and discharge will be fitted with a normally closed motorized ball valve. The valve will have a fail safe electric spring return actuator and manual override with position indicator. These valves are provided to prevent accidental emptying of the tank and will open at the beginning and close at the end of each pumping cycle. Each pump will be isolated with manually operated ball valves for regular maintenance access. A ball check valve is proposed at each pump discharge. In addition, a separate buried HDPE ball valve will be installed outside the building to hydraulically isolate it from the tank. An electromagnetic flowmeter connected with the system PLC will be used for pump speed control to provide a target flow (adjustable) of 20 L/s when filling tanker trucks.

Under normal operating conditions, PS3 pumps will experience variable water level in the storage tank ranging between 127.50 m (low level) and 136.17 m (high level). This will have a significant effect on the system hydraulics due to substantial gravity flow particularly when the water level in the tank is high. PS3 pump would increase flow to the target value (20 L/s) through VFD speed control. The reader is referred to **Appendix B-1** for pumping station hydraulic calculations under different operating conditions. It is estimated that PS3 pumping rates will be as follows:

- 26.7 L/s at 10.9 m TDH - tank full, truck empty, C=140 relative pump speed (RPS) = 1. Target flow rate of 20 L/s is reached at $RPS = \pm 0.52$
- 20.2 L/s at 15.1 m TDH - tank empty, truck full, C=120, RPS =1. Target flow rate of 20 L/s is reached at RPS slightly lower than 1.

The calculations indicate that the selected pump is capable to deliver target flow of ± 20 L/s at all tank water levels with VFD speed control. The PS3 pump should stop automatically whenever low level in the tank (127.50 m) is reached. Complete emptying of the tank should be carried in manual mode at lower flow rate of approximately 10 L/s.

PS3 100 mm diameter HDPE discharge forcemain extends approximately 50 m west, to the edge of the existing gravel/asphalt surfaced pad. The forcemain line is terminated with manual isolation valve and stainless steel Camlock hose connection adapter. Control panel with PS3 pump start/stop buttons and flowmeter and tank water level display will be provided nearby for operator convenience. Vertical end section of the line will be insulated and heat traced and could be drained to PS4 if needed in the winter.

2.2.5 PUMPING STATION PS4

Pumping station details are shown on **Drawing LS104**.

The function of this pumping station remains unchanged, however its location, size of chamber and pump have been modified to work with the new storage tank. PS4 is located near the proposed truck loading area and will deliver any leachate spilled during loading operations back into the storage tank. Pump chamber has been increased to 1,500 mm diameter to house a larger submersible sewage pump. The preliminary pump selection is Flygt Model NP 3085 SH with 255 impeller (125 mm diameter) and 4 hp three-phase motor. PS4 will be connected to the common forcemain servicing PS1 and PS2. The pump discharge line will be fitted with two (2) check valves for safety and buried isolation HDPE ball valve.

Vertical end section of the PS3 forcemain could be drained to PS4 in the winter, if needed, by changing the status of the adjacent isolation valves.

2.2.6 COMMON LEACHATE FORCEMAIN

WM has settled on Option 1 for the forcemain alignment which takes leachate from PS2 around the east half of the landfill. It was also decided that almost the entire length of the forcemain from PS1 will be replaced and the PS4 discharge connected with a section of the forcemain coming from PS1. Generally, almost the entire length of the forcemain was increased to 100 mm diameter HDPE DR 17, with the exception of a short section near PS1 and PS4, which remains 75 mm diameter. The section of the forcemain going to the leachate holding lagoon is covered under a separate ECA application.

A large portion of the forcemain will be installed in the common trench with electrical cables/conduits in accordance with detail shown on **Drawing LS105**. Overall extent of the common trench is outlined on **Drawing LS102**. Plan and profile of the forcemain between PS2 and the tank is presented on **Drawings LS107** and **LS108**.

Normal operating pressure will not exceed 250 kPa (36 psi) and remain similar as in the originally approved forcemain. The proposed HDPE DR17 pipe is capable to withstand normal operating pressure and instantaneous overpressure resulting from sudden stoppage of water column.

The reader is referred to **Appendix B-2** for printouts of the PS1/PS2/PS4 hydraulics. The following flows have been calculated under the anticipated operating conditions:

- PS1 on – 9.0 L/s at 18.8 m TDH
- PS2 on – 9.5 L/s at 29.3 m TDH
- PS4 on – 9.7 L/s at 17.6 m TDH
- PS1/PS4 on – 7.8 L/s at 21.4 m TDH – PS1
 – 7.4 L/s at 19.9 m TDH – PS4
- PS1/PS2/PS4 on – 7.0 L/S at 22.3 m TDH – PS1
 – 8.7 L/S at 30.3 m TDH – PS2
 – 6.5 L/S at 21.0 m TDH – PS4

The proposed system will be hydraulically stable with minimal fluctuation of water levels at each pumping station; therefore, minimal variation in calculated flows is anticipated. All calculations have been completed for Hazen Williams pipe roughness coefficient of 130.

Each forcemain branch will be equipped with 100 mm instead of 75 mm diameter electromagnetic flowmeter. Both flowmeters together with isolation valves will be housed inside the PS3 building. Air combination valve chamber will be provided at two high points along the proposed forcemain alignment. Numerous isolation valves (HDPE ball valve) are proposed at strategic locations along the pipeline.

2.3 POWER SUPPLY

Three-phase electrical power is available at the flare near the site entrance and will be distributed to all new pumping stations. Detailed electrical power supply/system controls design will be carried out by Design/Build Electrical Contractor – Nielsen Systems, who is familiar with the existing on site electrical system. Power to the back of the site (PS2) will be provided by direct buried cable installed in the common trench with leachate forcemain. Conceptual power distribution layout is outlined on **Drawing LS102**.

FIGURES





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FIG-1

DWN BY: T C G DATE: APRIL 2020
CHK BY: P S B SCALE: NTS
WASTE MANAGEMENT OF CANADA CORP.
DRAWING NO. 8570G - FIG-1

SITE AREA PLAN
RICHMOND LANDFILL



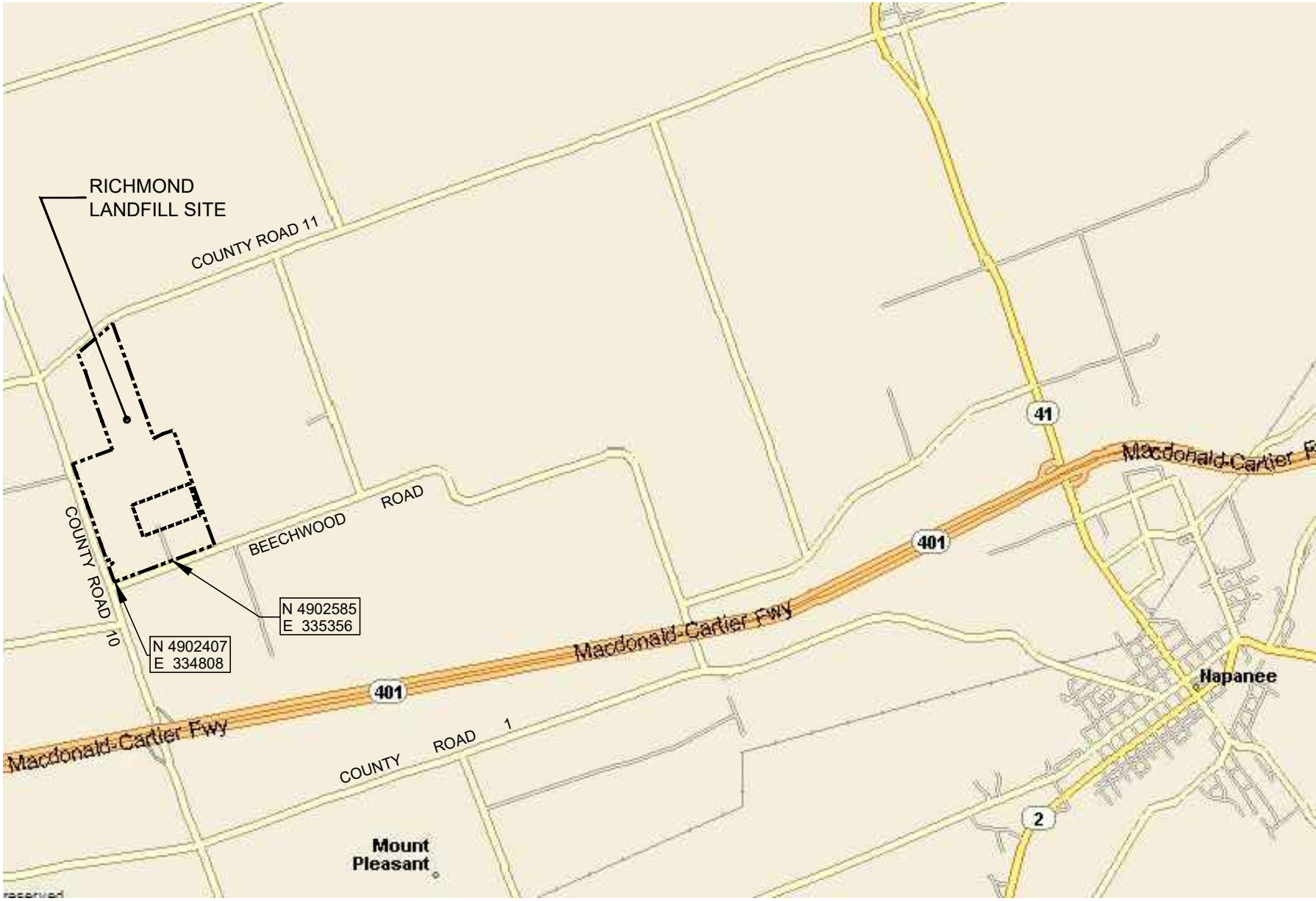
FIG-2

DWG BY: T C S
CHK BY: P S B
DATE: APRIL 2020
SCALE: NTS
WASTE MANAGEMENT OF CANADA CORP.
DRAWING NO. 8570G - FIG-2

LANDFILL SITE
LOCATION PLAN
RICHMOND LANDFILL



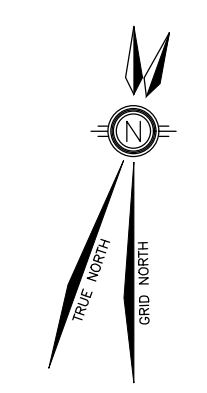
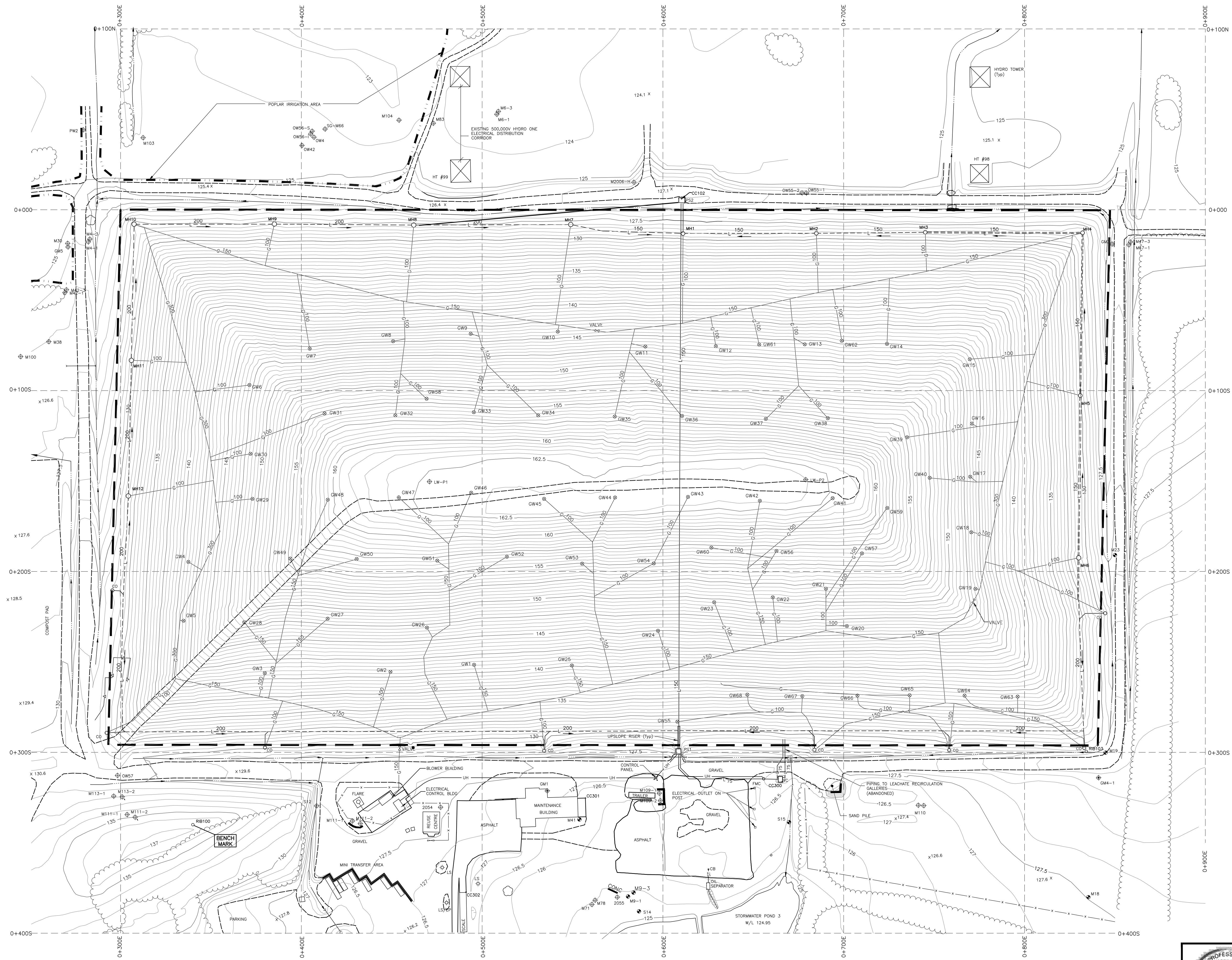
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DRAWINGS



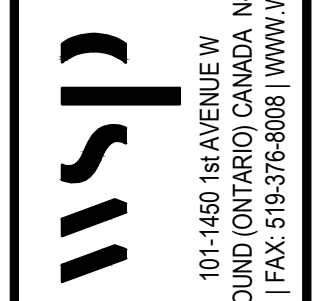
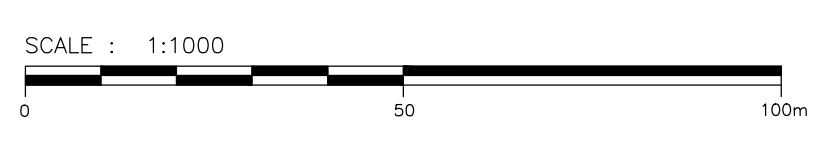
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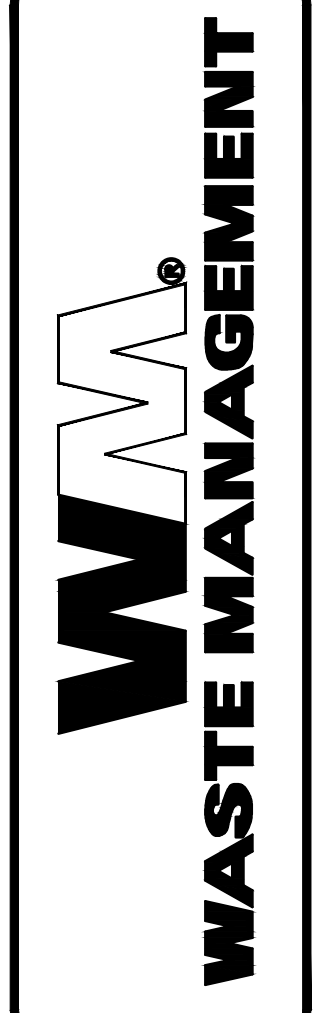
- LEGEND :**
- APPROVED LIMIT OF LANDFILL
 - GROUND CONTOURS AT 2.5m INTERVALS
 - GROUND CONTOURS AT 0.5m INTERVALS
 - EDGE OF ASPHALT
 - EDGE OF GRAVEL ROAD
 - DRAINAGE DITCH
 - CULVERT
 - FENCE LINE
 - TREE LINE
 - ST STORM SEWER
 - G 150 LANDFILL GAS HEADER/LATERAL
 - UH UNDERGROUND HYDRO
 - L LEACHATE COLLECTION PIPE (PERFORATED)
 - L LEACHATE COLLECTION PIPE (SOLID)
 - RIP RAP
 - TREE
 - LS LAMP STANDARD
 - GW52 VERTICAL GAS EXTRACTION WELL
 - CO CLEANOUT
 - OW OBSERVATION WELL
 - CB CATCH BASIN
 - GM1 GAS MONITOR
 - MW GROUNDWATER MONITOR
 - FMC FLOWMETER CHAMBER
 - VC VALVE CHAMBER
 - CSP CORRUGATED STEEL PIPE

- NOTES:**
- 1) EXISTING GROUND CONTOURS AND TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON INFORMATION OBTAINED FROM AERIAL PHOTOGRAPHY FLOWN ON JUNE 27, 2009 BY BASE MAPPING AND FIELD SURVEY DATA BY SMC GEOMATICS TO JUNE, 2017 (LANDFILL MOUND AND SURROUNDING AREAS).
 - 2) THE LOCAL SITE GRID IS BASED ON 0+000N BEING THE NORTH LANDFILL LIMIT. THE NORTHWEST CORNER OF THE LANDFILL LIMIT IS 0+300E AND IS PERPENDICULAR TO THE EAST/WEST GRID LINE. THE WEST LIMIT OF THE LANDFILL IS PARALLEL TO THE LOT LINE BETWEEN LOTS 1 AND 2, CONCESSION 4.

B.M. ELEV. = 136.67
 CONTROL POINT RIB100 - TOP OF ROUND IRON BAR ON TOP OF BERM NEAR SOUTHWEST CORNER OF LANDFILL FOOTPRINT. REFER TO SPECIFICATIONS FOR ALL CONTROL POINTS DATA.

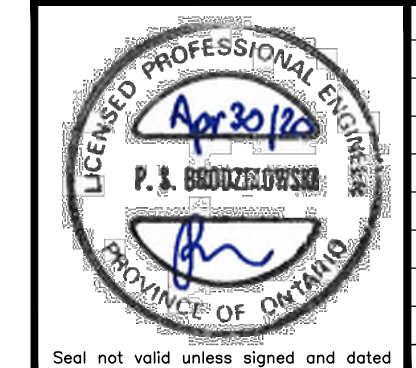


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 OWEN SOUND (ONARIO) CANADA N4K 6W2
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JUNE 2017 EXISTING CONDITIONS
 RICHMOND LANDFILL
 NAPANEE, ONTARIO

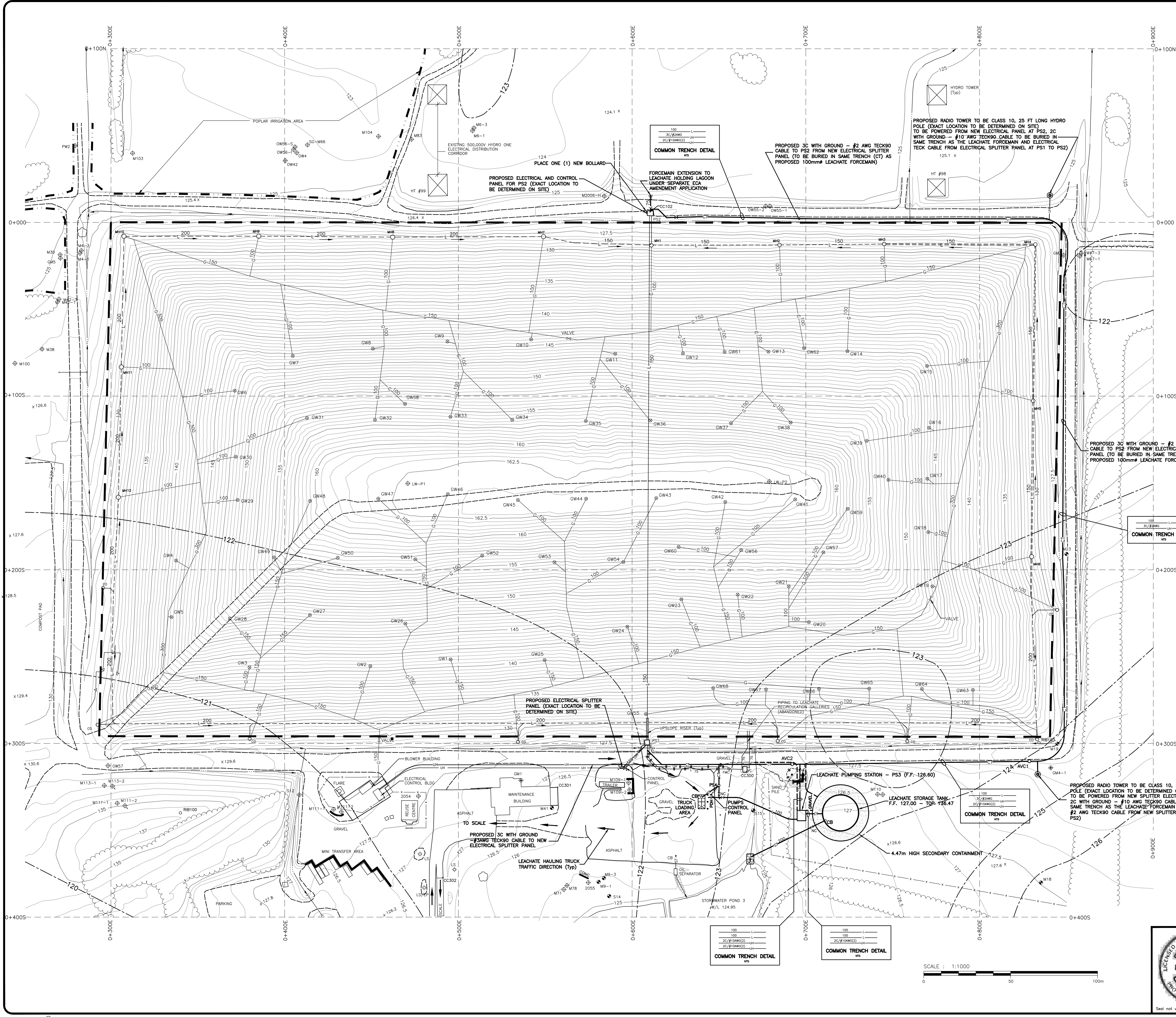
DATE: APRIL 2020
 SCALE: SEE BAR SCALE
 WASTE MANAGEMENT OF CANADA CORP.
 DRAWING NO. 8570G - LS101



DATE	DESCRIPTION	APP BY

DRAWING
 LS101

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- LEGEND :**
- 100 — PROPOSED LEACHATE FORCEMAIN
 - CT — PROPOSED COMMON TRENCH (FORCEMAIN AND HYDRO)
 - UH — PROPOSED UNDERGROUND HYDRO
 - - - - - PROPOSED EDGE OF GRAVEL PARKING AREA
 - PROPOSED RADIO TOWER
 - - - - - INFERRED TOP OF BEDROCK CONTOURS
 - - - - - APPROVED LIMIT OF LANDFILL
 - - - - - GROUND CONTOURS AT 2.5m INTERVALS
 - - - - - GROUND CONTOURS AT 0.5m INTERVALS
 - - - - - EDGE OF ASPHALT
 - - - - - EDGE OF GRAVEL ROAD
 - - - - - DRAINAGE DITCH
 - - - - - CULVERT
 - - - - - FENCE LINE
 - - - - - TREE LINE
 - ST — STORM SEWER
 - G-150 — LANDFILL GAS HEADER/LATERAL
 - UH — UNDERGROUND HYDRO
 - - - - - LEACHATE COLLECTION PIPE (PERFORATED)
 - - - - - LEACHATE COLLECTION PIPE (SOLID)
 - RIP RAP
 - TREE
 - LS — LAMP STANDARD
 - GW52 — VERTICAL GAS EXTRACTION WELL
 - CO — CLEANOUT
 - OW — OBSERVATION WELL
 - CB — CATCH BASIN
 - GM1 — GAS MONITOR
 - M9 — GROUNDWATER MONITOR
 - FMC — FLOWMETER CHAMBER
 - VC — VALVE CHAMBER
 - CSP — CORRUGATED STEEL PIPE

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

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PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

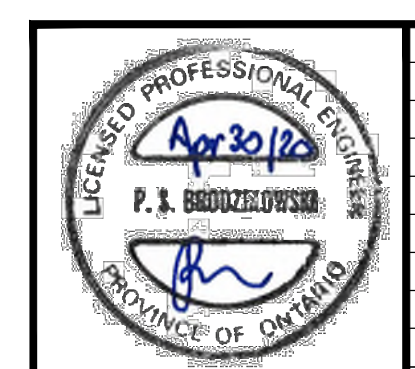
PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

PROPOSED 3C WITH GROUND - #2 AWG TECK90 CABLE TO PS2 FROM NEW ELECTRICAL SPLITTER PANEL (TO BE BURIED IN SAME TRENCH (CT) AS PROPOSED 100mm# LEACHATE FORCEMAIN)

NOTE :
1. INFERRED TOP OF BEDROCK CONTOURS SHOWN ON THIS PLAN ARE BASED ON DATA OBTAINED FROM PLAN A756-B CONT-05 ENTITLED "BEDROCK SURFACE CONTOURS MAP" BY WESA DATED APRIL 7, 2005



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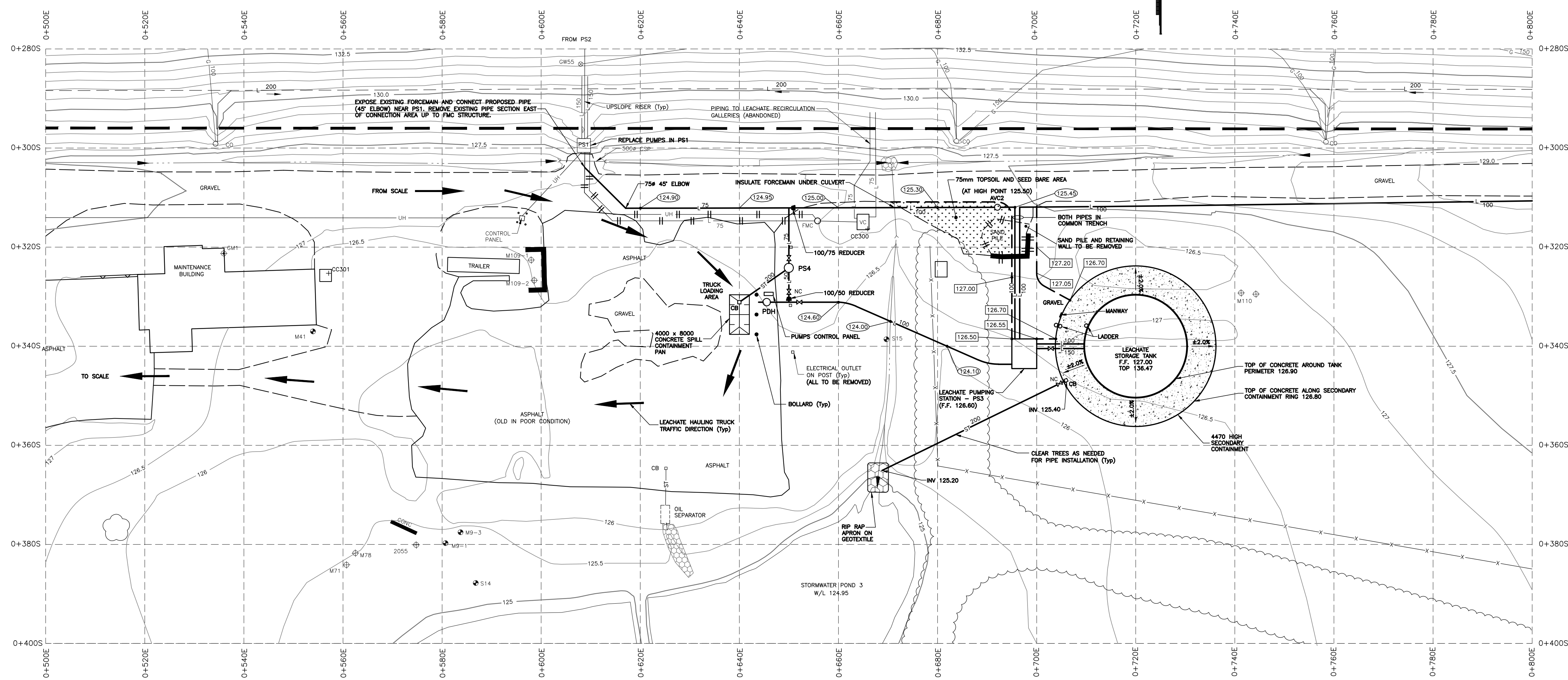
WSP
101-450 1st AVENUE W
OWEN SOUND (ONTARIO) CANADA N4K 6W2
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WASTE MANAGEMENT

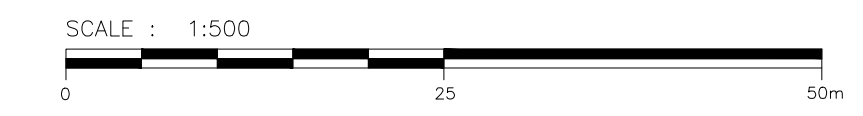
PROPOSED LEACHATE STORAGE SYSTEM - OVERALL PLAN
RICHMOND LANDFILL
NAPANEE, ONTARIO

WASTE MANAGEMENT OF CANADA CORP.
8570G - LS102

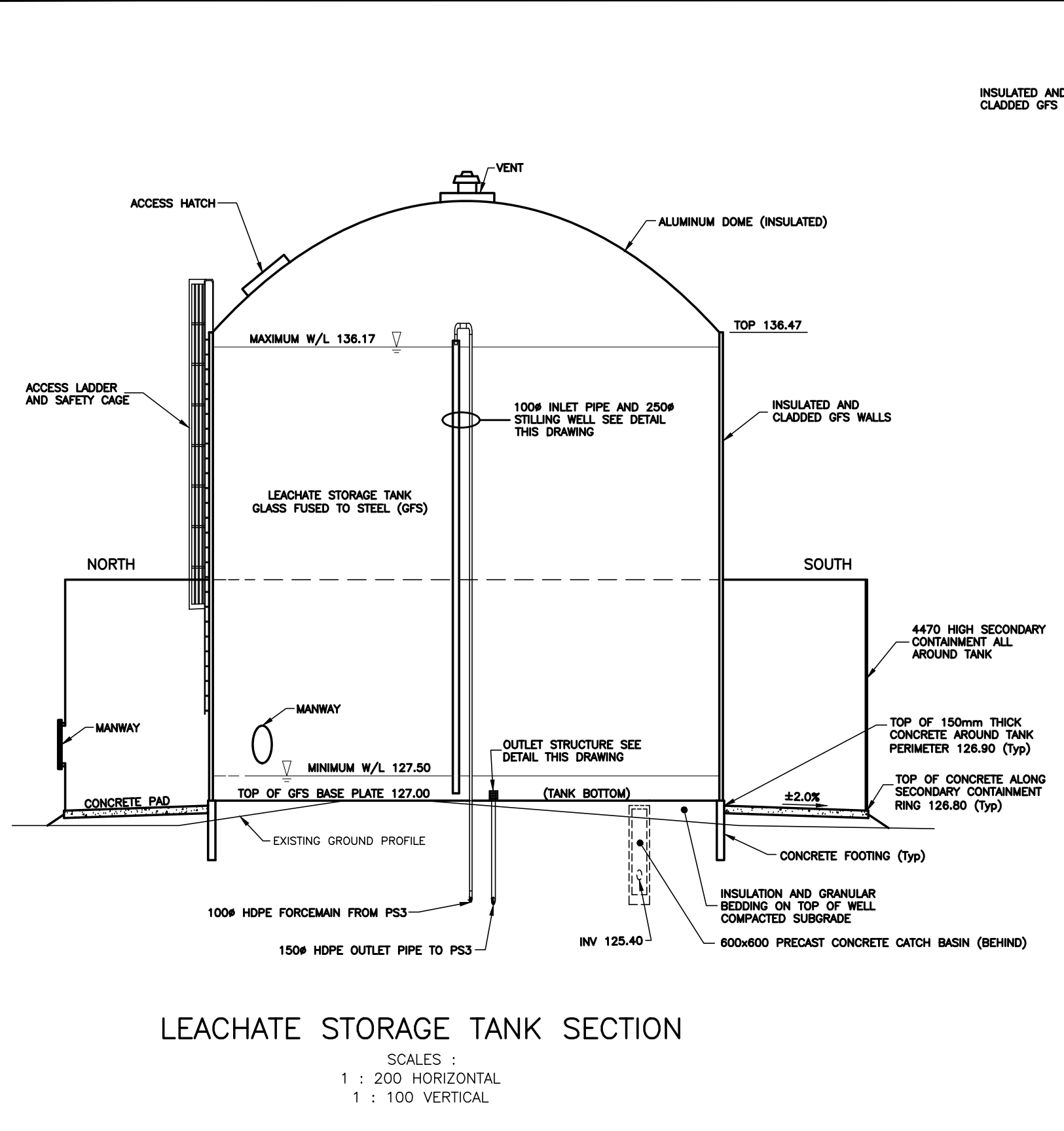
DRAWING
LS102



- LEGEND:**
- 100 PROPOSED LEACHATE FORCEMAIN
 - ST 200 PROPOSED STORM SEWER
 - PROPOSED EDGE OF GRAVEL ROAD
 - PROPOSED AIR VALVE CHAMBER
 - PROPOSED PUMP DISCHARGE WITH HOSE CONNECTION
 - PROPOSED CATCH BASIN
 - PROPOSED C/L FORCEMAIN ELEVATION
 - PROPOSED ROAD SPOT ELEVATION
 - APPROVED LIMIT OF LANDFILL
 - EXISTING LEACHATE FORCEMAIN
 - EXISTING GROUND CONTOURS AT 2.5m INTERVALS
 - EXISTING GROUND CONTOURS AT 0.5m INTERVALS
 - EXISTING EDGE OF ASPHALT
 - EXISTING EDGE OF GRAVEL ROAD
 - EXISTING DRAINAGE DITCH
 - EXISTING FENCE LINE
 - EXISTING TREE LINE
 - EXISTING CULVERT
 - EXISTING STORM SEWER
 - EXISTING LFG HEADER
 - EXISTING LFG LATERAL
 - EXISTING UNDERGROUND HYDRO
 - EXISTING LEACHATE COLLECTION PIPE (PERFORATED)
 - EXISTING LEACHATE COLLECTION PIPE (SOLID)
 - EXISTING RIP RAP
 - EXISTING LEACHATE CLEANOUT
 - EXISTING OBSERVATION WELL
 - EXISTING CATCH BASIN
 - EXISTING GAS MONITOR
 - EXISTING GROUNDWATER MONITOR
 - EXISTING FLOWMETER CHAMBER
 - EXISTING VALVE CHAMBER
 - EXISTING CORRUGATED STEEL PIPE
 - NORMALLY CLOSED

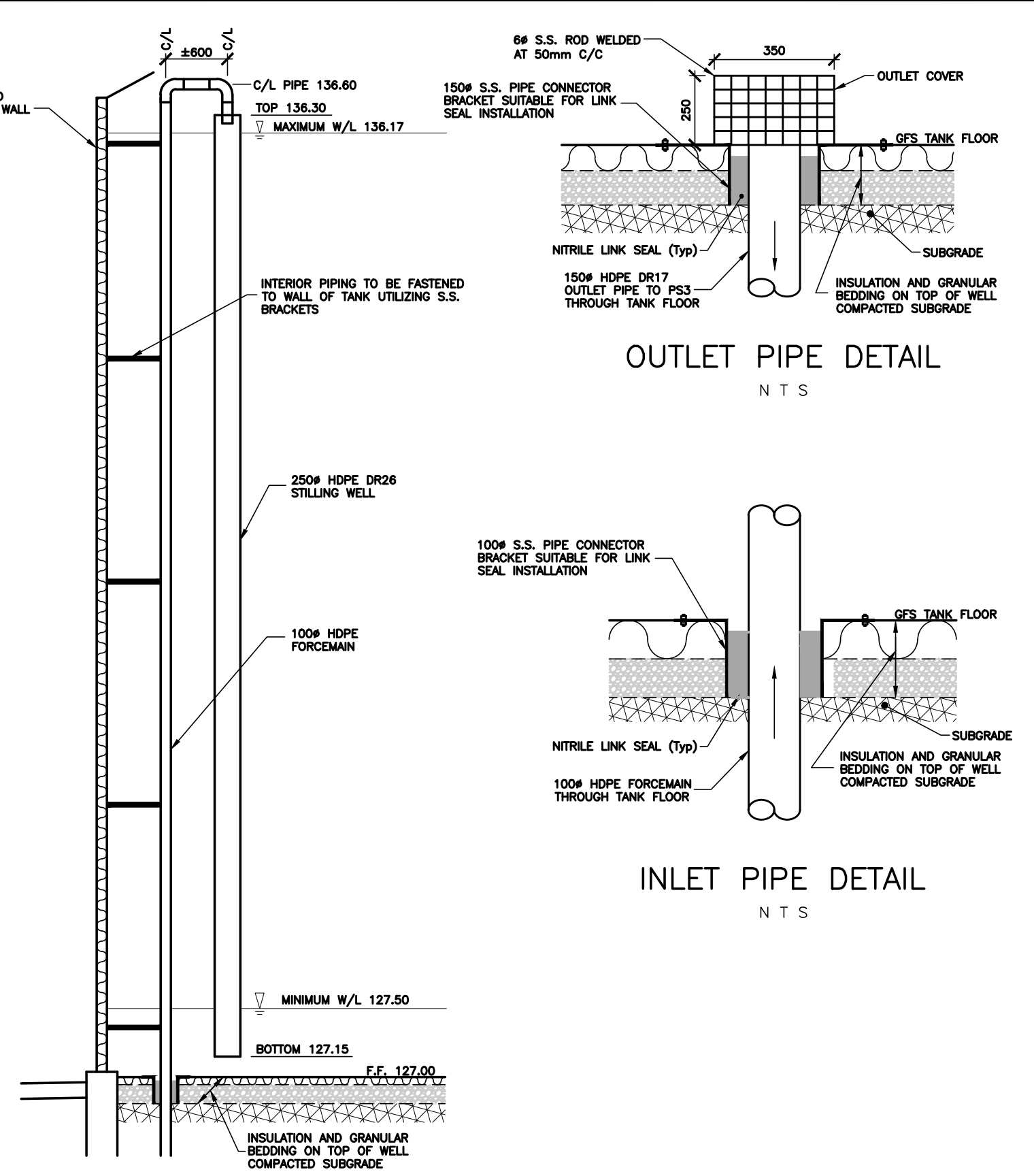


PLAN



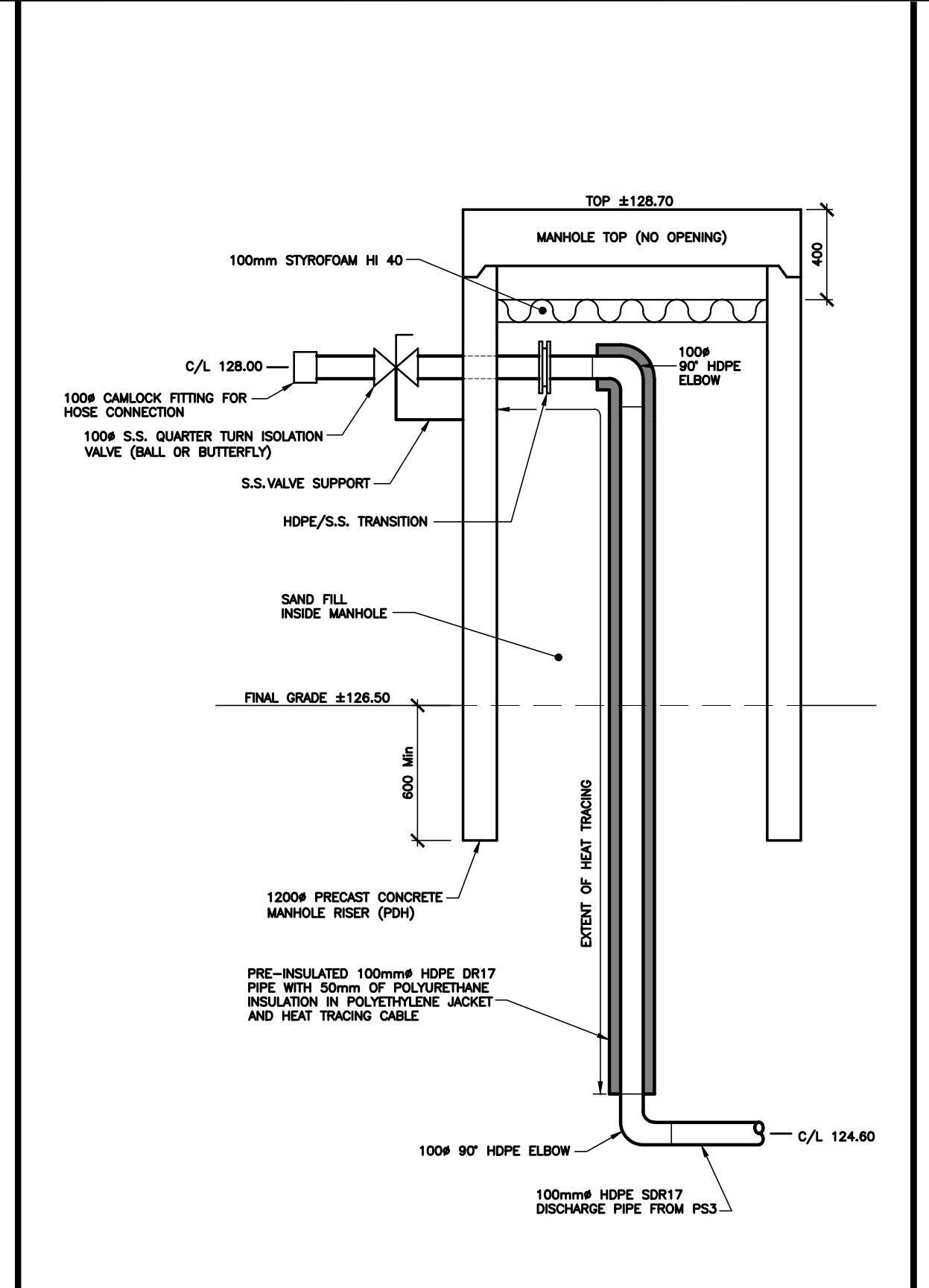
LEACHATE STORAGE TANK SECTION

SCALES:
1 : 200 HORIZONTAL
1 : 100 VERTICAL



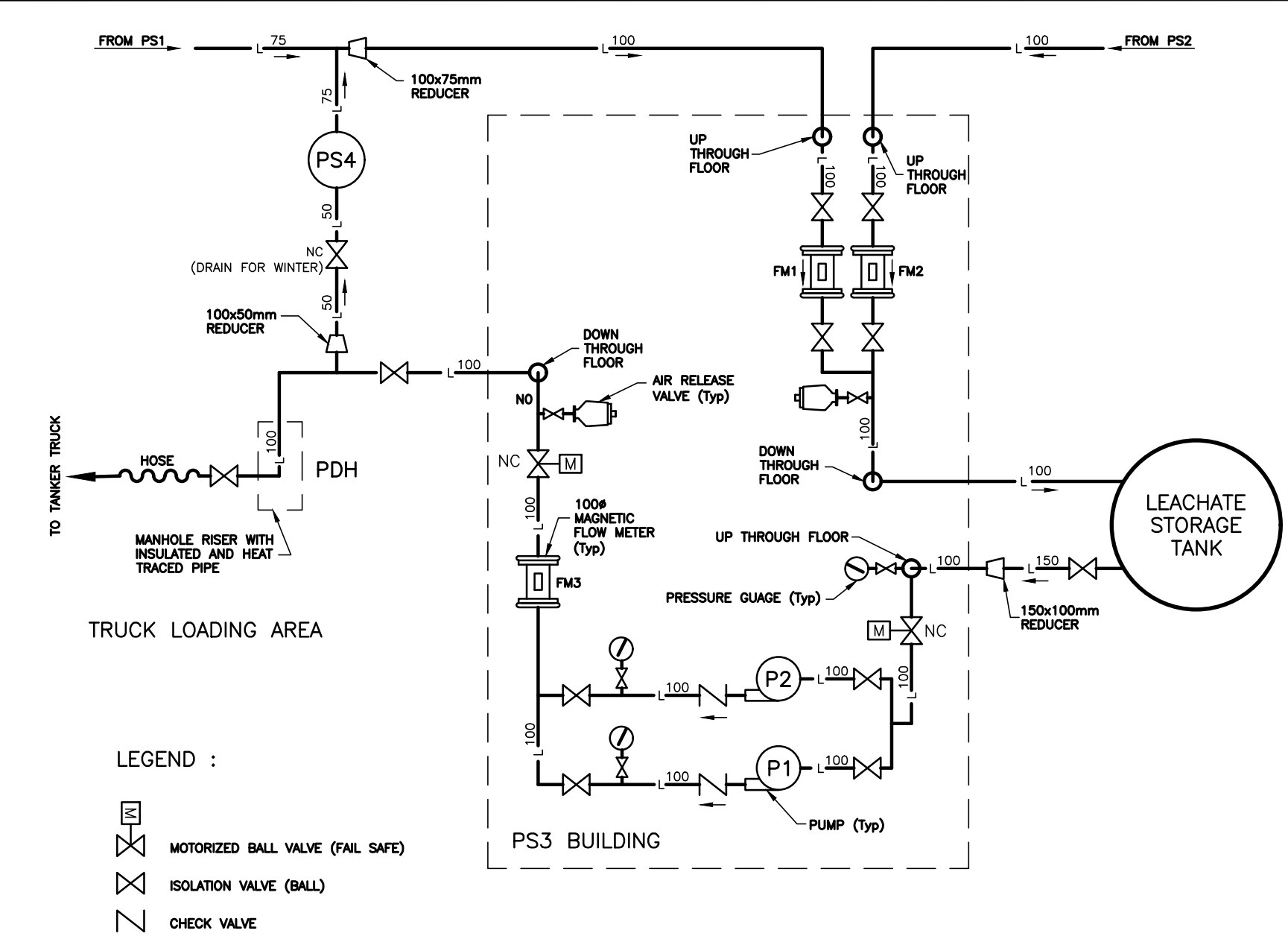
INTERIOR PIPING DETAIL

SCALE: 1 : 50



PS3 PUMP DISCHARGE/TRUCK LOADING DETAIL

SCALE: 1 : 25



PS3 PIPING SCHEMATIC

N T S

- LEGEND:**
- MOTORIZED BALL VALVE (FAIL SAFE)
 - ISOLATION VALVE (BALL)
 - CHECK VALVE



DATE	DESCRIPTION	APP BY

PROPOSED LEACHATE STORAGE SYSTEM
TANK - PLAN AND DETAILS
RICHMOND LANDFILL
NAPANEE, ONTARIO

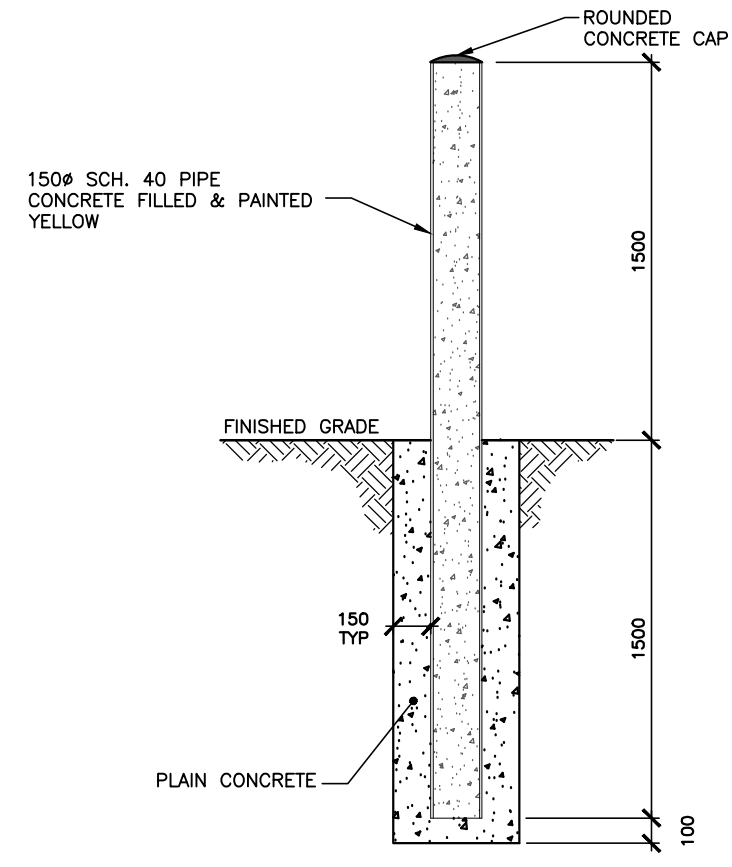
WASTE MANAGEMENT OF CANADA CORP.
DRAWING NO. 8570G - LS103

DRAWING
LS103

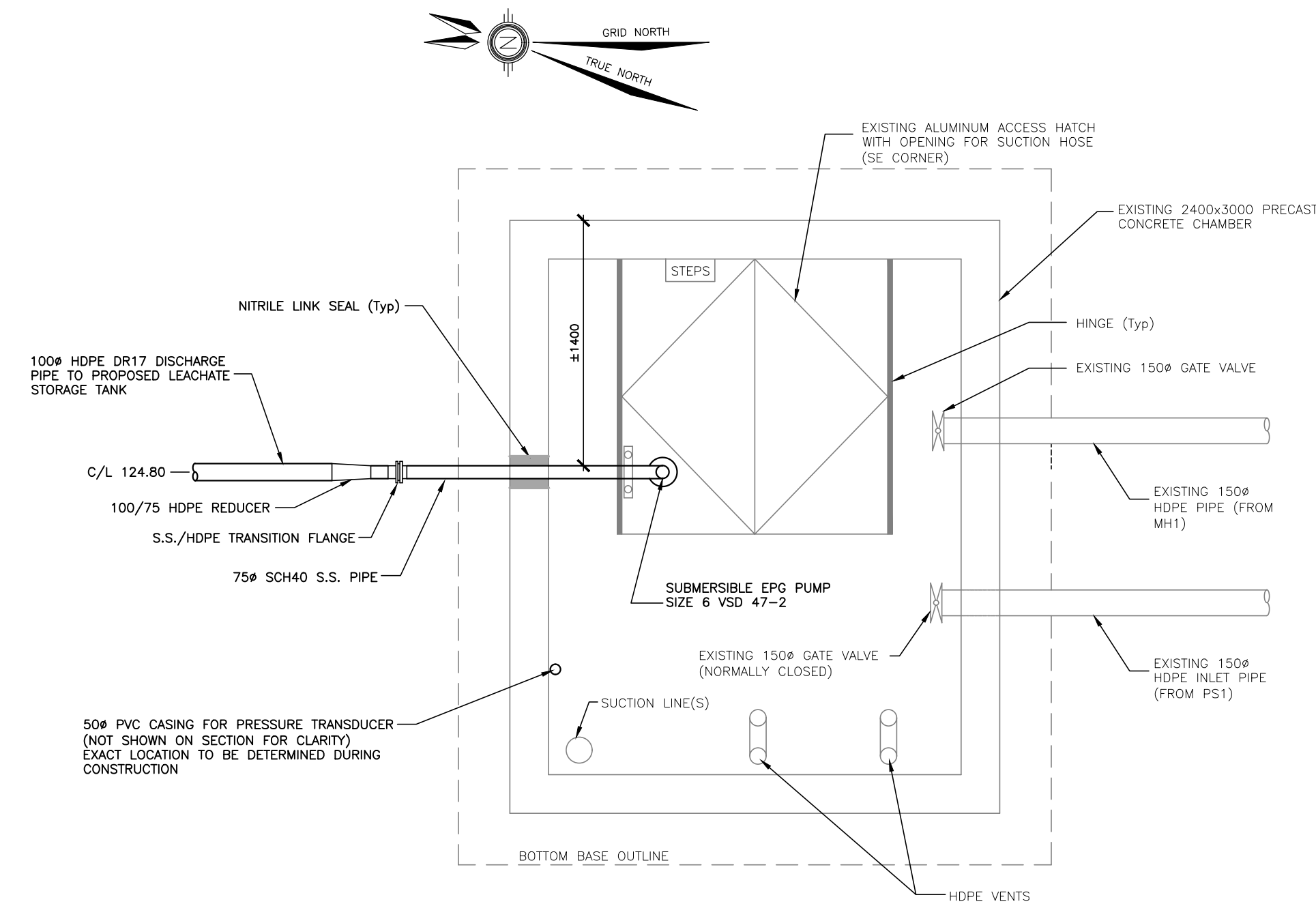
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101-1450 16th AVENUE W
OWEN SOUND (ONTARIO) CANADA N4K 6W2
TEL: 519-576-7612 FAX: 519-576-6081 WWW.WSPGROUP.COM

WASTE MANAGEMENT

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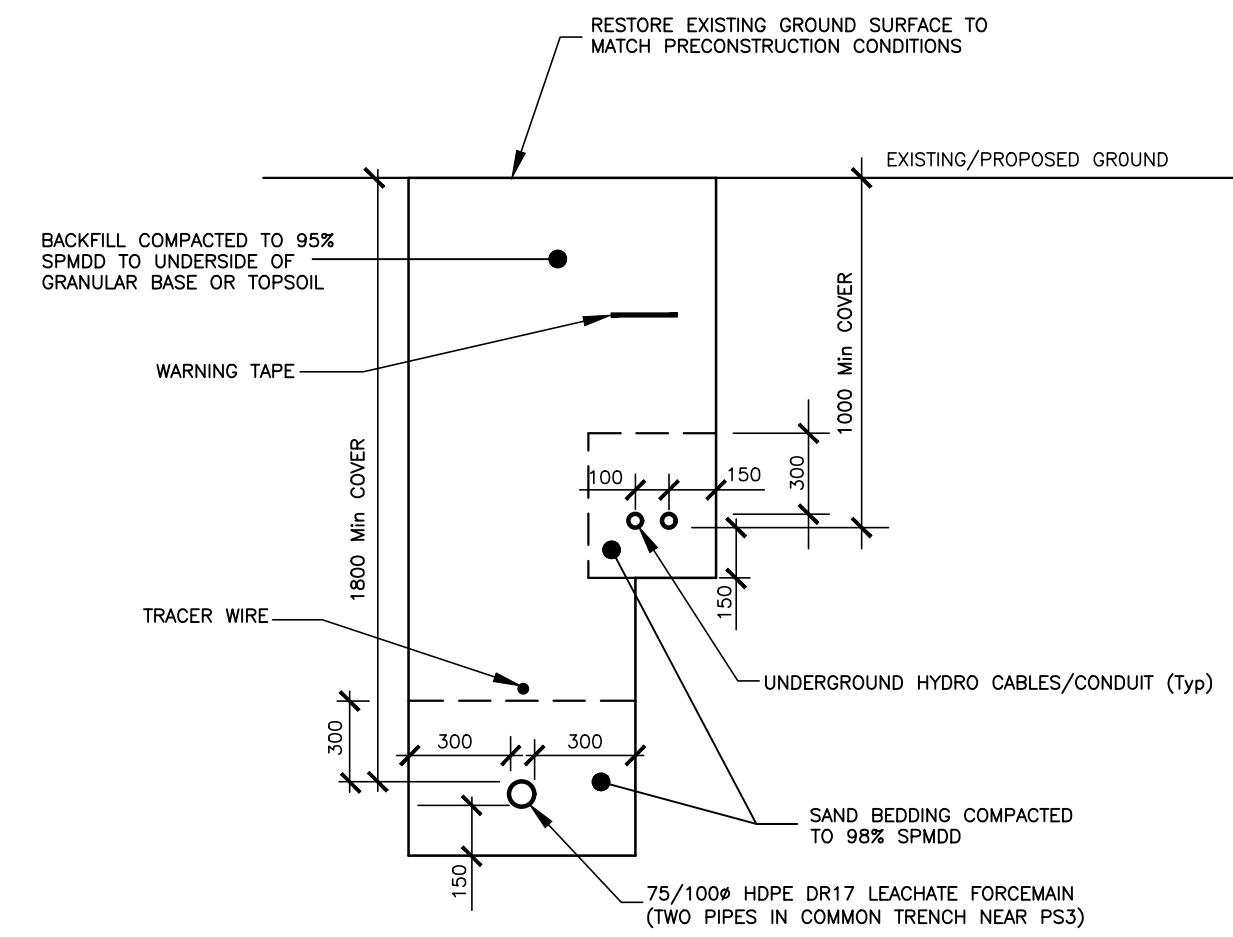


TYPICAL BOLLARD DETAIL
N. T. S.



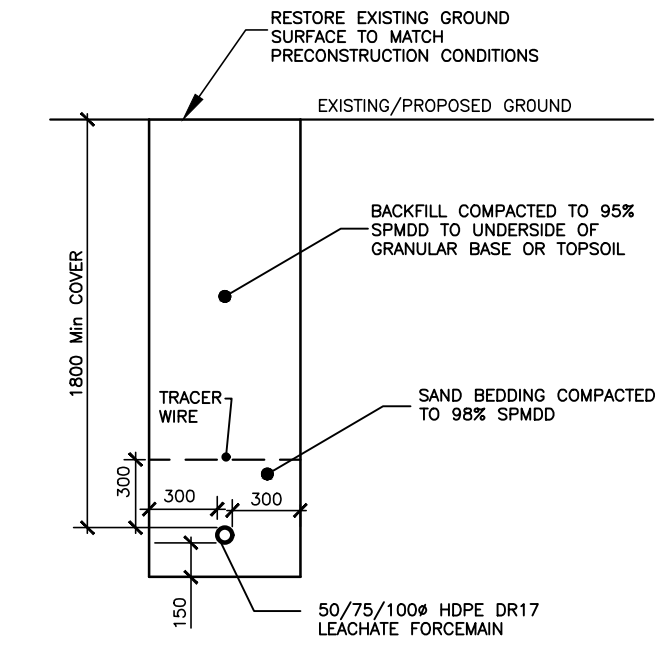
LEACHATE PUMPING STATION PS2 - PLAN
SCALE: 1:30

- NOTES
- EXISTING GATE VALVES LIKELY NOT FUNCTIONAL (SEIZED)
 - CONTRACTOR TO DEWATER PS2 CHAMBER AS REQUIRED TO FACILITATE PUMP INSTALLATION.



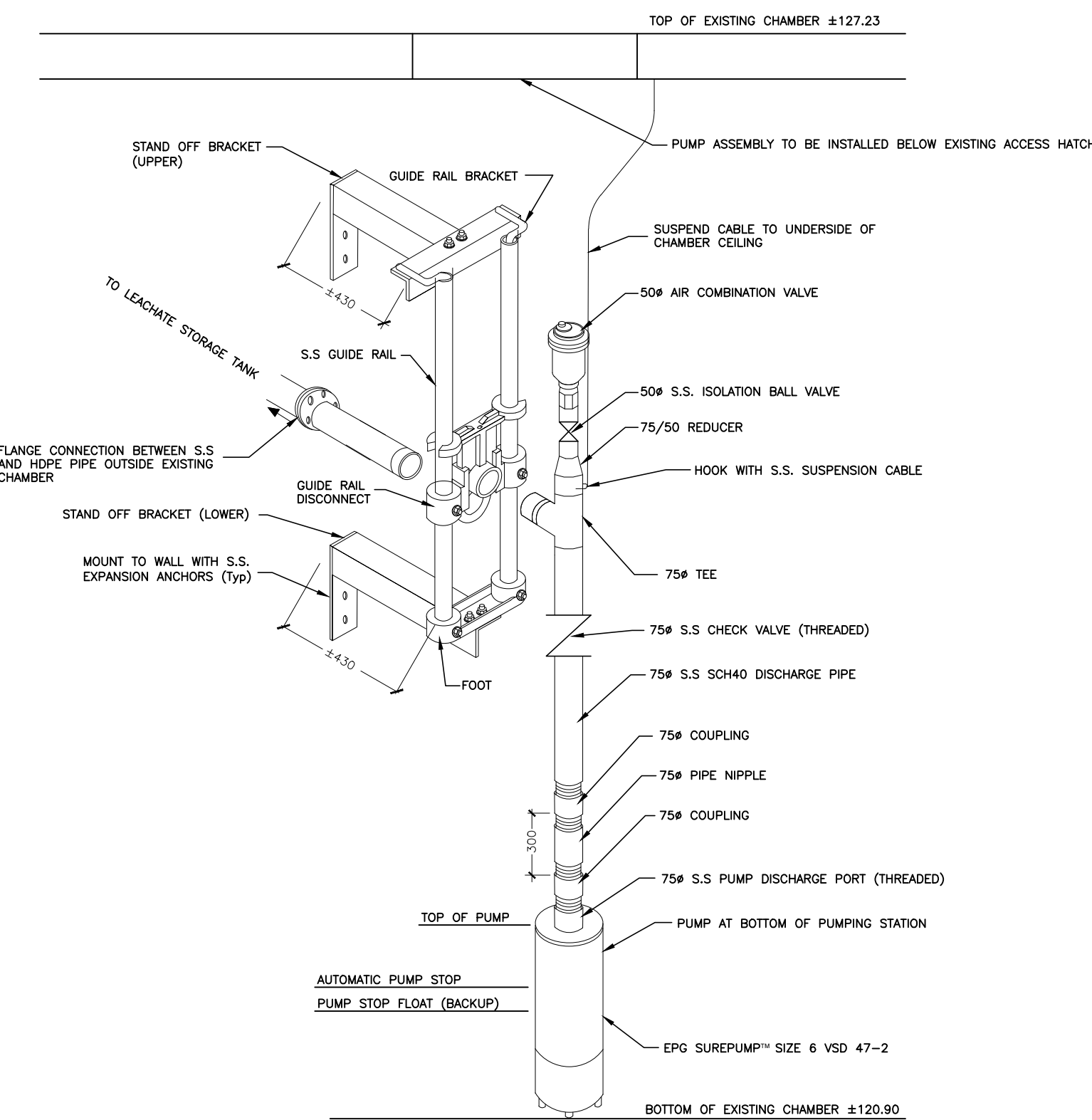
- NOTE :
- TRENCH SIDE SLOPES ARE SHOWN SCHEMATICALLY AND ARE NOT TO SCALE.
 - NUMBER OF CABLES VARIES DEPENDING ON LOCATION

LEACHATE FORCEMAIN/ELECTRICAL
COMMON TRENCH DETAIL
N T S



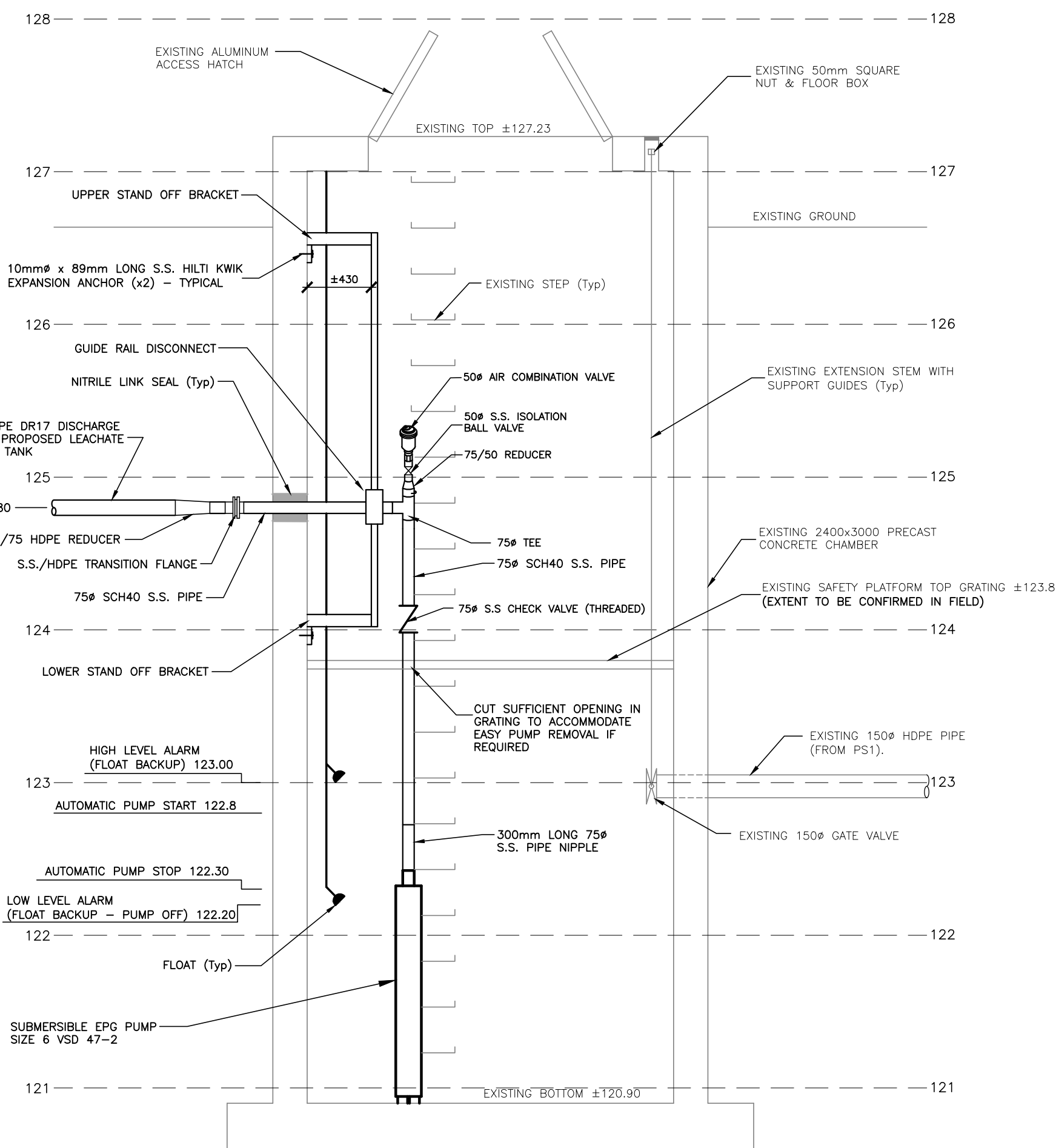
- NOTE :
- TRENCH SIDE SLOPES ARE SHOWN SCHEMATICALLY AND ARE NOT TO SCALE.
 - THIS DETAIL ALSO APPLIES TO STORM SEWER (NO TRACER WIRE AND DR26 PIPE) SIZE AS SPECIFIED.

LEACHATE FORCEMAIN
TRENCH DETAIL (Typ)
N T S



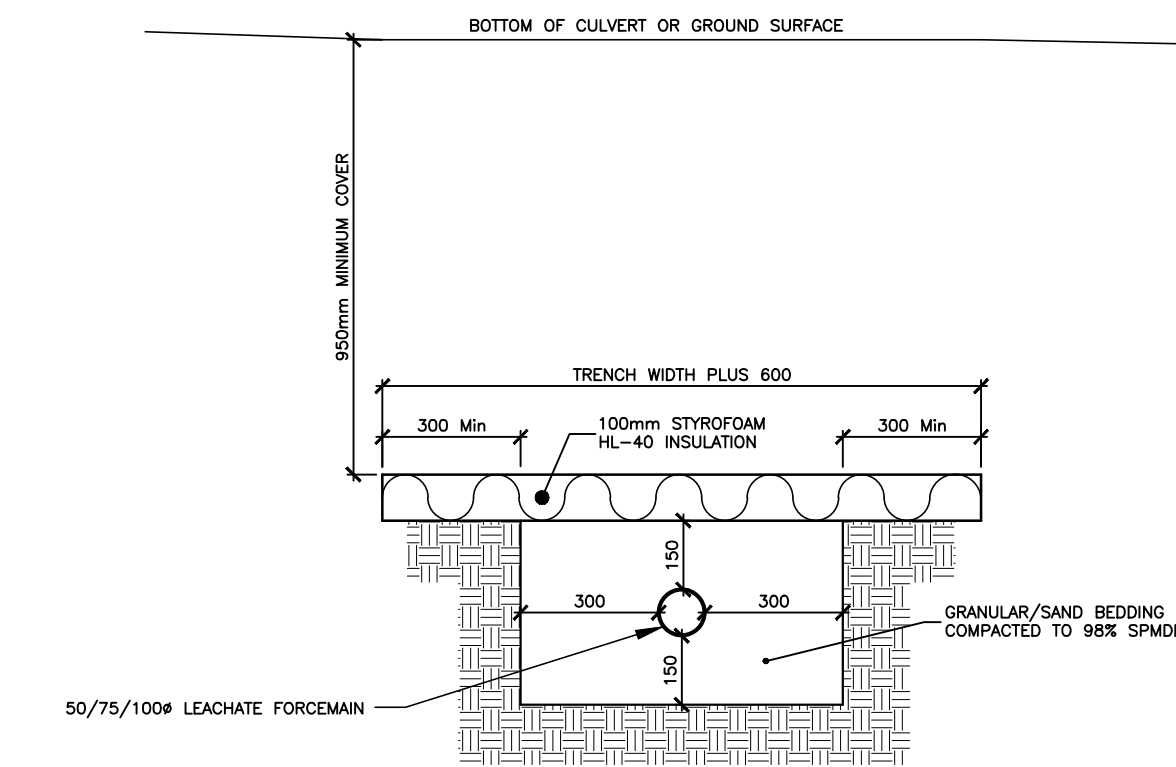
LEACHATE PUMPING STATION PS2 - SCHEMATIC
N. T. S.

DESCRIPTION	PS2
1. PUMPING STATION BOTTOM ELEVATION	120.9
2. PUMPING STATION TOP ELEVATION (TOP OF CONCRETE)	127.23
3. DISCHARGE PIPE C/L ELEVATION	124.80
4. UPPER BRACKET TOP ELEVATION	126.60
5. LOWER BRACKET TOP ELEVATION	124.10
6. TOP OF PUMP	122.35
7. AUTOMATIC PUMP OFF LEVEL	122.30
8. FLOAT PUMP OFF LEVEL (BACKUP)	122.20

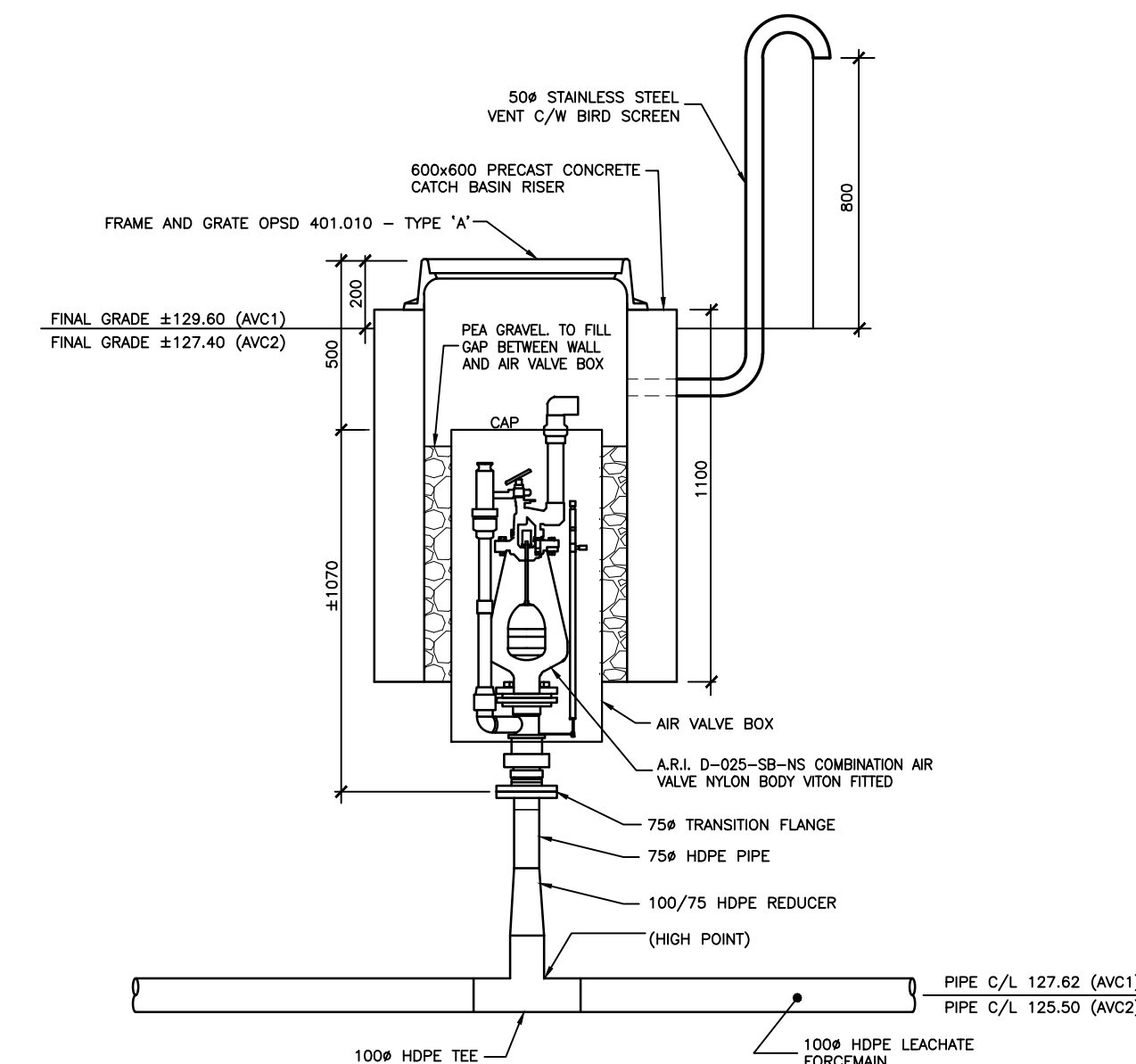


LEACHATE PUMPING STATION PS2 - SECTION
SCALE: 1:30

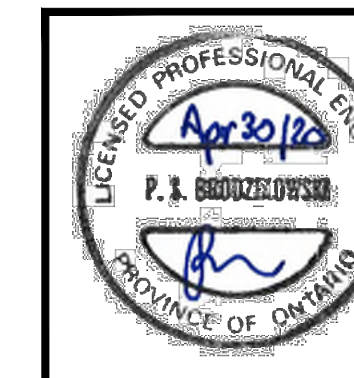
- NOTE :
- PUMP SHALL STOP AUTOMATICALLY WHENEVER LEACHATE STORAGE TANK IS FULL (W/L=136.17)



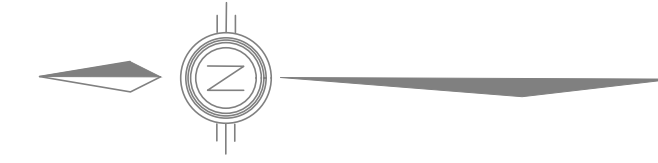
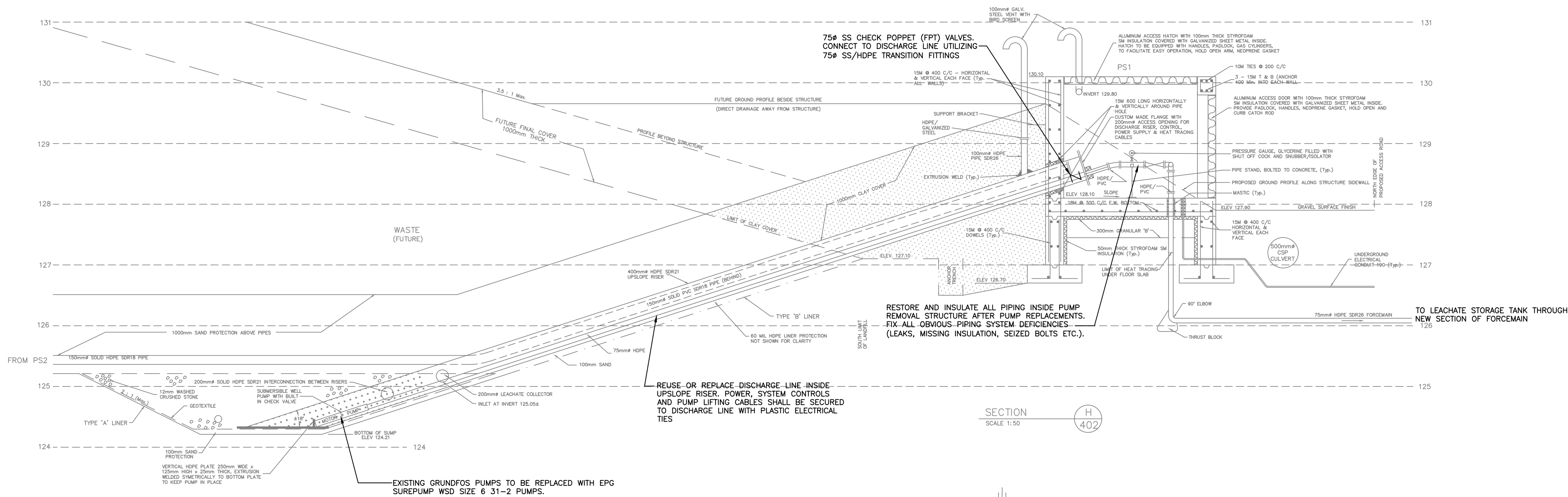
- NOTES :
- INSULATION TREATMENT TO BE EMPLOYED UNTIL BACKFILL OVER FORCEMAIN IS 1.8 METERS.



AIR VALVE CHAMBER - SECTION
SCALE: 1:20

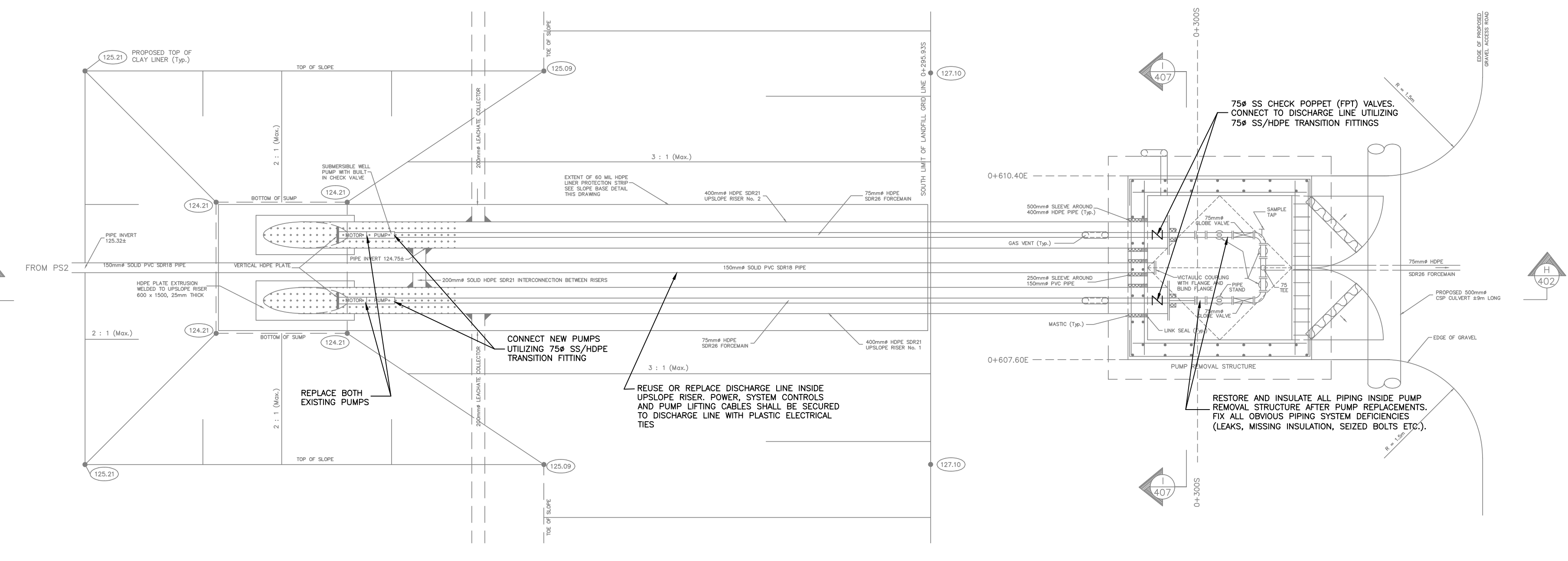


DWN BY:	T C G	DATE:	APRIL 2020
CHK BY:	P S B	SCALE:	AS SHOWN

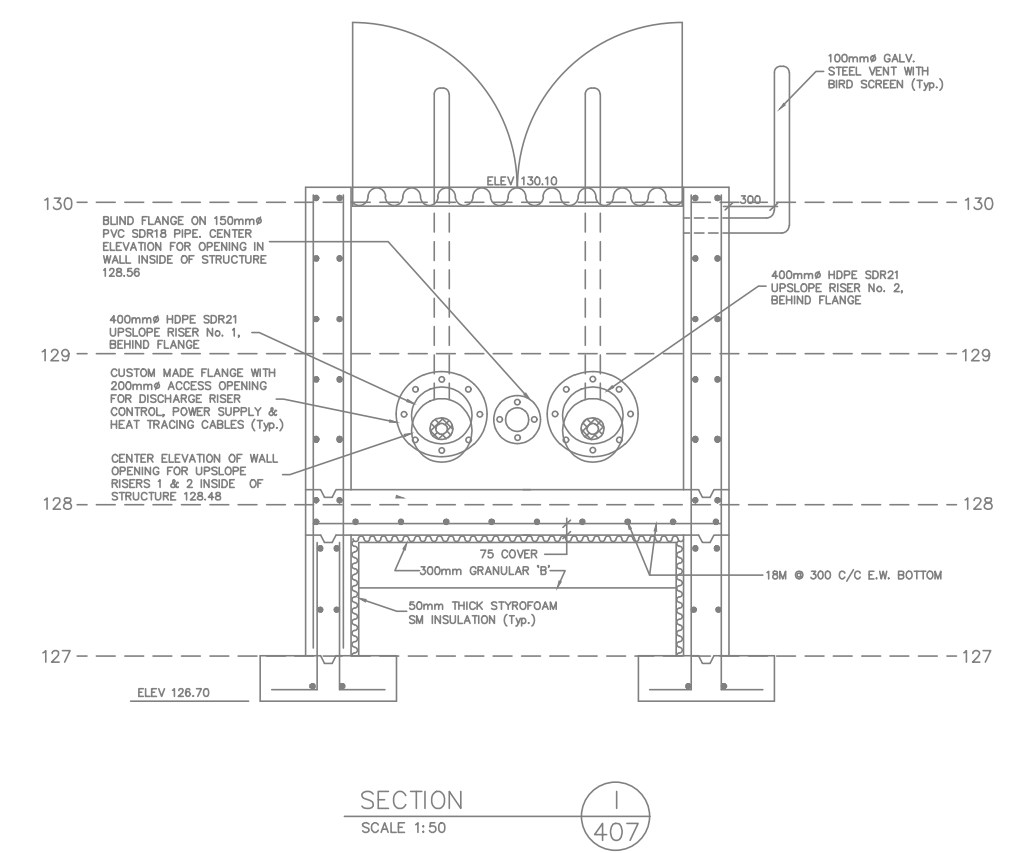
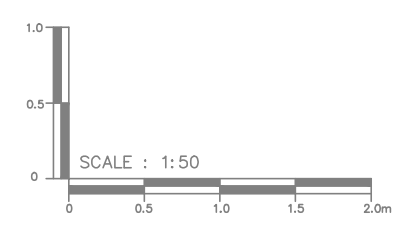


NOTES : (ORIGINAL DESIGN 1995)

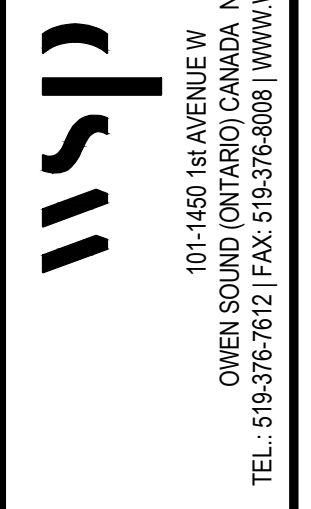
- SUBMERSIBLE WELL PUMPS TO BE GRUNDFOS 80S20-2 (304 STAINLESS STEEL WITH TEFLON SEALS), PUMP CAPACITY 5.05 l/s @ 21.3m HEAD, 2 HP, 3 PHASE, 575V, 100mm# POLLUTION RECOVERY MOTOR, 3450 rpm., COMPLETE WITH COPPER CONDUCTOR WITH "TEFZEL" INSULATED MOTOR CABLES, LENGTH 20m.
- GLOBE VALVES TO BE CHEMLINE GVA030F
- PVC PIPING INSIDE PUMP REMOVAL STRUCTURE TO BE 75mm# SCHEDULE 80
- CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT BRACES OR STANDS FOR VALVES AND PIPING.
- ALL PIPING AND VALVES INSIDE PUMP REMOVAL STRUCTURE TO BE INSULATED WITH 50mm THICK RIGID POLYURETHANE FOAM BY URECON LTD. INSULATION SHALL BE SUPPLIED IN TWO HALVES (SPLIT). INSULATION FOR VALVES AND FITTINGS SHALL BE FACTORY FORMED TO FIT. INSULATION CELLS SHALL BE EQUIPPED WITH SPECIAL CHANNEL TO ACCOMMODATE HEAT TRACING CABLES.
- PRESSURE GAUGE TO BE TRERICE 450LSS, 0 - 700kPa RANGE OR APPROVED EQUIVALENT
- PUMP OPERATION LEVELS :
 - 125.10 - HIGH LEVEL ALARM
 - 125.00 - STANDBY PUMP ON
 - 124.90 - DUTY PUMP ON
 - 124.80 - STANDBY PUMP OFF
 - 124.70 - DUTY PUMP OFF
 - 124.65 - LOW LEVEL ALARM



LEACHATE SUMP AND PUMP REMOVAL STRUCTURE PLAN (PS1) SCALE 1:50



NOTES :
 1. PS1 PLANS SHOWN HEREIN ARE BASED ON HENDERSON PADDOON & ASSOCIATES ORIGINAL DESIGN DRAWING 85700-407 FROM 1995.

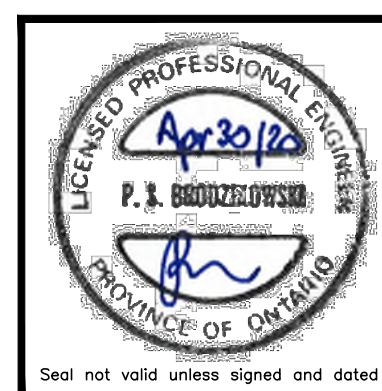


101-1455 14 AVENUE WY
 OWEN SOUND ONTARIO CANADA N4K 6W2
 TEL: 519-376-8182 | FAX: 519-376-8088 | WWW.WSPGROUP.COM



PROPOSED LEACHATE STORAGE SYSTEM
 PS1 - PLAN, SECTIONS AND DETAILS
 RICHMOND LANDFILL
 NAPANEE, ONTARIO

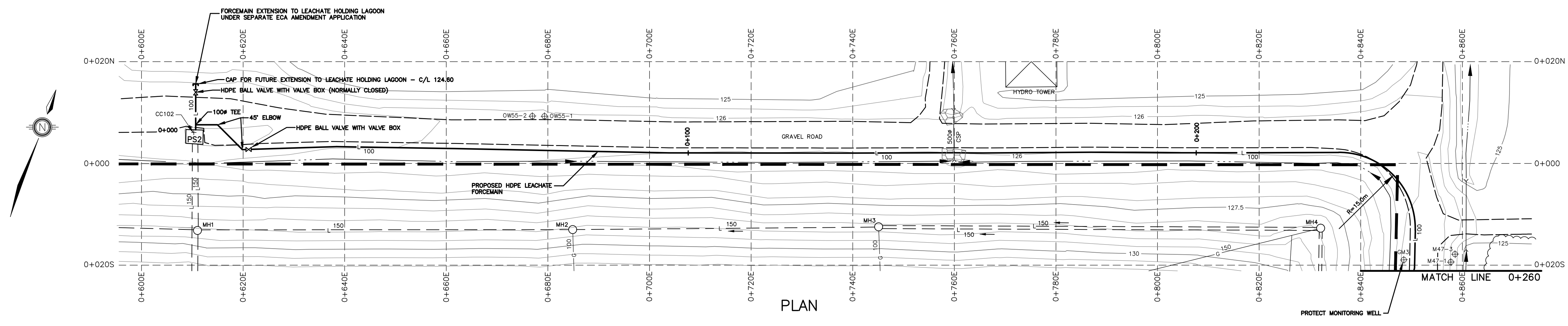
DWN BY: T C G
 CHK BY: P S B
 DATE: APRIL 2020
 SCALE: SEE BAR SCALE
 WASTE MANAGEMENT OF CANADA CORP.
 DRAWING NO. 8570G - LS106



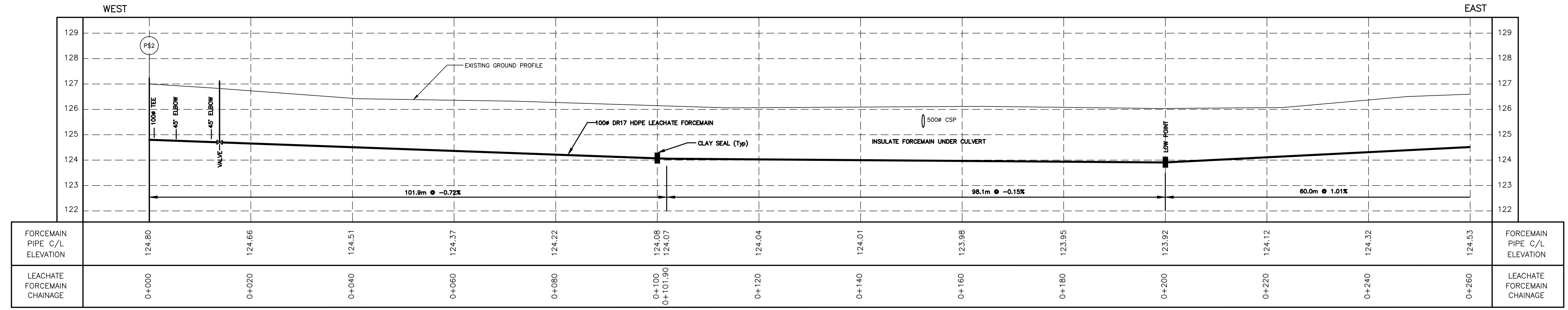
DATE	DESCRIPTION	APP BY

DRAWING
 LS106

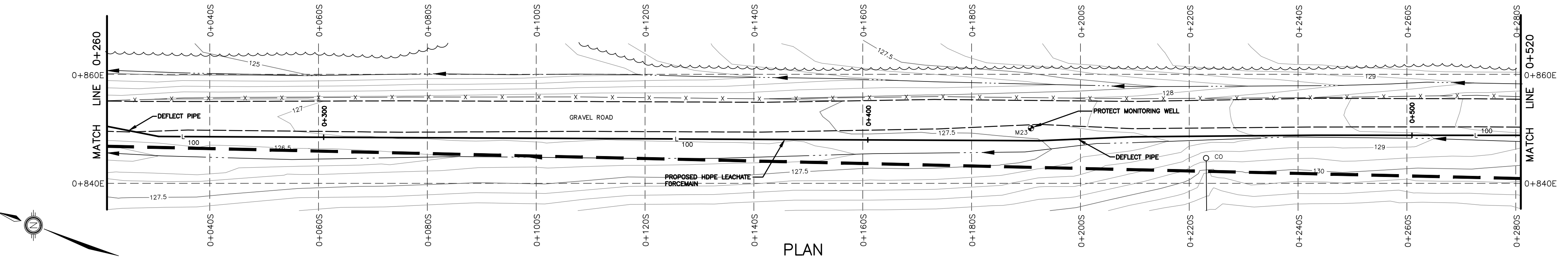
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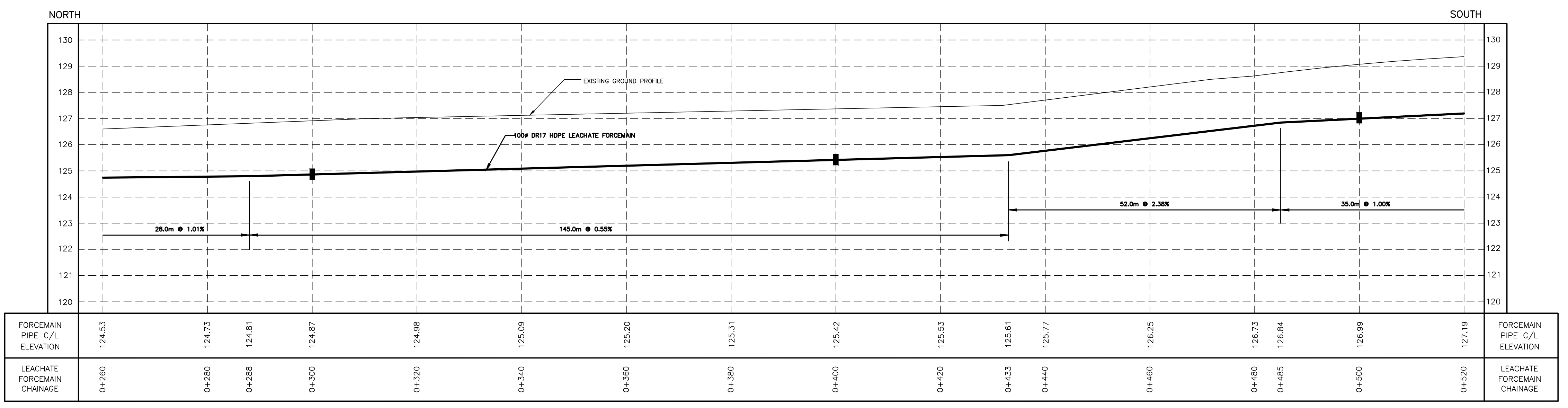
PLAN



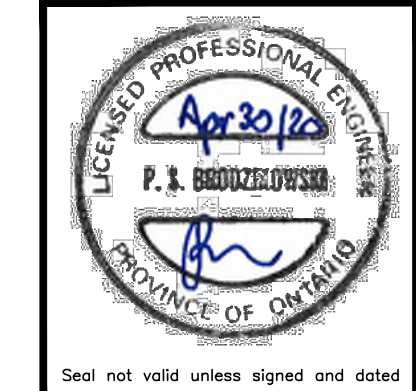
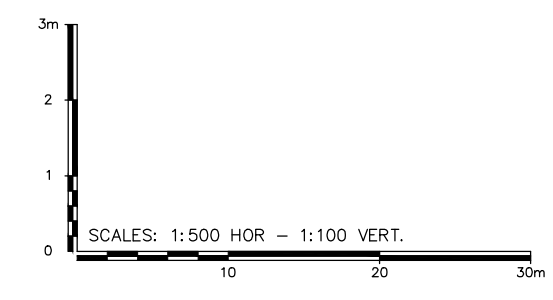
PROPOSED LEACHATE FORCEMAIN PROFILE



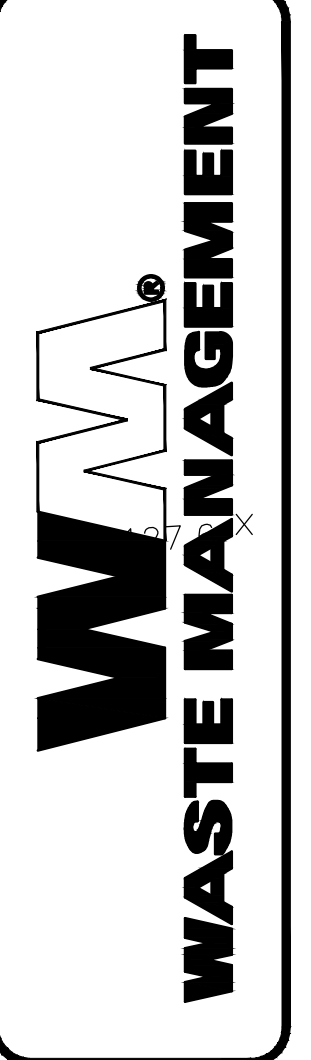
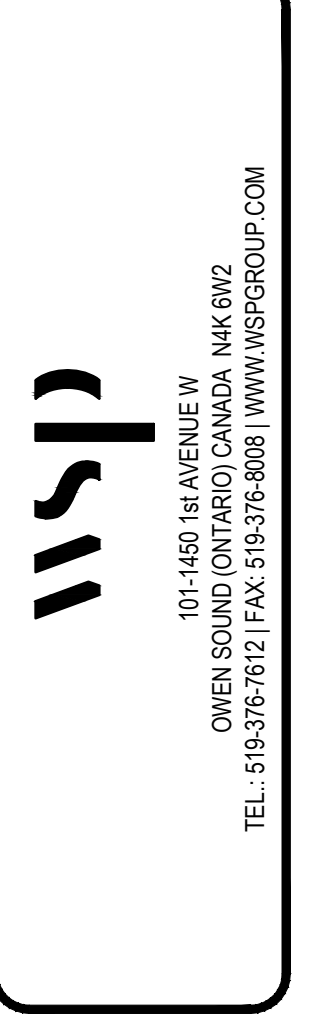
PLAN



PROPOSED LEACHATE FORCEMAIN PROFILE



DATE	DESCRIPTION	APP BY

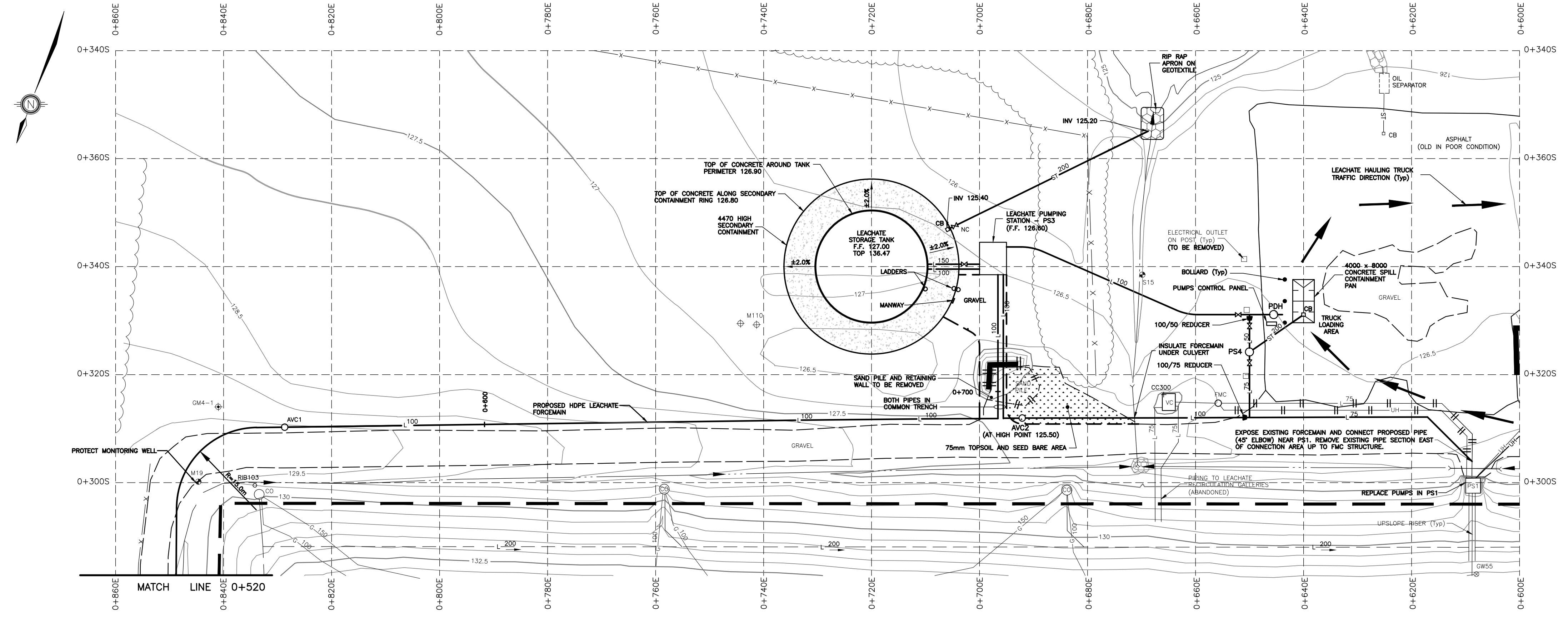


PROPOSED LEACHATE STORAGE SYSTEM
FORCEMAIN PLAN AND PROFILE
RICHMOND LANDFILL
NAPANEE, ONTARIO

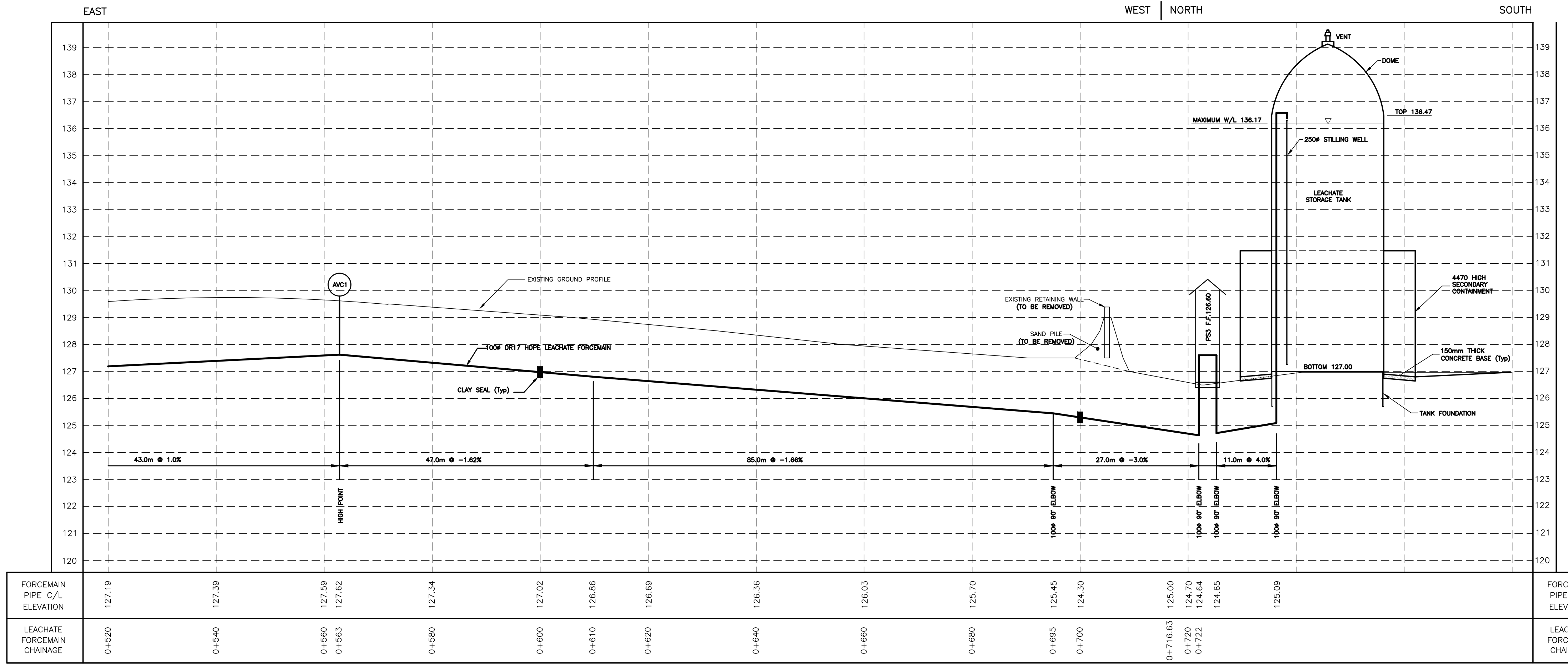
DWN BY: T C G
CHK BY: P S B
DATE: APRIL, 2020
SCALE: AS SHOWN
WASTE MANAGEMENT OF CANADA CORP.
DRAWING NO. 8570G - LS107

DRAWING
LS107

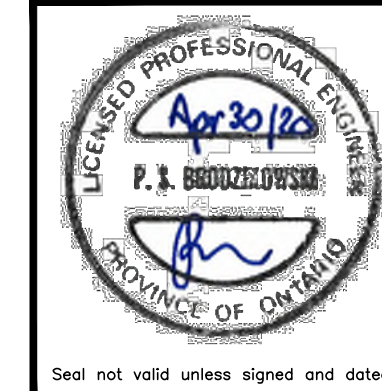
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PLAN



PROPOSED LEACHATE FORCEMAIN PROFILE



DATE	DESCRIPTION	APP BY

OWN BY: T C G
CHK BY: P S B
DATE: APRIL 2020
SCALE: AS SHOWN
LICENSED PROFESSIONAL ENGINEER
P. & B. BROUWER
PROVINCE OF ONTARIO
DRAWING NO. 8570G - L08

PROPOSED LEACHATE STORAGE SYSTEM
FORCEMAIN PLAN AND PROFILE
RICHMOND LANDFILL
NAPANEE, ONTARIO

WASTE MANAGEMENT

wsp
101-1451 1st AVENUE W
OWEN SOUND (ONTARIO) CANADA N4K 6W2
TEL: 519-376-8612 | FAX: 519-376-8608 | WWW.WSPGROUP.COM

APPENDIX

A

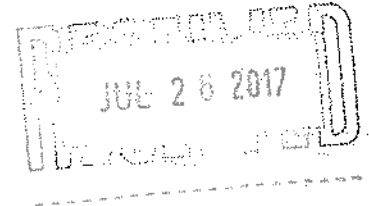
ENVIRONMENTAL
COMPLIANCE
APPROVAL (WASTE
DISPOSAL SITE) NO.
A371203, DATED JULY
14, 2017

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A371203

Issue Date: July 14, 2017

Waste Management of Canada Corporation
851 Robinson Rd E
Rural Route, No. 6
Erie, Pennsylvania
USA 16509



Site Location: Richmond Landfill Site
Lot Pt 1, 2, 3, Concession 4
Greater Napanee Town, County of Lennox and Addington
K7R 3L1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use, operation, and closure of a 16.2 hectare waste disposal landfill site including a landfill gas collection system and landfill gas flare within a total site area of 138 hectares

For the purpose of this environmental compliance approval, the following definitions apply:

"Contaminating Lifespan" or "CLS" refers to the period of time, after closure until the Site finally produces contaminants at concentrations below levels which have unacceptable health or environmental effects;

"Director" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" refers to the District Manager in the Ministry of the Environment's Kingston District Office;

"District Office" refers to the Ministry of the Environment Kingston District Office ;

"EAB" refers to the Environmental Approvals Branch of the Ministry of the Environment;

"EMP" refers to the Environmental Monitoring Plan;

"Environmental Compliance Approval" or "ECA" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.2 of the *EPA*, and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"EPA " means *Environmental Protection Act*, R.S.O. 1990, c. E. 19, as amended from time to time;

"Major Works " are those works that have an engineering component.

"MOECC " or **"Ministry "** refers to the Ontario Ministry of the Environment and Climate Change;

"Operator " has the same meaning as "Operator" as defined in s.25 of the *EPA* ;

"Owner " means Waste Management of Canada Corporation and its successors and assigns;

"O. Reg. 101/94" means Ontario Regulation 101/94 as amended from time to time;

"PA " means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amended from time to time;

"Parties" mean Concerned Citizens Committee of Tyendinaga and Environs; Director, Ministry of the Environment and Climate Change; Waste Management of Canada Corporation; Mohawks of the Bay of Quinte; and Tom Touzel on behalf of Napanee Green Lights.

"Provincial Officer " means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of *PA*;

"Regional Director" refers to the Director of the Ministry of the Environment's Eastern Regional Office;

"Regulation 232 " or **"Reg. 232"** or **"O. Reg. 232/98"** means Ontario Regulation 232/98 (New Landfill Standards) made under the *EPA*, as amended from time to time;

"Regulation 347 " or **"Reg. 347 "** means Regulation 347, R.R.O. 1990, made under the *EPA*, as amended from time to time; and

"Site " means the Richmond Landfill Site.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1.0 GENERAL

Compliance

- 1.1 The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of the *ECA* and the conditions herein and shall take all reasonable measures to ensure the person complies with the same.
- 1.2 Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *ECA* .

In Accordance

- 1.3 Except as otherwise provided for in this *ECA* , the *Site* shall be designed, developed, constructed, operated and maintained in accordance with the supporting documentation listed in Schedule "A".

Other Legal Obligations

- 1.4 The issuance of, and compliance with, this *ECA* does not:
 - a. relieve any person of any obligation to comply with any provision of the *EPA* or any other applicable statute, regulation or other legal requirement; or
 - b. limit in any way the authority of the *Ministry* to require certain steps be taken or to request that any further information related to compliance with this *ECA* be provided to the *Ministry* .

unless a provision of this *ECA* specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this *ECA* .

Adverse Effect

- 1.5 The *Owner* or *Operator* remain responsible for any contravention of any other condition of this *ECA* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

- 1.6 Any information requested by the *Director* or a *Provincial Officer* concerning the *Site* and its operation under this *ECA* , including but not limited to any records required to be kept by this *ECA* shall be provided in a timely manner.
- 1.7 The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *ECA* or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:

- i. an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any condition of this *ECA* or any statute, regulation or other subordinate legal requirement; or
- ii. acceptance by the *Ministry* of the information's completeness or accuracy.

1.8 Any information related to this *ECA* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

1.9 This *ECA* revokes and replaces the previous *ECA* and all subsequent amendments.

1.10 Where there is a conflict between a provision of any document, including the application, referred to in this *ECA*, and the conditions of this *ECA*, the conditions in this *ECA* shall take precedence.

1.11 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment in writing.

1.12 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

1.13 The conditions of this *ECA* are severable. If any condition of this *ECA*, or the application of any condition of this *ECA* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *ECA* shall not be affected thereby.

Certificate of Requirement

1.14 Pursuant to Section 197 of the *EPA*, no person having an interest in the *Site* shall deal with the *Site* in any way without first giving a copy of this *Certificate* to each person acquiring an interest in the *Site* as a result of the dealing.

1.15 The Certificate of Requirement shall be registered in the appropriate land registry office on title to the *Site* and a duplicate registered copy shall be submitted to the *Director* within ten (10) calendar days of receiving the Certificate of Requirement signed by the *Director*.

No Transfer or Encumbrance

1.16 No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this *ECA* will be carried out and that sufficient financial assurance is

deposited with the *Ministry* to ensure that these conditions will be carried out.

Change of Owner

- 1.17 The *Owner* shall notify the *Director* , in writing, and forward a copy of the notification to the *District Manager* , within 30 days of the occurrence of any changes in the following information:
- i. the ownership of the *Site* ;
 - ii. the *Operator* of the *Site* ;
 - iii. the address of the *Owner* or *Operator* ;
 - iv. the partners, where the *Owner* or *Operator* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act* , R. S. O. 1990, c. B.17, shall be included in the notification;
 - v. the name of the corporation where the *Owner* or *Operator* is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act* , R. S. O. 1990, c. C.39, shall be included in the notification.
- 1.18 In the event of any change in the ownership of the *Site* , other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *ECA* , and a copy of such notice shall be forward to the *Director* and *District Manager* .

Inspections

- 1.19 No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *EPA* , or the *PA* , of any place to which this *ECA* relates, and without limiting the foregoing:
- i. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *ECA* are kept;
 - ii. to have access to, inspect, and copy any records required to be kept by the conditions of this *ECA* ;
 - iii. to inspect the *Site*, related equipment and appurtenances;
 - iv. to inspect the practices, procedures, or operations required by the conditions of this *ECA* ; and
 - v. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *ECA* or the *EPA* , or the *PA* .

2.0 FINANCIAL ASSURANCE

Overview

- 2.1 Financial assurance shall be provided as required by the *Director* , in an amount that is sufficient to pay for compliance with and performance of any action specified in this *ECA* , including

closure, monitoring and maintenance of the *Site* , maintenance of all required contaminant control systems including leachate management systems, contaminant monitoring for the contaminating lifespan of the *Site* and contingency plans for the *Site* in accordance with this *ECA*.

- 2.2 Financial assurance may be provided in one or more of the following forms: cash, irrevocable letter of credit, surety bond, or some other form, all satisfactory to the *Director* .

Inflation Rate

- 2.3 The *Owner* shall ensure the methodology used to determine the inflation rate for the financial assurance re-evaluation calculation is the current approach deemed acceptable by the *Ministry* .

Interest (Discount) Rate

- 2.4 The *Owner* shall ensure the methodology used to determine the interest rate for the financial assurance re-evaluation calculation is the current approach deemed acceptable by the *Ministry* .

Proposed Payment Schedule

- 2.5 Within twenty (20) days of issuance of this *ECA* , the *Owner* shall submit an updated financial assurance, as defined in Section 131 of the *EPA* , for the amount of **\$13,659,912.00** to the *Director* . This Financial Assurance shall be in a form acceptable to the *Director* and shall provide sufficient funds for the closure, contingency, post-closure operation, monitoring and maintenance of the *Site* .

- 2.6 The total amount of financial assurance shall be updated as follows for the following years:

- i. March 31, 2018 - **\$13,172,376.00**;
- ii. March 31, 2019 - **\$12,685,305.00**; and
- iii. March 31, 2020 - **\$12,171,802.00**.

Updated Review Report

- 2.7 A revised or new financial assurance program shall be submitted to the *Director* by no later than **March 31, 2020** and then at an interval no greater than a period of every three (3) years thereafter. The report shall include:

- a. updates of the discount, interest and inflation rates associated with the requirements for financial assurance in this *ECA* including justifications and sources of the proposed rates; and
- b. a report prepared by a qualified Professional Engineer which updates the cost estimates on which the amounts associated with the requirements for financial assurance in this *ECA* are based.

- 2.8 No waste shall be received, accepted, disposed or transferred at the *Site* unless appropriate financial assurance is received.
- 2.9 If any financial assurance is scheduled to expire or notice is received, indicating financial assurance will not be renewed, and satisfactory methods have not been made to replace the financial assurance at least sixty (60) days before the financial assurance terminates, the financial assurance shall forthwith be replaced by cash.

3.0 CONSTRUCTION, INSTALLATION and PLANNING

Major Works

- 3.1 (1) The final detailed design of *Major Works* shall include the following:
- a. design drawings and specifications;
 - b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work, including necessary precautions to avoid disturbance to the underlying soils; and
 - c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.
- (2) Maintenance or replacing components (i.e. piping for the gas collection system) related to existing *Major Works* are not considered *Major Works* under Section 3.0 of the *ECA*
- 3.2 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.
- 3.3 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the *Owner* . Any significant variances from the conceptual design for the *Site* shall be subject to approval by the *Director* .
- 3.4 As-built drawings for all *Major Works* shall be retained on site and made available to *Ministry* staff for inspection.

4.0 GENERAL OPERATIONS

Proper Operation

- 4.1 The *Site* shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the *EPA* and *Regulation 347* and the requirements of this *ECA*. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

Operations Manual

4.2 The *Owner* shall ensure the operations and procedures manual for the *Site* includes discussions on the following items:

- a. Health and safety;
- b. Operation and maintenance of the *Site* ;
- c. Waste disposal area and development;
- d. Nuisance management;
- e. Leachate management;
- f. Landfill gas management;
- g. Surface water/Stormwater management;
- h. Inspections and monitoring;
- i. Contingency plans and emergency procedures;
- j. Complaints; and,
- k. Reporting and record keeping.

4.3 The operations and procedures manual shall be:

- a. retained at the *Site* ;
- b. reviewed on an annual basis and updated by the *Owner* as required; and
- c. be available for inspection by *Ministry* staff.

Site Closure

4.4 The *Owner* shall ensure that no waste is received for disposal at the *Site* after **June 30, 2011** and the site is capped with final cover material by **September 30, 2011**.

Capacity

4.5 The *ECA* permits disposal of waste at the *Site* to fill an air space of **2,842,700 cubic metres** (including waste, daily and interim cover material).

Yearly Waste Limit

4.6 No more than 125,000 tonnes of waste per year may be accepted at the *Site* .

Service Area

4.7 Only waste that is generated in the Province of Ontario shall be accepted at the *Site* .

Hours of Operation

4.8 Waste shall only be accepted at the *Site* during the following time periods:

- i. 8 am to 5 PM - Monday to Friday (except statutory holidays)
- ii. 8 am to 1 PM - Saturday

- 4.9 With the prior written approval of the *District Manager*, the time periods may be extended to accommodate seasonal or unusual quantities of waste.
- 4.10 The *Owner* may provide limited hours of operation provided that the hours are posted at the landfill gate and that suitable notice is provided to the public of any change in operating hours.
- 4.11 Upon reasonable notice to the *Director*, contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Site Security

- 4.12 During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons.

On-Site Roads

- 4.13 *Site* roads shall be maintained in a manner approved by Item 19 of Schedule "A".

Waste Inspection Procedures

- 4.14 The *Operator* shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this *ECA*.

Waste Inspection and Deposition

- 4.15 All loads of waste must be properly inspected by trained *Site* personnel prior to acceptance at the *Site* and waste vehicles must be diverted to appropriate areas for waste disposal.
- 4.16 The *Owner* shall deposit waste in a manner that minimizes exposure area at the landfill working face and all waste shall be compacted before cover is applied.

Litter Control:

- 4.17 All loose, windblown litter shall be collected and disposed of at an approved disposal facility.

Vermin, Scavenging, Dust, Litter, Odour, Noise, etc.

- 4.18 The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.
- 4.19 No scavenging is to occur at the *Site*.

Dust

- 4.20 The *Owner* shall control fugitive dust emissions from *Site* sources including but not limited to *Site* roads, stockpiled cover material and closed landfill area prior to seeding especially during times of dry weather conditions. If necessary, major sources of dust shall be treated with water and/or dust suppression materials to minimize the overall dust emissions from the *Site*.

Noise

- 4.21 The *Owner* shall comply with noise criteria in *MOECC* Guideline entitled "Noise Guidelines for Landfill Sites."

5.0 SITE OPERATIONS

Cover Material

- 5.1
- i. Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 mm of soil cover or an approved thickness of alternative cover material shall be placed.
 - ii. Final Cover - Final cover placed after the effective date of this *ECA* must meet the following specifications. In areas where landfilling has been completed to final contours, a minimum 900 mm thick layer of native silty clay till soil shall be placed having a hydraulic conductivity of 1×10^{-8} m/s or less followed by 150 mm of topsoil. The *Owner* shall construct the final cover system for the *Site* in accordance with Items 33 to 36 of Schedule "A" and this *ECA*.
 - iii. The *Owner* shall ensure that no contaminated soils are used in the final cover.

Cleaning Leachate Collection System

- 5.2 The leachate collection system piping for each stage of the landfill shall be inspected and cleaned in accordance with the schedule outlined in Condition 13.10.

Leachate Sump Pits

- 5.3 A leachate maintenance level of no greater than 0.66 metres shall be maintained in the north pumping chamber and documented each working day.
- 5.4 Appropriate alarms shall be installed to warn *Site* personnel of rising leachate levels within the sump pits so that the *Owner* can take appropriate action to prevent an overflow.

Leachate Storage System

- 5.5 Approval is hereby granted for construction of the leachate storage system, all in accordance with Items 63 and 64 in Schedule "A".
- 5.6 The *Owner* shall ensure there are no leachate spills during construction of the leachate storage system and during truck loading.

Compost Pad Area and Compost Pond

- 5.7 The *Owner* shall stop operation of the compost pad by no later than **September 30, 2011**.
- 5.8 The *Owner* shall removed all compost material (finished, curing compost, bulking material) from the *Site* by no later than **September 30, 2011**.

Construction and Operation of Phytoremediation System

- 5.9. (1) The phytoremediation system located in the northwest corner of *Site* shall be constructed and operated in accordance with Item 38 in Schedule A.
- (2) The extent of the phytoremediation system shall not extent beyond the limits as shown in Item 38 in Schedule A.
- (3) The phytoremediation system located in the northwest corner of the *Site* shall not be irrigated with any leachate.
- (4) The *Owner* shall ensure that the vegetation does not exceed a height of 12 feet.
- (5) Where vegetation reaches or exceeds a height of 12 feet, the *Owner* shall prune the vegetation forthwith.
- (6) Within seven (7) days of completion of planting of the phytoremediation system as identified in Item 38 of Schedule "A", the *Owner* shall notify the *District Manager* in writing that the planting has been completed.

Monitoring of Phytoremediation System

- 5.10 (1) The following monitor wells will be used to monitor groundwater levels around the phytoremediation system in the northwest corner of the *Site* :
- a. Shallow Zone - M27, M29, M30, M31, M38, M66-2, M67-2, M100, M101, M102 and M103
 - b. Intermediate Bedrock Zone - M3A-3, M5-3, M6-3, M74 and M75
- (2) The following monitors will be used to monitor groundwater quality around the phytoremediation system in the northwest corner of the *Site* :

- a. Shallow Zone - M29, M66-2, M67-2, M101, M102 and M103
 - b. Intermediate Bedrock Zone - M5-3, M6-3, M74 and M75
- (3) For the monitoring wells identified in Condition 5.10 (2), the *Owner* shall analyze groundwater for determining the quality of groundwater around the phytoremediation system in the northwest corner of the *Site* based on the *EMP* approved prior to this notice and any future approved changes identified in future amendments.

Reporting

- 5.11 Reporting on the phytoremediation system shall be part of the annual monitoring report for the *Site* and shall include but not be limited to the following:
- i. results and an analysis of the results of the monitoring programs for the phytoremediation system;
 - ii. assessment of the results of the phytoremediation system as related to the stated objectives for the existing and proposed phytoremediation system;
 - iii. assessment of the need to change the monitoring program for the phytoremediation system and a recommendation of the required changes;
 - iv. a report on operational problems identified during the operation of the phytoremediation system and a discussion of each problem and details of what was done to rectify each problem;
 - v. assessment of the need for operational changes for the phytoremediation system and a recommendation of the required changes;
 - vi. a *Site* plan which shows the location of the phytoremediation system and any changes made to the phytoremediation system;

Waste and Recyclable Drop-Off Facility

Compliance

- 5.12 Except as otherwise provided by these conditions, the Waste and Recyclable Drop-Off Facility shall be designed, developed, maintained and operated in accordance with the Applications for a Provisional Certificate of Approval for a Waste Disposal Site dated May 25, 2011, and the supporting documentation, plans and specifications listed in Schedule "A".

Waste Types

- 5.13 (1) The Waste and Recycling Drop-Off Facility shall accept the following types of waste:
- i. Solid Non Hazardous Waste - Domestic Waste, Construction and Demolition Waste;
 - ii. Blue Box Materials;
 - iii. Tires; and
 - iv. White Goods and Metal;

- (2) Contaminated soil shall not be accepted at the Waste and Recycling Drop Off Facility.
- (3) If the *Owner* participates in Stewardship Ontario, Ontario Tire Stewardship, or any other recycling program developed by the Province of Ontario, then the waste that has been approved for collection under the aforementioned programs will also be accepted at the public drop off area.

Waste Quantity

- 5.14
- (1) The total amount of waste and recyclable material, which may be received at the Waste and Recyclable Drop off Facility shall not exceed **50 tonnes** per day.
 - (2) On twenty-five occasions throughout a single calendar year the *Owner* is permitted to have a "Large Waste Day" where the *Owner* is permitted to accept up to **100 tonnes** per day. The *Owner* shall notify the *District Manager* in writing within 48 hours after the *Owner* has used one of the "Large Waste Days".
 - (3) The maximum amount of waste that may be stored at the Waste and Recycling Drop-Off Facility shall not exceed **50 tonnes**.
 - (4) The maximum number of waste storage containers that may be stored/utilized at the Waste and Recyclable Drop-Off Facility at any one time shall be as follows:
 - i. nine (9) - 40 yard bins for metals, tires and solid non hazardous waste consisting of domestic, construction and demolition waste;
 - ii. two (2) - 8 yard bins for blue box materials;
 - iii. three (3) - five (5) gallon pails for single use batteries.

Service Area

- 5.15 Only waste that is generated within the boundaries of the **Town of Greater Napanee, Town of Deseronto and Tyendinaga Township** which includes the **Mohawks of the Bay of Quinte** shall be accepted at the *Site*. No waste shall be received for disposal at this *Site* from outside the approved service area.

Hours of Operation

- 5.16. The operating hours of the Waste and Recycling Drop-Off Facility shall be as follows:
- i. 8 a.m. to 5 p.m. - Monday to Friday, except for statutory holidays; and
 - ii. 8 a.m. to 1 p.m. - Saturday
- 5.17 No waste shall be received at the Waste and Recycling Drop-Off Facility except during operating hours when the *Site* is under the supervision of trained personnel.

Removal Frequency

- 5.18 (1) Waste materials shall be removed from the Waste and Recycling Drop-Off Facility on a minimal frequency of twice per week with the exception of white goods and blue box materials.
- (2) White goods and blue box materials shall be removed at a frequency no less than once every six months.
- (3) Wastes which have been approved for collection under Stewardship Ontario, Ontario Tire Stewardship, or any other recycling programs developed by the Province of Ontario, shall be removed from the *Site* at the frequency as detailed in the requirements for the aforementioned programs.

Operations

- 5.19 Recycling activities shall be completed as per *Ontario Regulation 101/94*.
- 5.20 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.
- 5.21 All storage containers/bins used to store waste and/or recyclable materials shall be maintained in good condition to prevent leakage. The *Owner* shall immediately remove from service any leaking container. Containers/bins used to store clean scrap metal may be equipped with drainage holes to permit the drainage of rainwater.
- 5.22 With the exception of white goods, waste may only be stored within the waste storage bins in accordance with Items 52, 53, 54 and 55 in Schedule "A".
- 5.23 All waste types shall be segregated either into bins, or in designated areas defined by barriers. All bins and designated waste storage areas shall be clearly labelled.
- 5.24 The *Owner* shall ensure that all white goods received at the Waste and Recyclable Drop-off Facility have been drained of any refrigerants, and have the appropriate paperwork (current ODP card) demonstrating that the refrigerants have been removed.

Surface Water

- 5.25 The *Owner* shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.
- 5.26 The *Owner* shall not discharge surface water to receiving water bodies without an approval under Section 53 of the *OWRA*.

6.0 TRAINING

Employees and Training

6.1 A training plan for all employees that operate any aspect of the *Site* shall be developed and implemented by the *Operator*. Only trained employees shall operate any aspect of the *Site* or carry out any activity required under this *ECA*. For the purpose of this *ECA* "trained" means knowledgeable either through instruction or practice in:

- i. the relevant waste management legislation including *EPA, O. Reg. 347*, regulations and guidelines;
- ii. major environmental and occupational health and safety concerns pertaining to the waste to be handled;
- iii. the proper handling of wastes;
- iv. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
- v. the emergency response procedures;
- vi. the specific written procedures for the control of nuisance conditions;
- vii. the terms, conditions and operating requirements of this *ECA* and,
- viii. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

7.0 INSPECTIONS AND RECORD KEEPING

Daily Inspections and Log Book

7.1 An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that the *Site* is being operated in compliance with this *ECA*. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed.

7.2 A record of the inspections shall be kept in a daily log book or a dedicated electronic file that includes:

- i. the name and signature of person that conducted the inspection;
- ii. the date and time of the inspection;
- iii. the list of any deficiencies discovered;
- iv. the recommendations for remedial action; and
- v. the date, time and description of actions taken.

7.3 A record shall be kept in the daily log book of all the following:

- i. the type, date and time of arrival, hauler, and quantity (tonnes) of all waste received at the *Site*; and,

- ii. a list of the refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Monthly Records

7.4 Monthly *Site* inspection records in the form of a written log or a dedicated electronic file shall include the following:

- i. a summary of wastes received and refused for disposal at the *Site* ;
- ii. the area of the *Site* in which waste disposal operations are taking place;
- iii. a calculation of the total quantity (tonnes) of waste received at the *Site* during each operating day and each operating week;
- iv. the amount of any leachate removed, or treated and discharged from the *Site* ;
- v. a record of litter collection activities and the application of any dust suppressants;
- vi. a record of the daily inspections;
- vii. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service;
- viii. type and amount of daily, intermediate and final cover used;
- ix. maintenance and repairs performed on equipment employed at the *Site* ;
- x. complaints received and actions taken to resolve them;
- xi. emergency situations and actions taken to resolve them; and
- xii. any other information required by the *District Manager* .

Site Inspections

7.5 During *Site* operations, the *Owner* shall inspect the site monthly for the following items but not limited to these items:

- i. General settlement areas or depressions on the waste mound;
- ii. Shear and tension cracks on the waste mound;
- iii. Condition of surface water drainage works;
- iv. Erosion and sedimentation in surface water drainage system;
- v. Presence of any ponded water on the waste mound;
- vi. Adequacy of cover material;
- vii. Evidence of vegetative stress, distressed poplars or side slope plantings on or adjacent to the waste mound;
- viii. Condition of groundwater monitoring wells and gas wells;
- ix. Presence of insects, vermin, rodents and scavenging animals on or adjacent to the waste mound;
- x. Condition of fence surrounding the *Site* ; and,
- xi. General *Site* appearance.

7.6 The *Owner* shall inspect the waste mound and surrounding areas for the presence of leachate seeps as required by Condition No. 13.5.

Record Retention

- 7.7 Except as authorized in writing by the *Director* , all records required by this *ECA* shall be retained at the *Site* for a minimum of two (2) years from their date of creation.
- 7.8 The *Owner* shall retain all documentation listed in Schedule "A" for as long as this *ECA* is valid.
- 7.9 All monthly summary reports are to be kept at the *Site* until they are included in the Annual Report.
- 7.10 The *Owner* shall retain employee training records as long as the employee is working at the *Site* .
- 7.11 The *Owner* shall make all of the above documents available for inspection upon request of *Ministry* staff.

8.0 MONITORING

Groundwater Monitors

- 8.1 The *Owner* shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.
- 8.2. All groundwater monitoring wells whether included in the monitoring program or not shall be assessed at least every five years, and repaired, replaced or decommissioned as required in accordance with good standard practice to prevent groundwater contamination and in compliance with the requirements of Ontario Regulation 903.
- 8.3 The *Owner* shall repair or replace any monitoring well included in the monitoring program which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.
- 8.4 Any monitoring well included in the monitoring program that is no longer required as part of the groundwater monitoring program may be decommissioned provided its removal from the monitoring program has been approved by the *Director* . A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Programs

- 8.5 (a) The *Owner* shall submit to the *District Manager* by no later than April 15, 2016, with copies to the *Parties* , a revised Environmental Monitoring Plan ("*EMP* "). The revised *EMP* shall implement all of the provisions of the Interim Environmental Monitoring Plan Revision No. 04,

prepared by WESA, dated August 2015, ("Interim *EMP* ") subject to the following modifications ordered by the Tribunal:

- i. The Interim *EMP* shall be further modified to implement continuous conductivity monitoring on Marysville Creek for one year, commencing May 1, 2016, with continuous conductivity loggers placed at: an appropriate location on the Creek, far enough upstream of Deseronto Road to ensure no interference from road salt; and a second location upstream of the landfill to detect background influences. The results of the continuous conductivity monitoring shall be reported in conjunction with the January and July 2017 Semi-annual reports.
 - ii. The Interim *EMP* shall be further modified to state that the need for additional nested monitoring wells in the area of Marysville Creek and the landfill shall be assessed should 1,4-dioxane or another listed parameter be detected.
 - iii. The Interim *EMP* shall be further modified to require that the domestic and agricultural wells at properties located south of Highway 401 on County Road 1 West and Belleville Road, at the addresses noted in the row entitled "Off-site Domestic Wells", Table 2, page 11 of the August 2015 Interim *EMP* , should be tested for 1,4-dioxane every two years for at least the next six years, or until the extent of the leachate contaminated groundwater is declined if that takes longer than six years, and then every five years once the delineation is complete.
 - iv. The Interim *EMP* shall be further modified to require that confirmation resampling (Step 2 under the groundwater evaluation methods and trigger mechanisms set out in Section 7.1 of the proposed revised *EMP*) is to occur at the same time as a water quality conformance assessment (Step 1).
 - v. The Interim *EMP* shall be further modified to set a Reasonable Use Limit (RUL) for 1,4-dioxane at 1 µg/L. Should Ontario amend O. Reg 169/03 to set an Ontario Drinking Water Quality Standard for 1,4-dioxane, the RUL shall be re-calculated in accordance with procedure document B-7-1, and the Interim *EMP* shall be amended as necessary to reflect the re-calculated RUL.
- (b) The *Owner* shall carry out monitoring in accordance with the revised *EMP* submitted by April 15, 2016 as of April 16, 2016.
- (c) The *Owner* shall submit a report to all the *Parties* and the *District Manager* by April 15, 2016 detailing any relevant work carried out relating to the delineation of off-site leachate impacted groundwater or surface water not otherwise described in the January 15, 2016 report submitted further to items 8.5(c) i. to iii. set out in the Tribunal's Order dated July 21, 2015 as amended on October 29, 2015 [the provisions of which are set out in Appendix A], detailing any relevant additional work carried out during this time period, and providing an assessment with necessary supporting rationale as to whether the off-site leachate impacted groundwater has been delineated. The assessment shall be conducted in accordance with the following criteria:

The extent of leachate impacted groundwater shall be delineated if it is demonstrated that groundwater quality within a sufficient number of monitoring wells at the outer extent of the impacted area that are hydraulically connected to the defined area of leachate impacted groundwater does not exceed:

- i. the reasonable use limit ("RUL") for 1,4-dioxane;
 - ii. any RUL as defined in Guideline B-7 and its corresponding procedure, B-7-1 unless the exceedance is identified as not originating from the leachate from the landfill; or
 - iii. any RUL set out in this approval for other parameters unless the exceedance is identified as not originating from the leachate from the landfill.
- (d) The following process shall be followed with respect to the report submitted under 8.5(c):
- i. CCCTE, the MBQ and NGL shall have until June 1, 2016 to provide written comments on the report to the *Owner* and the *District Manager* and specifically whether delineation has been completed in accordance with the criteria.
 - ii. After receiving the written comments from CCCTE, the MBQ and NGL, the *District Manager* will convene a meeting among all the *Parties* to obtain further input and attempt to reach a consensus on whether delineation has been completed.
 - iii. By no later than July 31, 2016, the *District Manager* shall issue a written notice to the *Owner* and copying the *Parties* indicating whether delineation has been completed in accordance with the criteria.
 - iv. If it has been determined by the *District Manager* that delineation has not been completed, the *Owner* shall submit another proposal for additional groundwater investigation that shall be considered in accordance with steps i. through iii. with timelines modified by the *District Manager* accordingly.
 - v. The procedures or deadlines set out in steps i. through iv. can be altered with the consent of all the *Parties*.
- (e) Within 90 days of the *District Manager* providing written notice to the *Owner* that delineation has been completed, the *Owner* shall submit to the *Director*, Environmental Approvals Branch, Ministry of the Environment and Climate Change an application for approval to amend the *ECA* to address any non-compliance with Condition 8.6 and Guideline B-7, including if warranted an application to incorporate a contaminant attenuation zone into the approval, and including a proposed updated *EMP*. The application to amend the *ECA* shall be treated as a standard application and be posted on the EBR Registry for public comment. The application shall outline the options that were considered for bringing the *Site* into compliance with Guideline B-7 and the rationale for the preferred option, and include all necessary supporting documentation.

- 8.5.2 The *Owner* shall conduct a comprehensive investigation of the hydrogeological implications and potential impacts of an existing pipeline which runs across the northern part of the neighbouring properties to the south of the *Site* and submit a report to the *District Manager* and the *Parties* outlining the findings by June 15, 2016.
- 8.5.3 (a) The *Owner* shall conduct odour monitoring and undertake abatement activities as described in the Odour Monitoring Plan dated June 2016, set out as Item 67 in Schedule "A".
- (b) Surface emission surveys may be discontinued upon completion of the fourth quarter surveys in 2016, provided that the total hydrocarbon vapours, expressed as methane, does not exceed 500 parts per million per each grid dimension.
- (c) In the event of odours that are three (3) intensity units (based on the scale provided on Table 3.1 of the Odour Monitoring Plan) or greater are detected at an offsite receptor over a period outlined in Section 3.3.1.2 of the Odour Monitoring Plan, and the landfill mound is confirmed to be the source of the odour, repairs shall be made to the landfill mound as soon as possible. Upon completion of repairs, a surface emission survey shall be carried out to demonstrate that total hydrocarbon vapours, expressed as methane, do not exceed 500 parts per million per each grid dimension.

Compliance Criteria

- 8.6 The *Site* shall be operated in such a way to ensure compliance with the *MOECC* 's Guideline B-7 Reasonable Use Concept at monitoring points along the property line that have the potential to be impacted by leachate from the *Site* .
- 8.6.1 For the purpose of Condition 8.6, a reasonable use limit of 1 µg/L shall be used for the parameter 1,4-dioxane unless an Ontario Drinking Water Quality Standard is established in O. Reg. 169/03 in which case the RUL for 1,4-dioxane shall be recalculated in accordance with the B-7-1 Procedure Document and the interim *EMP* or *EMP* , as the case may be, shall be amended as necessary to reflect the recalculated RUL.
- 8.6.2 Notwithstanding Condition 8.6, if a contaminant attenuation zone ("CAZ") is established, the *Site* shall be operated in such a way to ensure compliance with *MOECC* 's Guideline B-7 Reasonable Use Concept at
- i. monitoring wells that act as groundwater compliance points within the CAZ; or

- ii. along the boundary of the CAZ where it replaces the property line,

unless the non-compliance is identified as not originating from the leachate from the landfill.

- 8.7 Any off site exceedance of parameters for groundwater, surface water, or odour shall be reported to the District Manager within 48 hours of determination of the exceedance. In addition, a statement detailing which results are out of compliance with the Ministry's guidelines and objectives shall be provided at the same time as the results.
- 8.8 Any monitoring result that detects 1,4-dioxane at or above the detection limit of 1 µg/l at any groundwater well or domestic well at which 1,4-dioxane has not been detected in the past or at any surface water monitoring location shall be reported to the District Manager within 48 hours of determination of the exceedance.
- 8.9 Unless otherwise agreed to in writing by the residents of the residences listed below, unless the residence is vacant and likely to remain vacant, the *Owner* shall provide whole house replacement water supplies for the residences located at 1264, 1252, 1250, 1206, 1181, and 1144 Beechwood Road.

9.0 CONTINGENCY PLANS

Groundwater and Surface Water Impact Contingency Plan

- 9.1 (a) The *Owner* shall initiate the contingency plans outlines in section 7.4 of the revised *EMP* referenced in Condition 8.5(a), or as replaced with an updated version, when any of the identified trigger mechanisms occur.
- (b) Notwithstanding Condition 9.1(a), the *Owner* shall not use fracture trench as a Leachate Collection System contingency measure.

Leachate Collection System Contingency Plan

- 9.2 i. The *Owner* shall initiate the Leachate Collection System Contingency Plan at a minimum when the trigger mechanisms identified in Items 41, 47 and 48 of Schedule "A" have been identified as occurring.
- ii. The conceptual Leachate Collection System Contingency Plans as identified in Item Nos. 41, 47 and 48 in Schedule "A" are considered acceptable. In the event the *Owner* needs to implement the Contingency Plan, the *Owner* shall submit to the *Director* for approval prior to implementation, with copies to the *District Manager*, detailed design drawings for works or any remedial system required for the contingency plan.

Leachate Contingency Plan

- 9.3 The *Owner* shall on a biannual basis confirm that there is a suitable location available for disposal of leachate and what that location is. Confirmation shall be provided to the *District Manager* upon receipt. If a location for disposal of leachate is not available, the *Owner* shall provide an action plan for approval to the *District Manager*.

Landfill Gas Contingency Plan

- 9.4 i. The *Owner* shall initiate the Landfill Gas System Contingency Plan at a minimum when the trigger mechanisms identified in Item Nos. 42, 47 and 48 in Schedule "A" have been identified as occurring.
- ii. The conceptual Landfill Gas System Contingency Plans as identified in Item Nos. 42 and 48 in Schedule "A" are considered acceptable. In the event the *Owner* needs to implement the Contingency Plan, the *Owner* shall submit to the *Director* for approval prior to implementation, with copies to the *District Manager*, detailed design drawings for works or any remedial system required for the contingency plan.

Public Notification Plan for Contingency Plans

- 9.5 (a) The *Owner* shall provide notice to interested persons and follow the procedures set out in the Public Notification Plan dated February 2013 set out as Item 58 in Schedule "A" upon the occurrence of any event that triggers notice to be given as set out in the Plan.
- (b) Should the *Owner* wish to amend the Public Notification Plan, the *Owner* shall apply to the *Director* for an amendment to this approval and include in the Application a list of interested persons that were consulted on the proposed amendments and a summary of their comments.

10.0 PUBLIC LIAISON COMMITTEE

- 10.1 The *Owner* shall use its best efforts to establish and maintain a Public Liaison Committee (*PLC*) for the *Site*. The *PLC* shall serve as a focal point for dissemination, review and exchange of information and monitoring results relevant to the operation of the undertaking. In addition, the purpose of the *PLC* will be to provide community review of the development, operation (current and proposed) and ongoing monitoring, closure and post-closure care related to the *Site*. The *PLC* will also be provided the opportunity to review and comment on any subsequent applications for approval under the *EPA*.
- 10.2 The *Owner* shall invite representatives from the Town of Greater Napanee, the *Ministry*, the Township of Tyendinaga, the Quinte Conservation Authority and the Mohawks of the Bay of Quinte to sit on the committee.
- 10.3 The *Owner* shall, in consultation with the *PLC*, develop a terms of reference for the *PLC* that will

describe how the *PLC* shall carry out business, and the terms of reference shall include a dispute resolution strategy to resolve issues and disagreements between the *PLC* and the *Owner* . The *Owner* shall provide the terms of reference to the *Director* and the *Regional Director* for placement on the public record.

- 10.4 The general mandate of the *PLC* shall include:
- a. Review operations and provide regular input to the *Owner* with respect to all matters pertaining to landfill site operation, including issues pertaining to ongoing operations, monitoring, the need for contingency plans or remedial measures, response to community complaints, the need for changes to the *ECA* , post-closure monitoring and maintenance, and development of the proposed end use for the *Site* ;
 - b. Review operational and monitoring reports;
 - c. Consider and make recommendations to the *Owner* regarding outside consulting advice in respect of the *Site* ;
 - d. Facilitate ongoing dialogue between the *Owner* , and the community, including residents and businesses in the immediate vicinity of the *Site* ;
 - e. Provide reports regularly to the community on the activities of the *PLC* , the landfill operations and landfill related issues and seek public input on these activities and issues;
 - f. Monitor the *Owner* 's complaint response program and make recommendations to the *Owner* with respect to this program; and
 - g. Provide recommendations to the *Owner* with respect to unresolved complaints.
- 10.5 The *PLC* shall not exercise any supervisory, regulatory, approval, legal or other decision making role with respect to the operations at the *Site* .
- 10.6 The *Owner* shall provide for the administrative costs of operating the *PLC* , including the cost of meeting places and clerical services.
- 10.7 The *PLC* shall operate under a Terms of Reference of the committee. Any changes to the Terms of Reference for the *PLC* shall be made by the *PLC* . Any changes to the Terms of Reference for the *PLC* shall be provided to the *Ministry* for information purposes.
- 10.8 Community members shall be appointed by the *PLC* . The community member positions are intended to be available to individuals that are not members of groups already represented on the *PLC* and have an interest in the operation of the *Site* . The *PLC* shall encourage individuals who reside in close proximity to the *Site* to participate. A community member is defined as a taxpayer and/or resident of the Town of Greater Napanee and/or The Township of Tyendinaga.
- 10.9 The function of the *Ministry* member will be to provide advice, information and input to other members as required.
- 10.10 The *PLC* shall determine the appropriate meeting frequency and review it on an annual basis.

- 10.11 Minutes and agendas of meetings shall be printed and distributed on a timely basis.
- 10.12 The *PLC* shall have reasonable access to the *Site* and its landfill related facilities for the purpose of carrying out its objective and mandate and the *Owner* 's consultants' reports relating to *Site* operations shall be provided to the *PLC* .
- 10.13 The *Owner* shall provide the *PLC* with access to the *Owner* 's consultants as required and consultants reports in accordance with protocols agreed to between the *Owner* and the *PLC* .
- 10.14 Unless disclosure would be contrary to the Freedom of Information and Protection of Privacy Act ,the *PLC* , the Town of Greater Napanee, the Township of Tyendinaga, and the Mohawks of the Bay of Quinte are to be provided all formal submissions and correspondence related to the *Site* operations by the *Owner* at the same time as these items are submitted to the *Ministry* .
- 10.15 The *Owner* shall allow access to the *Site* during normal operating hours, to enable any individual member of the *PLC* and member of the public recommended by local representatives on the *PLC* , to observe operations. An individual member of the *PLC* must contact the *Operator* to arrange for a *Site* pass, be accompanied by an *Operators* representative at all times and follow all safety procedures.
- 10.16 All recommendations made to the *Owner* with respect to ongoing *Site* operations, monitoring and the implementation of contingency measures shall be discussed at joint meetings between representatives of the *Owner* and the *PLC* . The purpose of these meetings will be to arrive at an agreement between the *Owner* and *PLC* with respect to implementation of the recommendations.
- 10.17 The *Owner* will provide and deliver to the *PLC* , the Town of Greater Napanee, the Township of Tyendinaga and the Mohawks of the Bay of Quinte all monitoring results, reports and any other information required to be collected and/or submitted to the *MOECC* by a Condition of this *ECA* .
- 10.18 The *Owner* with approval from the *Director* and the *District Manager*, may dispense with the *PLC* if, after a period of time and after giving sufficient notice, there is no interest from the public in continuing with it. The need for a *PLC* shall be reviewed by the *Owner* on a yearly basis.

11.0 COMPLAINTS PROCEDURE

- 11.1 If at any time, the *Owner* receives complaints regarding the operation of the *Site* , the *Owner* shall respond to these complaints according to the following procedure:
- a. The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;
 - b. The *Owner* , upon notification of the complaint, shall initiate appropriate steps to

determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

- c. The *Owner* shall complete a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents. A copy of the report shall be retained at the *Site* .

11.2 The *Owner* shall post *Site* complaints procedure at *Site* entrance along with the name and phone number of a suitable, local contact to receive complaints or questions related to the *Site* . All complaints and the *Owner* 's actions taken to remedy the complaints must be summarized in the Annual Report.

12.0 EMERGENCY SITUATIONS

12.1 In the event of a fire or discharge of a contaminant to the environment, *Site* staff shall contact the *MOECC* Spills Action Centre (1-800-268-6060) and the *District Office* of the *MOECC* .

12.2 The *Owner* shall submit to the *District Manager* a written report within three (3) days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the *Site* .

12.3 The Emergency Response Manual shall be updated on a regular basis and be provided to the *District Manager* within one month of the revision date.

12.4 The *Owner* shall ensure that adequate fire fighting and contingency spill clean up equipment is available and that emergency response personnel are familiar with its use and location.

13.0 SITE CLOSURE

13.1 i. The *Owner* shall construct the final cover system for the *Site* in accordance with Items 33 to 36 inclusive of Schedule "A" and this *ECA* .

ii. Prior to subgrade preparation, the *Owner* shall inspect for any evidence of leachate springs or seeps and immediately remedy any seeps or springs prior to placement of the final cover and topsoil.

13.2 If final contours are reached in any part of the *Site* then that part of the *Site* shall be closed in accordance with the closure plan, Items 19 to 30 on Schedule "A" and this amendment to the *ECA* as approved by the *Director*.

13.3 Within sixty (60) days prior to *Site* closure, the *Owner* shall notify the public via an advertisement in all local newspapers. In addition, notice shall be given to the *District Office* , the Town of Greater Napanee, the Mohawks of the Bay of Quinte and all residents and businesses

within a 1,000 metre radius of the *Site* .

13.4 The *Owner* shall update the sign at the front gate of the *Site* to indicate the following:

- a. the name of the *Site* and *Owner* ;
- b. the *ECA* number;
- c. the name of the *Operator* ;
- d. a warning against unauthorized access;
- e. the telephone number to which complaints or questions may be directed;
- f. a twenty-four (24) hour emergency telephone number;
- g. the *Site* is closed;
- h. dumping outside of the gate is illegal; and
- i. alternative locations for waste disposal.

13.5 After *Site* closure, on a weekly basis, the *Owner* shall inspect the *Site* for leachate seeps and for signs of illegal dumping of waste. Illegal waste shall be removed and disposed of within 48 hours of detection. Leachate seeps shall be repaired within 48 hours of detection.. Upon approval from the *Director* , the frequency for inspecting for leachate seeps may be reduced to quarterly.

13.6 Upon closure of the *Site* , the following features will be inspected, recorded and maintained on a quarterly (every three (3) months) basis:

- a. evidence of settlement;
- b. landfill gas collection system, landfill gas flare and related equipment;
- c. cover soil integrity;
- d. vegetative cover;
- e. gates and fencing around the *Site* ;
- f. surface water drainage works; and
- g. erosion and sediment in surface water drainage system.

13.7 Any deficiencies noted in the above items shall be repaired within one month time of notice.

13.8 Upon *Site* closure, grass on the berms and the top of the landfill shall be cut a minimum of two (2) times per year.

13.9 Upon closure of the *Site* , the ditches and culverts surrounding the *Site* shall be cleaned on an annual basis for the first five (5) years after *Site* closure. After 5 years of *Site* closure, the ditches and culverts shall be inspected on a annual basis and cleaned as required until the end of the *contaminating lifespan* .

13.10 i. The leachate collection system shall be camera inspected and cleaned on an annual basis for years 4 and 5 after *Site* closure.

ii. The leachate collection system shall be camera inspected every two years after 5 years of

Site closure, with cleaning as required.

- iii. Changes to the maintenance schedule for the leachate collection system shall be approved by the *Director*.

13.11 If weather conditions do not allow timely placement of final and vegetative cover, silt curtains shall be employed to minimize silt loadings to surface water bodies.

13.12 The following shall remain in place and be operational at the *Site* until the end of the contaminating lifespan:

- a. Leachate extraction equipment;
- b. Landfill gas extraction equipment; and
- c. Sedimentation ponds.

14.0 SEMI ANNUAL AND ANNUAL REPORTING

Semi Annual Monitoring Reporting

14.1 By **January 15** and **July 15** of each year, the *Owner* shall submit semi-annual monitoring reports to the *District Office* and post the reports on a publicly accessible website. These semi annual reports shall include:

- a. The results in tabular form and an interpretive analysis of the results from the leachate, groundwater, surface water, and landfill gas monitoring programs approved by this *ECA*, including:
 - i. an assessment of the need to amend the monitoring programs;
 - ii. an evaluation of any observations of saline upwelling in the groundwater;
 - iii. an estimation of the leachate generated at the *Site*;
 - iv. an evaluation of leachate quality, levels, and mounding within the landfill;
 - v. figure(s) showing the landfill site and contaminant attenuation zone;
 - vi. maps or figures showing groundwater concentrations of alkalinity, tritium, 1-4 dioxane, and ammonia in the shallow and intermediate aquifers;
 - vii. figure(s) showing the off-site properties suspected or confirmed of being impacted by leachate from the landfill;
 - viii. a complete inventory of the groundwater monitoring well locations;
 - ix. detailed analysis on groundwater quality trends on downgradient groundwater wells which have been impacted or are suspected of being impacted by leachate from the landfill.
- b. An assessment with regards to the compliance of the groundwater quality at the property boundary and compliance points with regards to Guideline B-7 Reasonable

Use Concept;

- c. A report on the status of any monitoring wells required to be tested pursuant to the EMP and a statement as to whether those wells are in compliance with Ontario Regulation 903;
- d. The second semi-annual report will include an Annual Summary section which describes the results from the current calendar year and any data quality changes identified from previous years, or through the current year.
- e. All surface and groundwater analytical results reported in future Semi-Annual and Annual Monitoring Reports shall be reported by groups of substances (i.e. VOCs, PAHs, inorganics, etc.) and by numeric location, and shall be posted by WMC on a publicly accessible website, with the data being posted on such website being updated annually.

Annual Reporting

- 14.2 A written report on the development, operation, and closure of the *Site* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager, the PLC, the Town of Greater Napanee, the Township of Tyendinaga, the Mohawks of the Bay of Quinte, and a representative of the Concerned Citizens Committee of Tyendinaga and Environs* by **March 31st** of each year and shall cover the year ending the preceding December 31st.
- 14.3 The Annual Report shall include the following:
- i. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site*, and the adequacy of and need to implement the contingency plans;
 - ii. an assessment of the efficiency of the leachate collection system;
 - iii. *Site* plans showing the existing contours of the *Site*;
 - iv. areas of landfilling operation during the reporting period;
 - v. areas of intended operation during the next reporting period;
 - vi. areas of excavation during the reporting period;
 - vii. a summary of the inspection of the final cover and vegetative cover including identification of any seepages and remedial actions taken;
 - viii. previously existing *Site* facilities;
 - ix. facilities installed during the reporting period;
 - x. A discussion on any facilities planned for installation during the next reporting period;
 - xi. a summary of the quantity of any leachate or pre-treated leachate removed from the north and south pumping stations at the *Site* during each operating week;
 - xii. a discussion of the results of the toxicity testing of the landfill stormwater management ponds which includes potential impacts to the groundwater by the

SWMP;

- xiii. a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the *Site* .
- xiv. a summary of any complaints received, the responses made and corrective/remedial taken if required;
- xv. a summary of any seeps, upset conditions or emergency situations and or corrective/remedial actions taken
- xvi. a discussion of any operational problems encountered at the *Site* and corrective action taken;
- xvii. a summary of the amount of wastes refused for disposal at the *Site* , the reasons for refusal and the carrier who brought the waste to the *Site* ;
- xviii. a summary of the leachate collection system cleaning and inspection activities;
- xix. an update summary of the amount of financial assurance which has been provided to the *Director*;
- xx. a table detailing the chronology of significant landfill design, operational, and land use changes for the landfill and any other information with respect to the site which the *District Manager or Regional Director* may require from time to time;
- xxi. a statement of compliance with all conditions of this *ECA* and other relevant *Ministry* groundwater and surface water requirements;
- xxii. a confirmation that the *Site* inspection program as required by this *ECA* has been complied with by the *Owner* ;
- xxiii. any changes in operations, equipment or procedures employed at the *Site* ; and recommendations regarding any proposed changes in operations of the *Site* .

- 14.4 (a) In the event the *District Manager* requires additional information to be submitted to complete the *District Office* 's assessment on whether or not the *Site* is in compliance, the *District Manager* shall provide written notification to the *Owner* at least sixty (60) days before the submission of the next Semi-Annual or Annual Report submission date on the type of additional information to be included in the report.
- (b) In the event the *District Manager* determines that the inclusion of information in either the annual or semi-annual report annual for which notification under 14.4(a) was provided is no longer warranted or needed for the *Ministry* 's assessment of whether or not the *Site* is in compliance, the *District Manager* shall notify the *Owner* in writing of the information that is no longer required. The *District Manager* can later request the information be re-included in the report as per Condition 14.4 (a).

Schedule "A"

1. Application for a Certificate of Approval for a Waste Disposal Site (Landfill), dated January 11, 1988.
2. Report entitled "Sutcliffe Sanitation Services Ltd., Landfill Site Expansion Development and Operations Report", prepared by Henderson Paddon and Associates Limited, dated September 1985.
3. Report entitled "Addendum No. 1 Sutcliffe Sanitation Services Limited Landfill Site Expansion Development and Operations Report" prepared by Henderson Paddon and Associates Limited dated December 1986.
4. Report entitled "Hydrogeologic Study Proposed Landfill Expansion, Township of Richmond" prepared by Morrison Beatty Limited and dated September 30, 1985.
5. Report entitled "Proposed Groundwater and Surface Water Monitoring Program, Sutcliffe Sanitation Services Limited Landfill, Township of Richmond" prepared by Morrison Beatty Limited and dated August 1987.
6. Letter dated September 12, 1990 from Mr. J.R. Bray, P.Eng. to Tricil Limited (c/o Laidlaw Waste Systems Ltd.).
7. Application for Approval of a Waste Disposal Site, dated May 24, 1995 and signed by Michael Pullen, Director, Environmental Management, Laidlaw Waste Systems (Richmond) Ltd.
8. Letter from Jeff Armstrong, Henderson, Paddon & Associates Limited to I. Parrott, MOEE dated May 30, 1995 re: Development of Landfill Base of Phases IV and V (including attached drawings 8570D-400 to 406, inclusive and 8570D-94-Site).
9. Letter from Jeff Armstrong, Henderson Paddon and Associates Limited to i. Parrott, MOEE dated June 23, 1995 re: Additional information to Support Application for Provisional Certificate of Approval for a Waste Disposal Site A371203.
10. Letter from Jeff Armstrong, Henderson Paddon and Associates Limited to I. Parrott, MOEE dated July 21, 1995 re: Public Consultation on the Re-Design of the Landfill Base for Phase IV and V.
11. Application for Approval for a Waste Disposal Site dated July 25, 1996 signed by Mr. Michael Pullen, Director, Environmental Management.
12. Report entitled "Undertaking to Establish an Organic Composting Facility at the Laidlaw Waste Systems (Richmond) Ltd. Landfill Site" dated July 1996, prepared by Laidlaw Waste Systems (Richmond) Ltd.

13. Plan entitled "Richmond Township Landfill Proposed Compost Pad Expansion", revised April 12, 1996, prepared by Henderson Paddon and Associates Ltd.
14. The June 9, 1999, report entitled "Conceptual Design for a Landfill Gas Collection and Flaring System Richmond Landfill Site Napanee, Ontario" which was prepared by Comcor Environmental Limited.
15. Drawing 8570G-L1 dated May 2000- Phase I Proposed Leachate Collector, Napanee Landfill, Napanee, Ontario
16. A letter dated July 31, 2000, regarding concerns raised during review of application, to Tes Gebrezghi, MOE, from Jeff Armstrong, Henderson Paddon & Associates Limited
17. A report titled "Assessment of Napanee Water Pollution Control Plant To Treat Leachate from the Laidlaw Landfill, Richmond, Ontario, dated May 1996 and prepared by Henderson, Paddon & Associates Limited
18. A report titled "CWS Response to the Town of Greater Napanee Audit of the Richmond Landfill Operation, dated May 12, 2000, and prepared by Canadian Waste Services Inc.
19. Report entitled "Richmond Sanitary Landfill Site Final Closure Plan" and appendices dated June 2007 prepared by Henderson, Paddon and Associates Limited.
20. Memorandum dated November 30, 2007 from K. Stephenson, Hydrogeologist, Eastern Region, MOE to C. Dobiech, Kingston District, MOE.
21. Memorandum dated December 5, 2007 from Victor Castro, Surface Water Scientist, Eastern Region, MOE to Craig Dobiech, Kingston District, MOE.
22. Letter dated July 11, 2008 from Greg Washuta, Senior Waste Engineer, EAAB, MOE to Mike Walters, WMCC.
23. Letter, attachments, and Appendix B dated September 26, 2008 from Randy Harris, Site Manager, WMCC to Greg Washuta, Senior Waste Engineer, EAAB, MOE.
24. Letter dated February 23, 2009 from Greg Washuta, Senior Waste Engineer, EAAB, MOE to Randy Harris, Site Manager, WMCC.
25. Drawing number 8570-2006 entitled "June 2006 Existing Conditions Richmond Landfill Napanee, Ontario" dated March 19, 2007 prepared by Henderson Paddon and Associates Limited.
26. Drawing number 8570F-104 entitled "Richmond Landfill Site Proposed Final Contours Landfill and Borrow Areas" dated March 1995 prepared by Henderson Paddon and Associates Limited.

27. Letter dated March 2009 from Randy Harris, Site Manager, Waste Management of Canada Corporation to Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE.
28. Drawing number 8570F-114 entitled "Richmond Township Landfill Sections 'A-A' and 'B-B'" created by Henderson Paddon and Associates Limited, dated March 1996.
29. Drawing number 8570F-115 entitled "Richmond Township Landfill Sections 'C-C', 'D-D', and 'E-E'" created by Henderson Paddon and Associates Limited, dated March 1996.
30. Memorandum dated February 25, 2009 from K. Stephenson, Hydrogeologist, Eastern Region, MOE to C. Dobiech, Kingston District, MOE.
31. Letter dated June 1, 2009 from Mr. Randy Harris, Site Manager, Waste Management of Canada Corporation to Application Processor, Client Services Section, Environmental Assessment and Approvals Branch, Ministry of the Environment.
32. Report entitled "Site Conceptual Model Report, WM Richmond Landfill" and attached appendices A to H inclusive by Dr. B.H. Kueper and WESA Inc., dated October 2009.
33. Report entitled "Richmond Sanitary Landfill Site OS-08-570-13-OS Construction Quality Assurance/Construction Quality Control Plan for the Final Cover System", dated June 2010, prepared by GENIVAR Consultants LP.
34. E-mail dated August 20, 2010 from Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment to Dave White and Randy Harris, Waste Management of Canada Corporation.
35. Letter dated August 24, 2010 from Jeff E. Armstrong, Senior Environmental Engineer, GENIVAR Consultants LP to Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.
36. Document entitled "Richmond Sanitary Landfill Site Construction Quality Assurance/Construction Quality Control Plan for the Final Cover System ERRATA" prepared by Jeff E. Armstrong, Senior Environmental Engineer, GENIVAR Consultants LP, dated August 24, 2010.
37. Application for a Provisional Certificate of Approval for a Waste Disposal Site for Waste Management of Canada Corporation's Richmond Landfill Site, signed by Randy Harris, Site Manager on September 30, 2010.
38. Report entitled "Phytoremediation Plan - WM Richmond Landfill Town of Greater Napanee, Ontario" dated December 2010 and prepared by WESA Inc.
39. Report entitled "Richmond Sanitary Landfill Site - Operations and Procedures Manual June 25, 2010" prepared by GENIVAR Consultants LP Inc dated June 25, 2010.

40. Report entitled "Landfill Gas Collection and Flaring System Design Report - Richmond Landfill" prepared by GENIVAR Consultants LP dated June 29, 2009.
41. Report entitled "Richmond Sanitary Landfill Site - Leachate Collection System Contingency Plan" prepared by GENIVAR Consultants LP dated June 25, 2010.
42. Report entitled "Richmond Sanitary Landfill Site - Landfill Gas Collection System Contingency Plan" prepared by GENIVAR Consultants LP dated June 25, 2010.
43. Report entitled "Financial Assurance Plan" completed by GENIVAR Consultants LP and dated June 25, 2010;
44. Report entitled "Contaminating Lifespan" (Appendix D of Financial Assurance Plan) completed by GENIVAR Consultants LP and dated June 16, 2010.
45. Report entitled "Final Report - Environmental Monitoring Plan - WM Richmond Landfill" prepared for Waste Management of Canada Corporation by WESA Inc. and dated June 29, 2010.
46. Appendix "A" (Report Entitled "Odour Monitoring Plan" prepared for Waste Management of Canada Corporation by GENIVAR Consultants LP dated June 25, 2010) of the report entitled "Environmental Monitoring Plan - WM Richmond Landfill" prepared for Waste Management of Canada Corporation by WESA Inc. and dated June 29, 2010.
47. Letter dated January 14, 2011 addressed to Mr. Randy Harris, Waste Management of Canada Corporation from Mr. Greg Washuta, Ministry of the Environment providing comments on Items 39 through 46 in Schedule "A".
48. Letter dated February 28, 2011 addressed to Mr. Greg Washuta, Ministry of the Environment from Mr. Randy Harris, Waste Management of Canada Corporation providing additional information regarding financial assurance, the status of the environmental monitoring plan and various contingency plans.
49. Letter dated April 5, 2011 addressed to Mr. Randy Harris, Waste Management of Canada Corporation from Mr. Dale Gable, Ministry of the Environment requesting additional information on financial assurance, the status of the environmental monitoring plan and various contingency plans.
50. Letter dated April 20, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. providing additional information on the environmental monitoring plan, financial assurance and the contaminating lifespan of the Site.
51. Letter dated August 12, 2011 and supporting documentation addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Reid Cleland, Waste Management of Canada Corporation requesting amendment to Condition No. 35. The supporting documentation included the following:

- i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated August 15, 2011.
52. Letter report dated May 25, 2011 addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. requesting an amendment to permit the approval of continued recyclables disposal at the Richmond Landfill Site. The supporting documentation included the following:
 - i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated May 25, 2011;
 - ii. Drawing No 8570713-MT1 entitled "Site Location Map" prepared by GENIVAR INC. and dated May 17, 2011; and
 - iii. Drawing No. 8670713-MT2 entitled "Site Plan Mini-transfer Station" prepared by GENIVAR Inc. and dated May 17, 2011.
53. Letter report dated May 25, 2011 addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. requesting an amendment to Condition No. 35 which would allow the continue use of the mini-transfer station at the Richmond Landfill Site. The supporting documentation included the following:
 - i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated May 25, 2011;
 - ii. Development and Operations Report for a Waste Transfer Station prepared by GENIVAR Inc. (Project No. 081-12493-00) and dated May 2011.
 - iii. Drawing No 8570713-MT1 entitled "Site Location Map" prepared by GENIVAR INC. and dated May 17, 2011; and
 - iv. Drawing No. 8670713-MT2 entitled "Site Plan Mini-transfer Station" prepared by GENIVAR Inc. and dated May 17, 2011.
54. Letter dated June 20, 2011 addressed to Mr. Reid Cleland, Waste Management of Canada Corporation from Mr. Dale Gable, Ministry of the Environment requesting additional information on the continued operation of the Waste and Recycling Drop-Off Facility.
55. Letter dated June 30, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. providing additional information on the operations of the Waste and Recycling Drop-Off Facility. The information included the following:
 - i. Development and Operations Report for a Waste Transfer Station prepared by GENIVAR Inc. (Project No. 081-12493-00) and dated June 2011.
56. Environmental Review Tribunal Order for Case No. 12-033 issued on April 26, 2013.
57. Report entitled "Richmond Sanitary Landfill Site- Odour Monitoring Plan - Revision No. 2" prepared for WMCC by WSP Canada and dated November 25, 2014.

58. Report entitled "Richmond Sanitary Landfill Site (081-12459-00) - Public Notification Plan - February 2013" prepared for WMCC by GENIVAR Inc. and dated February 2013.
59. Environmental Review Tribunal Order for Case No. 12-033 issued on July 21, 2015.
60. Environmental Review Tribunal Order for Case No. 12-033 issued on August 13, 2015.
61. Environmental Review Tribunal Order for Case No. 12-033 issued on October 29, 2015.
62. Environmental Compliance Approval Application dated June 10, 2014 signed by Reid Cleland, Waste Management of Canada Corporation.
63. Environmental Compliance Approval Application dated January 13, 2015 signed by Reid Cleland, Waste Management of Canada Corporation, and the supporting documentation including the Design Brief - Leachate Storage System Richmond Landfill Site dated January 2015 prepared by WSP Canada Inc.
64. Environmental Review Tribunal Order for Case No. 12-033 issued on December 24, 2015.
65. Email dated May 13, 2016 from Peter Brodzikowski, WSP Canada to Rick Li, Ministry of the Environmental and Climate Change providing a response to the Ministry' review comments on the leachate storage system and the maintenance schedule.
66. Environmental Review Tribunal Order for Case No. 12-033 issued on April 14, 2016.
67. Report entitled "Odour Monitoring Plan - Revision No. 3 Richmond Sanitary Landfill Site" prepared for WMCC by WSP Canada and dated June 2016.

The reasons for the imposition of these terms and conditions are as follows:

- 1. The reason for Conditions 1.1 and 1.2 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.*
- 2. The reason for Conditions 1.3, 1. 4. 1. 5, 1.9, 1.10, 1.11, 1.12, 1.13, 3.1, 3.2, 3.3 and 8.6 is to clarify the legal rights and responsibilities of the Owner under this ECA.*
- 3. Conditions 1.6, 1.7 and 1.8 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this Certificate.*
- 4. Conditions 1.14 and 1.15 are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been*

approved and used for the purposes of waste disposal.

5. *The reasons for Condition 1.16 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this ECA.*
6. *The reasons for Conditions 1.17 and 1.18 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.*
7. *The reason for Condition 1.19 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this ECA. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*
8. *The reasons for Conditions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, and 2.9 are to ensure that sufficient funds are available to the Ministry to close the landfill, and to carry out all expected post-closure care activities and any contingencies. Failure to include requirements for financial assurance would not be in the public interest and may result in a hazard or nuisance to the natural environment or any person.*
9. *The reason for Condition 3.4 is to ensure the availability of as-built drawings for inspection and information purposes.*
10. *The reasons for Conditions 4.1, 4.2 and 4.3 are to ensure the Owner operates the Site in an environmentally safe manner. This is to ensure the environment and public health are protected.*
11. *The reason for Condition 4.4 is to establish a closure date for the Site.*
12. *The reasons for Conditions 4.5, 4.6 and 4.7 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.*
13. *The reasons for Conditions 4.8, 4.9, 4.10 and 4.11 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*
14. *The reasons for Condition 4.12 are to specify Site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no Site attendant is on duty.*
15. *The reason for Condition 4.13 is to ensure the on-site roads are well maintained to provide access to the site operation and maintenance works.*

16. *The reason for Condition 4.14 is to ensure that only waste types approved by this ECA is accepted at the Site.*
17. *The reason for Conditions 4.15 to 4.18 and 4.20 is to ensure that nuisance such as odour, litter, and dust are minimized during landfilling.*
18. *The reasons for Condition 4.19 are the protection of public health and safety and minimization of the potential for damage to environmental control, monitoring and other works at the landfill Site. Scavenging is the uncontrolled removal of material from waste at a landfill Site.*
19. *The reason for Condition 4.21 is to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.*
20. *The reason for Condition 5.1 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the Site, and to ensure an acceptable Site appearance is maintained. The proper closure of a landfill Site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.*
21. *The reasons for Conditions 5.2, 5.3 and 5.4 are to ensure proper operation of the leachate collection system. This is to ensure the protection of the environment and public health.*
22. *The reason for Conditions 5.5 and 5.6 is to approve the proposed leachate storage system for improvement to the leachate handling and trucking.*
23. *The reasons for Condition 5.7 and 5.8 is to ensure the Owner is aware that the composting operation will cease by the given date.*
24. *The reason for Condition 5.9 is to approve the proposed phytoremediation system as applied and established operations conditions for the phytoremediation system.*
25. *The reason for Conditions 5.10 and 5.11 is to clarify the responsibilities of the Owner, the requirements of the Ministry, the authority of the Ministry and protects the natural environment and human health.*
26. *The reason for Condition 5.12 is to approve the continued operation of the Waste and Recycling Drop-Off Facility as per the submitted information.*
27. *The reason for Conditions 5.13, 5.14, 5.15 and 5.18 is to ensure the type of waste, the quantity of waste service and removal frequency are clearly identified.*

28. *The reasons for Condition 5.16 and 5.17 is to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation and ensure trained staff are present to accept waste*
29. *The reasons for Conditions 5.19 through 5.24 is to ensure the operation is done in a manner that will not cause a nuisance or an adverse effect. This is to ensure the long-term protection of the environment and human health.*
30. *The reason for Conditions 5.25 and 5.26 are to ensure surface water at the site is not impacted by landfill operations. This is to ensure the environment and public health are protected.*
31. *The reason for Condition 6.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.*
32. *The reasons for Conditions 7.1, 7.2 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11 and 14.1 are to provide for the proper assessment of effectiveness and efficiency of Site design and operation, their effect or relationship to any nuisance or environmental impacts, and the occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this ECA, the EPA and its regulations*
33. *The reasons for Conditions 8.1, 8.2, 8.3, and 8.4 are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*
34. *The reason for Condition 8.5 is to demonstrate that the landfill Site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*
35. *The reason for Conditions 8.6.1, 8.6.2, 8.9, and 9.1 is to incorporate the Environmental Review Tribunal Order dated April 14, 2016.*
36. *The reason for Conditions 8.7 and 8.8 is to incorporate the interim orders issued by the Environmental Review Tribunal on July 21, 2015 and August 13, 2015.*
37. *The reason for Conditions 9.2, 9.3, 9.4, 11.1 and 11.2 is to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment.*
38. *The reasons for Condition 9.5 are to ensure there is a public notification plan in the event that any contingency plan is activated or engaged, and to reflect the interim order*

issued by the ERT on April 26, 2013.

39. *The reason for Conditions 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12, 10.13, 10.14, 10.15, 10.16, 10.17 and 10.18 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*
40. *The reasons for Conditions 12.1 and 12.2 are to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.*
41. *The reason for Condition 12.3 is to ensure the Emergency Response Manual is updated regularly.*
42. *The reasons for Condition 12.4 are to guarantee that appropriate measures are taken by the Owner to prevent future occurrences of spills or fires at the site and to protect public health and safety and the environment.*
43. *The reasons for Conditions 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, 13.10, 13.11 and 13.12 are to ensure that final closure of the Site is completed in accordance with Ministry requirements, an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*
44. *Conditions 14.1 and 14.4 is included in the ECA to reflect the interim order issued by the ERT on April 26, 2013.*
45. *The reasons for Conditions 14.2 and 14.3 are to reflect the interim order issued by the ERT on April 26, 2013, and to ensure that regular review of Site development, operations and monitoring data is documented and any possible improvements to Site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing Site activities and for determining the effectiveness of Site design.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A371203 issued on March 20, 1988

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance

- approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

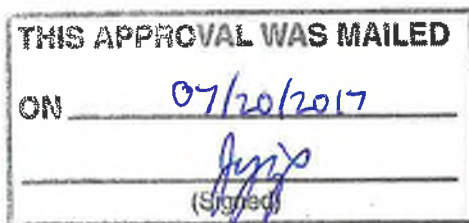
The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 14th day of July, 2017



Dale D. Gable

Dale Gable, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

RL/

c: District Manager, MOECC Kingston - District
Beverly Leno/ Peter Brodzikowski, WSP Canada Inc.

APPENDIX

B HYDRAULIC CALCULATIONS



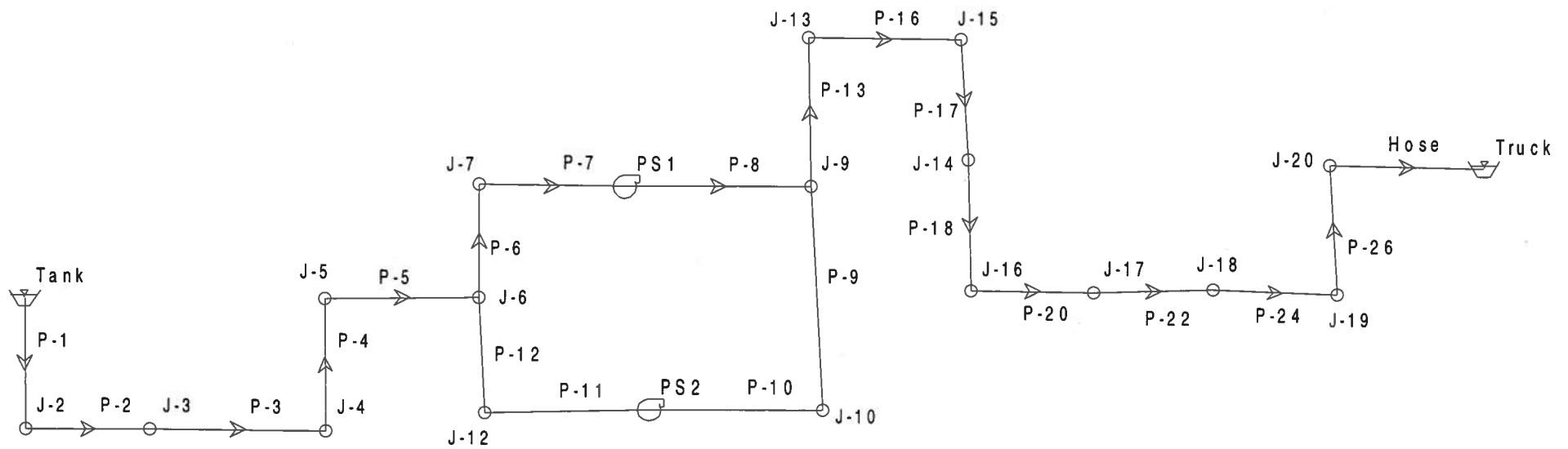
APPENDIX

B-1 PS3 – TRUCK LOADING

TANK FULL, TRUCK EMPTY

$C = 140$, RELATIVE PUMP SPEED = 1

Scenario: Base



Scenario: Base
Steady State Analysis
Pump Report

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		19.70	0.000	16.30	1.056	8.20	1.800	Off	133.73	139.45	0.000	0.00	0.00
PS1		19.70	0.000	16.30	1.056	8.20	1.800	On	133.01	143.93	1.600	10.91	2.85

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
Tank	136.17	-1.600	136.17
Truck	128.00	1.600	128.00

Scenario: Base
Steady State Analysis
Pipe Report

Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-2	8.00	147	140.0	0.00	Open	Open	1.600	135.99	135.86	0.13	15.76	1.57	107.48	109.18
P-3	7.00	147	140.0	0.40	Open	Open	1.600	135.86	135.70	0.16	22.95	1.57	109.18	107.61
P-4	2.50	97	140.0	0.60	Open	Open	1.600	135.70	135.00	0.70	278.56	3.61	107.61	77.32
P-5	1.20	97	140.0	1.70	Open	Open	1.600	135.00	133.73	1.27	1,059.01	3.61	77.32	64.89
P-6	1.00	97	140.0	0.40	Open	Open	1.600	133.73	133.35	0.38	384.69	3.61	64.89	61.13
P-7	1.00	100	140.0	0.40	Open	Open	1.600	133.35	133.01	0.34	337.79	3.40	61.13	57.82
P-9	2.00	97	140.0	0.40	Open	Open	0.000	139.45	139.45	0.00	0.00	0.00	113.94	113.94
P-13	2.00	97	140.0	0.60	Open	Open	1.600	139.45	138.81	0.64	318.36	3.61	113.94	107.71
P-10	2.50	97	140.0	5.40	Open	Open	0.000	139.45	139.45	0.00	0.00	0.00	113.94	120.79
P-12	1.00	97	140.0	0.40	Open	Open	0.000	133.73	133.73	0.00	0.00	0.00	64.89	64.89
P-16	4.00	97	140.0	0.80	Open	Open	1.600	138.81	137.80	1.01	252.03	3.61	107.71	97.85
P-18	2.20	100	140.0	0.40	Open	Open	1.600	137.68	137.22	0.46	209.68	3.40	106.46	123.47
P-1	2.00	147	140.0	1.20	Open	Open	1.600	136.17	135.99	0.18	91.21	1.57	107.48	107.48
P-17	1.00	97	140.0	0.00	Open	Open	1.600	137.80	137.68	0.12	119.37	3.61	97.85	106.46
P-20	35.00	100	140.0	1.00	Open	Open	1.600	137.22	133.03	4.19	119.70	3.40	123.47	88.36
P-22	10.00	100	140.0	0.20	Open	Open	1.600	133.03	131.89	1.15	114.66	3.40	88.36	72.25
P-24	10.00	100	140.0	0.40	Open	Open	1.600	131.89	130.62	1.26	126.41	3.40	72.25	59.89
P-26	3.50	100	140.0	0.60	Open	Open	1.600	130.62	129.91	0.71	203.58	3.40	59.89	18.68
Hose	10.00	100	140.0	1.50	Open	Open	1.600	129.91	128.00	1.91	191.00	3.40	18.68	
P-11	1.00	97	140.0	0.40	Open	Open	0.000	133.73	133.73	0.00	0.00	0.00	64.89	64.89
P-8	2.50	97	140.0	6.30	Open	Open	1.600	143.93	139.45	4.48	1,790.83	3.61	164.58	113.94

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-2	125.00	Demand	0.000	Fixed	0.000	135.99	107.48
J-3	124.70	Demand	0.000	Fixed	0.000	135.86	109.18
J-4	124.70	Demand	0.000	Fixed	0.000	135.70	107.61
J-5	127.10	Demand	0.000	Fixed	0.000	135.00	77.32
J-6	127.10	Demand	0.000	Fixed	0.000	133.73	64.89
J-7	127.10	Demand	0.000	Fixed	0.000	133.35	61.13
J-9	127.80	Demand	0.000	Fixed	0.000	139.45	113.94
J-10	127.80	Demand	0.000	Fixed	0.000	139.45	113.94
J-12	127.10	Demand	0.000	Fixed	0.000	133.73	64.89
J-13	127.80	Demand	0.000	Fixed	0.000	138.81	107.71
J-14	126.80	Demand	0.000	Fixed	0.000	137.68	106.46
J-15	127.80	Demand	0.000	Fixed	0.000	137.80	97.85
J-16	124.60	Demand	0.000	Fixed	0.000	137.22	123.47
J-17	124.00	Demand	0.000	Fixed	0.000	133.03	88.36
J-18	124.50	Demand	0.000	Fixed	0.000	131.89	72.25
J-19	124.50	Demand	0.000	Fixed	0.000	130.62	59.89
J-20	128.00	Demand	0.000	Fixed	0.000	129.91	18.68

TANK FULL, TRUCK EMPTY

$C = 140$, RELATIVE PUMP SPEED = 0.54

Scenario: Base
Steady State Analysis
Pump Report

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		19.70	0.000	16.30	1.056	8.20	1.800	Off	134.73	134.87	0.000	0.00	0.00
PS1		19.70	0.000	16.30	1.056	8.20	1.800	On	134.31	137.49	1.222	3.18	0.63

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
Tank	136.17	-1.222	136.17
Truck	128.00	1.222	128.00

Scenario: Base
Steady State Analysis
Pipe Report

Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-2	8.00	147	140.0	0.00	Open	Open	1.222	136.06	135.99	0.08	9.57	1.20	108.22	110.40
P-3	7.00	147	140.0	0.40	Open	Open	1.222	135.99	135.89	0.10	13.76	1.20	110.40	109.46
P-4	2.50	97	140.0	0.60	Open	Open	1.222	135.89	135.48	0.41	165.30	2.76	109.46	81.94
P-5	1.20	97	140.0	1.70	Open	Open	1.222	135.48	134.73	0.74	620.38	2.76	81.94	74.66
P-6	1.00	97	140.0	0.40	Open	Open	1.222	134.73	134.51	0.23	227.19	2.76	74.66	72.44
P-7	1.00	100	140.0	0.40	Open	Open	1.222	134.51	134.31	0.20	199.44	2.59	72.44	70.48
P-9	2.00	97	140.0	0.40	Open	Open	0.196e-5	134.87	134.87	0.00	0.00	0.44e-5	69.16	69.16
P-13	2.00	97	140.0	0.60	Open	Open	1.222	134.87	134.49	0.38	188.50	2.76	69.16	65.48
P-10	2.50	97	140.0	5.40	Open	Open	0.000	134.87	134.87	0.00	0.00	0.00	69.16	76.01
P-12	1.00	97	140.0	0.40	Open	Open	0.233e-5	134.73	134.73	0.00	0.00	0.53e-5	74.66	74.66
P-16	4.00	97	140.0	0.80	Open	Open	1.222	134.49	133.89	0.60	149.83	2.76	65.48	59.61
P-18	2.20	100	140.0	0.40	Open	Open	1.222	133.82	133.55	0.27	124.74	2.59	68.69	87.52
P-1	2.00	147	140.0	1.20	Open	Open	1.222	136.17	136.06	0.11	53.56	1.20		108.22
P-17	1.00	97	140.0	0.00	Open	Open	1.222	133.89	133.82	0.07	72.48	2.76	59.61	68.69
P-20	35.00	100	140.0	1.00	Open	Open	1.222	133.55	131.02	2.53	72.27	2.59	87.52	68.65
P-22	10.00	100	140.0	0.20	Open	Open	1.222	131.02	130.32	0.69	69.34	2.59	68.65	56.97
P-24	10.00	100	140.0	0.40	Open	Open	1.222	130.32	129.56	0.76	76.19	2.59	56.97	49.52
P-26	3.50	100	140.0	0.60	Open	Open	1.222	129.56	129.14	0.42	121.18	2.59	49.52	11.14
Hose	10.00	100	140.0	1.50	Open	Open	1.222	129.14	128.00	1.14	113.85	2.59	11.14	
P-11	1.00	97	140.0	0.40	Open	Open	0.000	134.73	134.73	0.00	0.00	0.00	74.66	74.66
P-8	2.50	97	140.0	6.30	Open	Open	1.222	137.49	134.87	2.62	1,047.11	2.76	101.62	69.16

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-2	125.00	Demand	0.000	Fixed	0.000	136.06	108.22
J-3	124.70	Demand	0.000	Fixed	0.000	135.99	110.40
J-4	124.70	Demand	0.000	Fixed	0.000	135.89	109.46
J-5	127.10	Demand	0.000	Fixed	0.000	135.48	81.94
J-6	127.10	Demand	0.000	Fixed	0.000	134.73	74.66
J-7	127.10	Demand	0.000	Fixed	0.000	134.51	72.44
J-9	127.80	Demand	0.000	Fixed	0.000	134.87	69.16
J-10	127.80	Demand	0.000	Fixed	0.000	134.87	69.16
J-12	127.10	Demand	0.000	Fixed	0.000	134.73	74.66
J-13	127.80	Demand	0.000	Fixed	0.000	134.49	65.48
J-14	126.80	Demand	0.000	Fixed	0.000	133.82	68.69
J-15	127.80	Demand	0.000	Fixed	0.000	133.89	59.61
J-16	124.60	Demand	0.000	Fixed	0.000	133.55	87.52
J-17	124.00	Demand	0.000	Fixed	0.000	131.02	68.65
J-18	124.50	Demand	0.000	Fixed	0.000	130.32	56.97
J-19	124.50	Demand	0.000	Fixed	0.000	129.56	49.52
J-20	128.00	Demand	0.000	Fixed	0.000	129.14	11.14

TANK EMPTY, TRUCK FULL
C = 120, RELATIVE PUMP SPEED = 1

Scenario: Base
Steady State Analysis
Pump Report

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		19.70	0.000	16.30	1.056	8.20	1.800	Off	125.95	137.93	0.000	0.00	0.00
PS1		19.70	0.000	16.30	1.056	8.20	1.800	On	125.49	140.56	1.209	15.07	2.97

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
Tank	127.50	-1.209	127.50
Truck	129.60	1.209	129.60

Scenario: Base
Steady State Analysis
Pipe Report

Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-2	8.00	147	120.0	0.00	Open	Open	1.209	127.39	127.29	0.10	12.49	1.19	23.37	25.32
P-3	7.00	147	120.0	0.40	Open	Open	1.209	127.29	127.17	0.12	16.59	1.19	25.32	24.19
P-4	2.50	97	120.0	0.60	Open	Open	1.209	127.17	126.71	0.46	185.51	2.73	24.19	-3.82
P-5	1.20	97	120.0	1.70	Open	Open	1.209	126.71	125.95	0.76	631.30	2.73	-3.82	-11.24
P-6	1.00	97	120.0	0.40	Open	Open	1.209	125.95	125.71	0.25	246.12	2.73	-11.24	-13.64
P-7	1.00	100	120.0	0.40	Open	Open	1.209	125.71	125.49	0.22	215.71	2.57	-13.64	-15.75
P-9	2.00	97	120.0	0.40	Open	Open	0.000	137.93	137.93	0.00	0.00	0.00	99.12	99.12
P-13	2.00	97	120.0	0.60	Open	Open	1.209	137.93	137.52	0.42	208.24	2.73	99.12	95.04
P-10	2.50	97	120.0	5.40	Open	Open	0.000	137.93	137.93	0.00	0.00	0.00	99.12	105.96
P-12	1.00	97	120.0	0.40	Open	Open	0.000	125.95	125.95	0.00	0.00	0.00	-11.24	-11.24
P-16	4.00	97	120.0	0.80	Open	Open	1.209	137.52	136.83	0.68	170.35	2.73	95.04	88.38
P-18	2.20	100	120.0	0.40	Open	Open	1.209	136.74	136.43	0.31	142.52	2.57	97.23	115.69
P-1	2.00	147	120.0	1.20	Open	Open	1.209	127.50	127.39	0.11	55.59	1.19		23.37
P-17	1.00	97	120.0	0.00	Open	Open	1.209	136.83	136.74	0.09	94.58	2.73	88.38	97.23
P-20	35.00	100	120.0	1.00	Open	Open	1.209	136.43	133.24	3.19	91.12	2.57	115.69	90.36
P-22	10.00	100	120.0	0.20	Open	Open	1.209	133.24	132.35	0.88	88.25	2.57	90.36	76.83
P-24	10.00	100	120.0	0.40	Open	Open	1.209	132.35	131.41	0.95	94.96	2.57	76.83	67.55
P-26	3.50	100	120.0	0.60	Open	Open	1.209	131.41	130.92	0.49	139.04	2.57	67.55	28.55
Hose	10.00	100	120.0	1.50	Open	Open	1.209	130.92	129.60	1.32	131.85	2.57	28.55	
P-11	1.00	97	120.0	0.40	Open	Open	0.000	125.95	125.95	0.00	0.00	0.00	-11.24	-11.24
P-8	2.50	97	120.0	6.30	Open	Open	1.209	140.56	137.93	2.62	1,049.32	2.73	131.62	99.12

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-2	125.00	Demand	0.000	Fixed	0.000	127.39	23.37
J-3	124.70	Demand	0.000	Fixed	0.000	127.29	25.32
J-4	124.70	Demand	0.000	Fixed	0.000	127.17	24.19
J-5	127.10	Demand	0.000	Fixed	0.000	126.71	-3.82
J-6	127.10	Demand	0.000	Fixed	0.000	125.95	-11.24
J-7	127.10	Demand	0.000	Fixed	0.000	125.71	-13.64
J-9	127.80	Demand	0.000	Fixed	0.000	137.93	99.12
J-10	127.80	Demand	0.000	Fixed	0.000	137.93	99.12
J-12	127.10	Demand	0.000	Fixed	0.000	125.95	-11.24
J-13	127.80	Demand	0.000	Fixed	0.000	137.52	95.04
J-14	126.80	Demand	0.000	Fixed	0.000	136.74	97.23
J-15	127.80	Demand	0.000	Fixed	0.000	136.83	88.38
J-16	124.60	Demand	0.000	Fixed	0.000	136.43	115.69
J-17	124.00	Demand	0.000	Fixed	0.000	133.24	90.36
J-18	124.50	Demand	0.000	Fixed	0.000	132.35	76.83
J-19	124.50	Demand	0.000	Fixed	0.000	131.41	67.55
J-20	128.00	Demand	0.000	Fixed	0.000	130.92	28.55

Pump:

Size: 4x3x10
Type: ANSI
Synch speed: 1800 rpm
Curve: 8080-K-2
Specific Speeds:
Dimensions:

Speed: 1450 rpm
Dia: 10 in
Impeller:
nq: ---
S: ---
Suction: ---
Discharge: ---

Search Criteria:

Flow: 22 l/s
Head: 14 m

Fluid:

Water
Density: 998.3 kg/m³
Viscosity: 0.9946 cP
NPSHa: ---

Temperature: 20 °C
Vapor pressure: 2.339 kPa a
Atm pressure: 101.4 kPa a

Motor:

Standard: NEMA
Enclosure: TEFC
Sizing criteria: Max Power on Design Curve

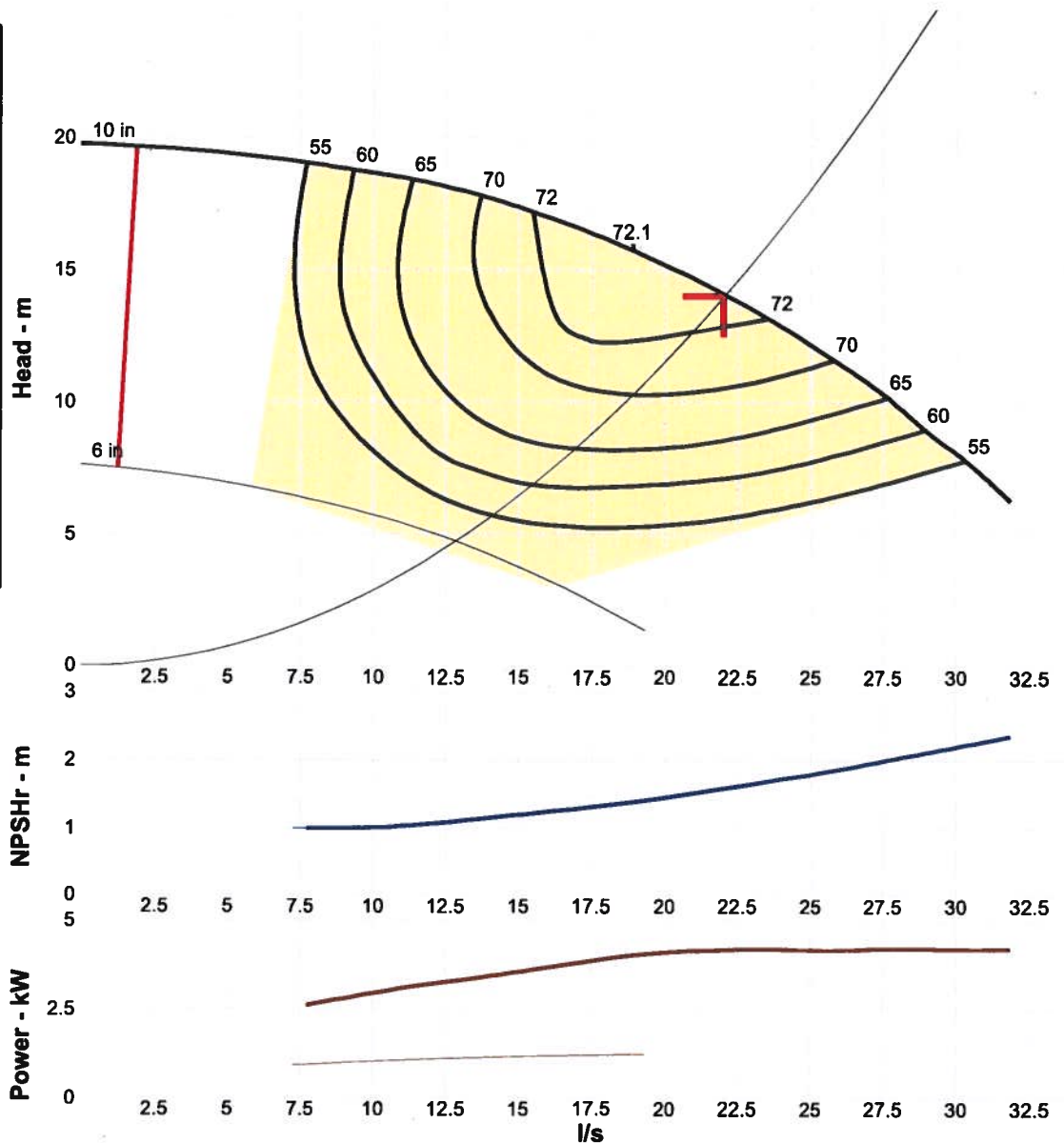
Size: 5.6 kW
Speed: 1800
Frame: 213T

Pump Limits:

Temperature: ---
Pressure: ---
Sphere size: 15.9 mm

Power: ---
Eye area: ---

--- Data Point ---	
Flow:	22 l/s
Head:	14 m
Eff:	72%
Power:	4.16 kW
NPSHr:	1.6 m
--- Design Curve ---	
Shutoff head:	19.7 m
Shutoff dP:	193 kPa
Min flow:	1.89 l/s
BEP:	72.1% @ 18.9 l/s
NOL power:	4.24 kW @ 27.6 l/s
--- Max Curve ---	
Max power:	4.24 kW @ 27.6 l/s



Performance Evaluation:

Flow l/s	Speed rpm	Head m	Efficiency %	Power kW	NPSHr m
26.4	1450	11.1	68.3	4.2	1.9
22	1450	14	72	4.16	1.6
17.6	1450	16.3	72.1	3.88	1.32
13.2	1450	17.9	69	3.36	1.11
8.8	1450	18.9	58.4	2.78	0.993

APPENDIX

***B-2 PS1/PS1/PS4 – FORCEMAIN
TO LEACHATE STORAGE
TANK***

PS1 ON

Scenario: Base
Steady State Analysis
Pump Report

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		36.60	0.000	29.30	0.568	12.50	1.136	Off	122.65	137.25	0.000	0.00	0.00
PS1		31.70	0.000	24.40	0.379	9.00	0.757	On	125.00	143.76	0.537	18.76	1.64
PS4		30.00	0.000	21.50	0.360	15.20	0.720	Off	124.00	138.76	0.000	0.00	0.00

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
R-2	122.65	0.376e-5	122.65
Tank	136.60	0.537	136.60
R-4	125.00	-0.537	125.00
LAGOON	126.00	0.000	126.00
R-6	124.00	0.193e-5	124.00

Scenario: Base
Steady State Analysis
Pipe Report

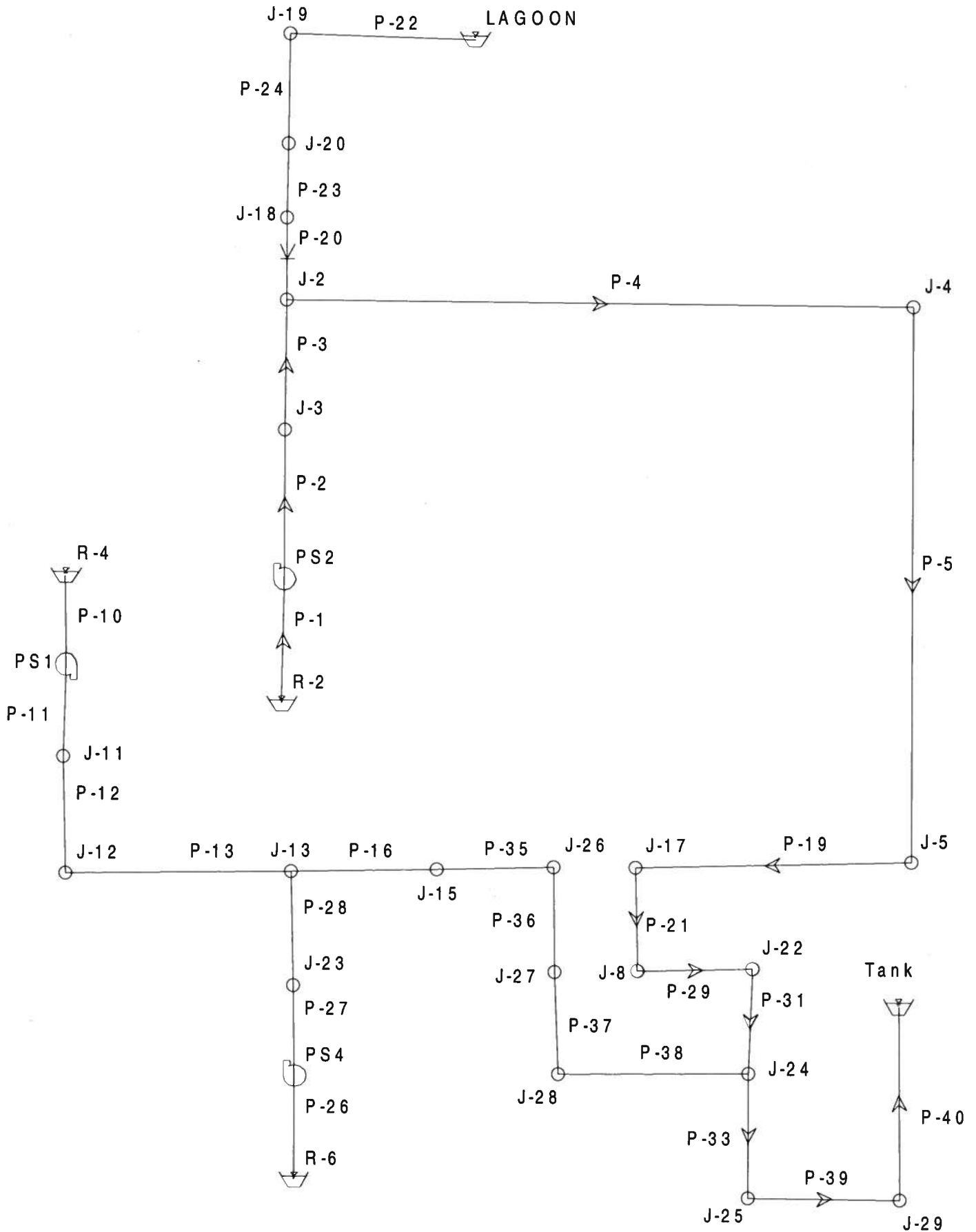
Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-3	2.00	78	130.0	0.70	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	121.82	121.92
P-1	0.10	300	130.0	0.00	Open	Open	0.376e-5	122.65	122.65	0.00	0.00	0.89e-6		4.89
P-2	2.50	78	130.0	6.00	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	147.75	121.82
P-5	323.00	100	130.0	0.40	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	126.71	94.43
P-4	239.00	100	130.0	1.00	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	126.71	121.92
P-19	132.00	100	130.0	0.40	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	94.43	115.47
P-21	27.00	100	130.0	0.40	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	123.29	115.47
P-29	3.00	100	130.0	0.40	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	123.29	95.41
P-12	3.60	78	130.0	0.40	Open	Open	0.537	141.95	141.69	0.26	72.47	1.87	130.59	163.26
P-13	53.00	78	130.0	0.80	Open	Open	0.537	141.69	138.76	2.93	55.29	1.87	163.26	135.57
P-16	8.00	100	130.0	0.20	Open	Open	0.537	138.76	138.62	0.14	17.34	1.14	135.57	133.24
P-10	0.10	300	130.0	0.00	Open	Open	0.537	125.00	125.00	0.93e-5	0.09	0.13		4.89
P-11	14.00	78	130.0	6.00	Open	Open	0.537	143.76	141.95	1.81	129.27	1.87	188.40	130.59
P-35	35.00	100	130.0	0.80	Open	Open	0.537	138.62	138.02	0.60	17.19	1.14	133.24	122.95
P-20	16.00	100	130.0	0.00	Open	Closed	0.000	126.00	137.25	0.00	0.00	0.00	32.77	121.92
P-23	148.00	100	130.0	0.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	32.77	36.19
P-22	48.00	81	130.0	6.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	29.35	
P-24	158.00	100	130.0	1.30	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	36.19	29.35
P-28	12.00	78	130.0	1.70	Open	Open	0.000	138.76	138.76	0.00	0.00	0.00	136.55	135.57
P-26	0.10	300	130.0	0.00	Open	Open	0.193e-5	124.00	124.00	0.00	0.00	0.45e-6		5.87
P-27	2.00	78	130.0	6.00	Open	Open	0.000	138.76	138.76	0.00	0.00	0.00	150.24	136.55
P-31	2.50	97	130.0	1.20	Open	Open	0.000	137.25	137.25	0.00	0.00	0.00	95.41	95.41
P-33	3.50	100	130.0	1.70	Open	Open	0.537	137.25	137.09	0.17	47.85	1.14	95.41	121.65
P-39	11.00	100	130.0	0.40	Open	Open	0.537	137.09	136.89	0.20	18.09	1.14	121.65	115.79
P-36	27.00	100	130.0	0.40	Open	Open	0.537	138.02	137.57	0.45	16.66	1.14	122.95	126.37
P-37	3.00	100	130.0	0.40	Open	Open	0.537	137.57	137.50	0.07	24.51	1.14	126.37	97.78
P-38	3.00	97	130.0	2.50	Open	Open	0.537	137.50	137.25	0.24	80.53	1.21	97.78	95.41
P-40	12.00	100	130.0	1.50	Open	Open	0.537	136.89	136.60	0.29	23.96	1.14	115.79	

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-3	124.80	Demand	0.000	Fixed	0.000	137.25	121.82
J-2	124.79	Demand	0.000	Fixed	0.000	137.25	121.92
J-4	124.30	Demand	0.000	Fixed	0.000	137.25	126.71
J-5	127.60	Demand	0.000	Fixed	0.000	137.25	94.43
J-8	124.65	Demand	0.000	Fixed	0.000	137.25	123.29
J-11	128.60	Demand	0.000	Fixed	0.000	141.95	130.59
J-12	125.00	Demand	0.000	Fixed	0.000	141.69	163.26
J-13	124.90	Demand	0.000	Fixed	0.000	138.76	135.57
J-15	125.00	Demand	0.000	Fixed	0.000	138.62	133.24
J-17	125.45	Demand	0.000	Fixed	0.000	137.25	115.47
J-18	122.65	Demand	0.000	Fixed	0.000	126.00	32.77
J-19	123.00	Demand	0.000	Fixed	0.000	126.00	29.35
J-20	122.30	Demand	0.000	Fixed	0.000	126.00	36.19
J-23	124.80	Demand	0.000	Fixed	0.000	138.76	136.55
J-22	127.50	Demand	0.000	Fixed	0.000	137.25	95.41
J-24	127.50	Demand	0.000	Fixed	0.000	137.25	95.41
J-25	124.65	Demand	0.000	Fixed	0.000	137.09	121.65
J-26	125.45	Demand	0.000	Fixed	0.000	138.02	122.95
J-27	124.65	Demand	0.000	Fixed	0.000	137.57	126.37
J-28	127.50	Demand	0.000	Fixed	0.000	137.50	97.78
J-29	125.05	Demand	0.000	Fixed	0.000	136.89	115.79

PS2 ON

Scenario: Base



Scenario: Base
Steady State Analysis
Pump Report

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		36.60	0.000	29.30	0.568	12.50	1.136	On	122.65	151.92	0.569	29.27	2.72
PS1		31.70	0.000	24.40	0.379	9.00	0.757	Off	125.00	137.33	0.000	0.00	0.00
PS4		30.00	0.000	21.50	0.360	15.20	0.720	Off	124.00	137.33	0.000	0.00	0.00

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
R-2	122.65	-0.569	122.65
Tank	136.60	0.569	136.60
R-4	125.00	0.000	125.00
LAGOON	126.00	0.000	126.00
R-6	124.00	-0.33e-5	124.00

Scenario: Base
Steady State Analysis
Pipe Report

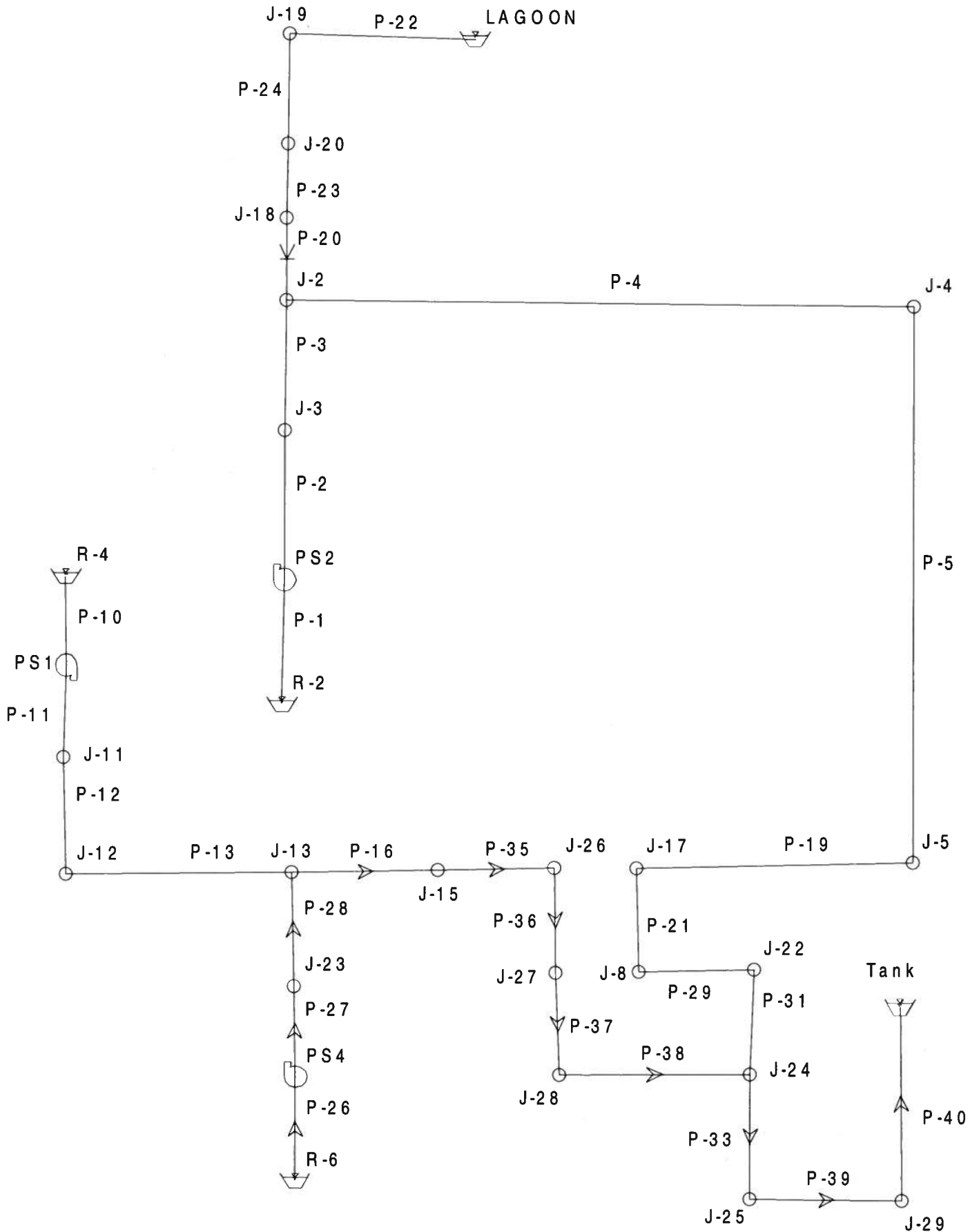
Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-3	2.00	78	130.0	0.70	Open	Open	0.569	150.57	150.31	0.26	128.83	1.99	252.07	249.64
P-1	0.10	300	130.0	0.00	Open	Open	0.569	122.65	122.65	0.93e-5	0.09	0.13		4.89
P-2	2.50	78	130.0	6.00	Open	Open	0.569	151.92	150.57	1.35	540.64	1.99	291.21	252.07
P-5	323.00	100	130.0	0.40	Open	Open	0.569	146.07	140.40	5.67	17.55	1.21	212.91	125.19
P-4	239.00	100	130.0	1.00	Open	Open	-0.569	146.07	150.31	4.25	17.76	1.21	212.91	249.64
P-19	132.00	100	130.0	0.40	Open	Open	0.569	140.40	138.06	2.33	17.68	1.21	125.19	123.40
P-21	27.00	100	130.0	0.40	Open	Open	-0.569	137.56	138.06	0.50	18.55	1.21	126.32	123.40
P-29	3.00	100	130.0	0.40	Open	Open	0.569	137.56	137.48	0.08	27.37	1.21	126.32	97.64
P-12	3.60	78	130.0	0.40	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	85.40	120.61
P-13	53.00	78	130.0	0.80	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	120.61	121.59
P-16	8.00	100	130.0	0.20	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	121.59	120.61
P-10	0.10	300	130.0	0.00	Open	Open	0.000	125.00	125.00	0.00	0.00	0.00		4.89
P-11	14.00	78	130.0	6.00	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	125.50	85.40
P-35	35.00	100	130.0	0.80	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	120.61	116.21
P-20	16.00	100	130.0	0.00	Open	Closed	0.000	126.00	150.31	0.00	0.00	0.00	32.77	249.64
P-23	148.00	100	130.0	0.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	32.77	36.19
P-22	48.00	81	130.0	6.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	29.35	
P-24	158.00	100	130.0	1.30	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	36.19	29.35
P-28	12.00	78	130.0	1.70	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	122.57	121.59
P-26	0.10	300	130.0	0.00	Open	Open	0.33e-5	124.00	124.00	0.00	0.00	0.78e-6		5.87
P-27	2.00	78	130.0	6.00	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	136.26	122.57
P-31	2.50	97	130.0	1.20	Open	Open	0.569	137.48	137.33	0.15	60.56	1.28	97.64	96.16
P-33	3.50	100	130.0	1.70	Open	Open	0.569	137.33	137.14	0.19	53.57	1.21	96.16	122.20
P-39	11.00	100	130.0	0.40	Open	Open	0.569	137.14	136.92	0.22	20.16	1.21	122.20	116.12
P-36	27.00	100	130.0	0.40	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	116.21	124.04
P-37	3.00	100	130.0	0.40	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	124.04	96.16
P-38	3.00	97	130.0	2.50	Open	Open	0.000	137.33	137.33	0.00	0.00	0.00	96.16	96.16
P-40	12.00	100	130.0	1.50	Open	Open	0.569	136.92	136.60	0.32	26.75	1.21	116.12	

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-3	124.80	Demand	0.000	Fixed	0.000	150.57	252.07
J-2	124.79	Demand	0.000	Fixed	0.000	150.31	249.64
J-4	124.30	Demand	0.000	Fixed	0.000	146.07	212.91
J-5	127.60	Demand	0.000	Fixed	0.000	140.40	125.19
J-8	124.65	Demand	0.000	Fixed	0.000	137.56	126.32
J-11	128.60	Demand	0.000	Fixed	0.000	137.33	85.40
J-12	125.00	Demand	0.000	Fixed	0.000	137.33	120.61
J-13	124.90	Demand	0.000	Fixed	0.000	137.33	121.59
J-15	125.00	Demand	0.000	Fixed	0.000	137.33	120.61
J-17	125.45	Demand	0.000	Fixed	0.000	138.06	123.40
J-18	122.65	Demand	0.000	Fixed	0.000	126.00	32.77
J-19	123.00	Demand	0.000	Fixed	0.000	126.00	29.35
J-20	122.30	Demand	0.000	Fixed	0.000	126.00	36.19
J-23	124.80	Demand	0.000	Fixed	0.000	137.33	122.57
J-22	127.50	Demand	0.000	Fixed	0.000	137.48	97.64
J-24	127.50	Demand	0.000	Fixed	0.000	137.33	96.16
J-25	124.65	Demand	0.000	Fixed	0.000	137.14	122.20
J-26	125.45	Demand	0.000	Fixed	0.000	137.33	116.21
J-27	124.65	Demand	0.000	Fixed	0.000	137.33	124.04
J-28	127.50	Demand	0.000	Fixed	0.000	137.33	96.16
J-29	125.05	Demand	0.000	Fixed	0.000	136.92	116.12

PS4 ON

Scenario: Base



**Scenario: Base
Steady State Analysis
Pump Report**

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		36.60	0.000	29.30	0.568	12.50	1.136	Off	122.65	137.36	0.000	0.00	0.00
PS1		31.70	0.000	24.40	0.379	9.00	0.757	Off	125.00	139.10	0.000	0.00	0.00
PS4		30.00	0.000	21.50	0.360	15.20	0.720	On	124.00	141.55	0.580	17.55	1.66

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
R-2	122.65	0.376e-5	122.65
Tank	136.60	0.580	136.60
R-4	125.00	0.000	125.00
LAGOON	126.00	0.000	126.00
R-6	124.00	-0.580	124.00

Scenario: Base
Steady State Analysis
Pipe Report

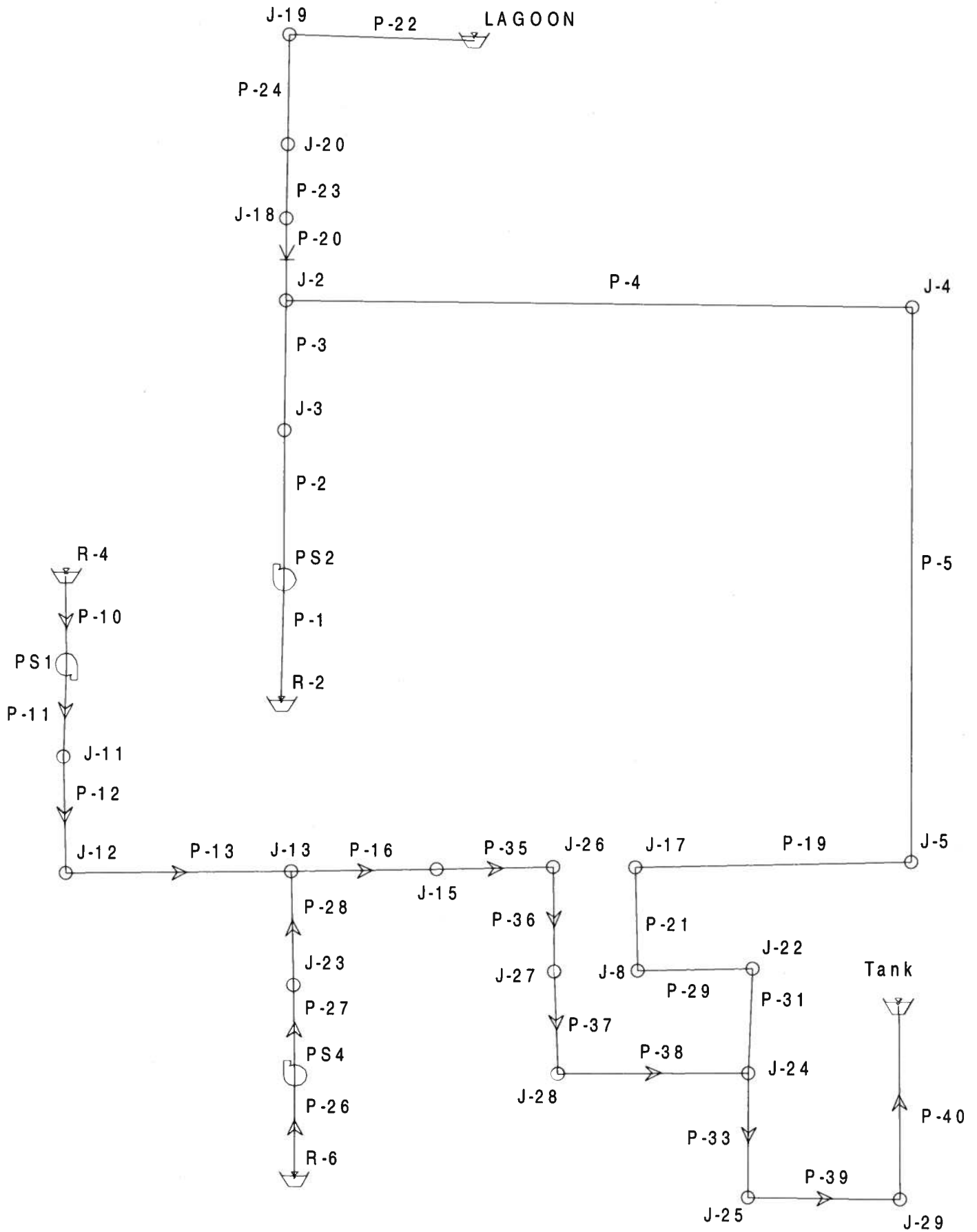
Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-3	2.00	78	130.0	0.70	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	122.83	122.93
P-1	0.10	300	130.0	0.00	Open	Open	0.376e-5	122.65	122.65	0.00	0.00	0.89e-6		4.89
P-2	2.50	78	130.0	6.00	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	148.75	122.83
P-5	323.00	100	130.0	0.40	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	127.72	95.44
P-4	239.00	100	130.0	1.00	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	127.72	122.93
P-19	132.00	100	130.0	0.40	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	95.44	116.47
P-21	27.00	100	130.0	0.40	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	124.30	116.47
P-29	3.00	100	130.0	0.40	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	124.30	96.42
P-12	3.60	78	130.0	0.40	Open	Open	0.000	139.10	139.10	0.00	0.00	0.00	102.67	137.88
P-13	53.00	78	130.0	0.80	Open	Open	0.000	139.10	139.10	0.00	0.00	0.00	137.88	138.86
P-16	8.00	100	130.0	0.20	Open	Open	0.580	139.10	138.94	0.16	20.00	1.23	138.86	136.31
P-10	0.10	300	130.0	0.00	Open	Open	0.000	125.00	125.00	0.00	0.00	0.00		4.89
P-11	14.00	78	130.0	6.00	Open	Open	0.000	139.10	139.10	0.00	0.00	0.00	142.77	102.67
P-35	35.00	100	130.0	0.80	Open	Open	0.580	138.94	138.24	0.69	19.83	1.23	136.31	125.12
P-20	16.00	100	130.0	0.00	Open	Closed	0.000	126.00	137.36	0.00	0.00	0.00	32.77	122.93
P-23	148.00	100	130.0	0.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	32.77	36.19
P-22	48.00	81	130.0	6.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	29.35	
P-24	158.00	100	130.0	1.30	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	36.19	29.35
P-28	12.00	78	130.0	1.70	Open	Open	0.580	140.18	139.10	1.08	90.13	2.02	150.42	138.86
P-26	0.10	300	130.0	0.00	Open	Open	0.580	124.00	124.00	0.93e-5	0.09	0.14		5.87
P-27	2.00	78	130.0	6.00	Open	Open	0.580	141.55	140.18	1.37	686.20	2.02	177.54	150.42
P-31	2.50	97	130.0	1.20	Open	Open	0.000	137.36	137.36	0.00	0.00	0.00	96.42	96.42
P-33	3.50	100	130.0	1.70	Open	Open	0.580	137.36	137.16	0.19	55.56	1.23	96.42	122.39
P-39	11.00	100	130.0	0.40	Open	Open	0.580	137.16	136.93	0.23	20.87	1.23	122.39	116.23
P-36	27.00	100	130.0	0.40	Open	Open	0.580	138.24	137.72	0.52	19.21	1.23	125.12	127.87
P-37	3.00	100	130.0	0.40	Open	Open	0.580	137.72	137.64	0.09	28.36	1.23	127.87	99.16
P-38	3.00	97	130.0	2.50	Open	Open	0.580	137.64	137.36	0.28	93.62	1.31	99.16	96.42
P-40	12.00	100	130.0	1.50	Open	Open	0.580	136.93	136.60	0.33	27.72	1.23	116.23	

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-3	124.80	Demand	0.000	Fixed	0.000	137.36	122.83
J-2	124.79	Demand	0.000	Fixed	0.000	137.36	122.93
J-4	124.30	Demand	0.000	Fixed	0.000	137.36	127.72
J-5	127.60	Demand	0.000	Fixed	0.000	137.36	95.44
J-8	124.65	Demand	0.000	Fixed	0.000	137.36	124.30
J-11	128.60	Demand	0.000	Fixed	0.000	139.10	102.67
J-12	125.00	Demand	0.000	Fixed	0.000	139.10	137.88
J-13	124.90	Demand	0.000	Fixed	0.000	139.10	138.86
J-15	125.00	Demand	0.000	Fixed	0.000	138.94	136.31
J-17	125.45	Demand	0.000	Fixed	0.000	137.36	116.47
J-18	122.65	Demand	0.000	Fixed	0.000	126.00	32.77
J-19	123.00	Demand	0.000	Fixed	0.000	126.00	29.35
J-20	122.30	Demand	0.000	Fixed	0.000	126.00	36.19
J-23	124.80	Demand	0.000	Fixed	0.000	140.18	150.42
J-22	127.50	Demand	0.000	Fixed	0.000	137.36	96.42
J-24	127.50	Demand	0.000	Fixed	0.000	137.36	96.42
J-25	124.65	Demand	0.000	Fixed	0.000	137.16	122.39
J-26	125.45	Demand	0.000	Fixed	0.000	138.24	125.12
J-27	124.65	Demand	0.000	Fixed	0.000	137.72	127.87
J-28	127.50	Demand	0.000	Fixed	0.000	137.64	99.16
J-29	125.05	Demand	0.000	Fixed	0.000	136.93	116.23

PS1/PS4 ON

Scenario: Base



**Scenario: Base
Steady State Analysis
Pump Report**

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		36.60	0.000	29.30	0.568	12.50	1.136	Off	122.65	138.40	0.000	0.00	0.00
PS1		31.70	0.000	24.40	0.379	9.00	0.757	On	125.00	146.35	0.469	21.35	1.63
PS4		30.00	0.000	21.50	0.360	15.20	0.720	On	124.00	143.94	0.444	19.94	1.45

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
R-2	122.65	0.294e-5	122.65
Tank	136.60	0.913	136.60
R-4	125.00	-0.469	125.00
LAGOON	126.00	0.000	126.00
R-6	124.00	-0.444	124.00

**Scenario: Base
Steady State Analysis
Pipe Report**

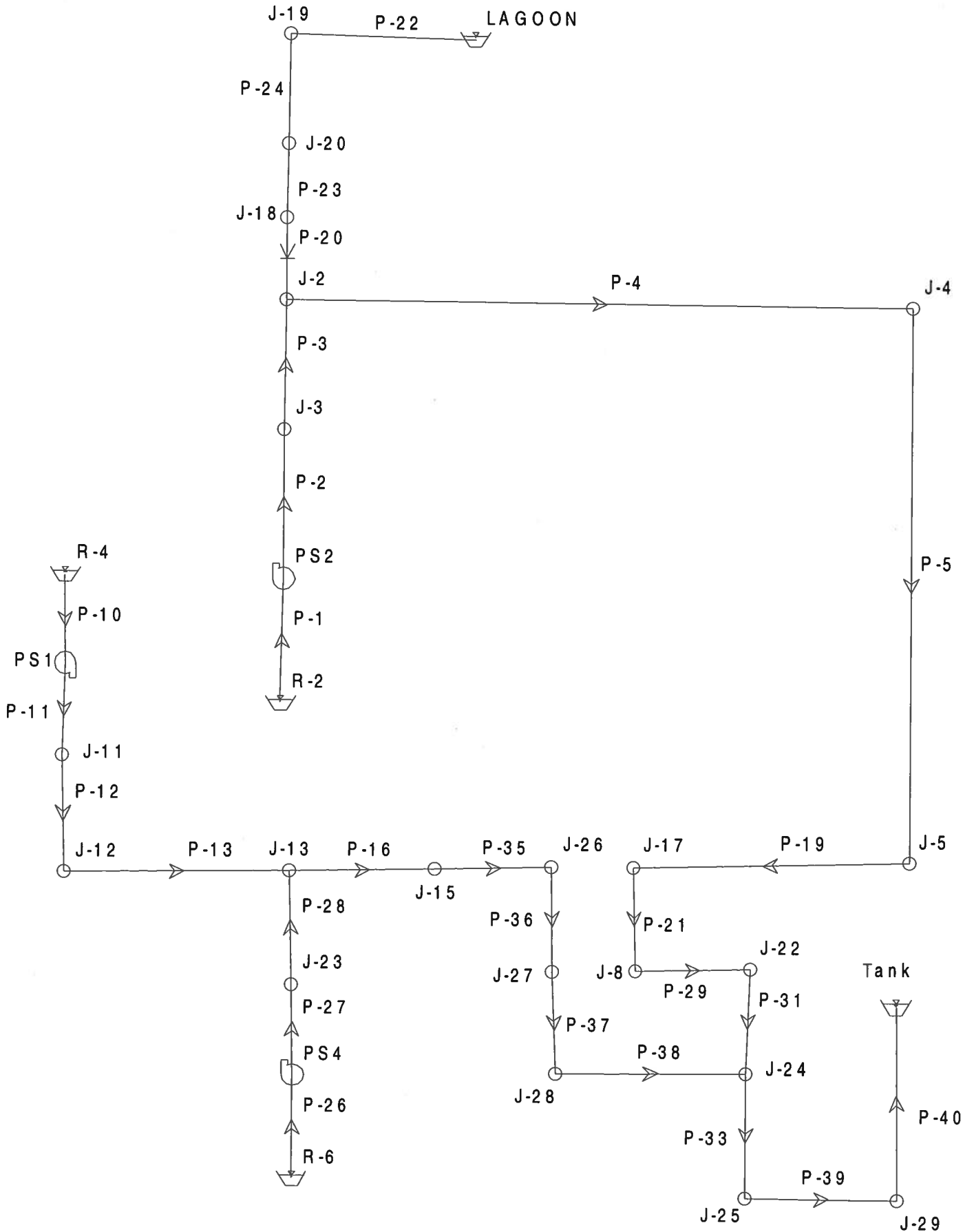
Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-3	2.00	78	130.0	0.70	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	133.01	133.11
P-1	0.10	300	130.0	0.00	Open	Open	0.294e-5	122.65	122.65	0.00	0.00	0.69e-6		4.89
P-2	2.50	78	130.0	6.00	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	158.93	133.01
P-5	323.00	100	130.0	0.40	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	137.90	105.62
P-4	239.00	100	130.0	1.00	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	137.90	133.11
P-19	132.00	100	130.0	0.40	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	105.62	126.65
P-21	27.00	100	130.0	0.40	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	134.48	126.65
P-29	3.00	100	130.0	0.40	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	134.48	106.60
P-12	3.60	78	130.0	0.40	Open	Open	0.469	144.96	144.76	0.20	56.02	1.64	160.02	193.26
P-13	53.00	78	130.0	0.80	Open	Open	0.469	144.76	142.48	2.28	42.94	1.64	193.26	171.98
P-16	8.00	100	130.0	0.20	Open	Open	0.913	142.48	142.11	0.37	46.62	1.94	171.98	167.35
P-10	0.10	300	130.0	0.00	Open	Open	0.469	125.00	125.00	0.93e-5	0.09	0.11		4.89
P-11	14.00	78	130.0	6.00	Open	Open	0.469	146.35	144.96	1.39	99.29	1.64	213.72	160.02
P-35	35.00	100	130.0	0.80	Open	Open	0.913	142.11	140.49	1.62	46.21	1.94	167.35	147.13
P-20	16.00	100	130.0	0.00	Open	Closed	0.000	126.00	138.40	0.00	0.00	0.00	32.77	133.11
P-23	148.00	100	130.0	0.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	32.77	36.19
P-22	48.00	81	130.0	6.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	29.35	
P-24	158.00	100	130.0	1.30	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	36.19	29.35
P-28	12.00	78	130.0	1.70	Open	Open	0.444	143.13	142.48	0.65	54.33	1.55	179.34	171.98
P-26	0.10	300	130.0	0.00	Open	Open	0.444	124.00	124.00	0.93e-5	0.09	0.10		5.87
P-27	2.00	78	130.0	6.00	Open	Open	0.444	143.94	143.13	0.81	404.02	1.55	200.93	179.34
P-31	2.50	97	130.0	1.20	Open	Open	0.000	138.40	138.40	0.00	0.00	0.00	106.60	106.60
P-33	3.50	100	130.0	1.70	Open	Open	0.913	138.40	137.93	0.47	134.76	1.94	106.60	129.86
P-39	11.00	100	130.0	0.40	Open	Open	0.913	137.93	137.39	0.54	48.79	1.94	129.86	120.70
P-36	27.00	100	130.0	0.40	Open	Open	0.913	140.49	139.29	1.21	44.67	1.94	147.13	143.16
P-37	3.00	100	130.0	0.40	Open	Open	0.913	139.29	139.08	0.20	67.34	1.94	143.16	113.31
P-38	3.00	97	130.0	2.50	Open	Open	0.913	139.08	138.40	0.69	228.62	2.06	113.31	106.60
P-40	12.00	100	130.0	1.50	Open	Open	0.913	137.39	136.60	0.79	65.75	1.94	120.70	

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-3	124.80	Demand	0.000	Fixed	0.000	138.40	133.01
J-2	124.79	Demand	0.000	Fixed	0.000	138.40	133.11
J-4	124.30	Demand	0.000	Fixed	0.000	138.40	137.90
J-5	127.60	Demand	0.000	Fixed	0.000	138.40	105.62
J-8	124.65	Demand	0.000	Fixed	0.000	138.40	134.48
J-11	128.60	Demand	0.000	Fixed	0.000	144.96	160.02
J-12	125.00	Demand	0.000	Fixed	0.000	144.76	193.26
J-13	124.90	Demand	0.000	Fixed	0.000	142.48	171.98
J-15	125.00	Demand	0.000	Fixed	0.000	142.11	167.35
J-17	125.45	Demand	0.000	Fixed	0.000	138.40	126.65
J-18	122.65	Demand	0.000	Fixed	0.000	126.00	32.77
J-19	123.00	Demand	0.000	Fixed	0.000	126.00	29.35
J-20	122.30	Demand	0.000	Fixed	0.000	126.00	36.19
J-23	124.80	Demand	0.000	Fixed	0.000	143.13	179.34
J-22	127.50	Demand	0.000	Fixed	0.000	138.40	106.60
J-24	127.50	Demand	0.000	Fixed	0.000	138.40	106.60
J-25	124.65	Demand	0.000	Fixed	0.000	137.93	129.86
J-26	125.45	Demand	0.000	Fixed	0.000	140.49	147.13
J-27	124.65	Demand	0.000	Fixed	0.000	139.29	143.16
J-28	127.50	Demand	0.000	Fixed	0.000	139.08	113.31
J-29	125.05	Demand	0.000	Fixed	0.000	137.39	120.70

PS1/PS2/PS4 ON

Scenario: Base



**Scenario: Base
Steady State Analysis
Pump Report**

Link Label	Input Pump Power (kW)	Shutoff Head (m)	Shutoff Discharge (m ³ /min)	Design Head (m)	Design Discharge (m ³ /min)	Maximum Operating Head (m)	Maximum Operating Discharge (m ³ /min)	Current Status	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Discharge (m ³ /min)	Pump Head (m)	Current Water Power (kW)
PS2		36.60	0.000	29.30	0.568	12.50	1.136	On	122.65	152.90	0.524	30.25	2.59
PS1		31.70	0.000	24.40	0.379	9.00	0.757	On	125.00	147.30	0.442	22.30	1.61
PS4		30.00	0.000	21.50	0.360	15.20	0.720	On	124.00	144.96	0.389	20.96	1.33

**Scenario: Base
Steady State Analysis
Reservoir Report**

Node Label	Reservoir Surface Elevation (m)	Reservoir Inflow (m ³ /min)	Calculated Hydraulic Grade (m)
R-2	122.65	-0.524	122.65
Tank	136.60	1.355	136.60
R-4	125.00	-0.442	125.00
LAGOON	126.00	0.000	126.00
R-6	124.00	-0.389	124.00

Scenario: Base
Steady State Analysis
Pipe Report

Link Label	Length (m)	Diameter (mm)	Roughness	Minor Loss	Initial Status	Current Status	Discharge (m ³ /min)	Start Calculated Hydraulic Grade (m)	End Calculated Hydraulic Grade (m)	Headloss (m)	Friction Slope (m/km)	Velocity (m/s)	Start Pressure (kPa)	End Pressure (kPa)
P-3	2.00	78	130.0	0.70	Open	Open	0.524	151.76	151.54	0.22	109.66	1.83	263.68	261.63
P-1	0.10	300	130.0	0.00	Open	Open	0.524	122.65	122.65	0.93e-5	0.09	0.12		4.89
P-2	2.50	78	130.0	6.00	Open	Open	0.524	152.90	151.76	1.15	458.19	1.83	300.81	263.68
P-5	323.00	100	130.0	0.40	Open	Open	0.524	147.90	143.04	4.86	15.04	1.11	230.84	151.06
P-4	239.00	100	130.0	1.00	Open	Open	-0.524	147.90	151.54	3.64	15.22	1.11	230.84	261.63
P-19	132.00	100	130.0	0.40	Open	Open	0.524	143.04	141.04	2.00	15.15	1.11	151.06	152.53
P-21	27.00	100	130.0	0.40	Open	Open	-0.524	140.61	141.04	0.43	15.89	1.11	156.16	152.53
P-29	3.00	100	130.0	0.40	Open	Open	0.524	140.61	140.54	0.07	23.35	1.11	156.16	127.60
P-12	3.60	78	130.0	0.40	Open	Open	0.442	146.06	145.88	0.18	50.15	1.54	170.76	204.21
P-13	53.00	78	130.0	0.80	Open	Open	0.442	145.88	143.83	2.04	38.51	1.54	204.21	185.22
P-16	8.00	100	130.0	0.20	Open	Open	0.831	143.83	143.52	0.31	39.09	1.76	185.22	181.18
P-10	0.10	300	130.0	0.00	Open	Open	0.442	125.00	125.00	0.93e-5	0.09	0.10		4.89
P-11	14.00	78	130.0	6.00	Open	Open	0.442	147.30	146.06	1.24	88.63	1.54	223.00	170.76
P-35	35.00	100	130.0	0.80	Open	Open	0.831	143.52	142.17	1.36	38.76	1.76	181.18	163.51
P-20	16.00	100	130.0	0.00	Open	Closed	0.000	126.00	151.54	0.00	0.00	0.00	32.77	261.63
P-23	148.00	100	130.0	0.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	32.77	36.19
P-22	48.00	81	130.0	6.00	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	29.35	
P-24	158.00	100	130.0	1.30	Open	Open	0.000	126.00	126.00	0.00	0.00	0.00	36.19	29.35
P-28	12.00	78	130.0	1.70	Open	Open	0.389	144.34	143.83	0.51	42.17	1.36	191.15	185.22
P-26	0.10	300	130.0	0.00	Open	Open	0.389	124.00	124.00	0.00	0.00	0.09		5.87
P-27	2.00	78	130.0	6.00	Open	Open	0.389	144.96	144.34	0.62	309.89	1.36	210.90	191.15
P-31	2.50	97	130.0	1.20	Open	Open	0.524	140.54	140.42	0.13	51.47	1.18	127.60	126.34
P-33	3.50	100	130.0	1.70	Open	Open	1.355	140.42	139.40	1.02	291.28	2.87	126.34	144.24
P-39	11.00	100	130.0	0.40	Open	Open	1.355	139.40	138.27	1.12	102.09	2.87	144.24	129.34
P-36	27.00	100	130.0	0.40	Open	Open	0.831	142.17	141.15	1.01	37.48	1.76	163.51	161.44
P-37	3.00	100	130.0	0.40	Open	Open	0.831	141.15	140.98	0.17	56.26	1.76	161.44	131.91
P-38	3.00	97	130.0	2.50	Open	Open	0.831	140.98	140.42	0.57	189.87	1.87	131.91	126.34
P-40	12.00	100	130.0	1.50	Open	Open	1.355	138.27	136.60	1.67	139.41	2.87	129.34	

**Scenario: Base
Steady State Analysis
Junction Report**

Node Label	Elevation (m)	Demand Type	Demand (m ³ /min)	Demand Pattern	Calculated Demand (m ³ /min)	Calculated Hydraulic Grade (m)	Pressure (kPa)
J-3	124.80	Demand	0.000	Fixed	0.000	151.76	263.68
J-2	124.79	Demand	0.000	Fixed	0.000	151.54	261.63
J-4	124.30	Demand	0.000	Fixed	0.000	147.90	230.84
J-5	127.60	Demand	0.000	Fixed	0.000	143.04	151.06
J-8	124.65	Demand	0.000	Fixed	0.000	140.61	156.16
J-11	128.60	Demand	0.000	Fixed	0.000	146.06	170.76
J-12	125.00	Demand	0.000	Fixed	0.000	145.88	204.21
J-13	124.90	Demand	0.000	Fixed	0.000	143.83	185.22
J-15	125.00	Demand	0.000	Fixed	0.000	143.52	181.18
J-17	125.45	Demand	0.000	Fixed	0.000	141.04	152.53
J-18	122.65	Demand	0.000	Fixed	0.000	126.00	32.77
J-19	123.00	Demand	0.000	Fixed	0.000	126.00	29.35
J-20	122.30	Demand	0.000	Fixed	0.000	126.00	36.19
J-23	124.80	Demand	0.000	Fixed	0.000	144.34	191.15
J-22	127.50	Demand	0.000	Fixed	0.000	140.54	127.60
J-24	127.50	Demand	0.000	Fixed	0.000	140.42	126.34
J-25	124.65	Demand	0.000	Fixed	0.000	139.40	144.24
J-26	125.45	Demand	0.000	Fixed	0.000	142.17	163.51
J-27	124.65	Demand	0.000	Fixed	0.000	141.15	161.44
J-28	127.50	Demand	0.000	Fixed	0.000	140.98	131.91
J-29	125.05	Demand	0.000	Fixed	0.000	138.27	129.34

APPENDIX

C

DESIGN BRIEF
LEACHATE STORAGE
SYSTEM – JANUARY
2015, PREPARED BY
WSP (TEXT ONLY)

DESIGN BRIEF
LEACHATE STORAGE SYSTEM
RICHMOND LANDFILL SITE
TOWN OF GREATER NAPANEE
Waste Management of Canada Corporation

Project No: 081-12493-00 (8570G)
Date: January 2015

—
WSP Canada Inc.
1450 1st Avenue West, Suite 101
Owen Sound, ON N4K 6W2

Phone: 519-376-7612
Fax: 519-376-8008
www.wspgroup.com



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FIGURES

Figure 1	Site Area Plan
Figure 2	Landfill Site Location Plan

DRAWINGS

8570G-LS1	Proposed Leachate Storage System - Plan
8570G-LS2	Proposed Leachate Storage System Plan, Sections and Details
8570G-LS3	Proposed Leachate Storage System Sections and Details
8570G-LS4	Proposed Leachate Storage System PS2 and FMC1 – Plan and Sections
8570G-LS5	Proposed Leachate Storage System PS1 – Plan, Sections and Details

APPENDICES

Appendix A	Environmental Compliance Approval and Amendments
A-1	Environmental Compliance Approval (Waste Disposal Site) No. A371203, dated January 9, 2012
A-2	Amendment to Environmental Compliance Approval No. A371203, dated January 9, 2012
A-3	Amendment to Environmental Compliance Approval No. A371203, (Notice 1) dated May 3, 2013
A-4	Amendment to Environmental Compliance Approval No. A371203, (Notice 2) dated October 4, 2013
Appendix B	Hydraulic Calculations
B-1	PS1/PS2 - to Leachate Storage Tank
B-2	PS3 - Tanker Truck Loading
B-3	PS4 – Spilled Leachate Return to Leachate Storage Tank

1 INTRODUCTION

Waste Management of Canada Corporation's (WM) Richmond Landfill site is located within Part of Lots 1, 2, and 3, Concession IV, Former Township of Richmond, now the Town of Greater Napanee. Refer to **Figures 1 and 2** for site location plans. **Figure 2** includes the site georeference information. The landfill site consists of a 16.2 hectare (ha) waste disposal area within a total site area of 138 ha, and operates under Environmental Compliance Approval (ECA) No. A371203, including amendments (refer to **Appendix A**). The Richmond Landfill ceased to accept waste for final disposal on June 30, 2011.

The landfill is equipped with a leachate collection system consisting of a perimeter leachate collector. The oldest northwest quadrant of the landfill is unlined, while the remaining landfill has a clay or HDPE base liner. Leachate is collected from two (2) separate withdrawal points; pumping station PS1, which is located on the south side of the landfill, and PS2 chamber, located on the north side. The existing pumping station PS1 (sideslope riser) is equipped with Grundfos pumps. The PS2 chamber does not have a pump, and leachate is removed by vacuum tanker trucks.

Typically leachate is hauled off site to Napanee for treatment. Truck loads are manifested and discharged at the septage receiving facility located at the intersection of Enviro Park Lane and West Street in the Town of Greater Napanee. In the event that the Napanee facility is unable to accept leachate, WM has approval to discharge leachate at a facility in Cobourg, Ontario. Alternatively, there is a leachate holding lagoon located to the north of the landfill footprint that can be used for backup storage.

In 2013, approximately 17,743 cub metres (m³) of leachate hauled from the site and disposed of at the Napanee facility. The average daily leachate generation rate is calculated as 48.6 m³/day. Maximum leachate production occurs usually in the spring, with the highest weekly volume in 2013 of 699 m³/day on average. The 2013 leachate volume is equal to approximately 110 mm of precipitation over the landfill footprint area of 16.2 hectares.

2 PROPOSED LEACHATE STORAGE SYSTEM

2.1 RATIONALE

WM is proposing to upgrade the existing leachate collection system to simplify truck loading procedures and reduce leachate storage over the landfill base. The proposed system will lower leachate levels within the landfill, thus reducing the head over the base liner system. This should result in better protection of groundwater resources at the site.

The proposed leachate storage system will consist of the following:

- Leachate pumping stations PS1 and PS2, with associated forcemains discharging into the leachate storage tank;
- Leachate storage tank – 500 m³ capacity;
- Truck loading pumping station PS3; and
- Pumping Station PS4, which will return leachate spilled during truck loading activities to the leachate storage tank.

All of the above noted components are described in more detail later in this report.

2.2 LEACHATE QUALITY AND QUANTITY

The proposed system will not have any affect on leachate quality and quantity generated at the site. Leachate strength is anticipated to decrease with time to such a level that leachate collection/disposal is no longer required at the end of the site's contaminating lifespan. The same applies to leachate quantity, as it would remain unchanged and fluctuate seasonally, peaking usually in the spring. The maximum annual leachate volume recorded during the last five (5) years was 20,813 m³ in 2010. It is unlikely that this volume would be largely exceeded in the future, as this volume was recorded when the site was still active and not fully capped. Based on the above and assuming a peaking factor of 2.5, the maximum daily leachate production is estimated conservatively at approximately 142 m³/day (1.64 L/s).

2.3 LEACHATE COLLECTION SYSTEM

The existing leachate collection system will remain unchanged. Leachate will continue to drain by gravity towards two (2) separate, low lying withdrawal points located at pumping stations PS1 and PS2.

2.3.1 EXISTING PUMPING STATION PS1

This pumping station was constructed in the mid-1990's at the lowest point within the HDPE lined cell on the south side of the landfill. The pumping station consists of two (2) upslope risers which terminate inside the pump removal structure. Each upslope riser is equipped with a stainless steel Grundfos 80520-2 submersible pump. These pumps shall be removed, inspected and if found in need of repair, at least one pump should be replaced with an EPG-Surepump WSDPT 18-2. The replacement pump has similar operating parameters as the existing pump, but is mounted on wheels, thus easier to install/maintain inside the upslope riser. The section of discharge line inside the upslope riser may also be replaced with a flexible hose which is more suitable for this type of installation. The pumping station will continue to be operated in response to the water level in the sump. All electrical/control modifications will be completed as required to ensure that the system is fully operational in both automatic and manual modes of operation.

2.3.2 PUMPING STATION PS2

It is proposed to convert the existing leachate storage chamber into a pumping station. Leachate would continue to flow by gravity into the PS2 chamber where an EPG Surepump VSPDT 31-2 would be installed. The pump is a two (2) stage, 150 mm nominal diameter with a 75 mm diameter threaded discharge connection and 5 hp single phase motor. All EPG pumps will be equipped with a liquid level sensor which will be used for pump control. The water level within PS2 will be displayed at the control panel near the leachate storage tank. The pump will be turned on/off automatically depending on the water level in the chamber. High/low level alarm (float) is proposed as a backup and extra safety measure. Both PS1 and PS2 would pump leachate to new leachate storage tank and stop automatically whenever the tank is full. This is necessary to prevent accidental tank overflowing and subsequent leachate spills. The pump discharge line will be equipped with a check and isolation valve. The pump will be removable through a patented EPG disconnect/guide rail system. Please refer to **Drawing LS4** for pumping station details. There are two (2) design options for PS2 with different piping configurations resulting from two (2) different discharge forcemain alignments between PS2 and the leachate storage tank. Both forcemain alignment options are depicted on **Drawing LS1**.

2.3.3 LEACHATE FORCEMAINS

Leachate from pumping stations PS1 and PS2 will be pumped into the storage tank through separate forcemains up to flow meter chamber FMC1. Beyond this chamber, both forcemains will merge into a single 100 mm diameter line discharging into the storage tank. Pumping Station PS1 will continue to use the existing discharge line, however, near the existing valve chamber (VC) it will be redirected towards the new flow meter chamber FMC1 and further into the tank. Details are provided on **Drawing LS2**.

There are two (2) forcemain alignment options proposed for pumping station PS2 as shown on **Drawing LS1**. The preferred alternative is Option 2, which requires pulling of approximately 300 m of forcemain inside the existing 150 mm diameter pipe installed at the landfill bottom. Earlier this year, a large portion of this pipe (± 200 m) was camera inspected, and confirmed the integrity of the line. Details of the forcemain crossing through the existing pump removal structure at PS1 are presented on **Drawing LS5**. The second

alternative (Option 1) is proposed in the event that the pulling of the forcemain under the landfill is not feasible. The Option 1 forcemain travels around the east side of the landfill to the proposed leachate storage tank location at the pad near PS1.

The forcemain will be embedded in well compacted granular material with cover of 1.8 m which is sufficient to protect the line from freezing. Insulation will be provided wherever depth of cover is less than 1.8 m. Clay plugs will be provided every 100 m of the forcemain length to minimize the landfill gas migration potential along the pipe bedding material. The HDPE forcemain pipe DR21 is rated at 100 psi and will be able to withstand a normal operating pressure of approximately 250 kPa (36 psi) and instantaneous overpressure resulting from sudden stoppage of water column. The forcemain section pulled under the landfill may be heavier DR17 because coiled HDPE pipe is not available in DR21.

The reader is referred to **Appendix B-1** for printouts of the PS1/PS2 hydraulics. According to calculations, the following flows are anticipated for each pumping station:

- PS1 – 8.1 L/s at 7 m TDH (average)
- PS2 – Option 1 – 6.2 L/s at 24.5 m TDH (average)
- PS2 – Option 2 – 7.8 L/s at 21.3 m TDH (average)

If the forcemain under the landfill is downsized to 50 mm diameter, flow would be reduced to 3.5 L/s at 29.0 m TDH (average).

Each forcemain branch will be equipped with a 75 mm diameter electromagnetic flow meter inside the dedicated precast concrete chamber FMC1. A flow meter readout will be provided inside the control panel near the leachate storage tank. The exact control panel location will be determined during the final design stage.

2.4 LEACHATE STORAGE TANK

Leachate storage tank installation details are presented on **Drawings LS2 and LS3**.

The proposed tank is 69 m in length, 3.0 m nominal diameter and 500 m³ capacity. The tank will be built from Weholite pipe, Class RSC 250. Weholite is a flexible, lightweight double wall (closed profile) pipe made of HDPE, manufactured in a patented process by Uponor Infra Ltd., formerly KWH.

Approximately half of the tank will be installed below the existing grade and high groundwater table. The other half of the tank will be above the existing grade and covered with approximately 1.2 m soil cover, to provide uplift protection with a sufficient factor of safety. The tank will be embedded and backfilled with granular soil compacted to 95% SPMDD. The tank will be equipped with all required pipe ports, vent, manways, ladders and stilling well to prevent foaming. The tank will be supplied in several pieces which will be extrusion welded inside and outside by a manufacturer's qualified technician. The entire tank assembly will be tested for leakage together with pumping station PS3.

2.5 PUMPING STATION PS3

The pumping station will be housed inside a 2.4 m diameter manhole which will be hydraulically connected with the adjacent leachate storage tank through 300 mm diameter pipe. Pumping station details are presented on **Drawing LS2 and LS3**.

An EPG Surepump VSPDT 61-1 will be set at the bottom of the chamber. This pump is submersible, single stage, and equipped with a three (3) phase, 5 hp motor, a liquid level sensor and a factory perforated internally built check valve. The 300 mm diameter knife gate valve will allow isolation of the pumping station from the leachate storage tank. The pump will be turned on/off manually by the operator when required to load tanker truck(s). The pump will stop automatically on low level when the system is empty. In addition, a float activated low and high level alarm will be provided as a backup. Pump removal would be through the patented EPG guide rail/disconnect system. The pump discharge line is relatively short, terminating at the headwall, a few metres northwest from the pumping station. The discharge line will slope towards the pumping station so it can be emptied by gravity after each filling cycle to prevent freezing of the line. The electromagnetic flow meter, housed inside FMC2 chamber, will record all flows. The reader is referred to **Appendix B-2** for pumping station hydraulic calculations. It is estimated that pumping rates will be as follows:

- 24.2 L/s at 4.8 TDH (average) – tank full, truck empty
- 20.3 L/s at 8.5 m TDH (average) – tank empty, truck full

2.6 PUMPING STATION PS4

Details of this pumping station are shown on **Drawing LS2**. This facility is designed to collect leachate spillage which would occur during normal tanker truck loading operations. Any leachate spilled from the truck and/or hose used for truck loading will drain into the PS4 pumping chamber through a perforated grate mounted on top of the structure. Tanker truck loading will take place within a specially constructed and graded concrete spill containment pad (16 x 4 m size) with PS4 positioned at the lowest point of the pad. Collected leachate will be diluted by runoff from precipitation which will also be captured within the spill containment pad. Proper grading of the gravel area surrounding the proposed concrete pad will be critical to minimize the amount of runoff collected by the system. Pumping station PS4 will be equipped with a small submersible sewage pump. The preliminary selection is a Sulzer ABS Scavenger Pump Model EJ07W-2. This pump is equipped with a single phase 0.75 hp motor. The pump discharge line will be fitted with check and isolation valves. The short 50 mm diameter forcemain will empty into pumping station PS3 below the low water level. Refer to **Appendix B-3** for hydraulic analysis of this pumping system. Estimated flows are as follows:

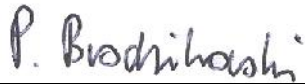
- 3.5 L/s at 6.2 TDH (average) – tank full
- 4.8 L/s at 5.6 TDH (average) – tank empty

PS4 will operate automatically in response to the water level in the pump chamber as sensed by floats. The pump will stop automatically whenever the leachate storage tank is full.

2.7 POWER SUPPLY

Three (3) phase electric power is available on site near the existing weigh scale, which is relatively close to the proposed leachate storage tank location (± 100 m). Since there is no power on the north side of the landfill (PS2 location), an overhead power supply line will have to be erected. A preliminary power distribution layout is provided on **Drawing LS1**. The proposed line is 8.3 kV, over 900 m long and goes around the landfill on the west side. Detailed electrical/control system design will be carried out by design/build contractor Nielsen Systems Inc., who is familiar with the existing onsite electrical system configuration.

PREPARED BY



Peter S. Brodzikowski, P.Eng.
Designated Consulting Engineer
Senior Environmental Engineer
PSB/dlw

ATTACHMENT

3 PROOF OF CONSULTATION/ NOTIFICATION



ENVIRONMENTAL LEGACY MANAGEMENT GROUP

1271 Beechwood Road
Town of Greater Napanee, ON K7R 3L1
(613) 388-1057

April 30, 2020

Re: Environmental Compliance Approval (ECA) A371203
Modifications to Leachate Storage System, Richmond Landfill Site
Waste Management of Canada Corporation (WM)

Dear Resident:

WM has submitted an ECA application to the Ministry of the Environment, Conservation and Parks (MECP), seeking the above noted amendment to ECA No. A371203 for the Richmond Landfill.

The Richmond Landfill ceased landfilling operations on June 30, 2011. WM is requesting approval for various modifications to previously approved leachate storage system under Condition 5.5. These include, among others, an increase in size and type of leachate storage tank from 500 m³ buried Weholite unit to a 3,000 m³ glass fused to steel (GFS) aboveground facility.

A proposed Public Notification Plan is also included in the submission.

If you have any questions, concerns or objections to the proposal, you must send written comments to:

Director, Client Services and Permissions Branch
Ministry of Environment, Conservation, and Parks
135 St. Clair Avenue West, 1st Floor
TORONTO, ON M4V 1P5

Written comments must be received by the MECP within 15 days of receipt of this notice.

Should you have any questions or comments regarding the application before expressing these comments to the MECP, please do not hesitate to contact the undersigned.

Yours very truly,

WASTE MANAGEMENT OF CANADA CORPORATION

A handwritten signature in blue ink, appearing to read 'W. McDonough'.

Mr. William McDonough – Senior Project Manager
Phone: (226) 280-1795
Email: wmdonou@wm.com

Waste Management of Canada Corporation - Richmond Landfill
 Application to Amend Environmental Compliance Approval No. A371203

Notification to Neighbouring Residents of Application Submission

Resident Name	Residence Address
Resident	1097 Beechwood Road, Napanee, ON
Mr. and Mrs. Paul Martin	1121 Beechwood Road, Napanee, ON
Mr. Andrew Martin	1144 Beechwood Road, Napanee, ON
Mr. Doug Lewis	1250 Beechwood Road, Napanee, ON
Mr. and Mrs. Lyn Russell	3424 Selby Road, Napanee, ON
Mary Blair and Leona Wells	3684 Selby Road, Napanee, ON
Mr. Bob Russell	3591 Selby Road, Napanee, ON
The Bakers	3462 Selby Road, Napanee, ON
R. C. Murray	3703 Selby Road, Napanee, ON
Mr. and Mrs. Leo Walsh	3832 Selby Road, Napanee, ON
Resident	1464 Callaghan Side Road, Napanee, ON
Mrs. Angela Scharf	1398 Callaghan Side Road, Napanee, ON
Mr. and Mrs. Doug Cranston	1388 Callaghan Side Road, Napanee, ON
Mr. and Mrs. Cory Wilson	1360 Callaghan Side Road, Napanee, ON
Mr. Ken Brown	1379 Callaghan Side Road, Napanee, ON
Mr. and Mrs. James Shearer	172 Tuckers Lane, Marysville, ON
Mr. Gary Tucker	138 Tuckers Lane, Marysville, ON
Mr. and Mrs. Ron Allison	207 Tuckers Lane, Marysville, ON
Mr. Ken Sutcliffe	37 Johnson Side Road, Napanee, ON

Waste Management of Canada Corporation - Richmond Landfill
Application to Amend Environmental Compliance Approval No. A371203

Notification to Neighbouring Residents of Application Submission

Resident Name	Residence Address
Mr. Tim Dillenbeck	66 Johnson Side Road, Napanee, ON
Ms. Julie Butcher	66 Johnson Side Road, Napanee, ON
Resident	67 Johnson Side Rd, Napanee ON
Resident	71 Johnson Side Rd, Napanee ON
Resident	75 Johnson Side Rd, Napanee ON
Resident	185 Johnson Side Rd, Napanee ON
Mr. and Mrs. Brian Powers	603 Kennelly Road, Napanee, ON
Mr. Charles Goodfellow	554 Kennelly Road, Napanee, ON
Mr. Shaun Kennelly	494 Kennelly Road, Napanee, ON

NOTE: 3427 Selby Road has no mailbox, therefore no letter was left.