



Effluent Management Report

Grimsby Anaerobic Digestion Site

Escarpment Renewables

January 26, 2022

GHD



455 Phillip Street, Unit 100A

Waterloo, Ontario N2L 3X2, Canada

T +1 519 884 0510 | F +1 519 884 0525 | E info-northamerica@ghd.com | **ghd.com**

Printed date	2022-01-26 8:19:00 AM
Last saved date	January 26, 2022
File name	11226032-RPT-10-Effluent Management Report
Author	Jason Wilson
Project manager	Jason Wilson
Client name	Escarpment Renewables
Project name	ESCARPMENT-Grimsby AD Permitting
Document title	Effluent Management Report Grimsby Anaerobic Digestion Site
Revision version	Rev [00]
Project number	11226032

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4		Jason Wilson	Dilan Singaraja		Victoria Shortreed		01/26/2022

© GHD 2022

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Executive summary

This Effluent Management Report has been prepared in accordance with Table 1 of Ontario Regulation 359/09. A summary of where information is contained in this report as it relates to these requirements is provided below.

Table E.1 Ontario Regulation 359/09 Compliance Summary

Requirements	Location in Report
Set out a description of the following in respect of the renewable energy project:	
1. The quality and quantity of all sewage that is expected to be produced by or at the renewable energy generation facility.	Section 2 and Section 3
2. The manner in which the sewage mentioned in paragraph 1 is proposed to be treated and disposed of, including details of any sediment control features and storm water management facilities.	Section 3 and Section 4
3. Mitigation measures to ensure that the sewage mentioned in paragraph 1 will not result in negative environmental effects on the quality of any water.	Section 5
4. If the sewage mentioned in paragraph 1 is proposed to be discharged into surface water, the assimilative capacity of the receiving water body.	N/A

Contents

1. Introduction	1
1.1 Purpose	1
1.2 Project Location	1
1.3 The Project	1
2. Sewage Production	1
3. Digestate Production	2
4. Stormwater Management	2
5. Mitigation Measures	3

Figure index

Figure 1	Site Location Map
Figure 2	Existing Conditions

1. Introduction

1.1 Purpose

This Effluent Management Report is prepared to fulfill the Renewable Energy Approval (REA) requirements as set out in Ontario Regulation 359/09. The Anaerobic Digestion (AD) facility currently operates under Renewable Energy Approval (REA) No. 8541-9HSGG3, as amended. The project has received a Feed-In Tarrif (FIT) Contract No. F-000610-BIG-130-302.

1.2 Project Location

The project construction will occur on lands owned by Escarpment Renewables at 424 Sobie Road in the Town of Grimsby, Ontario (Site). The project will be located on the northwestern 5.4 hectares (ha) of a 10.5-ha property located on the south side of Sobie Road approximately 300 metres (m) east of Park Road South. The legal description of the property is part of Lots 1 and 2, Concession 6, Former Township of North Grimsby being Part 1 on Plan 30R-13677.

The Site location is shown on Figure 1.

1.3 The Project

The project will include expansion to the existing Site. The AD Facility processes source-separated organics (SSO) and industrial, commercial, institutional (ICI) organic materials. The AD Facility is currently operating at a maximum of 23,000 tonnes per year of incoming organic waste and will be upgraded to accommodate a capacity of 159,000 tonnes per year. A new organics pre-processing building will be constructed with the necessary equipment to receive, temporarily store, and process solid organic material for digestion by removing inert contaminants such as plastic packaging. New digesters will be added to the existing AD facility and thereby a significant increase of biogas production is anticipated. Escarpment Renewables is proposing to build a new renewable natural gas (RNG) upgrading system on Site to produce RNG from the additional biogas generated. The RNG will be compressed and temporarily stored in tube trailers adjacent to the RNG upgrading system for off-Site transportation. The proposed Site expansion is shown on Figure 2.

2. Sewage Production

Sewage is defined in Ontario Reg. 359/09 the same as the Ontario Water Resources Act (OWRA):

“includes drainage, storm water, commercial wastes and industrial wastes and such other matter or substance as is specified by the regulations.”

Furthermore, the OWRA defines “sewage works” as:

“any works for the collection, transmission, treatment and disposal of sewage or any part of such works but does not include plumbing to which the Building Code Act, 1992 applies.”

This report will discuss the management of drainage and stormwater and will discuss the management of the digestate waste stream. There are washrooms located at the Site that discharge to a septic system as regulated by the Ontario Building Code (OBC). Therefore, the sewage generated from the on-Site washrooms is not discussed further herein.

3. Digestate Production

An estimated average 123,618 tonnes of digestate from the six digesters, between 2 and 7 percent solids content will be produced annually. Digestate is pumped from the digesters to the digestate storage systems. Digestate storage will be provided in the form of the two existing 4,029-cubic metre (m³) storage tanks and two 8,000-m³ tanks, for a total of 24,058 m³. This provides approximately 75 days of digestate storage. Digestate will be managed as a fertilizer under the Canadian Food Inspection Agency (CFIA). In the event that the digestate can't be managed as CFIA fertilizer, it will be managed as Non-Agricultural Source Material (NASM) for land application under a NASM plan.

The existing digestate storage tanks are constructed largely below grade. They are concrete with a fixed roof and agitators to keep digestate mixed. The two new digestate storage tanks will be constructed above grade and include double-membrane biogas bladders installed at the top of the tank.

A digestate filling station will be located beside the secondary containment area, where trucks will collect digestate via overhead discharge pipe. Digestate filling may occur during extended hours to accommodate agricultural operations. Trucks take digestate to farms to be applied to fields as a fertilizer.

4. Stormwater Management

The REA requires stormwater management in the form of a sediment basin with a total capacity of 675 m³. The existing ponds, provide a total capacity of approximately 3,000 m³.

The ponds currently receive runoff from the perimeter ditch and the central area around the existing digesters, servicing the currently-developed portion of the property (approximately 4.8 ha). The sediment forebay and pond are connected by three culverts. The discharge from the west ponds is directed along a swale running to the southwest corner of the Site and discharging to existing drainage features consistent with the historical use of the property as an agricultural field.

A secondary containment system will be constructed for the new above grade tanks, with a total area of approximately 0.8 ha. This area will contain stormwater, which will either be used in the anaerobic digestion process, or manually pumped to the head of the east stormwater management pond if not needed and deemed to not be impacted by Site operations. This pumping will be done during periods where the stormwater ponds have the capacity to manage the volume of water to be pumped. Therefore, the total area that the stormwater ponds will be servicing post-expansion is approximately 4.6 ha, which is less than the current conditions (approximately 4.8 ha). Given the reduction in direct-flow service area and the fact that the existing ponds are larger than that required by the current REA, no changes are proposed to the stormwater management ponds.

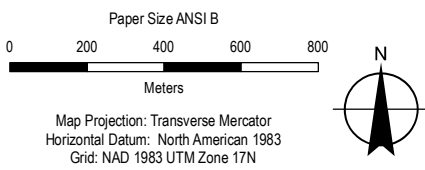
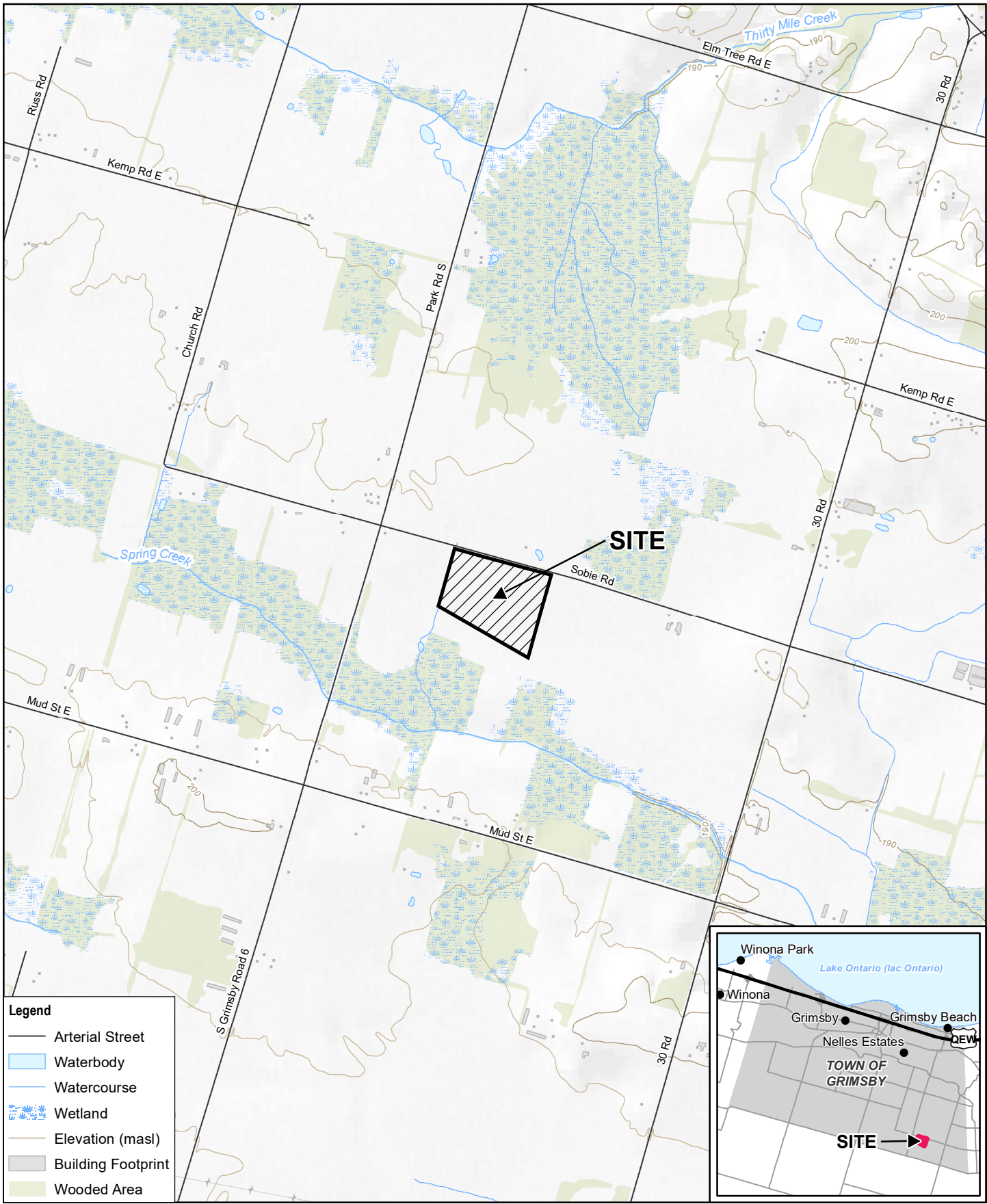
Silt fencing is installed and will be maintained along the western property line a minimum 3 m from the edge of an existing drainage area to prevent migration of sediment during construction and operation of the Site. The stormwater management ponds collect runoff from the Site and provide sedimentation. A silt sock exists in the effluent ditch from the existing stormwater management ponds to further protect the downstream receiving environment from potential sediment migration from the stormwater management ponds.

5. Mitigation Measures

Sewage works to manage sewage from the Site washrooms are designed in accordance with the OBC and require no mitigation measures.

Digestate is stored on site in four tanks. The potential negative impacts from the storage of digestate include spills. The digestate storage tanks will be constructed within a secondary containment system designed in accordance with the Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities. The secondary containment system provides capacity to collect and contain spills from the digestate storage tanks to prevent discharge to the environment.

The potential negative impacts from the stormwater runoff include discharge of sediments downstream of the Site. Silt fencing will be installed at the western perimeter of the Site and in construction areas. After construction is complete, the disturbed area is to be seeded to prevent erosion from occurring. The existing stormwater ponds collect runoff from the Site. The stormwater ponds are existing and contain additional erosion and sedimentation protection through the use of silt socks.

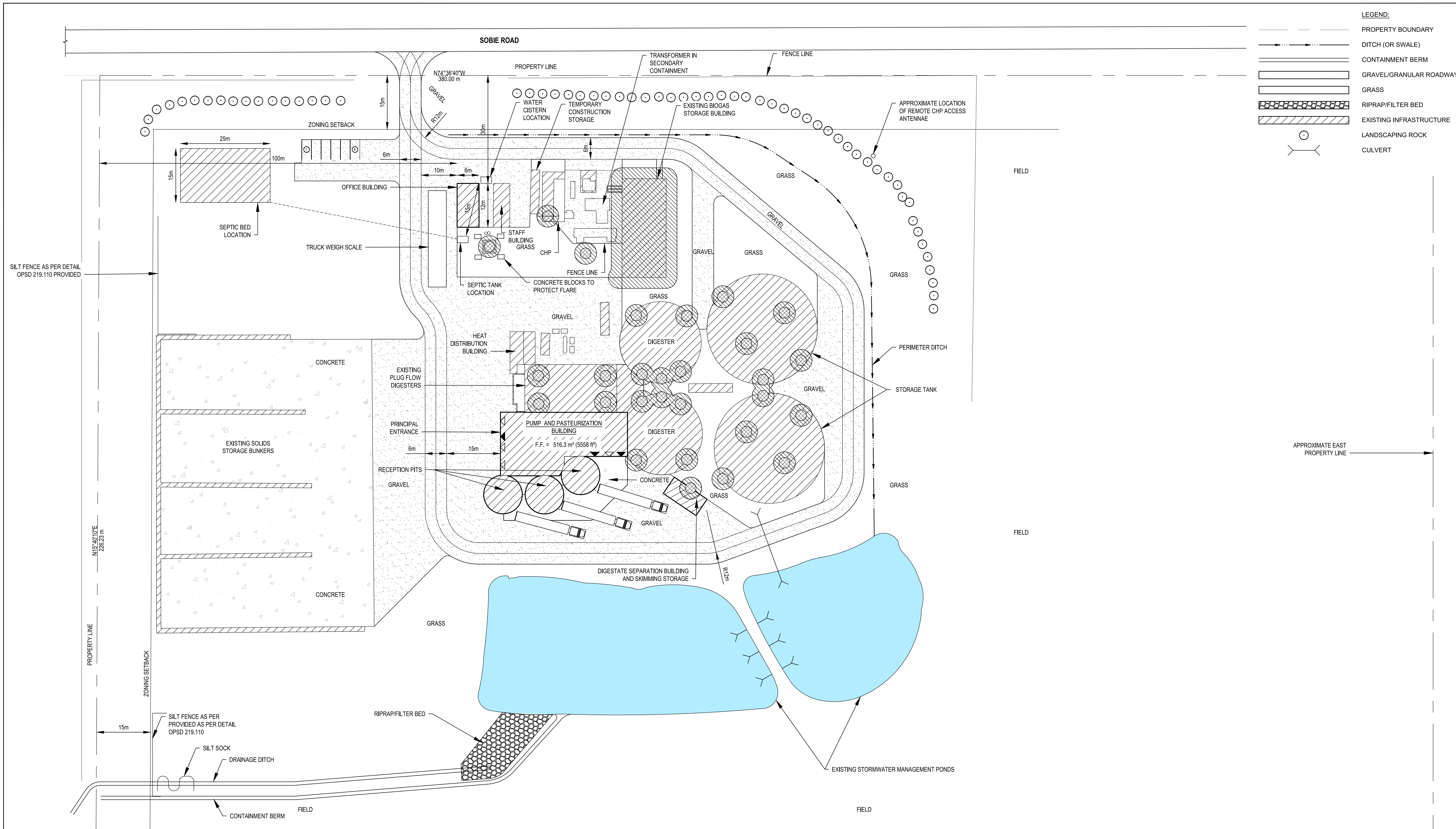


ESCARPMENT RENEWABLES
442 SOBIE ROAD, TOWN OF GRIMSBY, ONTARIO

Project No. 11226032
Date Jun 9, 2021

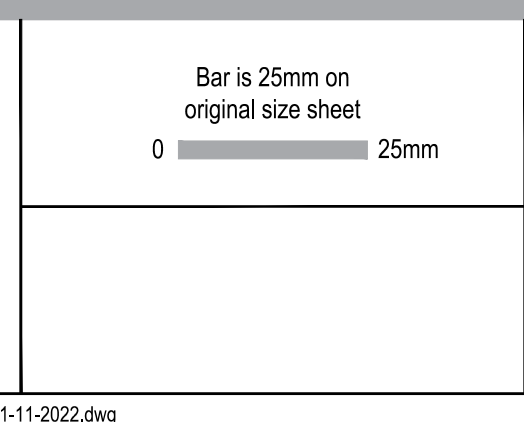
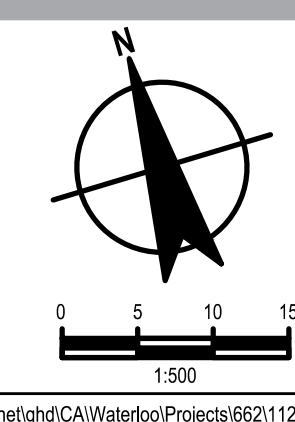
SITE LOCATION MAP

FIGURE 1



PRELIMINARY

No.	Issue	Checked	Approved	Date	
				2022-01-17	
Author	SPENCER H	Drafting Check	KALJINDER D	Project Manager	JASON W
Designer	JASON W	Design Check	RYAN L	Project Director	VICTORIA S



Conditions of Use
 This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.



Client	ESCARPMENT RENEWABLES		Title
Project	ESCARPMENT RENEWABLE ENERGY APPROVAL AMENDMENT		EXISTING CONDITIONS
Project No.	Date	Scale	Sheet No.
11226032	2022-01-17	1:500	FIGURE 2

