

Effluent Management

Grimsby Energy Inc. Anaerobic digester

August, 2012



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Effluent Management

Grimsby Energy Inc. Anaerobic Digester Project

1.0 Introduction

1.1 Purpose

This report is prepared in partial fulfillment of the Renewable Energy Approval requirements as set out in Ontario Regulations 359/09 and 521/10. The project has received a FIT contract F-000610-BIG-130-302.

1.2 The Project

The project is a Class 3 anaerobic digester as defined in the regulations. The facility will produce 1MW of electricity to be constructed in two phases of 500kW each and is designed to operate primarily on farm sourced materials. It is the owner's intent to not only produce electricity for injection into the grid, but to support the local farm community. No electricity will be generated from non-renewable resources. Non-farm organic materials, as available, may also form part of the feedstock for the plant. Should materials requiring pasteurization be utilized, pasteurization equipment will be installed.

1.3 Project Location

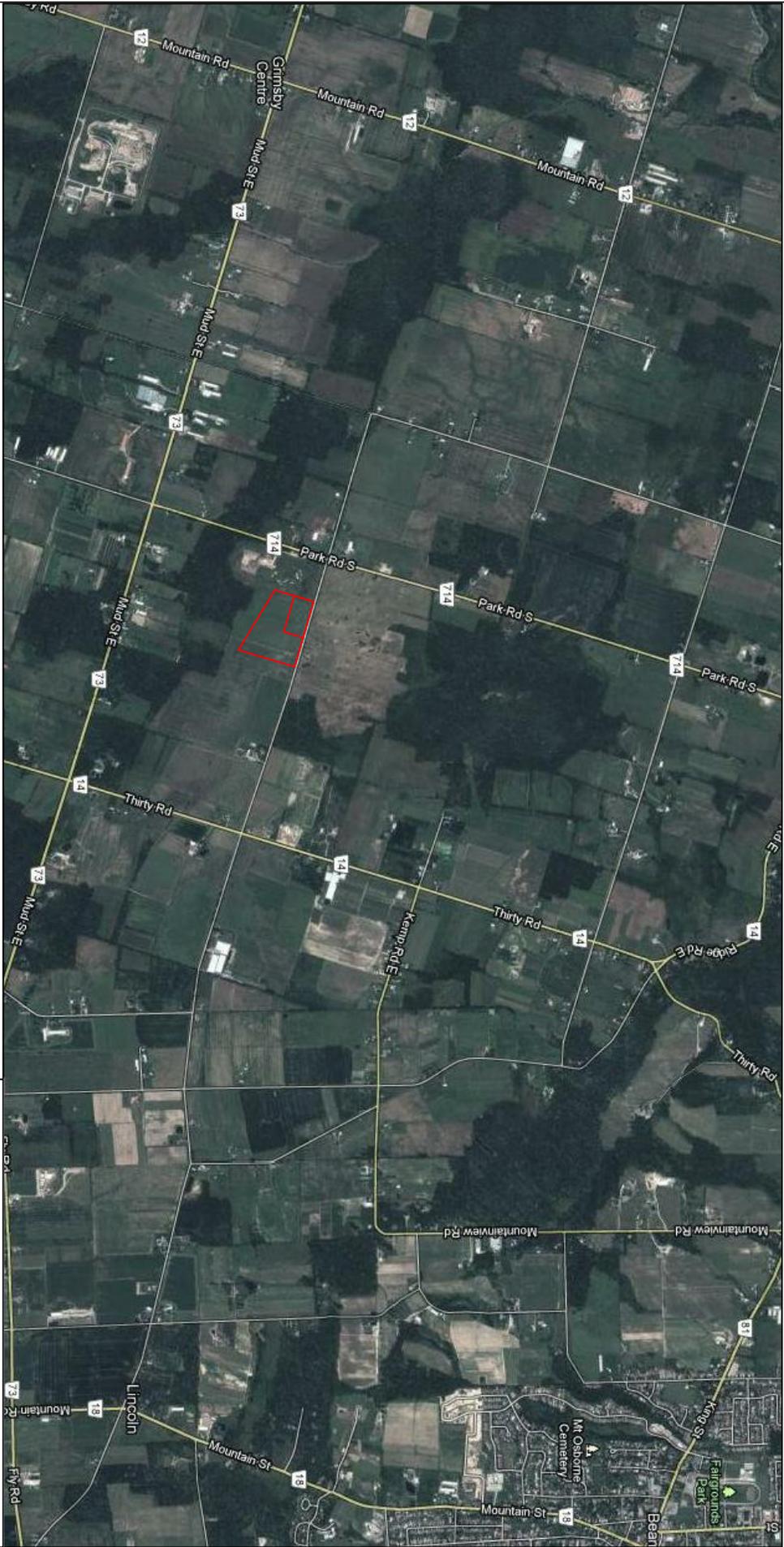
The project will be constructed on lands owned by Grimsby Energy Inc. at 442 Sobie Road in the Town of Grimsby. The project will be located on the northwestern 2.5ha of a 10.5 ha property located on the south side of Sobie Road approximately 300m east of Park Road. The legal description of the property 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 Figures 1 and 2 and the site design is on Figure 3.

2.0 Sewage Production

The proposed anaerobic digester facility does not contain a washroom and therefore there will be no sewage produced on the site. The site will only be staffed several hours per day when it is operational and will not require a permanent washroom. Should the need for a washroom occur in the future, a portable toilet will be placed on the site and any waste produced will be disposed of by contractor.

3.0 Digestate Production

The digestion of organic materials results in the production of digestate, a valuable organic fertilizer. The subject anaerobic digester will produce approximately 9,000 cubic meters of liquid digestate per year as well as 3,000 tonnes of separated solids. The solids will be taken offsite by a contractor and sold



GRIMSBY ENERGY INC.
442 SOBIE RD.

FIGURE 1
SITE LOCATION



Riepma
CONSULTANTS
INC.
R R 1, Georgetown, Ontario L7G 4S4



GRIMSBY ENERGY INC.
 442 SOBIE RD.

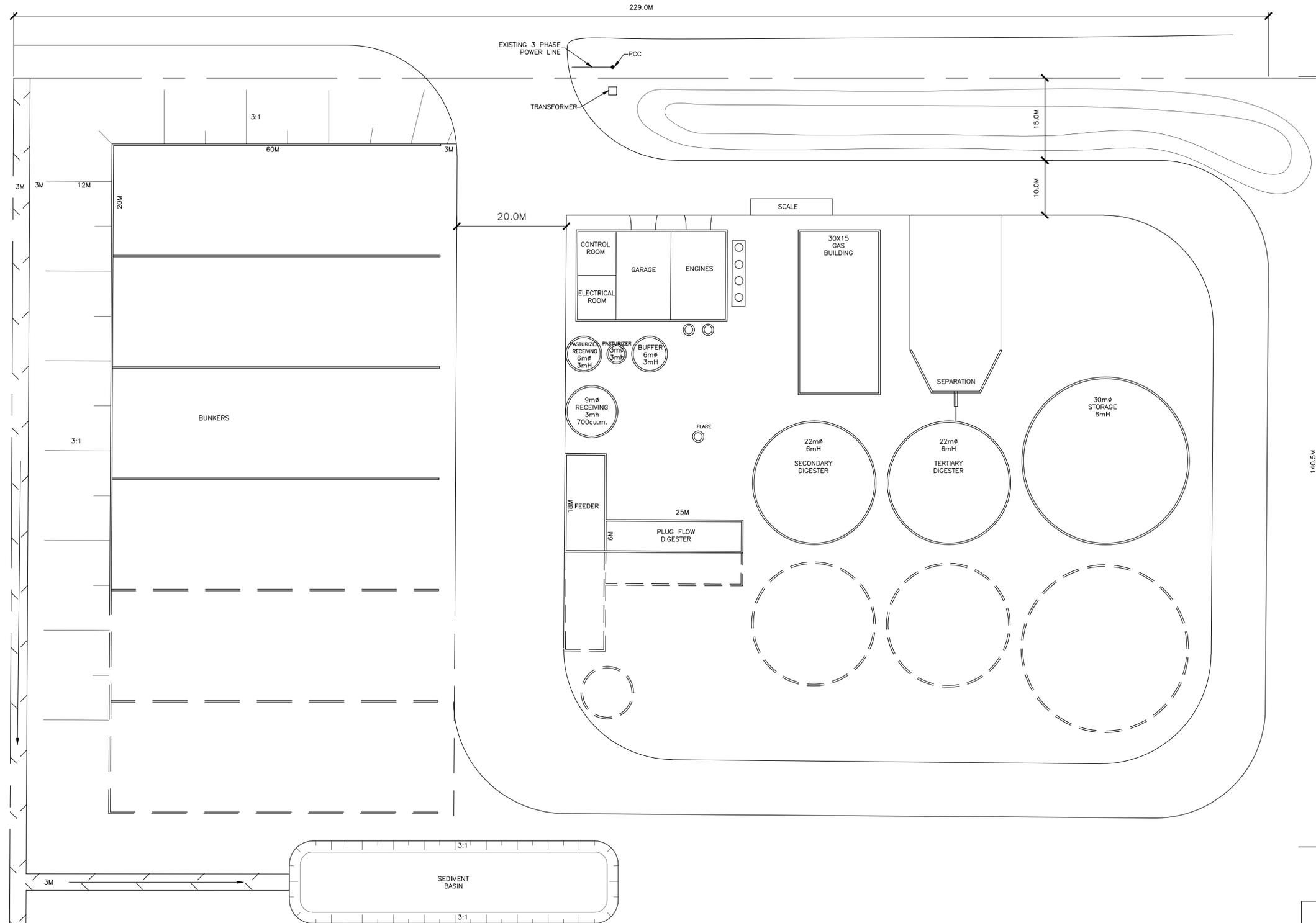
FIGURE 2
 SITE AREA



Riepma
 CONSULTANTS INC.
 R R 1, Georgetown, Ontario L7G 4S4

SOBIE ROAD

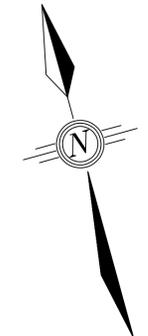
LANDFILL SITE



LEGEND

—— PHASE 1

==== PHASE 2



GRIMSBY ENERGY INC.
442 SOBIE RD.

ANAEROBIC DIGESTER

SITE PLAN
FIGURE 3

DATE	REVISION	
AUGUST 20, 2012	GENERAL REVISIONS	
DATE	SCALE	ADDRESS
MAY 2012	1:400	SOBIE ROAD GRIMSBY, ONTARIO



R R 1, Georgetown, Ontario L7G 4S4

as a soil amendment product. The liquid digestate will be sold to local farmers for land application as a fertilizer. The site has sufficient storage to accommodate 6 months production of liquid digestate.

4.0 Rainwater Management

A shallow intermittent swale is located at the western boundary of the site. This swale empties into a watercourse some 500m south of the project site. The existing drainage pattern will be maintained after construction is complete.

The site consists of heavy clay soil. Approximately 4,400 m² of the site will be covered by impervious surfaces (roofs, bunkers, driveways) as a result of the construction. This represents 4.2% of the land area owned by Grimsby Energy Inc. and represents a negligible impact on the drainage of the site. The rainfall will continue to be drained by sheet flow to the creek some 500 m to the south.

A small detention pond will be constructed at the south limit of the site. The purpose of this facility is to allow for the settlement of any suspended solids before rainwater is discharged from the site. This pond is sized to have a capacity of 125 m³ per hectare drained and has a length to width ratio of 4:1.

5.0 Mitigation Measures

No sewage is produced on the site. The small detention facility will control any suspended solids contained in rainwater before discharge from the site.

No further mitigation measures are required.