

Construction Plan Report

Grimsby Energy Inc.

August 20, 2012



Construction Plan Report

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Construction Plan Report

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 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 Figures 1 and 2 and the site design is on Figure 3.

The point of common coupling for the grid connection is located immediately adjacent to the site on Sobie Road (GPS Coordinates 43°08'54.76N, 79°32'32.29W). The transformer will operate at a nominal voltage of 27.6kV.

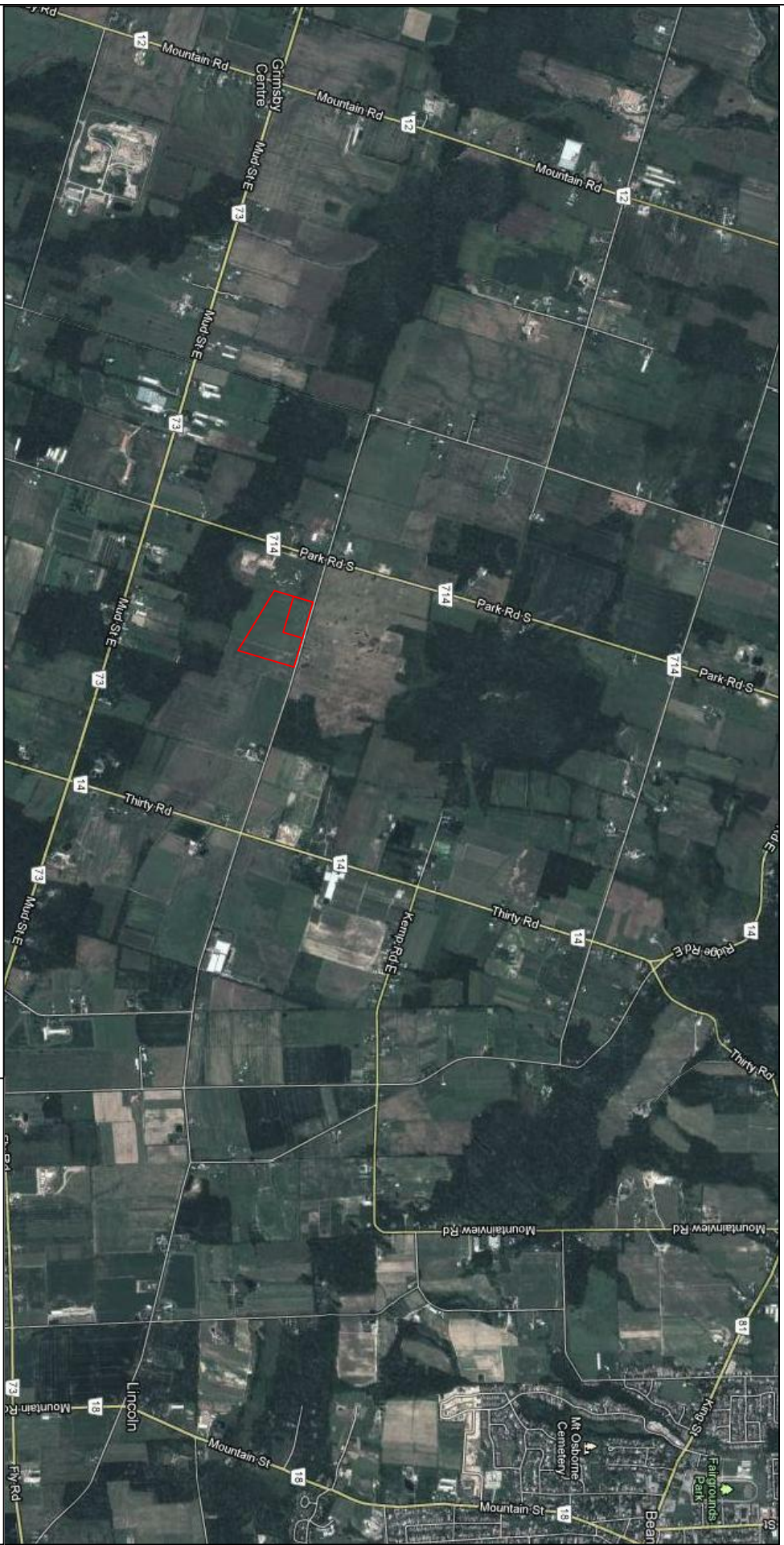
1.4 Project Timing

Construction is anticipated to commence in the spring of 2013 and be completed about 6 months later. Start up and commissioning is expected to take an additional 2 months.

2.0 Construction Activities

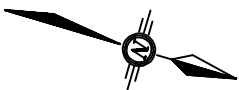
2.1 Construction Management

Throughout the construction period, the work will be managed to minimize disruption to the natural environment and the community:



GRIMSBY ENERGY INC.
442 SOBIE RD.

FIGURE 1
SITE LOCATION



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

1. Security fencing will be installed to limit trespass and potential public safety issues
2. Silt fencing will be installed around the perimeter of the construction area to eliminate siltation and erosion as well as limiting construction activities to the construction area.
3. Dust suppression will be implemented during dry periods as required.
4. Materials on site will be managed to minimize the possibility of wind damage or loss.
5. Construction noise is limited to small equipment and power tools. No operations that generate significant noise are required.
6. No hazardous waste will be generated during construction.
7. Equipment packaging and materials will be recycled to the extent possible. The remainder will be disposed of according to applicable regulations.
8. Accidental fuel spills will be cleaned up according to MOE requirements.
9. Appropriate emergency and communication procedures will be in place to deal with such situations should they occur.

2.2 Site Preparation

Before site activity commences silt fencing will be installed around the perimeter of the construction site. Then topsoil will be stripped and stored on site where it will be re-used on completion of the work. While some site grading will be required in the area of the bunkers, the majority of the site will remain at its existing elevation.

Temporary hydro will be installed for construction purposes and a portable toilet will be delivered for the workers on site. Office and tool trailers will be delivered to site and set up.

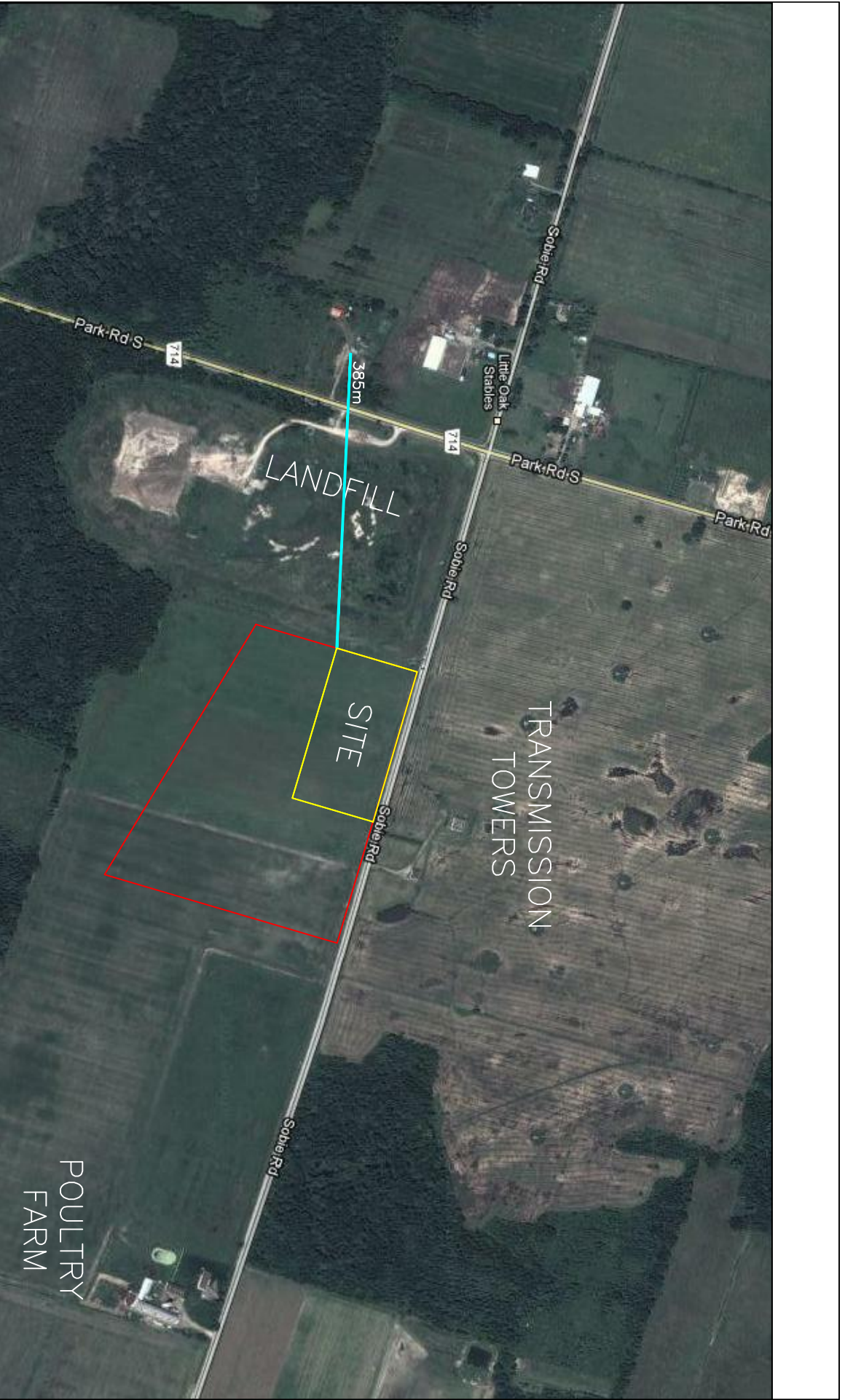
2.3 Bunker Construction

Approximately 1500m³ of granular materials will be delivered on site and compacted to form the base for the bunkers. The seepage control system will be installed before the floor and sides of the bunkers will be poured. The pouring of the bunkers requires the highest amount of truck traffic for delivery of concrete over a short period of time. Approximately 2500m³ of concrete will be poured over the space of 10 days.

The completion of the bunker construction permits the secure storage of construction materials and equipment for the remainder of the project.

2.4 Excavation

The footings for the engine / control building will be excavated and poured. Then each vessel will be excavated and poured in turn. All excavated soils will remain on site and will be used as part of the final grading of the project.



GRIMSBY ENERGY INC.
 442 SOBIE RD.

FIGURE 2
 SITE AREA



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2.5 Building and Vessel Construction

While the vessels are being poured, the shell of the engine / control building will be constructed. Piping, electrical, switchgear and heating systems will be installed in the building in preparation for engine delivery and electrical connections.

The vessels will each be poured and mixers, pumps, piping, and control sensors installed. When the digestate storage is completed, the building housing the gas storage bags will be constructed and the gas bags installed and connected.

When the engine is installed it will be connected to the electrical system and the biogas supply. The transformer will be installed and the grid connection made.

2.6 Testing

All installed components will be tested to ensure that there are no leaks. All mixers and pumps will be bumped to ensure that they are connected properly and all sensors tested to be certain that they are working as designed. The electrical system is checked by the approval authority.

2.7 Commissioning and Start Up

When construction is complete, the digester is filled with manure and heated to 38 degrees C. As biogas starts to be produced, it will start the automatic flare which will burn off the initial gas. When gas production has stabilized and gas quality is suitable for the engine, the engine will be started. All systems will be checked to confirm that operation is to specifications.

2.8 Site Work Completion

Final seeding, landscaping, equipment removal and general tidy up are completed before the site is handed over to the owner.

3.0 Materials Brought On Site

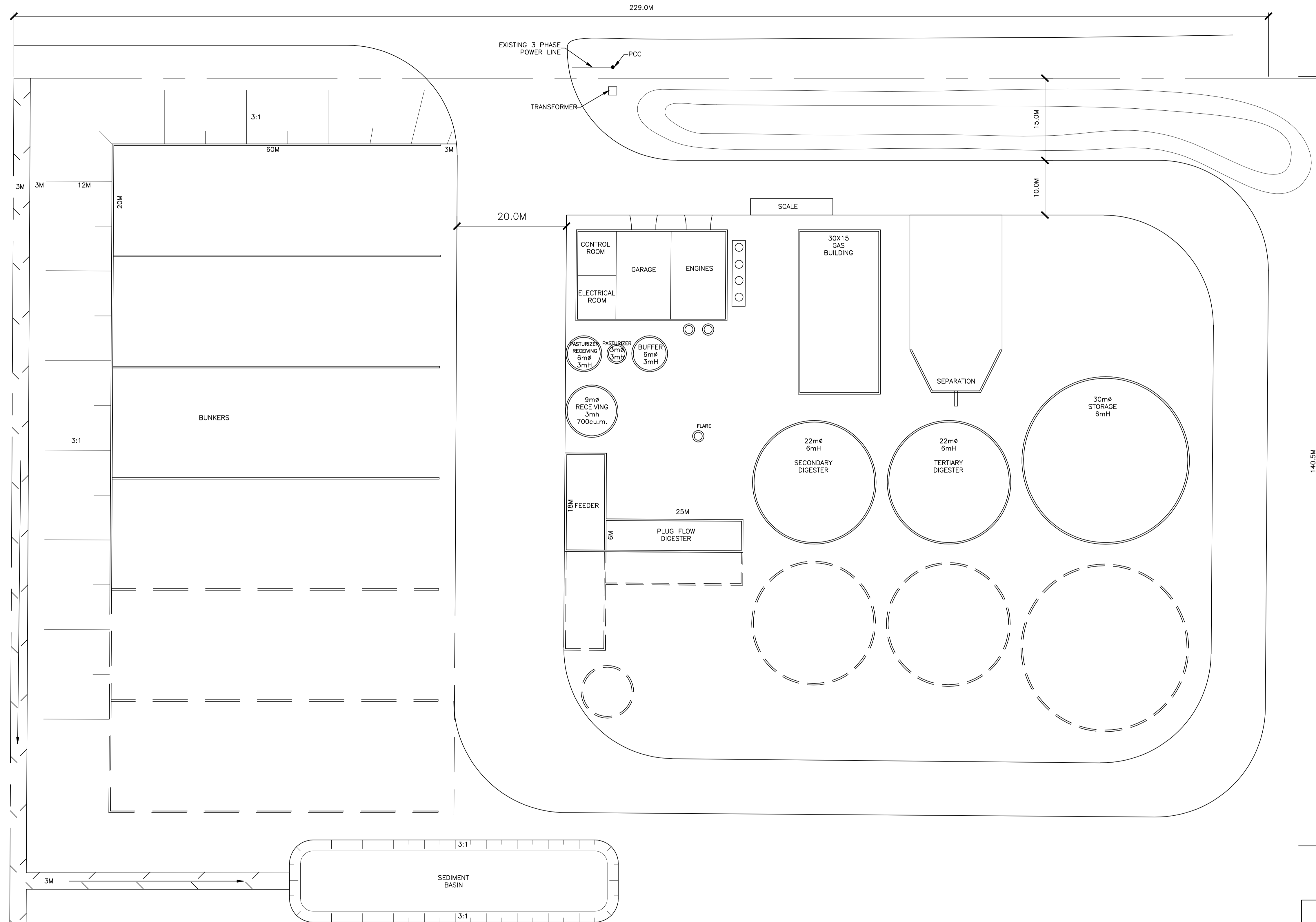
No soil will be brought on site nor will any be removed. Granular materials for roadways and bunker construction will be required. The only other materials brought onto the site are the materials used for the construction of the facility. This includes concrete, lumber, insulation, steel cladding, windows, doors, engine, electrical equipment, mixers, pumps, valves and other parts required. Transport will all be by truck. Truck traffic will be the heaviest when the bunkers and vessels are being poured. While there will be additional truck traffic on the roads in the vicinity, impact on neighbours is expected to be negligible and short lived.

4.0 Construction Equipment Used

The major piece of equipment that will be on the site during the excavation period of about three weeks is an excavator. During the daily concrete pour a concrete pump will be on site as trucks are unloaded. A crane will be required for 1 hour to off load the engine and place it into the building. A small rubber tired excavator will be required on site periodically to backfill or

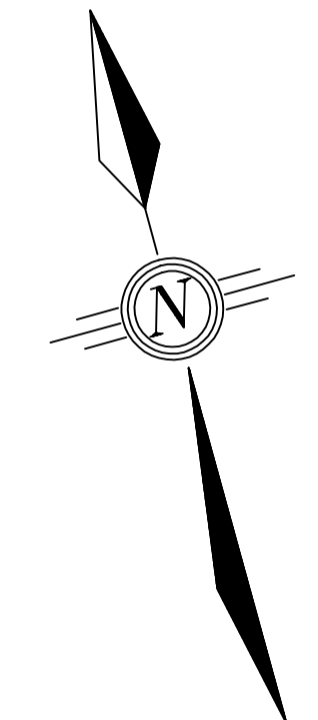
SOBIE ROAD

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

excavate small trenches. The remainder of the work is done by skilled tradesmen using hand tools.

5.0 Temporary Uses

There will not be any temporary uses on the site. All equipment, etc on site during construction is used for the construction project and will be removed from site on completion

6.0 Materials Generated

Any surplus material generated as a result of the construction will be minimized because it is expensive and inefficient. Any unused material will be returned to the supplier. Packaging and strapping will be recycled as much as possible. Material that cannot be recycled or returned will be disposed of in an appropriate manner.

7.0 Negative Effects

7.1 Storm Water Management

The limit of construction will be fenced with both security fence and silt fence. As a result siltation onto adjoining property during construction is not expected. The site will be seeded after construction to stabilize disturbed areas.

Site drainage will be maintained during the construction process. As a result, surface drainage from the site will continue as it has in the past. The plan calls for a small holding area to be constructed which will serve as a settling pond after construction is complete.

7.2 Dust and Noise

The nearest residence is 385m to the west. As a result, construction noise is not considered to be an issue. There is no dust sensitive receptor in the vicinity of the construction site. Should dust suppression be required, the contractor can be asked to spray Calcium Chloride.

7.3 Vegetation and Habitat

There is currently no natural vegetation on the site nor is there any identified habitat within 120 meters of the project site. As a result no habitat or vegetation concerns are expected.

7.4 Water Bodies

There are no water bodies within 120 m of the project site.

7.5 Water Taking

No water taking is required in the construction or operation of the facility.

7.6 Fuel Spills

Should a fuel spill occur during the operation of construction equipment, the spill area will be contained and the appropriate spill response plan put into action. The Ministry of Environment will be notified and appropriate clean up procedures implemented.

7.7 Archeological Resources

No archeological resources have been identified on the site or in the vicinity. Should archeological material be uncovered during construction, the project will be stopped and the Ministry of Culture contacted to ensure that the appropriate professionals are retained to provide recovery or other services.

8.0 Potential Negative Environmental Effects and Mitigation

	Potential Negative Effect	Mitigation
1	Fuel Spills	1) Minimize equipment fueling on site. All equipment arrives on site fully fueled. Refueling, if required is done by experienced fuel contractor. 2) In the event of a spill, contain the spill and clean up per MOE protocol.
2	Siltation and erosion	1) Install silt control fencing before construction commences. 2) Seed all disturbed areas when construction is complete
3	Vegetation and habitat	No natural vegetation or habitat on site
4	Noise	1) No receptors within 380m 2) Use equipment on site with suitable noise attenuation
5	Dust	Use dust suppressants when needed