Ministry of Northern Development, Mines, Natural Resources and Forestry

Land Use Planning and Strategic Issues Section
Southern Region

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Ontario

01/18/2022

Jason Wilson
Waste Management
GHD| ghd.com
455 Phillip Street Waterloo Ontario N2L 3X2 Canada

RE: Escarpment Renewables Anerobic Digester Addendum Report

Dear Jason,

The Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) has received the Natural Heritage Assessment (NHA) Addendum report submitted December 17th, 2021 which describes modifications to the Escarpment Renewables Anerobic Digester, previously titled the Grimsby Energy Inc Anaerobic Digester.

The changes to the facility have been proposed subsequent to NDMNRF's confirmation letter, dated November 13th, 2012 and addendum dated June 26th, 2017. The changes proposed in the 2021 addendum report include:

- Expansion of the project location to the east.

NDMNRF has reviewed the NHA addendum report and is satisfied that, as outlined in the proposed Escarpment Renewables Anerobic Digester Natural Heritage Assessment Addendum Report, the proposed project changes will not affect the Natural Heritage Assessment already confirmed by NDMNRF. NDMNRF understands that any additional impacts associated with the work being done will be mitigated with measures already outlined within the original NHA. If other mitigation is to be applied or if additional impacts are anticipated outside of the amendment documentation provided, an additional addendum to the NHA would be required.

Please add this letter as an addendum to the original confirmation and 2017 addendum for the Escarpment Renewables Anerobic Digester Facility.

If you wish to discuss any of the above, please contact Kaitlyn McGlade, Regional Planning Ecologist at Kaitlyn.mcglade@ontario.ca

Sincerely,

Ruth Lindenburger

Ruth Lindenburger
Regional Land Use Planning Supervisor
Regional Resources Section, Southern Region

Escarpment Renewables Anaerobic Digester Natural Heritage Assessment Addendum Report

Escarpment Renewables

July 26, 2024

→ The Power of Commitment

GHD
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File name	11226032-RPT-14
Author	Katherine Ryan, Brandon Holden
Project manager	Jason Wilson
Client name	Escarpment Renewables
Project name	ESCARPMENT-Grimsby AD Permitting
Document title	Escarpment Renewables Anaerobic Digester Natural Heritage Assessment Addendum Report
Revision version	Rev 02
Project number	11226032

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	01	Katherine Ryan Brandon Holden	Jason Wilson		Victoria Shortreed		12/14/2021
S4	02	Katherine Ryan Brandon Holden	Jason Wilson		Victoria Shortreed		07/26/2024

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1. Introduction

This Natural Heritage Assessment Addendum Report has been prepared by GHD to support the proposed expansion of the Escarpment Renewables Anaerobic Digester facility in Grimsby, Ontario (see **Figure 1**).

In 2012, Savanta Inc. was retained by Riepma Consultants Inc. on behalf of Grimsby Energy Inc. to complete a Natural Heritage Assessment (NHA) for an Anaerobic Digester located south of Grimsby Ontario. The NHA was submitted for Renewable Energy Approval (REA) on November 11, 2012 and received NHA Confirmation on November 13, 2012 in accordance with Section 28 (2) and 38 (2) (b) of the REA regulation.

The proposed expansion of the Project Location initiated an update of the 2012 NHA information which questioned *as to whether, and if so, how, any previous studies, evaluations and reports associated with the Natural Heritage Assessment would be affected as a result of the proposed changes occurring as a result of the REA amendment* (REA Technical Guide Chapter 10). Since the approval and construction of the site, Escarpment Renewables has taken over the ownership and operation of the facility. GHD was retained by Escarpment Renewables to complete this addendum to the original NHA for the new lands added to the Project Location. Kaitlyn McGlade, Regional Planning Ecologist from Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) was contacted by GHD on November 8, 2021 who provided a response email on November 8, 2021 with guidance pertaining to the requirements of the REA amendment (**Appendix A**).

This addendum report summarizes the modifications to the original NHA report completed by Savanta Inc. in 2012 (see **Appendix B**) along with identifying and evaluating the natural features associated with the expansion of the Project Location. The revised Project Location, expanded to the east, is shown on **Figure 1**. This letter will focus on the changes made since the NDMNRF confirmation of the 2012 NHA on November 13, 2012. A breakdown of each REA report can be identified below with any changes specifically for each report.

2. Records Review Amendment

The 2012 Records Review report as mentioned within the original REA document is a report to gather information about the area in which a project location is proposed, identify natural features, and make preliminary determination about site feasibility (**Appendix B**). The 2012 NHA searched various records to identify Significant or Provincially Significant Features.

2.1 Local and Regional Municipal Records

Savanta Inc. identified no natural heritage feature designations in or within the Project Location. No new designations have been identified by GHD as a result of the proposed expansion of the Project Location.

The regulated area of the Niagara Peninsula Conservation Authority (NPCA) was identified within the 2012 NHA associated with the floodplain and the wetland areas to the south. These areas were identified 186 m (Spring Creek Woodlot Wetland) and 526 m (Spring Creek) from the project location. No changes to these measurements will occur as a result of the proposed expansion of the Project Location.

2.2 NDMNRF Resources

NDMNRF's Make-a-map Natural Heritage Areas mapping application was reviewed both by Savanta in 2012 and in 2021 by GHD. Natural Heritage Information Centre (NHIC) data records for special concern and rare species within a 1 km by 1 km square containing the subject property were utilized. Species and Features identified in the 2012 report include:

– Arrow Clubtail (Stylurus spiniceps)
– Pawapaw (Asimina triloba)
– Eastern Few-fruited Sedge (Carex oligocarpa)
– Cluster-stemmed Nailwort (Paronychia fastigiata)
– Perfoliate Bellwort (Uvularia perfoliate)
– Spring Creek Woodlots wetland

GHD's 2021 review of the application identified the addition of the following natural features:

– Church Road Woodlot
– Pignut Hickory Grove
– Thirty Mile Creek Headwater Forest Regional ANSI
– Grimsby Woodlot Forest Wetland Complex

GHD also identified modifications required to the 2012 list as the following species were no longer within the 1 km by km square as determined in GHD's 2021 review:

– Arrow clubtail
– Pawpaw
– Eastern Few-freuited Sedge
– Cluster-stemmed Nailwort

Each of the above listed features occur greater than 120 meters from the Project Location.

The Greenbelt Plan Area Protected Countryside was identified as encompassing the Study Area.

2.3 Summary of Records

The features searched within the Records Review in the 2012 NHA included wetland, woodland, wildlife habitat, Provincially Significant Areas of Natural and Scientific Interest (Life Science), Provincially Significant Areas of Natural and Scientific Interest (Earth Science), Deer Wintering Area, Provincial Parks and Conservation Reserves. Four of the features were brought forward to the Site Investigation (Southern Wetland, Woodland, Wildlife Habitat and Deer wintering) and discussed in later sections of the report (**Appendix B**).

GHD identified additional Natural Areas (Church Road Woodlot, Pignut Hickory Grove, Thirty Mile Creek Headwater Forest Regional ANSI and Grimsby Woodlot Forest Wetland Complex) and the Greenbelt Plan Area. None of the Natural Areas were identified within 120 meters of the Project Location or proposed Project Location expansion therefore were not carried forward to the Site Investigation. The Project Location and the Proposed Project Location Expansion were identified within the Greenbelt Plan Area Protected Countryside; therefore the Plan applies. Refer to **Appendix B** for the original findings of the 2012 NHA Records Review.

3. Site Investigation Amendment

The 2012 Site Investigation Report compiled the field data, where vegetation communities were identified, sampled and revised based on information collected in the Records Review. The sampling protocol followed the Ecological Land Classification (ELC for Southern Ontario (Lee, et al. 1998). The results of the 2012 Site Investigation Report (Appendix B) identified the presence of four Candidate Significant Natural Features as shown in **Table 1**.

Table 3.1 Summary of Site Investigations (Savanta 2012)

Candidate Significant Natural Features	Feature Observed at or within 120 m Project Location Yes/No	Brought forward to EIS Yes/No	Brought Forward to Generalized Candidate Significant Wildlife Habitat (SWH) Yes/No
Southern wetland	Not present in or within 120 m	No	No
Woodland	Not present in or within 120 m	No	No
Wildlife Habitat	Present within 3 m of the project location	No	Yes
Wildlife Habitat (Deer Winter Congregation Areas)	Present within 62 m of the project location	Yes	No

No changes or additional Candidate Significant Natural Features were identified on or within 120 meters of the Project Location as a result of the proposed Project Location expansion.

Vegetation Communities

The expansion of the Project Location east would require the following addition to the ELC communities in the Site Investigation Report (see **Figure 1**):

– Ag-c: This community was a hayfield that had been harvested earlier in the season. This agricultural field was within the proposed Project Location expansion.
– CUM1-1c: This meadow community was found on the east side of the Subject Lands and on the south side of the Sobye Road. This community had an abundance of weedy herbaceous species, including common ragweed (*Ambrosia artemisiifolia*), goldenrods (*Solidago sp.*), Queen Anne's lace (*Daucus carota*), curly dock (*Rumex crispus*) and field sow-thistle (*Sonchus arvensis ssp. arvensis*). Piles of gravel were observed adjacent to the end of this community where it abuts with Sobye Road. The community was identified 77 m from the Proposed Project Location expansion.

The expansion of the Project Location to the east resulted in the minimum distance from the Project Location to the OAO (open aquatic community) to be 48 m, updated from 80 m in the 2012 report (**Appendix B**).

Wildlife Habitat

As a result of the OAO ELC community occurring within 48m of the Project Area, associated candidate SWH including turtle wintering habitat, amphibian breeding habitat and Special Concern and Rare Wildlife Species now also occur within 48 meters.

No additional modifications to the Site Investigation were required.

4. Evaluation of Significance Amendment

The Evaluation of Significance Report determines the significance for each natural feature in or within 120 m of the Project Location. The 2012 NHA (**Appendix B**) identified General Candidate Significant Wildlife Habitat (GCSWH) and Deer Winter Congregation Area. The closest distance to the Deer Winter Congregation Area is 62 meters from the Project Location. The Generalized Candidate Significant Wildlife Habitat was found just west and north of the Project Location (3 meters). No change to these boundaries or the distance to the GCSWH will occur as a result of the proposed expansion.

As a result of the review of existing and current data the expansion of the Project Location does not require modifications to the 2012 Evaluation of Significance.

5. Environmental Impact Statement Amendment

The Environmental Impact Statement outlined the survey results in relation to direct and indirect effects. The proposed Expansion Area of the Project Location will remain entirely within the same agricultural lands as the original Project Location. The Potential Direct Effects outlined in the 2012 NHA (**Appendix B**) included Generalized Candidate SWH and Deer Winter Congregation Area with proposed mitigation measures. As mentioned in the paragraph above (Evaluation of Significance Amendment), due to the location of the GCSWH and Deer Winter Congregation Area and the location of the proposed expansion area no changes to these boundaries or the distance to them will occur. However, due to the increase in size of the facility and addition to project components, the Potential Direct Effects were reviewed. **Table 2** identifies the direct impacts and mitigation measures. **Table 3** identifies the indirect impacts and mitigation measures. An additional column describes the effect on the impact and mitigation resulting from the proposed expansion.

Table 5.1 Revised Significant Natural Features, Potential Direct Impacts, Proposed Mitigation Measures and Effects on the Impacts and Mitigation of Proposed Expansion

Feature	Distance to Project location (components)	Project Phase and Activity	Potential Negative Environmental Effects	Mitigation Strategy	Effectiveness Monitoring of Mitigation	Effects on the impact and mitigation: Proposed Expansion
Generalized Candidate SWH	3 m to fence at west of property; 15 m to bunkers; 51 m to sediment basin; 80 m to access drive; 100 m to receiving buildings	Construction phase – installation of fencing, construction of access drive and receiving buildings	Limited potential for increased sedimentation and erosion into adjacent cultural meadow, meadow marsh and drainage features	– Maintain vegetated buffer within 3 m of wetland edge – Develop and implement sediment and erosion control plan, including silt fencing – NPCA specifically requested: • Adequate sediment and erosion controls be installed prior to the commencement of any works on site and be maintained in good working order until the works are completed and the site has been re-vegetated. At no time shall muddy water or debris be allowed to discharge from the site into the adjacent watercourse. • The remaining lands between the watercourse and the proposed works be adequately revegetated (preferably with native plantings) and left as an untouched, undisturbed vegetated buffer. • All areas are re-established immediately upon completion of the works. • Ensure the landfill monitoring wells are not negatively impacted. The extent to which new construction will affect the edge conditions can be limited by the implementation of the following measures: – Locate and flag development limits prior to construction; – Pre-construction erection of erosion and sedimentation control fencing along confirmed protection edges; and, – Appropriate preconstruction briefing of site workers to advise regarding the sensitivity of the development edge conditions.	Regular monitoring of sediment and erosion controls to ensure fully functional, including after all heavy rain events	The expansion is entirely to the east towards additional, existing, active farmlands. No expansion is proposed towards the GCSWH areas, indicating the offset distances remain consistent with the original assessment. Potential negative impacts remain the same, though the sedimentation basin/stormwater pond is already constructed and not being modified. So runoff management is further simplified and there are existing erosion and sediment control features in the discharge from the stormwater pond which will remain in place. Additional erosion and sediment controls should be installed during construction of the expansion to the east and along the western property line 3-4 metres from the edge of the unnamed drainage. No development is proposed in this area so vegetation will remain. The bunkers are being decommissioned thereby eliminating outdoor waste storage in this area.
Deer Winter Congregation Area	62 m to sediment basin; 78 m to bunkers; 167 m to receiving building; 142 m to access drive	Construction phase – installation of fencing, construction of access drive and receiving buildings	Limited potential for increased sedimentation and erosion into adjacent cultural meadow, meadow marsh and drainage features, as well as wooded feature further south.	A tall fence (10 ft) will be installed to prevent deer from entering the project location during their movement to the yard.	Periodic monitoring to ensure fence is in good repair and keeping deer out of project location	The fence was not completely constructed during the initial development. The proposed expansion will consider the construction of such a fence.

Table 5.2 Revised Significant Natural Features, Potential Indirect Impacts, Proposed Mitigation Measures and Effects on the Impacts and Mitigation of Proposed Expansion

Significant Natural Features	Potential Indirect Impacts	Proposed Mitigation Measures	Effects on the impact and mitigation: Proposed Expansion
Generalized Candidate SWH	Changes to surface water quantity and quality. - Riepma Consultants Inc. expects the increase in surface runoff to be small (approximately 5%). - Rain water/ surface flows will be directed through the sediment basin, and will slowly outlet into the north-south drainage.	The expected volume of water from the rooftop and paved areas is minimal, and low impact development techniques such as downspouts that will release to a splash guard, is expected to eliminate any surface erosion with the majority of water evaporating. In addition, some downspouts will be connected to a storage tank to supply water for on-site washing and watering purposes. The sediment basin will be shallow and flat, thereby slowing down any water and allowing sediment to settle out before out-letting to the drainage.	Runoff will continue to be collected and conveyed to the existing stormwater management pond that discharge to the southwest, with some runoff collected in the receiving tanks and used directly in the process. No changes are anticipated.
Generalized Candidate SWH and Deer Winter Congregation Area	Noise impacts	The proposed development will introduce some local noise into a previously rural landscape, however the noise levels are expected to be low. The engines proposed will generate a noise level in the 90 to 100dBa range at 1m at full power. However, the engines are located inside the building, which will reduce noise emissions. Outside of the building, the noise will be in the range of 45 to 50 dBa (e.g. noise from washing machine, dishwasher), which meets MOE requirements. The container, heat dump radiators and exhaust stacks will be designed to meet provincial standards for this area. The only other noises sources at the plant are a variety of small motors and pumps, which produce very little noise. A 100 hp farm tractor will operate on the site for one half hour per day. The use of vegetation buffers between the site and the drainage is expected to limit the potential for noise effects on GCSWH and the Deer Winter Congregation Area.	An updated Acoustic Assessment Report covering all existing and proposed operations is being prepared for submission with the REA amendment. The site will continue to be required to meet MECP requirements and provincial standards.
Generalized Candidate SWH and Deer Winter Congregation Area	Lighting	Light can be a concern where it is directed towards a variety of natural features and functions. Existing conditions see light sources from the neighbouring farms. The use of large light standards can be problematic by allowing light penetration into forested blocks, which could inhibit or affect wildlife use. Outdoor common area lighting should be located and directed away from the unnamed drainage and surrounding meadow marsh and cultural meadow. A light standard can emit light in three directions: directly to the ground, at an angle from the ground, and directly upward. To minimize impacts on birds direct upward light should be eliminated, spill light minimized and all lighting sources should illuminate only non-reflective surfaces (City of Toronto Green Development Standard, 2007).	New outdoor common lighting will be positioned in a manner to direct lighting into the facility and away from the surrounding lands.

The proposed expansion would be permissible as site alteration under the Greenbelt Plan. No additional modifications to the 2012 Environmental Impact Statement are required as a result of the proposed expansion area.

6. Closing

The preceding information has been provided to determine the amendments, if any were required to the original NHA (**Appendix B**). Due to the location of the expansion away from any natural features, minimal changes to the original NHA was required and significant impacts to the natural features are not anticipated should the proposed expansion proceed.

All of Which is Respectfully Submitted,

GHD

Katherine Ryan
Terrestrial and Wetland Biologist

Brandon Holden
Senior Terrestrial Ecologist

LEGEND

- Unnamed Drainage (Savanta, 2012)
- 120 m Buffer from Project Location (GHD, 2021)
- Project Location (GHD, 2021)
- Project Location (Savanta, 2012)
- 120 m Buffer from Project Location (Savanta, 2012)
- Ecological Land Classification (GHD, 2021)
- Ecological Land Classification (Savanta, 2012)
- Property Boundary (Savanta, 2012)
- Generalized Candidate Significant Wildlife Habitat (Savanta, 2012)
- Deer Wintering Area, NRVIS (Savanta, 2012)
- Spring Creek Wetland Complex, MNR (Savanta, 2012)
- Expansion Area (GHD, 2021)

CITATION

Figure 3 - Natural Heritage Features, Savanta, 11/9/2012.

ELC TYPES - 1ST APPROXIMATION

Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998.

ELC CODE	ECOSITE-VEGETATION TYPE DESCRIPTION
CUM1-1	Dry-Moist Old Field Meadow
MAM2-2	Reed-Canary Grass Mineral Meadow Marsh
OAO	Open Aquatic
AG	Agricultural

AG/INDST
Radio Transmission Towers
AG-b
OAO
Hedgerow
68 m
21 m
MAM2-2
80 m
100 m
51 m
AG-c
77 m
CUM1-1c
AG-a
186 m
526 m
CUM1-1b
[Decommissioned Landfill]
CUM1-1a
Spring Creek Wetland Complex

Paper Size ANSI B

0 20 40 60 80

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

ESCARPMENT RENEWABLES
424 SOBIE ROAD, GRIMSBY, ON
PT LOTS 1 & 2, CON 6, GEO. TOWNSHIP OF GRIMSBY
REGIONAL MUNICIPALITY OF NIAGARA
NATURAL HERITAGE ASSESSMENT
NATURAL HERITAGE FEATURES & PROPOSED PROJECT LOCATION EXPANSION

Project No. **11226032**
Revision No.
Date **Nov 23, 2021**

FIGURE 1

Q:\GIS\PROJECTS\11226000s\11226032\Layouts\202111_RPT001\11226032_202111_RPT001_GIS001 - Natural Heritage Features and Proposed Project Location Expansion.mxd
Print date: 23 Nov 2021 - 11:14

Data source: © Regional Municipality of Niagara, 2010; Figure 3 - Natural Heritage Features, Savanta, 11/9/2012.

Appendices

Appendix A

Email Correspondence with NDMNRF

From:	Katherine Ryan
To:	Katherine Ryan
Subject:	FW: Escarpment Renewables Grimsby AD REA Amendment - MNRF
Date:	Tuesday, November 23, 2021 11:06:17 AM
Attachments:	image001.png image002.png image003.png image004.png image005.png

---

From: McGlade, Kaitlyn (NDMNRF) <Kaitlyn.McGlade@ontario.ca>
Sent: Monday, November 08, 2021 3:58 PM
To: Jason Wilson <Jason.Wilson@ghd.com>; Lindenburger, Ruth (NDMNRF) <Ruth.Lindenburger@ontario.ca>
Cc: Raetsen, Sarah (MECP) <Sarah.Raetsen@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Jason,

Apologies for the delay--I appreciate your patience in receiving a response.

The REA Technical Guide (Chapter 10) provides guidance on REA amendments. The guide can be found here: https://www.ontario.ca/document/technical-guide-renewable-energy-approvals/making-changes-renewable-energy-approval-rea-projects

Per the guide, NDMNRF will need to be provided with information which identifies whether, and if so how, any previous studies, evaluations and reports associated with the Natural Heritage Assessment would be affected as a result of the proposed changes occurring as a result of the REA amendment. Following this, NDMNRF will determine if any further work is required to meet the NHA requirements of the REA regulation. If further information is not required, NDMNRF can issue a letter which states that nothing further is required beyond the original REA confirmation letter and comments. How this information is gathered/ presented to NDMNRF is a proponent led process, which does not require NDMNRF approval or signoff to proceed.

It appears to me that the approach outlined should provide good comparative information for if/how the previous NHA information (including all studies, evaluations and reports) will be impacted by the proposed changes for NDMNRF review.

Let me know if you have any questions or would like to discuss.

Thanks,

Kaitlyn McGlade
Regional Planning Ecologist
kaitlyn.mcglade@ontario.ca
705-772-9326

From: Jason Wilson <Jason.Wilson@ghd.com>
Sent: November 8, 2021 3:11 PM
To: Lindenburger, Ruth (NDMNRF) <Ruth.Lindenburger@ontario.ca>
Cc: Raetsen, Sarah (MECP) <Sarah.Raetsen@ontario.ca>; McGlade, Kaitlyn (NDMNRF) <Kaitlyn.McGlade@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Ruth,

I was wondering if whether in Kaitlyn's absence, if you would be able to provide concurrence on the proposed approach below?

Thanks Ruth. Please do not hesitate to give me a call with any questions.

JASON WILSON, **B.Eng, Oly**
Waste Management

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455 Phillip Street Waterloo Ontario N2L 3X2 Canada
D 519 340 4283 **M 519 732 0962 E** Jason.Wilson@ghd.com

From: Jason Wilson
Sent: Tuesday, November 02, 2021 9:10 AM
To: McGlade, Kaitlyn (MNRF) <Kaitlyn.McGlade@ontario.ca>
Cc: Raetsen, Sarah (MECP) <Sarah.Raetsen@ontario.ca>; Lindenburger, Ruth (MNRF) <Ruth.Lindenburger@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Kaitlyn,

I just wanted to follow up on the email/approach below with regards to the NHA to ensure you received it okay.

If you have any questions please do not hesitate to give me a call.

Thank you.

JASON WILSON, **B.Eng, Oly**
Waste Management

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455 Phillip Street Waterloo Ontario N2L 3X2 Canada
D 519 340 4283 **M 519 732 0962 E** Jason.Wilson@ghd.com

From: Jason Wilson
Sent: Thursday, October 21, 2021 4:21 PM
To: McGlade, Kaitlyn (MNRF) <Kaitlyn.McGlade@ontario.ca>
Cc: Raetsen, Sarah (MECP) <Sarah.Raetsen@ontario.ca>; Lindenburger, Ruth (MNRF) <Ruth.Lindenburger@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Kaitlyn,

Nice to meet you and thank you for your email. I will be taking over from Daniel on this project moving forward.

We have now reviewed the historical NHA and committed mitigation measures. Based on the proposed changes outlined in the draft Modifications Document, the expansion of the site will be completed to the east of the currently developed area and away from previously identified areas of concern. To confirm that there are no new potential impacts, the following approach is proposed.

Task 1 – Background Review
GHD will collect and review available information on the site including recent air photography, Land Information Ontario (LIO) natural features mapping, current Official Plan schedules including natural heritage schedules and other correspondence or files available from the Town of Grimsby, The Region of Niagara, the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF), the Ministry of the Environment, Conservation and Parks (MECP), Fisheries and Oceans Canada (DFO), and the Niagara Peninsula Conservation Authority (NPCA). A preliminary review of this data will be compared to the results compiled in the 2012 Natural Heritage Assessment (NHA) report (Savanta 2012) to determine what, if any, changes have occurred within the Subject Lands since publication.

Task 2 – Site Investigation
A site visit will be completed by a GHD's Aquatic and Terrestrial Ecologists to confirm the current site conditions and provide preliminary assessments against information collected during Task 1, including a cross-referencing exercise in relation to the 2012 NHA report (Savanta 2012). Investigations will include updates to Ecological Land Classification for vegetation communities, an initial aquatic habitat assessment of

watercourses or headwater drainage features (if applicable), and updated evaluation for Significant Wildlife Habitat and Species at Risk habitat. We will also document any wetland features, seeps, drainage courses, significant snag trees, Species at Risk observations (e.g., butternut), invasive species patches and adjacent natural features within 120 metres (m) where property access is available, when encountered. We will note changes to boundaries of natural heritage features found during Task 1 background reviews where significant deviations are noted.

Task 3 – Reporting
The third task will comprise the preparation of a technical letter that provides documentation on the above task items, and will include a figure on an aerial photo base showing the boundaries of the natural features identified by the province and municipality, approximate boundaries of current features based on our site visit, preliminary anticipated setbacks and constraints associated with observed natural heritage features to the proposed expansion, and will highlight notable changes from the 2012 NHA report (Savanta 2012). These features and the implications of each feature on the proposed site expansion and previous committed mitigation measures, the rationale for any setbacks from applicable policies, and the necessary documentation to support the overall Renewable Energy Act amendment for the Subject Lands.

We will then provide the letter from Task 3 to the MNRF for review.

We are requesting concurrence with the proposed approach.

Thanks Kaitlyn

JASON WILSON, **B.Eng, Oly**
Waste Management

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455 Phillip Street Waterloo Ontario N2L 3X2 Canada
D 519 340 4283 **M 519 732 0962 E** Jason.Wilson@ghd.com

From: McGlade, Kaitlyn (MNRF) <Kaitlyn.McGlade@ontario.ca>
Sent: Wednesday, September 01, 2021 8:38 AM
To: Daniel Turner <Daniel.Turner@ghd.com>
Cc: Raetsen, Sarah (MECP) <Sarah.Raetsen@ontario.ca>; Lindenburger, Ruth (MNRF) <Ruth.Lindenburger@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Daniel,

Thank you for your patience on a response.

After reviewing the materials provided (i.e. archeological assessment and modifications summary document) it has been determine that there is nothing within those documents which fall under the ministry of Northern Development Mines, Natural Resources and Forestry's (NDMNRF) roles and responsibilities for review and comment.

Through the Renewable Energy Approval (REA) process, NDMNRF is responsible for the review and confirmation of the Natural Heritage Assessment (NHA), as directed by the Natural Heritage Assessment Guide. The information currently provided does not mention the NHA or whether the proposed upgrades and facility expansion will impact the NHA, including the previously completed Environmental Impact Study, and therefore impact NDMNRFs previous confirmation for this project.

In order to move forward, NDMNRF will require information on how the proposed upgrades do or do not impact the previous NHA approval and project commitments outlined therein.

I have included MECP to this email, if you have further questions please don't hesitate to contact myself or MECP.

Regards,

Kaitlyn McGlade
Regional Planning Ecologist
kaitlyn.mcglade@ontario.ca
705-772-9326

From: Daniel Turner <Daniel.Turner@ghd.com>
Sent: August 30, 2021 2:18 PM
To: McGlade, Kaitlyn (MNRF) <Kaitlyn.McGlade@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Kaitlyn,
Thank you very much for providing this update. I look forward to hearing back from you.
Thanks,
Dan

DAN TURNER
P.Eng.
Waste Management

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D 519 340 4181 **E** daniel.turner@ghd.com

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Connect

From: McGlade, Kaitlyn (MNRF) <Kaitlyn.McGlade@ontario.ca>
Sent: Monday, August 30, 2021 1:14 PM
To: Daniel Turner <Daniel.Turner@ghd.com>
Cc: Cotnam, Erin (MNRF) <erin.cotnam@ontario.ca>; Lindenburger, Ruth (MNRF) <Ruth.Lindenburger@ontario.ca>
Subject: FW: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Dan,

I was forwarded the email chain below by Erin. I just wanted to let you know I am working on it and will be in touch shortly with any comments or questions.

Thanks,

Kaitlyn McGlade
Regional Planning Ecologist
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From: Daniel Turner <Daniel.Turner@ghd.com>
Sent: August-16-21 9:23 AM
To: Cotnam, Erin (MNRF) <erin.cotnam@ontario.ca>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Erin,
Thanks for the quick follow up. You are correct that we also need your review as it relates to natural heritage and whether the proposed changes warrant assessment.
I had prepared a common email that was submitted to yourself, as well as personnel from MHSTCI, however it was perhaps too focused on archaeological studies. Apologies for the confusion. I am indeed looking for your input on the matter.
Thank you,
Dan

DAN TURNER
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From: Cotnam, Erin (MNRF) <erin.cotnam@ontario.ca>
Sent: Friday, August 13, 2021 10:50 AM
To: Daniel Turner <Daniel.Turner@ghd.com>
Subject: RE: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hi Daniel, I just want to confirm whether you are seeking our review of the natural heritage assessment component? If this relates to archaeological or cultural heritage it should be direct to Ministry of Heritage, Sport, Tourism and Culture Industries.

Thanks,

Erin

From: Daniel Turner <Daniel.Turner@ghd.com>
Sent: August-13-21 10:14 AM
To: Cotnam, Erin (MNRF) <erin.cotnam@ontario.ca>
Cc: Andrew Mauchlen <Andrew.Mauchlen@millerwaste.ca>; Sam.Huang <Sam.huang@escarpmentrenewables.ca>; Sian Smart <Sian.Smart@ghd.com>
Subject: Escarpment Renewables Grimsby AD REA Amendment - MNRF

Hello Erin,

I received your contact information from Zeljko Romic of the Ministry of Environment, Conservation and Parks (MECP). I am reaching out to you representing my client, Escarpment Renewables, who own and operate an existing Class 3 Anaerobic Digestion (AD) Facility located at 424 Sobie Road, Grimsby, Ontario (Site). The Site operates under an existing Renewable Energy Approval (REA) No. 8541-9HSGG3. Escarpment Renewables has initiated the process of amending the existing REA in order to expand and improve the Site operations. Part of the REA amendment process includes development of a Modification Document for the MECP to inform the scope of documentation

required for the amendment. The Modification Document has been submitted to the MECP for their pre-submission review and is attached for reference.

As I am sure you are aware, the initial REA application under Ontario Regulation (O.Reg.) 359/09 requires assessment of the potential for archaeological and heritage resources at a property. This was done as part of the application for the existing REA. As part of the proposed amendment, the MECP requires that the proponent contact the Ministry of Natural Resources and Forestry and the Ministry of Heritage, Sport, Tourism, and Culture Industries for confirmation on the necessity, or lack thereof, to conduct further assessment in these regards.

The existing AD Facility was established on a 10-hectare property that was historically used for agricultural crops and is now owned by Escarpment Renewables. The AD Facility covers approximately 4.8 hectares of the property. Proposed revisions to the REA are described in the attached draft Modification Document, including the expansion of the developed portion of the property to include an additional approximately 1-hectare area currently being leased for agricultural crop growth to accommodate increased digestate storage capacity.

O. Reg. 359/09 Section 21 indicates that if there is low potential for the presence of an archaeological resource at the project location, an archaeological assessment is not required. The conclusion of the initial archaeological assessment completed for the existing REA (attached) was “It is thus recommended that no further archaeological concerns are required for the subject property.” Per the above and the attached draft Modification Document, Escarpment Renewables does not propose to conduct further archaeological assessment.

We are reaching out to you in accordance with the MECP and O.Reg. 359/09 to review and provide confirmation or comments on the proposed scope of the amendment as it relates to archaeological and heritage resources at the subject property. Please do not hesitate to contact us for further discussion or if additional input is required for your review.

Thank you for your assistance in this matter.

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Waste Management

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Appendix B

Savanta Grimsby Digester NHA Report with Appendices (November 19, 2012)

Grimsby Energy Inc. Anaerobic Digester Natural Heritage Assessment in Support of a Renewable Energy Approval as per Ontario Regulation 359/09

Prepared for:

Riepma Consultants Inc.
13041 Highway 7
Georgetown, ON L7G 4S4

Prepared by:

Savanta Inc.
37 Bellevue Terrace
St. Catharines, ON L2S 1P4

November 2012
File No: 7200

SAVANTA

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APPENDICES

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1 INTRODUCTION

Savanta Inc. (Savanta) has been retained by Riepma Consultants Inc. on behalf of Grimsby Energy Inc. to provide a Natural Heritage Assessment (NHA) of the natural features at and within 120m of the proposed anaerobic digester to be constructed at 442 Sobye Road, Grimsby, Ontario, hereafter known as the Project Location. The Project Location includes all activities associated with the construction, installation, use, operation, maintenance, changing or retiring of the renewable energy generation facility.

The anaerobic digester will run primarily on farm-sourced feedstock materials and produce 1MW of electricity to be constructed in two phases of 500kW each. 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.

1.1 Purpose of the Report

The Ministry of the Environment's (MOE) Renewable Energy Approval (REA) Regulation (Ontario Regulation 359/09) indicates that applicable renewable energy projects undergo a NHA. The NHA is required by the MOE in support of a REA for a Class 3 anaerobic digester.

This report presents the results of inventories and analyses of existing natural features within the Records Review and Site Investigation Sections. The NHA addresses the natural features in and within 120m of the Project Location and provides an assessment of the significance and sensitivity of these resources in the context of the proposed energy use by Grimsby Energy Inc, within the Evaluation of Significance and Environmental Impact Statement reports. The NHA is conducted following procedures established or accepted by the MNR. Confirmation of the NHA, from the Ministry of Natural Resources (MNR), is submitted to the (MOE) as part of the application documentation for a REA.

Figure 1 (Appendix A) depicts the general location of the proposed anaerobic digester.

2 RECORDS REVIEW

The purpose of the Records Review is to gather information about the area in which a project location is proposed, identify natural features, and make preliminary determinations about site feasibility. Information sources that were searched as part of the records review included MNR, the Federal Government, and local and regional municipalities. The Project Location and 120m surrounding area falls outside of the Niagara Escarpment Plan area and the Oak Ridges Moraine Conservation Plan area.

The records review summarizes the records searched and the analysis undertaken. A determination is provided in Table 2.2 of Section 2.5 on whether the project is proposed in the boundary of a natural feature or within 120m of a natural feature:

- Southern or Coastal wetland;
- Woodland;
- Wildlife habitat;
- Area of Natural and Scientific Interest (life science); and,
- Whether the project is within the boundary or within 50m of an Area of Natural and Scientific Interest (earth science).

The Records Review will also provide a determination on whether the project is proposed in the Greenbelt Plan Area, Oak Ridges Moraine Conservation Plan Area or in the boundary of a provincial park or conservation reserve or within 120m of the boundary of a provincial park or conservation reserve.

2.1 Local and Regional Municipal Records Collected

2.1.1 Region of Niagara Official Plan

The Region of Niagara Policy Plan does not designate any of the natural heritage features listed above in Section 2.0 within the Project Location, or within 120m of the Project Location.

2.1.2 The Town of Grimsby Official Plan

The Town of Grimsby Official Plan does not designate any of the natural heritage features listed above in Section 2.0 within the Project Location, or within 120m of the Project Location.

2.1.3 Niagara Peninsula Conservation Authority (NPCA)

Hazard lands, wetlands, shorelines and areas susceptible to flooding, and associated allowances are delineated and regulated by the NPCA under Ontario Regulation 155/06, Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

The Project Location and surrounding 120m is not within the regulated area of the NPCA. The swamp and watercourse located south of the Project Location are regulated by NPCA because they are in the floodplain and are wetland areas. As shown on Figure 3, the Spring Creek Woodlot Wetland is located 196m from the project location, and Spring Creek is located 526m from the project location.

2.2 MNR Documents and Resources

2.2.1 Guelph District MNR

The staff of Guelph District were consulted by Riepma Consultants Inc. to determine whether any species at risk (SAR) might be present at, or within 120m of the Project Location. The letter response from MNR dated March 22, 2012 (Appendix B) provided a list of potential Special Concern species at risk for the Town of Grimsby, presented in Table 2.1. The data provided applies to a much broader area than an individual Project Location.

Table 2.1. Special Concern Species noted by MNR as potentially occurring in the Town of Grimsby

Common Name	Scientific Name	COSSARO	Status within the Township	Habitats listed in Appendix G of SWHTG
Black Tern	*Chlidonias niger*	Special Concern	Known to occur	Requires shallow water (0.5-1m) and wetlands >20ha Large cattail marshes, fens or wet meadows, riparian areas of ponds, lakes and rivers.
Common Nighthawk	*Chordeiles minor*	Special Concern	Suspected to occur	Grasslands, prairies/savannahs, thickets, woodland edges, gravel beaches or barrens with rocky soil.
Louisiana Waterthrush	*Seiurus motacilla*	Special Concern	Known to occur	Wooded valleys, swamps, deciduous or mixed mature woodlands.
Monarch Butterfly	*Danaus plexippus*	Special Concern	Known to occur	Wet or dry meadows containing milkweed plants associated with woodland edges
West Virginia White	*Pieris virginiensis*	Special Concern	Known to occur	Deciduous woodlands containing two-leaved toothwort plants.
Shumard Oak	*Quercus shumardii*	Special Concern	Known to occur	All wet to mesic communities with Clay and clay-loam soils.

Eastern Ribbonsnake	*Thamnophis sauritus*	Special Concern	Suspected to occur	Grasslands, wet meadows, marshes, sphagnum bogs, edges of lakes, ponds and rivers associated with permanent quiet water.
Milksnake	*Lampropeltis triangulum*	Special Concern	Known to occur	Wetlands, riparian areas, grasslands, thickets and woodlands.
Snapping Turtle	*Chelydra serpentina*	Special Concern	Known to occur	Permanent or semi-permanent waters with soft muddy banks or bottoms, wetlands, ponds, lakes and riparian areas.

MNR Guelph District office also provided the 1998 Spring Creek Woodlots Wetland Evaluation form which provided additional information regarding the wetland feature to the south of the Project Location.

2.2.2 Land Information Ontario (LIO) Database and Natural Resources and Values Information System (NRVIS) Database

MNR's Land Information Ontario (LIO) and Natural Resources and Values Information System (NRVIS) databases were accessed to search for significant features. The results are presented in Table 2.3.

2.2.3 Natural Heritage Information Centre

MNR's Natural Heritage Information Centre (NHIC database) was accessed to search for records of special concern and rare species at, and within 120m of the Project Location. The database provides occurrence data by 1km area blocks, which overlap with areas outside of the Project Location.

The search revealed five records, presented in Table 2.2.

Table 2.2. NHIC Search Results for the Project Location area.

Common Name	Scientific Name	COSSARO	S-Rank	EO Rank	Last Observed Date
Arrow Clubtail	Stylurus spiniceps		S2	E – Verified Extant	No date provided
Pawpaw	*Asimina triloba*		S3	E – Verified	1994

				Extant	
Eastern Few-fruited Sedge	Carex oligocarpa		S3	H – Historical	1975
Cluster-stemmed Nailwort	Paronychia fastigiata		S1	H – Historical	1974
Perfoliate Bellwort	Uvularia perfoliata		S1	H – Historical	1977

Land Information Ontario was accessed for mapping of the Spring Creek Woodlots wetland, located approximately 186m south of the Project Location. The NHIC website also provided information regarding the Spring Creek Woodlots wetland, described as a non-provincially significant wetland, composed mostly (92%) of deciduous swamp with smaller areas of marsh (8%). Ecological functions include locally significant winter cover for deer. All native fauna observed (Black-capped Chickadee, Red-Winged Blackbird, Red-tailed Hawk, Great Blue Heron, Turkey Vulture, Eastern Gartersnake, Green Frog, Northern Leopard Frog, Muskrat, and Northern Raccoon) are considered common and secure in Ontario (S5 and S4).

2.4 Federal Records Collected

The Canadian Important Bird Area atlas was accessed, however there are no important bird areas at or within 120m of the Project Location.

2.5 Summary of Records Searched and Determinations Made

The following summary table lists the records searched, the source of the record and a determination of whether or not the natural feature, Provincial Park or Conservation Reserve is located in the project location or within 120m. The Project is not located in the Green Belt or Oak Ridges Moraine Plan Areas. This summary also includes information stating what records were not found.

Table 2.3. Summary of Records Searched and Determinations Made

Significant or Provincially Significant Feature	Record Source	Record Found? Yes/No	Present in the Project Location?	Present within 120m of the Project Location	Brought Forward to Site Investigation? Yes/No
Southern wetland	MNR – Land Information Ontario	Yes	No	No	Yes
Woodland	MNR – Land Information Ontario	Yes	No	No	Yes
Wildlife habitat	MNR – Land	Yes	No	Yes	Yes

	Information Ontario				
Provincially significant areas of natural and scientific interest - life science	MNR – Land Information Ontario	Yes	No	No	No
Provincially significant areas of natural and scientific interest - earth science	MNR – Land Information Ontario	Yes	No	No	No
Deer Wintering Area	MNR – NRVIS	Yes	No	Yes	Yes
Provincial parks	MNR – Land Information Ontario	Yes	No	No	No
Conservation reserves	MNR – Land Information Ontario	Yes	No	No	No

The records review revealed a non-PSW wetland and deer wintering area, shown on Figure 3. A small portion of the deer wintering area is mapped within 120m of the Project Location. As summarized in Table 2.3, the Project Location does not occur with the boundary of a provincial park or conservation reserve or within 120m of the boundary of a provincial park or conservation reserve.

3 SITE INVESTIGATION

3.1 Field Studies

Table 3.1 presents the field studies and natural environment inventories completed at, and within 120m of the Project Location. Qualifications of the person conducting the site investigation are presented in Appendix C. Field notes kept by the person conducting the site investigation are found in Appendix D.

Table 3.1. Dates of surveys, survey types, and surveyors

Survey Date	Weather Conditions	Survey Start and Finish Time	Duration of Survey	Survey Type(s)	Surveyor
June 5, 2012	Sunny to partially cloudy; 9°C to 16°C; little to no wind	06:00-10:00	4hrs	Breeding bird survey	Peter Burke
June 5, 2012	Sunny to partially cloudy; 9°C to 16°C; little to no wind	08:00-08:25	25min	Targeted SAR bird survey	Peter Burke

July 5, 2012	Sunny to partially cloudy; 25°C; light winds	11:00-15:00	4hrs	Ecological Land Classification and botanical survey, including targeted SAR vegetation survey	George Buckton
July 5, 2012	Sunny to partially cloudy; 25°C; light winds	9:30-11:00	1.5hrs	Targeted reptile survey	George Buckton
July 5, 2012	Sunny to partially cloudy; 25°C; light winds	15:00-16:00	1hr	Aquatic habitat assessment	George Buckton

3.2 General Site Description

3.2.1 Physiography

The Project Location is flat and gently sloping to the south, and is entirely comprised of active agricultural fields. As described in the Project Description Report (Riepma Consultants Inc. 2012), these fields are comprised of heavy silty clay soils.

One unnamed and undefined drainage runs north-south just west (13.5m) of the Project Location. Spring Creek runs in an east-west direction approximately 526 m south of the Project Location, within the southern portion of the Spring Creek Woodlots wetland.

3.2.2 Landscape Ecology

Figure 2 depicts the larger local landscape setting around the Project Location. Adjacent to the west is a landfill area owned by the Region of Niagara, which was closed in 1998, and is now a cultural meadow. Further west, beyond Park Road, is a farm followed by agricultural fields and the most western portion of the Spring Creek Woodlots wetland. Immediately north of the site is Sobye Road and agricultural fields that include nine radio transmission towers. A small coniferous hedgerow and man-made pond are also found immediately north of Sobye Road. North of the transmission tower fields is a large wooded area. Immediately east are agricultural fields followed by a poultry farm operation and more agricultural fields. Directly south of the Project Location are agricultural fields followed by the Spring Creek Woodlots wetland, including Spring Creek and a large man-made pond, and more agricultural fields.

3.3 Natural Features

3.3.1 Vegetation Communities

3.3.1.1 Methodology

Following the interpretation of satellite imagery, preliminary mapping of potential vegetation communities was created. During the field survey, these communities were identified, sampled and revised, if necessary, using the sampling protocol of the Ecological Land Classification (ELC) for Southern Ontario (Lee at al. 1998). Species names generally follow the nomenclature of Flora Ontario (University of Guelph, FOIBIS website).

3.3.1.2 Results

The Project Location is comprised entirely of active agricultural fields. The area within 120m of the project location consists of agricultural fields, with the exception of cultural meadow and meadow marsh communities surrounding the unnamed drainage located immediately to the west. These are depicted on Figure 3**,** and the characteristics of each vegetation community type are provided in Table 3.2. The full plant species list is found in Appendix E.

The site investigation did not find any woodlands at or within 120m of the project location; no corrections to the records review are proposed. Woodlands will not be brought forward to the Evaluation of Significance (EOS) Report.

The site investigation found one wetland (MAM2-2) within 120m of the project location; however this wetland does not meet the minimum size of 2 hectares, as per the OWES Southern Manual, for assessment. The marsh was not found to contain any rare species or special features as per the OWES Southern Manual. Therefore this wetland will not be carried forward as a wetland but will be assessed for wildlife habitat. No corrections to the records review are proposed. Wetlands will not be brought forward to the Evaluation of Significance (EOS) Report.

Table 3.2 Ecological Land Classification (ELC) Vegetation Types Observed within 120m of the Project Location

ELC Type	Area of Community (ha)	Community Description
Agricultural		
AG-a	70.8	This is a recently tilled agricultural field.
AG-b	47.0	This is a recently mowed open field that contains the radio transmission towers. Kentucky bluegrass, awnless brome, timothy, and clover dominate the field.
Cultural		

ELC Type	Area of Community (ha)	Community Description
Cultural Meadow		
CUM1-1a/ CUM1-1b Dry-Moist Old Field Meadow	CUM1-1a: 0.3 CUM1-1b: 13.2	This meadow community is found within the decommissioned landfill area, located just west of the Project Location, and surrounds the meadow marsh that in turn surrounds the north-south unnamed drainage. The dominant species include tall goldenrod, Kentucky bluegrass, variable crown-vetch, awnless brome, wild carrot, and Canada thistle. Scattered young trees and saplings of green ash and American elm are also found in the shrub layer, along with grey dogwood.
Marsh		
Meadow Marsh		
MAM2-2 Reed-canary Grass Mineral Meadow Marsh	0.4	This very small community surrounds the unnamed drainage and is dominated by reed-canary grass with smaller numbers of common milkweed, Kentucky bluegrass, and wild teasel also present.
Open Water		
Open Aquatic		
OAO Open Aquatic	0.1	A man-made pond occurs just north of Sobye Road, within 120m of the Project Location. Riparian vegetation is dominated by reed canary grass and Kentucky blue grass, with scattered cattails. A moderate-age green ash tree and several scattered

3.3.2 Wildlife Habitats

The Natural Heritage Assessment guide requires applicants to identify and determine the significance of wildlife habitat at the Project Location and within 120m of the Project Location. Within 120m of the Project Location, the process for identifying SWH allows candidate SWH to be described as Generalized Candidate SWH based on the type of project and project components involved. With respect to this project, all types of SWH can be described as Generalized Candidate SWH, except Deer Winter Congregation Areas, as per the methods provided in Appendix D of the NHAG.

The following types of wildlife habitat were considered for this project based on the vegetation communities present and the criteria listed in the Ecoregion Criteria Schedule 7E (MNR, 2012).

Table 3.3 Results of Site Investigation for Wildlife Habitat Types in and within 120m of the Project Location

Type of Wildlife Habitat	Vegetation Community Type	Determination made based on Site Investigation	Present in or within 120m of the Project Location? / distance to project location	Brought forward to EoS Y/N?	Brought Forward to EIS as Generalized Candidate SWH?
Waterfowl Stopover and Staging Areas (terrestrial)	CUM1-1a/ CUM1-1b	Site investigation did not indicate that fields are flooded in spring.	Not present in or within 120m	N	N
Waterfowl stopover and staging areas (aquatic)	MAM2-2	The marsh community was not found to hold water or support a population of aquatic vegetation or invertebrates.	Not present in or within 120m	N	N
Shoreline Migratory Stopover Area	MAM2-2	There were no shorelines of rivers, lakes or wetlands, beaches or seasonally flooded mudflats found through site investigation.	Not present in or within 120m	N	N
Turtle Wintering Areas	MAM2-2 OAO	A pond is present north of the roadway	Present within 80m Not Present in	N	Y

		The marsh community does not contain permanent water	the Project Location		
Snake Hibernaculum	All vegetation communities	No features which may provide access below the frost line were found.	Not present in or within 120m	N	N
Waterfowl Nesting Area	CUM1-1a/ CUM1-1b	Nesting areas extend 120m from wetlands in upland habitats that are at least 120m wide. CUM1-1b is the only vegetation community that meets this criteria	Present within 20m Not Present in the Project Location	N	Y
Turtle Nesting Areas	MAM2-2	The soils in and within 120m of the project location are clay, no gravel or sandy areas were found. The marsh community does not provide shallow aquatic vegetation.	Not present in or within 120m	N	N

Amphibian Breeding Habitat (wetlands)	MAM2-2 OAO	The marsh community is 4000m^2 and pond is 1000m^2 therefore these communities do meet the threshold of 500 m^2	Present in or within 120m	N	Y
Marsh Bird Breeding Habitat	MAM2-2 CUM1-1a/ CUM1-1b	The marsh does not contain shallow water with emergent vegetation The CUM1-1 communities contain limited shrubs and saplings for Green Herons to nest in but is within proximity to Spring Creek LSW	Present within 3m Not Present in the Project Location	N	Y
Open Country Bird Breeding Habitat	CUM1-1a/ CUM1-1b	CUM1-1b is smaller than 30ha and was abandoned at least 5 years ago. CUM1-1a is much less than 30ha and therefore does	Not Present in the Project Location	N	N

		not provide candidate SWH.			
Terrestrial Crayfish	MAM2-2	The marsh community is seasonally flooded and may provide habitat	Present within 13.5m Not Present in the Project Location	N	Y
Special Concern and Rare Species	MAM2-2 CUM1-1a/ CUM1-1b OAO AG-b	Special concern or SH, S1-S3 species were searched for, further discussed in section 3.3.5	Present within 3m	N	Y
Amphibian Movement Corridors	MAM2-2	Movement corridors are only considered when Amphibian Breeding Habitat is confirmed as present.	Not present in or within 120m	N	N

3.3.3 Deer Winter Congregation Areas

MNR is responsible for the identification of Deer Winter Congregation Areas. The MNR's NRVIS database depicts a small portion of a Deer Winter Congregation Area approximately 62m from the project location (Figure 3). Deer Winter Congregation Areas will be brought forward directly to the EIS.

3.3.4 Generalized Candidate SWH

Table 3.3 lists the results of the site investigation with regards to wildlife habitat types and the distances to these habitats. The vegetation communities are all (excluding the agricultural lands) assumed to be generalized candidate SWH types. Figure 3 displays the Project

Components, the Project Location, the area within 120m of the Project Location and location of the candidate generalized SWH. CGSWH will be treated as significant and brought forward directly to the EIS.

3.3.5 Special Concern and Rare Wildlife Species

A total of 35 species of vascular plants were recorded on and within 120m of the Project Location (Appendix E) as a result of the site investigation. Of that number, 17 (or 49%) species are native, and 18 (or 51%) species are exotic.

All of the native species are ranked S5 (Secure – common, widespread and abundant in Ontario). None of the species found are considered special concern by the Species at Risk in Ontario (SARO) list. None of the flora species listed in table 2.2 were found during any of the site investigation surveys. Four species listed in table 2.1, Black Tern, Louisiana Waterthrush, West Virginia White and Monarch Butterfly did not have candidate habitats in or within 120m of the project location.

Black Tern requires marsh habitat that is at least 20ha or larger, the marsh community is much smaller than 20h, therefore candidate habitat of Black Tern is not present. The Louisiana waterthrush requires woodland habitat which is not present in or within 120m of the project location, therefore candidate habitat is not present. The West Virginia White requires the presence of a host plant found in woodlands, as there are no woodlands present in or within 120m of the project location; candidate habitat for this species is also not present. The Monarch Butterfly also requires a host plant, milkweed species, however in addition requires woodland edge habitat which is not present, therefore candidate habitat of Monarch Butterfly is not present.

Pawpaw (S3), noted in the NHIC database as potentially occurring in the surrounding area during the records review, was searched for and not observed on site or within 120m of the project location. This species requires understory habitat that is not present at or within 120m of the Project Location.

Arrow Clubtail was also noted in the NHIC database as potentially occurring in the surrounding area during the records review. Habitat for this species is associated with large lakes or riparian areas along slow moving watercourse and would be best represented by the Spring Creek Wetland located south of the Project Location and the surrounding 120m area. Candidate habitat for Arrow Clubtail is not present in or within 120m of the project location.

MNR listed Milksnake and Eastern Ribbonsnake, (Special Concern), as a potential special concern species for the Project Location. Targeted reptile surveys were conducted on July 5, 2012 and involved transect and area searches performed across suitable potential habitat areas which included the farm field edges, cultural meadow, drainage embankments, and features potentially used for basking / shedding/ resting such as rotting hay bales, old wood boards and logs, and rock piles. Sobye Road was also checked for basking snakes and roadkills. Weather conditions were mostly sunny and warm which is optimal for observing reptiles. Despite this

search, no reptiles were observed; however, Milksnake and Eastern Ribbonsnake habitat will be brought forward as Generalized Candidate SWH.

The small pond north of Sobye Road is candidate habitat for snapping turtle. While this species was not incidentally observed during any of the surveys conducted for site investigation, the candidate habitat will be assumed significant and brought forward as Generalized Candidate SWH.

Breeding bird surveys were conducted on June 5, 2012. Breeding bird surveys were conducted through area searches and traditional point counts conducted in accordance with Ontario Breeding Bird Atlas - OBBA 2001-2005 methodology. No special concern or rare bird species were observed, however the candidate habitat of Common Nighthawk will be brought forward as Generalized Candidate SWH.

MNR listed Shumard Oak (Special Concern) as a potential SAR for the Project Location. The species was not observed at or within 120m of the Project Location during botanical survey.

Wildlife Habitat type Special Concern or Rare Wildlife Species will be treated as significant and brought forward directly to the EIS report.

3.4 Corrections to the Records Review

3.4.1 Wetlands

The Records Review did not determine any wetlands were within 120m of the project location. The Site investigation determined that a marsh community is associated with the unnamed creek. The wetland is less than 2ha and therefore does not qualify for an OWES evaluation of significance; wetlands will not be brought as a natural feature.

No other corrections to the records review are required.

3.5 Summary of the Site Investigations

A summary of Site Investigations is presented in Table 3.4.

Table 3.4. Summary of Site Investigations

Candidate Significant Natural Feature	Feature Observed at or within 120m of Project Location? Yes/No	Brought Forward to EIS? Yes/No	Brought Forward as Generalized Candidate SWH? Yes/No
Southern wetland	Not present in or	No	No

	within 120m		
Woodland	Not present in or within 120m	No	No
Wildlife habitat	Present within 3m of the project location	No	Yes
Wildlife habitat (Deer Winter Congregation Areas)	Present within 62m of the project location	Yes	No

4 EVALUATION OF SIGNIFICANCE

The REA Regulation requires that a determination of significance is made for each natural feature in or within 120m of the project location.

The natural features within 120m of the project location have been considered GCSWH, with the exception of the significant Deer Winter Congregation Area, and are assumed to be significant. GCSWH and Deer Winter Congregation Area have been brought forward directly to the EIS report.

5 ENVIRONMENTAL IMPACT STATEMENT

This impact assessment is presented based on 2012 survey results according to the potential for ***direct*** effects and ***indirect*** effects. ***Direct*** effects are normally associated with the physical removal or alteration of natural features that could occur based upon a land use application, and ***indirect*** effects may be changes or effects that relate to hydrological, noise, lighting and disturbance associated impacts. While not physically removing habitat, these indirect effects can result in some level of disturbance or degradation to features and functions if unmitigated.

The proposed development will be entirely restricted to agricultural land. No trees occur in the Project Location so none will be required to be removed. No development is proposed within any natural habitat or within riparian areas (Figure 3), development is proposed within 120m of generalized candidate SWH and the SWH type Deer Winter Congregation Areas.

There are various potential impacts on the natural features including:

- Land preparation (clearing and grubbing);
- Grading;
- Building envelope and driveway construction; and

- Storm water management.

Potential impacts (direct and indirect) on the Generalized Candidate SWH and Deer Winter Congregation Area are discussed in the sections below.

5.1 Potential Direct Effects

The proposed development will solely remove active agricultural lands. No development is proposed within any natural features, and none will be removed. The performance objective of this project is to avoid direct impacts to natural features and eliminate potential negative impacts through the use of mitigation measures.

Direct impacts to Generalized Candidate SWH and Deer Winter Congregation Area occurring at or within 120m of the Project Location, and the proposed mitigation measures are presented in Table 5.1.

Table 5.1. Significant natural features, potential direct impacts, and proposed mitigation measures

Feature	Distance to project location (components)	Project Phase & Activity	Potential Negative Environmental Effects	Mitigation Strategy	Effectiveness Monitoring of Mitigation
Generalized Candidate SWH	3m to fence at west of property; 15m to bunkers; 51m to sediment basin; 80m to access drive; 100m to receiving buildings	Construction phase – installation of fencing, construction of access drive and receiving buildings	Limited potential for increased sedimentation and erosion into adjacent cultural meadow, meadow marsh and drainage features	- Maintain vegetated buffer within 3m of wetland edge - Develop and implement sediment and erosion control plan, including silt fencing - NPCA specifically requested: • Adequate sediment and erosion controls be installed prior to the commencement of any works on site and be maintained in good working order until the works are completed and the site has been re-vegetated. At no time shall muddy water or debris be allowed to discharge from the site into the adjacent watercourse. • The remaining lands between the watercourse and the proposed works be adequately re-vegetated (preferably with native plantings) and left as an untouched, undisturbed	Regular monitoring of sediment and erosion controls to ensure fully functional, including after all heavy rain events

				vegetated buffer. • All areas are reestablished immediately upon completion of the works. • Ensure the landfill monitoring wells are not be negatively impacted. The extent to which new construction will affect the edge conditions can be limited by the implementation of the following measures: • Locate and flag development limits prior to construction; • Pre-construction erection of erosion and sedimentation control fencing along confirmed protection edges; and, • Appropriate pre-construction briefing of site workers to advise regarding the sensitivity of the development edge conditions.	
Deer Winter Congregation Area	62m to sediment basin; 78m to bunkers; 167m to receiving building; 142m to access drive	Construction phase – installation of fencing, construction of access drive and receiving buildings	Limited potential for increased sedimentation and erosion into adjacent cultural meadow, meadow marsh and drainage features, as well as wooded feature further south.	A tall fence (10ft) will be installed to prevent deer from entering the project location during their movement to the yard.	Periodic monitoring to ensure fence is in good repair and keeping deer out of project location

5.2 Potential Indirect Effects

In addition to potential impacts on vegetation communities and wildlife habitat, indirect effects can include the disruption of existing wildlife movement patterns and interference with landscape-scale linkages and corridors. The proposed project location maintains a north-south corridor between the Spring Creek Woodlots wetland and transmission tower fields through the

retention of the natural features associated with the unnamed drainage located just west of the property.

Potential indirect impacts to Generalized Candidate SWH and the Deer Winter Congregation Area occurring within 120m of the Project Location, and the proposed mitigation measures are presented in Table 5.2.

Table 5.2. Significant natural features, potential indirect impacts, and proposed mitigation measures

Significant Natural Features	Potential Indirect Impacts	Proposed Mitigation Measures
Generalized Candidate SWH	Changes to surface water quantity and quality. - Riepma Consultants Inc. expects the increase in surface runoff to be small (approximately 5%). - Rain water/ surface flows will be directed through the sediment basin, and will slowly outlet into the north-south drainage.	The expected volume of water from the rooftop and paved areas is minimal, and low impact development techniques such as downspouts that will release to a splash guard, is expected to eliminate any surface erosion with the majority of water evaporating. In addition, some downspouts will be connected to a storage tank to supply water for on site washing and watering purposes. The sediment basin will be shallow and flat, thereby slowing down any water and allowing sediment to settle out before outletting to the drainage.
Generalized Candidate SWH and Deer Winter Congregation Area	Noise impacts	The proposed development will introduce some local noise into a previously rural landscape, however the noise levels are expected to be low. The engines proposed will generate a noise level in the 90 to 100dBa range at 1m at full power. However, the engines are located inside the building, which will reduce noise emissions. Outside of the building, the noise will be in the range of 45 to 50 dBa (e.g. noise from washing machine, dishwasher), which meets MOE requirements. The container, heat dump radiators and exhaust stacks will be designed to meet provincial standards for this area. The only other noises sources at the plant are a variety of small motors and pumps, which produce very little noise. A 100 hp farm tractor will operate on the site for one half hour per day. The use of vegetation buffers between the site and the drainage is expected to limit the potential for noise effects on GCSWH and the Deer Winter Congregation Area.
Generalized Candidate SWH and Deer Winter Congregation Area	Lighting	Light can be a concern where it is directed towards a variety of natural features and functions. Existing conditions see light sources from the neighbouring farms. The use of large light standards can be problematic by allowing light penetration into forested blocks, which could inhibit or affect wildlife use. Outdoor common area lighting should be located and directed away from the unnamed drainage and surrounding meadow marsh and cultural meadow. A light standard can emit light in three directions: directly to the ground, at an angle from the ground, and directly upward. To minimize impacts on birds direct upward light should be eliminated, spill light minimized and all lighting sources should illuminate only non-reflective surfaces (City of

		Toronto Green Development Standard, 2007).

6 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this NHA report has been to present and discuss the natural features currently found at, and within 120m of the Project Location, to assess their significance and the potential direct and indirect impacts of the proposed development of these lands on the significant natural features.

The Project Location and area within 120m are entirely active agricultural fields, with cultural meadow and meadow marsh communities surrounding a warm water drainage feature located immediately west of the property.

The proposed development avoids direct impacts to natural features and, with the achievement of mitigation measures described in Table 5.1 of Section 5.1 and Table 5.2 of Section 5.2 will mitigate any potential negative impacts to Generalized Candidate SWH and the Deer Winter Congregation Area.

7 REFERENCES

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REPORT COMPLETED BY:

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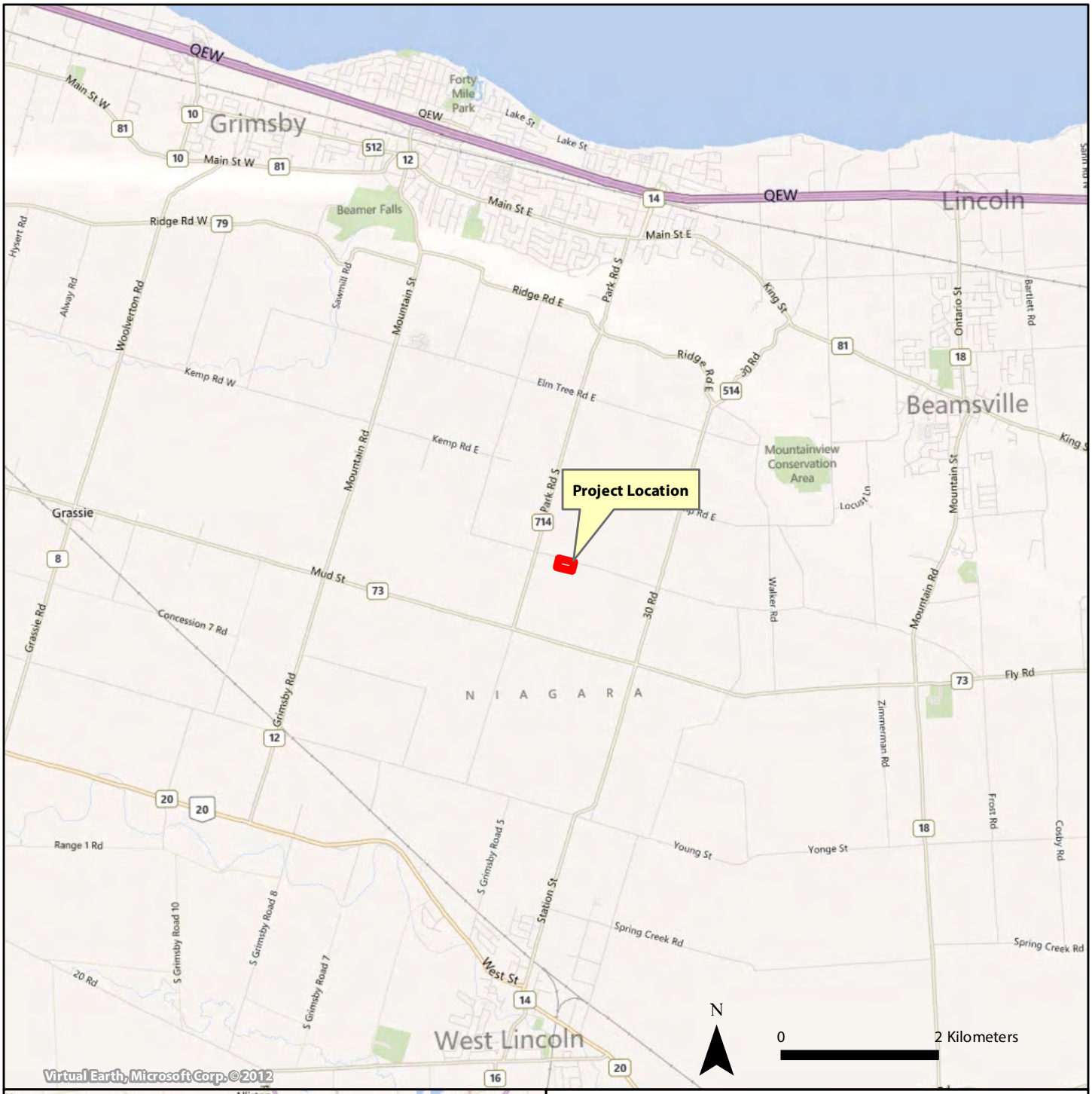
Appendix A
Report Figures



Grimsby Digester

Figure 1
Project Location

SAVANTA

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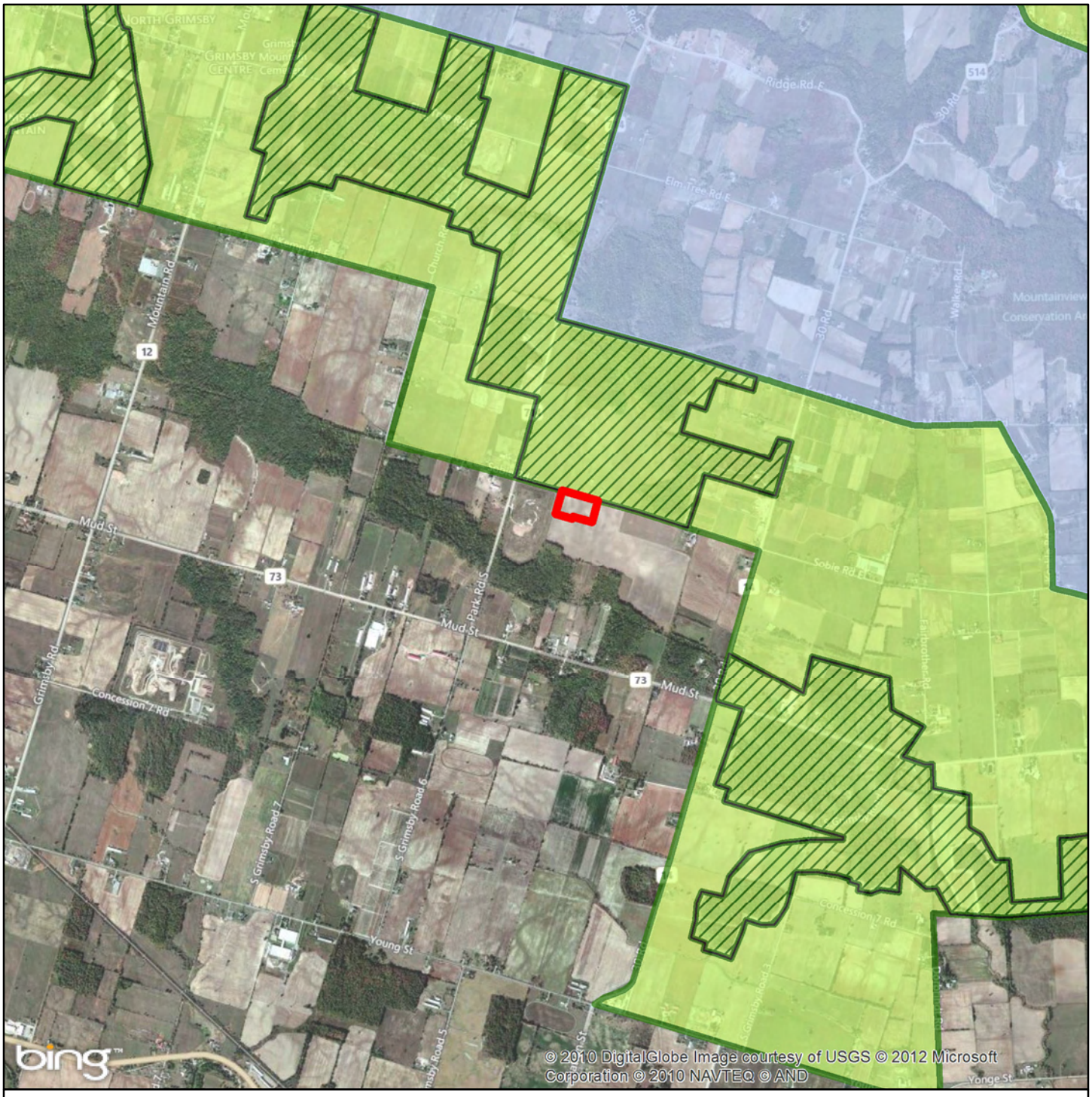

Project Location
Greenbelt Natural Heritage System
Greenbelt Protected Countryside
Niagara Escarpment Protection Area

Grimsby Digester

Figure 2
Landscape Setting

N

0 500 Meters

SAVANTA

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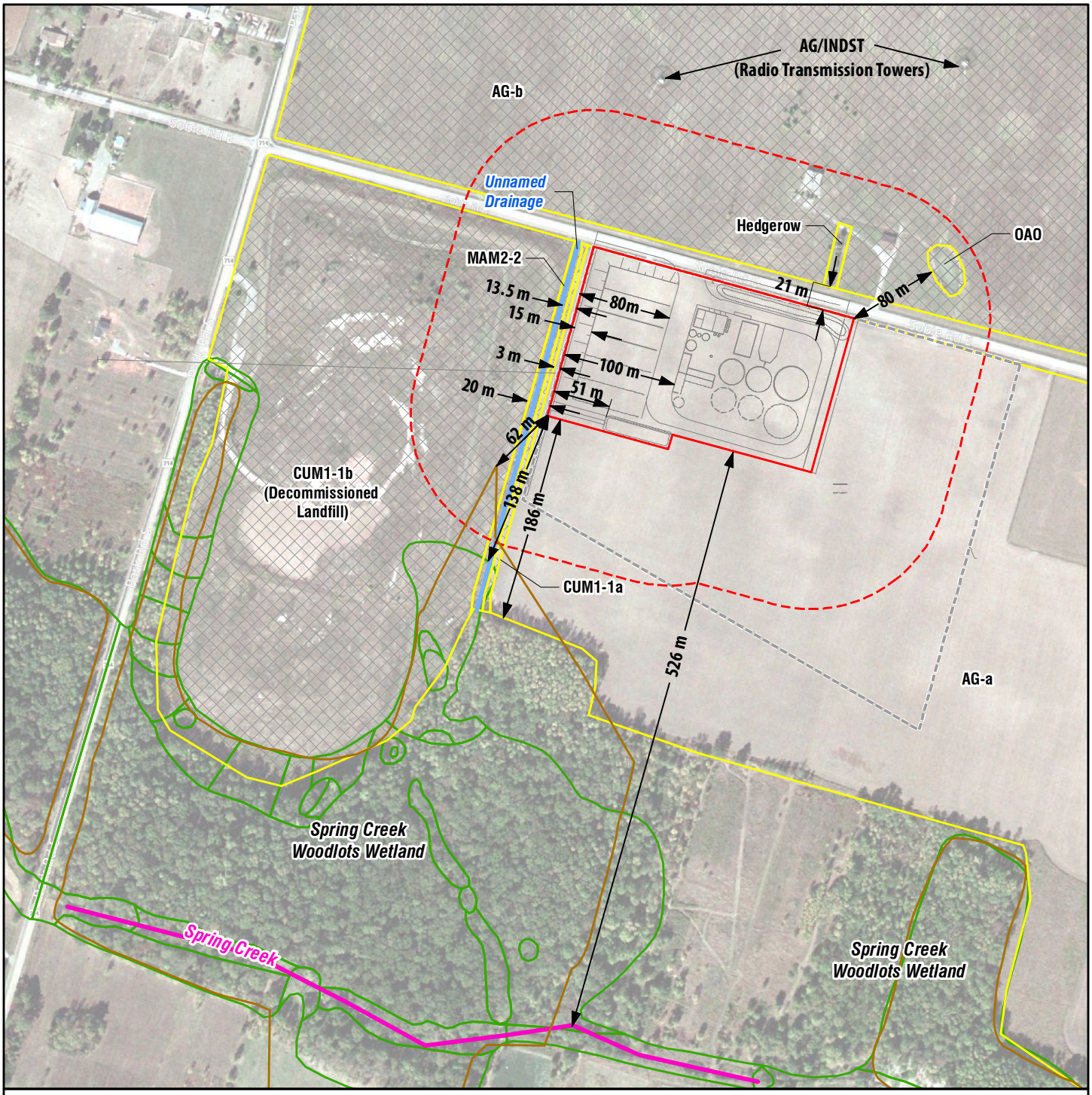

Project Location
120 m buffer of Project Location
Property Boundary
Ecological Land Classification
Spring Creek Woodlots Wetland (MNR)
Deer Wintering Area (NRVIS)
Generalized Candidate Significant Wildlife Habitat

Watercourse
Spring Creek
Unnamed Drainage

ELC Legend:

CUM1-1	Dry-Moist Old Field Meadow Type
MAM2-2	Reed-canary Grass Mineral Meadow Marsh Type
OAO	Open Aquatic
AG	Agricultural

Grimsby Digester

Figure 3
Natural Heritage Features

N
0 100 Meters
1:5,000

SAVANTA

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Appendix B
MNR Response to SAR Screening Request

Ministry of Natural Resources

Box 5000
4890 Victoria Ave. N.
Vineland Station, Ontario
L0R 2E0

Tel: (905) 562-4147
Fax: (905) 562-1154

Ministère des Richesses naturelles

C.P. 5000
4890 avenue Victoria Nord
Vineland Station, Ontario
LOR 2EO

Tél : 905-562-4147
Téléc.: 905-562-1154

Ontario

Guelph District

March 22, 2012

Clare Riepma
President
Riepma Consultants Inc.
13041 Highway 7
Georgetown ON L7G 4S4

Dear Clare,

Thank you for your inquiry regarding the presence of species at risk on the property located at 442 Sobie Road, in Grimsby, Ontario.

The Natural Heritage Information Centre (NHIC) is responsible for maintaining a central repository of data and information on rare species, vegetation communities and natural areas in the province of Ontario. This data can be searched via the Biodiversity Explorer internet tool available at www.biodiversityexplorer.mnr.gov.on.ca. The Biodiversity Explorer can be used to find locations of species at risk (SAR) (referred to as Element Occurrences (EOs)) in any part of the province. MNR's Guelph District forwards its EO data to the NHIC at regular intervals in support of NHIC's mission to acquire, maintain, update, and make available data on the province's rare species, vegetation communities, and natural areas.

Please note that because the province has not been surveyed comprehensively for the presence of species at risk, the absence in the NHIC database of an EO in a particular geographic area does not indicate the absence of the species in that area. Consequently, the presence of an EO is useful to flag the presence of the species in the area, but is not an appropriate tool to determine whether a species is absent from the area, or whether it should be surveyed for or not in a particular area. It is the responsibility of the person engaging in the activity (the proponent) to remain in compliance with the *Endangered Species Act, 2007*. Guelph District has not identified habitat for endangered or threatened species on the above subject property. Consequently, we provide the following advice with respect to determining the presence of species at risk on a property for which a land-use change is being proposed (note that some of the following may not apply to a given type of proposed activity, or for a given study area):

I. Habitat Inventory

The District recommends undertaking a comprehensive botanical inventory of the entire area that may be subject to direct and indirect impacts from the proposed activity. The vegetation communities should be classified as per the "Ecological Land Classification (ELC) for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level. With respect to aquatic habitats in the study area, we recommend you collect data on the physical characteristics of the waterbodies and inventory the riparian

zone vegetation, so that these habitats can be classified as per the Aquatic Ecosites described in the ELC manual.

II. Potential SAR on the property

A list of species at risk that have the potential to occur in the area can be produced by cross-referencing the ecosites described during the habitat inventory with the habitat descriptions of species at risk known to occur in the county or regional municipality within which the area is located. The list of species at risk known to occur in the Town of Grimsby is attached. The species-specific COSEWIC status reports (www.cosewic.gc.ca) are a good source of information on species at risk habitat needs and will be helpful in determining the suitability of the property's ecosites for a given species.

Please note that the Species at Risk in Ontario list (SARO) is a living document and is amended periodically as a result of species assessment and re-assessments conducted by the Committee on the Status of Species at Risk in Ontario (COSSARO). The SARO list can be accessed on the webpage http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html.

COSSARO also maintains a list of species to be assessed in the future. It is recommended to take COSSARO's list of anticipated assessments into consideration, especially when the proposed start date of the activity is more than 6 months away, or the project will be undertaken over a period greater than 6 months. The list can be viewed by going to http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/244543.html and clicking on the link Priority List of Species to be Assessed and Classified by COSSARO.

III. SAR surveys

The District is of the opinion that each species at risk identified under Step II should be surveyed for, regardless of whether or not the species has been previously recorded in the area. The survey report should describe how each species at risk was surveyed for, and provide a rationale for why, if any, certain species appearing on the county/ regional municipal list were not the subject of the survey. Some SAR surveys require an *Endangered Species Act 2007* permit and/or a Scientific Collector's Permit; please contact me for further direction if surveys will be undertaken.

Please do not hesitate to contact me if your investigations reveal the presence of species at risk on the subject property. I will be happy to provide further advice regarding the provisions of the *Endangered Species Act* at that time.

I appreciate the efforts that Riepma Consultants Inc. is making on behalf of their client to protect species at risk.

Sincerely,

Karine Bériault
Species at Risk Biologist
Ministry of Natural Resources, Guelph District
4890 Victoria Avenue North
Vineland Station, ON L0R 2E0
karine.beriault@ontario.ca

GRIMSBY

Species At Risk Designations
ENDANGERED
THREATENED
SPECIAL CONCERN
EXTIRPATED

AMPHIBIANS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events
Jefferson Salamander (*Ambystoma jeffersonianum*)	Known to Occur	*Habitat Regulations*	inhabit deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April

BIRDS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events
Black Tern (*Childonias niger*)	Known to Occur	*N/A*	generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water	Migrate South for the Winter
Bobolink (*Dolichonyx oryzivorus*)	Suspected to Occur	*Habitat Protection*	generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Migrate South for the Winter
Chimney Swift (*Chaetura pelagica*)	Suspected to Occur	*Habitat Protection*	historically found in deciduous and coniferous, usually wet forest types, all with a welldeveloped, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Nesting - Late April to Mid- May Migrate South in September or Early October
Common Nighthawk (*Chordeiles minor*)	Suspected to Occur	*N/A*	generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops)	Migrate South for the Winter
Louisiana Waterthrush (*Seiurus motacilla*)	Known to Occur	*N/A*	generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps	Migrate South for the Winter

FISH	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events

INSECTS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events
Monarch Butterfly (*Danaus plexippus*)	Known to Occur	*N/A*	exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	Migrate South for the Winter Usually in Late September and October
Rusty-patched Bumble Bee (Bombus affinis)	Known to Occur	*Species Protection Only*	generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows	Active from early Spring to late Fall
West Virginia White (Pieris virginiensis)	Known to Occur	*N/A*	generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor.	Adult butterfly emerges from pupa in late March; flies only in April and May

MAMMALS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events
Grey Fox (*Urocyon cineroargenteus*)	Suspected to Occur	*Species Protection Only*	generally prefers deciduous forests, marshes, swampy areas, and urban areas	Active Year Round

MOLLUSCS	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events

MOSSES	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events

PLANTS	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events

American Chestnut *(Castanea dentata)*	**Known to Occur**	*Species Protection Only*	found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Flowers occur in Late Spring and Early Summer
Butternut *(Juglans cinerea)*	**Known to Occur**	*Species Protection Only*	generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows	Flowers from April to June. Fruits reach maturity during the month of September or October
Cherry Birch *(Betula lenta)*	**Historically Known to Occur**	*Species Protection Only*	generally grows in moist, well-drained soils, but it is also found on coarse-textured or rocky shallow soils.	Flowering occurs in the spring, before the leaves appear
Cucumber Tree *(Magnolia acuminata)*	**Historically Known to Occur**	*Species Protection Only*	generally grows in rich, well-drained soils in deciduous forest habitats	Flowering occurs in late May Fruits appear in Late Summer
Eastern Flowering Dogwood *(Cornus florida)*	**Known to Occur**	*Habitat Regulations*	generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments; Also grows around edges and hedgerows	flowering occurs in mid-spring, just as the leaves begin to develop. Fruit turns red at the end of summer.
Red Mulberry *(Morus rubra)*	**Known to Occur**	*Species Protection Only*	generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; Can grow in open areas such as hydro corridors	Flowering occurs when leaves emerge in late spring. Fruit emerges in Mid-July.
Shumard Oak *(Quercus shumardii)*	**Known to Occur**	*N/A*	generally grows in deciduous forests, where the soils are poorly drained clay and clay loam. Requires full sunlight.	Acorns germinate easily in the spring

REPTILES		ESA Protection	**Key Habitats Used By Species**	**Timing Of Life History Events**
Blanding's Turtle *(Emydonidea blandingii)*	**Known to Occur**	*Species Protection Only*	generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Eggs are laid in June, with hatchlings emerging in late September and early October.
Eastern Ribbonsnake *(Thamnophis sauritus)*	**Suspected to Occur**	*N/A*	generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Hibernate: October - April Mating: Early Spring Hatching: Early Fall (September)
Milksnake *(Lampropeltis triangulum)*	**Known to Occur**	*N/A*	generally occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying.	Active at dawn and dusk in the spring and fall, and at night in the summer. Hibernate: Late October to Early May
Snapping Turtle *(Chelydra serpentina)*	**Known to Occur**	*N/A*	generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Nesting: Late May and June Hibernate: October - April

Appendix C
Qualifications of the Persons Conducting The Site Investigation

GEORGE BUCKTON

Ecologist

www.savanta.ca

SELECT PROJECT EXPERIENCE

- Evaluation and classification of headwater drainage features for the Heritage Heights Subwatershed Study, Brampton, ON.
- Environment Canada: Inventory of research needs identified in recovery planning documents for Species at Risk.
- State of Aggregate Resources in Ontario Study: Ecological Land Classification for MNR.
- Pinery Provincial Park: Species at Risk monitoring and mapping.
- Pinery Provincial Park: GIS analysis of the impact of roads and trails on fragmentation of Species at Risk habitat.
- Ontario Biodiversity Science Forum: Data collection and analysis of knowledge gaps of Ontario's biodiversity.
- Pinery Provincial Park: Development of a Species at Risk monitoring database.

INTRODUCTION

George Buckton focuses on projects in a variety of sectors including ecological restoration and management, and conventional development approval studies, such as environmental impact assessments, tree saving plans, and natural heritage baseline studies. He is certified in Ecological Land Classification, Wetland Evaluation, Vegetative Sampling Protocol, and Electrofishing, and is experienced with identification of terrestrial and emergent vegetation and Ontario fishes. George has experience evaluating and classifying headwater drainage features using the most up to date guidelines (2011) from Credit Valley Conservation and the Toronto and Region Conservation Authority.

George has completed numerous projects related to species at risk including rare flora and fauna monitoring and mapping, and the development of a species at risk database. For his Master of Forest Conservation final research paper, George researched biological information for selected species at risk, including habitat feature requirements, species ranges, and sensitivity to fragmentation. He then used ArcGIS mapping and statistical software to identify which roads and trails most impacted species at risk habitat loss and negative edge effects.

As a wildlife surveyor, George is experienced with identification of southern Ontario mammals, fishes, mollusks, and calling amphibians. He has participated in surveys for various species at risk plants including dwarf hackberry, butternut, Bluehearts, Pitcher's thistle, and dense blazing star, as well as species at risk mollusks such as Snuffbox, Northern Riffleshell, and Kidneyshell.

As assistant researcher to the Ontario Biodiversity Research Forum, George gained experience reviewing and writing reports on various biodiversity issues in Ontario, including biodiversity knowledge gaps and the impact of fire suppression in Ontario.

EDUCATION

- B.A. Honours Psychology, University of Western Ontario
- M.F.C., Master of Forest Conservation, University of Toronto

PROFESSIONAL AND OTHER AFFILIATIONS

- Field Botanists of Ontario, Member
- Kitchener-Waterloo Field Naturalists, Member

www.savanta.ca

CERTIFICATIONS & TRAINING

- Biodiversity Institute of Ontario, University of Guelph, Grass and Sedge Workshop
- University of Guelph Arboretum, Shrub Identification Workshop
- Class 2 Back Pack Electrofishing Crew Leader Certification
- OMNR Ecological Land Classification (ELC) Certification
- OMNR Wetland Evaluation System Certification
- OMNR Vegetation Sampling Protocol Certification
- Identification of Ontario Fishes Workshop
- Tropical Forest Conservation Field Course focusing on Rapid Biodiversity Assessment

EMPLOYMENT HISTORY

- Savanta Incorporated
  March 2009 – present: Ecologist
- Ontario Biodiversity Science Forum
  January 2009 – August 2009: Assistant Researcher
- Pinery Provincial Park
  June 2008 – September 2008: Natural Heritage Internship
- Thindata Incorporated
  April 2005 – July 2007: Senior Art Director

PETER BURKE

PROFILE

Extensive natural history knowledge of wildlife, insect, and vegetation communities within Ontario and beyond. Expert knowledge of birds across North, Central, and South America, including breeding bird surveys, bird banding expertise, bird field guide illustration, and bird tour leading. Expert knowledge of dragonfly and damselfly communities in Eastern Canada, including identification to species of both adults and larvae, and field guide illustration. Professional tour leader for Field Guides, Inc. Professional illustrator for various bird field identification guides, including National Geographic. Extensive work experience as a biologist and consultant for various industries, firms, and academic institutions over the last 25 years.

EXPERIENCE

CONTRACT BIOLOGIST, SAVANTA ASSOCIATES, ST. CATHARINES , ON

2010-2012

Completed site surveys for breeding birds and inventoried mammals, Lepidoptera, Odonata. Prepared comprehensive reports detailing species richness, densities and species of concern if present. Documented all non-avian species in annotated form. Prepared detailed reports summarizing species diversity and abundance across sites surveyed with specific information on COSEWIC and COSSARO candidate species as well as Significant Wildlife Habitat indicator species.

CONTRACT BIOLOGIST, AECON GROUP INC., CAMBRIDGE, ON

MAY-JULY 2012

Collection of field data and site surveys for breeding birds and inventoried mammals, Lepidoptera, Odonata and Herptiles in association with proposed Windfarm development and corridor. Documented all non-avian species in annotated form.

CONTRACT BIOLOGIST, GOLDER ASSOCIATES ,SUDBURY, ON

MAY 2012, JUNE-JULY 2011

Collected field data using helicopter access across a gradient of representative habitats in the Boreal Forest and Hudson Bay Lowlands. Used point count surveys to record breeding bird richness and densities and aerial surveys for raptors and caribou. Complied field data and logged Health & Safety Plan (HASP) daily. Gathered data on amphibian, mammalian, lepidopteran, and odonate communities.

CONTRACT BIOLOGIST, DOUGAN & ASSOCIATES , GUELPH, ON

JULY-AUG 2012

Field surveys on private corporation lands for Odonate populations, including collection of adult and larval forms. Field notes prepared for all observations and identification of larval to species level was provided.

WILDLIFE ILLUSTRATOR, SELF EMPLOYED 1994-present

Illustration of bird and Odonata for various field guides. Work includes National Geographic's Birds of North America (3rd 4th 5th Eds), Birds of Chile (Princeton U. Press), Birds of Peru (Princeton U. Press), Birds of Brazil, Land Manager's Guide to Conserving Forest Birds in Southern Ontario (Ontario, MNR), Blackbirds of the Americas: The Icterids (A &C Black Press, UK), The Dragonflies and Damselflies of Algonquin Provincial Park.

13 McKenzie Ave, London, Ontario N6C1V1 **T** 519-679-3551 **E** psburke@rogers.com

BIRDING TOUR GUIDE, FIELD GUIDES INC., AUSTIN, TEXAS, USA.
. and previously EAGLE-EYE TOURS, VANCOUVER, B.C. 1997- 2012

Primary and secondary leader for various birding tours across North and South America and the West Indies from Victoria Island to Tierra del Fuego. Identification of birds by sight and sound and navigation through remote areas. Prepare comprehensive trip reports. Ensure day to day logistics for up to 14 participants to ensure the tours run smoothly. Extensive interpersonal skills dealing with diverse clients 24-7. Provide organizational and logistical expertise throughout the tours which run up to 18 days. Extensive use of Spanish.

CONTRACT BIOLOGIST, GOLDER ASSOCIATES, OTTAWA, ON APRIL-NOV 2010

Collection of point count data to detect bird migration and breeding birds within proposed sites for Windfarm energy production in SW Ontario. Visits occurred throughout spring, summer and fall.

CONTRACT BIOLOGIST, NATURAL HERITAGE INFORMATION CENTRE,
MINISTRY OF NATURAL RESOURCES, PETERBOROUGH, ON JUNE 2004-SEP 2010

Surveyed for rare species of Odonata at numerous sites across Ontario by detection of adult and larval forms. Collected data on site specific information that described biotic and abiotic features. Specimens prepared for museum collection. Report that summarized all species recorded during the surveys.

CONTRACT BIOLOGIST, MNR/TRENT UNIVERSITY, LONDON, ON
MAY-JULY 2001- 2011

Participated in yearly breeding bird productivity monitoring studies. Found and monitored nesting success of forest birds in a hardwood community across several logging practices in Algonquin Park and public and private woodlots in SW Ontario. Included monitoring breeding success and banding an endangered species in Canada, Acadian Flycatcher. Collection of data included vegetation surveys to quantify territory and site level structural characteristics. Participated in salamander monitoring surveys using mark-recapture techniques and cover boards. Assisted in Southern Flying Squirrel trapping using mark-recapture and live traps at a variety of sites across southern Ontario.

CONTRACT BIOLOGIST, NATURAL HERITAGE INFORMATION CENTRE,
MNR, SYDENHAM/AUSABLE RIVERS, ON MAY-SEPT 2003

Surveyed for rare species of Odonata (Dragonflies and Damselflies) along the Sydenham and Ausable Rivers by detection of adult and larval forms. Collected data on site specific information that described biotic and abiotic features. Maintained records in excel spreadsheets. Specimens prepared for museum collection.

FIELD BIOLOGIST, BIRD STUDIES CANADA, L ONG POINT, THUNDER CAPE ON
MAY1991-NOV 1993

Mastered techniques of bird banding, migration monitoring at two bird observatories. Responsibilities included use of outboard motor & watercraft safety, camp maintenance and construction of field buildings. Participated in small mammal trapping to index diversity/abundance within our research station area.

BIOLOGY CONSULTANT, VARIOUS ORGANIZATIONS 1987-1991

Worked for a variety of organizations, including Canadian Forest Service, Canadian Wildlife Service, Environment Canada, Trent University conducting predominantly breeding bird surveys, including waterfowl surveys

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by helicopter, in various locations across southern and northern Ontario. Prepared reports. Conducted detailed vegetation surveys, including ELC survey work.

EDUCATION

UNIVERSITY OF GUELPH, GUELPH, ON BACHELOR OF SCIENCE, 1991

Completed a Biology degree at the University of Guelph, and an undergraduate thesis studying the effects of logging on two climax forest species in the Temagami area. Courses included natural history courses, including herpetology, ornithology, mammalogy, mycology and comprehensive insect identification course

WRITTEN AND ORAL COMMUNICATION SKILLS

Excellent written and oral communication skills through work as an interpretive naturalist, Field Guide leader, and on various bird committees. Regularly commended on excellent interpersonal and leadership skills by clients on all tours. Good writing and reviewing skills, including authorship/co-authorship of various bird identification articles. Well known and respected in the naturalist community, particular the birding and insect community. Highly organized, able to work under strict timelines to successfully complete tasks.

Burke, P. S., M. K. Peck, and D. A. Sutherland. Stilt Sandpiper. Pgs 244-245 *in* Cadman, M.D., D. A. Sutherland, G. G. Beck, D. Lepage, and A. R. Coutourier (eds.). 2007. Atlas of the Breeding birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto.

Burke, P. S., and D. A. Sutherland. Short-billed Dowitcher. Pgs 246-247 *in* Cadman, M.D., D. A. Sutherland, G. G. Beck, D. Lepage, and A. R. Coutourier (eds.). 2007. Atlas of the Breeding birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto.

Rewiever for: Burke, D, K. Elliott, K. Falk, T. Piraino. 2011. A Land Manager's Guide to Conserving Habitat for Forest Birds in Southern Ontario. Ont. Min.of Nat. Resourc., Science and Info. Sec. and Trent University. Tech. Rep. 132

Burke, P.S., M.E. Obbard, D.A. Sutherland, C.D. Jones, J.D. McCracken, R. Ridout. First Documented Nest of Stilt Sandpiper in Ontario. Ontario Birds 24 (2). pp. 75-83.

Burke, P.S., J.D. McCracken, C.D. Jones, D.A. Sutherland, M.E. Obbard, R.Ridout. First Documented Nests of Hoary Redpoll in Ontario. Ontario Birds (in prep.)

Jones, C.D. and P.S. Burke (2004). Mocha Emerald (Somatochlora linearis) new to Ontario and Canada. Ontario Odonata (5)

ADDITIONAL SKILLS

Strong natural history background of plant and wildlife communities within Ontario. Expert knowledge of birds across North and South America. Expert knowledge of butterflies, dragonflies and damselfies across Ontario, and much of eastern N. Am. Served as Chair for the Ontario Bird Records Committee in 2001. Creation of a Listserve for public use of natural history observations in Middlesex, Oxford and Elgin Counties, 2009. Excellent interpersonal skills acquired through work as a naturalist and bird tour leader. World renowned illustrator for bird identification guides. Excellent physical condition, strong navigational skills, strong computer skills and use of data processing, data management, word processing on PC and Mac.

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REFERENCES

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Appendix D
Field Notes Kept by the Person Conducting the Site Investigation

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: GRIMSBY DIGESTER			POLYGON: CUM 1-1
SURVEYOR(S): G. BUCKTON	DATE: JULY 5, 2012	TIME: start	11:00
		finish	12:00
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	COVER	☒ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☐ TABLELAND	☒ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☒ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☐ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☒ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☒ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY	3	1	Green Ash = American elm
3	UNDERSTOREY	4	1	Grey dogwood > Hawthorn sp.
4	GRD. LAYER	5/6	4	Kentucky bluegrass > quackgrass = tall goldenrod = crown vetch

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	N	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-moist old field meadow	CUM 1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: GRIMSBY DIGESTER
POLYGON: Cum 1-1
DATE: July 5, 2012
SURVEYOR(S): E. Buchan.

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
Green Ash			R		
American elm			R		
Grey dogwood			R		
Hawthorn sp			R		
Vitis riparia			R		
Eastern red cedar			R		

SPECIES CODE	LAYER 1	2	3	4	COL.
Solidago altissima				A	
new england aster				O	
prickly cucumber				R	
teasel				O	
orchard grass				O	
quack grass				R	
timothy				O	
awnless brome				A	
Crown vetch				A	
birds foot trefoil				O	
common ragweed				R	
Sow this tle				R	
Solidago canadensis				O	
wild carrot				A	
bull thistle				O	
Viper's bugloss				R	
white clover				A	
Kentucky bluegrass				A	
reed canary grass				A	
common plantain				O	
dandelion				R	
common milkweed				R	
chamomile				R	
Canada thistle				O	
common burdock				R	
Reptop				D	

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: GRIMSBY DIGESTER			POLYGON: MAM2-2
SURVEYOR(S): G. BUCKTON	DATE: July 5, 2012	TIME: start	12:30
		finish	13:00
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☒ RIVERINE	☒ CULTURAL (along drainage)	☐ SUBMERGED	☐ POND
☒ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	**COVER**	☐ FORB	☒ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
☐ OPEN WATER		☐ ROLL. UPLAND	☒ OPEN	☐ BRYOPHYTE	☐ FEN
☒ SHALLOW WATER		☐ CLIFF	☐ SHRUB	☐ DECIDUOUS	☐ BOG
☐ SURFICIAL DEP.		☐ TALUS	☐ TREED	☐ CONIFEROUS	☐ BARREN
☐ BEDROCK		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	5/6	4	Reed canary grass >> Kentucky bluegrass = common milkweed = wild teasel

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

		< 10		10 - 24		25 - 50		> 50
SIZE CLASS ANALYSIS:								
STANDING SNAGS:								
DEADFALL / LOGS:								

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH
COMM. AGE :					X					

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Reed-canary grass mineral meadow marsh	MAM2-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Grimsby Digester
POLYGON: WMAM 2-2
DATE: July 5, 2012
SURVEYOR(S): G. Buchton

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
Reed canary grass				D	
Kentucky bluegrass				O	
Sonchus arvensis				R	
Common milkweed				R	
Solidago altissima				R	
common plantain				R	
wild teasel				O	
dandelion				R	
broad leaved cattail				R	

SPECIES CODE	LAYER 1	2	3	4	COL.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Grimsby Digester			POLYGON: OAO
SURVEYOR(S): G. Bickerton	DATE: July 5, 2012	TIME: start	13:00
		finish	13:30
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☒ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☐ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☒ POND
☒ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	**COVER**	☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
☒ OPEN WATER		☒ ROLL. UPLAND	☒ OPEN	☐ BRYOPHYTE	☐ FEN
☐ SHALLOW WATER		☐ CLIFF	☐ SHRUB	☐ DECIDUOUS	☐ BOG
☐ SURFICIAL DEP.		☐ TALUS	☐ TREED	☐ CONIFEROUS	☐ BARREN
☐ BEDROCK		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY	3	1	Green ash
3	UNDERSTOREY	4	1	willow sp.
4	GRD. LAYER	5/6	4	Reed canary grass > Kentucky bluegrass > broad leaved cattail = narrow leaved cattail

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	R	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Open aquatic	OAO
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Grimsby Digester
POLYGON: OAO
DATE: July 5, 2012
SURVEYOR(S): G. Buckton

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
Green ash		R			
Willow sp			R		

SPECIES CODE	LAYER 1	2	3	4	COL.
Reed canary grass				D	
Kentucky bluegrass				O	
Broad leaved cattail				R	
Narrow leaved cattail				R	
Sonchus arvensis				R	
dandelion				R	
Tall goldenrod				R	
wild carrot				R	
wild teasel				R	
awnless brome				R	

July 5, 2012
Grimsby Digester
Sunny & partially cloudy 25°C, winds 1

9:36 Reptiles
Pond – ∅ Incidental RWBL
Drainage Swale ∅
Sobie Rd – ∅

No suitable basking logs/rocks in swale or pond.

13:34 Transects

A – Raccoon II, GRFR 1
B – ∅
C – WTDE III
D – ∅
E – ∅
F – Raccoon 1
G – ∅

15:00 Aquatic Habitat (Drainage) (N-S)
- Approx 5m wide (bankfull width)
- Channel undefined no water, silty clay soil
- drains into transmission tower field & RV
- plastic culvert (small) under Sobie Rd
- downstream joins Wetland
- Riparian veg
  - tall goldenrod - poa pratensis
  - cream vetch - young grass + elm

In-stream Veg
- RCG - milfoil (common)
- poa pratensis - teasel

Spring Creek (E-W)

- 2m bankfull width
- 1m bankfull height
- mucky bottom
- Riparian veg
  - silver maple - sensitive fern
  - green ash
  - jewelweed

- In-stream Veg
  - cattails
  - jewelweed

- Raccoon tracks III

Scale: 1 square = _____

July 5, 2012 Transient Locations

GRIMSBY ENERGY INC.
442 SOBIE RD.

FIGURE 2
SITE AREA

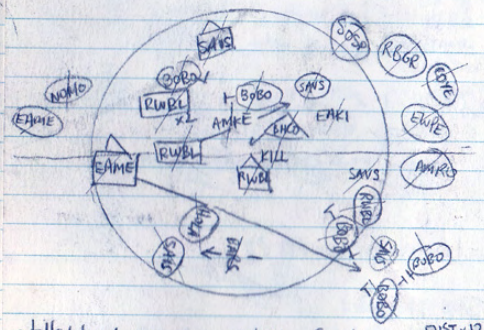
Riepma CONSULTANTS INC.
R R 1, Georgetown, Ontario L7G 4S4

28

JUNE 5

start 112262 km end 112598 km
7200 drive start 0900 end drive 1313
Grimsby - Sobie Rd
mostly clear, wind NW 2 9°

LMK 168 0551 - roadside
PC 1



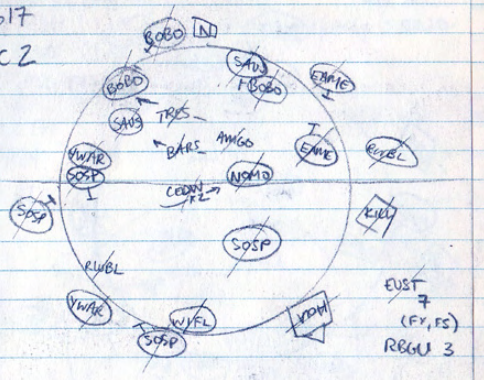
- tilled land, row crop; pasture S side. EUST x12 (FY, FS)
- old field N side

EAME 3	BOBO 5	BARS 1	EAKI 1	EWPE 1	SOSP 1	
NOMO 1	AMKE 1	KILL 1	SAVS 6	COVE 1	EUST 12	
RWBL 6	HOLA 1	BHCO 1	AMRO 1	RBGR 1		

29

BOBO 3	TRES 1	EAME 2	YWAR 2	NOMO 1		
SAVS 2	BARS 1	AMGO 1	RWBL 2	KILL 1		
SOSP 4	WIFL 1	HOLA 2	CEDW 2			
EUST 7	RBGU 3					

LMK 169
0617
PC 2



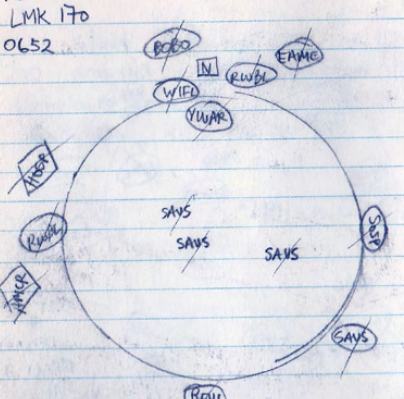
- tilled field, old meadow (landfill), hedgerow. S side
- old/fallow field N side

PIWO (1) q flew out of woodlot and over property to W
NOMO (1) agitated in Red Cedars along E edge of landfill

30

SAVS 4	EAME 1	HOSP 1	REVI 1		
BOBO 1	WIFL 1	YWAR 1			
RWBL 2	AMGR 1	SOSP 1			

PC 3
LMK 170
0652



- old landfill reclab - grasses, legumes, garlic mustard, dogwood

- AMKE ♂ S end of landfill, hovering TUVU, WAVI 6M)

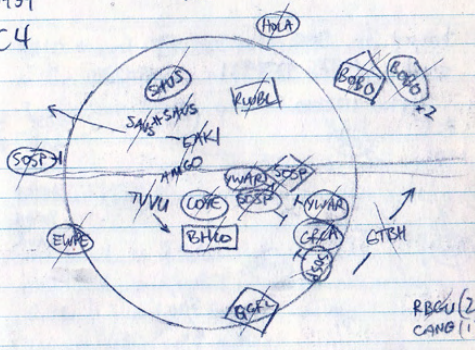
17 618511 4778051 RWBL nest 4 nestlings in Garlic Mustard
- AMKE ♂ carrying food along woodlot edge
- BLJA - nest likely in cavity along edge.

Leopard Frog - (1) large adult SW corner/landfill

31

Tramea lacerata (1)
INBU (1) SM woodlot/landfill edge SW corner
RBWO (1) SH
CANG (7) molt migrants

LMK 171
0734
PC 4



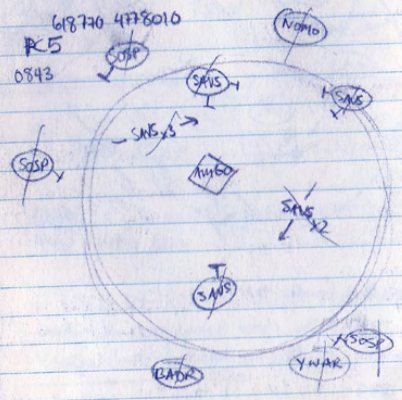
- field of planted timothy N side
- woodlot, open canopy, closed canopy, hardwood mature
- Ms, Ow, Hp, Aw, Ew; dogwood shrub layer

BOBO 3	EAKI 1	BHCO 1	TUVU 1	CANG 1			
HOLA 1	YWAR 2	GCFL 1	GTBH 1				
SAVS 3	AMGO 1	GRCA 1	SOSP 4				
RWBL 1	EWPE 1	COVE 1	RBGU 2				

- old field S of southern border:
WTDE Inornate Ringlet (5) Least Skipperling (1)
European Skipper (1)

KILL (P) in row crop 20 m east of E border
AMRO (P) " " " " " " " "

transect for SAR grassland spp.
start: 618971 4777931 0802



SOSP 3
SAVS 8
NOMO 1
AMGO 1
YWAR 1
BABR 1

timothy field ± 1m height, sparse to bare ground coverage of herb layer. Some legume, clover, campion, daisy

Libellula pulchella (2)
Tramea lacerata (1)
Libellula luctuosa (1)
PUMA (1) ♀ flyover Euro Skipper (1)
BARS (1) foraging over field. Inornate Ringlet (12)
end transect 618639 4778084 0833

NOMO * nest 618663 4778277
- in Cr .05m high, in 1.75 m tree.
- 3 eggs; no BHCO ♀ incubating.
0917

RWBL - nest; fledged.
0953
Farm pond N of Sobie Rd - 618985 4778358
- grass lined, some cattail in wet channels coming in.
- RWBL - 3 nests; 1 fledging. 2 w eggs
- Ise ver (±8); ♂,♀ mixture
Ena ant (±10) ♂,♀, mature
- leopard Frog (±5) Inornate Ringlet
- sign of Muskrat - common (>15)
- chimney crayfish burrows (±25 casual search)
EAME 1 pr flushed from fields
BOBO - several ♂♂ displaying
RTHA - adult flying over plot

BARS - (1) ♂ foraging over fields S of Sobie
AMKE (1) - " " " " "

SAR species.

EAME: detected on the property ~~on~~ on a couple of occasions, both during PC's along Sobie Rd. Also detected off the plot to the north of Sobie Rd. and to the east on adjacent pasture for livestock.
- At one point a ♂♀ pair was perched in the tilled field close to Sobie Rd., then they both flushed and flew to the pasture to the E of the plot; where they disappeared from view.
- none detected on transect or while walking the plot and using playback.
- probably use the plot to forage in but not for breeding.

BOBO: - detected on PC on the property and while walking on the plot.
- Also detected in timothy field on S side of plot during PC. (several ♂, 1 ♀)
- not detected on transect through timothy.
- birds are using the adjacent pasture to the E and the land in the transmitter towers for breeding. Probably use the property for foraging, but not for breeding.

BARS: several detected on PC and while walking the property.
- all foraging over grass or tilled ground
- no suitable structures for breeding on the property.
- probably breeding at farms adjacent to property.

depart: 1137

Appendix E
Plant Species List

SPECIES LATIN NAME	SYNONYMS	SPECIES COMMON NAME	Coefficient of **Conservatism**	**Wetness** Index	**Weediness** Index	**Provincial** Status S-Rank	**OMNR** Status	**COSEWIC** Status	**Global** Status G-Rank	Local Status **Niagara**	Local Status **Hamilton**	Authority
REFERENCE											Goodban 2003	
GYMNOSPERMS		**CONIFERS**										
Cupressaceae		**Cedar Family**										
Juniperus virginiana		Eastern Red Cedar				S5			G5	X	X	L.
Thuja occidentalis		Eastern White Cedar	4	-3		S5			G5	X	X	L.
DICOTYLEDONS		**DICOTS**										
Apiaceae		**Carrot or Parsley Family**										
Daucus carota		Wild Carrot		5	-2	SE5			G?	I	I	L.
Asclepiadaceae		**Milkweed Family**										
Asclepias syriaca		Common Milkweed	0	5		S5			G5	X	X	L.
Asteraceae		**Composite or Aster Family**										
Ambrosia artemisiifolia		Common Ragweed	0	3		S5			G5	X	X	L.
Arctium minus ssp. minus		Common Burdock		5	-2	SE5			G?T?	I	I	(Hill) Bernh.
Symphyotrichum novae-angliae	*Aster novae-angliae*	New England Aster	2	-3		S5			G5	X	X	L.
Cirsium arvense		Canada Thistle		3	-1	SE5			G?	I	I	(L.) Scop.
Cirsium vulgare		Bull Thistle		4	-1	SE5			G5	I	I	(Savi) Ten.
Matricaria perforata		Scentless Chamomile		5	-1	SE?			G?		I	Mérat
Solidago altissima var. altissima		Tall Goldenrod	1	3		S5				X	X	L.
Solidago canadensis		Canada Goldenrod	1	3		S5			G5	X	X	L.
Sonchus arvensis ssp. arvensis		Field Sow-thistle				SE5			G?T?	I	I	L.
Taraxacum officinale		Common Dandelion		3	-2	SE5			G5	I	I	G. Weber
Boraginaceae		**Borage Family**										
Echium vulgare		Blueweed		5	-2	SE5			G?	I	I	L.
Cornaceae		**Dogwood Family**										
Cornus foemina ssp. racemosa		Red Panicled Dogwood	2	-2		S5			G5?	X	X	Miller
Cucurbitaceae		**Gourd Family**										
Echinocystis lobata		Prickly Cucumber	3	-2		S5			G5	X	X	(Michx.) Torr. & A
Dipsacaceae		**Teasel Family**										
Dipsacus fullonum ssp. sylvestris		Wild Teasel		5	-1	SE5			G?T?	I	I	L.
Fabaceae		**Pea Family**										
Coronilla varia		Variable Crown-vetch		5	-2	SE5			G?	I	I	L.
Lotus corniculatus		Bird's-foot Trefoil		1	-2	SE5			G?	I	I	L.
Trifolium repens		White Clover		2	-1	SE5			G?	I	I	L.

SPECIES LATIN NAME	SYNONYMS	SPECIES COMMON NAME	Coefficient of **Conservatism**	**Wetness** Index	**Weediness** Index	**Provincial** Status S-Rank	**OMNR** Status	**COSEWIC** Status	**Global** Status G-Rank	Local Status **Niagara**	Local Status **Hamilton**	Authority
REFERENCE											Goodban 2003	
Oleaceae		**Olive Family**										
Fraxinus pennsylvanica		Red Ash	*3*	*-3*		*S5*			*G5*	*X*	*X*	Marshall
Plantaginaceae		**Plantain Family**										
Plantago major		Common Plantain		*-1*	*-1*	*SE5*			*G5*	*I*	*I*	L.
Rhamnaceae		**Buckthorn Family**										
Rhamnus cathartica		Common Buckthorn		*3*	*-3*	*SE5*			*G?*	*I*	*I*	L.
Rosaceae		**Rose Family**										
Crataegus species		Hawthorn species										
Salicaceae		**Willow Family**										
Salix species		Willow species										
Ulmaceae		**Elm Family**										
Ulmus americana		White Elm	*3*	*-2*		*S5*			*G5?*	*X*	*X*	L.
Vitaceae		**Grape Family**										
Vitis riparia		Riverbank Grape	*0*	*-2*		*S5*			*G5*	*X*	*X*	Michx.
Poaceae		**Grass Family**										
Agrostis stolonifera		Redtop		*-3*		*S5*			*G5*	*X*	*X*	L.
Bromus inermis ssp. inermis		Awnless Brome		*5*	*-3*	*SE5*			*G4G5T?*	*I*	*I*	Leyss.
Dactylis glomerata		Orchard Grass		*3*	*-1*	*SE5*			*G?*	*I*	*I*	L.
Elymus repens		Quack Grass		*3*	*-3*	*SE5*			*G?*	*I*	*I*	(L.) Gould
Phalaris arundinacea		Reed Canary Grass	*0*	*-4*		*S5*			*G5*	*X*	*X*	L.
Phleum pratense		Timothy		*3*	*-1*	*SE5*			*G?*	*I*	*I*	L.
Poa pratensis ssp. pratensis		Kentucky Bluegrass	*0*	*1*		*S5*			*G5T*	*X*	*I*	L.
Typhaceae		**Cattail Family**										
Typha angustifolia		Narrow-leaved Cattail	*3*	*-5*		*S5*			*G5*	*X*	*X*	L.
Typha latifolia		Broad-leaved Cattail	*3*	*-5*		*S5*			*G5*	*X*	*X*	L.

STATISTICS

Species Richness		
Total Number of Species:	**35**	
Native Species:	**17**	**49%**
Exotic Species	**18**	**51%**
S1-S3 Species	**0**	**0%**

SPECIES LATIN NAME	SYNONYMS	SPECIES COMMON NAME	Coefficient of **Conservatism**	**Wetness** Index	**Weediness** Index	**Provincial** Status S-Rank	**OMNR** Status	**COSEWIC** Status	**Global** Status G-Rank	Local Status **Niagara**	Local Status **Hamilton**	Authority
REFERENCE											Goodban 2003	
S4 Species			0	0%								
S5 Species			17	100%								
Floristic Quality Indices												
Mean Co-efficient of Conservatism (CC)			1.6									
CC 0 - 3 lowest sensitivity			13	93%								
CC 4 - 6 moderate sensitivity			1	7%								
CC 7 - 8 high sensitivity			0	0%								
CC 9 - 10 highest sensitivity			0	0%								
Floristic Quality Index (FQI)			6									
Weedy and Invasive Species												
Mean Weediness Index			-1.7									
-1 low potential invasiveness			8	47%								
-2 moderate potential invasiveness			6	35%								
-3 high potential invasivenss			3	18%								
Wetland Species												
Mean Wetness Index			1.4									
upland			8	25%								
facultative upland			11	34%								
facultative			3	9%								
facultative wetland			9	28%								
obligate wetland			1	3%								

Appendix F
NPCA Email Correspondence

From: Mastroianni, Sarah [mailto:smastroianni@npca.ca]
Sent: Wednesday, May 23, 2012 2:36 PM
To: 'Clare Riepma'
Subject: RE: Grimsby Digester

Hi Clare,

Yes, NPCA staff did conduct a site visit to the subject lands and would note that the watercourse adjacent to the proposed digester is not indicative of a classic Type 2 Important Fish Habitat. Having said that, we still require a setback from the edge of the watercourse for all proposed works, including site alterations. Your inquiry to us suggested that you would like to reduce the required buffer of 15m from the banks of the watercourse down to 3m to allow for the placement of fill in this area to accommodate the proposed anaerobic digester. Please be advised that given the nature of the watercourse on site and the nature/scope of the proposed development, the NPCA is agreeable to allowing the proposed grading works up to 3m from the banks of the watercourse subject to the following conditions:

- Adequate sediment and erosion controls be installed prior to the commencement of any works on site and be maintained in good working order until the works are completed and the site have been revegetated. At no time shall muddy water or debris be allowed to discharge from the site into the adjacent watercourse.

- The remaining lands between the watercourse and the proposed works be adequately revegetated (preferably with native plantings) and left as an untouched, undisturbed vegetated buffer.

- All areas are reestablished immediately upon completion of the works.

Lastly, as a note, while on site, we noticed that there were several

monitoring wells, most likely related to the use of the adjacent property. While not regulated by the NPCA, we would suggest that you confirm these monitoring wells will not be negatively impacted by this project.

I trust the above is sufficient. Please let me know if you have any questions.

Sarah

Sarah Mastroianni
Planning Approvals Analyst
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email: smastroianni@npca.ca

From: Mastroianni, Sarah [mailto:smastroianni@npca.ca]
Sent: Thursday, May 24, 2012 10:40 AM
To: Clare Riepma (riepma@riepma.ca)
Subject: Proposed Digester 442 Sobie Road Grimsby

HI Clare,

Further to my last email to you. I had the Fish and Wildlife Technician review the proposal and list some mitigative measures that should be implemented. The following are the mitigative measures that shall be implemented for this proposal (some of which may be repetitive from the previous email):

- Silt fencing must be installed along the creek
- A vegetation buffer strip-that is left to naturalize must be left

between the creek and the area of the fill

- Fill to be place up to where the existing field is now- which is approximately 3 to 4 metres away from the creek.
- All works should be conducted during dry conditions. At no time shall muddy water be allowed to discharge from the site.
- Sediment and erosion control measures should be implemented prior to work, and maintained during the work phase to prevent the discharge of sediment or debris into the water course
- All disturbed areas should be stabilized and re-vegetated as required upon completion of work and restored to a pre-disturbed state or better
- Sediment and erosion control measures should be left in place until all disturbed areas have been stabilized
- All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris, etc.) from entering the water course.
- Any stockpiled materials should be stored and stabilized away from the water course
- Vehicle and equipment re-fuelling and maintenance should be conducted away from the water course
- Any equipment maintenance and refueling operations shall be set back sufficiently to prevent spills from entering the watercourse
- Absolutely no fill materials of any kind generated from this project, or from another site (including but not limited to: fill, garbage, grass clippings, construction material/waste equipment, etc.) are to be placed or temporarily stored within the water course
- Absolutely no site alterations (including but not limited to: disturbance to the existing grades, etc.) are to occur within the 3 to 4 metres next to the water course or the water course itself.

Please let me know if you have any questions.

Sarah

Sarah Mastroianni
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Appendix G
Photographic Record

Image 1: View of ploughed field on Subject Lands.

Image 2: View of north-south unnamed drainage located immediately west of Subject Lands.

Figure 3: Another view of north-south unnamed drainage located immediately west of Subject Lands.

Image 4: View of plastic/rubber culvert under Sobie Road, for north-south unnamed drainage located immediately west of Subject Lands.

Image 5: View of top of cultural meadow growing over top of closed landfill, located west of Subject Lands.

PHOTOGRAPHIC RECORD

SAVANTA

Image 6: Small man-made pond located immediately north of Sobie Road, across from Subject Lands.

Image 7: View of Spring Creek located approximately 500 metres south of Subject Lands.

Image 8: Another view of Spring Creek.

Image 9: View of interior of Spring Creek Woodlots wetland.

Image 10: View of radio transmission tower fields, located north of Sobie Road, across from Subject Lands.

PHOTOGRAPHIC RECORD

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