

Terms of Reference for the Environmental Assessment of the Proposed Expansion of the Eastern Ontario Waste Handling Facility

May 2015



Lafleche Environmental Inc.

Table of Contents

Contents

1	<i>Introduction and Background</i>	1
2	<i>The Proponent</i>	2
3	<i>How the Environmental Assessment will be Prepared</i>	3
3.1	<i>Preparation of the Terms of Reference</i>	3
3.2	<i>Flexibility of the Terms of Reference</i>	3
3.3	<i>Preparation of the EA</i>	4
4	<i>Purpose of the Proposed Undertaking</i>	4
5	<i>Rationale and Description of the Undertaking</i>	5
5.1	<i>Rationale for the Proposed Undertaking</i>	5
5.2	<i>Contribution to Climate Change and GHG Reduction</i>	8
6	<i>Consideration of Alternatives to the Undertaking</i>	9
7	<i>Identification of Alternative Methods</i>	12
7.1	<i>Alternative 1</i>	12
7.2	<i>Alternative 2</i>	13
8	<i>Description of the Environment and Potential Effects</i>	14
8.1	<i>Study Areas</i>	14
8.2	<i>Existing Conditions by Environmental Component</i>	15
8.2.1	<i>Natural Environment</i>	15
8.2.2	<i>Built Environment</i>	17
8.2.3	<i>Cultural Environment</i>	17
8.2.4	<i>Socio-Economic Environment</i>	18
8.2.5	<i>Design and Operations</i>	18
9	<i>Environmental Assessment Methodology</i>	19
9.1	<i>Description of the Existing Environment</i>	19
9.2	<i>Description of the Alternative Methods</i>	19
9.3	<i>Predict Potential Environmental Effects for Each Alternative Method</i>	19
9.4	<i>Identification of the Preferred Alternative</i>	19
9.5	<i>Effects Assessment of the Preferred Alternative</i>	20
10	<i>Consultation</i>	20

10.1	<i>Summary of Consultation Activities on the ToR</i>	20
10.2	<i>Proposed Consultation Program for EA</i>	21
10.3	<i>Aboriginal Engagement during EA</i>	23
11	<i>Commitments and Monitoring Strategy</i>	23
12	<i>Other Approvals</i>	23

List of Tables

<i>Table 1: Application of Screening Criteria for Alternatives To</i>	9
---	---

List of Figures

<i>Figure 1: Location of the Proposed Undertaking</i>	1
<i>Figure 2: Layout of Eastern Ontario Waste Handling Facility</i>	6
<i>Figure 3: Ontario Division – Services and Facilities</i>	7
<i>Figure 4: Proposed Expansion Alternative #1</i>	122
<i>Figure 5: Proposed Expansion Alternative #2</i>	133
<i>Figure 6: EA Study Areas</i>	144

List of Appendices

- A. *Glossary of Terms*
- B. *Proposed Evaluation Criteria, Indicators, and Data Sources*

Supporting Documents

Supporting Document #1 – Record of Consultation

1 Introduction and Background

Lafleche Environmental Inc. (Lafleche) is proposing to undertake an Environmental Assessment (EA) for additional landfill disposal capacity at its Eastern Ontario Waste Handling Facility (EOWHF).

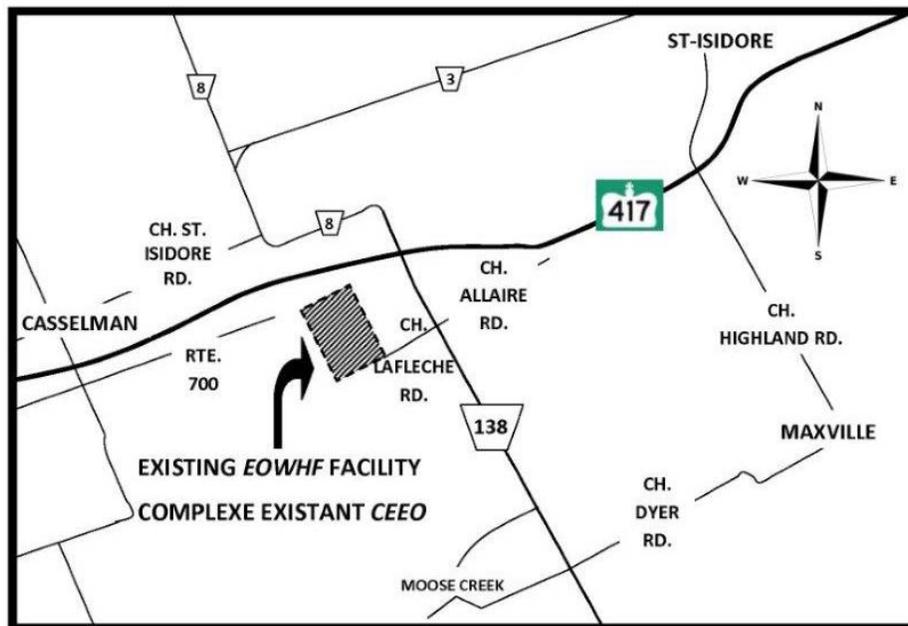
The existing EOWHF is located on the western half of Lot 16 and Lots 17 and 18, Concession 10, Township of North Stormont, United Counties of Stormont, Dundas and Glengarry, near the intersection of Highway 417 and Highway 138. The municipal street address for the facility is 17125 Lafleche Road, Moose Creek, Ontario.

The EOWHF encompasses a site area of 189 hectares which includes the following waste management related activities and services:

- 66 hectare landfill site;
- composting facility;
- waste transfer and processing station;
- waste water treatment facility;
- small vehicle waste drop off;
- landfill gas to energy facility;
- Ontario Electronic Stewardship (OES) drop off;
- Ontario Tire Stewardship (OTS) drop off; and,
- supporting facilities (office, vehicle maintenance).

The location of the EOWHF is shown in **Figure 1**.

Figure 1: Location of the EOWHF and Proposed Undertaking



The existing EOWHF landfill was previously approved under the Ontario Environmental Assessment Act in 1999 and is operated by Lafleche under the Ministry of the Environment and Climate Change Environmental Compliance Approval (ECA) A420018. The landfill is one of several integrated services offered by the company at the EOWHF. The landfill is approved to accept solid non-hazardous municipal, industrial, commercial and institutional wastes generated within the Province of Ontario for disposal. The landfill has a permitted annual fill rate of 755,000 tonnes per year and an average daily fill rate of 2,500 tonnes per day. Additional waste quantities are accepted at the EOWHF composting facility.

Since approval in 1999, Lafleche has developed a positive relationship with the surrounding community. Lafleche actively communicates with its neighbours to address any potential issues or complaints received and also participates in Community Liaison Committee meetings. To date, there have been very few complaints or issues expressed by the community related to the operation of the EOWHF.

The operations at the EOWHF are also integrated with the company's network of waste transfer facilities in Eastern Ontario. Lafleche owns and operates three regional transfer stations located in the Eastern Ontario communities of Russell, Beckwith and Belleville. These facilities provide convenient waste management services to the residential and non-residential sectors and facilitate Lafleche's collection activities for surrounding municipalities.

2 The Proponent

Lafleche Environmental Inc. is the proponent of this proposed undertaking.

The Lafleche contact for this project is:

*Mr. Brian King, President
Lafleche Environmental Inc.
17125 Lafleche Road, Moose Creek, Ontario K0C 1W0
Telephone: 613-538-2776 ext. 226 Fax: 613-538-2779
Email: bking@leic.com*

Lafleche Environmental Inc. is a subsidiary of TransForce Inc., a North American leader in the transportation and logistics industry. Lafleche is the operating company responsible for the development and operation of waste management facilities and infrastructure. The company operates primarily in Eastern Ontario. Matrec Inc., another subsidiary of TransForce, is the operating company responsible for residential and IC&I recyclables, organics and waste collection. Lafleche and Matrec form the Environmental Services sector of Transforce in Ontario. These companies offer a robust complement of waste management services including collection, transport, composting, recycling and disposal of residential and commercial waste. Lafleche and Matrec operate as partners utilizing each other's facilities to offer a complete suite of services to their customers.

Lafleche and Matrec combined employ approximately 60 people through their operating locations in Eastern Ontario. The EOWHF employs approximately 40 people.

3 How the Environmental Assessment will be Prepared

The following sections present a description of the how the Terms of Reference (ToR) were prepared, the flexibility of the ToR and the preparation of the Environmental Assessment (EA).

3.1 Preparation of the Terms of Reference

Lafleche has complied with the Ministry of Environment and Climate Change (MOECC) Code of Practice for Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (January 2014) when preparing this ToR. The consultation program has been undertaken in accordance with the MOECC Code of Practice, Consultation in Ontario's Environmental Assessment Process (January 2014). In addition, the requirements of the MOECC's Guide to Environmental Assessment Requirements for Waste Management Projects in Ontario (March 2007) has also been addressed.

The Notice of Commencement for the ToR was published on February 11, 2015.

Lafleche has prepared these Terms of Reference (ToR) in accordance with subsection 6(2)(c) of the Ontario Environmental Assessment Act (OEAA) which allows Lafleche to set out in detail the requirements for preparation of the Environmental Assessment (EA). Lafleche plans to proceed under subsection 6(2)(c) and 6.1(3) of the OEAA, which allows proponents to focus the EA and consideration of alternatives to address their specific needs and circumstances. The ToR was prepared following consultation with Aboriginal communities and stakeholders as required by Section 6(3) of the OEAA. The proposed undertaking is designated under Regulation 101/07 of the OEAA.

*A glossary of acronyms and terms used in the ToR is included in **Appendix A**.*

3.2 Flexibility of the Terms of Reference

If approved by the Minister of the Environment and Climate Change, this ToR will provide the framework for preparing the EA Report. The ToR is not intended to present every detail of all the activities that will occur when preparing the EA. It is possible that in carrying out the work described in this ToR, minor variations to methodologies may be necessary. These variations may include, but are not limited to:

- modifications to the local study area to suit the requirements of each environmental component;*
- modifications to the alternatives considered;*
- modifications to studies or additional / expanded studies due to variations in the degree of environmental impact assumed at the time of preparation of this ToR or due to content and quality of information available;*
- modifications to the consultation plan; and,*
- any other modifications required or available through changes to Acts or Regulations.*

These examples are not intended to be exhaustive; they are simply meant to set out the types of changes that may be considered minor and that could be accommodated within the framework of the ToR. The MOECC will be consulted in the event of uncertainty whether a proposed change should be considered minor and accommodated within the approved ToR.

3.3 Preparation of the EA

Following approval of the ToR by the Minister of the Environment and Climate Change (the Minister), Lafleche will prepare the EA in accordance with the requirements of the approved ToR and OEAA and submit to the Minister for review and approval. The EA will include:

- *A description of the purpose of the undertaking, as described in **Section 4** of these ToR.*
- *A description of the undertaking based on the consideration of alternative methods, as described in **Section 5** of these ToR.*
- *The rationale for the undertaking, as described in **Section 5** of these ToR.*
- *A description of the environment potentially affected by the undertaking. The description in **Section 8** of the ToR will be expanded.*
- *An assessment of the alternative methods of carrying out the undertaking based on the methodology outlined in **Section 9** of these ToR. Lafleche intends to consider the alternatives described in **Section 7**.*
 - *A description of the effects that will be caused or that might reasonably be expected to be caused on the environment by the undertaking or the alternative methods.*
 - *A description of the mitigation measures that are necessary to prevent or reduce significant adverse effects on the environment.*
 - *An evaluation of the advantages and disadvantages to the environment as a result of the undertaking.*
- *A description of the consultation process undertaken by Lafleche for the EA.*

4 Purpose of the Proposed Undertaking

The proposed undertaking is to develop the remaining areas of the existing landfill – Stages 3B and 4. The development of these stages will provide approximately 4.2 million m³ of landfill disposal capacity and extend the operating life of the landfill by approximately 10 years.

The proposed undertaking will be within the existing EOWHF site boundaries allowing Lafleche to continue its existing integrated business operations at this site which are closely linked to the landfill operation. In addition, the additional capacity will also allow Lafleche to honour existing long term contracts which extend beyond the current estimated life of the remaining approved disposal capacity.

The purpose of the proposed undertaking will be refined during the EA.

5 Rationale and Description of the Undertaking

Lafleche understands there is an ongoing need to continue to develop the existing EOWHF landfill to its originally planned site capacity for the following reasons:

- Lafleche can continue to provide its customer base with an integrated set of services including collection, transfer, processing and disposal in a reliable and cost effective manner;
- long term contractual obligations to municipalities across Ontario can be honoured and fulfilled;
- the Province's waste diversion programs and objectives will be supported; and,
- environmental impacts of GHG emissions will be minimized through reducing the number of waste related trucks hauling material long distances, diversion of organic material and composting, closure of small landfill sites without gas collection systems, and the capture of methane gas and generation of green energy at the EOWHF.

The following provides an overview of the rationale for, and description of, the proposed undertaking, including a discussion of the contributions of the undertaking to climate change and greenhouse gas (GHG) reduction.

5.1 Rationale for the Proposed Undertaking

The existing Eastern Ontario Waste Handling Facility (EOWHF) landfill site was approved in accordance with the requirements of the Ontario Environmental Assessment Act and Ontario Environmental Protection Act (EPA) in 1999.

The approved Environmental Assessment document and supporting design and operation report prepared in 1998 identified the development of the EOWHF landfill in two phases through four stages. The total capacity of the landfill would be approximately 11.6 million cubic metres (m^3) when fully developed. The two landfill development phases and associated stages are:

- **Phase 1** - approved in 1999, including Stages 1 to 3A, with a total capacity of 7.4 million m^3 .
- **Phase 2** – considered during the original EA process for the future development of Stages 3B and 4, providing approximately 4.2 million m^3 of landfill disposal capacity. MOECC approved the landfilling of Stages 1, 2, and 3A with the requirement to obtain authorization for landfilling in Stages 3B and 4 when required. The approval for Stages 3B and 4 was not given as part of the initial EA due to the owner's brief experience in landfill operations. Lafleche has the proven track record of excellence in landfill, compost, wastewater treatment and co-generation operation and is now proposing the development of Stages 3B and 4. **Figure 2** illustrates the layout of the four stages and the associated on-site infrastructure at the EOWHF.

Figure 2: Layout of Eastern Ontario Waste Handling Facility

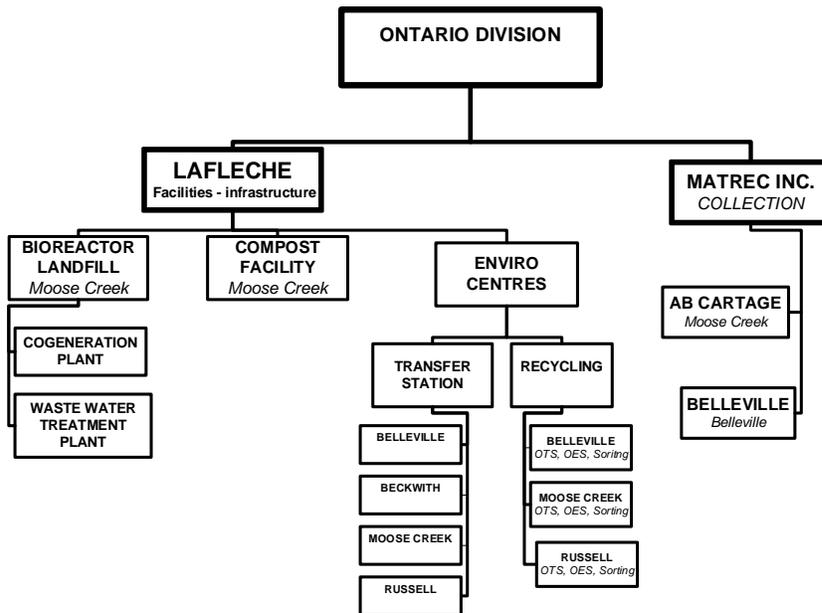


Following approval of the EA in 1999, the Lafleche EOWHF began operation of Phase 1 (i.e. Stages 1, 2 and 3A) as a landfill serving a broad customer base across Eastern Ontario. Phase 2 lands (i.e. Stages 3B and 4) were reserved for future development as landfill. Since that time the company business has grown and Lafleche has expanded its operations into a broader series of waste management services integrated with the landfill including:

- providing collection services (including collection of recyclables; source separated organics; leaf and yard material, and waste, both at the curb and at the EOWHF);
- processing of recyclables;
- composting of source separated organic material; and
- collection of used tires, waste electrical and electronic equipment and construction and demolition (C&D) waste.

Many of these services are now provided at the EOWHF and supported by a number of smaller collection facilities located in Eastern Ontario. The distribution of these facilities and service capabilities are shown in **Figure 3**.

Figure 3: Ontario Division – Services and Facilities



Lafleche, and its affiliated companies, have established themselves as leaders in waste diversion activities and services to support the needs of their customer base.

Lafleche operates a bioreactor landfill, designed to accelerate the decomposition of waste and increase the quantities of biogas produced, which are then collected and converted to energy. This landfill is the only one in Ontario permitted to dispose of Specified Risk Material (e.g. cattle) and is also permitted to dispose of special waste streams including asbestos, contaminated soils and international waste. Lafleche’s composting facility is among the few in Ontario able to manage an expanded stream of organic materials, including diapers, sanitary and pet waste. As organics processing capacity is limited in Ontario, the Lafleche composting facility plays an important role in providing processing capacity to Ontario municipalities, particularly those larger municipalities who accept this type of waste in their curbside Green Bin programs. The continued operation of the EOWHF landfill is integrated with, and critical to, the on-site composting facility by providing efficient access to dispose of non-compostable materials from the composter.

The company is responsible for the curbside collection of approximately 4,388 tonnes per year of residential recyclables which are transferred to, and processed in, the company’s MRF located in St. Hubert, Quebec. Approximately 54,812 tonnes per year of residential source separated organics are received from Ontario households and composted at the EOWHF. A further 160 tonnes of tires, 400 tonnes of waste electronics, and 15,875 tonnes of C&D waste are collected at the EOWHF each year for recycling. Additional quantities of materials are received at the EOWHF for proper management and include leaf and yard, SRM, contaminated soils and asbestos. Lafleche continually looks at opportunities to grow its service offering and maximize waste diversion activities.

Lafleche currently has a number of existing municipal disposal service contracts that extend out approximately 15 years. These service contracts provide both disposal and cost certainty to a broad number of smaller municipalities across Eastern Ontario. Many of these municipalities have been faced with the need to close their own landfill sites due to increased regulatory requirements and associated costs, plus the risks and costs associated with long term liabilities. Faced with these economic uncertainties, Lafleche has partnered with these municipalities to provide this necessary service in a cost effective manner into the future.

The EOWHF landfill includes a landfill gas collection system to collect methane generated from waste decomposition. In 2011, Lafleche received approval from the Ontario Power Authority as part of the Feed-in-Tariff (FIT) program to produce 4.5 MW of renewable energy from the collected methane. The plant is operational and has the capacity to manage additional gas volumes collected from an expanded landfill.

The landfill is permitted to receive up to 755,000 tonnes of waste per year for disposal. The site receives an average of 450,000 tonnes of waste per year for disposal, resulting in an estimated ten years of approved remaining disposal capacity. Landfill development at the EOWHF is now progressing into Stage 2B, and eventually into Stage 3A when Stage 2B is at capacity.

The approval and development of the previously identified landfill Stages 3B and 4 will provide an additional 4.2 million m³ of disposal capacity and extend the operating life of the landfill by approximately 10 years, depending on the annual rate of filling. The completion of Phase 2 (Stages 3B and 4) supports the build-out of the landfill site as originally planned and described in the previous EA. The proposed undertaking will allow Lafleche to continue its existing integrated business operations at this site which are closely linked to the landfill operation. In addition, the additional capacity will also allow Lafleche to honour existing long term contracts which extend beyond the current estimated life of the remaining approved disposal capacity.

5.2 Contribution to Climate Change and GHG Reduction

Continued operation of the EOWHF landfill aligns with the Province of Ontario's goal of reducing greenhouse gas (GHG) emissions as follows:

- Lafleche has installed a landfill gas collection system to collect methane gas (a major source of greenhouse gas) which is converted to produce green energy.*
- Lafleche's composting facility keeps organic material out of landfills which also reduces GHG emissions through the avoidance of methane generation produced through the decomposition of organic materials. This facility is one of very few composting facilities in Ontario able to manage organic materials such as diapers and sanitary products.*
- Lafleche supports further reductions in greenhouse gas emissions by providing disposal services to smaller municipalities allowing them to close their landfills which do not have gas control systems.*
- Lafleche provides a network of regional transfer stations to collect material from a larger number of generators and consolidate the material for transport, the number of vehicles travelling long distances to appropriate processing and disposal facilities is significantly reduced. This also supports a substantial decrease in the emission of greenhouse gases.*

6 Consideration of Alternatives to the Undertaking

“Alternatives to” the undertaking are functionally different ways of addressing the problem or opportunity (i.e., provision of additional waste disposal capacity). Lafleche has identified and considered specific “alternatives to” the proposed undertaking that address the opportunity and are within the company’s business mandate and ability to implement.

Consistent with the MOECC Code of Practice for Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario, Lafleche identified a range of “alternatives to” for providing disposal capacity that are appropriate and reasonable for them (a private sector company) to implement. The following four alternatives were identified:

1. Do nothing
2. Establish a new landfill at another location
3. Export waste to a disposal facility elsewhere
4. Expansion of the approved capacity of the EOWHF

Five screening criteria were then applied to each of the alternatives. The purpose of the screening was to determine if the alternative is feasible, achievable and reasonable for Lafleche to implement. A description of each alternative to and the results of the screening are presented below. The screening results for each criteria are summarized in Table 1.

Table 1: Application of Screening Criteria for Alternatives To

Screening Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	<i>Do nothing</i>	<i>Establish a new landfill at another location</i>	<i>Export waste to a disposal facility elsewhere</i>	<i>Expand the approved capacity of the landfill</i>
<i>Does the alternative address the rationale for the undertaking?</i>	No	Yes	No	Yes
<i>Is the alternative technically feasible?</i>	Yes	Yes	Yes	Yes
<i>Does the alternative support Lafleche’s integrated waste management programs?</i>	No	No	No	Yes
<i>Is the alternative financially and economically viable?</i>	No	No	No	Yes
<i>Is the alternative consistent with Ontario government priorities including waste diversion and climate change?</i>	No	Yes	No	Yes

Alternative 1 - Do nothing

Lafleche would not undertake new disposal capacity development as part of this alternative. This would not be considered a reasonable alternative for Lafleche’s ongoing business as it does not satisfy the need for additional disposal capacity. Although the alternative is technically feasible, it does not address the rationale for the undertaking. Lafleche would only be able to continue with their current business operations for approximately 10 years based on current landfilling rates. Landfill operations would have to cease once the landfill is at capacity.

Lafleche would be unable to continue to provide disposal services to its customers and fulfill long term contractual commitments. These customers, including a number of municipalities across Eastern Ontario, would need to find alternate ways to manage their waste. This alternative does not support Lafleche's integrated waste management programs, nor does it support the existing waste diversion infrastructure at the Facility.

This alternative is not consistent with the business interests of Lafleche, putting it at a significant economic disadvantage in the waste management industry. This alternative is not a viable option for Lafleche's ongoing business, its customers and the Province of Ontario. Additionally, this option does nothing to contribute to the Ontario government's priorities for waste diversion and climate change. It has been included to provide a benchmark against which to measure the other alternatives.

Alternative 2 - Establish a new landfill at another location

This alternative consists of developing new landfill disposal capacity on other Lafleche owned lands, located adjacent to the EOWHF. Lafleche owns 380 hectares of land located immediately east of the EOWHF which is currently leased to a local business and actively utilized for a sod production business. Lafleche also owns 405 hectares of land located immediately south of the existing EOWHF. These lands are also leased to a local business and utilized for active peat extraction, which is then marketed and sold. It is estimated that these southern lands have greater than 50 years of peat extraction capacity remaining. Both of these business ventures are viable local commercial operations, generating revenue and employment in the community. Establishing a landfill on either of these parcels of land would remove these existing business opportunities and in the case of the peat harvesting operation, would remove access to this important natural resource.

Expansion of the existing landfill onto adjacent land would impose an additional financial burden on the Lafleche business with the requirement to develop redundant infrastructure, some of which may not be effectively connected with the existing EOWHF systems. Lafleche has created an integrated waste campus at the EOWHF with facilities such as the landfill gas collection system developed expressly to collect methane from the landfill located at EOWHF; a landfill located elsewhere would not support these systems.

Lafleche does not own, nor is it aware of, other lands in close proximity to the existing site that have been identified as suitable for new waste disposal capacity. The development of a new landfill elsewhere is not economically viable for Lafleche given the significant financial investment it has made at the EOWHF including all of the supporting infrastructure. Making these same investments elsewhere would put Lafleche at a financial disadvantage and make the business less competitive.

Alternative 3 - Export waste to a disposal facility elsewhere

This alternative consists of exporting waste to a disposal facility not owned by Lafleche in Ontario and/or the United States (US). Although this alternative is technically feasible, it does not address the rationale for the undertaking, nor does it support Lafleche's integrated waste management programs. Exporting waste to the US is both costly and risky due to fluctuations in

the value of the Canadian dollar, fuel prices, and the potential for border closures to Canadian waste due to security or health concerns. Available landfill disposal capacity in Ontario is already very limited as evidenced by the ongoing export of over three million tonnes of waste annually to landfills located in New York and Michigan states.

Hauling waste to another disposal facility (i.e. the closest being either in New York or southwestern Ontario) significantly increases the costs Lafleche would need to charge its customers, for both transportation and disposal fees, making the business less competitive and putting it at a financial disadvantage.

A local facility provides a stable option for waste management and minimizes greenhouse gas emissions associated with hauling waste long distances in Ontario and to the U.S. This is also consistent with responsible waste management strategies and principles. For these reasons, Lafleche does not believe this is a reasonable alternative.

Alternative 4 - Expansion of the approved capacity of the EOWHF

This alternative consists of developing additional disposal capacity at the EOWHF as identified in the original 1998 approved EA report. This alternative includes the development of landfill disposal capacity through a lateral expansion of the existing landfill, within the current EOWHF property boundaries, as owned by Lafleche. This alternative will support the integrated facilities at the EOWHF including management of residuals from the compost facility operation, enhancing the ongoing operation of the landfill gas to energy facility, and receiving post-diversion residual wastes, provides cost effective disposal services to generators across Ontario integrated with their local collection. The ongoing integration of these operations further enhances the reduction of greenhouse gas emissions.

Lafleche has been successfully operating the EOWHF since 1999 and has become an important addition to the local community by creating employment opportunities, hosting educational events and facility tours, contributing financially to the Township of North Stormont, and supporting local initiatives within the community. This alternative is the most financially and economically viable option; making the most efficient use of land already designated for this purpose and site infrastructure already developed. Expansion of the approved capacity of the EOWHF is the only practical, environmentally sound and cost-effective option to address the identified business need to allow Lafleche to operate in the long-term.

Preferred Alternative to the Undertaking

Lafleche has determined that expansion of the EOWHF landfill disposal capacity is the only reasonable option for the company, its customers and the Province of Ontario. The other alternatives do not address Lafleche's opportunity to meet long-term customer commitments or avoid business risks, and they are not consistent with the Ontario government priorities of addressing waste diversion and climate change.

These alternatives, and the identification of the preferred alternative to, were presented to the public during the consultation on the development of the ToR. No comments were received on the alternatives to be considered.

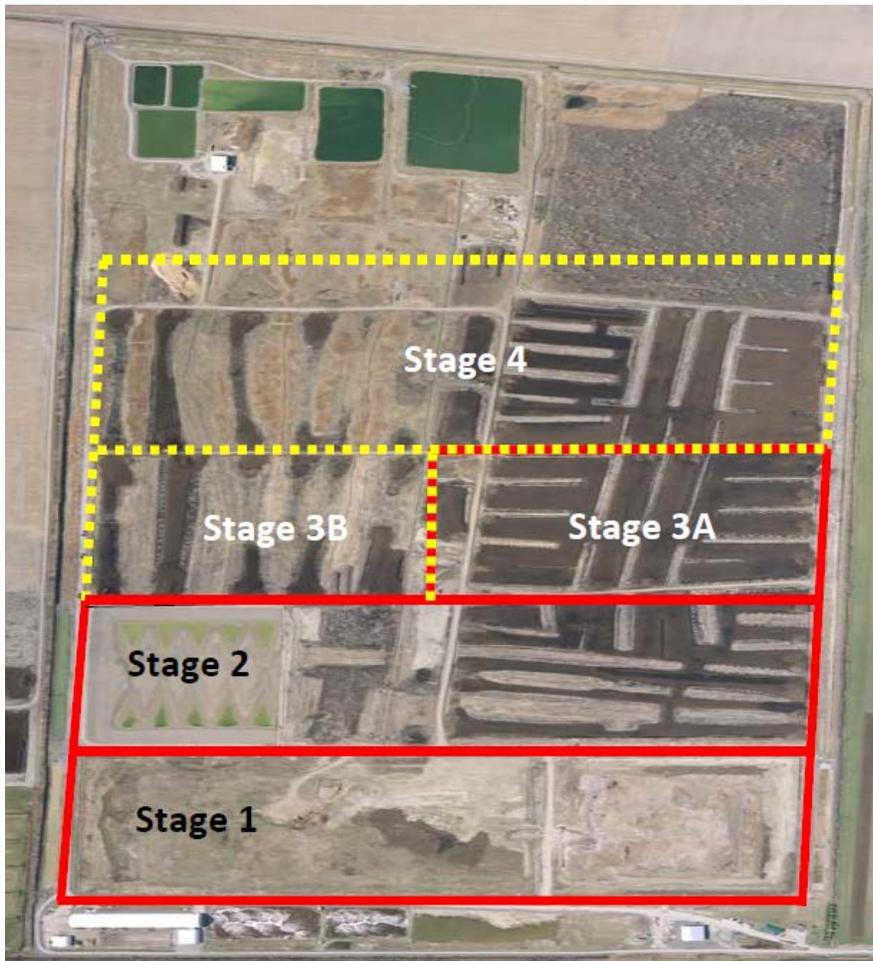
7 Identification of Alternative Methods

“Alternative Methods” of carrying out the undertaking are different ways of implementing the proposed undertaking. The proposed development of additional landfill disposal capacity at the EOWHF may be achieved through alternative landfill configurations at the Facility. Two alternative methods for developing additional landfill disposal capacity at the EOWHF have been identified. The two conceptual design alternatives will be further refined, as appropriate, during the EA. A description of the two alternative methods follows.

7.1 Alternative 1

This alternative consists of developing the areas of Stage 3B and Stage 4 as originally planned in the 1998 EA. This would provide an additional 4.2M m³ of landfill capacity. This option extends west and northward closer to the wastewater treatment plant, onto land currently used for storing finished compost. The design of these stages will be consistent with the current design including base excavation, final contours, liner and leachate collection system, landfill gas collection, and daily operations. A buffer area from the northern boundary of the facility would remain. **Figure 4** presents the proposed layout of Alternative 1.

Figure 4: Proposed Expansion Alternative #1



7.2 Alternative 2

Alternative 2 consists of the development of Stage 3B as contemplated in the original approval (1998 EA) and the development of a modified configuration of Stage 4. This alternative would include developing Stage 4 further into the northeast corner of the property and consequently not as far north on Stage 3B. This alternative would allow the continued use of land near the wastewater treatment plant for convenient, accessible storage of finished compost product and bulking material in close proximity to the compost facility. The design of these stages will also be consistent with the key elements of the current landfill design. **Figure 5** presents the proposed layout of Alternative 2.

Figure 5: Proposed Expansion Alternative #2



Both alternatives continue to utilize the established operating procedures currently being successfully employed at the current landfill and would maximize the use of existing site infrastructure.

Neither alternative considers an increase in landfill height due to the nature of the underlying clay soils.

The two conceptual design alternatives identified in the ToR will be carried forward into the EA and will undergo a comparative evaluation to identify the preferred alternative method. The conceptual designs may be refined during the EA, as required, to provide reasonable confidence that the preferred undertaking is approvable under the Environmental Protection Act.

8 Description of the Environment and Potential Effects

A brief description of the existing environmental conditions at the EOWHF and surrounding areas is presented in this section. A more detailed description of the existing environmental conditions and anticipated potential effects, mitigation/management measures and net effects will be prepared as part of the EA. The existing conditions will be used to assess the potential effects of the alternatives on the environment.

During the EA, existing conditions and potential effects will be considered in the context of two study areas: on-site and off-site.

The following sections describe the study areas and the existing environmental conditions within these study areas.

8.1 Study Areas

The proposed on-site and off-site study areas for the EA are as follows:

- **On-site study area** – the existing EOWHF 189 ha site area (see **Figure 6**)
- **Off-site study area** – the lands in the vicinity of the EOWHF extending approximately 1 kilometre from the property boundary of the EOWHF (see **Figure 6**)

The off-site study area may be refined during the EA to suit the requirements of a specific environmental component or based on the spatial extent of predicted effects.

Figure 6: EA Study Areas



8.2 Existing Conditions by Environmental Component

The following sections present preliminary descriptions of the existing environmental conditions. The EA will include more detailed descriptions of existing environmental conditions.

8.2.1 Natural Environment

8.2.1.1 Atmospheric

Air Quality

Sources of air emissions include on-site operations and activities from the surrounding agricultural operations. The site entrance road is paved and dust control measures are implemented for on-site roads. Surface water is applied to onsite haul roads to minimize dust. The EOWHF is surrounded by agricultural operations that can at times, contribute to high dust levels due to the area's peat soil, sand access roads, land preparation, sod farming and crop harvesting.

Annual dust monitoring results from the previous 3 years confirm that surrounding land uses (farming, peat extraction, commuter highway) generate as much dust and background noise as the total site operations.

Odour

Some waste accepted at the landfill and organics processing facility may contribute to odours. Odours have been periodically experienced at the landfill tipping face and addressed by covering the waste with alternative daily cover (shredder fluff) or tarps at the conclusion of each business day. Landfill gas odours have also occurred infrequently. The landfill gas collection system continues to be expanded to capture and utilize the gas. Additionally, activities such as screening and turning compost may contribute to odour generation. Lafleche has engineered the composting facility (negative air pressure) to minimize odours through the design of the tipping floor and processing area as well as the exterior biofilter system.

In 2013, the EOWHF received one odour complaint (2013 Annual Report) due to prevailing wind conditions and activities related to the moving of bulking agents for the composting operation.

Noise

On-site noise emission sources are related to landfill equipment and facility operation, including backup beepers. The site and surrounding areas are within a high noise environment dominated by a major 400 series highway (Highway 417) linking the Ottawa Region to Montreal. A commercial peat harvesting operation is located on the west side of the EOWHF along with a access road which allows for the passage of numerous heavy trucks per day alongside the west and north boundaries of the EOWHF. Noise monitoring is conducted semi-annually at and off the site and assessed based on the MOECC's "Noise Guidelines for Landfill Sites" (MOECC, 1998).

8.2.1.2 Geology/Hydrogeology

Geology

The general overburden stratigraphy on the site consists of a surficial peat layer underlain by a silty clay deposit, commonly underlain by a sandy silt glacial till layer which overlies bedrock. The typical thickness of the geological deposits is as follows:

- Peat soil: 2-3 metres thick
- Silty clay: 7 – 17 metres thick
- Compact to very dense glacial till: approximately 3 metres thick
- Bedrock.

Hydrogeology

The direction of groundwater flow in the glacial till and bedrock layers is from south to north across the site. The site is not within a source water protection zone and Annual Reports confirm that the site is in compliance with the MOECC's Policy B7. No issues have arisen with respect to ground water use since the site commenced operations over 15 years ago. The closest municipal water treatment plant and system is located 5 km away in the town of Casselman and additionally 5 km away in the Village of Moose Creek.

8.2.1.3 Surface Water

The EOWHF is situated in the Moose Creek Watershed. The Moose Creek is located approximately 600 metres west of the EOWHF. On site surface water management is addressed via conditions in the ECA #4299-9 U8 PV6. In general, surface water within the site boundaries is collected and treated via a system of stormwater collection ponds which provide TSS removal and pre-development flows. The Fraser Drain, a tributary of Moose Creek, borders the site on the north and east sides and receives all of the surface runoff from the site.

All surface water leaving the site is conveyed through a flow restriction vault employing various orifices. This vault is located in the northwest corner of the site.

8.2.1.4 Ecosystems

Terrestrial Ecosystems

The EOWHF is situated on land that was once part of the Moose Creek Swamp Wetland, but over time has been converted to other uses, including peat extraction. As identified in the 1998 EA, the on-site area is no longer contiguous with the provincially significant Moose Creek Swamp Wetland. The Ontario Ministry of Natural Resources and Lafleche signed a joint wetland compensation package – The Lafleche Environment Inc. Trust Fund - a Trust to secure, enhance and create wetland and associated wildlife habitat in Eastern Ontario. The OMNR by this Trust revised the wetland map to exclude the total site of the EOWHF.

Aquatic Ecosystems

The site is bordered by four drains; the Fraser drain to the north and east, the Albert-Fawhey Award drain to the south and a private boundary drain to the west. The Moose Creek Swamp Complex is located south of the site.

8.2.2 Built Environment

8.2.2.1 Aggregate Extraction and Agriculture

Lands adjacent to the EOWHF to the east are used for sod farming, to the south for peat extraction, to the west for peat extraction and agricultural purposes (cash crops). Land located immediately north of the site is used for agricultural purposes (cash crops).

8.2.2.2 Land Use

The EOWHF is located on land designated as “rural district” and identified as an active Waste Management Facility. Surrounding land is designated as “agricultural resource lands”. (Source: United Counties of Stormont, Dundas and Glengarry, Land Use, Schedule A3).

8.2.2.3 Transportation

The facility is located on Lafleche Road, a private road, which is accessed from Highway 138. Highway 138 intersects with Highway 417 approximately 2 kms north of Lafleche Road. There are no airports within an eight km radius of the facility with the nearest located approximately 50 km to the west (Ottawa International Airport).

8.2.3 Cultural Environment

8.2.3.1 Archaeological and Cultural Heritage Resources

The on-site and off-site areas were once part of the Moose Creek Wetland Bog. Drains were constructed in the early 1900s as agricultural land was developed. A Stage 1 Archaeological Assessment was completed for the site as part of the 1998 EA. The report recommended no further work, and the Provincial interest in archaeology for the subject property was signed off in a letter dated November 2, 1999. Nothing of archaeological significance has been found on or around the EOWHF as the site has been developed.

During the preparation of the ToR, the Ministry of Tourism, Culture and Sport were contacted regarding the proposed undertaking. Their response (February 25, 2015) noted that the results of the 1998 Stage 1 Archaeology Assessment have been reviewed again and are valid. The Stage 1 Archaeology Assessment determined that there is no archaeological potential within the boundaries of the existing facility, including the Stages 3B and 4 areas.

No built heritage features exist on-site, off-site or on the access route.

8.2.4 Socio-Economic Environment

The EOWHF is located approximately 9 kilometres from the town of Moose Creek. The closest residence is located approximately 0.6 km from the property boundary/1.5 km from the center of site northwest of the on-site area. Lafleche has developed a positive working relationship with the Township of North Stormont and has created a Community Liaison Committee which meets a minimum of two times annually. Lafleche also supports a number of community initiatives and participates in a number of programs and committees. The majority of employees live in the local community. Lafleche also endeavours to utilize local businesses and services in support of its operation to the extent possible.

The area is predominantly agricultural based and maintains a rural population without significant industrial or commercial development. Other main employers in the community include the adjacent sod farm and peat extraction businesses.

8.2.5 Design and Operations

The EOWHF consists of three main areas; at the south end is the office, weighscale, a public drop-off area, maintenance shop, landfill gas to energy plant, aeration ponds and composting facility. The landfill gas to energy facility produces over 4 MW of power to the local distribution system owned by Hydro One Networks Inc. The two aerobic composting facilities are capable of processing a full range of organic materials and have a combined approved processing capacity of 120,000 tonnes per year.

In the centre of the site is the landfill which has been divided into four stages. Stage 1 is at capacity and capped, and Stage 2 is currently active. The inactive portions of the landfill (Stages 3 and 4) are currently used for curing compost and to store finished compost. Each landfill cell is constructed with a layer of non-permeable clay as the bottom layer, in which the leachate collection pipes are placed, followed by geotextile and then 45 cm of clear stone with another layer of geotextile and then 15 cm of sand on top to protect the geotextile membrane from the waste.

At the north end of the site is a tertiary-level wastewater treatment plant. Leachate is collected and separated into two streams; one part is recirculated into the landfill to aid in waste decomposition and the other is pumped into two aeration ponds located adjacent to the composting facilities at the south end of the facility. From the aeration ponds, the leachate is pumped into the waste water treatment facility for further treatment and filtration. The treated effluent is pumped to effluent storage ponds where it is sampled before discharge to the Fraser Drain.

Lafleche also uses a falconry program to discourage birds from nesting and/or feeding in the landfill and stormwater ponds.

9 Environmental Assessment Methodology

The following sections provide an overview of the methodology that will be used to develop the Environmental Assessment for the proposed undertaking.

*The proposed methodology to be followed in the EA will be a qualitative comparison of the two “alternative methods” using the criteria, indicators and data sources included in **Appendix B** to identify the preferred alternative.*

An effects assessment will be carried out on the preferred alternative using the same criteria, indicators and data sources, and additional studies as required.

9.1 Description of the Existing Environment

The existing environment within the On-site and the Off-site study areas (see Section 8.1) will be characterized in the EA. The characterization of the existing environment will address the five aspects of the environment, as defined in the EA Act:

- *natural environment;*
- *built environment;*
- *cultural environment;*
- *social environment; and,*
- *economic environment (for the purposes of this EA, the social and economic environments have been grouped as the socio-economic environment)*

The potential environmental effects of the alternative methods will be qualitatively compared against the existing environmental conditions, as described in the EA.

9.2 Description of the Alternative Methods

*Two alternative methods of expanding the approved capacity of the landfill have been identified by Lafleche for implementing the proposed undertaking during the development of this ToR and are presented in **Section 7**. These alternatives will be described in further detail in the EA.*

9.3 Predict Potential Environmental Effects for Each Alternative Method

*For each alternative method, the potential effects will be identified based upon application of the proposed evaluation criteria, indicators and data sources as outlined in **Appendix B**. The analysis of potential effects will be based on the maximum allowable waste receipt level for the EOWHF landfill. Potential effects can be positive or negative, direct or indirect, and short or long-term.*

9.4 Identification of the Preferred Alternative

*The two alternative methods will be assessed in a qualitative comparative process to determine the preferred alternative, using the criteria and indicators provided in **Appendix B** of this ToR. These evaluation criteria and indicators will be finalized during the EA.*

The differences in net effects (the potential effect remaining following implementation of mitigation / management measures) will be used to identify and compare the advantages and

disadvantages for each alternative. The comparison of alternatives will include a clear rationale for the selection of the preferred alternative.

9.5 Effects Assessment of the Preferred Alternative

Following the identification of the preferred alternative, an effects assessment will be carried out on the preferred alternative considering the same criteria, indicators and data sources, and additional studies as required, taking into account possible mitigation / management measures and cumulative effects.

The EA will also include a description of the preferred alternative's contribution to reducing GHG emissions and climate change.

10 Consultation

*An overview of the consultation process conducted during the ToR is presented in the following section and the detailed in **Supporting Document #1 – Record of Consultation**.*

*The proposed Consultation Plan in support of developing the EA is presented in **Section 10.2** and the proposed plan for Aboriginal engagement during the EA is presented in **Section 10.3**.*

10.1 Summary of Consultation Activities on the ToR

As required by Section 5.1 of the OEAA, the public, agencies and Aboriginal communities were consulted during the preparation of these ToR.

Lafleche consulted with a broad range of stakeholders including the public, agencies and Aboriginal communities.

The Notice of Commencement (found in Supporting Document # 1) for this ToR was published on February 11, 2015 in the Cornwall Standard Freeholder (English) and the Journal Le Reflet/The News (French) newspapers. A personalized letter outlining the project and a copy of the Notice of Commencement were also mailed in advance of February 11, 2015 to the project mailing list including neighbours, local residents, members of the public, municipal and government agencies. The list was developed in consultation with the MOECC. Letters and the Notice of Commencement were also mailed to the following Aboriginal communities and organizations:

- *Mohawks of Akwesasne*
- *Algonquins of Pikwakanagan*
- *Mohawks of the Bay of Quinte*
- *Ottawa Metis Council*
- *Huron Wendat Nation Council*

Notification of the ToR commencement and project was also provided through direct contact with MOECC, local politicians, Aboriginal communities and adjacent landowners. The Notice of

Commencement was also posted on the dedicated project page of the company website (www.leic.com/about/projects).

The Notice of Commencement and letter also announced and included details on a public open house to obtain input on the proposed Terms of Reference.

Public Open House #1 was held on Wednesday, February 25, 2015 at the Sand Road Maple Farm in Moose Creek from 4 p.m. to 8 p.m. A detailed summary of the Open House can be found in **Supporting Document # 1 – Record of Consultation**. The Open House provided an opportunity to review the scope, purpose and objectives of the ToR and provide feedback on the project rationale, alternatives considered and proposed evaluation criteria. A comment form was also available for the public to provide written comments. All materials were available in both English and French languages. A total of 10 people attended the Open House. The Open House display boards and comment form were also posted on the project website.

Lafleche made a presentation to the Township of North Stormont Council on February 17, 2015 regarding the proposed project and ToR. A presentation was also given to the Community Liaison Committee on December 03, 2014. Copies of the presentations are included in **Supporting Document # 1**.

During the development of the ToR, Lafleche responded to comments received by telephone, email and in writing. The company also offered to meet with anyone who requested, including tours of the EOWHF.

10.2 Proposed Consultation Program for EA

In accordance with Section 6.1(2)(e) of the EAA, a description of the proposed consultation program carried out by Lafleche during the EA, along with the results of consultation, will be documented in the EA.

The development of the proposed consultation program for the EA is based on the following principles:

- transparency, accountability and accessibility;
- identification of stakeholder and Aboriginal community concerns early in the process and addressing these concerns in the EA;
- multiple points of consultation throughout the EA using a variety of techniques (in-person, digital, print); and,
- documentation of issues, concerns and responses in the EA.

By consulting with interested people, Lafleche will provide opportunities for input before decisions are made and then respond by making changes as appropriate. The input and comments received through the EA consultation process will be considered in the preparation of the EA and studies. How this input will be incorporated into the EA will also be documented.

Consultation will be undertaken at key points in the process, as well as on an ongoing basis, through the following activities.

- **Notice of Commencement for the EA:** *by mail, email, local newspapers, and on the project website, in both English and French languages, including details on the project, the EA process and contact information, as a minimum.*
- **Public Open House #2:** *to present the “alternative methods”, a detailed description of the existing environmental conditions, and comparative evaluation criteria and the results of the assessment of the alternative methods, the comparative evaluation of the alternative methods, and the identification of the preferred alternative.*
- **Consultation Report:** *summarizing the results of the open house as well as comments received via fax, email or post will be prepared, including a record of comments and responses.*
- **Website:** *established by Lafleche during the development of the ToR will be maintained during the EA study to provide information, inform the public of consultation events, and provide a means for feedback.*
- **Telephone Line and Contact Person:** *provided for a Lafleche staff member to receive enquiries from interested parties for information and submit comments.*
- **Draft Environmental Assessment Report:** *provided to the public, agencies and Aboriginal communities who wish to receive a copy. Written comments on the draft report will be requested within 30 days. Notice of the draft report availability will be provided by newspaper notice, mail, email and on the project website.*
- **Final Environmental Assessment Report:** *provided to the public, agencies and Aboriginal communities who wish to receive a copy. Notice of the final report availability will be provided by newspaper notice, mail, email and on the project website.*

If requested, additional consultation activities may be undertaken. Lafleche is prepared to discuss individual concerns and comments directly with potentially affected persons. Additional events may be held to address specific issues of concern, as warranted.

All notification and open house related materials will continue to be provided and made available in both English and French languages. Bilingual staff will also be available at Lafleche to respond to any comments or concerns. The draft and final EA documentation will be prepared in English with an executive summary available in both French and English.

A Record of Consultation will be prepared as part of the EA which will include information about the EA consultation program, including copies of correspondence from and to the Proponent, information about and received at the public open houses and copies of comments, questions, issues and concerns from stakeholders and members of the public, and how those questions, issues and concerns were addressed.

10.3 Aboriginal Engagement during EA

During the EA, Lafleche will continue to consult with the following Aboriginal communities and organizations in a manner consistent with any requests that might be received from each community.

- *Mohawks of Akwesasne*
- *Algonquins of Pikwakanagan*
- *Mohawks of the Bay of Quinte*
- *Ottawa Metis Council*
- *Huron Wendat Nation Council*

Lafleche is committed to working with these Aboriginal communities and organizations to address any comments or concerns they may have. This includes providing any specific consultation activities, such as community meetings, at the request of the First Nation. Lafleche will provide written notification to the Aboriginal communities and organizations consistent with the consultation program for the EA.

11 Commitments and Monitoring Strategy

The EA will contain a list of commitments made by Lafleche during the ToR process and indicate how such commitments have been addressed in the EA. A list of commitments made by Lafleche during the preparation of the EA will also be included in the EA along with a framework for monitoring when and how all commitments will be fulfilled.

A strategy and schedule for compliance and effects monitoring will be developed and included in the EA. The monitoring plan will consider all relevant project phases: planning, detailed design, tendering, construction, establishment and post-establishment. Compliance monitoring is an assessment of whether an undertaking has been designed, constructed, implemented and/or operated in accordance with the commitments in the EA document and the conditions of approval. Effects monitoring consists of activities carried out by the proponent after the approval of the EA to determine the environmental effects of the undertaking. Monitoring requirements for effects related to the proposed undertaking are anticipated to be developed as a part of the EPA and OWRA approval processes.

12 Other Approvals

In addition to EA approval, certain other approvals may be required, including but not limited to:

- *Environmental Protection Act (EPA)*
 - *Environmental Compliance Approval (Waste Disposal)*
- *Ontario Water Resources Act (OWRA)*
 - *Environmental Compliance Approval (Sewage Works)*
- *Conservation Authorities Act*
- *Planning Act*

The proposed undertaking is not identified as a designated project under the Canadian Environmental Assessment Act, 2012 (CEAA, 2012) Regulations Designating Physical Activities. This will be confirmed during the EA with the Canadian Environmental Assessment Agency. A complete list of the specific approvals required for the proposed undertaking will be provided in the EA.

Appendix A

Glossary of Terms

Appendix A – Glossary of Terms

Table A-1: Definition of Acronyms

Acronym	Definition
<i>C of A</i>	<i>Certificate of Approval</i>
<i>C&D</i>	<i>Construction and Demolition</i>
<i>CEAA</i>	<i>Canadian Environmental Assessment Act</i>
<i>EA</i>	<i>Environmental Assessment</i>
<i>EAA</i>	<i>Environmental Assessment Act</i>
<i>EASR</i>	<i>Environmental Assessment Study Report</i>
<i>ECA</i>	<i>Environmental Compliance Approval</i>
<i>EOWHF</i>	<i>Eastern Ontario Waste Handling Facility</i>
<i>EPA</i>	<i>Environmental Protection Act</i>
<i>FIT</i>	<i>Feed-in-Tariff</i>
<i>GHG</i>	<i>Greenhouse Gases</i>
<i>IC&I</i>	<i>Industrial Commercial and Institutional</i>
<i>MOECC</i>	<i>(Ontario) Ministry of the Environment and Climate Change</i>
<i>MRF</i>	<i>Material Recovery Facility</i>
<i>OEAA</i>	<i>Ontario Environmental Assessment Act</i>
<i>OES</i>	<i>Ontario Electronic Stewardship</i>
<i>OTS</i>	<i>Ontario Tire Stewardship</i>
<i>OWRA</i>	<i>Ontario Water Resources Act</i>
<i>SRM</i>	<i>Specified Risk Material</i>
<i>ToR</i>	<i>Terms of Reference</i>
<i>US</i>	<i>United States</i>

Table A-2: Definition of Units

Unit	Definition
<i>cm</i>	<i>centimetre</i>
<i>ha</i>	<i>hectare</i>
<i>km</i>	<i>kilometre</i>
<i>m</i>	<i>metre</i>
<i>MW</i>	<i>megawatt</i>
<i>m³</i>	<i>cubic metres</i>
<i>tpy</i>	<i>Tonnes per year</i>

Appendix A – Glossary of Terms

Table A-3: Glossary of Terms

Term	Definition
<i>Approval</i>	<i>Permission granted by an authorized individual or organization for an undertaking to proceed. This may be in the form of program approval, certificate of approval or provisional certificate of approval</i>
<i>Bioreactor Landfill</i>	<i>A landfill designed to increase the rate of decomposition by microbial activity through monitoring and manipulation of oxygen and moisture levels.</i>
<i>Bulking Material</i>	<i>Material such as woodchips added to high nitrogen materials like food scraps to provide a carbon source and increase the porosity of the compost.</i>
<i>Capacity (Disposal Volume)</i>	<i>The total volume of air space available for disposal of waste at a landfill site for a particular design (typically in m³); includes both waste and daily cover materials, but excludes the final cover</i>
<i>Composting</i>	<i>The controlled microbial decomposition of organic matter, such as food and yard wastes, in the presence of oxygen, into finished compost (humus), a soil-like material. Humus can be used in vegetable and flower gardens, hedges, etc.</i>
<i>Composting facility</i>	<i>A facility designed to compost organic matter either in the presence of oxygen (aerobic) or absence of oxygen (anaerobic).</i>
<i>Construction and demolition (C&D) waste</i>	<i>Solid waste produced in the course of residential, commercial, industrial or institutional building construction, demolition or renovation (e.g., lumber, brick, concrete, plaster, glass, stone, drywall, etc.)</i>
<i>Environment</i>	<i>As defined by the Environmental Assessment Act, environment means:</i> <ul style="list-style-type: none"> <i>(a) air, land or water,</i> <i>(b) plant and animal life, including human life,</i> <i>(c) the social, economic and cultural conditions that influence the life of humans or a community,</i> <i>(d) any building, structure, machine or other device or thing made by humans,</i> <i>(e) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or</i> <i>(f) any part or combination of the foregoing and the interrelationships between any two or more of them (ecosystem approach)</i>
<i>Environmental Assessment</i>	<i>A systematic planning process that is conducted in accordance with applicable laws or regulations aimed at assessing the effects of a proposed undertaking on the environment</i>
<i>Environmental Compliance Approval (ECA)</i>	<i>A licence or permit issued by the Ministry of the Environment for the operation of a waste management site/facility</i>
<i>Evaluation criteria</i>	<i>Evaluation criteria are considerations or factors taken into account in assessing the advantages and disadvantages of various alternatives being considered</i>
<i>Feed-in-Tariff (FIT) program</i>	<i>The Feed-In Tariff (FIT) Program was developed for the Province of Ontario to encourage and promote greater use of renewable energy sources including on-shore wind, waterpower, renewable biomass, biogas, landfill gas and solar photovoltaic (PV) for electricity generating projects in Ontario, typically for projects from 10KW up to 500kW. A new procurement process is being</i>

Appendix A – Glossary of Terms

	<i>developed for large renewable projects (>500kW).</i>
<i>Greenhouse gas</i>	<i>Any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons.</i>
<i>Indicators</i>	<i>Indicators are specific characteristics of the evaluation criteria that can be measured or determined in some way, as opposed to the actual criteria, which are fairly general</i>
<i>Industrial, commercial and institutional (IC&I) wastes</i>	<i>Wastes originating from the industrial, commercial and institutional sectors</i>
<i>Landfill gas</i>	<i>The gases produced from the wastes disposed in a landfill; the main constituents are typically carbon dioxide and methane, with small amounts of other organic and odour-causing compounds</i>
<i>Landfill site</i>	<i>An approved engineered site/facility used for the final disposal of waste. Landfills are waste disposal sites where waste is spread in layers, compacted to the smallest practical volume, and typically covered by soil.</i>
<i>Leachate</i>	<i>Liquid that drains from solid waste in a landfill and which contains dissolved, suspended and/or microbial contaminants from the breakdown of this waste</i>
<i>Material Recovery Facility</i>	<i>A processing facility which sorts recyclable materials into various streams (e.g. glass, newspaper, aluminum, steel etc.).</i>
<i>Methane gas</i>	<i>A colourless, odourless highly combustible gas often produced by the decomposition of decomposable waste at a landfill site. Methane is explosive in concentrations between 5% and 15% volume in air</i>
<i>Mitigation</i>	<i>Measures taken to reduce adverse impacts on the environment.</i>
<i>Non-hazardous waste</i>	<i>Non-hazardous wastes includes all solid waste that does not meet the definition of hazardous waste and includes designated wastes such as asbestos waste</i>
<i>Proponent</i>	<i>A person who:</i> <i>(a) carries out or proposes to carry out an undertaking, or</i> <i>(b) is the owner or person having charge, management or control of an undertaking</i>
<i>Receptor</i>	<i>The person, plant or wildlife species that may be affected due to exposure to a contaminant.</i>
<i>Residual waste</i>	<i>Waste remaining after a technological process has taken place; e.g., unrecyclable/unprocessed materials remaining after being processed at a material recovery facility or non-compostable materials such as plastic from the composting facility.</i>
<i>Source separated organic material</i>	<i>Organics separated by a household or business that include food wastes and may include leaf and yard wastes.</i>
<i>Specified risk material</i>	<i>Tissues that, in infected cattle, typically contain the agent that causes bovine spongiform encephalopathy (BSE), predominantly concentrated in tissues such as the brain and spinal cord.</i>
<i>Stakeholder</i>	<i>Any organization, governmental entity, or individual that has a stake in or may be impacted by a given approach to environmental regulation, pollution prevention, energy conservation, etc.</i>

Appendix A – Glossary of Terms

<i>Terms of Reference</i>	<i>A terms of reference is a document that sets out detailed requirements for the preparation of an Environmental Assessment.</i>
<i>Undertaking</i>	<p><i>Is defined in the Environmental Assessment Act as follows:</i></p> <ul style="list-style-type: none"> • <i>An enterprise or activity or a proposal, plan or program in respect of an enterprise or activity by or on behalf of Her Majesty in right of Ontario, by a public body or public bodies or by a municipality or municipalities,</i> • <i>A major commercial or business enterprise or activity or a proposal, plan or program in respect of a major commercial or business enterprise or activity of a person or persons other than a person or persons referred to in clause (1) that is designated by the regulations, or</i> • <i>An enterprise or activity or a proposal, plan or program in respect of an enterprise or activity of a person or persons, other than a person or persons referred to in clause (a), if an agreement is entered into under section 3.0.1 in respect of the enterprise, activity, proposal, plan or program; ("enterprise")</i>
<i>Waste</i>	<i>Refuse from places of human or animal habitation; unwanted materials left over from a manufacturing process.</i>
<i>Waste electrical and electronic equipment</i>	<i>A term encompassing all electronic waste (typically anything with a cord) designated by the MOECC for end-of-life management by Ontario Electronic Stewardship.</i>

Appendix B

Evaluation Criteria, Indicators and Data Sources

Appendix B – Evaluation Criteria, Indicators and Data Sources

Evaluation Criteria	Rationale	Indicators	Data Sources
Natural Environment			
Environmental Component: Atmospheric Environment			
<i>Air quality</i>	<i>Waste disposal site and associated operations can emit contaminants that can degrade air quality. Construction and operation activities at a waste disposal site can also lead to increased levels of particulates (dust) in the air.</i>	<ul style="list-style-type: none"> • <i>Predicted air concentrations of particulates/dust</i> • <i>Number of off-site receptors potentially affected (residential properties, public facilities, businesses/farms, institutions)</i> 	<ul style="list-style-type: none"> • <i>Published meteorological and climate data</i> • <i>Annual dust monitoring data</i> • <i>Applicable MOECC guidelines and technical standards</i> • <i>Aerial photographic mapping and field reconnaissance</i> • <i>Off-site receptors confirmed on recent mapping</i> • <i>Available background ambient air data</i> • <i>Proposed facility characteristics</i> • <i>Landfill design and operation data</i>
<i>Noise</i>	<i>Construction and operation activities can result in increased noise levels associated with the waste disposal facility.</i>	<ul style="list-style-type: none"> • <i>Predicted site-related noise levels (dBA)</i> • <i>Number of off-site receptors potentially affected (residential properties, public facilities, businesses/farms, institutions)</i> 	<ul style="list-style-type: none"> • <i>Annual site specific noise monitoring data</i> • <i>Manufacturer provided noise specifications</i> • <i>Applicable MOE guidelines and technical standards</i> • <i>Aerial mapping and field reconnaissance to confirm off-site receptors</i> • <i>Land use zoning plans</i> • <i>Proposed facility characteristics</i> • <i>Landfill design and operations data</i>
<i>Odour</i>	<i>The proposed expansion may result in changes in the degree and frequency of odours from the Facility.</i>	<ul style="list-style-type: none"> • <i>Predicted off-site odour concentrations ($\mu\text{g}/\text{m}^3$ and odour units)</i> • <i>Number of off-site receptors potentially affected (residential properties, public facilities, businesses/farms, institutions)</i> 	<ul style="list-style-type: none"> • <i>Published meteorological and climate data</i> • <i>Site odour related data</i> • <i>Existing emissions summary and dispersion modelling (ESDM) report</i> • <i>Site odour complaint history</i> • <i>Aerial mapping and field reconnaissance to confirm off-site receptors</i> • <i>Proposed facility characteristics</i> • <i>Landfill design and operations data</i> • <i>Applicable MOECC guidelines and technical standards</i>

Evaluation Criteria	Rationale	Indicators	Data Sources
Environmental Component: Geology & Hydrogeology			
<i>Groundwater Quality</i>	<i>Contaminants associated with waste disposal sites have the potential to enter the groundwater and impact off-site groundwater</i>	<ul style="list-style-type: none"> <i>Predicted effects to groundwater quality at property boundaries and off-site</i> 	<ul style="list-style-type: none"> <i>Existing hydrogeological and geotechnical studies</i> <i>Water well records</i> <i>Determination of water well users in the area</i> <i>Annual site monitoring reports</i> <i>Environment Canada Canadian Climate Normals</i> <i>Leachate generation assessment</i> <i>Provincial Water Quality Monitoring Network (PWQMN)</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
<i>Groundwater Quantity</i>	<i>Physical works may disrupt natural groundwater flows</i>	<ul style="list-style-type: none"> <i>Predicted groundwater flow characteristics</i> 	<ul style="list-style-type: none"> <i>Existing hydrogeological and geotechnical studies</i> <i>Water well records</i> <i>Determination of water well users in the area</i> <i>Annual site monitoring reports</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
Environmental Component: Surface Water Environment			
<i>Surface Water Quality</i>	<i>Contaminants associated with waste disposal sites have the potential to seep or runoff into surface water</i>	<ul style="list-style-type: none"> <i>Predicted effects on surface water quality; onsite and off-site</i> 	<ul style="list-style-type: none"> <i>Topographic maps</i> <i>Air photos</i> <i>Facility layout, drainage maps and figures</i> <i>On-site stormwater management system design for expanded landfill</i>
<i>Surface Water Quantity</i>	<i>Construction of physical works may disrupt natural surface drainage patterns and may alter runoff and peak flows. The presence of the expanded landfill may also affect base flow to surface water.</i>	<ul style="list-style-type: none"> <i>Change in drainage areas</i> <i>Predicted occurrence and degree of off-site impacts</i> 	<ul style="list-style-type: none"> <i>Annual monitoring reports</i> <i>Published water quality and flow information from MOECC, Environment Canada and local conservation authorities</i> <i>Site reconnaissance</i> <i>Provincial Water Quality Monitoring Network</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>

Evaluation Criteria	Rationale	Indicators	Data Sources
Environmental Component: Ecological Environment			
<i>Terrestrial Ecosystems</i>	<i>Continued or expanded operation of the waste disposal facility may disturb the functioning of natural terrestrial habitats and vegetation, including rare, threatened or endangered species.</i>	<ul style="list-style-type: none"> <i>Predicted impact on vegetation communities</i> <i>Predicted impact on wildlife habitat</i> <i>Predicted impact on vegetation and wildlife including rare, threatened or endangered species.</i> 	<ul style="list-style-type: none"> <i>Existing information and associated agreement with MNR regarding on-site natural environment</i> <i>Annual monitoring report data</i> <i>Published data sources and mapping</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
<i>Aquatic Ecosystems</i>	<i>Continued or expanded operation of the waste disposal facility may disturb the functioning of natural aquatic habitats and species, including rare, threatened or endangered species.</i>	<ul style="list-style-type: none"> <i>Predicted changes in water quality</i> <i>Predicted impact on aquatic habitat</i> <i>Predicted impact on aquatic biota including rare, threatened or endangered species</i> 	<ul style="list-style-type: none"> <i>Existing information and associated agreement with MNR regarding on-site natural environment</i> <i>Annual monitoring report data</i> <i>Published data sources and mapping</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
Socio-Economic Environment			
Environmental Component: Economic			
<i>Economic effects on/benefits to local community</i>	<i>The continued operation of the landfill will provide economic benefits to the local community in the form of new employment opportunities. This may also increase employment in local firms</i>	<ul style="list-style-type: none"> <i>Employment at site (number and duration)</i> <i>Opportunities to provide products or services</i> 	<ul style="list-style-type: none"> <i>Census data for Township of North Stormont and Untied Counties of Stormont, Dundas and Glengarry</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
Environmental Component: Social			
<i>Effects on local community</i>	<i>Waste disposal facilities can potentially affect local residents in the vicinity of the site</i>	<ul style="list-style-type: none"> <i>Number of residents</i> <i>Predicted changes to use of property</i> 	<ul style="list-style-type: none"> <i>Aerial mapping and field reconnaissance</i> <i>Census information</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
<i>Visual Impact of Facility</i>	<i>The contours of the waste disposal facility may affect the visual appeal of a landscape.</i>	<ul style="list-style-type: none"> <i>Predicted changes in perceptions of landscapes and views.</i> 	<ul style="list-style-type: none"> <i>Site grading plans</i> <i>Aerial mapping and field reconnaissance</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>

Evaluation Criteria	Rationale	Indicators	Data Sources
Cultural Environment			
<i>Cultural and heritage resources</i>	<i>The use and enjoyment of cultural resources may be disturbed by the ongoing operation.</i>	<ul style="list-style-type: none"> <i>Cultural and heritage resources (built and landscapes) on-site and in vicinity and predicted impacts on them.</i> 	<ul style="list-style-type: none"> <i>Published data sources</i> <i>Cultural/heritage assessment</i> <i>Commemorative statements</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
<i>Archaeological resources</i>	<i>Archaeological resources are non-renewable cultural resources that can be destroyed by the construction and operation of a waste disposal facility</i>	<ul style="list-style-type: none"> <i>Archaeological resources on-site and in vicinity and predicted impacts on them.</i> 	<ul style="list-style-type: none"> <i>Existing Stage 1 Archaeology Assessment</i> <i>MTCS Correspondence (February 25, 2015)</i>
Built Environment			
Environmental Component: Transportation			
<i>Effects from truck transportation along access roads</i>	<i>Truck traffic associated with continued operations of the landfill may adversely affect residents, businesses, institutions and movement of farm vehicles in the site vicinity</i>	<ul style="list-style-type: none"> <i>Disturbance to traffic operations</i> 	<ul style="list-style-type: none"> <i>Existing information and traffic data</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
Environmental Component: Current and Planned Future Land Use			
<i>Effects on current and planned future land uses</i>	<i>The continued operation of the landfill may not be fully compatible with certain current and/or planned future land uses in the off-site study area. Waste disposal facilities can potentially affect the use and enjoyment of recreational resources in the vicinity of the site.</i>	<ul style="list-style-type: none"> <i>Current land use</i> <i>Planned land use</i> <i>Type(s) and proximity of off-site recreational resources within 1000m of a landfill footprint potentially affected</i> <i>Type(s) and proximity of off-site sensitive land uses (e.g. dwellings, churches, parks) within 1000m of a landfill footprint potentially affected</i> 	<ul style="list-style-type: none"> <i>United Counties of Stormont, Dundas and Glengarry Official Plan and Zoning By-law</i> <i>Township of North Stormont Official Plan and Zoning By-law</i> <i>Aerial photographic mapping and field reconnaissance</i> <i>Published data on public recreational facilities/activities</i> <i>Provincial Policy Statement</i> <i>Proposed facility characteristics</i> <i>Landfill design and operations data</i>
Environmental Component: Aggregate Extraction & Agricultural			
<i>Aggregate resources</i>	<i>Aggregate resources may be present in the area of the</i>	<ul style="list-style-type: none"> <i>Presence of known or identified aggregate resources and the</i> 	<ul style="list-style-type: none"> <i>Aggregate resources inventory mapping (ARIM)</i>

Evaluation Criteria	Rationale	Indicators	Data Sources
	<i>expanded landfill</i>	<i>predicted impact of impairment of their use due to the proposed footprint, construction and operation on-site.</i>	<ul style="list-style-type: none"> • Ontario geological survey • Borehole logs from previous field investigations • Proposed facility characteristics • Landfill design and operations data
<i>Effects on agricultural land</i>	<i>Adjacent agricultural land may be affected by the development of the facility.</i>	<ul style="list-style-type: none"> • Current land use • Predicted impacts on surrounding agricultural operations • Type(s) and proximity of agricultural operations (e.g. organic, cash crop, livestock). 	<ul style="list-style-type: none"> • Provincial Policy Statement • United Counties of Stormont, Dundas and Glengarry Official Plan and Zoning By-law • Township of North Stormont Official Plan and Zoning By-law • Aerial mapping and field reconnaissance • Canadian Lands Inventory (CLI) mapping • Proposed facility characteristics • Landfill design and operations data
Environmental Component: Design and Operations			
<i>Site design and operational characteristics</i>	<i>The characteristics of the existing and proposed site design and engineered system requirements will affect site activities and operational and maintenance requirements.</i>	<ul style="list-style-type: none"> • Complexity of site infrastructure • Operational flexibility 	<ul style="list-style-type: none"> • Existing and proposed site environmental control system designs and operational requirements • Proposed facility characteristics • Landfill design and operations data