



Supporting Document 3-9

Archaeological Resources Effects Assessment Report

Eastern Ontario Waste Handling Facility Future
Development Environmental Assessment

GFL Environmental Inc.

Moose Creek, Ontario

May 2, 2023

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Executive Summary

Archaeological Services Inc. (ASI) was contracted by GFL Environmental Inc. (GFL) to conduct an assessment of the effects of the future development of the Eastern Ontario Waste Handling Facility (EOWHF) on known and potential archaeological resources as part of the EOWHF Future Development Environmental Assessment (EA). The EA is being carried out in accordance with the requirements of the *Environmental Assessment Act* and Terms of Reference, which was approved by the Ministry of Environment, Conservation and Parks (MECP) on January 14, 2021.

This Archaeological Resources Effects Assessment Report assesses the effects of the EOWHF Future Development on the archaeological resources portion of the Cultural Environment. The effects of the EOWHF future development on Cultural Heritage are assessed in a separate report.

For the Archaeological Resources effects assessment, the potentially-affected areas were defined based on the Stage 1 Archaeological Assessment prepared for the project which involves the future development of the existing EOWHF onto neighbouring parcels. The general Off-site Study Area has been excluded from the Stage 1 Archaeological Assessment as only areas of direct impact are of concern for Archaeological Resources.

Key design considerations for the Archaeological Resources component of the Cultural Environment include any construction or operation activities that could affect archaeological resources. The construction and operation of Alternative Methods 1 and 2 will take place within the existing EOWHF site and adjacent future development lands (i.e., the On-site Study Area). Both alternative methods will continue to use established operating procedures currently in place at the EOWHF and will not require additional large equipment, changes to fill rates, or changes to site access routes. The net effects analysis for Alternative Methods 1 and 2 were based on the proposed construction and operational activities outlined in the Conceptual Design Report.

There is no potential for the disturbance of unassessed or documented archaeological resources from construction activities associated with either Alternative Method 1 or Alternative Method 2. There is no substantial difference between the two alternative methods, and no preferred alternative has been identified.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the

Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (atarchaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

Acronyms, Units and Glossary

Acronyms

Acronym	Definition
ASI	Archaeological Services Inc.
CDR	Conceptual Design Report
EAA	Environmental Assessment Act
EOWHF	Eastern Ontario Waste Handling Facility
GFL	GFL Environmental Inc.
GHG	Greenhouse Gas
HDR	HDR Corporation
LCS	Leachate collection system
LFG	Landfill gas
MECP	Ministry of Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries
OES	Ontario Electronic Stewardship
PIF	Project Information File
ToR	Terms of Reference

Units

Unit	Definition
km	kilometre
m	metre

Glossary

Term	Definition
Approval	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
Archaeological Assessment	For a defined area or property, a survey undertaken by a licensed archaeologist within those areas determined to have archaeological potential in order to identify archaeological sites, followed by evaluation of their cultural heritage value or interest, and determination of their characteristics. Based on this information, recommendations are made regarding the need for mitigation of impacts and the appropriate means for mitigation those impacts.
Archaeological Potential	The likelihood that a property contains archaeological resources.

Glossary

Term	Definition
Archaeological Resources	In the context of the Standards and Guidelines for Consultant Archaeologists (S & G), objects, materials and physical features identified by licensed archaeologists during a Stage 2 archaeological assessment as possibly possessing cultural heritage value or interest. Analysis using the criteria set out in the Standards and Guidelines determines whether those objects, materials and physical features meet the definition of an archaeological site under the Ontario Heritage Act and whether Stage 3 archaeological assessment is required. In various planning and development contexts, the term may refer to any or all of archaeological potential, artifacts and archaeological sites.
Bulking Material	Material such as woodchips added to high nitrogen materials like food scraps to provide a carbon source and increase the porosity of the compost.
Capacity (Disposal Volume)	The total volume of air space available for disposal of waste at a landfill site for a particular design (typically in m ³); includes both waste and daily cover materials but excludes the final cover.
Composting	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.
Composting facility	A facility designed to compost organic matter either in the presence of oxygen (aerobic) or absence of oxygen (anaerobic).
Environment	As defined by the Environmental Assessment Act, environment means: <ul style="list-style-type: none"> • air, land or water. • plant and animal life, including human life. • the social, economic and cultural conditions that influence the life of humans or a community. • any building, structure, machine or other device or thing made by humans. • any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or • any part or combination of the foregoing and the interrelationships between any two or more of them (ecosystem approach).
Environmental Assessment	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
Evaluation criteria	Evaluation criteria are considerations or factors taken into account in assessing the advantages and disadvantages of various alternatives being considered
Greenhouse gas	Any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons.
Indicators	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
Landfill gas	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
Landfill site	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.
Leachate	Liquid that drains from solid waste in a landfill and which contains dissolved, suspended and/or microbial contaminants from the breakdown of this waste.
Methane gas	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.

Glossary

Term	Definition
Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)	The governing body that enforces Part IV and V of the <i>Ontario Heritage Act</i> (now the Ministry of Tourism, Culture and Sport).
Mitigation	Measures taken to reduce adverse impacts on the environment.
Ontario Heritage Act	Legislation giving municipalities and the provincial government powers to preserve the heritage of Ontario by protecting heritage properties and archaeological sites. See https://www.ontario.ca/laws/statute/90o18 .
Ontario Public Register of Archaeology Reports	Section 65.1 of the Ontario Heritage Act provides for a register of archaeological reports. As a condition of their licence, archaeologists must document the results of the fieldwork they carry out in Ontario by filing archaeological reports with this ministry.
Project Information File	Provides information about a planned archaeological fieldwork project and the names of licensed archaeologists supervising fieldwork. It must be filed with the Ministry for each archaeological fieldwork project.
Proponent	A person who: <ul style="list-style-type: none"> • carries out or proposes to carry out an undertaking; or • is the owner or person having charge, management or control of an undertaking.
Receptor	The person, plant or wildlife species that may be affected due to exposure to a contaminant.
Standards and Guidelines for Consultant Archaeologists	Archaeological practices enforced by the Ministry of Heritage, Sport, Tourism and Culture Industries and required for use by licensed, consultant archaeologists conducting land-based archaeology in Ontario, in accordance with the <i>Ontario Heritage Act</i> .
Terms of Reference	A terms of reference is a document that sets out detailed requirements for the preparation of an Environmental Assessment.
Undertaking	Is defined in the Environmental Assessment Act as follows: <ul style="list-style-type: none"> • 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; • 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 • 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").
Waste	Refuse from places of human or animal habitation; unwanted materials left over from a manufacturing process.

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1 Introduction

Archaeological Resources Inc. (ASI) was contracted by GFL Environmental Inc. (GFL) to conduct an assessment of the effects of the future development of the Eastern Ontario Waste Handling Facility (EOWHF) on the Archaeological Resources portion of the Cultural Environment as part of the EOWHF Future Development Environmental Assessment (EA).

The EA is being carried out in accordance with the requirements of the *Environmental Assessment Act* (EAA) and Terms of Reference (ToR), which was approved by the Ministry of Environment, Conservation and Parks (MECP) on January 14, 2021.

The environment was divided into environmental aspects, components and evaluation criteria as listed in **Table 1-1**. Existing conditions reports and effects assessment reports have been prepared to address the environmental components.

Table 1-1. Environmental Aspects, Components and Evaluation Criteria

Environmental Aspect	Environmental Component	Evaluation Criteria
Natural Environment	Atmospheric Environment	<ul style="list-style-type: none"> • Air Quality • Noise • Odour
	Geology and Hydrogeology	<ul style="list-style-type: none"> • Groundwater Quality • Groundwater Quantity
	Surface Water Environment	<ul style="list-style-type: none"> • Surface Water Quality • Surface Water Quantity
	Ecological Environment	<ul style="list-style-type: none"> • Terrestrial Ecosystems • Aquatic Ecosystems
Socio-Economic Environment	Economic	<ul style="list-style-type: none"> • Economic Effects on / Benefits to Local Community
	Social	<ul style="list-style-type: none"> • Effects on Local Community • Visual Impact of Facility
Cultural Environment	Cultural Environment	<ul style="list-style-type: none"> • Cultural Heritage Resources • Archaeological Resources
Built Environment	Transportation	<ul style="list-style-type: none"> • Effects from Truck Transportation along Access Roads
	Current and Planned Future Land Use	<ul style="list-style-type: none"> • Effects on Current and Planned Future Land Uses
	Aggregate Extraction and Agricultural	<ul style="list-style-type: none"> • Aggregate Resources • Effects on Agricultural Land

This Archaeological Resources Effects Assessment Report assesses the effects of the EOWHF future development on the Archaeological Resources portion of the Cultural Environment. The effects of the EOWHF future development on Cultural Heritage Resources are assessed in a separate report.

The purpose of the proposed undertaking is to provide approximately 15.1 million cubic metres (m³) of additional landfill disposal capacity at the existing EOWHF over a 20-year planning period, with operations anticipated to begin in 2025 and closure anticipated in 2045. The undertaking will enable GFL to continue to provide disposal services for residual non-hazardous solid waste to their customers once the landfill reaches its currently approved disposal capacity and continue to provide economic support to the local community over the long term. No changes to the approved fill rates or site access routes are proposed.

Two alternative methods for carrying out the undertaking were identified in the approved ToR and are developed to a preliminary conceptual design level in the Conceptual Design Report (CDR). Both alternative methods provide a landfill volume of approximately 15.1 million m³ based on the approved fill rate of 755,000 tonnes per year over a 20 year planning period. Studies completed for the EOWHF have indicated that, based on the underlying soils, the design alternatives are limited to varying lateral configurations with a consistent height. Both alternative methods will continue to use established operating procedures currently in place at the EOWHF and would maximize the use of existing site infrastructure.

For both alternative methods, the design of the stages will be consistent with the existing landfill design. Visual screening will be constructed along the north and east perimeters and a portion of the south perimeter consisting of earthen berms and/or vegetation plantings. A new road entrance will be constructed from Laflèche Road, which will include a new scale facility.

Alternative Method 1 (**Figure 1-1**) consists of implementing the future development through five stages: one stage adjacent to and north of the existing landfill (Stage 5); and four stages oriented east-west within the future development lands (Stages 6 through 9). Stages 6 through 8 will be identical in size, while Stages 5 and 9 will be smaller. A stormwater management system will be constructed consisting of conveyance ditches around the perimeter of each stage and a retention pond located northwest of Stage 8. The existing pond located northeast of Stage 5 will be modified to attenuate peak flows if required.

Alternative Method 2 (**Figure 1-2**) consists of implementing the future development through four stages: one stage adjacent to and north of the existing landfill (Stage 5); and three stages oriented north-south within the future development lands (Stages 6 through 8). Stages 6 and 7 will be identical in size, while Stages 5 and 8 will be smaller. A stormwater management system will be constructed consisting of conveyance ditches around the perimeter of each stage and a retention pond located north of Stages 6 and 7. The existing pond located northeast of Stage 5 will be modified to attenuate peak flows if required.

The purpose of this Effects Assessment Report is to present the potential environmental effects of the alternative methods on Archaeological Resources, a comparison of the net effects of each alternative method, the selection of a preferred alternative, an assessment of the environmental effects of the preferred alternative, commitments and monitoring, and approvals from the Ministry of Heritage, Sport, Tourism and Culture

Industries (MHSTCI)¹. The results from this study will be documented in an EA Study Report in accordance with the approved ToR, which will be submitted to the MECP for review.

¹ Now the Ministry of Tourism, Culture and Sport.

Figure 1-1. Alternative Method 1



ISSUE	DATE	DESCRIPTION
H	2022-06-02	ISSUED FOR REVIEW
G	2022-05-13	ISSUED FOR REVIEW
F	2022-03-04	ISSUED FOR REVIEW
E	2021-11-17	ISSUED FOR REVIEW
D	2021-08-09	ISSUED FOR REVIEW
C	2021-06-29	ISSUED FOR REVIEW
B	2021-06-15	ISSUED FOR REVIEW
A	2021-03-04	DRAFT FOR DISCUSSION

DESIGN	AJC
DRAWN	AJC
CHECKED	MS
APPROVED	LF
PROJECT NUMBER	10287087

PLANNING PURPOSES ONLY
 NOT FOR CONSTRUCTION

GFL ENVIRONMENTAL EASTERN ONTARIO
 WASTE HANDLING FACILITY
 FUTURE LANDFILL EXPANSION
 CONCEPT

PROPOSED TOP OF FINAL
 CONTOURS
 ALTERNATIVE 1 PLAN

SCALE	1:150,000
FILENAME	C-103.dwg
DRAWING	

Figure 1-2. Alternative Method 2



ISSUE	DATE	DESCRIPTION
H	2022-06-02	ISSUED FOR REVIEW
G	2022-05-13	ISSUED FOR REVIEW
F	2022-03-04	ISSUED FOR REVIEW
E	2021-11-17	ISSUED FOR REVIEW
D	2021-08-09	ISSUED FOR REVIEW
C	2021-06-29	ISSUED FOR REVIEW
B	2021-06-15	ISSUED FOR REVIEW
A	2021-03-24	DRAFT FOR DISCUSSION

DESIGN	AJC
DRAWN	AJC
CHECKED	MS
APPROVED	LF
PROJECT NUMBER	10287067

PLANNING PURPOSES ONLY
 NOT FOR CONSTRUCTION

GFL ENVIRONMENTAL EASTERN ONTARIO
 WASTE HANDLING FACILITY
 FUTURE LANDFILL EXPANSION
 CONCEPT

PROPOSED TOP OF FINAL
 CONTOURS
 ALTERNATIVE 2 PLAN

0 100 200 300 m
 FILENAME: C-104.dwg
 SCALE: 1:150,000

DRAWING

2 Effects Assessment Methods

Using the evaluation criteria, indicators, rationale and data sources from the approved ToR and the existing conditions from the Stage 1 Archaeological Assessment Report (ASI 2022: P383-0205-2020), the effects assessment is carried out as follows:

- predict the potential environmental effects for each alternative method (Section 3);
- identify the preferred alternative based on a comparative evaluation of the potential environmental effects of each alternative method (Section 4); and
- conduct an effects assessment on the preferred alternative, including the identification of mitigation measures and monitoring programs (Sections 4 and 5).

2.1 Predict Potential Environmental Effects for Alternative Methods

The potential environmental effects for each alternative method are identified based on the application of the evaluation criteria, indicators and data sources in the approved ToR and based on the maximum allowable waste receipt level for the EOWHF landfill. The potential effects can be positive or negative, direct or indirect, and short- or long-term. Mitigation measures are identified to minimize or mitigate the potential effects and then the net effects are evaluated taking into consideration the application of mitigation measures.

2.1.1 Study Areas

The existing EOWHF is located within the Township of North Stormont, approximately 5 km north-northwest of the village of Moose Creek, Ontario, and 5 km east of the village of Casselman, Ontario, 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 Lafèche Road, Moose Creek, Ontario. The lands to the east of the existing EOWHF being considered for the future development include the eastern half of Lot 16, Lots 14 and 15, and the majority of Lot 13 of Concession 10. The existing EOWHF encompasses a site area of 189 hectares, while the lands to the east of the existing EOWHF being considered for future development include approximately 240 hectares.

The study areas include the existing site as well as potentially affected surrounding areas. The on-site and off-site study areas (**Figure 2-1**) identified for the EA in the approved ToR are as follows:

- On-site Study Area – the existing EOWHF, and the future development area comprising the eastern half of Lot 16, Lots 14 and 15, and the majority of Lot 13 of Concession 10 east of the EOWHF; and
- Off-site Study Area – the lands in the vicinity of the future development extending approximately 1 kilometre from the on-site study area.

Figure 2-1. On-Site and Off-Site Study Areas



For the Archaeological Resources effects assessment, the potentially-affected areas are defined based on the Stage 1 Archaeological Assessment (ASI 2022: P383-0205-2020) prepared for the project which involves the future development of the existing EOWHF onto neighbouring parcels (**Figure 2-2**). The general Off-site Study Area has been excluded from the Stage 1 Archaeological Assessment as only areas of direct impact are of concern for Archaeological Resources.

For the purposes of the Stage 1 Archaeological Assessment, lands to the south of the existing EOWHF were included in the study area (not shown on **Figure 2-2**); however, these lands are not part of the EOWHF future development and are therefore not included in this assessment. A Stage 1 Archaeological Assessment was completed in 1999 for the entire 189 hectare EOWHF site as part of the original EA for the landfill (Wright 1999) and determined that there is no archaeological potential within the boundaries of the existing EOWHF On-Site Study Area, including the northeastern corner of the site where Stage 5 of the EOWHF future development will be located, and recommended no further study. The On-Site Study Area was not re-assessed in the 2022 Stage 1.

Figure 2-2. Study Areas for Archaeological Resources

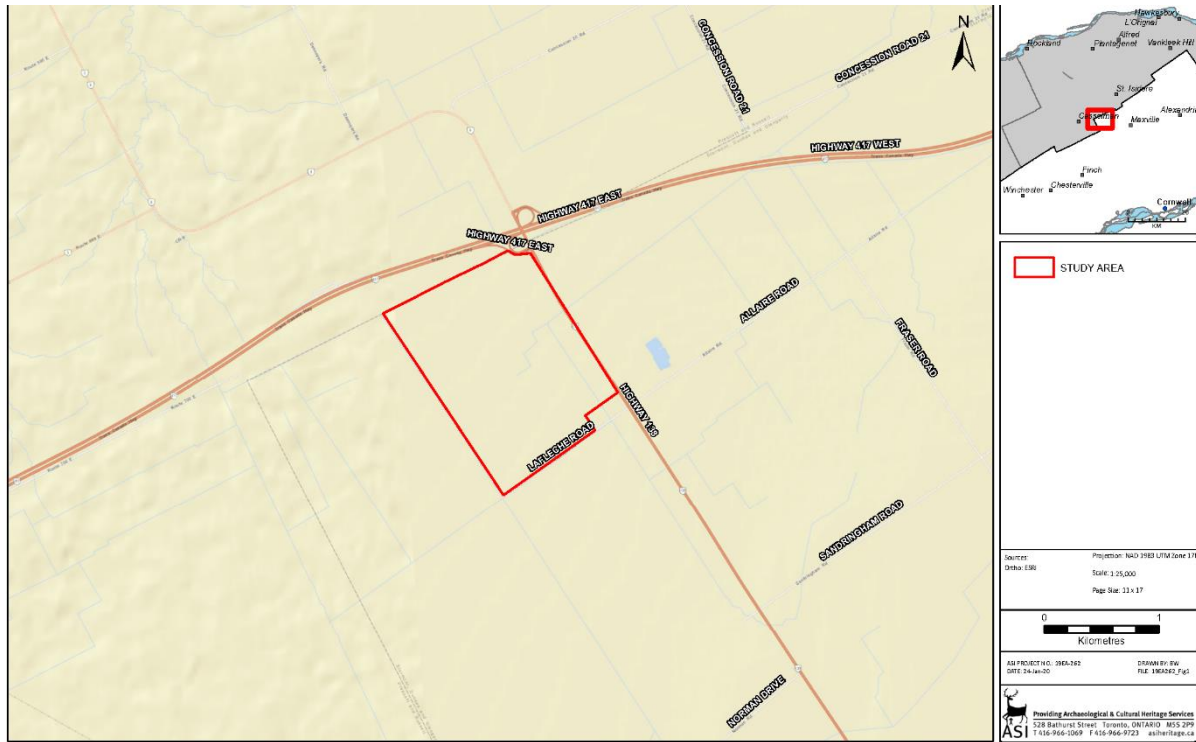


Figure 1: EOWHF Study Area

2.1.2 Evaluation Criteria, Indicators and Data Sources

The evaluation criteria, rationale, indicators and data sources used for the Archaeological Resources effects assessment as per the approved ToR are provided in **Table 2-1**.

Table 2-1. Evaluation Criteria, Indicators and Data Sources for the Archaeological Resources

Evaluation Criteria	Rationale	Indicators	Data Sources
Archaeological Resources			
Archaeological Resources	Archaeological resources are non-renewable cultural resources that can be destroyed by the construction and operation of a waste disposal facility.	Predicted impacts to archaeological resources on-site and in vicinity	<ul style="list-style-type: none"> Existing Stage 1 Archaeological Assessment for the EOWHF site MHSTCI Correspondence Stage 1 Archaeological Assessment for the future development lands

2.1.3 Key Design Considerations and Assumptions

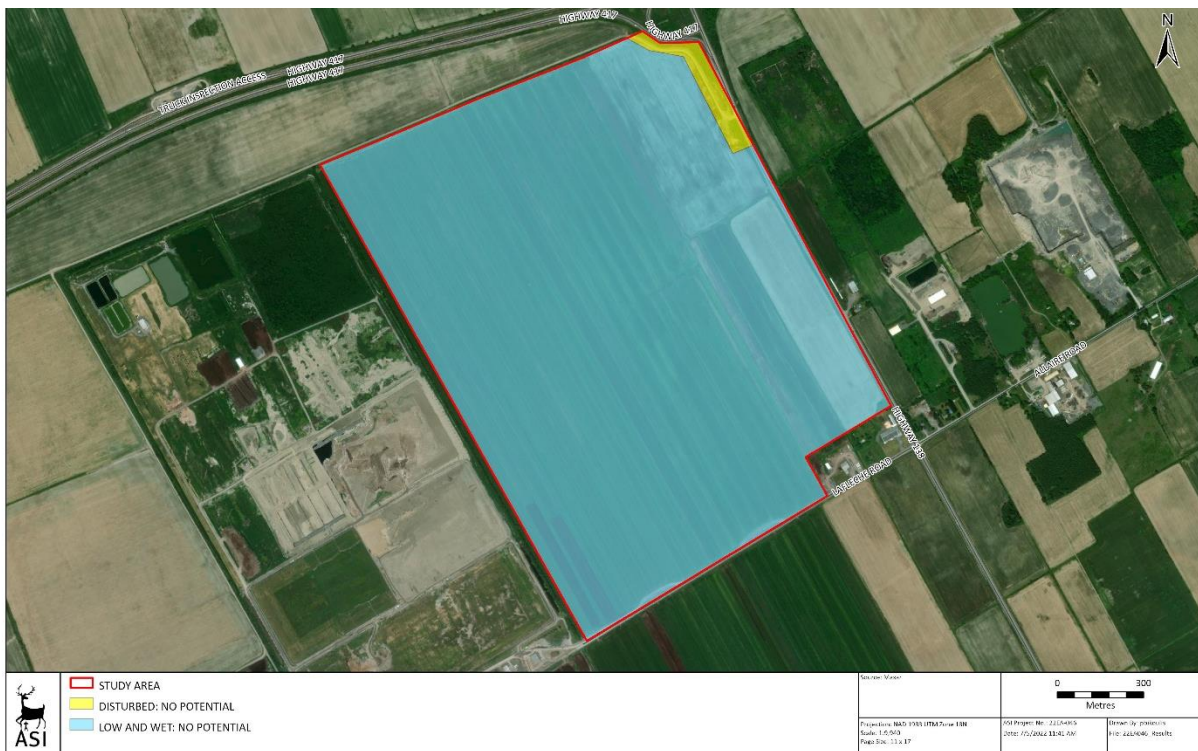
The alternative methods of carrying out the undertaking are described in detail in the CDR. Regarding the alternative methods, the key design considerations and assumptions as they relate to the Archaeological Resources component of the Cultural Environment are described below. Key design considerations include any construction or operation activities that could affect Archaeological Resources.

Summary of Existing Conditions

The on-site and off-site areas were once part of the Moose Creek wetland. A Stage 1 Archaeological Assessment was completed in 1999 for the entire 189 hectare EOWHF site as part of the original EA for the landfill (Wright 1999). The Stage 1 Archaeological Assessment determined that there is no archaeological potential within the boundaries of the existing EOWHF site, including the northeastern corner of the site where Stage 5 of the EOWHF future development will be located, and recommended no further study. Provincial interest in archaeology for the 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.

A recent Stage 1 Archaeological Assessment completed in 2020 for the future development lands² (ASI 2022: PIF P383-0205-2020) determined that the area has no previously registered archaeological sites and that it has no archaeological potential due to deep and extensive land disturbance and permanently low and wet conditions (**Figure 2-3**). The assessment was entered into the Ontario Public Register of Archaeology Reports on June 20, 2022.

Figure 2-3. Recommendations from the Stage 1 Archaeological Assessment



² Lands to the south of the existing EOWHF were included in the study area for the Stage 1 Archaeological Assessment; however, these lands are not part of the EOWHF future development and are therefore not included in this assessment.

Design Considerations and Assumptions

The construction and operation of Alternative Methods 1 and 2 will take place within the existing On-site Study Area (i.e., the existing EOWHF site and the future development lands). Both alternative methods will continue to use established operating procedures currently in place at the EOWHF and will not require additional large equipment, changes to fill rates, or changes to site access routes. The net effects analysis for Alternative Methods 1 and 2 were based on the proposed construction and operational activities outlined in the Conceptual Design Report including:

- Base excavation into native soils.
- Construction of perimeter berms around each stage.
- A Leachate Collection System (LCS) consisting of granular layers and a piping network with collected leachate conveyed to leachate aeration ponds located in the southeast part of the existing landfill and then to a leachate treatment plant located north of the existing landfill.
- Final contours on the top and perimeter of each stage.
- Low permeability final cover consisting of a soil/geomembrane composite.
- A Landfill Gas (LFG) collection system consisting of vertical extraction wells and lateral and header piping within the waste. Collected LFG will be conveyed to the existing LFG-to-energy plant.
- A stormwater management system consisting of conveyance ditches around the perimeter of each stage and a retention pond. The existing pond located northeast of Stage 5 will be modified to attenuate peak flows if required.
- Visual screening constructed along the north and east perimeters and a portion of the south perimeter consisting of earthen berms and/or vegetation plantings.
- A new road entrance from Laflèche Road, including a new scale facility.
- Soil storage pads.
- An internal road network permitting access to the new stages.

Vehicles currently travel to the site via Highway 417, Highway 138 and Laflèche Road, or via Highway 401, Highway 138 and Laflèche Road. No changes to traffic volumes beyond currently-approved levels or changes to waste haul routes are anticipated as a result of the EOWHF future development.

2.2 Comparative Evaluation and Identification of the Preferred Alternative

The two alternative methods are comparatively assessed and evaluated using the criteria and indicators to determine the preferred alternative. The differences in the potential environmental effects remaining following the implementation of potential mitigation/management measures (i.e., net effects) are used to identify and compare the advantages and disadvantages of each alternative method.

The net environmental effects are utilized in a comparison of the two alternative methods to one another at the criteria and indicator level for each discipline. The following two-step- method was applied to carry out the comparative evaluation for the Archaeological Resources component of the Cultural Environment:

1. Identify the predicted net effect(s) associated with each alternative for each indicator and assign a preference rating (i.e., Preferred, Not Preferred, No Substantial Difference); and
2. Rate each alternative at the criteria level (i.e., Preferred, Not Preferred, No Substantial Difference) based on the identified preference rating for each indicator and provide a rationale.

2.3 Effects Assessment of the Preferred Alternative

An assessment of the environmental effects of the preferred alternative is carried out considering the same criteria, indicators and data sources, taking into account potential mitigation/management measures and cumulative effects. The effects assessment of the preferred alternative will be presented in the EA Study Report.

3 Net Effects Assessment

The results of the net effects assessment for each alternative method are provided in Sections 3.1 and 0.

The Stage 1 Archeological Assessment determined that the future development lands have no previously registered archaeological sites and no archaeological potential due to deep and extensive land disturbance and permanently low and wet conditions. A Stage 1 Archeological Assessment in 1999 determined that there is no archaeological potential within the boundaries of the existing EOWHF site, including the northeastern corner of the site where Stage 5 of the EOWHF future development will be located. There is no potential for the disturbance of unassessed or documented archaeological resources from construction activities associated with either Alternative Method 1 or Alternative Method 2. No mitigation measures will be required. No further archaeological assessment is required.

3.1 Alternative Method 1

The net effects assessment for Alternative Method 1 is presented in **Table 3-1**.

Table 3-1. Net Effects Assessment – Alternative Method 1

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Archaeological Resources	Predicted impacts to archaeological resources on-site and in vicinity	<ul style="list-style-type: none"> • The Stage 1 Archaeological Assessment for the EOWHF future development lands determined that there is no archaeological potential • Previous Stage 1 Archaeological Assessment for the EOWHF site determined that there is no archaeological potential within the boundaries of the existing EOWHF site including the proposed Stage 5 area • The construction and operation of Alternative Method 1 will take place within the existing On-site Study Area (existing EOWHF site and future development lands) 	No potential for the disturbance of unassessed or documented archaeological resources	Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the <i>Ontario Heritage Act</i> . The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the <i>Ontario Heritage Act</i> . The <i>Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33</i> requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (atarchaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the <i>Ontario Heritage Act</i> .	No net effects on archaeological resources

3.2 Alternative Method 2

The net effects assessment for Alternative Method 2 is presented in **Table 3-2**.

Table 3-2. Net Effects Assessment – Alternative Method 2

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Archaeological Resources	Predicted impacts to archaeological resources on-site and in vicinity	<ul style="list-style-type: none"> • The Stage 1 Archaeological Assessment for the EOWHF future development lands determined that there is no archaeological potential • Previous Stage 1 Archeological Assessment for the EOWHF site determined that there is no archaeological potential within the boundaries of the existing EOWHF site including the proposed Stage 5 area • The construction and operation of Alternative Method 1 will take place within the existing On-site Study Area (existing EOWHF site and future development lands) 	No potential for the disturbance of unassessed or documented archaeological resources	Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the <i>Ontario Heritage Act</i> . The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the <i>Ontario Heritage Act</i> . The <i>Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33</i> requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (atarchaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the <i>Ontario Heritage Act</i> .	No net effects on archaeological assessment resources

4 Comparative Evaluation of Net Effects and Identification of the Preferred Alternative

A comparative evaluation of the net effects of each alternative method and the identification of a preferred alternative are carried out in accordance with the methods described in Section 2.2. The results of the comparative evaluation are provided below.

4.1 Comparative Evaluation Results

The results of the comparative evaluation for the Archaeological Resources component of the Cultural Environment are provided in **Table 4-1**.

Table 4-1. Comparative Evaluation of Net Effects for Archaeological Resources

Evaluation Criteria	Indicators	Net Effects of Alternative Methods	
		Alternative Method 1	Alternative Method 2
Archaeological Resources	Predicted impacts to archaeological resources on-site and in vicinity	No net effects on archaeological resources. No Substantial Difference	No net effects on archaeological resources. No Substantial Difference
	Criteria Rating & Rationale	<i>There is no substantial difference between the alternative methods as neither will result in net effects on archaeological resources.</i>	

4.2 Advantages and Disadvantages of the Preferred Alternative

The differences in net effects are used to identify and compare the advantages and disadvantages of each alternative method. As no net effects were identified, there is no substantial difference between the two alternative methods, and no preferred alternative has been identified.

5 Commitments and Monitoring

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the

Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (atarchaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

6 Environment Approvals

In addition to EA approval, the following Cultural Environment approval has been obtained:

- The Stage 1 Archaeological Assessment (2022) was reviewed for compliance with the MHSTCI *Standards and Guidelines for Consultant Archaeologists* (2011) and was confirmed by the MHSTCI as having been entered into the Ontario Public Register of Archaeology Reports on June 20, 2022.

7 References

Archaeological Services Inc.

- 2022 Stage 1 Archaeological Assessment Eastern Ontario Waste Handling Facility Future Development Part of Lots 13-16, Concession 10 and Lots 16-19 Concession 9 (Former Township of Roxborough, County of Dundas) Township of North Stormont United Counties of Stormont, Dundas and Glengarry, Ontario. May 5, 2022.

Ministry of Tourism, Culture and Sport

- 2011 *Standards and Guidelines for Consultant Archaeologists*

Mount McGovern Co. Ltd.

- 1999 Stage 1 Archaeological Assessment of the Proposed Roxborough Landfill Site, Lots 16, 17, 18, Con. 10 Twp. Of N. Stormont, United Counties of Stormont, Dundas & Glengarry. September 20, 1999.