

Project and Work Plan Overview (Final)

This Archaeological Assessment work plan has been prepared to support the environmental assessment (EA) for the Ridge Landfill expansion and is based on the commitments made in the final amended Terms of Reference (ToR) for the EA that was approved by the Ministry of the Environment and Climate Change (MOECC) in May of 2018.

Waste Connections of Canada (Waste Connections) is proposing an expansion of the Ridge Landfill in order to continue to provide long-term residual disposal capacity for the company's large IC&I customer base and as a regional and inter-regional waste management facility to serve the projected increase in population and economic growth in southern and central Ontario.

The Ridge Landfill has been in operation since 1966 and was previously expanded in 1999. Waste Connections owns 340 hectares (ha) of land at the Ridge Landfill. The existing Landfill Site Area, which is permitted by an ECA from the MOECC for waste management and environmental work purposes, is 262 ha. The area within which waste disposal is permitted, called the Waste Fill Area, is 131 ha or half of the Landfill Site Area. As of December 2017, it is estimated that the existing Waste Fill Area at the Ridge Landfill site will provide waste disposal capacity until approximately 2021 at the current fill rate.

The current approved capacity for the Ridge Landfill is 21 million cubic metres (m³). The site is approved to accept a maximum of 1,300,000 tonnes of waste per year (the MOECC approved annual waste disposal rate). The EA does not propose to increase the maximum annual fill rate (this would remain as-is); however, Waste Connections is seeking the EA to increase the life of the facility for a 20 year planning period, from 2022-2041.

The waste being landfilled is approximately 98% IC&I waste and 2% residential waste. As part of the EA approval, Waste Connections would agree to reduce their IC&I service area from all of Ontario to just southern and central Ontario, and their residential service area from Chatham-Kent and the neighbouring counties of Essex, Lambton, Middlesex and Elgin, to only the Municipality of Chatham-Kent.

This Archaeological work plan outlines the tasks to support the evaluation of alternative methods, and to undertake an impact assessment once the preferred alternative method is determined. The following paragraphs provide a brief summary of the scope of the Archaeological Assessment work, including protocols and/or standards to be adhered to while work is undertaken.

The Archaeological Assessment will seek to identify the potential for cultural heritage or archaeological impacts on-site as a result of the proposed expansion. It is noted that a portion of the on-site area was previously studied for archaeology and heritage in 1997, and the purpose of this study would be to assess the remainder of the landfill property.

The Archaeological Assessment would be comprised of a Stage 1 and /or Stage 2 Archaeological Assessment. The Stage 1 Archaeological Assessment would include desktop evaluation of archaeological potential, and a field visit to confirm findings. If archaeological or heritage potential is deemed likely, a Stage 2 (field investigation) may be required to further identify potential impacts of development.

It is noted that to date, the Stage 1 Archaeological Assessment has been completed, and recommended that a Stage 2 Archaeological Assessment be completed prior to development.

For the purposes of the Archaeology and Heritage Scope of work, the study area has been defined as follows:

- On-Site Study Area (“on-site”) – includes the property on which the current Ridge Landfill and proposed expansion is situated.

The focus of the archaeological and cultural heritage assessment is limited to the on-site area as this is the area that has the potential to be disturbed. The off-site area will not be disturbed as a result of the project, and the landfill haul route would remain the same for an expanded landfill. It is expected that the study area for Stage 2 archaeological work (i.e., field investigation) will be further refined within the site, once the preferred site development alternative method is determined.

Following the selection of the preferred landfill expansion alternative, a scope of work will be prepared to complete a Stage 2 Archaeological Assessment. It is anticipated that this would include both pedestrian transect surveys and test pitting in areas that are not able to be ploughed (i.e., woodlots). A full scope of work for Stage 2 activities will be provided to Waste Connections once the preferred site development alternative method is identified.

A summary of additional commitments for the Archaeology assessment is provided below.

Commitment	Reference to applicable section in EA or supporting document
Waste Connections will keep Walpole Island First Nation and Aamjiwnaang First Nation updated as to the anticipated timing of the Stage 2 Archaeological Assessment and will coordinate a meeting with the archaeologist if requested by WIFN.	This will be addressed through the consultation program for the Ridge Landfill Expansion EA. This will also be summarized in the EA (section TBD).
The EA will determine the potential effects of the Project on the cultural environment within the study areas. Potential effects can be short-term or long-term, direct or indirect and positive or negative. The EA will also identify ways to reduce or mitigate potential negative effects on these environments and will consider our changing climate.	Recommendations to mitigate potential effects to cultural heritage or archaeological features will be identified once the Stage 2 Archaeological Assessment has been completed. This will also be summarized in the EA (section TBD).

May 6, 2016

VIA EMAIL

Megan Bellamy
Dillon Consulting Limited
235 Yorkland Blvd., suite 800
Toronto, ON M2J 4Y8

Dear Megan:

Re: Stage 1 Archaeological Assessment and Cultural Heritage Resource Assessment for Proposed Ridge Landfill Expansion, Blenheim

ASI File # 16EA-143_144

1.0 INTRODUCTION

Further to your Request for Proposal, we are pleased to submit the following proposal for a Stage 1 Archaeological Assessment and Cultural Heritage Resource Assessment for Proposed Ridge Landfill Expansion, Blenheim. Our proposal submission is structured to respond to the requirements of the Request for Proposal and provides a description of the project team, including key personnel and their qualifications, highlights of our firm's relevant experience, our project approach, proposed work plan and schedule, and proposal terms and deliverables.

Archaeological Services Inc. (ASI) acknowledges that this assessment is to be conducted as an individual environmental assessment project under the Environmental Assessment Act. We understand that Dillon Consulting Limited has been retained by Progressive Waste Solutions to complete the IEA for a proposed expansion to the Ridge Landfill located in Blenheim, Ontario. The scope of the archaeological and cultural heritage assessments is to confirm existing conditions within the study areas (on-site, off-site within 1 km of the maximum fill area and along the haul route) and assess the potential impacts of the undertaking.

KEY CONTACTS: Sarah Jagelewski (Assistant Manager) sjagelewski@asiheritage.ca (ext. 237) and Andrew Riddle (Senior Project Manager) ariddle@asiheritage.ca and Lindsay Graves (Senior Project Manager) lgraves@asiheritage.ca (ext. 22).

2.0 STAFF AND CORPORATE EXPERIENCE

The Senior Project Manager for the Archaeological Assessment will be **Dr. Andrew Riddle** (PhD, Anthropology), who will also provide Quality Control for all relevant deliverables. Dr. Riddle is a Senior Archaeologist with Archaeological Services Inc. and has been with the firm since 2009; he is Manager of Environmental Assessment Projects (West). Dr. Riddle has over 10 years experience in Aboriginal and Euro-Canadian archaeology and has completed and/or directed dozens of single and multi-phased assessments and mitigative excavations throughout northern and southern Ontario. For the last three years, he directed ASI's Stage 2 through Stage 4 archaeology for the South Kent Wind Project, as well as numerous other Renewable Energy Approval and infrastructure projects. Dr. Riddle is a member of the Ontario Archaeological Society, the Canadian Archaeological Association, the Society for American Archaeology, and is licensed by the Ministry of Tourism, Culture and Sport (P347).

The Senior Project Manager for the Cultural Heritage Resource Assessment will be **Ms. Lindsay Graves** (MA, Heritage Conservation), Assistant Manager of the Cultural Heritage Division at ASI. Ms. Graves is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over ten years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Ms. Graves has managed and conducted numerous built heritage and cultural heritage landscape assessments, heritage recordings and evaluations, and heritage impact assessments under the *Ontario Environmental Assessment Act* for Class Environmental Assessments and Individual Environmental Assessments, and as required for various planning studies, throughout the Province of Ontario. Ms. Graves has a specific interest in methods for identifying, analyzing, and evaluating cultural heritage landscapes and has conducted cultural heritage landscape assessments in a wide variety of settings. Ms. Graves is a member of the Canadian Association of Heritage Professionals.

ASI was founded in 1980 in response to increasing public awareness of the importance of Ontario's heritage resources, particularly archaeological sites, cultural landscapes, and heritage buildings. We offer the widest array of heritage consulting services in the province, including research, planning, design and development of cultural heritage resources.

We have completed over 5,000 projects throughout Ontario, and with a full time, permanent, staff of over 50 individuals and an additional seasonal staff of up to approximately 50 field technicians, we have the logistical and human resources necessary to bring any cultural heritage management project to fruition.

ASI's archaeologists are licensed by the Ontario Ministry of Tourism, Culture and Sport to conduct research on sites of all time periods throughout the entire province. Our archaeological staff has the professional depth of expertise and experience to deal with any archaeological resource, ranging from relatively recent Euro-Canadian settlement to the earliest Aboriginal occupations. We are equally adept in rural greenfield and urban or brownfield settings. Our range of archaeological services includes: Stage 1-3 archaeological assessments and Stage 4 mitigations as required under the Environmental Assessment and Planning acts, the Renewable Energy Approval Regulation and by legislation related to natural resource extraction activities; and burial and cemetery investigations under the Funeral, Burial and Cremation Services Act. We also routinely undertake large-scale planning studies for municipalities that include archaeological potential modelling and policy development.

Our cultural heritage specialists, consisting of a team of dedicated and diverse professionals, offer a range of consulting services in built heritage and cultural landscape conservation, planning and management, most notably in the context of environmental assessment or land-use planning and development activities, as well as cultural resource management plans of many types. They frequently provide project management in complex, multi-component cultural heritage projects and have particular strengths in historical research, built heritage and cultural landscape inventories, heritage conservation district studies, and heritage bridge conservation.

We are also leaders in establishing Aboriginal Engagement programs, where appropriate, in recognition of the ongoing interests Aboriginal communities may have concerning the cultural heritage remains left by their ancestors. We undertake engagement and consultation in the context of large-scale land-use planning projects, site-specific archaeological mitigation decisions and Traditional Ecological Knowledge studies.

For more information, visit our website at www.asiheritage.ca



3.0 WORK PLAN

Stage 1 Archaeological Assessment

For this assessment, ASI will follow the *Standards and Guidelines for Consultant Archaeologists (S & G)* administered by the Ministry of Tourism, Culture and Sport (MTCS). Following the S & G is a condition of our licenses to conduct archaeological fieldwork in Ontario. The Stage 1 Archaeological Assessment (S & G Section 1) focuses on conducting background research on the project study area and includes the following tasks:

Task 1: Background Research (S & G Section 1.1)

ASI's existing database of known archaeological sites within the study area will be updated by:

- Reviewing pertinent provincial and federal government files (Ontario Archaeological Sites Database); and
- Reviewing and compiling the results of a literature search (published and unpublished).

Deliverables: none.

Task 2: Archaeological Site Potential Evaluation (S & G Section 1.2)

The archaeological site potential of the study area will be determined by:

- Reviewing archaeological site location data updated during Task 1;
- Evaluating the property's archaeological potential, based on characteristics that indicate where archaeological resources are most likely to be found;
- Reviewing site-sensitive factors: if one or more cemeteries are located within the study area, municipal and/or regional cemetery officials and/or heritage planners will be notified to obtain relevant information if necessary. An on-site visit may be conducted as part of the property inspection; and
- Conducting a property inspection of the project study area. This will be undertaken in order to review the project study area (and layout) and to confirm and photo-document archaeological site potential. The property inspection will occur when weather conditions permit good visibility of land features. The inspection **cannot** occur when weather conditions may reduce the chances of observing features of archaeological potential (e.g., snow cover, frozen ground, excessive rain or drought) (S & G Section 1.2). **PLEASE NOTE:** ASI usually conducts the property inspection from public rights-of-way which does not involve a physical survey of any project lands.

Deliverables: none.

Task 3: Report Preparation (S & G Section 7.7)

A Stage 1 Archaeological Assessment report will be prepared which will describe the results of all background research and the property inspection fieldwork conducted, and will contain all necessary photographic and cartographic documentation. The report will include the following:

- Results of the background research pertaining to previous archaeological investigations;
- Geo-environmental setting and historic settlement;
- Evaluation of archaeological site potential; and
- Result of the property inspection.

The report will provide recommendations for Stage 2 assessment, if necessary.

Deliverables: ASI will prepare one report in digital format for **Dillon Consulting Limited** review and approval. Should changes be required, ASI will prepare and re-submit a revised report to the **Dillon Consulting Limited**. **PLEASE NOTE**: this report will also be submitted to the MTCS for review and in accordance with licensing requirements under the *Ontario Heritage Act*.

Cultural Heritage Resource Assessment Work Plan

The following work plan is guided by the following documents and legislation: Guidelines for Preparing the Cultural Heritage Resource Component of Environmental Assessments (1992); the Ontario Heritage Act (2005); Ontario Heritage Toolkit (2006), and the Chatham-Kent Official Plan (2016). The cultural heritage resource assessment focuses on conducting and analyzing background research and field survey results for the purposes of identifying impacts of the proposed undertaking on cultural heritage resources.

The Cultural Heritage Resource Assessment will involve the following four tasks.

Task 1: Background Historical Research and Preliminary Feature Identification

A brief review of available primary and secondary source material will be undertaken to produce a contextual overview of the study area, including a general description of Euro-Canadian settlement and land use, and the development of transportation infrastructure. Available historic mapping, existing condition mapping, project mapping, and aerial photographs will be reviewed, if available, and relevant agencies and authorities will be contacted as necessary, in order to make a preliminary identification of existing built heritage features and cultural heritage landscapes within the study area. As part of this task, municipal heritage inventories are reviewed to identify properties and resources that have been previously identified as being of potential cultural heritage value, or which have been designated under the *Ontario Heritage Act*.

Deliverables: none

Task 2: Field Survey

A field review will be undertaken to identify and photograph individual built heritage resources and cultural landscapes within accessible portions of the study area. The results of survey will be recorded on survey forms where appropriate. Based on the results of field review, potential impacts to built heritage resources and cultural heritage landscapes will be identified.

Deliverables: none

Task 3: Impact Assessment

Identified impacts to built heritage features and cultural heritage landscapes will be evaluated and recommendations and mitigation measures will be developed as appropriate.

Deliverables: none.

Task 4: Report preparation

Report preparation will be undertaken to describe the results of the background research, cultural heritage field inventory and agency contacts (if any) and to identify sensitivities. Advice will be provided on direct and indirect impacts of construction and mitigation measures will be identified.

Deliverables: ASI will prepare a report in digital format for **Dillon Consulting Limited** review and approval. Should changes be required, ASI will prepare and re-submit a revised report.

5.0 WORK SCHEDULE

The following represents our proposed work schedule, pending confirmation by **Dillon Consulting Limited**, and receipt of requested project documentation:

- Initiate Project: date that signed and completed ASI's "Project Confirmation and Consent Form" is received, or a comparable sub-consultant agreement is executed;
- Conduct Stage 1 Background Research and Property Inspection: ASI will commence Stage 1 Archaeological Assessment activities within two-four weeks of receipt of all mapping and other start-up documentation requested from **Dillon Consulting Limited**, as well as receipt of the Ministry of Tourism, Culture and Sport's "Project Information Form" and Archaeological Site Data Inventory;
- Conduct Cultural Heritage Resource Assessment Background Research and Preliminary Feature Identification: ASI will commence the background historical research activities *within two-four weeks* of receipt of all requested project documentation. Please note that this schedule may be subject to change based on the date of project confirmation;
- Conduct Field Survey for Cultural Heritage Resource Assessment: ASI will commence field review activities following receipt of all requested project documentation and within *four-six weeks* following completion of background research;
- Prepare and Submit Interim Invoices: As applicable, ASI will prepare and submit one or more interim invoices *to cover work tasks completed up to and including all field assessment activities*. **PLEASE NOTE**: all archaeological and heritage assessment work will be billed separately.
- Prepare and Submit Stage 1 Archaeological Assessment Report: ASI will prepare and submit a report to **Dillon Consulting Limited** for review within *four-six weeks* of completion of fieldwork;
- Prepare and Submit Cultural Heritage Resource Assessment Report: ASI will prepare and submit a report to **Dillon Consulting Limited** for review *within four-six weeks* of completion of fieldwork. **PLEASE NOTE**: This work schedule may require revision depending on the quantity and type of cultural heritage resources;
- Prepare and Submit Final Invoices: Once the reports have been submitted to **Dillon Consulting Limited** for review and approval, ASI will prepare and submit final invoices *to cover all remaining project tasks, including data analysis and report preparation*. **PLEASE NOTE**: ASI is bound by professional ethics to complete all outstanding report obligations to **Dillon Consulting Limited** subsequent to final invoicing: Should **Dillon Consulting Limited** request follow-up revisions to the report, ASI will respond as appropriate and re-submit the report within seven (7) days for approval.

FURTHERMORE, in order for ASI's archaeologists with professional licenses to be compliant with the *Ontario Heritage Act*, they must secure Ministry of Tourism, Culture and Sport acceptance of the project report and concurrence with its recommendations. The report, therefore, must be submitted to the Ministry for review and licensing purposes *in a timely manner*. If **Dillon Consulting Limited** has not provided ASI with any comments and/or approval on the Archaeological Assessment report within 30 days of final report submission, or if special



arrangements have not been made in advance for their receipt, ASI will notify **Dillon Consulting Limited** that it will submit the final Archaeological Assessment report to the Ministry of Tourism, Culture and Sport without further delay.

6.0 TERMS OF PAYMENT

- Net due within **10 days** of **Dillon Consulting Limited's** receipt of payment.
- Requests for clarification, correction, or amendment of invoices must be made within five (5) business days from receipt of invoice.

7.0 DELIVERABLES

7.1 Dillon Consulting Limited to ASI

- Written Project Confirmation: Prior to project initiation, ASI requires written project confirmation either by completing and signing the attached "Project Confirmation and Consent Form" and returning it to ASI by FAX or scanned image (.pdf format), or by a sub-consultant agreement or other formal document. **It is imperative that this written confirmation indicate to whom the invoice(s) will be directed;**
- Permission to Enter Property: Stage 1 Archaeological Assessment property inspections and Cultural Heritage field reviews are typically conducted from public rights-of-way and PTEs are not normally required;
- Mapping: Prior to the initiation of the archaeological and heritage assessments, ASI requests the following:
 - Key plan of project study area (Adobe Acrobat® [.pdf] or .jpg format);
 - GIS data (ESRI shapefiles), including but not limited to the following:
 - **Required**
 - Project Layout (area that will be impacted by the project, including access roads, staging areas etc.);
 - Road network data;
 - Watercourses (including wetlands and drains);
 - Vegetation Cover;
 - Parcel fabric/Lot information (including municipal address and ownership);
 - **Optional**
 - Orthoimagery;
 - Existing building footprints;
 - Elevation data (DEM);
 - Multi-spectral remote sensing data.

PLEASE NOTE: ASI prefers to receive GIS data but will also work with CAD (.dwg or .dxf) files. ASI will not accept Microstation (.dgn) files. Delays in the delivery of required mapping will result in delays to the completion of fieldwork and reporting tasks.



Metadata and documentation is required for any GIS data sent to ASI, this should include:

- Datum and Projection information for all geographic data;
- Date when the data was created and last updated;
- Who created the data (including contact information);
- CAD files require a map name and map number for reference purposes;
- A date for aerial photos and satellite imagery;
- A clear definition/description of each layer in a CAD file;
- A clear description and purpose of every shapefile.

7.2 ASI to Dillon Consulting Limited

- **Stage 1 Archaeological Assessment Report:** ASI will produce a report and submit it to **Dillon Consulting Limited** for review in Adobe Acrobat® (.pdf) format. Alternate formats are acceptable at **Dillon Consulting Limited** request. If required, ASI will make any revisions, as appropriate, and then produce two (2) bound copies of the report: one to **Dillon Consulting Limited** (including one electronic version in Adobe Acrobat® (.pdf) format); and one to ASI. **PLEASE NOTE:** If additional bound copies are required by **Dillon Consulting Limited**, they will be produced at cost and invoiced separately. If other electronic formats are preferred, please notify ASI at the time of project confirmation; and

Securing the Ministry of Tourism, Culture and Sport’s “Letter of Acceptance” and written comments, if necessary, for the archaeological assessment report is a compliance requirement for ASI’s archaeologists with professional licenses under the *Ontario Heritage Act*. THIS DOES NOT CONSTITUTE AN ASI DELIVERABLE TO Dillon Consulting Limited.

- **Cultural Heritage Resource Assessment Report:** ASI will produce a report and submit it to **Dillon Consulting Limited** for review in Adobe Acrobat® (.pdf) format. If required, ASI will incorporate any changes and then issue a report in electronic format to **Dillon Consulting Limited**. One bound copy of the report will be prepared and submitted to **Dillon Consulting Limited** (including one electronic version in Adobe Acrobat® (.pdf) format). **PLEASE NOTE:** If additional bound copies are required by **Dillon Consulting Limited**, they will be produced at cost and invoiced separately. If other electronic formats are preferred, please notify ASI at the time of project confirmation.

If ASI is delayed in the performance of its work by an act or omission of the client, a stop work order issued by a court or other public authority, labour dispute, abnormal adverse weather conditions, any public protest, blockade, agitation, or threat, or any other cause beyond ASI’s control (any one or more of the forgoing being a “Delay Event”), then ASI will be afforded a reasonable extension of time commensurate with any such Delay Event to complete its work and entitled to reimbursement by the client for any reasonable costs incurred by ASI resulting from any such Delay Event. ASI reserves the right to stop the performance of its work and vacate its staff and property from the field without penalty if, at ASI’s sole discretion, ASI concludes that the safety and well being of its staff and/or property and/or the integrity of ASI’s work is threatened by any such Delay Event.

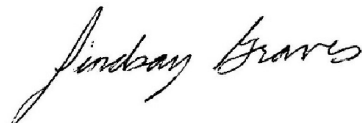


If there is any further information required, please do not hesitate to contact me at the address or telephone number indicated above.

Sincerely,
ARCHAEOLOGICAL SERVICES INC.



Andrew Riddle, PhD
Senior Archaeologist, Manager
Environmental Assessments West



Lindsay Graves, MA
Cultural Heritage Specialist, Assistant Manager
Cultural Heritage Division

