Appendix I-8

Agriculture Detailed Impact Assessment Report

DRAFT AGRICULTURAL DETAILED IMPACT ASSESSMENT
FOR
SOUTH LANDFILL PHASE 2 PROJECT, CITY OF NIAGARA FALLS

PREPARED FOR:

2800 Thorold Townline Road
Niagara Falls, Ontario L2E 6S4

PREPARED BY:

432 Niagara Street, Unit 2
St. Catharines, Ontario L2M 4W3

C22109
JUNE 2026

COLVILLE CONSULTING INC.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

This report documents the agricultural impact assessment of the Preferred Method for the Environmental Assessment (EA) to develop the next phase of the existing South Landfill (i.e., South Landfill Phase 2) located at the Walker Resource Management Campus (Campus). The proposed South Landfill Phase 2 will add approximately 19.8 million cubic metres (m^3) of landfill capacity over a 20-year period.

In the preceding Alternative Methods phase of the EA, net effects analyses as well as a comparative evaluation of three Alternative Landfill Configuration Options and two Leachate Management Options were carried out in order to identify a Preferred Landfill Footprint and a Preferred Leachate Management Option. The three Alternative Landfill Configuration Options and two Leachate Management Options presented in the Alternative Methods phase were developed to a conceptual level of design and documented in a Conceptual Design Report (CDR). The potential environmental effects, preliminary impact management measures to address the potential adverse environmental effects, and the remaining net effects following the application of the impact management measures were identified for all three Alternative Landfill Configuration Options and both Leachate Management Options. The Preferred Landfill Configuration Option was determined to be Option A (*Same Height and Slopes as Current South Landfill Phase 1*[1]) and the Preferred Leachate Management Option was determined to be Option A (*Continued and Expanded Use of the Municipal Wastewater Treatment System*), hereafter collectively referred to as the Preferred Method.

At the detailed impact assessment phase, additional details are developed for the Preferred Method from a design and operations perspective, as documented in a Facilities Characteristics Report (FCR), so that potential environmental effects, preliminary impact management and compensation measures, and resultant net effects described at the Alternative Methods stage can be reviewed and more accurately defined, as required, along with enhancement opportunities and approval requirements. Specifically, the following can be accomplished:

- Potential environmental effects can be identified with more certainty.
- More site-specific impact management measures can be developed for application.
- Additional mitigation and impact management measures can be identified, as required.
- Net environmental effects can be identified with more certainty.
- Appropriate monitoring requirements can be clearly defined.
- Specific approval/permitting requirements for the proposed undertaking can be identified.

Climate change mitigation and adaptation measures are also reviewed as part of the detailed site design established for the Preferred Method. In addition, during the impact assessment stage of the South Landfill Phase 2 EA, Walker has committed to completing an assessment of the cumulative effects of the proposed

[1] Following consultation on the comparative evaluation of the alternative methods, the Preferred Landfill Configuration Option was refined based on public, stakeholder and Government Review Team (GRT) comments and feedback received. Specifically, the proposed maximum height was decreased to reduce visual impact, the proposed Limit of Fill was adjusted in several areas to avoid sensitive natural features and to accommodate necessary infrastructure within the buffer, and slopes were adjusted to maximize compatibility with an agricultural end use, all of which resulted in a slightly reduced waste capacity.

undertaking and other non-Walker projects and activities that are existing, planned/approved or reasonably foreseeable within the Study Area.

The discipline-specific work plans developed during the Terms of Reference (ToR) outlined how impacts associated with the Preferred Method would be assessed. The results of these assessments are documented in 13 stand-alone Detailed Impact Assessment Reports:

- Geology and Hydrogeology
- Surface Water Resources
- Noise and Vibration
- Air Quality
- Terrestrial and Aquatic Environment
- Land Use
- Agriculture
- Transportation
- Social Environment
- Economic Environment
- Built Heritage and Cultural Heritage Landscapes
- Archaeology
- Visual

1.1 Description of the Preferred Landfill Configuration Option

Landfill Configuration Option A was originally selected as preferred due to its long-term benefits, including the largest waste capacity, longest operational lifespan, and associated economic and employment advantages. Following its selection, the design of Landfill Configuration Option A was refined in response to feedback received during consultation to reduce its visual impact and improve compatibility with a future agricultural end use. Furthermore, the Limit of Fill boundaries were adjusted to avoid natural features and to accommodate necessary infrastructure within the buffer. These refinements included a reduction in peak elevation to 211 metres above mean sea level (mAMSL) at the top of waste (TOW; 211.75 mAMSL at the top of cap), and adjustments to slope gradients, now designed to a maximum steepness of 3:1 (horizontal:vertical) for below-ground slopes and between 16:1 and 3.5:1 for above-ground slopes, improving the area compatible with an agricultural end use. These changes bring Option A closer in form to the Options B and C while preserving its advantage of a higher overall waste capacity. The refined Option A design would provide approximately 19.8 million, m^3 of expanded landfill capacity and include 63.3 hectares (ha) of land compatible with an agricultural end use. From the agricultural perspective, these adjustments create slightly steeper slopes for the potential agricultural end use of the lands. However, this increase in slope will allow for an additional 3.3 ha of land to be rehabilitated to Canada Land Inventory (CLI) Class 3T lands, thereby increasing the amount of prime agricultural land available for the agricultural end use.

1.2 Description of the Preferred Leachate Management Option

Leachate Management Option A builds upon the pre-existing leachate management system and approach while including the necessary expansion of the system capacity as South Landfill Phase 2 is expected to generate approximately 131,000 m^3 of additional leachate per year at closure increasing to 147,000 m^3 per year in 2070 when incorporating climate change projections. The expansion of the leachate management system would include a leachate sump, including a pump station equipped with the needed metering equipment and controls for monitoring and contingency purposes, and a forcemain to transport the leachate from the pump station to the lagoon area, where two new lagoons will be added adjacent to the existing lagoons, for pretreatment.

Once pretreated at the on-site lagoons, leachate will be conveyed via an existing force/gravity main to the Niagara-on-the-Lake sanitary sewer system for final treatment at the Region of Niagara's Port Weller Wastewater Treatment Plant. The need to upgrade the private sewer that connects to the Niagara-on-the-Lake sanitary sewer system has been identified and will be considered in the assessment.

1.3 Facility Characteristics Report for the Preferred Method

The Facility Characteristics Report (FCR) presents preliminary design and operations information for the Preferred Method and provides information on all main aspects of landfill design and operations including:

- Site layout design, including existing and proposed Site characteristics;
- stormwater management;
- leachate management;
- landfill gas management; and,
- landfill development sequence and daily operations.

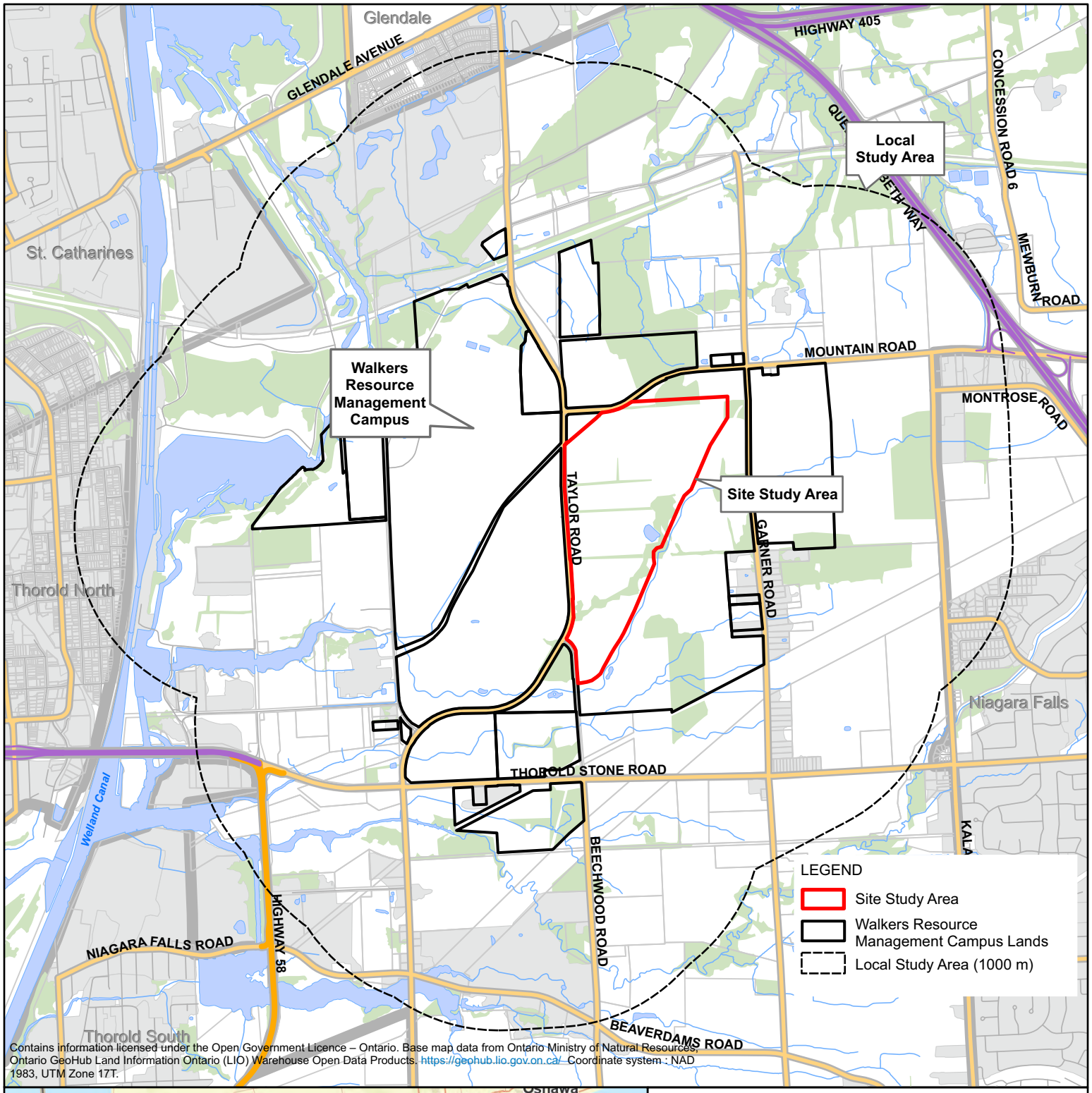
The FCR also provides estimates of parameters relevant to the detailed impact assessment, including estimates of leachate generation, landfill liner performance, landfill gas generation, and traffic levels associated with waste and construction materials haulage.

2. STUDY AREA

From an agricultural perspective, the characterization of impacts within the following study areas are appropriate to this EA:

- Site Study Area (SSA): The SSA is consistent across all technical disciplines and encompasses a total of 81.30 ha of land owned and operated by Walker. The SSA includes the current quarry extraction limit, and encompasses the proposed limit of fill, the buffer area, and aligns with the proposed Waste Disposal Site Limit Boundary. While the SSA captures the core area of the proposed landfill development, certain ancillary features related to the landfill are proposed to be located outside the SSA. These features will be addressed within the broader Local Study Area.
- Local Study Area (LSA): The LSA includes all lands within a 1,000 m radius of the Walkers Resource Management Campus boundaries and includes all lands which have the potential to be impacted by the proposed development.

The agricultural study areas are illustrated in Figure 1.



Contains information licensed under the Open Government Licence – Ontario. Base map data from Ontario Ministry of Natural Resources, Ontario GeoHub Land Information Ontario (LIO) Warehouse Open Data Products. https://geohub.lio.gov.on.ca/. Coordinate system : NAD 1983, UTM Zone 17T.

Figure 1
Agricultural Study Areas

Detailed Impact Assessment
South Landfill Phase 2, Walkers Niagara Campus

Prepared for: walker environmental

Prepared by: COLVILLE CONSULTING INC.

0 1,000 M

1:30,000

N

FILE: C22109

3. METHODOLOGY

3.1 Assessment Approach and Confirmation of Effects

The assessment of impacts associated with the Preferred Method was undertaken through a series of steps that were based, in part, on a number of previously prepared reports (Agriculture Existing Conditions Report, Agriculture Comparative Evaluation Technical Memorandum). The net effects associated with the three Alternative Landfill Configuration Options and two Alternative Leachate Management Options identified during the Alternative Methods phase of the EA were based on conceptual designs. These effects were reviewed within the context of the preliminary design plans developed for the Preferred Method, as identified in the FCR, to determine the type and extent of any additional investigations required to ensure a comprehensive assessment of net effects. Additional investigations were then carried out, where necessary, in order to augment the previous work undertaken. Feedback previously received from the EA consultation process was incorporated into the assessment approach, where appropriate.

With these additional investigations in mind, the potential impacts on the agricultural environment of the Preferred Method were documented.

With a more detailed understanding of the potential impact from the preliminary landfill and leachate treatment designs on the agricultural environment, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Method (documented in the Agriculture Comparative Evaluation Technical Memorandum) were reviewed to ensure their accuracy. Based on this review, the potential effects, mitigation or compensation measures, and net effects associated with the Preferred Method were confirmed and documented. In addition to identifying mitigation or compensation measures, potential enhancement opportunities associated with the preliminary design for the Preferred Method were also identified, where possible.

Following this confirmatory exercise, the requirement for monitoring in relation to net effects was identified, where appropriate. Finally, any agricultural approvals required as part of the implementation of the Preferred Method were identified.

3.2 Additional Investigations

Upon completion of the preliminary design for the Preferred Method as documented in the FCR, the environmental characteristics of the Study Area were reviewed to verify the accuracy of the assessment of net effects from the Preferred Method. From this review, it was determined that the net effects from the Preferred Method remain unchanged based on an updated land use survey to document the number and type of agricultural operations and crop types grown within the LSA.

4. DESCRIPTION OF THE ENVIRONMENT POTENTIALLY AFFECTED

In this section, a description of the agricultural environment is presented. The information is extracted from the agricultural Existing Conditions Report, and a more detailed description and list of reference sources can be found in that report.

4.1 Existing Conditions

The Agricultural Existing Conditions Report found that the SSA and LSA form part of a relatively low priority agricultural area. The Soils of the Regional Municipality of Niagara mapping shows that the majority of the SSA is comprised of prime agricultural lands, however, this mapping is not reflective of current conditions. The SSA is currently comprised of a quarry and soil stockpile, and the existing soils would be more accurately described as disturbed, which have no capability for common field crop production. Land uses in the LSA are predominantly non-agricultural, with some lower intensity agricultural uses identified, and limited investments in agricultural land improvements and infrastructure are present. While agriculture, agriculture-related, and on-farm diversified uses are permitted in the prime agricultural area, establishing more intensive farm operations in the LSA would face significant constraints primarily due to the prevalence of existing non-agricultural uses.

4.2 "Future" Existing Conditions (Do Nothing Option)

It is understood that under the existing aggregate extraction license, the SSA is to be rehabilitated to an agricultural condition similar to pre-extraction capabilities, through the Aggregate Resources Act. The Canada Land Inventory (CLI) is an interpretive system for assessing the effects of climate and soil characteristics on the limitations of land for growing common field crops. The CLI system has seven capability classes that descend in quality from Class 1, which has no significant limitations for common field crops production, to Class 7 lands, which have no capability for common field crop production. CLI Class 1-3 are considered to be prime agricultural lands.

Soil capability subclasses are used to indicate the primary type of limitation or hazard for growing common field crops. Classes 2 through 7 have one or more significant limitations that restrict the production of common field crops. Each of these limitations are denoted by a capital letter which follows the numeric CLI Class. Only the most severe limitation(s) (i.e., capability subclass) is shown. For example, CLI Class 3DT lands have moderate limitations related to undesirable soil textures (D), and topographic constraints (T). There are thirteen subclasses described in CLI Report No. 2 (1971). Eleven of these subclasses have been adapted to Ontario soils.

Prior to extraction, the SSA was comprised primarily of CLI Class 2T, 2D, and 2E (75.12%) lands, with smaller areas mapped as CLI Class 3W (13.57%), and CLI Class 5I (11.32%) lands. CLI Class 2T, 2D, and 2E soils have moderate limitations for common field crop production due to topography, undesirable soil texture, and erosion, respectively. CLI Class 3W soils have moderately severe limitations for common field crop production due to excess water. CLI Class 5I soils have severe limitations that restrict their capability for producing perennial forage crops due to inundation from lakes or streams.

The approved post-extraction land use includes the rehabilitation of the quarry lands within the SSA to approximately 48.2 ha of agricultural land and the creation of a 2.4 ha pond. Rehabilitation to a similar pre-extraction agricultural condition would permit the cultivation of common field crops with moderate to severe limitations. However, the prevalence of non-agricultural land uses in the LSA will constrain future intensive agricultural uses of the SSA. The proposed South Landfill Phase 2 would result in an additional 15.1 ha of land being available for agricultural rehabilitation, should an agricultural end use be selected. However, the portions of the South Landfill Phase 2 lands compatible with an agricultural end use would

contain approximately 4.2 ha less prime agricultural land. Overall, this change is anticipated to have a negligible impact on the Agricultural System.

5. AGRICULTURAL NET EFFECTS

As described in Section 1, following the confirmation of the Preferred Landfill Configuration Option and the Preferred Leachate Management Option, these components, together with all other project elements that were consistent across the previously assessed alternative methods, collectively formed the "Preferred Method." The potential effects and associated mitigation or compensation measures identified were re-evaluated to confirm their validity in the context of the preliminary design. This review incorporated the refined engineering design details described in the FCR.

The updated assessment of predicted potential effects, recommended impact management measures, and resulting net effects is provided in **Error! Reference source not found.** and further elaborated upon in the subsections that follow.

5.1 Potential Effects on Agriculture

Potential effects on agriculture in the SSA were evaluated, and both positive and negative potential impacts were identified. These include impacts resulting from CLI Capability changes due to slope, changes to cold air drainage, and land available for agricultural use.

The proposed South Landfill Phase 2 will impact the CLI Capability of the soils due to changes in slope class. Prior to extraction, the SSA was comprised primarily of CLI Class 2T, 2D, and 2E (75.12%) lands, with smaller areas mapped as CLI Class 3W (13.57%), and CLI Class 5I (11.32%) lands. The Preferred Landfill Configuration Option would allow for the majority of the landfill area to be rehabilitated to an agricultural end use, with the majority of the area rehabilitated to CLI Class 3T lands (44 ha), and the remaining area rehabilitated to CLI Class 5T lands (19.3 ha). The proposal will result in an increase in land available for a potential agricultural end use, as compared to the existing quarry rehabilitation plan. However, there will be a slight reduction in the amount of prime agricultural land available for a potential agricultural end use.

Potential positive impacts of the proposed South Landfill Phase 2 are related to changes to microclimatic conditions and include changes to soil suitability classification and climatic conditions. The existing quarry rehabilitation plan would allow for the cultivation of common field crops but would not allow for cold air to drain from the SSA to surrounding parcels. The rehabilitation to an agricultural end use for the proposed South Landfill Phase 2 would allow for cold air drainage, thereby improving the microclimatic conditions and improving the land's suitability for the production of specialty crops as well as common field crops.

5.2 Proposed Mitigation and Compensation Measures

No impact mitigation measures are proposed for identified potential impacts on agriculture.

5.3 Net Effects

Net negative impacts from the proposed development are limited to a minor reduction in agricultural capability as compared to existing conditions. Net positive impacts of the proposal are limited to an increase in the amount of land available for a potential agricultural end use and slight improvements in soil and climate suitability for the production of specialty crops due to changes to cold air drainage.

Table 5.1 Agricultural Potential Environmental Effects, Proposed Impact Management Measures, and Net Effects

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effects on existing Agricultural Land Base	CLI Soil Capability classification	Impact on CLI Capability from slope class: - 44 ha of CLI Class 3T lands - 19.3 ha of CLI Class 5T lands	No impact management measures feasible	Minor reduction in agricultural capability from existing conditions **Low Net Effects**
	Soil Suitability classification	Soil suitability for specialty crop production improved by allowing for cold air drainage	No impact management measures required	Improvement to soil suitability for specialty crop production by allowing for cold air drainage **Low (Positive) Net Effect**
	Climate	Improved microclimatic conditions through cold air drainage	No impact management measures required	Existing quarry rehabilitation plan would not allow or cold air drainage. Cold air will no longer be trapped at the pit floor, improving soil suitability. **Low (Positive) Net Effect**
	Level of Fragmentation	No anticipated effects associated with fragmentation	No impact management measures required	No effects associated with fragmentations as lot creation is not proposed **No Net Effects**
	Proximity to non-farm land uses	No anticipated effects to surrounding non-agricultural operations	No impact management measures required	No impacts on surrounding non-agricultural operations **No Net Effects**
	End use agricultural area	Increase in land available for agricultural end use compared to existing quarry rehabilitation plan	No impact management measures required	Increase of approximately 15.1 ha of land available for agricultural end use compared to existing quarry rehabilitation plan. **Low (Positive) Net Effect**
Effects on Agri-food Network	Type(s) and proximity of agricultural operations	Agricultural operations are well removed from the site, with the nearest active operation being a nursery.	No impact management measures required	No impacts on surrounding agricultural operations **No Net Effects**
	Type(s) and proximity of agriculture-related facilities	No agriculture-related uses located within Local Study Area	No impact management measures required	No impacts on surrounding agriculture-related operations **No Net Effects**
	Predicted impacts on surrounding agricultural operations and agriculture related facilities	No anticipated effects to surrounding agricultural operations	No impact management measures required	No impact on surrounding agricultural operations **No Net Effects**

6. CUMULATIVE IMPACT ANALYSIS

As part of the approved Terms of Reference (ToR), Walker committed to undertaking an assessment of the cumulative effects of the landfill and other Campus components/facilities and other non-Walker projects that are existing, planned, approved or reasonably foreseeable. The following were considered in the assessment of cumulative impacts:

- Walker Activities/Projects on Campus
  - Ongoing quarry operations
  - New residential drop off area
  - RNG 2 – expansion of existing renewable natural gas facilities
- Walker Projects off Campus
  - Uppers Quarry
- Non-Walker Projects
  - Garden City Bridge Twinning
  - Glendale Secondary Plan Area development
  - Development at Niagara College's Niagara-on-the-Lake Campus
  - Northwest Secondary Plan Area development
  - Golf course/agro-tourism development to east of the Walker Campus
  - Garner West Secondary Plan Area development
  - Welland Thorold Power Line Project

The new residential drop off area associated with the South Landfill Phase 2 proposal has the potential to have minor cumulative impacts within the SSA. Currently, the new residential drop off area is proposed to be located south of the existing quarry, within the SSA. These lands are mapped as CLI Class 2 lands. However, similar to the soils mapped within the existing quarry, the existing condition of these lands is not reflective of the soils mapped through the County soil survey. These lands have been previously disturbed through the placement of fill and would no longer be considered prime agricultural lands. The cumulative impacts of the new residential drop off area would be negligible, as the lands are not currently used for agricultural production and the lands have been previously disturbed. Additionally, all structures associated with the new residential drop off area are anticipated to be temporary, which may allow for additional areas within the SSA to be rehabilitated for a potential agricultural end use.

While the remaining above-listed projects will introduce additional/expanded non-agricultural uses in the LSA, there are no anticipated cumulative impacts to the agricultural system associated with the proposed South Landfill Phase 2. Additional non-agricultural development will result in the loss of additional prime agricultural lands in the surrounding area, but does not affect the identified impacts of the proposal. These cumulative impacts will not impact the feasibility of an agricultural end use for the South Landfill Phase 2. It is understood that the final end use will be determined at least two years prior to the landfill end life through community input.

7. CLIMATE CHANGE CONSIDERATIONS

In accordance with the Minister-approved ToR, the detailed impact assessment is to include consideration of climate change. In support of the province of Ontario's Climate Change Action Plan, the Ministry of the Environment, Conservation and Parks (MECP) developed a Guide entitled "Consideration of Climate Change in Environmental Assessment in Ontario" (the Guide) to aid proponents in considering climate change as part of EAs for infrastructure and facilities (MECP 2016).

The Guide outlines the Ministry's expectations for considering climate change throughout the EA process. As stated in Section 3 of the Guide, consideration is to include:

- Greenhouse gas (GHG) emissions
- Effects of a project on climate change
- Effects of climate change on a project
- How the project will minimize identified negative effects on climate change.

The preceding was considered as part of the South Landfill Phase 2 EA in addressing the potential climate risks to the Alternative Methods. During the impact assessment, the climate change adaptation and mitigation analysis undertaken for the Alternative Methods stage was used and augmented, as needed, to develop climate change mitigation and adaptation measures for the Preferred Method. Climate change considerations relevant to agriculture are documented in the following subsections.

7.1 Potential effects of the Undertaking on Climate Change

From an agricultural perspective, no potential effects on climate change are anticipated due to the undertaking.

7.1.1 Mitigation

No mitigation measures are required for the potential effects of the undertaking on climate change, from an agricultural perspective.

7.2 Potential effects of Climate Change on the Undertaking

While climate change is expected to result in longer growing seasons, milder winters, and fewer frost days in Ontario, changing climatic conditions are not expected to have a significant impact on the CLI Classification of most soils in the province in the near future. The Ontario Provincial Climate Change Impact Assessment Technical Report (2023) found that the potential benefits associated with rising temperatures in Ontario are likely to be offset by negative impacts such as increasing frequency and intensity of extreme weather events, temperature variability, and changing precipitation patterns. By the end of the century, all field crops, fruit and vegetable crops, and livestock produced in Ontario are expected to be at high or very high risk of negative impacts associated with climate change. Overall, the impacts of climate change on agricultural systems in Ontario are expected to be negative, particularly in Southwest, Central, and Southeast Ontario, due to existing exposure and sensitivity to changing climate conditions. No significant impacts on the proposed undertaking are expected as a result of climate change in the near future.

The establishment of an agricultural end use of the proposed landfill is likely to benefit from longer growing seasons and fewer frost days. However, an agricultural end use is likely to be negatively affected by precipitation patterns, extreme weather events, and temperature variability. The existing quarry rehabilitation plan is likely to experience higher levels of negative effects from climate change as the pit walls would limit surface drainage, causing the lands to be saturated for longer periods of time following extreme weather events.

7.2.1 Adaptation

An agricultural end use is most likely to be negatively impacted by changes to precipitation patters (e.g., longer periods of drought, increased rainfall through extreme weather events, etc.). Investments in artificial drainage and irrigation systems may allow for improved crop yields and combat the effects of climate change. Artificial drainage would prevent excess soil moisture after extreme precipitation events, whereas irrigation systems would provide additional water during periods of drought. It should be noted that tile drainage and irrigation systems may not be feasible for an agricultural end use for the proposed South Landfill Phase 2 and may also not be necessary depending on the types of agricultural crops being produced (e.g., perennial/forage crops).

8. ENVIRONMENTAL MONITORING

While no mitigation measures are required and/or feasible, consideration should be given to the landfill cap to ensure agricultural crop production can be successful. It is understood that the final end use of the South Landfill Phase 2 will be determined approximately two years prior to closure and will be informed through community input. Should agriculture be identified as the final end use at that time, modifications to the landfill cap will likely be required beyond the requirements of the cap requirements under the Landfill Standards (e.g., additional topsoil placement and/or soil amendments) to ensure the lands can be successfully cultivated for agricultural production. However, the specific amendments would be more appropriately determined once the final end use has been confirmed.

8.1 Development of an Environmental Management Plan

An Environmental Management Plan (EMP) will be prepared following approval of the undertaking by the Minister of the Environment, Conservation and Parks and prior to construction. The EMP will include a description of the proposed mitigation measures, commitments, and monitoring.

9. COMMITMENTS

No agriculture-related commitments have been identified as part of the proposed undertaking. Based on the scope of the agricultural assessment, no mitigation, compensation, or monitoring measures are required from an agricultural perspective during the construction, operation, or maintenance phases of the undertaking.

10. AGRICULTURAL APPROVALS REQUIRED FOR THE UNDERTAKING

No agriculture-related approvals have been identified as required for the proposed undertaking. Based on the current scope of work and proposed activities, no approvals under applicable agricultural legislation, policies, or guidelines are anticipated.

11. REFERENCES

Ontario Ministry of Agriculture, Food and Rural Affairs website, December 2022. Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario.

Ontario Ministry of Environment, Conservation and Parks, January 2023. Ontario Provincial Climate Change Impact Assessment Technical Report. https://www.ontario.ca/files/2023-11/mecp-ontario-provincial-climate-change-impact-assessment-en-2023-11-21.pdf

OMAFA. Agriculture Information Atlas. Available Online: http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US