Supporting Document 3-13

Land Use Effects Assessment Report

Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment

WM Canada

Watford, Ontario

July 2025

Prepared by:

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Executive Summary

Monteith Brown Planning Consultants Limited (MBPC) was contracted by HDR Corporation on behalf of WM Canada (WM) to prepare this Land Use Effects Assessment Report as part of the Twin Creeks Environmental Centre (TCEC) Landfill Optimization Project Environmental Assessment (EA). The EA is being carried out in accordance with the requirements of the *Ontario Environmental Assessment Act* (*OEAA*) and the EA Terms of Reference (ToR), which was approved by the Ministry of Environment, Conservation and Parks (MECP) on December 13, 2022. Land Use considers current land use, planned land use, type(s) and proximity of off-site recreational resources within 1 km, type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km, and type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock).

The purpose of this Effects Assessment Report is to present the:

- potential environmental effects of the alternative methods on Land Use;
- comparison of the net effects of each alternative method;
- selection of a preferred alternative (if applicable);
- assessment of the environmental effects of the preferred alternative (if applicable); and
- commitments and monitoring.

There are approximately 6 years of approved landfill airspace capacity remaining at the TCEC (i.e., capacity will be reached in approximately 2031). The proposed optimization would provide additional airspace of approximately 14 million cubic metres (m^3), which could extend the site life by approximately 12 years (from 2031 to 2043) and may be achieved through alternative landfill configurations (alternative methods) within the existing 301-hectare TCEC site area. No changes are proposed to the size of the TCEC site area, approved service area, established setbacks and buffers, or annual fill rate.

By limiting the landfill optimization to a vertical expansion within the existing Expansion Landfill footprint, from a land use perspective, the alternative methods considered prevent the need to expand horizontally into existing setbacks and buffers that are currently employed to mitigate adverse impacts on surrounding sensitive land uses. The vertical expansion will also prevent the utilization of additional lands.

Three alternative methods for carrying out the optimization were developed to a preliminary conceptual design level in the Conceptual Design Report (CDR).

- **Alternative Method 1,** consisting of five stages, proposes increasing the final landfill side slopes from 4H:1V to 3H:1V between the original grade and elevation

320 metres above sea level (masl), about 70 m in grade change, transitioning to a 20H:1V upper slope and peaking at elevation 324.5 masl. The maximum permitted height of waste would be increased by 44.5 m, from 280 masl (the current approved elevation for top of waste) to 324.5 masl (approximately 82.5 metres above existing ground level).

- **Alternative Method 2**, consisting of four stages, proposes increasing the final landfill side slopes from 4H:1V to 2.5H:1V between elevation 250 masl and elevation 310 masl, about 60 m in grade change, transitioning to a 20H:1V upper slope and peaking at elevation 319 masl. The maximum permitted height of waste would be increased by 39 m, from 280 masl (the current approved elevation for top of waste) to 319 masl (approximately 77 metres above existing ground level).
- **Alternative Method 3,** consisting of five stages, proposes increasing the final landfill side slopes from 4H:1V to 2.5H:1V between elevation 260 masl and elevation 360 masl, about 100 m in grade change, peaking at elevation 360 masl. The maximum permitted height of waste would be increased by 80 m, from 280 masl (the current approved elevation for top of waste) to 360 masl (approximately 118 metres above existing ground level).

The preliminary slope stability analysis performed and detailed in the CDR for all three alternative methods confirmed the stability of the final slopes and proposed peak profile height to be acceptable. None of the three alternative methods propose changes to the existing approved landfill limit of waste, the existing property boundaries and buffer width will remain the same for the landfill optimization.

The study areas for Land Use, as per the approved ToR are as follows:

- On-site Study Area: the existing TCEC;
- Off-site Study Area: the lands within the vicinity of the TCEC extending approximately 1 km out from the On-site Study Area to include the entire Settlement Area of Watford.

The Land Use net effects assessment was carried out for the three alternative methods following the methods and indicators outlined in the approved ToR incorporating the information contained in the CDR, and the Land Use Existing Conditions Report. The results of the land use net effects assessment were used in a comparative evaluation of the three alternative methods.

Based on the Land Use net effects assessment for all three alternative methods as it relates to current and future land uses, no significant potential effects with respect to setback distance between the TCEC operation and any current and/or planned sensitive land uses, are anticipated; all legally established existing sensitive land uses within 500 metres of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*). No additional land use commitments or compliance monitoring is required.

Based on the comparative evaluation of net effects between the three alternative methods there is no substantial difference in current and planned land use effects. As such, no Preferred Alternative is identified for Land Use.

In addition to EA approval, County and Township level Official Plan Amendment(s) are required, in keeping with the County and Township Official Plan policy requirements prior to the establishment of new waste management facilities or the expansion of existing facilities. An amendment to the Zoning By-law will be required to reference this TCEC Landfill Optimization EA when approved, as the By-law currently references the approved January 15, 2007 EA. An application to amend the existing Site Plan Control Agreement that is currently registered on title is also anticipated to permit the vertical expansion within the existing limits of the TCEC landfill site, in accordance with the provisions of Section 41 of the *Planning Act*.

Acronyms, Units and Glossary

Acronyms

Acronym	Definition
CDR	Conceptual Design Report
CEV	Combined Effect Value
EA	Environmental Assessment
ECA	Environmental Compliance Approval
GHG	Greenhouse Gas
LFG	Landfill Gas
MASL	Metres Above Sea Level
MBPC	Monteith Brown Planning Consultants Limited
MECP	Ministry of Environment, Conservation and Parks
OEAA	Ontario Environmental Assessment Act
OP	Official Plan
PPS	Provincial Policy Statement / Provincial Planning Statement
TCEC	Twin Creeks Environmental Centre
ToR	Terms of Reference
WM	WM Canada
ZBL	Zoning By-law

Units

Unit	Definition
ha	hectare
km	kilometre
m	metre
m^3	cubic 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.

Glossary

Term	Definition
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: • 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 (EA)	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 (GHG)	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.
Land Use	Land use refers to the human activities and purposes for which land is utilized. It encompasses various economic and cultural uses, such as agricultural, residential, commercial, institutional, industrial, mining, conservation and recreational practices.
Landfill gas (LFG)	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.
Mitigation	Measures taken to reduce adverse impacts on the environment.
Net effects	Impact of a project and related activities that will remain after mitigation and impact management measures have been applied.
Proponent	A person who: • 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.

Glossary

Term	Definition
Terms of Reference (ToR)	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: • 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

Monteith Brown Planning Consultants Limited (MBPC) was contracted by HDR Corporation on behalf of WM Canada (WM) to prepare this Land Use Effects Assessment Report as part of the Twin Creeks Environmental Centre (TCEC) Landfill Optimization Project Environmental Assessment (EA). The EA is being carried out in accordance with the requirements of the *Ontario Environmental Assessment Act* (*OEAA*) and the EA Terms of Reference (ToR), which was approved by the Ministry of Environment, Conservation and Parks (MECP) on December 13, 2022.

The *OEAA* defines the environment in a broad, general sense that comprises physical, biological, and human considerations. In this EA, the environment has been separated broadly into the natural, socio-economic, cultural, and built aspects, with environmental components and evaluation criteria identified within each aspect as listed in **Table 1-1**, consistent with the approved ToR. The organization of the Effects Assessment Reports is also provided in **Table 1-1**.

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

Environmental Aspect	Environmental Component	Evaluation Criteria	Effects Assessment Report
Natural Environment	Atmospheric Environment	• Air Quality – Dust • Air Quality – Landfill Gas and Combustion By-Products • Air Quality – Blowing Litter • Odour • Noise	• Air Quality
			• Noise
	Hydrogeology	• Groundwater Quality • Groundwater Quantity	• Hydrogeology
	Surface Water Environment	• Surface Water Quality • Surface Water Quantity	• Surface Water Quality
			• Surface Water Quantity
	Ecological Environment	• Terrestrial Ecosystems • Aquatic Ecosystems	• Ecological Environment
Socio-Economic Environment	Social Environment	• Human Health • Effects on Local Community	• Human Health
			• Socio-Economic Environment
	Economic Environment	• Economic Effects on Local Community	
	Visual Landscape	• Visual Impact of Facility	• Visual Landscape
Cultural Environment	Cultural Environment	• Cultural Heritage Resources • Archaeological Resources	• Cultural Heritage Resources
			• Archaeological Resources
Built Environment	Transportation	• Traffic Operations	• Transportation
	Current and Planned Future Land Use	• Effects on Current and Future Land Uses	• Land Use

The Land Use Effects Assessment Report considers changes in current land use, planned land use, type(s) and proximity of off-site recreational resources within 1 km, type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km, and type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock). The purpose of this Effects Assessment Report is to present the potential environmental effects of each of the alternative methods on Current and Planned Future Land Use, a comparison of the net effects of each alternative method, the selection of a preferred alternative (if applicable), the assessment of the environmental effects of the preferred alternative (if applicable), and commitments and monitoring.

This Land Use Effects Assessment Report is one component of the EA. The EA Study Report will incorporate the information presented herein as appropriate, and this report will be included with the EA Study Report as a supporting document.

1.1 Project and Alternative Methods

There are approximately 6 years of approved landfill airspace capacity remaining at the TCEC (i.e., capacity will be reached in approximately 2031). The proposed landfill optimization would provide additional airspace of approximately 14 million cubic metres (m^3), which could extend the site life by approximately 12 years (from 2031 to 2043) and may be achieved through alternative landfill configurations (alternative methods) within the existing 301-hectare TCEC site area. No changes are proposed to the size of the TCEC site area, approved service area, haul route, established setbacks and buffers, or annual fill rate. Instead, the increased height presented through the alternative methods is proposed to accommodate the proposed increased airspace volume.

Three alternative methods for carrying out the landfill optimization were developed to a preliminary conceptual design level in the Conceptual Design Report (CDR) and are described below as they are relevant to Land Use.

1.1.1 Alternative Method 1

Alternative Method 1 (**Figure 1-1.** Alternative Method 1) consists of increasing the final landfill side slopes from 4H:1V to 3H:1V between the original grade and elevation 320 metres above sea level (masl), about 70 m in grade change, transitioning to a 20H:1V upper slope and peaking at elevation 324.5 masl. The proposed landfill expansion consists of five stages, as shown by the different colours for the contour lines as indicated on **Figure 1-1.** Alternative Method 1 and **Figure 1-2.** Alternative Method 1 - Landfill Section. Under the proposed vertical expansion for Alternative Method 1, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of waste would be increased by 44.5 m, from 280 masl (approximately 38 m above existing ground level, the current approved elevation for top of waste) to 324.5 masl (approximately 82.5 m above existing ground

level), which is the maximum elevation of the top of the final cover for Alternative Method 1.

The preliminary slope stability analysis performed and detailed in the CDR for the proposed change in slope identified that this alternative is acceptable with respect to the stability of the final slopes (3H:1V) and proposed peak profile height.

Since Alternative Method 1 will not change the existing approved landfill limit of waste, the existing property boundaries and buffer width will remain the same after the vertical expansion. The setbacks from the previously approved Expansion Landfill footprint to the property boundaries will remain as 101 m to the north, approximately 206 m to the east, 100 m to 256 m to the south, and 235 m to the west.

With respect to site-related traffic, no operational changes are anticipated for the landfill optimization and the landfill will operate consistent with current conditions with the same annual tonnage limit. Established nuisance controls that are currently employed to proactively minimize nuisance effects related to odour, litter, dust, noise, and birds are expected to continue at the TCEC until landfill closure.

Figure 1-1. Alternative Method 1 – Landfill Contours

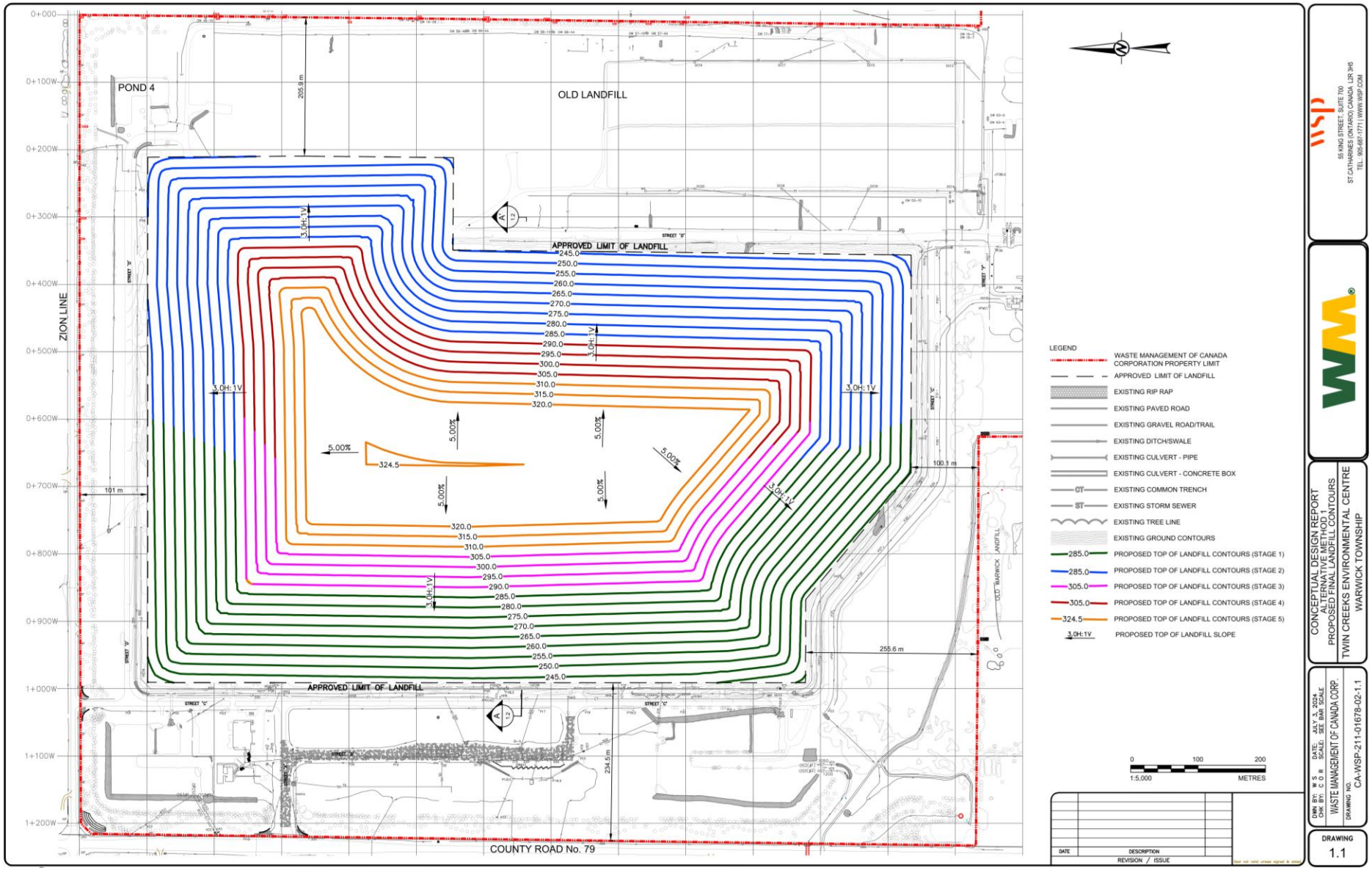
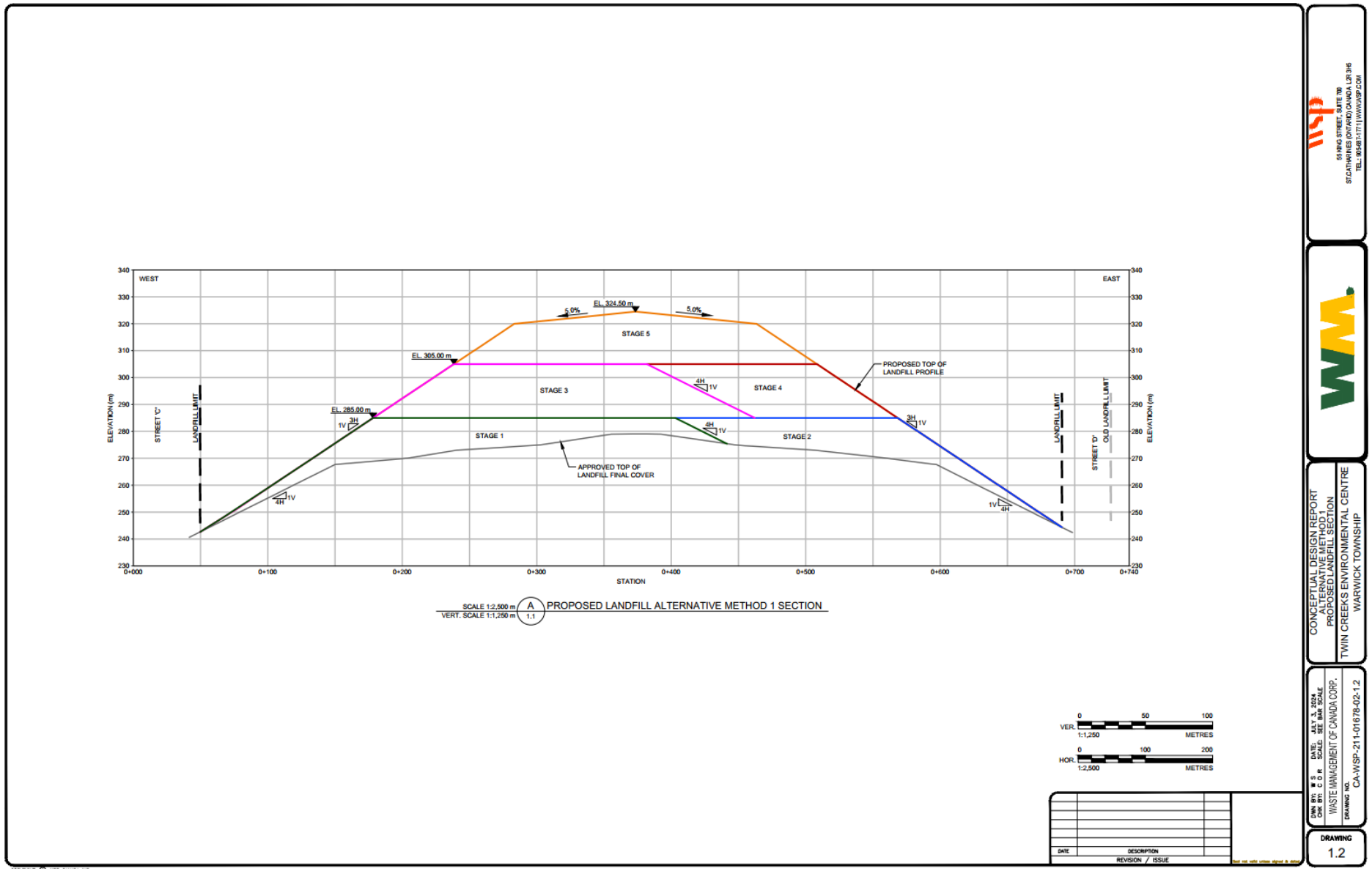


Figure 1-2. Alternative Method 1 - Landfill Section



1.1.2 Alternative Method 2

Alternative Method 2 (**Figure 1-3.** Alternative Method 2 – Landfill Contours) consists of increasing the final landfill side slopes from 4H:1V to 2.5H:1V between elevation 250 masl and elevation 310 masl, about 60 m in grade change, transitioning to a 20H:1V upper slope and peaking at elevation 319 masl over the previously approved landfill height. The proposed landfill expansion consists of four stages, as illustrated by the use of different colours for the contour lines as indicated in **Figure 1-3.** Alternative Method 2 – Landfill Contours and **Figure 1-4.** Alternative Method 2 – Landfill Section. Under the proposed vertical expansion for Alternative Method 2, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of waste would be increased by 39 m, from 280 masl (the current approved elevation for top of waste) to 319 masl (approximately 77 m above existing ground level), which is the maximum elevation of the top of the final cover for Alternative Method 2.

The preliminary slope stability analysis performed and detailed in the CDR confirmed that Alternative Method 2 is acceptable with respect to the stability of the final slopes (2.5H:1V) and proposed peak profile height.

Since Alternative Method 2 would not change the existing approved landfill limit of waste, the existing property boundaries and buffer width will remain the same after the vertical expansion.

With respect to Site Traffic, no operational changes are anticipated for the landfill optimization and the landfill will operate consistent with current conditions with the same annual tonnage limit. Established nuisance controls that are currently employed to proactively minimize nuisance effects related to height, odour, litter, dust, noise, and birds (nuisance controls outlined in the CDR) are expected to continue at the TCEC until landfill closure.

Figure 1-3. Alternative Method 2 – Landfill Contours

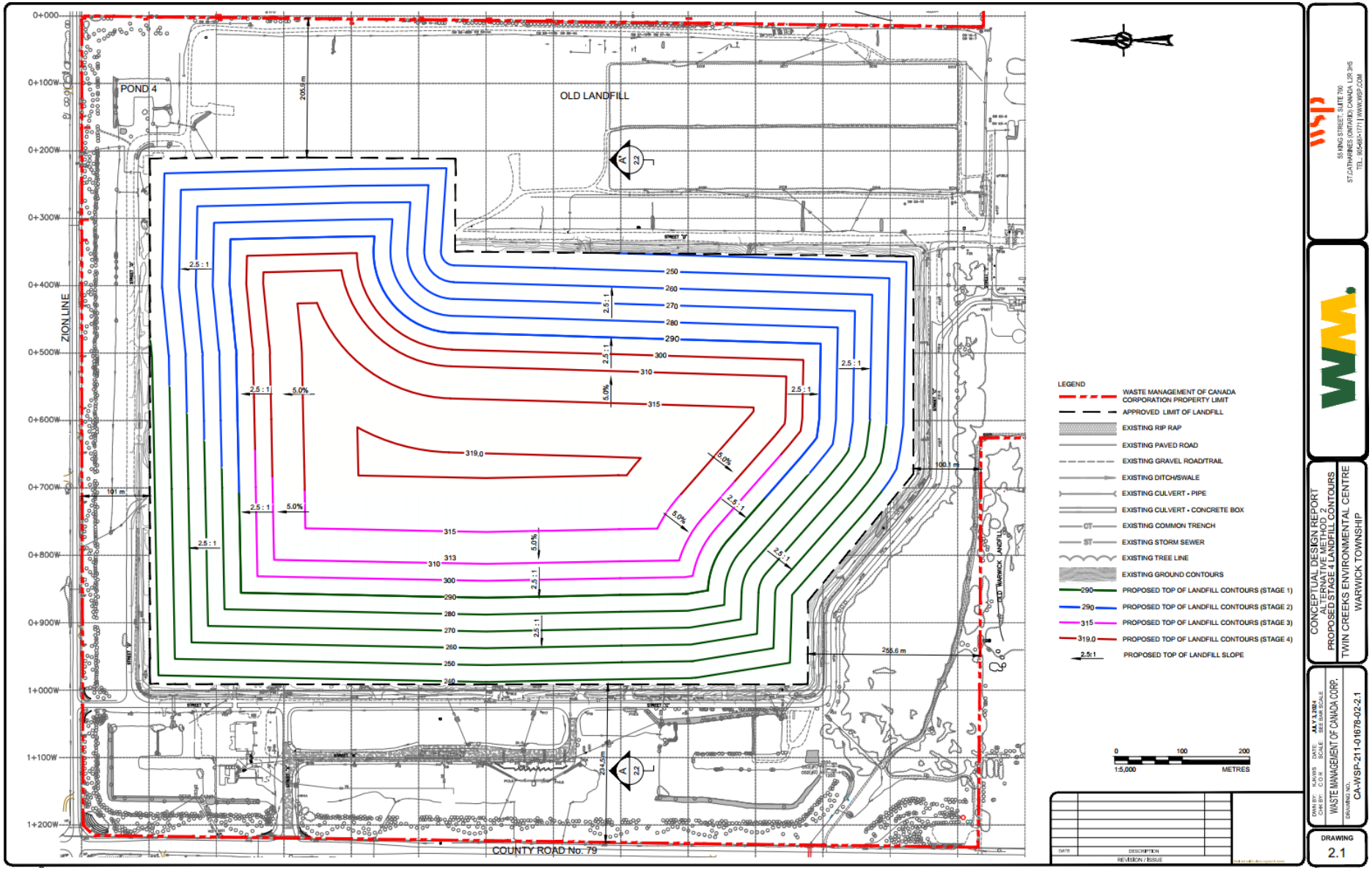
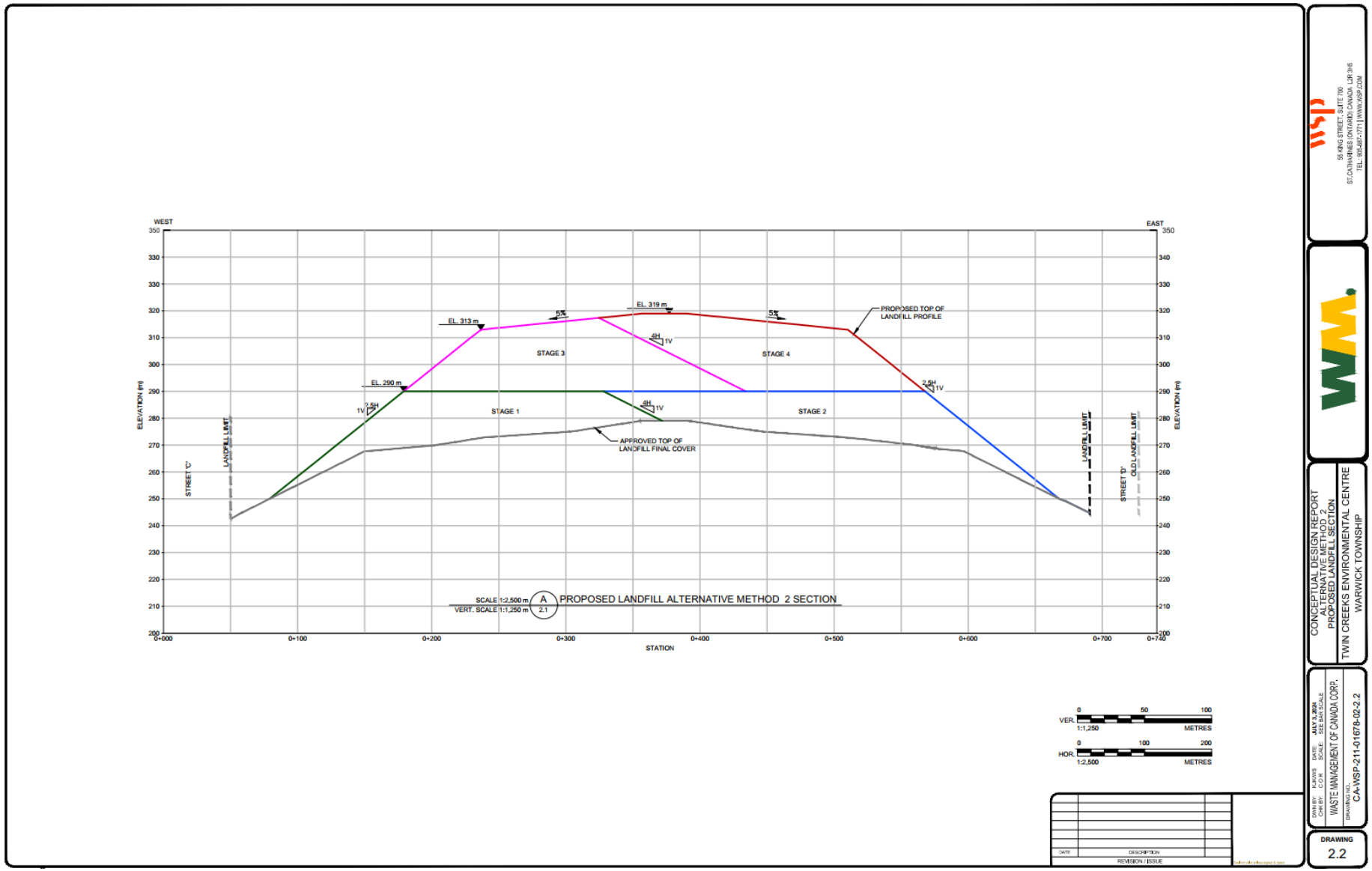


Figure 1-4. Alternative Method 2 – Landfill Section



1.1.3 Alternative Method 3

Alternative Method 3 (**Figure 1-5. Alternative** Method 3 – Landfill Contours consists of increasing the final landfill side slopes from 4H:1V to 2.5H:1V between elevation 260 masl and elevation 360 masl, about 100 m in grade change, peaking at elevation 360 masl over the previously approved landfill height. The proposed landfill expansion consists of five stages, as illustrated through the application of different coloured contour lines as indicated in **Figure 1-5.** Alternative Method 3 – Landfill Contours and **Figure 1-6.** Alternative Method 3 – Landfill .

Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of waste would be increased by 80 m, from 280 masl (the current approved elevation for top of waste) to 360 masl (approximately 118 m above existing ground level), which is the maximum elevation of the top of the final cover for Alternative Method 3.

The preliminary slope stability analysis performed and detailed in the CDR confirmed that this alternative is acceptable with respect to the stability of the final slopes (2.5H:1V) and proposed peak profile height.

Since Alternative Method 3 would not change the existing approved landfill limit of waste, the existing property boundaries and buffer width will remain the same after the vertical expansion.

With respect to Site Traffic, no operational changes are anticipated for the landfill optimization and the landfill will operate consistent with current conditions with the same annual tonnage limit. Established nuisance controls that are currently employed to proactively minimize nuisance effects related to odour, litter, dust, noise, and birds are expected to continue at the TCEC until landfill closure.

Figure 1-5. Alternative Method 3 – Landfill Contours

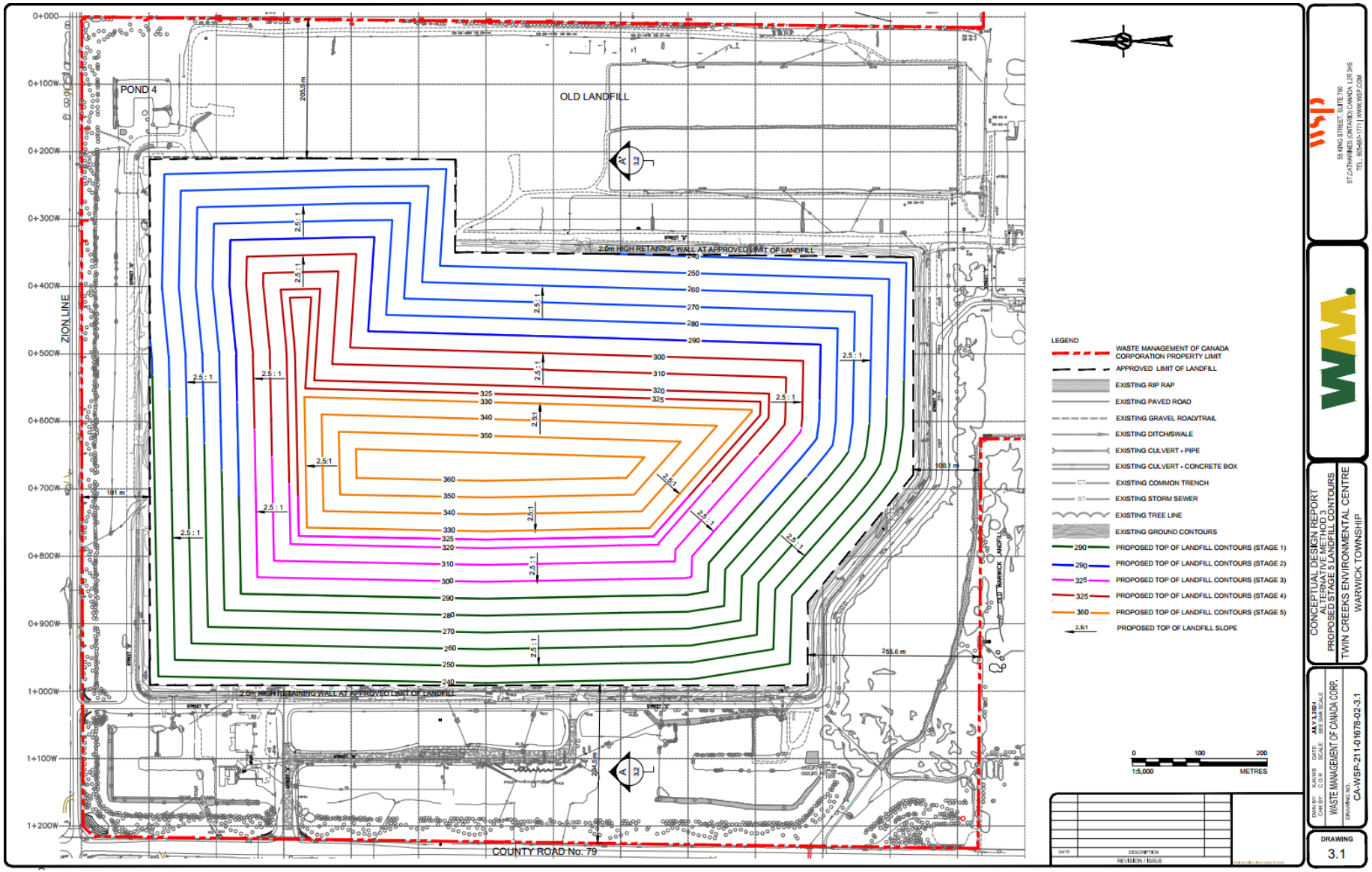
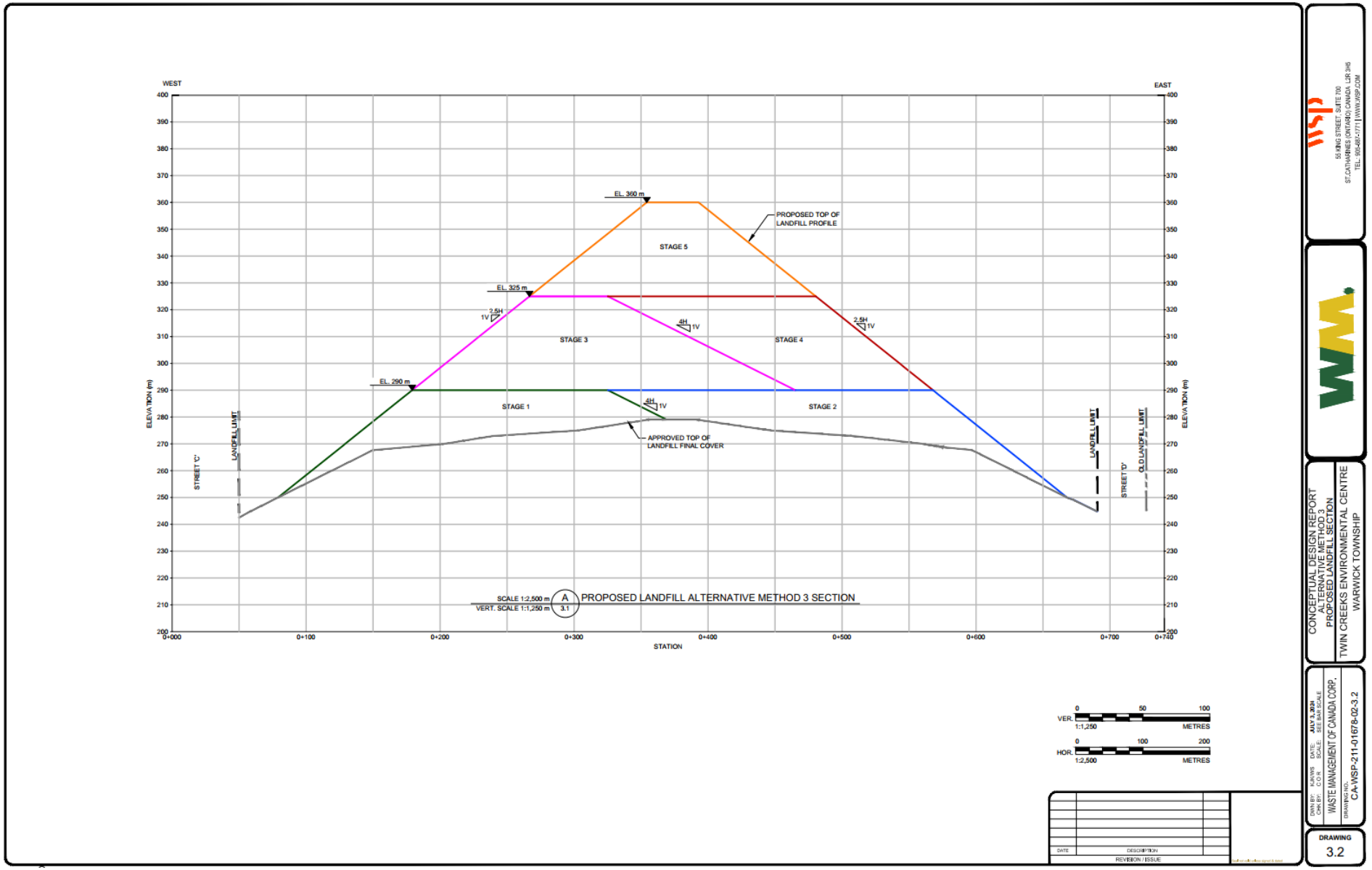


Figure 1-6. Alternative Method 3 – Landfill Section



2 Effects Assessment Methods

Using the evaluation criteria, indicators, rationale and data sources from the approved ToR and the existing conditions from the Land Use Existing Conditions Report, the effects assessment is carried out as follows:

- predict the potential environmental effects for each alternative method (**Section 2.1**);
- identify the preferred alternative (if applicable) based on a comparative evaluation of the potential environmental effects of each alternative method (**Section 2.2**);
- conduct an effects assessment on the preferred alternative (if applicable), including the identification of mitigation measures and monitoring programs (**Section 2.3**); and
- compare the effects of the preferred alternative (if applicable) to those of the 'do nothing' alternative (i.e., the previously approved landfill footprint as approved) (**Section 2.4**).

2.1 Predict Potential Environmental Effects for Alternative Methods

The potential environmental effects for each alternative method are identified within the study areas 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 TCEC 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. The study areas, evaluation criteria, indicators, data sources, and key design considerations and assumptions for Land Use are provided below.

2.1.1 Study Areas

The TCEC landfill is located within the Township of Warwick, in the County of Lambton, approximately 1 km north of the Village of Watford. The TCEC is situated south of Highway 402 and southeast of the intersection of Nauvoo Road and Zion Line. The municipal street address of the TCEC is 5768 Nauvoo Road, Watford, Ontario. The area being considered for the landfill optimization is within the approved Expansion Landfill footprint located within the northern portion of the 301 ha TCEC site.

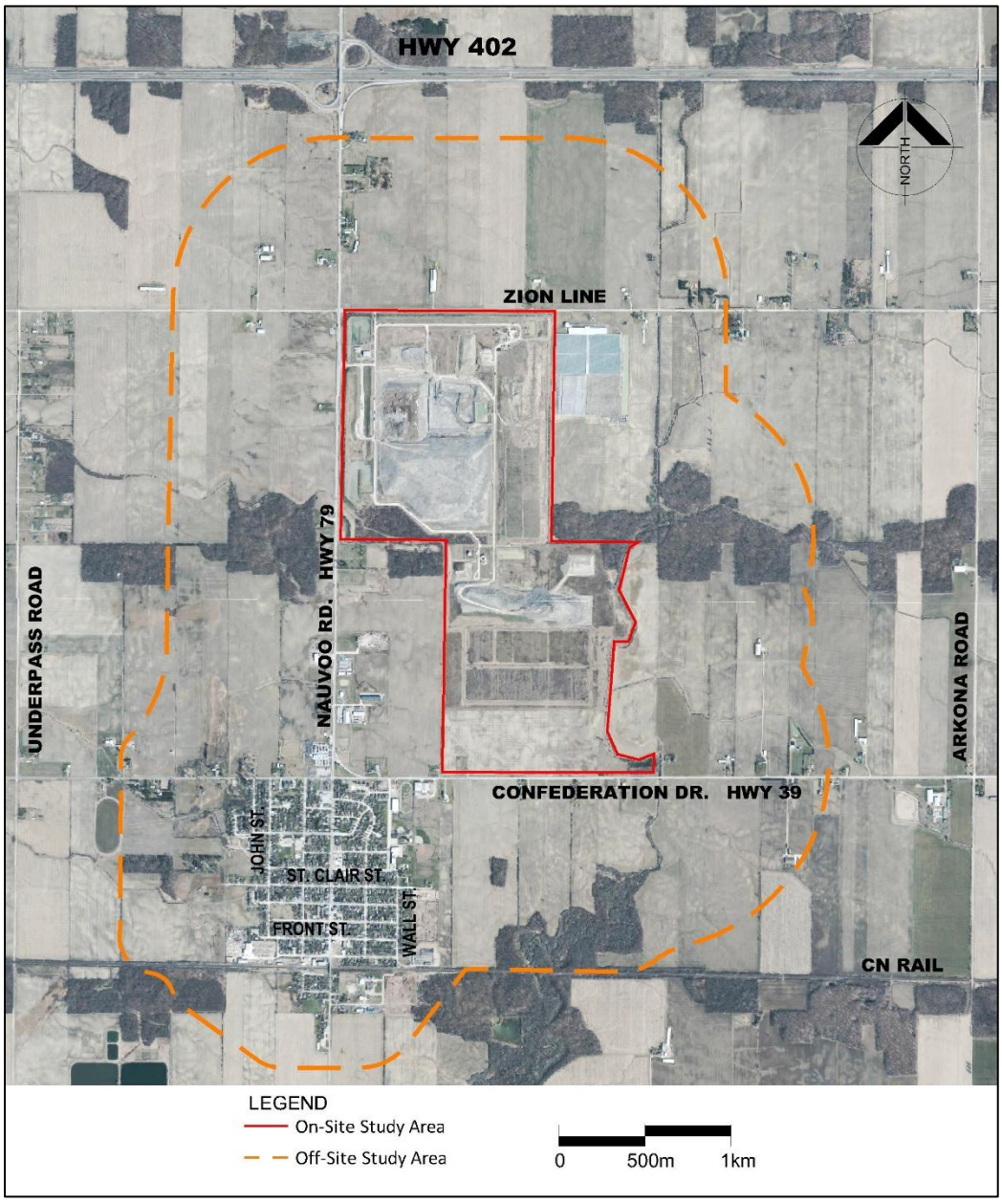
The study areas include the existing TCEC site as well as the potentially affected surrounding areas. The general On-site and Off-site Study Areas identified for the EA in the approved ToR are as follows:

- On-site Study Area: the existing TCEC;

- Off-site Study Area: the lands within the vicinity of the TCEC extending approximately 1 km out from the On-site Study Area.

For the Land Use effects assessment, the Off-site Study Area has been expanded to include the entire Settlement Area of Watford, corresponding to the Off-site Study Area identified for the Socio-Economic Environment (**Figure 2-1**). This is consistent with the study areas considered in the Land Use Existing Conditions Report.

Figure 2-1. On-site and Off-site Study Areas for Land Use



2.1.2 Evaluation Criteria, Indicators, and Data Sources

The evaluation criteria, rationale, indicators, and data sources used for Land Use as per the approved ToR are provided in **Table 2-2**.

Table 2-2. Evaluation Criteria, Indicators, and Data Sources for Land Use

Evaluation Criteria	Rationale	Indicators	Data Sources
Built Environment			
Current and Planned Future Land Use			
Effects on Current and Future Land Uses	The continued operation of the landfill may not be fully compatible with certain current and/or planned future land uses in the Off-site Study Area. Waste disposal facilities can potentially have a negative impact on sensitive land uses, in the vicinity of the site.	• Current land use • Planned land use • Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected • Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement (now Provincial Planning Statement) and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected • Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock)	• Planning Act • Provincial Policy Statement (now Provincial Planning Statement) • All applicable Provincial D-series guidelines, including guidelines D-1, D-1-1, D-1-2 and D-1-3 (Land Use and Compatibility), as well as D-4, D-4-1, D4-2, and D-4-2 (Land Use On or Near Landfills and Dumps) • Lambton County Official Plan • Township of Warwick Official Plan • Township of Warwick Zoning By-law 121 of 2012 • Aerial photographic mapping, utilizing the following sources: Lambton County GIS, St. Clair Region Conservation Authority, OMAFRA Agricultural Information Atlas, Google Maps, and Bing Maps • Canadian Lands Inventory mapping • Field reconnaissance • Published data on public recreational facilities/activities • Proposed facility characteristics • Landfill design and operations data • The results of other discipline assessments for this EA, where applicable.

2.1.3 Key Considerations and Assumptions

The key existing conditions elements, design considerations, and assumptions for the Land Use effects assessment are described below.

2.1.3.1 Key Elements of Existing Conditions

The types of existing sensitive land uses and known planned sensitive land uses, and their location relative to the TCEC, will be used in the Land Use effects assessment. Key Elements of Existing Conditions, including existing and planned uses and their location relative to the TCEC, are discussed in detail below.

Existing On-Site Land Uses

The Land Use Existing Conditions Report identified the existing TCEC property boundary as the On-site Study Area. The TCEC is the predominant existing land use within the On-site Study Area, with the current Expansion Landfill spanning approximately 75.4 ha on the northern portion of the site. A leachate management facility, landfill gas facility, renewable natural gas facility (under construction), excess soil stockpile, poplar plantation (to treat leachate), and agricultural field are located to the south of the active landfill area. Several private recreational features managed by WM are also located within the On-site Study Area, including the Watford Dog Park (at the south end of the site along Confederation Line), Nauvoo Park (a passive recreation park located to the north of the Watford Cemetery, on the west side of the site), and the Twin Creeks Nature Trail, which connects the two features.

The On-site Study Area is designated as 'Agricultural Area' on Map '1' – Growth Strategy of the County Official Plan ("County OP"). The Township of Warwick Official Plan ("Local OP") delineates the On-site Study Area as 'Waste Management Policy Area' with a 'Landfill Site' and 'Agriculture' designation on Schedule 'A' of the Plan. The On-site Study Area is further zoned as 'Industrial Waste Disposal' ('M3-1'), with small portions of the property zoned 'Natural Heritage – Significant Woodlot' ('EP-WD') and 'Natural Heritage – Hazard' (EP-H') and the southernmost portion zoned 'Agricultural 2-3' ('A2-3') on Schedules 'A' and 'B' of the Township of Warwick Zoning By-law 121 of 2012 ("Township ZBL").

The Local OP and Township ZBL both prescribe permanent minimum buffer areas around the approved landfilling area. Specifically, section 13.5 of the Local OP and section 18.3.1 of the Township ZBL require the following to be provided and maintained:

a) *a permanent minimum 100-metre-wide buffer area, adjacent to the north, west and south sides of the approved landfilling area and;*

b) *a minimum of 30-metre-wide buffer area adjacent to the east side of the landfilling area, and a minimum 7-metre-wide buffer area adjacent to the east side of the south landfill area, existing prior to the time of the adoption of this amendment.*

The permanent buffer area may only include landscaping features, berms, fencing, woodland forest, stormwater management facilities, internal driveways, and buildings and structures accessory and ancillary to the landfill operation. As such, permanent buffer areas have been implemented into the landfill site to minimize the potential for adverse effects between the landfill operation and surrounding sensitive land uses.

Existing Off-Site Land Uses

The Land Use Existing Conditions Report also identified the existing sensitive land uses (as defined by the Provincial Policy Statement (now Provincial Planning Statement) and the MECP D-1 and D-4 Guidelines in the Land Use Existing Conditions

Report) within 1 km of the On-site Study Area, as well as the entire Settlement Area of Watford, corresponding to the Off-site Study Area identified for the Socio-Economic Assessment completed by HDR Corporation (2024).

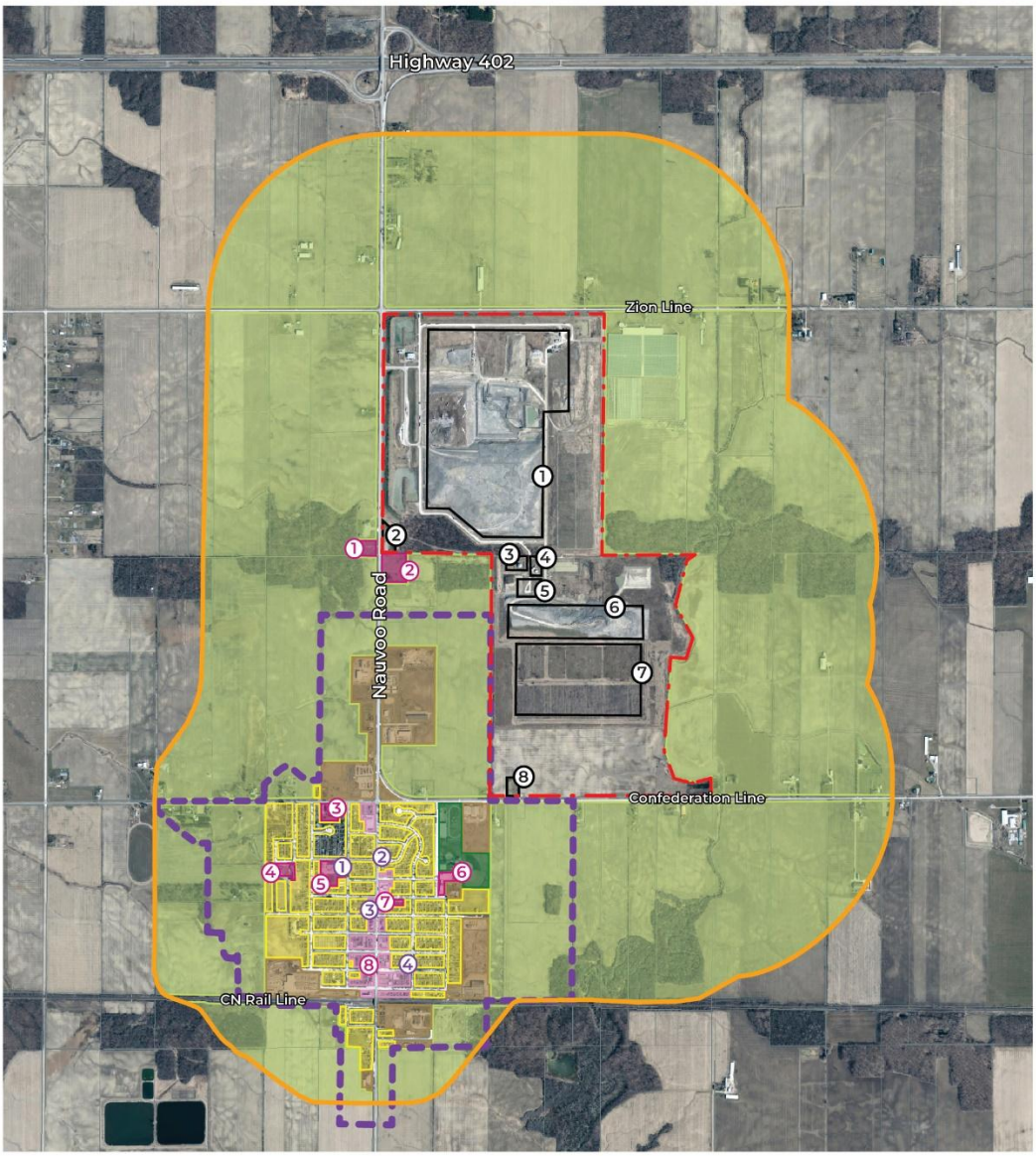
Most of the lands within the Off-site Study Area are designated, zoned, and utilized for agricultural purposes, with residential dwellings associated with farming operations scattered throughout the agricultural area. Specifically, the lands within the Off-site Study Area are predominantly designated as 'Agricultural Area' on 'Map 1 – Growth Strategy' of the County OP, 'Agriculture' on Schedule 'A' of the Local OP, and 'Agriculture 1' ('A1') on Schedule 'A' of the Township ZBL. Certain agricultural operations, including cash crop farming, cattle raising, livestock pastures, and livestock barns, are "*sensitive land uses*" in the Provincial D-1-3 and D-4 Guidelines.

The areas including the north-west corner of the Off-site Study Area, south of Highway 402 and west of County Road 79 and adjacent to the south-west of the Highway 402 underpass, are designated 'Hwy 402 Service Centre' in the County OP, 'Highway 402 Service Centre' with an 'Employment Area' overlay in the Local OP, and 'Service Centre Commercial' ('C4-(h)') in the Township ZBL. These lands are currently used for agricultural purposes. Uses permitted and contemplated within the employment area are not considered sensitive.

A number of existing sensitive land uses are concentrated within the Watford Settlement Area to the southwest of the TCEC facility, including the following: residential dwellings (predominantly single-detached dwellings), four public parks, one community complex, two elementary schools, two daycares, two active and one inactive cemeteries, four places of worship, two healthcare facilities, and one long-term care facility.

Watford is designated 'Urban Centre' in the County OP, a wide range of land-use designations (i.e., 'Residential', 'Commercial', 'Mixed Commercial/Industrial', 'Industrial', and 'Open Space') on Part 1 to Schedule 'A' (Watford) of the Local OP, and a mix of zones (i.e., 'Residential 1' ('R1'), 'Residential 3' ('R3'), 'Residential 5' ('R5'), 'Institutional' ('I'), 'Central Commercial' ('C1'), 'Highway Commercial' ('C2'), 'Mixed Commercial/Industrial' ('CM'), 'Industrial' ('M1'), and 'Open Space 1' ('OS1'), 'Open Space 2' ('OS2'), 'Industrial' ('M1'), 'Commercial' ('C2'), and 'Mixed Commercial/Industrial' zones ('CM') on Schedule 'B' (Watford) of the Township ZBL.

Figure 2-2. Existing On-Site and Off-Site Study Area Land Uses

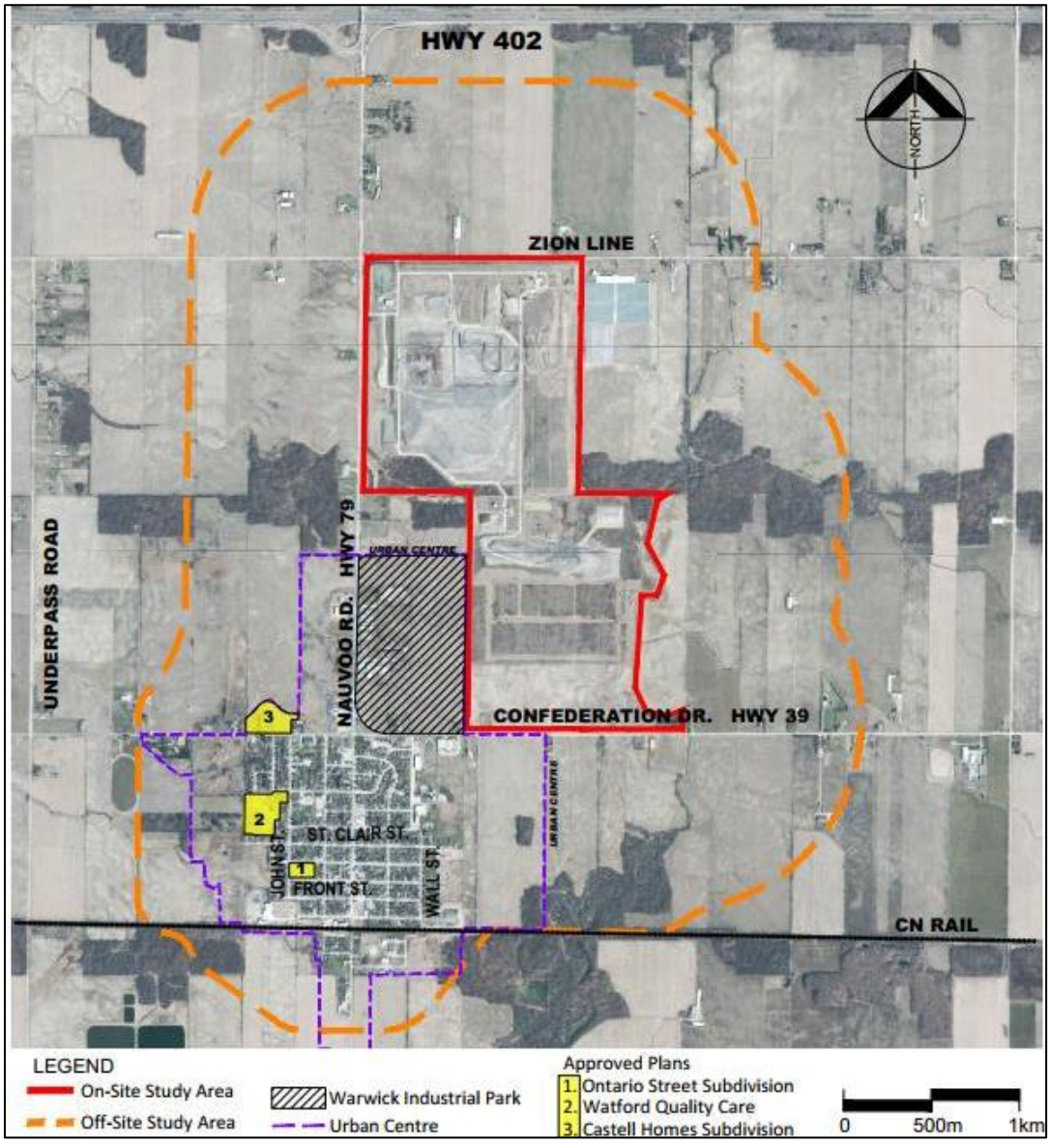


Active Development Applications

The County of Lambton was contacted in September 2023 to identify any planned residential land uses, within recently draft-approved or final-approved plans, in the Township of Warwick, which are considered to be sensitive land uses in proximity to major facilities or landfills. The results of that inquiry identified that the following plans existed: Ontario Street Subdivision (Final Approved Plan – File #38T- 20002), consisting of nineteen (19) lots for single-detached dwellings; Watford Quality Care (Final Approved Plan – Plan 655), consisting of thirty-one (31) lots for single-detached dwellings; and Castell Homes Subdivision (Draft Plan Approved – File #38T-21001) proposing fifty (50) lots for single and semi-detached dwellings (**Figure 2-2**).

At this time, MBPC is waiting for a response from the County to provide updated development activity information.

Figure 2-3. Township of Warwick (Watford) Development Activity



Future Development Potential

It is anticipated that planned land uses will be in keeping with the general land use schedule as they exist in the County OP and Local OP. It is also anticipated that existing land supply within the Village of Warwick, within the Village Settlement Area, remains as it exists.

The future development potential, or an amendment to the land use schedules to permit new development of lands within 1 km of the On-site Study Area will be subject to the Policies and Regulations under the *Planning Act* (1990), the Provincial Planning Statement (2024), the D-Series Guidelines, the County OP, the Local OP, and the Township ZBL.

More specifically, the County OP states that any new development or change of use on or within 500 m of any active or closed waste disposal site (including the Landfill site) will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted (Part B, s.s. 13.4, Part C, s.s. 3.6.2).

With respect to the existing TCEC facility, and the proposed vertical expansion, County OP states that an amendment to the County OP and Local OP are required prior to the establishment of new waste management facilities or the expansion of existing facilities (Part B, s.s. 13.12).

2.1.3.2 Key Design Considerations

The three alternative methods outlined in the Conceptual Design Report (WSP, 2025) consider the development of additional landfill capacity within the TCEC site area through a vertical expansion within the previously approved landfill footprint, rather than a horizontal expansion into other areas of the TCEC site. As such, the existing waste disposal footprint area of the TCEC is not proposed to change, but rather, the maximum permitted height of waste permitted is proposed to be increased.

Accordingly, landfill design and geometry for the alternative methods, provided in **Section 1.1**, will be used as part of the net effects assessment on existing and planned sensitive land uses.

2.1.3.3 Key Assumptions

The following key assumptions will be used as part of the Land Use effects assessment:

- Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change. Instead, the maximum permitted height of waste would be increased from the current approved elevation for top of waste;
- The alternative methods are acceptable with respect to the stability of the final landfill slopes and proposed peak profile height;

- Since the alternative methods would not change the existing approved landfill limit of waste, the existing property boundaries and buffer widths will remain the same after the vertical expansion;
- There are no operational changes anticipated for the landfill optimization and the landfill will operate consistent with current conditions with the same annual tonnage limits and truck trips;
- No changes to the landfill operating hours are anticipated as a result of the landfill optimization;
- Normal site equipment will remain unchanged during the landfill optimization, and no additional equipment will be added;
- No operational changes are anticipated to result from the landfill optimization, and it will operate consistent with current conditions with the same 1.4 million tonnes annual capacity;
- The Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) identifies Alternative Method 2 as the Preferred Alternative, as it achieves the lowest total Combined Effect Value (CEV) score. The CEV is derived from visual simulations assessed at six viewpoints per alternative, based on four criteria: Visible Landfill Area, Horizontal Angle of View, Distance from Site, and Visual Absorption Capacity. However, it is noted that all three alternatives have comparable effect values, with CEV scores ranging narrowly between 77 and 81. Accordingly, the small variation in CEV scores among the alternatives is not expected to have any significant influence on land use. Existing visual impact mitigation measures at the TCEC—including mature berms and plantings, the poplar forest, and the soil stockpile—are considered to be effective in screening views from the off-site study area. It is further anticipated that the existing trees located on the screening berm will continue to grow and increase in height, thereby enhancing visual screening over time. This is documented in the Visual Landscape Effects Assessment Report; and,
- Nuisance Controls related to odour, litter, dust, noise, and birds, and implemented by WM, are expected to continue as currently managed or be improved at the TCEC until landfill closure.

2.2 Comparative Evaluation and Identification of the Preferred Alternative

The three alternative methods are comparatively assessed and evaluated using the criteria and indicators to determine the preferred alternative (if applicable). 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 each alternative method.

The net environmental effects are used to compare the three alternative methods to one another at the criteria and indicator level for each discipline. The following two step methodology was applied to carry out the comparative evaluation for Land Use:

1. Identify the predicted net effect(s) associated with each alternative method for each indicator and assign a preference rating (i.e., Preferred, Not Preferred, No Substantial Difference); and
2. Rate each alternative method 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 (if applicable) is carried out considering the same criteria, indicators, and data sources, considering potential mitigation/management measures and cumulative effects. The effects assessment of the Preferred Alternative (if applicable) will be compiled and presented in the EA Study Report.

2.4 Comparison of the Preferred Alternative against the 'Do Nothing' Alternative

The effects of the Preferred Alternative (if applicable) are compared against the predicted effects of the currently approved landfill footprint based on similar environmental criteria and indicators, with the understanding that the criteria and indicators used in the current effects assessment may differ from those used for the effects assessment of the currently approved landfill footprint. The effects are compared against each other in terms of magnitude, extent, and duration. The advantages and disadvantages of the Preferred Alternative (if applicable) compared to the 'Do Nothing' alternative are identified. The comparison of the effects of the Preferred Alternative (if applicable) against the 'Do Nothing' alternative will be compiled and presented in the EA Study Report.

3 Net Effects Assessment

To identify the potential effects of the Project on Land Use, the conceptual design of each alternative method for the landfill optimization is examined to determine if it will have an effect on current and future land uses through changes in:

- Current land use;
- Planned land use;
- Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected;

- Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Planning Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected; and
- Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock).

The results of the Land Use net effects assessment for each alternative method are provided in **Sections 3.2** through **3.4**, below.

3.1 Future Baseline Conditions

The following future baseline conditions have been established with respect to when the project begins.

It is anticipated that, at the time of project commencement, current land uses within the Off-site Study Area – specifically sensitive land uses – will continue to exist and operate. The Settlement Area limits of the Township of Watford will continue to remain as currently approved by Council, unless the County or Township determines that a review of the County or Local OP is required. At such time, the Settlement Area limits may be expanded, opening opportunities for sensitive land use designations (i.e., Residential, Open Space). In accordance with the County and Local OP, these land uses, if within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, to mitigate land use incompatibility issues as outlined in the MECP Guideline D-4: Land Use On or Near Landfills and Dumps.

The future baseline condition also anticipates that the landfill will continue to be consistent with the Provincial Planning Statement, provincial land use and resource management plans, and municipal land use policies, plans, and zoning by-laws (including municipal setbacks).

Some planned residential development within the Township of Warwick, specifically those draft plans approved, or site plans approved by Council and/or the County, may start construction or be completed prior to the Project being started. This may include Ontario Street Subdivision (Final Approved Plan – File #38T- 20002); Watford Quality Care (Final Approved Plan – Plan 655); and Castell Homes Subdivision (Draft Plan Approved – File #38T-21001). These land uses, however, have been evaluated through the planning approvals process, and are anticipated to proceed, with or without the proposed vertical expansion.

3.2 Alternative Method 1

The assessment of effects for Alternative Method 1 is described below for the environmental criteria and indicators of Land Use and is summarized in **Table 3-1**.

3.2.1 Effect on Current and Future Land Uses

3.2.1.1 Current Land Use

The Off-site Study Area includes the community of Watford and the surrounding agricultural area within 1 km of the landfill footprint affected.

Existing land uses within the north, east, and west portions of the Off-site Study Area are predominantly agricultural in nature, including cash crop farming, livestock barns, and scattered single-detached dwellings associated with agriculture operations. The entire settlement area of Watford (which includes residential, commercial, parks and open space, institutional, commercial industrial land uses) and the immediately surrounding agricultural area are located within the southwest portion of the Off-site Study Area.

The existing separation distance between the Village from the landfill, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against potential impacts and land use compatibility issues, including from noise and air quality. Existing mitigation measures in use at the TCEC will continue or be enhanced as described in other Effects Assessment Reports.

Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion among the three alternative methods proposed (an increase of 44.5 m above the current approved elevation for top of waste, for a total height of approximately 82.5 m above existing ground level).

The Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) identifies Alternative Method 1 as having a total Combined Effect Value (CEV) score of 78, which is the second highest CEV score of the three Alternative Methods. However, it is also noted that all three alternatives have comparable effect values, with CEV scores ranging narrowly between 77 and 81. Accordingly, the small variation in CEV scores among the alternatives is not expected to have any significant influence on land use effects. As previously mentioned, existing visual impact mitigation measures at the TCEC—including mature berms and plantings, the poplar forest, and the soil stockpile—are considered to be effective in screening views from the off-site study area. It is further assumed that the existing trees located on the screening berm will continue to grow and increase in height, thereby enhancing visual screening over time. This is documented in the Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) and the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

Current land uses within 500 m of the landfill fill area will be subject to consultation with the Province prior to a *Planning Act* approval being adopted or granted, in the case that new development (i.e., expansion of current use) or a change of land use is proposed. However, current land uses within 500 m of the landfill site are considered permitted to exist and function (pursuant to Section 34(9) of the *Planning Act*)

There are approximately 33 residences within the agricultural land use designation, outside the Watford Settlement Area, in the Off-site Study Area. Under the proposed vertical expansion for Alternative Method 1, the existing approved waste disposal

footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any residences within the agricultural land use designation outside the Watford Settlement Area, will be maintained.

It is understood that proactive nuisance controls will continue to be employed by WM to minimize nuisance effects related to odour, litter, dust, noise, and birds on the surrounding environment.

Any industrial land uses within the Off-site Study Area are not considered sensitive; as such, industrial and manufacturing uses are compatible uses with the landfill and will not be as susceptible to potential impacts.

In summary, there are no significant effects on the current residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford anticipated as a result of the proposed vertical expansion in Alternative Method 1.

3.2.1.2 Planned Land Use

The proposed vertical landfill expansion for Alternative Method 1 maintains the existing approved waste disposal footprint area of the TCEC and, as such, setback distances between the TCEC operation and any planned land uses will be maintained.

Planned land use development (i.e., expansion of current use or new uses) will be subject to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between sensitive land uses and the existing and/or newly expanded TCEC operation. As such, it is also anticipated that planned land uses in proximity to the landfill site will be compatible with the landfill use (i.e., industrial uses) and, in the case that a planned sensitive land use is proposed, appropriate measures guided by Provincial, County, and/or Municipal policies and/or regulations (i.e., requirements through Zoning and Site Plan, appropriate setbacks, Noise and Odour Impact Study) may be implemented. It is also anticipated that, because the previously approved landfill footprint will remain the same, resulting in the buffering area surrounding the landfill site remaining the same, planned land uses will not be impacted.

It is further anticipated that existing mitigation measures performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeological Resources, Cultural Heritage Resources, Ecological Environment, Human Health, Hydrogeology, Noise, Surface Water, Transportation, and Visual Landscape).

In summary, there are no significant effects on planned land uses anticipated as a result of the proposed vertical expansion in Alternative Method 1.

3.2.1.3 Off-Site Recreational Resources

The definition of “sensitive land use” in the D-1-3 Land Use Compatibility Guidelines includes “*certain outdoor recreational uses deemed by a municipality or other level of government to be sensitive,*” as well as permanent structures such as community

centres. There are four public parks and one community complex located within the Off-site Study Area:

- Bluebird Square Parkette (1,022 m southwest of the On-site Study Area Property Boundary)
- Centennial Park (395 m southwest of the On-site Study Area Property Boundary)
- Watford Sunken Gardens (750 m southwest of the On-site Study Area Property Boundary)
- Watford Memorial Park (355 m southwest of the On-site Study Area Property Boundary)
- East Lambton Community Complex & East Lambton YMCA (285 m southwest of the On-site Study Area Property Boundary)

For knowledge, additional Recreational Resources are provided in the On-Site Study Area, including the Watford Dog Park (at the south end of the site along Confederation Line), Nauvoo Park (a passive recreation park located to the north of the Watford Cemetery, on the west side of the site), and the Twin Creeks Nature Trail, which connects the two features.

The Township of Warwick Parks, Recreation, Tourism & Culture Master Plan ('Parks Plan') (2021) outlines a recommended parkland hierarchy for the Township, which may be used to guide the future development and redevelopment of parks according to the type, size, service level, and features and amenities that they provide (Parks Plan, s.s. 3.1).

Under the proposed vertical expansion for Alternative Method 1, the existing approved waste disposal footprint area of the TCEC would not change and thus the setback distance between the TCEC operation and any off-site recreational resources will be maintained. Those off-site recreational land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development (i.e., expansion of current use) or change of land use is proposed. Legally established existing off-site recreational land uses within 500 metres of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

In summary, there are no significant effects on off-site recreational resources anticipated as a result of the proposed vertical expansion in Alternative Method 1. Changes to the use of off-site recreational resources are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2024).

3.2.1.4 Off-Site Sensitive Land Uses

The Province considers a number of non-agricultural, non-residential, and non-recreational land uses to be "*sensitive*", including daycare centres, educational and health facilities (PPS); institutions such as schools, churches, community centres, and daycares (D-1-3); permanent structures where a person is present on a full-time basis

(but not including food or motor vehicle service facilities adjacent to a highway, utility operations, scrap yards, heavy industrial uses, gravel pits, quarries, mining or forestry activities) and cemeteries (D-4).

In the Village of Watford, there are two elementary schools (East Lambton Elementary School and St. Peter Canisius Catholic School), two daycares (East Lambton Best Start Daycare, North Lambton Childcare), two healthcare facilities providing services to the public (North Lambton Community Health Centre, Good Doctors Virtual Telemedicine Walk-In Clinic and McLaren Pharmacy), two retirement / long-term care facility (Brookside Retirement Living, Watford Quality Care), two active cemeteries (Our Lady Help of Christians Roman Catholic Cemetery, Watford Cemetery) and one inactive cemetery (Watford Pioneer Cemetery), and four churches (Watford United Church, St. Andrew's Presbyterian Church, Trinity Anglican Church, Our Lady Help of Christians).

Under the proposed vertical expansion for Alternative Method 1, the existing approved waste disposal footprint area of the TCEC would not change and thus the setback distance between the TCEC operation and any existing off-site sensitive land uses will be maintained.

The existing separation distance between the Village and the landfill, where the majority of the sensitive land uses are amalgamated, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against potential impacts and land use compatibility issues, including noise and air quality. Existing mitigation measures in use at the TCEC will continue or be enhanced as described in other Effects Assessment Reports.

In summary, there are no significant effects on existing off-site sensitive land uses anticipated as a result of the proposed vertical expansion in Alternative Method 1. Changes to the use and enjoyment of property are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

3.2.1.5 Agricultural Land Use / Operations

The D-1-3 Land Use Compatibility Guidelines identify that "*certain agricultural operations (e.g. cattle raising, mink farming, cash crops and orchards)" may be considered sensitive land uses, and the D-4 Guidelines identify that livestock pastures and "permanent structures used in animal husbandry*" are considered sensitive land uses for landfills currently in operation.

Agricultural uses (both cash crops and livestock operations) are the predominant land uses within the Off-site Study Area (apart from the Watford Settlement Area). Most "undeveloped" land within the Off-site Study Area is used for agricultural cash crop farming. Thirteen (13) livestock operations have been identified within this area. There is also one greenhouse operation within the Off-site Study Area, located directly to the east of the on-site study area.

Under the proposed vertical expansion for Alternative Method 1, no significant effects on existing agricultural land use and associated operations are anticipated; the

existing approved waste disposal footprint area of the TCEC would not change. Expansion of existing agricultural operations will be subject to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation. However, current legally established existing agricultural land uses and their associated operations within 500 m of the landfill site are considered permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

3.2.2 Summary

A summary of the effects assessment of Alternative Method 1 is summarized below 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
Effects on Current and Future Land Uses	Current land use	• Current land uses and their locations in proximity to the TCEC will remain as they exist at the time of project commencement. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change; the maximum permitted height of waste would be increased. • Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • The existing visual impact mitigation measures are anticipated to effectively screen views. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• No significant impacts to the residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford are anticipated. The existing separation distance between the Village from the landfill site is anticipated to mitigate against potential impacts and land use compatibility issues. • Current land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed. • The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any current land uses will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to continue to exist (pursuant to Section 34(9) of the *Planning Act*) • Alternative Method 1 will require new planning approvals (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Planned land use	• Planning land uses will be in keeping with the general land use schedule as it exists in the County OP and Local OP. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any planned land uses will be maintained. No significant effects anticipated. • Planned land use development (i.e., expansion of current use or new uses) will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between planned sensitive uses and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and off-site recreational resources will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Legally established existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any existing off-site sensitive land uses will be maintained. No significant effects anticipated. • Off-site sensitive land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Legally established existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock)	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 1 proposes the second highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• Under the proposed vertical expansion, no potential effects are anticipated on existing agricultural land uses and associated operations; the existing approved waste disposal footprint area of the TCEC would not change. • Expansion of existing agricultural operations will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing operating agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

3.3 Alternative Method 2

The assessment of effects for Alternative Method 2 is described below for the environmental criteria and indicators of Land Use and is summarized in **Table 3-2**.

3.3.1 Effect on Current and Future Land Uses

3.3.1.1 Current Land Use

Similar to Alternative Method 1, no significant impacts to the residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford are anticipated as a result of the proposed vertical expansion in Alternative Method 2. The existing separation distance between the Village from the landfill, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against the potential impacts and land use compatibility issues, including noise and air quality, assuming appropriate mitigation measures are maintained and/or additional measures are implemented.

Alternative Method 2 proposes the smallest increase in maximum elevation for vertical expansion among the three alternative methods proposed (an increase of 39 m above the current approved elevation for top of waste, for a total height of approximately 77 metres above existing ground level).

The Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) identifies Alternative Method 2 as having a total Combined Effect Value (CEV) score of 77, which is the lowest CEV score of the three Alternative Methods. However, it is also noted that all three alternatives have comparable effect values, with CEV scores ranging narrowly between 77 and 81. Accordingly, the small variation in CEV scores among the alternatives is not expected to have any significant influence on land use effects. As previously mentioned, existing visual impact mitigation measures at the TCEC—including mature berms and plantings, the poplar forest, and the soil stockpile—are considered to be effective in screening views from the off-site study area. It is further assumed that the existing trees located on the screening berm will continue to grow and increase in height, thereby enhancing visual screening over time. This is documented in the Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) and the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

Similar to Alternative Method 1, current land uses within 500 metres of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development (i.e., expansion of current use) or change of land use is proposed. However, legally established existing land uses within 500 metres of the landfill site are considered legal and permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

As previously discussed, under the proposed vertical expansion for Alternative Method 2, the existing approved waste disposal footprint area of the TCEC would not change.

As such, potential effects are limited with respect to setback distance between the TCEC operation and any residences within the agricultural land use designation outside the Watford Settlement Area.

Any industrial land uses within the Off-site Study Area are not considered sensitive; as such, industrial and manufacturing uses are compatible uses with the landfill and will not be as susceptible to potential impacts.

3.3.1.2 Planned Land Use

Similarly to Alternative Method 1, the proposed vertical landfill expansion for Alternative Method 2 maintains the existing approved waste disposal footprint area of the TCEC and, as such, no potential effects are anticipated with respect to setback distance between the TCEC operation and any planned land uses.

Planned land use development (i.e., expansion of current use or new uses) will continue to be subject to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between sensitive land uses and the existing and/or newly expanded TCEC operation. As such, it is also anticipated that planned land uses in proximity to the landfill site will be compatible with the landfill use (i.e., industrial uses), and, in the case that a planned sensitive land use is proposed, appropriate measures guided by Provincial, County, and/or Municipal policies and/or regulation may be implemented. As previously mentioned, it is also anticipated that, because the previously approved landfill footprint will remain the same, resulting in the buffering area surrounding the landfill site remaining the same, planned land uses will not be impacted.

It is further anticipated that existing mitigation measures performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeological Resources, Cultural Heritage Resources, Ecological Environment, Human Health, Hydrogeology, Noise, Surface Water, Transportation, and Visual Landscape).

3.3.1.3 Off-Site Recreational Resources

Similarly to Alternative Method 1, all off-site recreational resources are located within the Village of Watford. Under the proposed vertical expansion for Alternative Method 2, the existing approved waste disposal footprint area of the TCEC would not change. As such, no potential effects are anticipated with respect to setback distance between the TCEC operation and any off-site recreational resources.

In addition, those off-site recreational land uses within 500 metres of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development (i.e., expansion of current use) or change of land use is proposed.

Similarly to Alternative Method 1, all off-site recreational resources are located within the Village of Watford. Generally speaking, no potential effects are anticipated with

respect to setback distance between the TCEC operation and any existing off-site sensitive land uses, recognizing the vertical proposal for the proposed TCEC expansion. Changes to the use of off-site recreational resources are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

3.3.1.4 Off-Site Sensitive Land Uses

Similarly to Alternative Method 1, all off-site sensitive land uses are located within the Village of Watford. Generally speaking, no potential effects are anticipated with respect to setback distance between the TCEC operation and any existing off-site sensitive land uses, recognizing the vertical proposal for the proposed TCEC expansion.

The existing separation distance between the Village from the landfill, where majority of the sensitive land uses are amalgamated, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against many of the potential impacts and land use compatibility issues, including noise and air quality, assuming appropriate mitigation measures and nuisance controls employed by WM are maintained and/or additional measures are implemented.

Changes to the use and enjoyment of property are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2024).

3.3.1.5 Agricultural Land Use / Operations

Similarly to Alternative Method 1, under the proposed vertical expansion for Alternative Method 2, it is anticipated that there will be no significant impacts on existing agricultural land use and associated operations; the existing approved waste disposal footprint area of the TCEC would not change.

Expansion of existing agricultural operations will be subject to Provincial, County, to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation. However, legally established existing agricultural land uses and their associated operations within 500 metres of the landfill site are considered legal and permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

3.3.2 Summary

A summary of the effects assessment of Alternative Method 2 is summarized below 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
Effects on Current and Future Land Uses	Current land use	• Current land uses and their locations in proximity to the TCEC will remain as they exist at the time of project commencement. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change; the maximum permitted height of waste would be increased. • Alternative Method 2 proposes the smallest elevation maximum for vertical expansion, compared between the three alternative methods. • The existing visual impact mitigation measures are anticipated to effectively screen views. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• No significant impacts to the residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford are anticipated. The existing separation distance between the Village from the landfill site is anticipated to mitigate against potential impacts and land use compatibility issues. • Current land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed. • The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any current land uses will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • Alternative Method 2 will require new planning approvals (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Planned land use	• Planning land uses will be in keeping with the general land use schedule as it exists in the County OP and Local OP. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 2 proposes the smallest elevation maximum for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any planned land uses will be maintained. No significant effects anticipated. • Planned land use development (i.e., expansion of current use or new uses) will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between planned sensitive uses and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 2 proposes the smallest elevation maximum for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and off-site recreational resources will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 2 proposes the smallest elevation maximum for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any existing off-site sensitive land uses will be maintained. No significant effects anticipated. • Off-site sensitive land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Legally established existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock)	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 2 proposes the smallest elevation maximum for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• Under the proposed vertical expansion, no potential effects are anticipated on existing agricultural land uses and associated operations; the existing approved waste disposal footprint area of the TCEC would not change. • Expansion of existing agricultural operations will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

3.4 Alternative Method 3

The assessment of effects for Alternative Method 3 is described below for the environmental criteria and indicators of Land Use and is summarized in **Table 3-3**.

3.4.1 Effect on Current and Future Land Uses

3.4.1.1 Current Land Use

Similarly to Alternative Method 1 and Alternative Method 2, no significant impacts to the residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford are anticipated as a result of the proposed vertical expansion in Alternative Method 3. The existing separation distance between the Village from the landfill, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against the potential impacts and land use compatibility issues, including noise and air quality, assuming appropriate mitigation measures are maintained and/or additional measures are implemented.

Alternative Method 3 proposes the largest maximum elevation increase for vertical expansion among the three alternative methods proposed (an increase of 80 m above the current approved elevation for top of waste, for a total height of approximately 118 metres above existing ground level).

The Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) identifies Alternative Method 3 as having a total Combined Effect Value (CEV) score of 81, which is the highest CEV score of the three Alternative Methods. However, it is also noted that all three alternatives have comparable effect values, with CEV scores ranging narrowly between 77 and 81. Accordingly, the small variation in CEV scores among the alternatives is not expected to have any significant influence on land use effects. As previously mentioned, existing visual impact mitigation measures at the TCEC—including mature berms and plantings, the poplar forest, and the soil stockpile—are considered to be effective in screening views from the off-site study area. It is further assumed that the existing trees located on the screening berm will continue to grow and increase in height, thereby enhancing visual screening over time. This is documented in the Visual Landscape Effects Assessment Report prepared by Schollen & Company Inc. (2025) and the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

Similarly to Alternative Method 1 and Alternative Method 2, current land uses within 500 metres of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development (i.e., expansion of current use) or change of land use is proposed. However, legally established existing land uses within 500 metres of the landfill site are considered legal and permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

Under the proposed vertical expansion for Alternative Method 3, the existing approved waste disposal footprint area of the TCEC would not change. As such, potential effects

are limited with respect to setback distance between the TCEC operation and any residences within the agricultural land use designation outside the Watford Settlement Area.

Any industrial land uses within the Off-site Study Area are not considered sensitive; as such, industrial and manufacturing uses are compatible uses with the landfill and will not be as susceptible to potential impacts.

3.4.1.2 Planned Land Use

Similarly to Alternative Method 1 and Alternative Method 2, the proposed vertical landfill expansion for Alternative Method 3 maintains the existing approved waste disposal footprint area of the TCEC and, as such, no potential effects are anticipated with respect to setback distance between the TCEC operation and any planned land uses.

Planned land use development (i.e., expansion of current use or new uses) will continue to be subject to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between sensitive land uses and the existing and/or newly expanded TCEC operation. As such, it is also anticipated that planned land uses in proximity to the landfill site will be compatible with the landfill use (i.e., industrial uses), and in the case that a planned sensitive land use is proposed, appropriate measures guided by Provincial, County, and/or Municipal policies and/or regulation may be implemented. As previously mentioned, it is also anticipated that, because the previously approved landfill footprint will remain the same, resulting in the buffering area surrounding the landfill site remaining the same, planned land uses will not be impacted.

It is further anticipated that existing mitigation measures performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeological Resources, Cultural Heritage Resources, Ecological Environment, Human Health, Hydrogeology, Noise, Surface Water, Transportation, and Visual Landscape).

3.4.1.3 Off-Site Recreational Resources

Similarly to Alternative Method 1 and Alternative Method 2, all off-site recreational resources are located within the Village of Watford. Under the proposed vertical expansion for Alternative Method 3, the existing approved waste disposal footprint area of the TCEC would not change. As such, no potential effects are anticipated with respect to setback distance between the TCEC operation and any off-site recreational resources.

Those off-site recreational land uses within 500 metres of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development (i.e., expansion of current use) or change of land use is proposed.

Similarly to Alternative Method 1 and Alternative Method 2, all off-site recreational resources are located within the Village of Watford. Generally speaking, no potential effects are anticipated with respect to setback distance between the TCEC operation and any existing off-site sensitive land uses, recognizing the vertical proposal for the proposed TCEC expansion. Changes to the use of off-site recreational resources are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

3.4.1.4 Off-Site Sensitive Land Uses

Similarly to Alternative Method 1 and Alternative Method 2, all off-site sensitive land uses are located within the Village of Watford. Generally speaking, no potential effects are anticipated with respect to setback distance between the TCEC operation and any existing off-site sensitive land uses, recognizing the vertical proposal for the proposed TCEC expansion.

The existing separation distance between the Village from the landfill, where majority of the sensitive land uses are amalgamated, as well as the pre-existing permanent buffer areas, are anticipated to mitigate against many of the potential impacts and land use compatibility issues, including noise and air quality, assuming appropriate mitigation measures and nuisance controls employed by WM are maintained and/or additional measures are implemented.

Changes to the use and enjoyment of property are considered in the Socio-Economic Environment Effects Assessment Report prepared by HDR Corporation (2025).

3.4.1.5 Agricultural Land Use / Operations

Similarly to Alternative Method 1 and Alternative Method 2, under the proposed vertical expansion for Alternative Method 3, it is anticipated that there will be no significant impacts on existing agricultural land use and associated operations; the existing approved waste disposal footprint area of the TCEC would not change.

Expansion of existing agricultural operations will be subject to Provincial, County, to Provincial, County, and/or Municipal policies and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation. However, legally established existing agricultural land uses and their associated operations within 500 metres of the landfill site are considered legal and permitted to exist (pursuant to Section 34(9) of the *Planning Act*).

3.4.2 Summary

A summary of the effects assessment of Alternative Method 3 is summarized below in **Table 3-3**.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Effects on Current and Future Land Uses	Current land use	• Current land uses and their locations in proximity to the TCEC will remain as they exist at the time of project commencement. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change; the maximum permitted height of waste would be increased. • Alternative Method 3 proposes the highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • The existing visual impact mitigation measures are anticipated to effectively screen views. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• No significant impacts to the residential, commercial, parks and open space, institutional, and commercial industrial land uses within the settlement area of Watford are anticipated. The existing separation distance between the Village from the landfill site is anticipated to mitigate against potential impacts and land use compatibility issues. • Current land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed. • The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any current land uses will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • Alternative Method 3 will require new planning approvals (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Planned land use	• Planning land uses will be in keeping with the general land use schedule as it exists in the County OP and Local OP. • Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 3 proposes the highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any planned land uses will be maintained. No significant effects anticipated. • Planned land use development (i.e., expansion of current use or new uses) will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between planned sensitive uses and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 3 proposes the highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and off-site recreational resources will be maintained. No significant effects anticipated.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Legally established existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 3 proposes the highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• The existing approved waste disposal footprint area of the TCEC would not change and, as such, existing setback distances between the TCEC operation and any existing off-site sensitive land uses will be maintained. No significant effects anticipated. • Off-site sensitive land uses within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, in the case that new development or change of land use is proposed.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Legally established existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

Evaluation Criteria	Indicator	Key Design Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
	Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock)	• Under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of the waste would be increased. • Alternative Method 3 proposes the highest maximum elevation increase for vertical expansion, compared between the three alternative methods. • Permanent minimum buffer areas prescribed in the Local OP and Township ZBL will remain. • The establishment of an expanded landfill, as well as any proposed future development potential in proximity to the landfill site, triggers municipal and provincial policies that restrict sensitive land uses in the Off-site Study Area. • It is anticipated that existing nuisance controls performed by WM at the TCEC will be continued and/or enhanced pending the results of the Effects Assessment reporting completed by other technical consultants (i.e., Air Quality, Archaeology, Cultural Heritage, Ecological Environment, Hydrogeological, Surface Water, Transportation, Noise, and Human Health).	• Under the proposed vertical expansion, no potential effects are anticipated on existing agricultural land uses and associated operations; the existing approved waste disposal footprint area of the TCEC would not change. • Expansion of existing agricultural operations will be subject to Provincial, County, and/or Municipal polices and/or regulations to ensure compatibility between the agricultural operation and the existing and/or newly expanded TCEC operation.	• Maintain previously approved setback and buffer distances, and existing berming. • Continued employment or enhancement of nuisance controls by WM, related to odour, litter, dust, noise and birds on the surrounding environment.	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing operating agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls.

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

The comparative evaluation of the net effects of each alternative method and the identification of a Preferred Alternative (if applicable) are carried out in accordance with the methods described in **Section 2.2**. The three alternative methods are comparatively assessed and evaluated using the criteria and indicators to determine the Preferred Alternative (if applicable). 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 each alternative method. The comparative evaluation of the alternative methods for Land Use is provided in **Table 4-1**, below.

Table 4-1. Comparative Evaluation of the Net Effects of the Alternative Methods for Land Use

Evaluation Criteria	Indicator	Net Effects of Alternative Methods		
		Alternative Method 1	Alternative Method 2	Alternative Method 3
Effects on Current and Future Land Uses	Current land use	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • New planning approvals will be required (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • New planning approvals will be required (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any current land uses; setback distances are maintained. Legally established existing land uses (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • New planning approvals will be required (County and Local OP, Township ZBL, and Site Plan Control), and result in continued restrictions for surrounding land uses for an additional 12 years. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**
	Planned land use	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any planned land uses; setback distances are maintained. • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**

Table 4-1. Comparative Evaluation of the Net Effects of the Alternative Methods for Land Use

Evaluation Criteria	Indicator	Net Effects of Alternative Methods		
		Alternative Method 1	Alternative Method 2	Alternative Method 3
	Type(s) and proximity of off-site recreational resources within 1 km of a landfill footprint potentially affected	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Legally established existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Legally established existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any off-site recreational resources; setback distances are maintained. Legally established existing off-site recreational resources (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**
	Type(s) and proximity of off-site sensitive land uses as defined by the Provincial Policy Statement (now Provincial Planning Statement) and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km of a landfill footprint potentially affected	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any sensitive land use; setback distances are maintained. Existing sensitive land use (considered sensitive) within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**

Table 4-1. Comparative Evaluation of the Net Effects of the Alternative Methods for Land Use

Evaluation Criteria	Indicator	Net Effects of Alternative Methods		
		Alternative Method 1	Alternative Method 2	Alternative Method 3
	Type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock)	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing operating agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing operating agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**	• No significant net effects anticipated between the TCEC operation and any existing and operating agricultural land use; setback distances are maintained. Legally established existing operating agricultural land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*) • No net effects anticipated with respect to nuisance effects associated with the TCEC operation with employed nuisance controls. **No Substantial Difference**
	Criteria Rating & Rationale	***There is no substantial difference between the three Alternative Methods for Land Use.*** All three alternative methods will result in no significant net effects on current land use, planned land use, type(s) and proximity of off-site recreational resources within 1 km, type(s) and proximity of off-site sensitive land uses as defined by the Provincial Planning Statement and the MECP D-1 Guidelines (e.g., dwellings, churches, parks) within 1 km, and type(s) and proximity of agricultural land use/operations (e.g., organic, cash crop, livestock).		

No substantial differences between the three alternative methods are presented when evaluating against current and future land uses, recognizing that existing setbacks will be maintained.

As previously discussed, under the proposed vertical expansion, the existing approved waste disposal footprint area of the TCEC would not change, but rather, the maximum permitted height of waste would be increased. As such, setback distances between the TCEC operation and any current or future land use is expected to be maintained and no potential effects anticipated. Any existing and operating land uses within 500 m of the landfill site are permitted to exist (pursuant to Section 34(9) of the *Planning Act*). Any planned use within 500 m of the landfill fill area will be subject to consultation with the Province before a *Planning Act* approval is adopted or granted, to mitigate land use incompatibility issues.

5 Effects Assessment of the Preferred Alternative

The comparative evaluation of net effects in **Section 4** above determined that there is no substantial difference between the net effects of the three alternative methods from a Land Use perspective. As such, any of the alternative methods presented are acceptable and no Preferred Alternative was identified for Land Use.

6 Comparison of the Preferred Alternative against the ‘Do Nothing’ Alternative

As no Preferred Alternative is identified for Land Use, the effects of any of the Alternative Methods are compared against the predicted effects of the currently approved Expansion Landfill based on similar environmental criteria and indicators, with the understanding that the criteria and indicators used in the current effects assessment may differ from those used for the effects assessment of the previously approved landfill footprint. The effects are compared against each other in terms of magnitude, extent, and duration below. The advantages and disadvantages of the Alternative Methods compared to the ‘Do Nothing’ alternative are identified.

6.1 Effects of the ‘Do Nothing’ Alternative

A review of previous Warwick Landfill Expansion Environmental Assessment (2005, WM) and the subsequent Environmental Screening Report: Twin Creeks Landfill Proposed Fill Rate Increase (2017, WM) was undertaken to compare the identified alternatives against the ‘Do Nothing’ Alternative.

In this case, the 'Do Nothing' Alternative reflects the projected future condition as a result of the landfill expansion proposed at the time of the original Environmental Assessment in 2005 and proposed fill rate increase in 2017. More specifically, the 'Do Nothing' Alternative represents the continued operation until the landfill reaches its remaining approved airspace capacity of 280 masl by the year 2031.

No negative effects with respect to current and future land uses are anticipated as a result of the 'Do Nothing' Alternative. Existing approved setback distances and buffer areas between the TCEC operation and any existing and/or planned land uses will be maintained until such time that the landfill area reaches capacity. Once the landfill is closed, there is a twenty-five (25) year post-closure care period, and new development will require approval from the Minister, in accordance with Section 46 of the *Environmental Protection Act*, R.S.O. 1990, CHAPTER E.19.

Should the 'Do Nothing' Alternative be maintained, at the time the existing landfill area reaches capacity in 2031, waste will need to be accommodated at another existing landfill or a new landfill elsewhere.

6.2 Comparison of the Preferred Alternative against the 'Do Nothing' Alternative

Since no Preferred Alternative is identified for Land Use, the effects of the Alternative Methods are compared against the 'Do Nothing' Alternative following the method discussed in **Section 2.4**.

For the Alternative Methods, an amendment to the County OP and Local OP is required. Specifically, a new Official Plan Amendment is required in response to the updated policy framework of the County and Local OP which requires an amendment to the County OP and the Local OP prior to the establishment of new waste management facilities or the expansion of existing waste management facilities (s.s. 7.11.5, County OP; s.s. 13.12, Local OP).

An amendment to the Township ZBL will also be required to reference the approval of this landfill optimization EA (if approved), whereas the current zoning on the TCEC site references the EA approved on January 15, 2007. The current Township ZBL does not prescribe height restrictions associated with landfill sites. The approved EA will identify the new approved height of the landfill site. The Zoning By-law does not regulate landform height, but instead height of buildings and structures, save and except for: an air conditioner duct; a belfry; a chimney; a church spire; a clock tower; an elevator penthouse; a farm Building; a flagpole; a grain elevator; a radio antenna; a television antenna; a farm silo; a water tower; and, a Wind Turbine (s.s. 3.16).

Any of the identified Alternative Methods will require an amendment to the existing Site Plan Control Agreement registered on title, under Section 41 of the *Planning Act*, to permit expansion to the existing landfill through reference to the new EA approval.

With respect to current and planned land uses, any of the identified Alternative Methods foresee no significant potential effects anticipated with the vertical expansion

to surrounding current and future land uses recognizing that land use setbacks and buffers are to be maintained. Any of the identified Alternative Methods would provide additional airspace of approximately 14 million cubic metres (m^3) to the landfill site, extending the life of the facility by approximately 12 years (from 2031 to 2043). As previously mentioned, no changes are proposed to the size of the TCEC site area, approved service area, established setbacks and buffers, or annual fill rate. As such, there would be no need to accommodate future fill at another existing landfill or a new landfill elsewhere, when compared against the 'Do Nothing' Alternative.

As previously mentioned, once a landfill is closed, there is a twenty-five (25) year post-closure care period, and new development on lands which have been used for the disposal of waste within a period of twenty-five (25) years from the year in which such land ceased to be used will require approval from the Minister, in accordance with Section 46 of the *Environmental Protection Act*, R.S.O. 1990, CHAPTER E.19. The County OP requires that any new development or change of use on or within 500 m of any active or closed waste disposal site (including the Landfill site) will be subject to consultation with the Province before a Planning Act approval is adopted or granted (Part B, s.s. 13.4, Part C, s.s. 3.6.2). As such, continued restrictions for surrounding land uses will be maintained for an additional 12 years, as well as an extended post-closure care period of an additional 12 years, for the Alternative Methods when compared to the Do Nothing Alternative.

6.3 Advantages and Disadvantages of the Preferred Alternative

The differences in net effects between any of the Preferred Alternative and the 'Do Nothing' Alternative are used to determine the advantages and disadvantages of the Preferred Alternative (Alternative Methods 1, 2, and 3). The advantages and disadvantages of the Alternative Methods are listed in **Table 6-1**.

Table 6-1. Advantages and Disadvantages of the Alternative Methods

Evaluation Criteria	Advantages	Disadvantages
Effects on Current and Future Land Uses	• The Alternative Methods would provide additional airspace of approximately 14 million cubic metres (m^3), which could extend the site life by approximately 12 years (from 2031 to 2043). Therefore, there would be no need to accommodate future fill at another existing landfill or a new landfill elsewhere, when compared against the 'Do Nothing' Alternative.	• New Planning Approvals (i.e., Official Plan Amendment, Zoning By-law Amendment, and Site Plan Control) required to permit any of the Alternative Methods. • Continued restrictions for surrounding land uses for an additional 12 years with the 25-year post-closure care period.

Based on the information provided in **Table 6-1.** Advantages and Disadvantages of the Alternative Methods above, the Alternative Methods present advantages and disadvantages for Land Use. The disadvantages between the 'Do Nothing' Alternative and any of the Alternative Methods is that any of the Alternative Methods would require new planning approvals to permit the vertical expansion, and the additional years of

continued restrictions for surrounding land uses to accommodate the 12 year extended lifespan of the facility.

7 Commitments and Monitoring

The is no significant effect of the Project on Land Use. As such, no Land Use related commitments are identified, and no environmental effects monitoring is required for the Project. In addition, no compliance monitoring is required for the construction, operation, and maintenance of the Project as it relates to Land Use.

8 Land Use Approvals

In addition to EA approval, the following Land Use approvals will be required:

- Official Plan Amendment (County and Local)

  The County Official Plan ("County OP") and Township of Warwick Official Plan ("Township OP") both indicate that private commercial waste management facilities (such as the existing landfill) are to be located on lands designated and zoned for such purposes and that an amendment to the County OP and Local OP is required, "*prior to the establishment of new waste management facilities or the expansion of existing facilities*" (s.s. 7.11.5, County OP; s.s. 13.12, Township OP).

  The County OP and Township OP policies do not differentiate between vertical and horizontal landfill expansions. Any expansion proposals must comply with the County OP, the provisions of the *Environmental Protection Act,* and relevant Provincial legislation (s.s. 7.11.6).

- Zoning By-law Amendment

  An amendment to the Township of Warwick Zoning By-law 121 of 2012 will be required to reference an approval of the landfill optimization EA, whereas the existing zoning references the approved landfill EA dated January 15, 2007. The approved EA will identify the new approved height of the landfill site. The Zoning By-law does not regulate landform height.

- Amendment to Site Plan Control Agreement

  An application to amend the existing Site Plan Control Agreement that is currently registered on title will be required to permit the vertical expansion within the existing limits of the TCEC landfill site, in accordance with the provisions of Section 41 of the *Planning Act*. Amendments to the drawings within the approved Site Plan Control Agreement registered on title may be required, subject to review of final drawings.

9 References

County of Lambton

2020 County of Lambton Official Plan

Province of Ontario

1990 *Environmental Protection Act*, R.S.O. 1990, CHAPTER E.19

1990 *Planning Act,* R.S.O. 1990, c. P. 13

1994 D-4 Land Use On or Near Landfills and Dumps

1995 D-1 Land Use and Compatibility

2020 2020 Provincial Policy Statement (2020) Under the *Planning Act*

2024 2024 Provincial Planning Statement (2024) Under the *Planning Act*

Township of Warwick

2012 Township of Warwick Zoning By-law 121 of 2012

2021a Township of Warwick Official Plan

2021b Parks, Recreation, Tourism and Culture Master Plan

Waste Management of Canada Corporation

2005 Warwick Landfill Expansion Environmental Assessment

2017 Environmental Screening Report Twin Creeks Landfill Proposed Fill Rate Increase

A

Alternative Methods

Excerpts from Conceptual Design Report (WSP, 2025)

POND 4

OLD LANDFILL

ZION LINE

205.9 m

APPROVED LIMIT OF LANDFILL

STREET 'D'

STREET 'C'

STREET 'B'

STREET 'A'

3.0H:1V

5.00%

250.0
260.0
270.0
280.0
290.0
300.0
310.0
320.0
325.0

101 m

100.1 m

255.6 m

234.5 m

COUNTY ROAD No. 79

OLD WARWICK LANDFILL

0+000
0+100W
0+200W
0+300W
0+400W
0+500W
0+600W
0+700W
0+800W
0+900W
1+000W
1+100W
1+200W

LEGEND

- WASTE MANAGEMENT OF CANADA CORPORATION PROPERTY LIMIT
- APPROVED LIMIT OF LANDFILL
- EXISTING RIP RAP
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD/TRAIL
- EXISTING DITCH/SWALE
- EXISTING CULVERT - PIPE
- EXISTING CULVERT - CONCRETE BOX
- CT EXISTING COMMON TRENCH
- ST EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING GROUND CONTOURS
- 280.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 1)
- 280.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 2)
- 300.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 3)
- 300.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 4)
- 325.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 5)
- 3.0H:1V PROPOSED TOP OF LANDFILL SLOPE

0 100 200
1:5,000 METRES

DATE	DESCRIPTION
	REVISION / ISSUE

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55 KING STREET, SUITE 700
ST.CATHARINES (ONTARIO) CANADA L2R 3H5
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CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 1
PROPOSED FINAL LANDFILL CONTOURS
TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: W S
CHK BY: C O R
DATE: JULY 3, 2024
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. CA-WSP-211-01678-02-1.1

DRAWING 1.1

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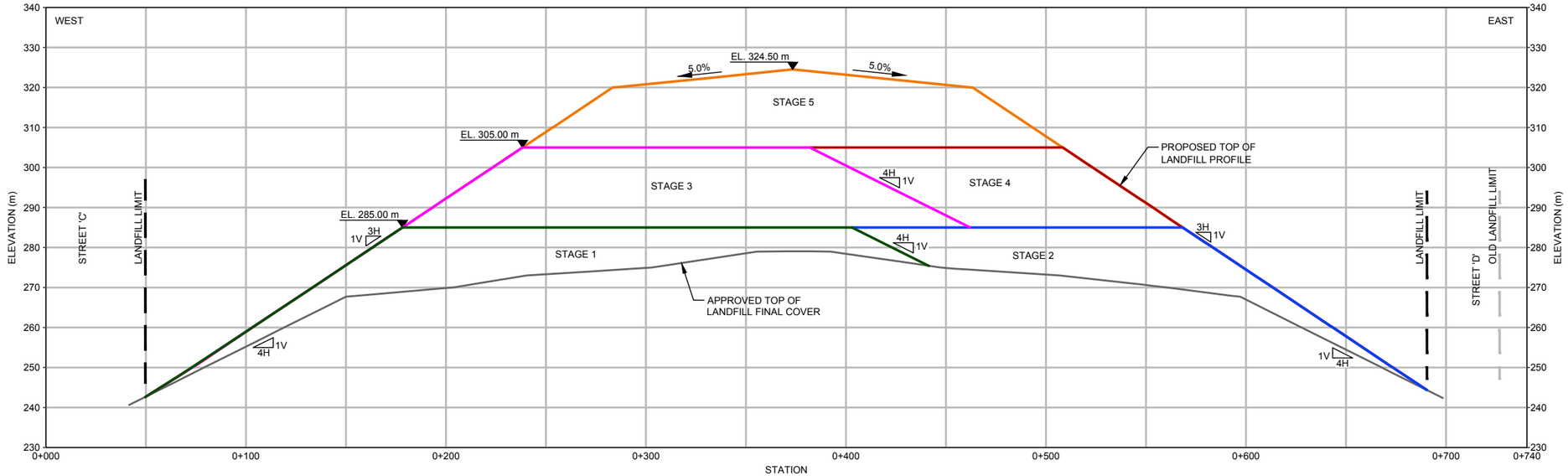

SCALE 1:2,500 m
VERT. SCALE 1:1,250 m

A
1.1

PROPOSED LANDFILL ALTERNATIVE METHOD 1 SECTION

VER. 0 50 100
1:1,250 METRES

HOR. 0 100 200
1:2,500 METRES

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	REVISION / ISSUE

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CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 1
PROPOSED LANDFILL SECTION

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: W S
CHK BY: C O R
DATE: JULY 3, 2024
SCALE: SEE BAR SCALE

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DRAWING
1.2

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POND 4

OLD LANDFILL

205.9 m

ZION LINE

STREET 'D'

STREET 'C'

STREET 'B'

STREET 'A'

2.5 : 1

5.0%

250
260
270
280
290
300
310
315
319.0

313
240

101 m

100.1 m

255.6 m

234.5 m

A
2.2
A'

OLD WARWICK LANDFILL

COUNTY ROAD No. 79

0+000
0+100W
0+200W
0+300W
0+400W
0+500W
0+600W
0+700W
0+800W
0+900W
1+000W
1+100W
1+200W

LEGEND

- WASTE MANAGEMENT OF CANADA CORPORATION PROPERTY LIMIT
- APPROVED LIMIT OF LANDFILL
- EXISTING RIP RAP
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD/TRAIL
- EXISTING DITCH/SWALE
- EXISTING CULVERT - PIPE
- EXISTING CULVERT - CONCRETE BOX
- EXISTING COMMON TRENCH
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING GROUND CONTOURS
- 290 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 1)
- 290 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 2)
- 315 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 3)
- 319.0 PROPOSED TOP OF LANDFILL CONTOURS (STAGE 4)
- 2.5:1 PROPOSED TOP OF LANDFILL SLOPE

0 100 200
1:5,000 METRES

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CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 2
PROPOSED STAGE 4 LANDFILL CONTOURS

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: KJK/WS
CHK BY: C O R
DATE: JULY 3, 2024
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO.
CA-WSP-211-01678-02-2.1

DRAWING
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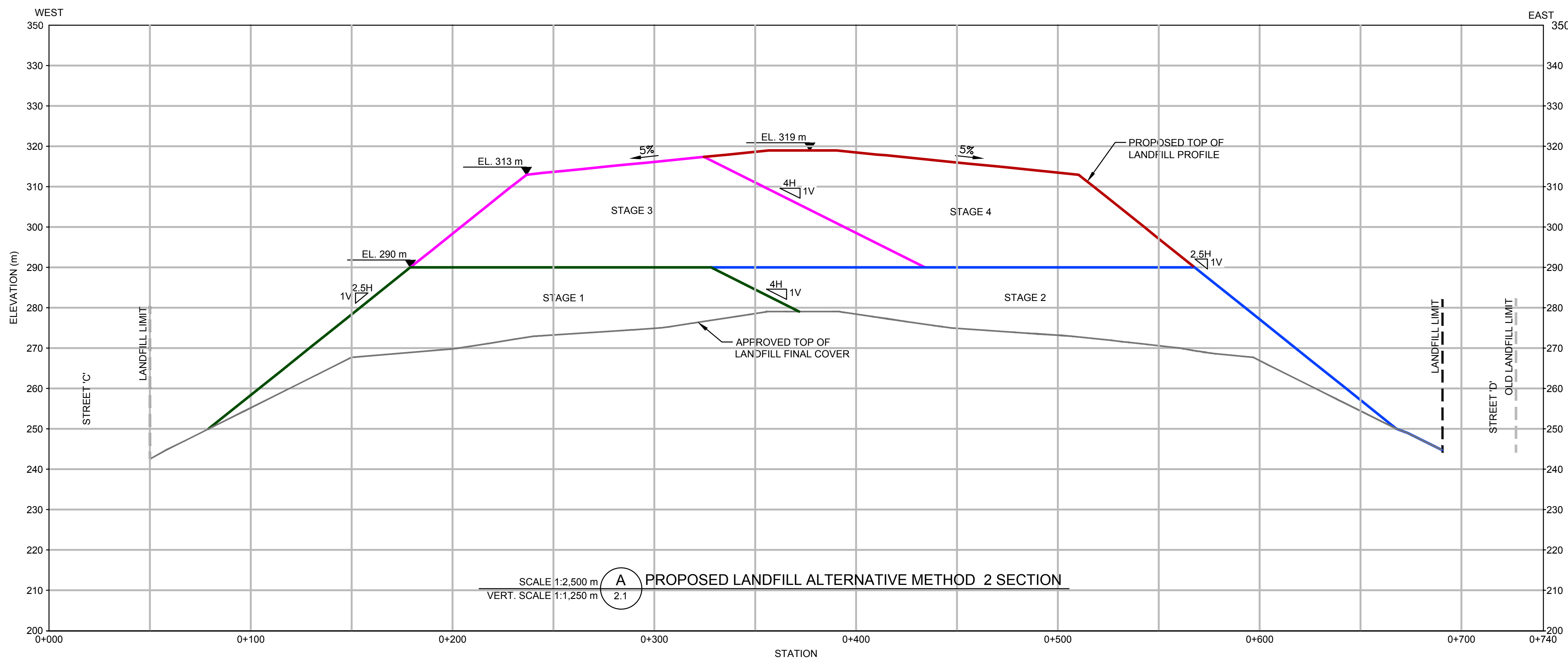

SCALE 1:2,500 m
VERT. SCALE 1:1,250 m
A 2.1 PROPOSED LANDFILL ALTERNATIVE METHOD 2 SECTION

VER. 0 50 100 1:1,250 METRES

HOR. 0 100 200 1:2,500 METRES

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CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 2
PROPOSED LANDFILL SECTION

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: KJK/WS DATE: JULY 3, 2024
CHK BY: COR SCALE: SEE BAR SCALE

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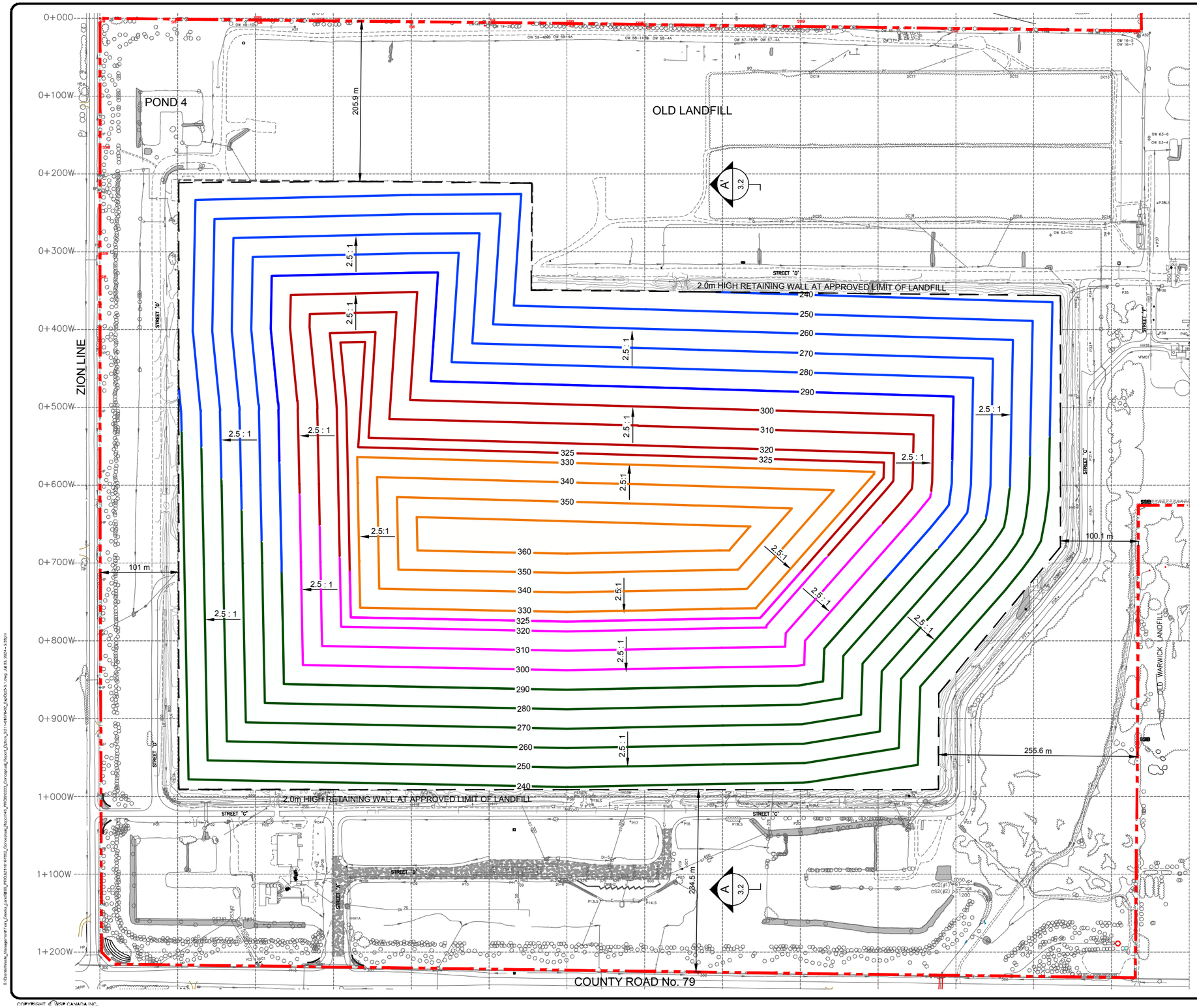

LEGEND

- WASTE MANAGEMENT OF CANADA CORPORATION PROPERTY LIMIT
- APPROVED LIMIT OF LANDFILL
- EXISTING RIP RAP
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD/TRAIL
- EXISTING DITCH/SWALE
- EXISTING CULVERT - PIPE
- EXISTING CULVERT - CONCRETE BOX
- CT — EXISTING COMMON TRENCH
- ST — EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING GROUND CONTOURS
- 290 — PROPOSED TOP OF LANDFILL CONTOURS (STAGE 1)
- 290 — PROPOSED TOP OF LANDFILL CONTOURS (STAGE 2)
- 325 — PROPOSED TOP OF LANDFILL CONTOURS (STAGE 3)
- 325 — PROPOSED TOP OF LANDFILL CONTOURS (STAGE 4)
- 360 — PROPOSED TOP OF LANDFILL CONTOURS (STAGE 5)
- 2.5:1 — PROPOSED TOP OF LANDFILL SLOPE

0 100 200
1:5,000 METRES

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	REVISION / ISSUE

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CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 3
PROPOSED STAGE 5 LANDFILL CONTOURS

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: KJK/WS
CHK BY: C O R
DATE: JULY 3, 2024
SCALE: SEE BAR SCALE

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3.1

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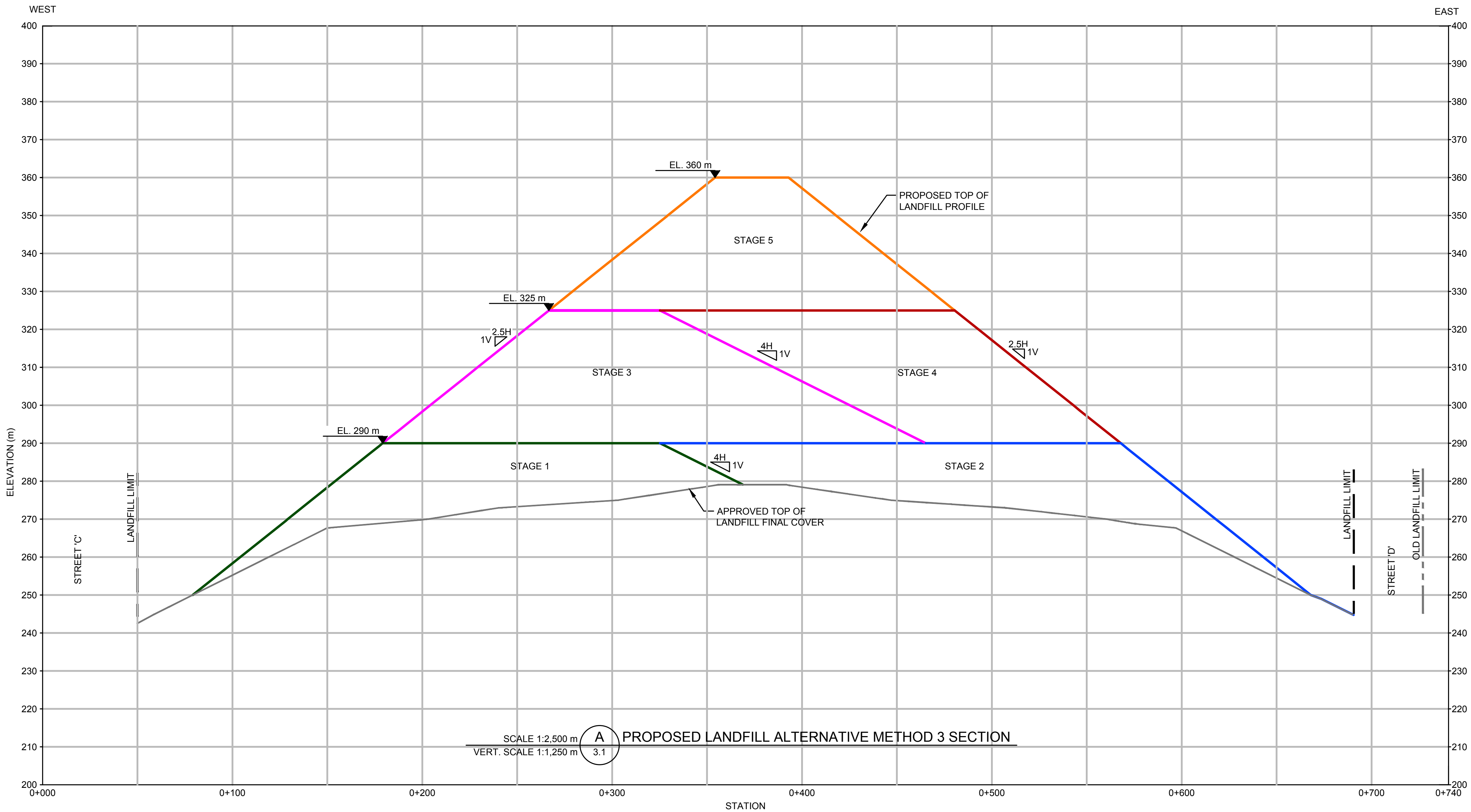

VER. 0 50 100 — 1:1,250 METRES

HOR. 0 100 200 — 1:2,500 METRES

DATE	DESCRIPTION

REVISION / ISSUE

wsp
55 KING STREET, SUITE 700
ST.CATHARINES (ONTARIO) CANADA L2R 3H5
TEL: 905-687-1771 | WWW.WSP.COM

CONCEPTUAL DESIGN REPORT
ALTERNATIVE METHOD 3
PROPOSED LANDFILL SECTION

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: KJK/WS
CHK BY: COR
DATE: JULY 3, 2024
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO.
CA-WSP-211-01678-02-3.2

DRAWING
3.2

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