

Appendix I-4

Noise Detailed Impact Assessment Report

WALKER SOUTH LANDFILL PHASE 2 ENVIRONMENTAL ASSESSMENT

NIAGARA FALLS, ONTARIO

NOISE DETAILED IMPACT ASSESSMENT

RWDI #2402272

June 24, 2026

SUBMITTED TO

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
CR	Common Receptor
dBA	A-weighted decibels, units of sound level
dBAI	A-weighted decibels (impulsive), units of impulsive sound level
EA	Environmental Assessment
FTA / FRA	U.S. Federal Transit Administration / U.S. Federal Railroad Administration
GHD	GHD Group Pty Ltd (Canada)
HVAC	Heating Ventilation Air Conditioning
ISO	International Standards Organization
LLM	Logarithmic Mean Impulse Sound Level
LSA	Local Study Area
L_{Eq}	Energy Equivalent Sound Level over a specified period of time
MECP	Ministry of Environment Conservation and Parks
MOECC	Ministry of Environment and Climate Change
MOE	Ministry of Environment
NPC-300	Ontario Environmental Noise Guideline
NR	Noise Receptor (often used interchangeably with POR)
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
POR	Point of Reception (often used interchangeably with NR)
PWL	Sound Power Level
RIC&I	Residential, Industrial, Commercial, and Institutional
RSA	Regional Study Area
RWDI	RWDI Air Inc.
SPL	Sound Pressure Level
SSA	Site Study Area
ToR	Terms of Reference
Campus	Walker Resource Management Campus that includes the South Landfill and its proposed expansion

1 INTRODUCTION

This report documents the noise impact assessment of the Preferred Method for the Environmental Assessment (EA) to develop the next phase of the existing South Landfill (i.e., South Landfill Phase 2) located at the Walker Resource Management Campus (i.e., “Campus”). The proposed South Landfill Phase 2 will add approximately 19.8 million cubic metres (m³) of landfill capacity over a 20-year period.

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

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

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

Climate change mitigation and adaptation measures are also reviewed as part of the detailed site design established for the Preferred Method. In addition, during the impact assessment stage of the South Landfill Phase 2 EA, Walker has committed to completing an assessment of the cumulative effects of the proposed undertaking and other non-Walker projects and activities that are existing, planned/approved or reasonably foreseeable within the Study Area.

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

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

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

1.1 Description of the Preferred Landfill Configuration Option

Landfill Configuration Option A was originally selected as preferred due to its long-term benefits, including the largest waste capacity, longest operational lifespan, and associated economic and employment advantages. Following its selection, the design of Landfill Configuration Option A was refined in response to feedback received during consultation to reduce its visual impact and improve compatibility with a future agricultural end use. Furthermore, the Limit of Fill boundaries were adjusted to avoid natural features and to accommodate necessary infrastructure within the buffer. These refinements included a reduction in peak elevation to 211 metres above mean sea level (mAMSL) at the top of waste (TOW; 211.75 mAMSL at the top of cap), and adjustments to slope gradients, now designed to a maximum steepness of 3:1 (horizontal:vertical) for below-ground slopes and between 16:1 and 3.5:1 for above-ground slopes, improving compatibility with an agricultural end use. These changes bring Option A closer in form to Options B and C, while preserving its advantage of a higher overall waste capacity. The refined Option A design would provide approximately 19.8 m³ of expanded landfill capacity and include 44 hectares (ha) of land compatible with an agricultural end use. From a noise perspective, no further adjustments were required.

1.2 Description of the Preferred Leachate Management Option

Leachate Management Option A builds upon the pre-existing leachate management system and approach while including the necessary expansion of the system capacity as South Landfill Phase 2 is expected to generate a maximum of 104,500 m³ of additional leachate per year. The expansion of the leachate management system would include a leachate sump, a pump station equipped with the needed metering equipment and controls for monitoring and contingency purposes, and a force main to transport the leachate from the pump station to the lagoon area where two new lagoons for pretreatment will be added adjacent to the existing lagoons.

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

1.3 Facility Characteristic Report for the Preferred Method

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

- Site layout design, including existing and proposed Site characteristics;
- Stormwater management;
- Leachate management;
- Landfill gas management; and,
- Landfill development sequence and daily operations.

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

2 STUDY AREA

The existing facility is located at municipal address 2800 Thorold Townline Road in Niagara Falls, Ontario. The site is in the north-west corner of the municipality of Niagara Falls, near the intersection of the municipalities of Thorold, St. Catharines and Niagara-On-The-Lake.

2.1 Study Area Limits

From an environmental sound perspective, the following characterization of the study area is appropriate to this EA:

- Site Study Area (SSA): The SSA is consistent across all technical disciplines and encompasses a total of 81.3 ha of land owned and operated by Walker. The SSA includes the current quarry extraction limit, and encompasses the proposed limit of fill, the buffer area, and aligns with the proposed Waste Disposal Site Limit Boundary. While the SSA captures the core area of the proposed landfill development, certain ancillary features related to the landfill are proposed to be located outside the SSA. These features will be addressed within the broader Local Study Area.
- Local Study Area (LSA): Including all lands within a 1.0 km radius of the Limit of Fill.
- Regional Study Area (RSA): Including all lands within a 3.0 km radius of the Limit of Fill.

The SSA includes all proposed Phase 2 landfill activity and related sound sources. This report considers the existing quarry sources within the SSA and other sources on the Campus associated with all current operations that may contribute to the local sound levels. The LSA extends 1.0 km from the Limit of Fill of the proposed Phase 2 of the South Landfill and includes existing roadways. The LSA is the area that could experience meaningful effects from the project and where sound levels can reasonably be predicted with confidence; hence it is the central focus of the acoustic analysis. Since sound decays logarithmically with distance from a source, this area is also where the primary sources that contribute to the ambient conditions will be located. The RSA extends 3.0 kms from the Limit of Fill of the proposed landfill and includes existing roadways and more distant sounds that may contribute to the environmental soundscape or be influential for other disciplines than noise.

The study areas are illustrated in **Figure 2-1**.

3 METHODOLOGY

Modelling was conducted to assess the contributions of the future sources on the Campus throughout the various stages of the Phase 2 landfill development.

The following sections outline the data references, criteria, modelling approach, receptors, and sources used in the analysis.

3.1 Assessment Approach and Confirmation of Effects

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

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

With a more detailed understanding of the potential impact from the preliminary landfill and leachate treatment designs on the noise environment, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Method documented in the Environmental Noise Comparative Evaluation Technical Memorandum were reviewed to ensure their accuracy.

Based on this review, the potential effects, mitigation or compensation measures, and net effects associated with the Preferred Method were confirmed and documented. In addition to identifying mitigation or compensation measures, potential enhancement opportunities associated with the preliminary design for the Preferred Method were also identified, where possible.

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

3.2 Additional Investigations

Upon completion of the preliminary design for the Preferred Method as documented in the FCR, the environmental characteristics of the Study Area were reviewed to verify the accuracy of the assessment of net effects from the Preferred Method. From this review, it was determined that no additional investigations were required.

3.3 Data References

Available secondary sources of information were collected and reviewed to characterize the noise conditions within the study area. The sources of information shown in **Table 3-1** were reviewed.

Table 3-1: Data References

Evaluation Criteria	Indicator	Data Sources
Effect of noise on off-site receptors	<ul style="list-style-type: none"> Predicted off-Site Noise Level (dBA) Number of off-site receptors potentially affected (residential properties, public facilities, businesses, and institutions) Predicted sound from traffic 	<ul style="list-style-type: none"> Applicable MECP guidelines, technical standards and models Aerial mapping Imagery to confirm off-site points of reception Topographic and land-use mapping Land use zoning plans Facility characteristics report Landfill design and operations data On-site noise source levels and operations verified by RWDI personnel during a site visit conducted on July 15, 2025 Traffic reports for existing and future conditions Acoustic Assessment Reports of existing Campus Atmospheric Existing Conditions Report

All on-site measurements conducted were consistent with ISO 3744:2010(E) (ISO, 2010a), and ISO 3746:2010(E) (ISO, 2010b) measurement standards, and the applicable portions of the MECP Publication NPC-103 (MOE, 1978). The measured sound pressure levels (SPL) were converted into sound power levels (PWL) based on measurement distances and the size of the equipment being measured, as appropriate. Weather conditions and measurement equipment meet the requirements set out MECP Publication NPC-103 (MOE, 1978).

3.4 Criteria

The applicable guidance for noise from landfill sites is contained in the following provincial publications:

- *“Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites”*. January 2012. Queen’s Printer for Ontario 2010. PIBS 7792e. (i.e., the “Landfill Guidelines”);
- *“Noise Guidelines for Landfill Sites (Draft)”*. October 1998. Ontario Ministry of the Environment. (i.e., the “Noise Guidelines”); and,
- Guideline D-4. *“Land Use on or Near Landfills and Dumps”*. April 1994. Ontario Ministry of the Environment. (i.e., “Guideline D-4”).

The provincial publication, NPC-300 *“Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning”* (August 2013), is not directly applicable to landfill sites but does contain supporting information and methods that may be generally relied upon in this assessment under the ToR. It would also apply to other non-landfill stationary noise sources at the Campus such as the asphalt plant, quarry, and landfill gas utilization plant.

3.4.1 Applicable Limits

In Ontario, sound assessment criteria at points of reception (POR) are generally the higher of the minimum exclusion limit per provincial guidelines (e.g., the Noise Guidelines, NPC-300) or the minimum background sound level due to industry or road traffic that occurs or is likely to occur at a POR. The exclusion limit is applicable when the background sound level is lower than the exclusion limit.

For landfills, two time periods are defined for evaluation in the Noise Guidelines:

- **Daytime**, 07:00 – 19:00; and,
- **Nighttime**, 19:00 – 07:00.

Per the Noise Guidelines, the applicable one-hour energy equivalent sound level ($LEQ(1-hr)$) exclusion limit for noise from a landfill site is 45 dBA in any nighttime hour (19:00 – 07:00) and 55 dBA in any hour of the day (07:00 – 19:00) at the point of reception. For residential receptors where background (ambient) sound levels due to non-landfill related noise sources, such as road traffic, are higher than 55 dBA and 45 dBA minimum, the background ambient noise level may be used as the limit.

Background sound levels due to road traffic were assessed in the Noise Existing Conditions Report (dated May 8, 2026) for the project. The background sound levels were determined to be generally less than the guideline limits at PORs close to the Phase 2 landfill given the modelling accuracy, therefore the limits of 55 and 45 dBA were conservatively applied in this assessment.

These limits only apply to the landfilling activities such as trucks and excavators. Other activities at the Walker Campus (e.g., asphalt plant, aggregate operations, composting, landfill gas plant) would be subject to the stationary source limits of NPC-300. These facilities are permitted separately and are not the subject of approval here but are assessed together with the proposed landfill sources to evaluate the magnitude of sound level changes for EA purposes.

3.4.2 Impulsive Noise (Pest Control)

The Noise Guideline states sound from impulsive pest control devices such as shotguns, bangers and crackers are assessed separately from other noise sources at the landfill. This type of impulsive noise is assessed as a Logarithmic Mean Impulse Sound Level (LLM), with a limit of 70 dBAI at the point of reception.

Sound from quasi-steady impulsive pest control devices such as whistles or screamers are also assessed separately from the other noise sources at the landfill. The noise is assessed as a one-hour L_{EQ} , with a limit of 60 dBA at the point of reception.

3.4.3 Impulsive Noise (Other Sources)

The Noise Guideline does not provide limits for impulsive noise sources beyond pest control devices. Hence, the impulsive noise limits in NPC-300 were considered for sources other than pest control devices. These other sources include bin drops at the residential waste drop-off. The existing ambient conditions appear representative of a Class 2 acoustical environment under NPC-300. The applicable Class 2 impulsive limits are on a sliding scale based on the number of impulses as shown in **Table 3-2** expressed as a Logarithmic Mean Impulse Sound Level (LLM).

Table 3-2: NPC-300 Impulsive Noise Limits for Bin Drop Sources

Number of Impulses per Hour	Class 2	
	Daytime (07:00-23:00) Limit (LLM, dBAI)	Nighttime (23:00-07:00) Limit (LLM, dBAI)
9 or more	50	45
7 to 8	55	50
5 to 6	60	55
4	65	60
3	70	65
2	75	70
1	80	75

Notes: Daytime limits apply to plane of window/façade or outdoor points of reception.

For the purposes of this assessment, up to three impulses (i.e., bin drops) are assumed to occur per hour at the proposed residential waste drop-off; these would only occur during the daytime. Hence, the applicable limit for these sources is 70 dBAI.

3.5 Points of Reception

A point of reception (POR) is defined as a location where noise from landfill operations, ancillary facilities, pest control devices or haul route is received. As defined in provincial guidelines, PORs are located:

- On the façade of a dwelling;
- On the property of, and within 30 m of a dwelling;
- On the façade of a noise-sensitive commercial-purpose building (e.g., hotel, motel);
- On the façade of a noise-sensitive institutional-purpose building (e.g., hospital, day nursery, educational facility, place of worship not on commercially or industrially zoned land); or
- On a vacant lot zoned for noise-sensitive use that is accessible by public road or navigable waterway.

3.5.1 Common Receptors

A base set of common receptors (CR) was identified by the EA team. The CR locations are intended to be common across all disciplines and show the net effects in various areas around the proposed Phase 2 landfill. They are summarized in **Table 3-3** and are presented in **Figure 3-1**. For noise assessment purposes, many of these receptors are beyond the reasonable zone of influence for noise from the landfill which is generally constrained to the LSA (i.e., 1.0 km from the landfill).

Table 3-3: Common Receptor Summary

Receptor ID	Receptor Description
CR01	Located approximately 1094m from boundary of proposed Waste Disposal Site Boundary Limits. Representative of residences on Warner Road and the Niagara Escarpment. Near NR1 identified by RWDI.
CR04	Located approximately 550m from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the residences on Garner Rd. south of Mountain Rd. and north of the transmission line that crosses Garner Rd. north of Thorold Stone Rd. Same as NR4 identified by RWDI.
CR05	Located approximately 450m from boundary of proposed Waste Disposal Site Boundary Limits.
CR06	Located approximately 2577m from boundary of proposed Waste Disposal Site Boundary Limits. Located at the eastern edge of the urban boundary for the City of Thorold, it serves as representative of a wide variety of residential, institutional, recreational and commercial developments within the City.
CR07	Located approximately 2005m southeast from boundary of proposed Waste Disposal Site Boundary Limits. Representative of an important public facility, a cluster of residences backing onto Kalar Rd. at Thorold Stone Rd., commercial businesses at the corner of Kalar Rd. and Thorold Stone Rd. and the Shriner's Woodlot Park off Kalar Rd.
CR08	Lakeview Cemetery. Located approximately 1197m west from boundary of proposed Waste Disposal Site Boundary Limits. Represents an important public feature along Thorold Townline Road, used for outdoor public ceremonies and informal recreational activities.

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Receptor ID	Receptor Description
CR10	Niagara Region Traffic Systems and Operations. Located approximately 1186m west from boundary of proposed Waste Disposal Site Boundary Limits. Representative of two public institutional facilities with outdoor components and industrial/commercial operations along Old Thorold Stone Road to the west and southwest.
CR11	Located approximately 1295m north from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the outdoor recreational uses at the Bruce Trail along the Niagara Escarpment, Walker’s Living Campus and Royal Niagara Golf Club. Serves as a location along Taylor Road, often used for biking and country drives.
CR12	Located approximately 1655m northeast from boundary of proposed Waste Disposal Site Boundary Limits. Representative of a cluster of residences east of the Queen Elizabeth Way. Can also be considered a control site that is not likely to have noticeable noise, dust, traffic or visual effects from the landfill.
CR13	Located approximately 1787m south from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the outdoor recreational uses at the Beechwood Golf Course and along Beaver Dams Road.
CR14	Located approximately 1181m east from boundary of proposed Waste Disposal Site Boundary Limits. Representative of an area proposed for future residential development and the western edge of the City of Niagara Falls urban area boundary.
CR15	Located approximately 1984m north from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the southern edge of the Glendale Secondary Plan Area proposed for future residential development and the Niagara-on-the Lake urban area boundary. Additionally representative of the Royal Niagara Golf Club and Niagara College.
CR16	Located approximately 2893m northwest from boundary of proposed Waste Disposal Site Boundary Limits. Representative of nearest area within the City of St. Catharines municipal boundary at the corner of Glendale Road and the Well and Canal Parkway and recreational trail.
CR17	Located approximately 456m from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the nearest residence northeast of the Waste Disposal Site Boundary Limits, and Gauld Nurseries, an important local business.
CR18	Located approximately 1054m from boundary of proposed Waste Disposal Site Boundary Limits. Representative of the cluster of residences on Garner Rd south of the transmission line and north of Thorold Stone Rd.
CR19	Located approximately 1033m from boundary of proposed Waste Disposal Site Boundary Limits. This is a Walker-owned property that is currently tenanted. Same as NR28 identified by RWDI.
CR20	Located approximately 1585m from boundary of proposed Waste Disposal Site Boundary Limits. Representative of subdivision east of Kalar Road.
CR21	Located approximately 1146m from boundary of proposed Waste Disposal Site Boundary Limits. Near NR22 identified by RWDI.

3.5.2 Noise Receptors

Eight (8) receptors were also identified by RWDI as representative noise receptors (NRs) for the noise assessment. They are existing residences and accessible vacant lots where noise-sensitive uses are permitted. These receptors are considered noise-sensitive per provincial guidelines, are within the LSA, and are the nearest receptor in each notable compass direction to the proposed landfill. The locations are summarized in **Table 3-4** and are presented in **Figure 3-2**. They are numbered sequentially continuing from the last common receptor.

All NR locations have been modelled at two distinct heights based on the evaluation period consistent with provincial guidelines. Daytime levels have NR locations modelled at 1.5 m above grade (generally denoted as “outdoor” receptors or with a label of “_o”), while evening and nighttime periods have NR locations modelled at 4.5 m (generally denoted as “façade” receptors or with a label of “_f”), for residences up to two stories in height.

Table 3-4: Noise Receptors

Receptor ID	Receptor Description
NR22	Residential property approximately 1115 m to the north of the Phase 2 landfill on Taylor Road.
NR23	Vacant (i.e., no dwelling) agricultural property approximately 325 m to the north of the Phase 2 landfill on Taylor Road.
NR24	Vacant residential property approximately 223 m to the north of the Phase 2 landfill on Mountain Road. Dwelling has been removed from the property.
NR25	Residential property approximately 550 m to the east of the Phase 2 landfill on Garner Road.
NR26	Walker-owned vacant lot and location of the future residential drop off. Dwelling has been removed from the property; therefore, this receptor is not assessed for design impacts.
NR27	Vacant residential property approximately 900 m to the south of the Phase 2 landfill on Taylor Road. Dwelling has been removed from the property.
NR28	Walker-owned tenanted residential property approximately 1033 m to the southwest of the Phase 2 landfill on Old Thorold Stone Rd.
NR29	Walker-owned vacant residential property approximately 150 m to the east of the facility on Garner Road. Dwelling has been removed from the property.

3.6 Modelling Approach

Modelling of sound level propagation to the nearby PORs was completed using Cadna/A (Version 2025 – 211.5558), a commercially available implementation of the ISO 9613 (ISO, 1996) algorithms. Cadna/A is produced by Datakustik GmbH. The Cadna/A modelling takes into account the following factors:

- Source sound power level;
- Distance attenuation;
- Source-receptor geometry including heights, elevations and topography;
- Barrier effects of the site and surrounding buildings;
- Ground and air (atmospheric) attenuation; and,
- Meteorological effects on sound propagation.

3.6.1 Phase 2 Landfill Stages

Multiple scenarios were evaluated to represent the worst-case impacts from the Campus throughout the development and operation stages of the Phase 2 Landfill. All scenarios modelled the proposed landfill sources at the highest elevation during each landfill filling stage to represent the worst-case conditions for sound propagation. The scenarios evaluated are as follows:

- **Scenario 1:** Closure of existing South Landfill and start of operations of Phase 2 Stage 1 Landfill. Quarry activities on-going.
- **Scenario 2:** Filling operations of Phase 2 Stage 1 Landfill, quarry activities on-going.
- **Scenario 3:** Filling operations of East Landfill Cell 16 and Phase 2 Stage 2 Landfill. Quarry no longer operational.
- **Scenario 4:** Filling operations of Phase 2 Stage 3 Landfill.
- **Scenario 5:** Filling operations of Phase 2 Stage 4 Landfill.
- **Scenario 6:** Closure Phase 2 Landfill, no filling operations.

A site plan layout showing all stages and their locations for the Phase 2 Landfill is provided in **Appendix A**. An existing earth berm is located near the southeast boundary of the quarry that screens residences along Garner Road. This berm is proposed to be extended to the northeast along the boundary of the Phase 2 Landfill. These berms provide some noise mitigation to the residences to the east and are included in the noise assessment.

3.6.2 Campus

The existing Campus consists of multiple facilities which include a landfill, asphalt plant, landfill gas utilization plant, and quarry. The landfill gas utilization plant operates continuously 24 hours a day, 7 days a week. All other facilities operate during the daytime (i.e., 07:00 – 19:00) only. Sound power levels for continuous modelled sources were determined from manufacturer data and on-site measurements conducted by RWDI on July 15, 2025.

3.6.2.1 Landfill

The Phase 2 Landfill sources consist of dozers, excavators, compactors, tippers and haul trucks. The dozers, excavators, compactors and tippers are modelled as a point source within the working areas. Haul trucks are modelled as line sources moving throughout the working area, travelling at speeds between 20 to 40 km/h, consisting of a peak of 60 movements within an hour, split across various routes leading to the filling locations.

As part of the Phase 2 Landfill, a residential waste drop-off is to be located at the south end of the Phase 2 Landfill on the parcel where NR26 is situated. Since NR26 is a Walker-owned residential-zoned lot and the land is to be converted into the residential waste drop-off that is part of the project, it has not been considered in this assessment, despite being included in the Noise Existing Conditions study. The proposed layout for the residential drop off can be found in **Appendix A**. Sources of noise associated with these operations have also been considered.

The locations of the landfill sources for each modelled scenario are shown in **Figure 3-3 to 3-8** and the source information is summarized in **Table 3-5**.

Table 3-5: Phase 2 Landfill Sources

Source ID	Source Description	Source Type ^[1]	Overall PWL (dBA)	Source Height (m)	Source Characteristic ^[2]
LF_IIb_lfwf_dzr	Dozer	P	114	2.5	S
LF_IIb_lfwf_exc1	Excavator	P	112	1.5	S
LF_IIb_lfwf_exc2	Excavator	P	112	1.5	S
LF_IIb_lfwf_exc3	Excavator	P	112	1.5	S
LF_IIb_lfwf_ldr1	Compactor	P	102	2.5	S
LF_IIb_lfwf_ldr2	Compactor	P	102	2.5	S
LF_IIb_lfwf_ldr3	Compactor	P	102	2.5	S
LF_IIb_lfwf_ldr4	Compactor	P	102	2.5	S
LF_IIb_lfwf_ldr5	Compactor	P	102	2.5	S
LF_IIb_lfwf_tpr1	Tipper	P	108	1.5	S
LF_IIb_lfwf_tpr2	Tipper	P	108	1.5	S
LF_IIb_HR2lfwf	Tractor Trailer	L	113	3.5	S
LF_IIb_HRqp_OB	Articulate Truck	L	114	3.5	S
LF_FT	Fuel Truck	P	73	2.5	S
LF_WT	Water Truck	P	112	2.5	S
LF_SS	Skid Steer	P	104	2	S
LF_ST	Sweeper Truck	P	76	2	S
LF_GRDR	Grader	P	108	1.5	S
LF_Employee_TRK	Employee Maintenance Truck	L	90	1.5	S
Residential Drop-Off Sources^[3]					
RD_Vehicle	Drop off Vehicle	L	85	1.5	S
RD_Vehicle_IDL	Vehicle Idling at Weigh Scale	P	80	1.5	S

Notes: 1. Source type as defined in the acoustic modelling: P = Point Source, A = Area Source, L = Line Source
 2. NPC-104 sound characteristics: S = Steady, Q = Quasi-Steady Impulsive, I = Impulsive, B = Buzzing, T = Tonal, C = Cyclic
 3. Residential drop off located south of Phase 2 Landfill on vacant land previously occupied by NR26.

Impulsive sources at the landfill were also considered. These sources included pest control devices such as bangers, crackers, and shotguns which are used throughout the site, as well as bin drops at the residential waste drop-off. The banger and cracker are used up to 25 times per day, and the shotgun is used approximately 540 times throughout the year which is in accordance with Walkers federal permit. No change to the number of pest control devices used is expected as part of this project, but their location of use will shift over time to the area around the new Phase 2 landfill which has been considered in the modelling. The pest control devices are assessed separately using the Landfill Guidelines. Bin drops at the residential waste drop-off are assessed separately against the NPC-300 impulsive noise criteria. The modelled impulsive sources are also shown in **Figure 3-3 to 3-8**. The impulsive source information is summarized in **Table 3-6**.

Table 3-6: Phase 2 Landfill Impulsive Sources

Source ID	Source Description	Source Type [1]	Overall PWL (dBA)	Source Height (m)	Source Characteristic [2]
LF_I_II_lfwf_bngr	Banger	P	144	8	I
LF_I_II_lfwf_crac	Cracker	P	137	8	I
LF_I_II_lfwf_shotgun	Shotgun	P	150	1.5	I
Residential Drop-Off Sources^[3]					
RD_BDL	Bin Drop - Loading	P	110	1.5	I
RD_BDUL	Bin Drop - Unloading	P	108	1.5	I

Notes: 1. Source type as defined in the acoustic modelling: P = Point Source, A = Area Source, L = Line Source
2. NPC-104 sound characteristics: S = Steady, Q = Quasi-Steady Impulsive, I = Impulsive, B = Buzzing, T = Tonal, C = Cyclic
3. Residential drop-off located south of Phase 2 Landfill on vacant land previously occupied by NR26.

3.6.2.2 Asphalt Plant

The existing asphalt plant is in the northwestern portion of the Campus. The asphalt plant consists of dust collectors, compressors, elevators, conveyors to move material, dryers, pug mills, RAP bins and haul trucks. The dust collectors, compressors, elevators, conveyors, dryers, pug mills, and RAP bins are modelled as point sources within the working areas. Haul trucks are modelled as line sources moving throughout the working area, travelling at speeds between 40 km/h, consisting of a peak of 20 movements within an hour. The locations of the asphalt plant sources are shown in **Figure 3-9**, and their source information is summarized in **Table 3-7**.

No impulsive sources of noise were identified at the asphalt plant.

Table 3-7: Asphalt Plant Sources

Source ID	Source Description	Source Type	Overall PWL (dBA)	Source Height (m)	Source Characteristic
Q_asph_comp	Compressor Vent	P	96	0.6	S
Q_asph_DC_m	Dust Collector Blower (motor)	P	95	2	S
Q_asph_DC_s_p1a	Dust Collector Blower (stack)	P	98	20	S
Q_asph_elev	Elevator Motor	P	101	19	S
Q_asph_IDLE_TRK	Idling Truck	P	96	3.5	S
Q_asph_motor	Conveyor Motor	P	107	4	S
Q_asph_dryer	Dryer Motor	P	102	5.8	S
Q_asph_pugdoor	Pug Mill Door	P	107	4	S
Q_asph_pugmill	Pug Mill Motor	P	105	5	S
Q_asph_rapbin	RAP bin	P	102	2.2	S

Notes: 1. Source type as defined in the acoustic modelling: P = Point Source, A = Area Source, L = Line Source
2. NPC-104 sound characteristics: S = Steady, Q = Quasi-Steady Impulsive, I = Impulsive, B = Buzzing, T = Tonal, C = Cyclic

3.6.2.3 Landfill Gas Utilization Plant

The existing landfill gas utilization plant is in the southwestern portion of the Campus, just west of the existing Phase 1 landfill. The plant consists of gas flares, portable generators, blowers, skids, exhaust stacks, chillers, HVAC, cooling fans and breakout noise through louvres. All sources were modelled as point sources within the plant working area. The location of the modelled landfill sources is shown in **Figure 3-10**, and their source information is summarized in **Table 3-8**.

No impulsive sources of noise were identified at the plant.

Table 3-8: Landfill Gas Utilization Plant Sources

Source ID	Source Description	Source Type	Overall PWL (dBA)	Source Height (m)	Source Characteristic
LF_Flare1_in	Gas Flare Inlet	P	75	1	S
LF_Flare2_in LF_Flare3_in LF_Flare6_in	3 Gas Flare Inlets (2, 3 & 6)	P	99	1	S
LF_Flare2_stk LF_Flare3_stk LF_Flare6_stk	3 Gas Flare Stacks (2, 3 & 6)	P	92	15.2	S
LF_PGen1	Portable Generator	P	105	2.5	S
LF_PGen2	Portable Generator	P	97	1.5	S
LG_B5	Siloxane Purge Fan Blower	P	102	1.5	S
LG_baydoor	Baydoor	P	101	1.8	S
LG_BLW_1001	Feed Blower	P	96	1.5	S
LG_BLW_6001	RTO Blower	P	96	1.5	S
LG_BLW_4004_A LG_BLW_4004_B LG_BLW_4004_C LG_BLW_4004_D	4 NRU Skids (A, B, C & D)	P	96	1.5	S
LG_Gen1	Generator 1	P	104	2	S
LG_Gen1_stk	Generator 1 Combustion Exhaust Stack	P	104	6	S
LG_Gen4	Generator 4	P	100	1.5	S
LG_Gly_CH1 LG_Gly_CH2	2 Chillers	P	96	1.5	S
LG_HVAC1	HVAC	P	82	1	S
LG_HX_1002_1 LG_HX_1002_2	2 Cooler Fan Blowers	P	94	2.9	S
LG_HX_5106_01 To LG_HX_5106_12	12 Chillers	P	88	2	S
LG_HX_5107	Chiller	P	92	1.5	S

Source ID	Source Description	Source Type	Overall PWL (dBA)	Source Height (m)	Source Characteristic
LG_HX_5800A_1 LG_HX_5800A_2 LG_HX_5800B_1 LG_HX_5800B_2	4 Chillers	P	94	3	S
LG_L1	Louvre	P	102	3.5	S
LG_L2	Louvre	P	101	3.5	S
LG_L3	Louvre	P	105	1.3	S
LG_L4	Louvre	P	105	2.4	S
LG_L5	Louvre	P	105	3.2	S
LG_L6	Louvre	P	104	0.4	S
LG_Rad1_p2r LG_Rad2_p2r	2 Coolant Radiators	P	109	2	S
LG_RTO	RTO	P	88	3	S
LG_Skid5_Encl	Siloxane Skid Enclosure	P	101	1.5	S
LG_Evapco	Evapco Unit	P	97	2.5	S
LG_C_2501A_roof LG_C_2501B_roof	Feed Compressor Building Roof	A	91	3.1	S
LG_C_4501A_roof LG_C_4501B_roof	Sales Compressor Building Roof	A	89	3.1	S
LG_C_2501A_walls LG_C_2501B_walls	Feed Compressor Building Walls	A	98	3	S
LG_C_4501A_walls LG_C_4501B_walls	Sales Compressor Building Walls	A	94	3	S

- Notes:** 1. Source type as defined in the acoustic modelling: P = Point Source, A = Area Source, L = Line Source
2. NPC-104 sound characteristics: S = Steady, Q = Quasi-Steady Impulsive, I = Impulsive, B = Buzzing, T = Tonal, C = Cyclic

3.6.2.4 Quarry

Quarry activities occur in two locations within the Walkers property. Quarry working face and overburden work, which includes haul trucks, excavators and drills, occurs in the eastern portion of the Walkers property where the proposed Phase 2 Landfill will be. Haul trucks, modelled as line sources then move from this location to the primary crusher and processing plant, travelling at speeds between 40 km/h, consisting of a peak of 40 movements within an hour.

Quarry crushing activities occur within the primary crusher and processing plant. Crushing activities include crushers, conveyor hoppers, loaders, scalpers, sizers, and haul trucks. Haul trucks performing quarry-related activities within the processing plant were modelled as line sources, travelling at speeds between 40 km/h, consisting of a peak of 40 movements within an hour. All other sources were modelled as point sources. The location of the modelled landfill sources is shown in **Figure 3-11**, and the source information is summarized in **Table 3-9**.

**NOISE DETAILED IMPACT ASSESSMENT
WALKER SOUTH LANDFILL PHASE 2 ENVIRONMENTAL ASSESSMENT**

**RWDI #2402272
June 24, 2026**

No impulsive sources of noise were identified at the quarry.

Blasting currently occurs at the quarry as part of the aggregate extraction process. Based on historical blasting records, blasting limits are consistently met at nearby receptors. A period of overlap may occur when landfilling starts and the quarry is still in operation. Since blasting effects are not expected to change, or may cease entirely, and are evaluated separately from other noise and vibration sources, blasting has not been considered further in this assessment.

Table 3-9: Quarry Sources

Source ID	Source Description	Source Type	Overall PWL (dBA)	Source Height (m)	Source Characteristic
Q_Ca_IDLE_TRK	Idling Truck	P	96	3.5	S
Q_Ca_OB_exc	Excavator	P	108	3.5	S
Q_Ca_qwf_exc	Excavator	P	108	3.5	S
Q_Ca_qwf_drill	Drill Rig	P	124	2.5	S
Q_Ca_qwf_dzr_trk	Idle Dozer Truck	P	120	2.5	S
Q_qp_1crush	Primary Crusher	P	117	2.5	S
Q_qp_2crush	Secondary Crusher	P	117	1.2	S
Q_qp_3crush	Tertiary Crusher	P	111	5	S
Q_qp_3CrusherMotor	Crusher Conveyor Motor	P	107	13.5	S
Q_qp_hppr_drp	Conveyor Hopper	P	103	8	S
Q_qp_hppr_mtr	Conveyor Hopper Motor	P	98	2	S
Q_qp_ldr_act	Loader	P	106	2.5	S
Q_qp_ldr_drp	Loader Stone Drop	P	100	2	S
Q_qp_sclp_scn	Scalping Screen	P	118	7	S
Q_qp_sizing_scn	Sizing Screen	P	110	10	S
Q_qp_trk_drp	Truck Stone Drop	P	120	2	S
Q_SH_IDLE_TRK	Idling Truck	P	96	3.5	S
Q_Cb_HRqp	Haul Truck	L	116	3.5	S
Q_Cb_HRqp_OB	Haul Truck	L	110	3.5	S
Q_E_HRqsp	Haul Truck	L	107	3.5	S
Q_F_HRq_N	Haul Truck	L	118	3.5	S
Q_F_HRq_S	Haul Truck	L	115	3.5	S

- Notes:** 1. Source type as defined in the acoustic modelling: P = Point Source, A = Area Source, L = Line Source
2. NPC-104 sound characteristics: S = Steady, Q = Quasi-Steady Impulsive, I = Impulsive, B = Buzzing, T = Tonal, C = Cyclic

4 DESCRIPTION OF THE ENVIRONMENT POTENTIALLY AFFECTED

In this section, a description of the existing noise environment is presented. A detailed description and evaluation of existing noise environment is provided in the Environmental Noise Existing Conditions Report.

4.1 Existing Conditions

The Environmental Noise Existing Conditions Report provides an overview of the existing ambient conditions within the LSA. The measured ambient conditions were then compared to modelled background offsite road and rail traffic. The existing Campus noise impacts on the surrounding receptors were also evaluated. A summary of the results is provided below.

4.1.1 Background Sound Levels

Long-term monitoring was conducted at six locations within the LSA in order to assess the existing background sound levels. The locations of the long-term monitoring are shown in **Figure 4-1**. Monitoring was conducted from July 15 to 23, 2025 to capture representative conditions in the area, particularly near the key noise receptors discussed above in Section 3.5. Measurements were conducted in accordance with the applicable requirements of NPC-103 (MECP, 1978).

Ambient monitoring captured the cumulative sound level due to existing traffic conditions and contributions from the existing landfilling and quarrying activities. The average 1-hour ambient sound levels ($LA_{eq}(1-hr)$) during the daytime (07:00 – 19:00) and nighttime (19:00 – 07:00) are shown in **Table 4-1**. The minimum of the average measured 1-hour values over the day and night periods is found to correlate best with modelled traffic values.

Background sound levels were also assessed using road traffic modelling as outlined in the Environmental Noise Existing Conditions Report. The predicted levels were found to generally align with, or be lower than, the results from the ambient monitoring.

Table 4-1: Ambient Noise Monitoring Summary

2025 Date	Average Hourly Sound Level, LA _{eq(1-hr)} (dBA)											
	Monitor 1 (NR22 & NR23)		Monitor 2 (NR24)		Monitor 3 (NR25 & NR29)		Monitor 4 (NR26)		Monitor 5 (NR27)		Monitor 6 (NR28)	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Tue., July 15	55	55	51	48	45	43	56	52	56	55	56	56
Wed., July 16	57	54	52	47	47	46	55	49	57	49	57	49
Thu., July 17	57	54	51	48	53	44	55	52	61	55	51	50
Fri., July 18	57	55	51	48	47	42	55	53	59	57	57	50
Sat., July 19	53	52	49	47	46	43	55	51	56	54	54	48
Sun., July 20	52	52	47	47	45	43	55	51	59	56	49	50
Mon., July 21	57	56	51	48	46	42	55	52	60	57	60	53
Tue., July 22	58	55	50	48	46	42	55	53	58	57	56	53
Wed., July 23	58	-	52	-	47	-	56	-	57	-	56	-
Minimum	52	52	47	47	45	42	55	49	56	49	49	48
Average	56	54	51	48	46	43	55	52	58	57	56	52

Notes: Day: 07:00 – 19:00. Night: 19:00 – 07:00.

A dash “-” indicates data not collected during this period.

Based on the results of the ambient monitoring and traffic modelling, the background sound levels were assessed as being similar to the Landfill Guidelines minimum exclusionary limits of 55 dBA during the daytime (07:00-19:00) and 45 dBA during the nighttime (19:00-07:00). As a result, these exclusionary limits were conservatively applied to assess absolute sound levels due to the project. Elevated limits due to background sound levels were not applied.

4.1.2 Campus

Sound levels due to the existing Campus were assessed cumulatively at the nearby receptors. **Table 4-2** summarizes the results at the EA common receptors and **Table 4-3** summarizes the results for the local noise receptors. These results are used in conjunction with the proposed landfill sources to assess the change in sound levels due to the project and hence enable evaluation of the project’s net effects.

Impulsive noise sources, including pest control devices, are evaluated separately from the continuous sources and as distinct events against the applicable limits. As a result, background levels are not relevant for the assessment of the proposed landfill. Additional information on the existing impulsive noise conditions can be found in the Environmental Noise Existing Conditions Report.

Table 4-2: Predicted Sound Levels Due to Existing Campus Sources at Common Receptors

POR	Predicted 1-hour Sound Level (dBA)	
	Daytime (0700-1900)	Nighttime (1900-0700)
CR01	49	38
CR04	48	36
CR05	45	39
CR06	41	32
CR07	37	26
CR08	49	45
CR10	50	48
CR11	49	37
CR12	36	25
CR13	38	31
CR14	40	30
CR15	43	31
CR16	40	29
CR17	45	34
CR18	42	32
CR19	47	44
CR20	40	29
CR21	58	36

Table 4-3: Predicted Sound Levels Due to Existing Campus Sources at Noise Receptors

POR	Predicted 1-hour Sound Level (dBA)	
	Daytime (0700-1900)	Nighttime (1900-0700)
NR22_f	54	40
NR22_o	53	n/a ^[1]
NR23_f	54	47
NR23_o	53	n/a ^[1]
NR24_f	48	37
NR24_o	48	n/a ^[1]
NR25_f	51	38
NR25_o	50	n/a ^[1]
NR26_f	52	46
NR26_o	50	n/a ^[1]
NR27_f	47	42
NR27_o	47	n/a ^[1]
NR28_f	48	45
NR28_o	47	n/a ^[1]
NR29_f	50	38
NR29_o	50	n/a ^[1]

Notes: [1] Outdoor levels are not evaluated during the nighttime.

4.1.3 Quarry Blasting

Quarry blasting activities are evaluated separately per the noise and vibration limits in MECP NPC-119:

- Ground Vibration Peak Particle Velocity (PPV) of 12.5 mm/s;
- Sound Overpressure Level of 128 dBL.

Based on historical blasting records, the existing quarry shows no exceedance of the blasting limits at nearby receptors. Blasting activity will end when the quarry activities cease and the proposed landfill replaces the quarry. A period of overlap may occur when landfilling starts and the quarry is still in operation. Since blasting effects are not expected to change, or may cease entirely, and are evaluated separately from other noise and vibration sources, the net change related to blasting will be the same (i.e., blasting continues as existing) or less (i.e., blasting ceases) and thus blasting was not evaluated further. The net effect of the proposed landfill will therefore be of no concern with respect to blasting.

4.2 “Future” Existing Conditions (Do Nothing Option)

The “future existing conditions” (i.e., “Do Nothing” Option) considers the scenario where the quarry operations at the Campus are completed, the proposed Phase 2 landfill is not developed, and the quarry land is rehabilitated to agricultural conditions under the conditions of its Aggregate Resources Act license. Under this circumstance the future condition would resemble the closure scenario (i.e., Scenario 6) outlined in Section 3.6.1 and the sound levels would be similar to the predicted Scenario 6 Closure Phase 2 Landfill (no filling operations) results shown in Section 5.1. Hence, from a noise perspective the long-term consideration of this “do nothing” scenario would arrive at the same end point as the end-of-life closure scenario for the Phase 2 landfill.

5 ENVIRONMENTAL NOISE NET EFFECTS

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

5.1 Potential Effects on Environmental Noise

5.1.1 Continuous Noise Sources

Sound levels due to the future Campus (i.e., including the proposed Phase 2 landfill) were assessed cumulatively at the nearby receptors for each modelled scenario. These results are used in conjunction with the existing landfill source contributions to assess the predicted change in sound levels due to the project and hence enable evaluation of the net effects. Impulsive pest control sources were evaluated separately from the continuous sources. **Table 5-1** summarizes the results at the common receptors and the local noise receptors for continuous sources. The daytime and nighttime sound contours for all evaluated scenarios are shown in **Figure 5-1 to 5-12**.

The predicted results in **Table 5-1** show that the receptors CR_08 and CR_09 exceed the applicable sound limits during the nighttime in all scenarios. CR_21 exceeds the applicable sound limits during the daytime in Scenario 1 and 2. Since these three receptors are not noise-sensitive per MECP guidelines, they do not represent a concern.

Table 5-1 shows that NR23 is predicted to exceed the applicable sound limit during the nighttime for Scenarios 1 to 5, and similarly NR29 (Walker-owned) exceeds during the daytime during Scenarios 1, 2 and 4. The predicted excesses are 1-2 dB which are generally considered small. Both receptors are residentially zoned vacant lots, hence they may be considered noise-sensitive if a residential building is added to the lots in future. Under the current conditions as vacant lots, they do not require mitigation. NR23 is primarily influenced by the existing Campus sources including the aggregate processing and asphalt plant at the north end of the site. NR29 is the nearest lot to existing quarry and proposed Phase 2 Landfill and receives no screening from these sources by the proposed Garner Road berm extension.

Table 5-1: Predicted One-Hour Sound Levels from Phase 2 Landfill & Campus Continuous Sources

Receptor		Scenario 1 LA _{eq,1-hr} (dBA)		Scenario 2 LA _{eq,1-hr} (dBA)		Scenario 3 LA _{eq,1-hr} (dBA)		Scenario 4 LA _{eq,1-hr} (dBA)		Scenario 5 LA _{eq,1-hr} (dBA)		Scenario 6 LA _{eq,1-hr} (dBA)	
		Existing South Landfill Closure, Phase 2 Landfill Stage 1 Filling, Quarry in Operation		Phase 2 Landfill Stage 1 Filling Quarry in Operation		Phase 2 Landfill Stage 2 Filling Quarry Ends		Phase 2 Landfill Stage 3 Filling		Phase 2 Landfill Stage 4 Filling		Phase 2 Landfill Closure	
ID	Noise-Sensitive?	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]
CR_01	Yes	49	39	49	39	42	38	41	38	42	38	26	26
CR_04	Yes	48	41	48	39	46	41	43	40	45	42	26	26
CR_05	Yes	46	40	43	36	40	37	37	34	40	37	31	30
CR_06	Yes	43	34	41	32	36	34	33	30	33	30	30	29
CR_07	Yes	39	31	38	31	35	31	34	31	34	30	22	21
CR_08	No (cemetery) ^[3]	51	48	50	47	49	47	48	47	48	47	48	47
CR_10	No (municipal use) ^[3]	51	48	50	48	49	48	48	48	48	48	48	47
CR_11	No (green space) ^[3]	50	38	49	38	41	37	39	36	40	36	25	25
CR_12	Yes	38	29	37	29	35	31	35	32	35	31	19	19
CR_13	No (green space) ^[3]	38	33	38	32	34	31	33	30	33	31	29	29
CR_14	Yes (future res.)	43	33	43	34	39	35	39	36	39	35	21	21
CR_15	Yes (future res.)	43	32	43	32	35	31	33	28	33	28	22	22
CR_16	Yes	41	30	40	29	33	28	30	25	31	27	24	23
CR_17	Yes	45	37	45	38	44	41	43	39	44	39	25	24
CR_18	Yes	43	36	43	37	40	37	38	35	39	35	27	26
CR_19	Yes (Walker-owned)	48	44	47	43	46	44	45	43	45	43	44	43
CR_20	Yes	41	33	41	33	38	34	37	34	37	33	22	22
CR_21	No (green space) ^[3]	59	41	58	37	41	37	37	33	37	33	24	22
NR22_f	Yes	54	41	54	40	43	39	41	38	42	38	25	24
NR22_o		53	n/a ^[2]	53	n/a ^[2]	42	n/a ^[2]	40	n/a ^[2]	40	n/a ^[2]	24	n/a ^[2]
NR23_f	Yes (vacant lot)	55	47	55	47	51	47	51	47	51	46	32	31
NR23_o		54	n/a ^[2]	54	n/a ^[2]	50	n/a ^[2]	50	n/a ^[2]	50	n/a ^[2]	31	n/a ^[2]

NOISE DETAILED IMPACT ASSESSMENT
WALKER SOUTH LANDFILL PHASE 2 ENVIRONMENTAL ASSESSMENT

RWDI #2402272

June 24, 2026

Receptor		Scenario 1 LA _{eq,1-hr} (dBA)		Scenario 2 LA _{eq,1-hr} (dBA)		Scenario 3 LA _{eq,1-hr} (dBA)		Scenario 4 LA _{eq,1-hr} (dBA)		Scenario 5 LA _{eq,1-hr} (dBA)		Scenario 6 LA _{eq,1-hr} (dBA)	
		Existing South Landfill Closure, Phase 2 Landfill Stage 1 Filling, Quarry in Operation		Phase 2 Landfill Stage 1 Filling Quarry in Operation		Phase 2 Landfill Stage 2 Filling Quarry Ends		Phase 2 Landfill Stage 3 Filling		Phase 2 Landfill Stage 4 Filling		Phase 2 Landfill Closure	
ID	Noise-Sensitive?	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]
NR24_f	Yes (Walker-owned, vacant lot)	47	38	48	40	48	44	46	43	47	43	26	25
NR24_o		48	n/a ^[2]	48	n/a ^[2]	49	n/a ^[2]	47	n/a ^[2]	47	n/a ^[2]	26	n/a ^[2]
NR25_f	Yes	50	42	51	41	48	43	46	43	48	45	28	28
NR25_o		49	n/a ^[2]	50	n/a ^[2]	47	n/a ^[2]	46	n/a ^[2]	45	n/a ^[2]	26	n/a ^[2]
NR27_f	Yes (vacant lot)	47	43	46	42	43	41	41	39	42	39	40	39
NR27_o		48	n/a ^[2]	45	n/a ^[2]	43	n/a ^[2]	41	n/a ^[2]	42	n/a ^[2]	40	n/a ^[2]
NR28_f	Yes (Walker-owned)	50	45	48	44	46	45	46	44	46	44	45	44
NR28_o		48	n/a ^[2]	47	n/a ^[2]	46	n/a ^[2]	45	n/a ^[2]	45	n/a ^[2]	44	n/a ^[2]
NR29_f	Yes (Walker-owned, vacant lot)	57	40	57	41	51	44	50	47	48	44	27	26
NR29_o		57	n/a ^[2]	57	n/a ^[2]	51	n/a ^[2]	50	n/a ^[2]	48	n/a ^[2]	27	n/a ^[2]

Notes: Green highlighted cells identify values above the applicable 55 dBA daytime and 45 dBA nighttime criteria that occur at receptors that are not noise-sensitive per MECP Guidelines.

Orange highlighted cells identify values above the applicable 55 dBA daytime and 45 dBA nighttime criteria that occur at receptors that are noise-sensitive per MECP Guidelines.

[1] Day: 0700-1900. Night: 1900-0700.

[2] Outdoor levels are not evaluated during the nighttime.

[3] Not a noise-sensitive receptor under MECP Guidelines.

5.1.2 Impulsive Noise Sources

Impulsive sources at the Campus were also evaluated. Impulsive sources include pest control measures involving a shotgun, bangers, and crackers, as well as bin drops at the proposed residential waste drop off.

The shotgun source placement is modelled near the existing Phase 1 Landfill scales at a central location on the Campus, and the bangers and crackers are placed near the working face for each scenario. These source locations are shown in **Figure 3-3** to **3-8**.

No impulsive sources of noise were evaluated for Scenario 6, which considers the closure of the landfill since pest control and the future residential drop-off operations are expected to cease at that point in time. **Table 5-2** summarizes the predicted results from the impulsive sources expressed as a logarithmic mean impulsive sound level at the evaluated receptors.

The predicted results in **Table 5-2** show an excess over the applicable 70 dBAI limit for the shotgun pest control devices at receptors CR_08, CR_10, CR_19, NR23, and NR28. CR_08 and CR_10 are not noise-sensitive per MECP guidelines, hence they do not represent a concern. NR23 is a residentially zoned vacant lot, hence it may be considered noise-sensitive if a residential building is added to the lot in future. Under the current conditions as a vacant lot, it does not require mitigation.

CR_19 and NR28 represent the same Walker-owned property that includes a tenanted dwelling. Given it is Walker-owned, the facility has some control over use of the property as noise-sensitive and could implement appropriate mitigation onsite for the shotgun if necessary. However, for this type of pest control device, the best option may be to relocate it to a location a greater distance from this receptor. Given the existing conditions do not indicate an excess due to the shotgun, locating the shotgun nearer to the existing South Landfill entrance off of Taylor Road, consistent with the existing conditions, should eliminate this excess. This location benefits from shielding due to the elevated mound of the South Landfill. Alternately, quieter pest control devices could be considered.

The banger pest control device is also showing an excess of the applicable 70 dBAI limit at receptor NR23 and NR29 in Scenario 3, and at NR23 only for Scenario 4 and 5. As both of these receptors are located to the north of the working face, they do not benefit from any acoustical shielding the working face may provide unlike receptors to the south and east. Both of these receptors are currently residentially zoned vacant lots, hence they may be considered noise-sensitive if residential buildings are added to the lots in future. However, under the current conditions as a vacant lot, mitigation would not be necessary. If required in future, mitigation could entail relocating the banger pest control device to an area of the landfill at a greater distance from the affected receptors (i.e., maintain a minimum setback distance of 870 m to NR23 and NR29 similar to Scenario 2). Alternately, quieter pest control devices could be considered.

The cracker pest control device and impulsive noise due to bin drops at the residential waste drop-off do not show any predicted impulsive sound levels of concern.



Table 5-2: Predicted Impulsive Sound Levels from Phase 2 Landfill & Campus

Receptor		Scenario 1 LLM (dBAI)					Scenario 2 LLM (dBAI)					Scenario 3 LLM (dBAI)					Scenario 4 LLM (dBAI)					Scenario 5 LLM (dBAI)				
		Existing South Landfill Closure, Phase 2 Landfill Stage 1 Filling, Quarry in Operation					Phase 2 Landfill Stage 1 Filling Quarry in Operation					Phase 2 Landfill Stage 2 Filling Quarry Ends					Phase 2 Landfill Stage 3 Filling					Phase 2 Landfill Stage 4 Filling				
ID	Noise-Sensitive?	Banger	Shotgun	Cracker	Bin Drop Loading ^[1]	Bin Drop Unloading ^[1]	Banger	Shotgun	Cracker	Bin Drop Loading ^[1]	Bin Drop Unloading ^[1]	Banger	Shotgun	Cracker	Bin Drop Loading ^[1]	Bin Drop Unloading ^[1]	Banger	Shotgun	Cracker	Bin Drop Loading ^[1]	Bin Drop Unloading ^[1]	Banger	Shotgun	Cracker	Bin Drop Loading ^[1]	Bin Drop Unloading ^[1]
CR_01	Yes	61	65	53	18	16	61	65	53	18	16	63	66	55	18	16	63	66	55	18	16	64	66	54	18	16
CR_04	Yes	59	53	48	33	31	60	54	53	33	31	56	54	48	33	31	54	54	47	33	31	66	53	54	33	31
CR_05	Yes	62	56	53	40	37	53	56	48	40	37	53	56	47	40	37	54	56	43	40	37	63	56	55	40	37
CR_06	Yes	57	64	50	17	14	55	64	47	17	14	54	63	46	17	14	53	63	46	17	14	55	63	47	17	14
CR_07	Yes	54	54	46	19	17	55	54	47	19	17	55	53	47	19	17	54	53	47	19	17	55	54	48	19	17
CR_08	No (cemetery) ^[2]	67	72	59	25	22	57	72	48	25	22	57	70	46	25	22	59	73	49	25	22	63	73	54	25	22
CR_10	No (municipal use) ^[2]	64	72	57	27	24	60	72	52	27	24	59	70	50	27	24	58	71	48	27	24	61	71	54	27	24
CR_11	No (green space) ^[2]	60	63	52	17	15	60	63	52	17	15	62	65	54	17	15	61	65	53	17	15	60	65	53	17	15
CR_12	Yes	53	58	45	14	12	55	58	47	14	12	55	58	47	14	12	54	57	49	14	12	55	57	47	14	12
CR_13	No (green space) ^[2]	56	62	48	21	18	54	62	47	21	18	53	61	45	21	18	53	62	44	21	18	55	62	47	21	18
CR_14	Yes (future res.)	56	58	48	18	15	58	58	50	18	15	58	58	51	18	15	54	56	48	18	15	58	57	50	18	15
CR_15	Yes (future res.)	56	61	48	14	11	56	61	48	14	11	57	61	49	14	11	57	61	49	14	11	56	61	48	14	11
CR_16	Yes	54	59	46	12	10	52	59	44	12	10	53	58	45	12	10	52	59	44	12	10	52	59	45	12	10
CR_17	Yes	60	65	52	21	18	63	65	55	21	18	64	66	56	21	18	61	65	55	21	18	63	65	54	21	18
CR_18	Yes	59	55	51	31	29	52	55	45	31	29	54	55	46	31	29	57	55	45	31	29	60	55	52	31	29
CR_19	Yes (Walker-owned)	65	72	57	26	23	50	72	41	26	23	46	71	39	26	23	45	71	36	26	23	56	72	45	26	23
CR_20	Yes	55	55	48	23	21	58	54	50	23	21	57	54	50	23	21	53	54	47	23	21	58	55	50	23	21
CR_21	No (green space) ^[2]	58	54	48	18	16	53	54	44	18	16	53	55	44	18	16	60	55	54	18	16	61	55	47	18	16
NR22_f	Yes	64	62	56	20	17	63	62	55	20	17	65	65	57	20	17	64	64	56	20	17	63	65	56	20	17
NR22_o		61	61	53	19	16	61	61	54	19	16	63	63	55	19	16	62	63	55	19	16	62	63	54	19	16
NR23_f	Yes (vacant lot)	69	73	61	29	25	70	73	63	25	22	73	74	66	25	22	72	73	65	25	22	76	73	68	25	22
NR23_o		67	71	59	24	21	68	71	61	24	21	72	72	64	24	21	71	72	63	24	21	72	72	64	24	21
NR24_f	Yes (Walker-owned, vacant lot)	62	65	54	23	20	68	65	60	23	20	66	66	58	23	20	57	62	52	22	19	65	62	53	22	19
NR24_o		62	65	54	23	20	68	65	60	23	20	67	66	62	23	20	56	62	51	22	19	65	62	52	22	19
NR25_f	Yes	62	55	51	30	27	66	56	58	30	27	60	56	52	30	27	56	56	49	30	27	69	57	55	30	27
NR25_o		58	53	47	29	26	63	54	55	29	26	58	53	49	29	26	54	53	47	29	26	66	54	50	29	26
NR27_f	Yes (vacant lot)	64	62	56	35	32	51	62	53	35	32	50	61	41	35	32	51	62	41	35	32	62	61	54	35	32
NR27_o		64	62	56	35	32	51	62	53	35	32	50	61	47	35	32	50	61	40	35	32	62	61	54	35	32
NR28_f	Yes (Walker-owned)	67	73	59	29	26	55	73	46	29	26	50	72	44	29	26	50	72	40	29	26	62	73	51	29	26
NR28_o		65	72	57	28	24	51	72	42	28	24	49	71	40	28	24	46	71	37	28	24	58	71	47	28	24
NR29_f	Yes (Walker-owned, vacant lot)	63	60	55	24	21	70	60	62	24	21	71	60	63	24	21	53	54	47	24	21	65	55	49	24	21
NR29_o		63	60	55	25	22	70	60	62	25	22	71	60	63	25	22	53	54	47	25	22	64	54	48	25	22

Notes: Green highlighted cells identify values above the applicable 70 dBAI criterion that occur at receptors that are not noise-sensitive per MECP Guidelines.
Orange highlighted cells identify values above the applicable 70 dBAI criterion that occur at receptors that are noise-sensitive per MECP Guidelines.
Values expressed as the logarithmic mean impulse sound level (LLM).
[1] Assumed 3 bin drops in an hour due to loading or unloading hence 70 dBAI Class 2 criterion applies.
[2] Not a noise-sensitive receptor under MECP Guidelines.

5.1.3 Environmental Noise Potential Effects Summary

The updated assessment of predicted potential effects, recommended impact management measures, and resulting net effects is provided in **Table 5-3** and further elaborated upon in the subsections that follow.

Table 5-3: Environmental Noise Potential Environmental Effects, Proposed Impact Management Measures, and Net Effects

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effect of Noise on off-site receptors	Predicted off-site noise level	<ul style="list-style-type: none"> • Predicted noise levels meet applicable sound limits at all noise-sensitive receptors with dwellings not owned by Walker. • Two noise-sensitive vacant lots (NR23, NR29) may become a concern for continuous or impulsive pest control noise if a dwelling is added to the properties in the future. • One Walker-owned tenanted dwelling (NR28) may be affected by impulsive noise due to the shotgun pest control device. 	<ul style="list-style-type: none"> • If a dwelling is added to the vacant lots at NR23 or NR29, local mitigation in the form of a perimeter berm or operational adjustments (e.g., relocation of pest control) may be necessary. • Since NR29 is Walker-owned, the construction of a dwelling can be limited. • Identify optimal areas where pest control devices may be used: shift shotgun use nearer the entrance off Taylor Road as currently used for NR28; keep banger devices a minimum of 870 m from NR23 and NR29 if dwellings are built on these vacant lots. • Consider quieter pest control devices, if necessary. 	<ul style="list-style-type: none"> • Predicted non-pest control noise levels are expected to meet applicable guidelines for non-vacant noise-sensitive lots. • Sound from pest control devices may occasionally be audible at some receptors. <p>LOW NET EFFECTS</p>
	Number of off-site receptors potentially affected (residential properties, public facilities, businesses, and institutions)	<ul style="list-style-type: none"> • Three receptors (CR08, CR10, CR21) are above the applicable guidelines, but these are not noise-sensitive. • Two vacant lots (NR23, NR29) may be affected by noise if future dwellings are built. • One Walker-owned tenanted dwelling may be affected by pest control use. 	<ul style="list-style-type: none"> • Limit development of vacant lots on Walker-owned properties. 	LOW NET EFFECTS
	Predicted sound from traffic	<ul style="list-style-type: none"> • Project-related vehicle traffic considered in assessment of off-site noise levels, hence same as above. 	<ul style="list-style-type: none"> • See above measures for off-site noise levels. 	LOW NET EFFECTS

5.2 Net Effects

Net effects of environmental noise on the nearby receptors are quantified by changes in predicted sound level from the existing conditions to the future conditions during different stages of the Phase 2 Landfill. The change is then assessed in terms of its perceived significance at each receptor, where the following scale has been commonly used in environmental assessment in Ontario based on historical MECP guidance:

- A sound level change of 1 to 3 dB is qualitatively rated as insignificant;
- A sound level change of 3 to 5 dB is qualitatively rated as noticeable;
- A sound level change of 5 to 10 dB is qualitatively rated as significant; and
- A sound level change of greater than 10 dB is qualitatively rated as very significant.

Table 5-4 summarizes the change in predicted sound level for each modelled scenario at the evaluated receptors.

The results in **Table 5-4** show that several common receptors (i.e. CR_04, CR_07, CR_12, CR_14, CR_17, CR_18, CR_20) have noticeable (i.e., 3-5 dB) to significant (i.e., 5-10 dB) increases in sound level during the nighttime period across Scenarios 1 to 5. However, these increases represent changes from quiet sound levels to future sound levels that are still quite low, commonly less than 40 dBA versus the nighttime criterion of 45 dBA (see **Table 5-1**). Such sound levels are representative of the background sound level in quiet rural environments. Hence, the increases are less notable when considered in context of the absolute sound levels.

Common receptor CR_21 sees an increase of 5 dB during the nighttime for Scenario 1 but is not considered noise-sensitive and since the absolute sound levels remain below 45 dBA, the change is not of concern.

Table 5-4 also shows that receptors NR24 and NR25 have predicted increases of 3 to 7 dB during the nighttime for several modelled Scenarios. However, the predicted sound levels associated with these increases remain below the 45 dBA criterion, lessening any concern associated with these increases.

Receptor NR29 is predicted to experience significant change in sound level during the daytime, which is caused by the aggregate extraction activities moving closer to the northeast corner of quarry as it nears the end of its operations. It also sees significant increases during the nighttime in Scenarios 3, 4, and 5 when the Phase 2 Landfill activity will be occurring in the northeast corner, nearest to this receptor. This receptor is Walker-owned and currently a vacant lot, hence it is not a concern for mitigation unless a future dwelling is reconstructed on the lot.

Daytime results in **Table 5-4** for most receptors are predicted to have an unnoticeable change or significant reduction in sound level which is a positive outcome. For Scenario 6, when the Phase 2 Landfill is closed, all receptors are predicted to experience a reduction in daytime and nighttime sound level compared to the existing conditions, which is caused by the ceasing of quarry operations, the asphalt plant, and landfill operations.

Table 5-4: Change in Predicted Sound Level from Continuous Campus Sources

Receptor		Scenario 1 (dBA)		Scenario 2 (dBA)		Scenario 3 (dBA)		Scenario 4 (dBA)		Scenario 5 (dBA)		Scenario 6 (dBA)	
		Existing South Landfill Closure, Phase 2 Landfill Stage 1 Filling, Quarry in Operation		Phase 2 Landfill Stage 1 Filling Quarry in Operation		Phase 2 Landfill Stage 2 Filling Quarry Ends		Phase 2 Landfill Stage 3 Filling		Phase 2 Landfill Stage 4 Filling		Phase 2 Landfill Closure	
ID	Noise-Sensitive?	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]
CR_01	Yes	0	1	0	1	-7	0	-8	0	-7	0	-23	-12
CR_04	Yes	0	5	0	3	-2	5	-5	4	-3	6	-22	-11
CR_05	Yes	1	1	-2	-3	-5	-2	-8	-5	-5	-2	-14	-9
CR_06	Yes	2	2	0	-1	-5	2	-8	-2	-8	-2	-11	-3
CR_07	Yes	2	5	1	5	-2	5	-3	5	-3	4	-15	-5
CR_08	No (cemetery) ^[2]	2	3	1	2	0	2	-1	2	-1	2	-2	2
CR_10	No (municipal use) ^[2]	1	0	0	0	-1	0	-2	-1	-2	0	-2	-1
CR_11	No (green space) ^[2]	1	1	0	1	-8	0	-10	-1	-9	-1	-24	-12
CR_12	Yes	2	4	1	4	-1	6	-1	7	-1	6	-17	-6
CR_13	No (green space) ^[2]	0	2	0	1	-4	0	-5	-1	-5	0	-9	-2
CR_14	Yes (future res.)	3	3	3	4	-1	5	-1	6	-1	5	-19	-9
CR_15	Yes (future res.)	0	1	-1	1	-8	-1	-10	-3	-10	-3	-21	-9
CR_16	Yes	1	1	0	0	-8	-1	-10	-4	-9	-2	-16	-6
CR_17	Yes	0	3	0	4	-1	7	-2	5	-1	5	-20	-10
CR_18	Yes	1	4	1	5	-2	5	-4	3	-4	3	-15	-6
CR_19	Yes (Walker-owned)	1	0	0	-1	-2	0	-2	-1	-2	-1	-3	-1
CR_20	Yes	1	4	1	4	-2	5	-3	5	-3	4	-18	-7
CR_21	No (green space) ^[2]	1	5	0	1	-17	1	-21	-3	-21	-3	-34	-14
NR22_f	Yes	0	1	-1	0	-11	-1	-13	-2	-12	-2	-29	-16
NR22_o		0	n/a ^[2]	0	n/a ^[2]	-11	n/a ^[2]	-13	n/a ^[2]	-13	n/a ^[2]	-29	n/a ^[2]
NR23_f	Yes (vacant lot)	1	0	1	0	-3	0	-3	0	-3	-1	-23	-16
NR23_o		1	n/a ^[2]	1	n/a ^[2]	-3	n/a ^[2]	-4	n/a ^[2]	-3	n/a ^[2]	-22	n/a ^[2]

NOISE DETAILED IMPACT ASSESSMENT
WALKER SOUTH LANDFILL PHASE 2 ENVIRONMENTAL ASSESSMENT

RWDI #2402272

June 24, 2026

Receptor		Scenario 1 (dBA)		Scenario 2 (dBA)		Scenario 3 (dBA)		Scenario 4 (dBA)		Scenario 5 (dBA)		Scenario 6 (dBA)	
		Existing South Landfill Closure, Phase 2 Landfill Stage 1 Filling, Quarry in Operation		Phase 2 Landfill Stage 1 Filling Quarry in Operation		Phase 2 Landfill Stage 2 Filling Quarry Ends		Phase 2 Landfill Stage 3 Filling		Phase 2 Landfill Stage 4 Filling		Phase 2 Landfill Closure	
ID	Noise-Sensitive?	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]	Day ^[1]	Night ^[1]
NR24_f	Yes (Walker-owned, vacant lot)	-1	1	0	3	0	7	-2	6	-1	6	-22	-12
NR24_o		0	n/a ^[2]	0	n/a ^[2]	1	n/a ^[2]	-1	n/a ^[2]	-1	n/a ^[2]	-22	n/a ^[2]
NR25_f	Yes	-1	4	-1	3	-3	5	-5	5	-3	7	-23	-11
NR25_o		-1	n/a ^[2]	0	n/a ^[2]	-3	n/a ^[2]	-4	n/a ^[2]	-5	n/a ^[2]	-24	n/a ^[2]
NR27_f	Yes (vacant lot)	0	1	-1	-1	-4	-2	-6	-3	-5	-3	-7	-3
NR27_o		1	n/a ^[2]	-2	n/a ^[2]	-4	n/a ^[2]	-6	n/a ^[2]	-5	n/a ^[2]	-7	n/a ^[2]
NR28_f	Yes (Walker-owned)	2	0	0	-1	-2	0	-3	-1	-2	-1	-3	-1
NR28_o		1	n/a ^[2]	0	n/a ^[2]	-1	n/a ^[2]	-2	n/a ^[2]	-2	n/a ^[2]	-3	n/a ^[2]
NR29_f	Yes (Walker-owned, vacant lot)	7	2	7	3	1	6	0	9	-2	6	-23	-12
NR29_o		7	n/a ^[2]	7	n/a ^[2]	1	n/a ^[2]	0	n/a ^[2]	-2	n/a ^[2]	-23	n/a ^[2]

Notes: Green highlighted cells identify increases in sound level that are noticeable to significant that occur at receptors that are not noise-sensitive per MECP Guidelines.

Orange highlighted cells identify increases in sound level that are noticeable to significant that occur at receptors that are noise-sensitive per MECP Guidelines.

[1] Day: 0700-1900. Night: 1900-0700.

[2] Outdoor levels are not evaluated during the nighttime.

[3] Not a noise-sensitive receptor under MECP Guidelines.

6 CUMULATIVE IMPACT ANALYSIS

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

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

This assessment evaluated the cumulative impacts of the proposed Phase 2 landfill and all existing Campus facilities within the LSA. The Campus facilities are predicted to provide the greatest noise impact on the evaluated receptors due to proximity of the sound sources. All non-Walker projects and Walker off-campus facilities listed above were considered and determined to have no significant environmental noise contribution at the critical receptors assessed here due to the distance to those projects or their limited noise emissions.

7 CLIMATE CHANGE CONSIDERATIONS

In accordance with the Minister-approved ToR, the detailed impact assessment is to include consideration of climate change. In support of the province of Ontario’s Climate Change Action Plan, the Ministry of the Environment, Conservation and Parks (MECP) developed a Guide entitled “Consideration of Climate Change in Environmental Assessment in Ontario” (the Guide) to aid proponents in considering climate change as part of EAs for infrastructure and facilities (MECP 2016). The preceding was considered as part of the South Landfill Phase 2 EA in addressing the potential climate risks to the Alternative Methods.

Environmental noise emissions from the proposed Phase 2 landfill or the associated Campus would not have any known influence on climate change considerations. Hence the proposed project is not anticipated to have any effect on climate change from the noise perspective.

Since sound travels through the atmosphere, changes to climate could affect meteorological characteristics that may influence sound propagation. However, the ISO 9613 model used considers general worst-case propagation conditions including downwind propagation or the presence of an inversion. Hence, the influence of atmospheric changes due to climate change are anticipated to have a minimal influence on the noise modelling results.

8 ENVIRONMENTAL MONITORING

For continuous noise, any environmental monitoring requirements based on this assessment are limited given that adversely affected receptors are either not noise-sensitive or occur at vacant lots without dwellings. If residential dwellings are added to the vacant lots in future, mitigation or operational restrictions may need to be considered. Walker should continue to monitor the status of building construction for these lots over the life of the proposed Phase 2 landfill.

For impulsive noise, some operational adjustments may be necessary to appropriately accommodate the use of some pest control devices. Initial noise measurement during the use of these pest control devices would aid in informing and confirming any operational adjustments required and their potential effect.

9 COMMITMENTS

The following commitments have been proposed to ensure the undertaking can meet regulatory requirements.

9.1 Administrative Controls for Pest Control Devices

Pest control is an essential operation at the landfill. The impulsive noise contributions at some receptors due to the banger and shotgun pest control devices are predicted to exceed the applicable limits in some cases. As these devices are crucial for pest control, operational adjustments may be necessary. These adjustments may include relocating the source to increase setback distance to affected residences (and thus lower sound levels) while still providing appropriate coverage to operational areas of the landfill. Source mitigation or substitution could be considered, but these may reduce the efficacy of the device. The use of sound level measurement to confirm the devices are operating as expected can be useful to further validate areas for use, device sound emissions, and achievement of the applicable sound limits.

10 APPROVALS REQUIRED

Although landfills are typically approved through the environmental assessment process for noise, there are several areas of the Campus have existing Environmental Compliance Approvals (i.e., "ECAs") with the Ministry of Environment, Conservation, and Parks. Subject to the approval of this environmental assessment, some updates to those ECAs may be necessary where changes to emission sources occur to ensure ongoing compliance with provincial regulations.

11 CONCLUSIONS

This noise design impact assessment of the Walker Phase 2 Landfill considered the existing operations from the Campus and future operations throughout the lifecycle of the Phase 2 Landfill. The assessment shows that the proposed landfill will meet applicable limits at all noise-sensitive receptors with existing dwellings. Some vacant lots that could permit future residential buildings are predicted to be 1 to 2 dB above the applicable limits in some scenarios. Walker should continue to monitor the status of these vacant lots so that noise from the proposed landfill can be appropriately addressed should their status change. Sound levels are predicted to increase significantly at some noise-sensitive receptors during operational scenarios; however, since the predicted sound levels are low relative to background and remain below the applicable limits, they are not of concern.

Impulsive noise is predicted to exceed applicable limits at some receptors for some pest control devices. The area of use of these devices and their sound emissions should be assessed to ensure applicable limits can be achieved.

12 STATEMENT OF LIMITATIONS

This report entitled "Draft Noise Detailed Impact Assessment Report, Walker South Landfill Phase 2 Environmental Assessment" was prepared by RWDI AIR Inc. ("RWDI") for Walker Environmental Group ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

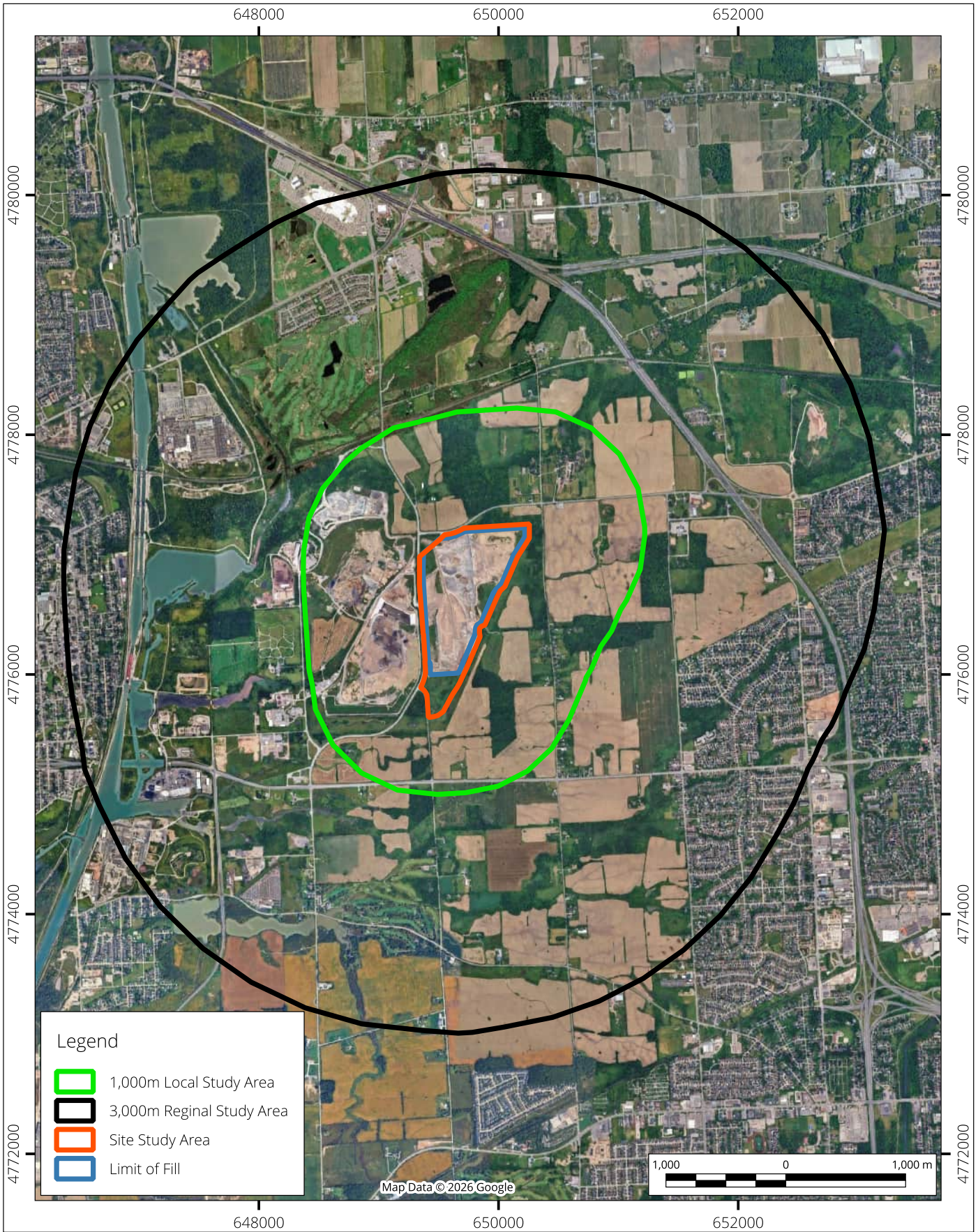
Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

13 REFERENCES

1. Ontario Ministry of the Environment, Conservation and Parks (MECP), August 2013, Publication NPC-300, Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning (NPC-300)
2. Landfill standards: A guideline on the regulatory and approval requirements for new or expanding landfill sites, January 2012.
3. Ontario Ministry of the Environment (MOE), 1989, ORNAMENT Ontario Road Noise Analysis Method for Environment and Transportation, Technical Publication (MOE, 1989)
4. International Organization for Standardization (ISO), 1994, International Standard ISO 9613-1:1994, Acoustics – Attenuation of Sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere.
5. International Organization for Standardization (ISO), 1996, International Standard ISO 9613-2:1996, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation (ISO, 1996)
6. Ontario Ministry of the Environment (MOE), 1978, Model Municipal Noise Control Bylaw, which includes Publication NPC-103 – Procedures, and Publication NPC-104 – Sound Level Adjustments.
7. Walker Environmental Group, Facility Characteristics report, South Landfill Phase 2 – Environmental Assessment, March 2026.
8. GHD Group, Walker SLFPH2 EA Common Receptors, June 2025.
9. RWDI AIR Inc., WAI / WEG / IGRS Acoustic Assessment Report. August 2023.
10. RWDI AIR Inc., Walker South Landfill Phase 2 Environmental Assessment Noise Existing Conditions, May 8, 2026.
11. Ministry of the Environment, Conservation and Parks (MECP), August 1978, Publication NPC-119, Blasting.

A decorative background featuring a large grey curved shape on the right and a blue curved shape on the left, separated by a white curved line.

FIGURES



Map Document: I:\2024\2402272\03\WorkItems\20\Environmental\Noise\Analysis\GIS\20260318 Walkers.qgz

Study Areas

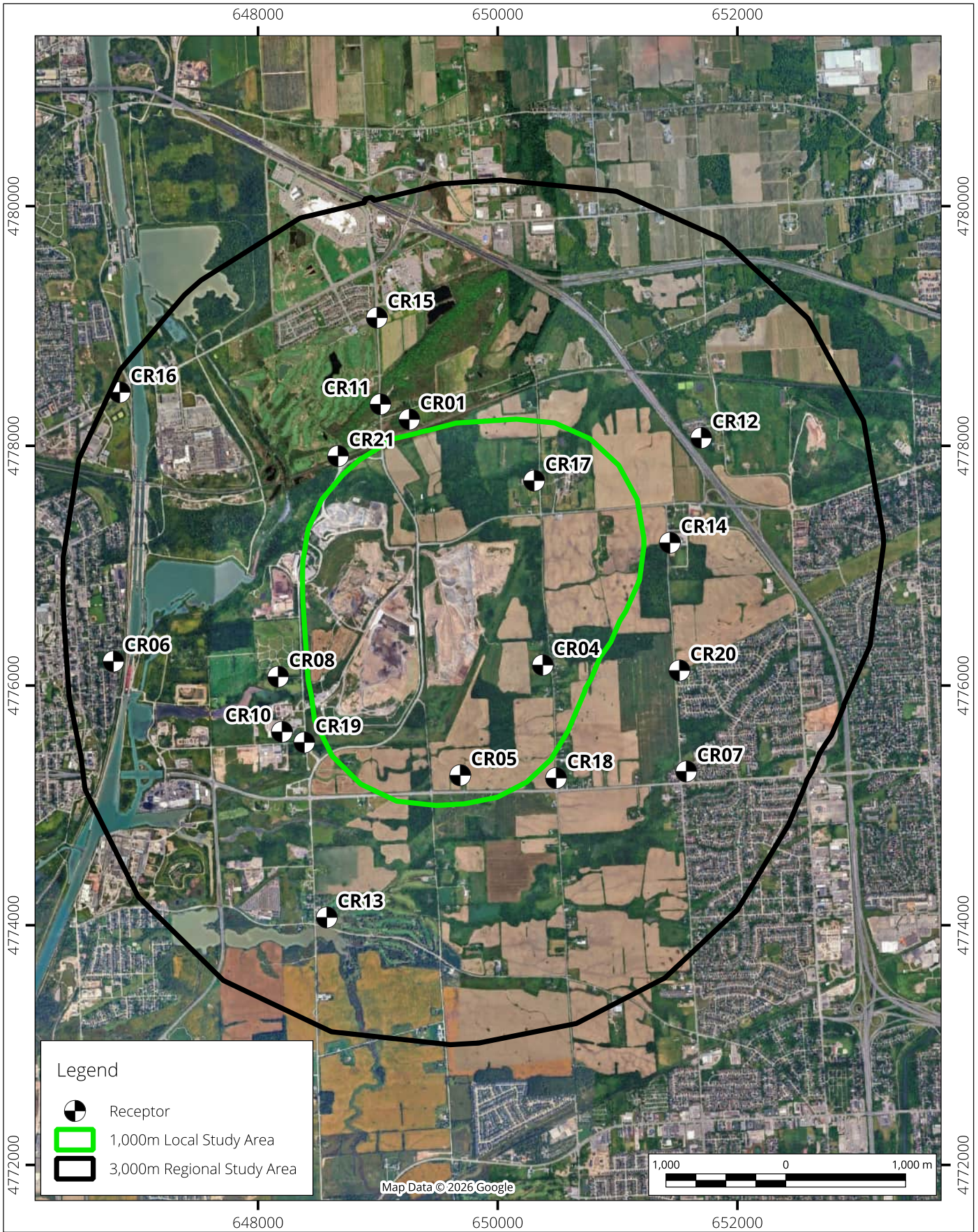
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: Jun 08, 2026	





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Noise Sensitive Points of Reception Common Receptor Locations

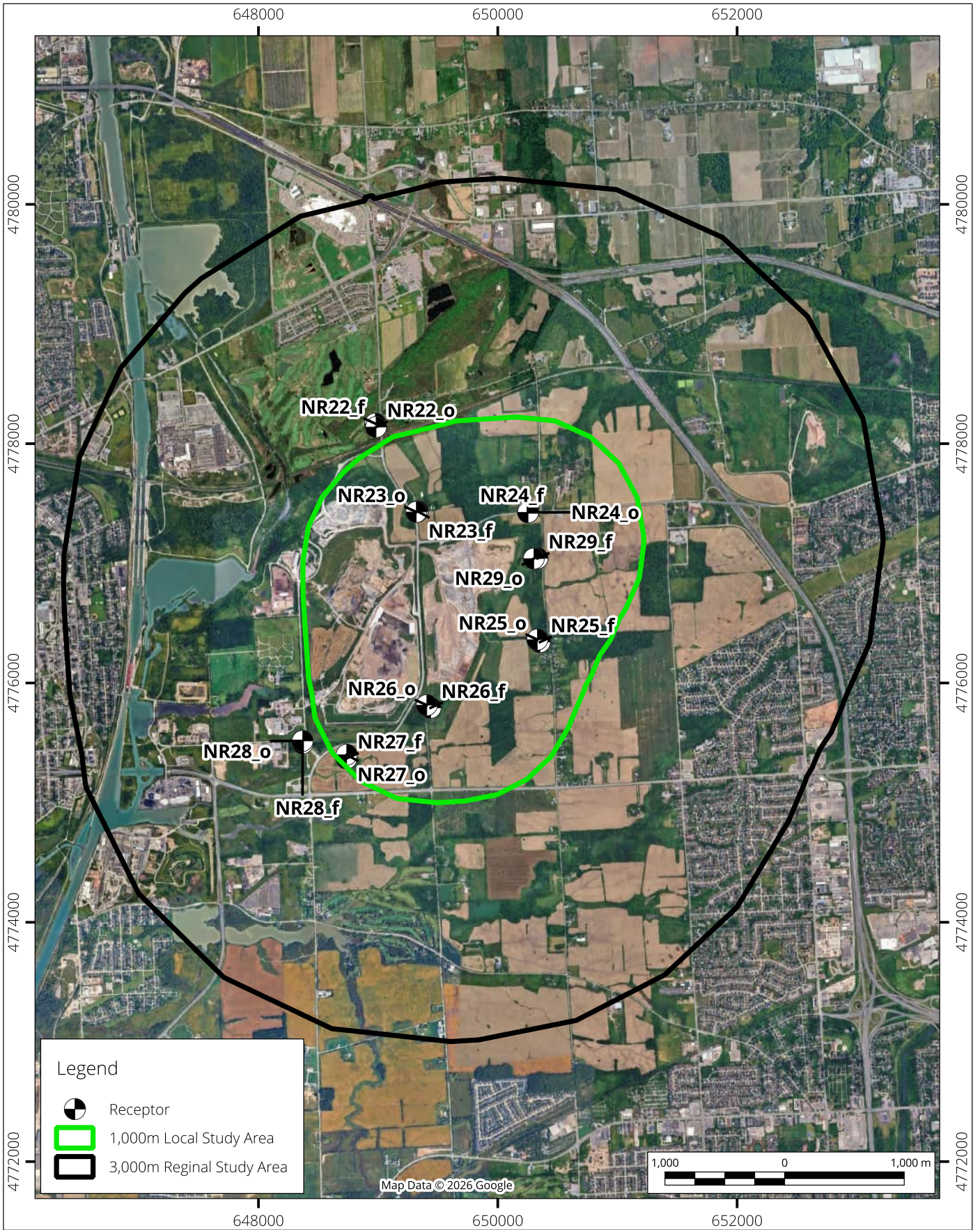
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Approx. Scale: 1:44,000	
Date Revised: May 22, 2026	





Noise Sensitive Points of Reception RWDI Evaluated Points of Reception

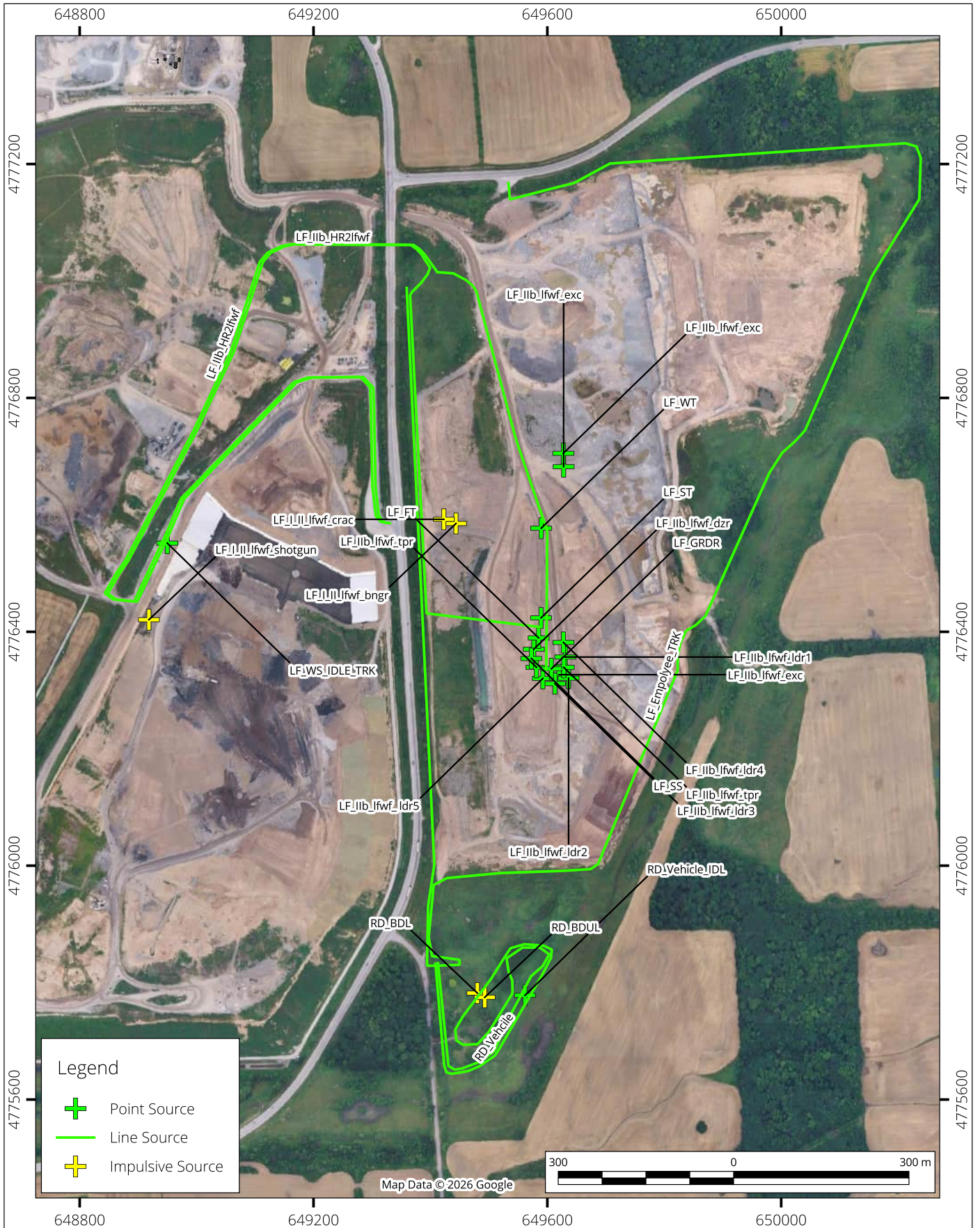
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

Drawn by: KJZ	Figure: 3-2
Approx. Scale: 1:44,000	
Date Revised: May 22, 2026	





Significant Source Locations

Walkers South Landfill - Landfill Sources - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Approx. Scale: 1:9,000	
Date Revised: May 22, 2026	





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Significant Source Locations

Walkers South Landfill - Landfill Sources - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

Drawn by: KJZ	Figure: 3-5
Approx. Scale: 1:9,000	
Date Revised: May 22, 2026	





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Significant Source Locations

Walkers South Landfill - Landfill Sources - Scenario 4

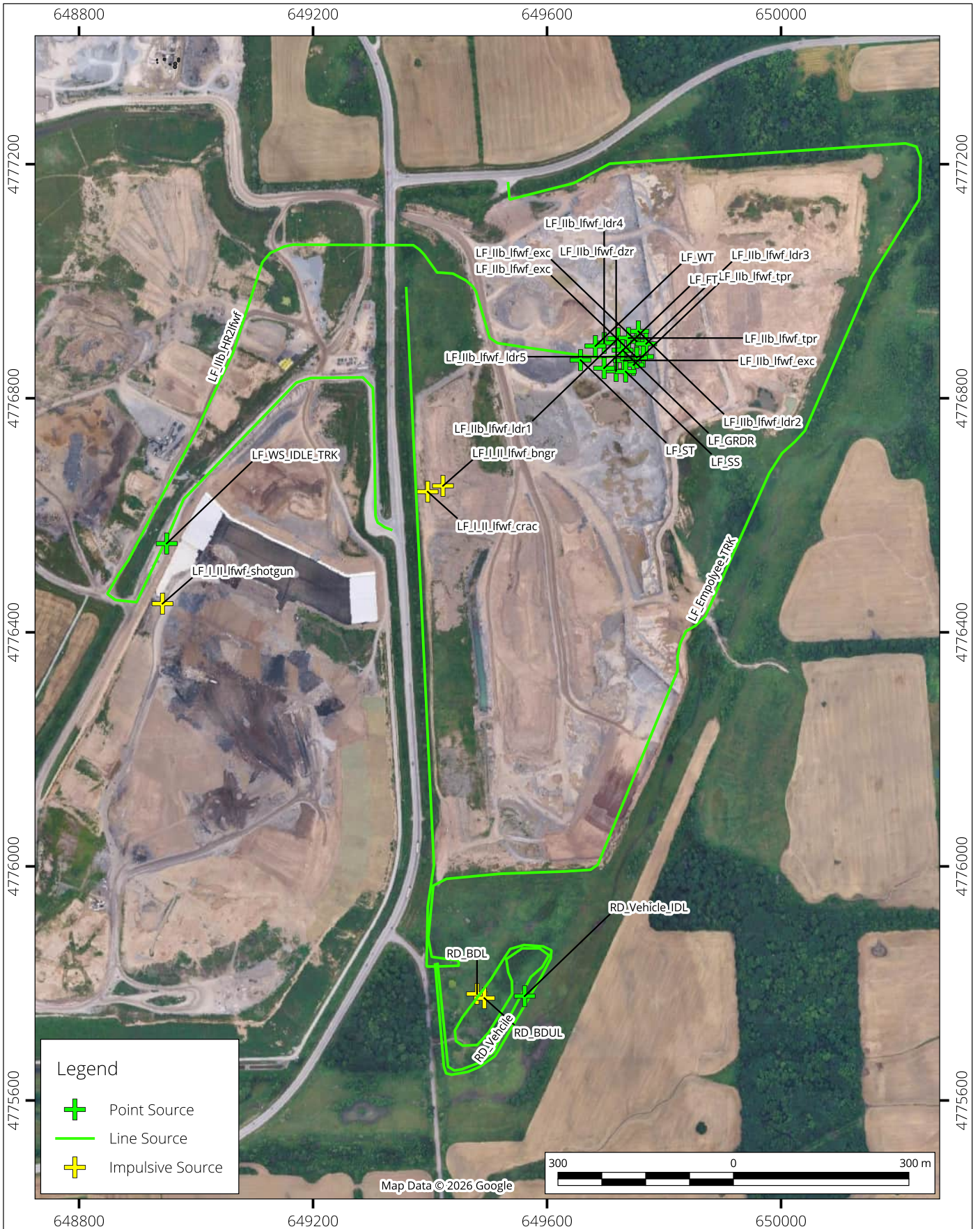
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Approx. Scale: 1:9,000	
Date Revised: May 22, 2026	





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Significant Source Locations

Walkers South Landfill - Landfill Sources - Scenario 5

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

Drawn by: KJZ	Figure: 3-7
Approx. Scale: 1:9,000	
Date Revised: May 22, 2026	





Significant Source Locations
 Walkers South Landfill - Asphalt Plant Sources

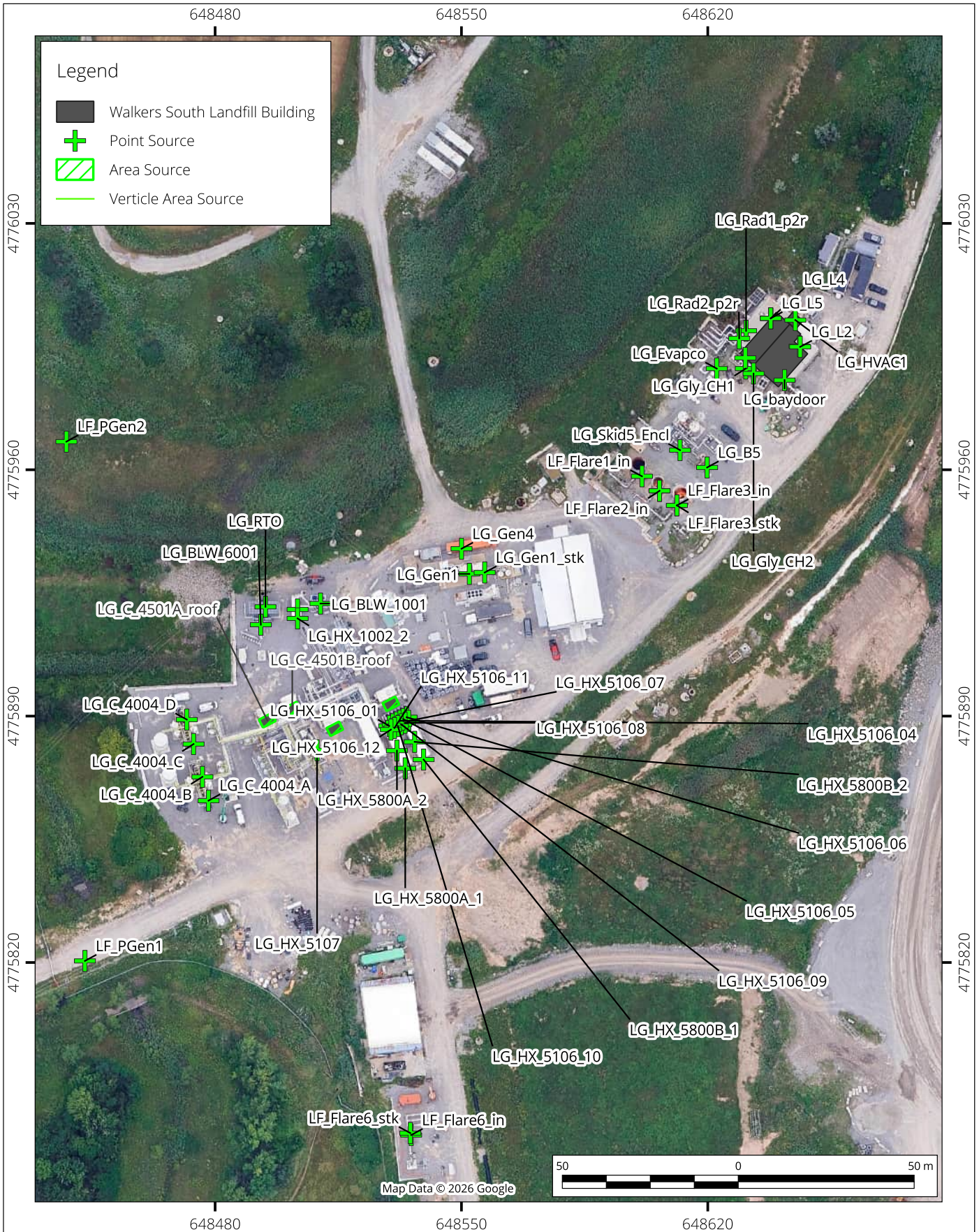


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Date Revised: May 22, 2026	



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 Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario

Project #: 2402272



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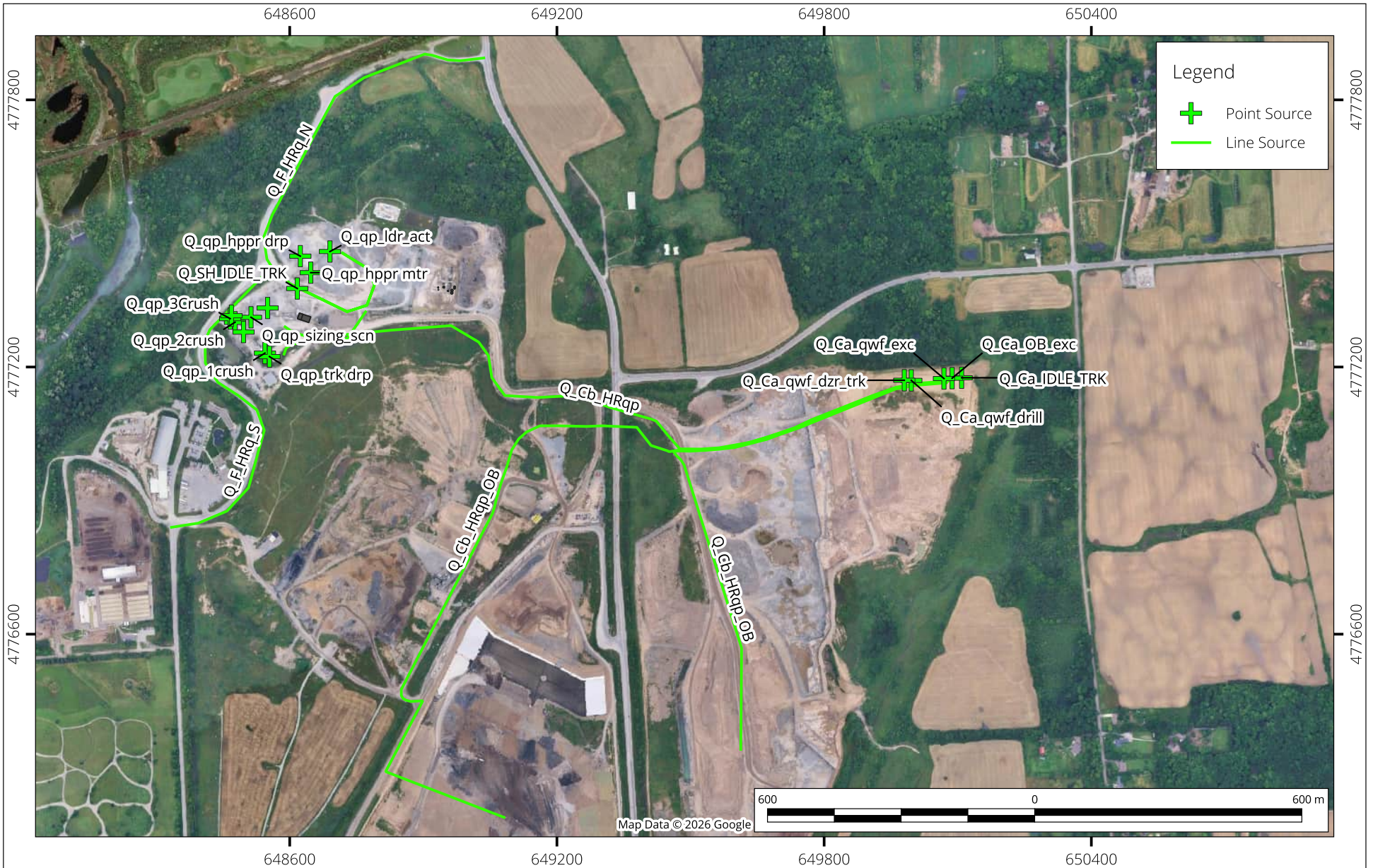
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





Significant Source Locations Walkers South Landfill - Quarry Sources

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario

True North



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Approx. Scale: 1:12,000

Date Revised: May 22, 2026

Project #: 2402272





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Ambient Monitoring Locations

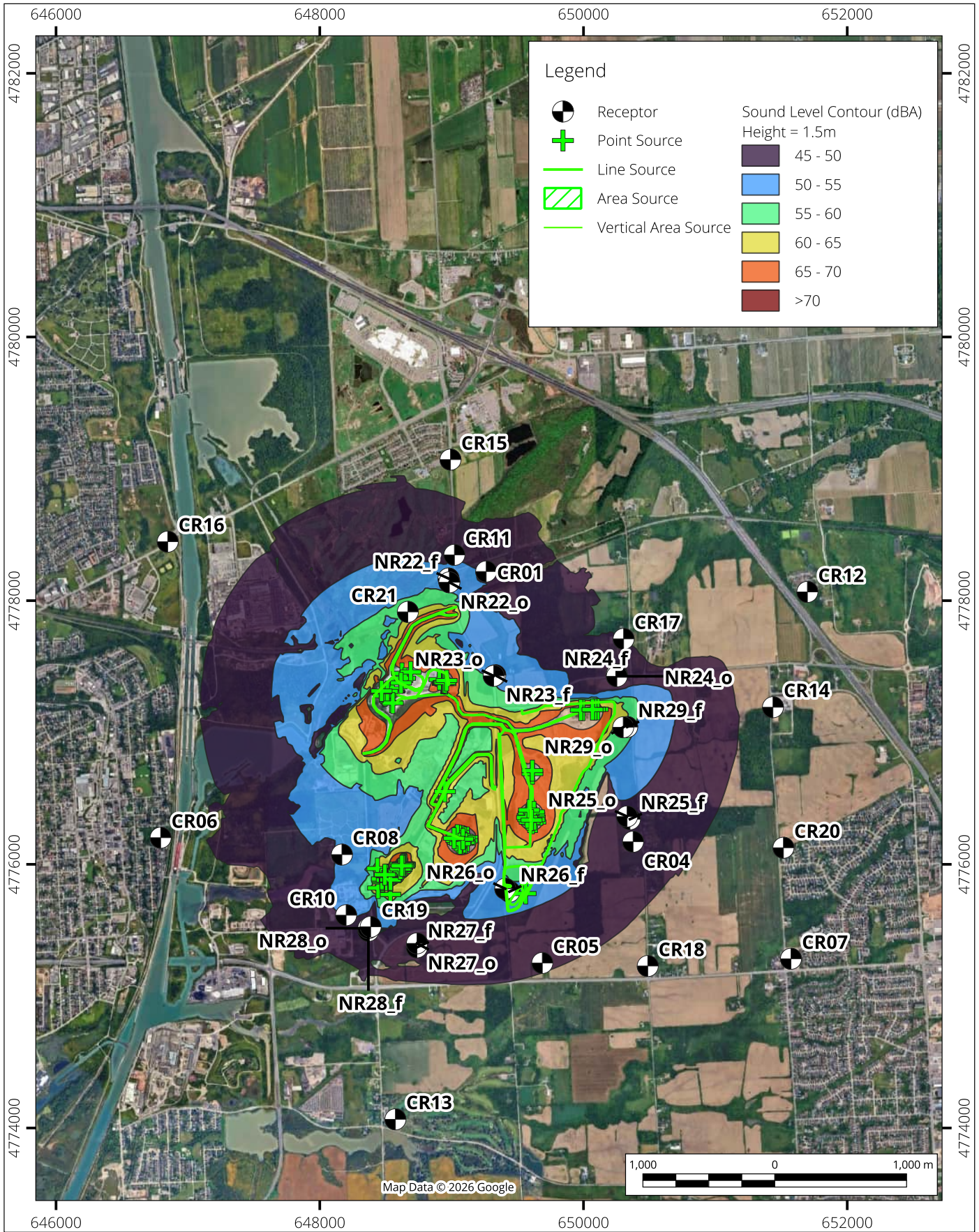
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Daytime - Scenario 1

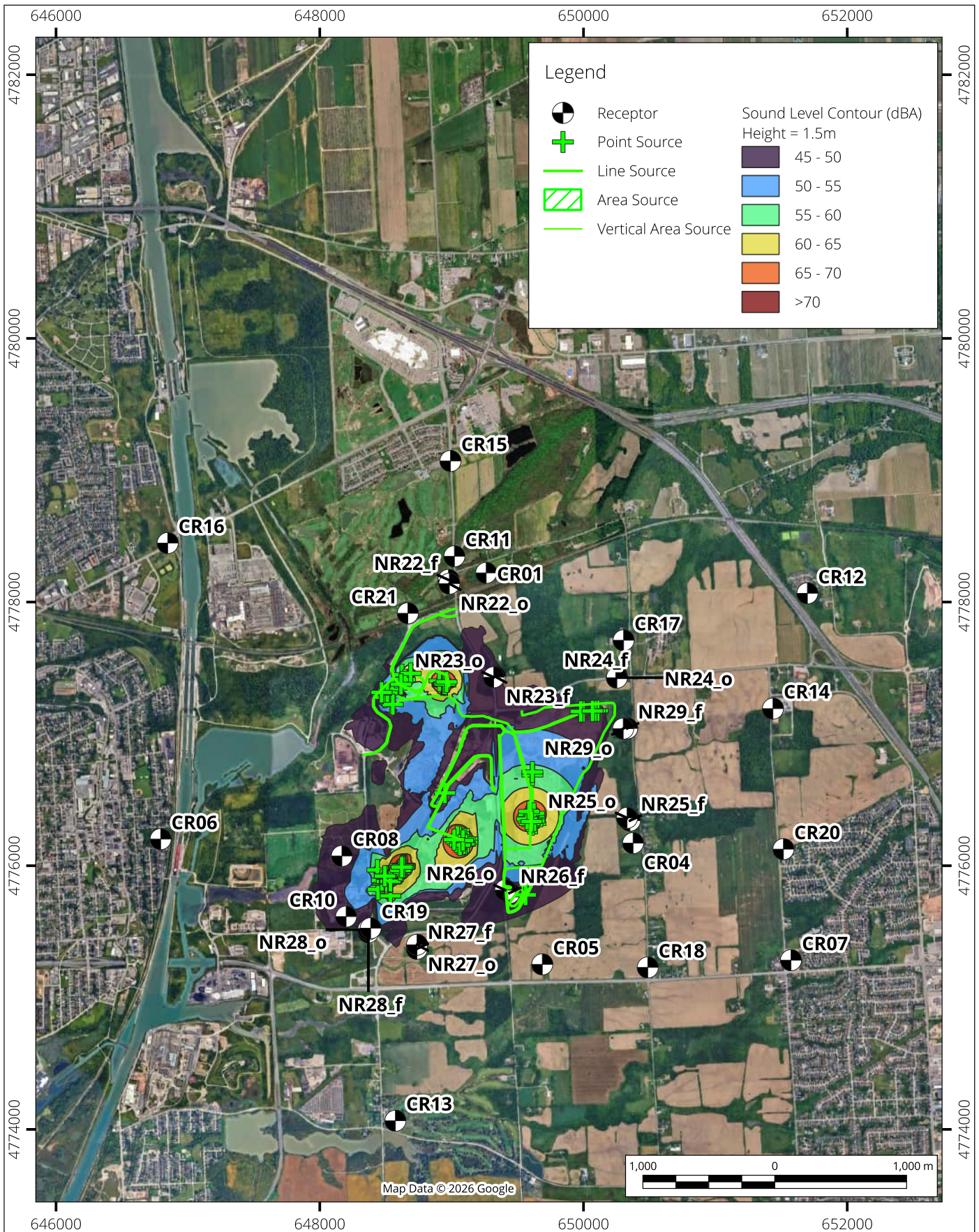
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Nighttime - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario

True North



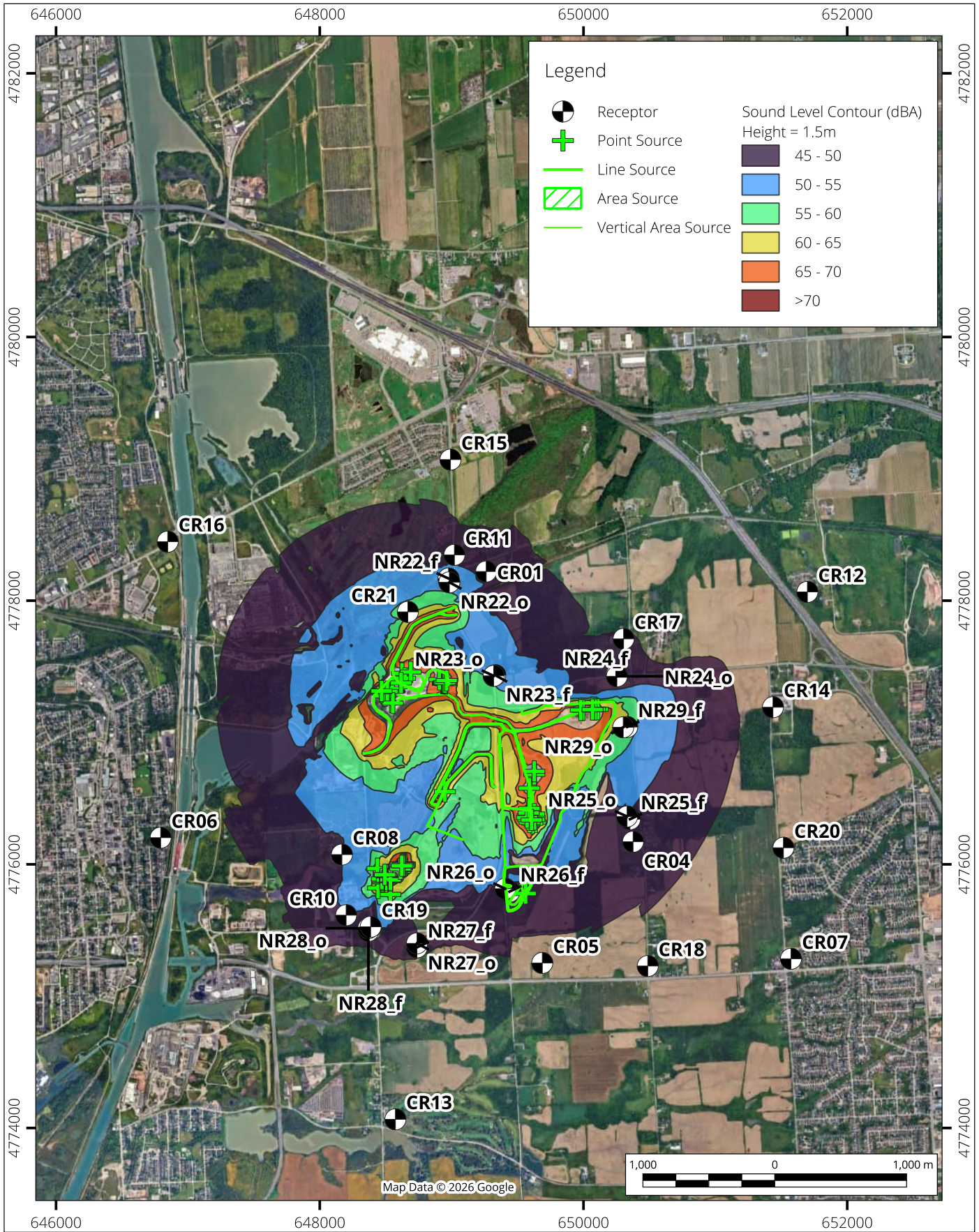
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Date Revised: May 22, 2026



Project #: 2402272



WRM Campus Sound Level Contours
Daytime - Scenario 2

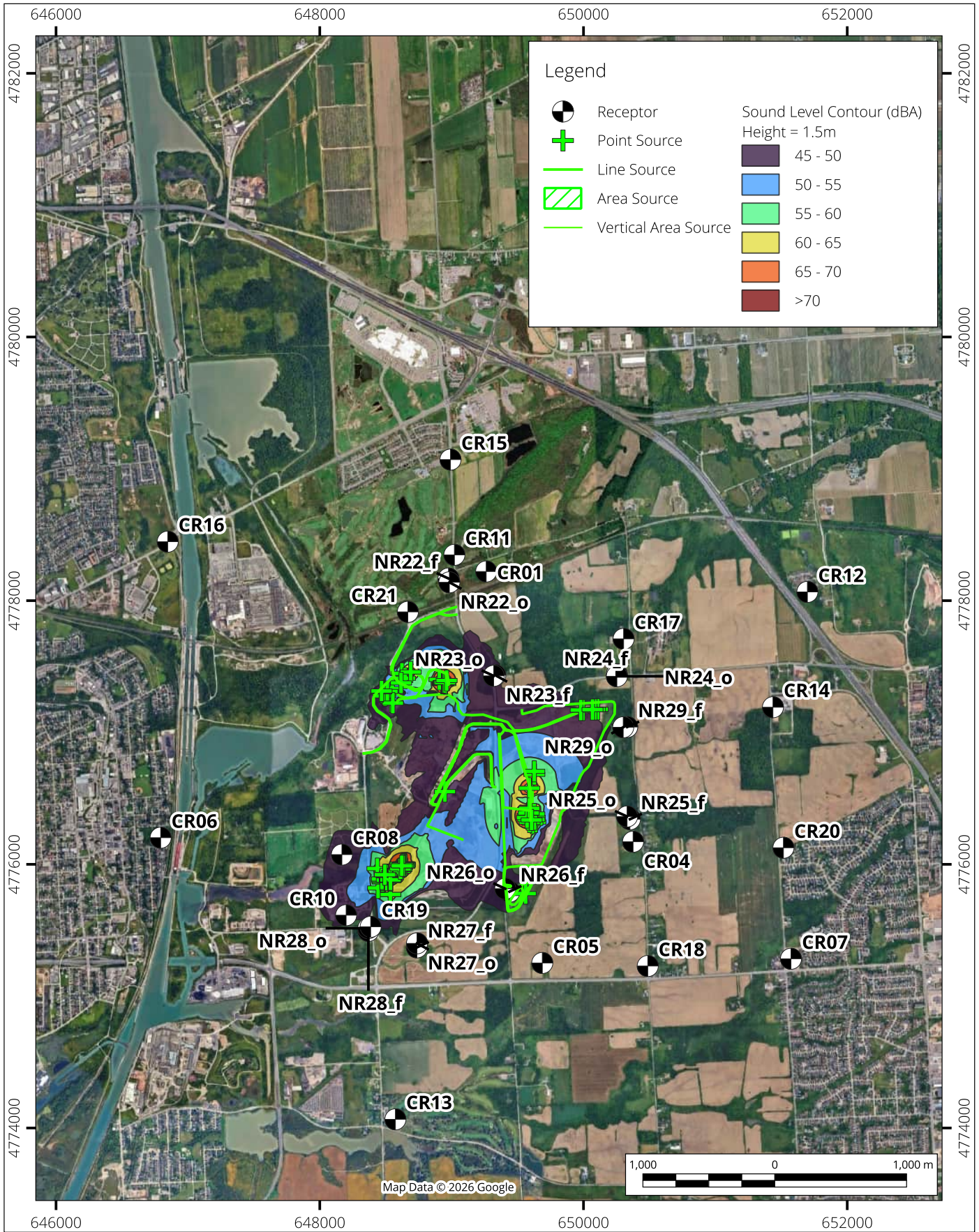
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Nighttime - Scenario 2

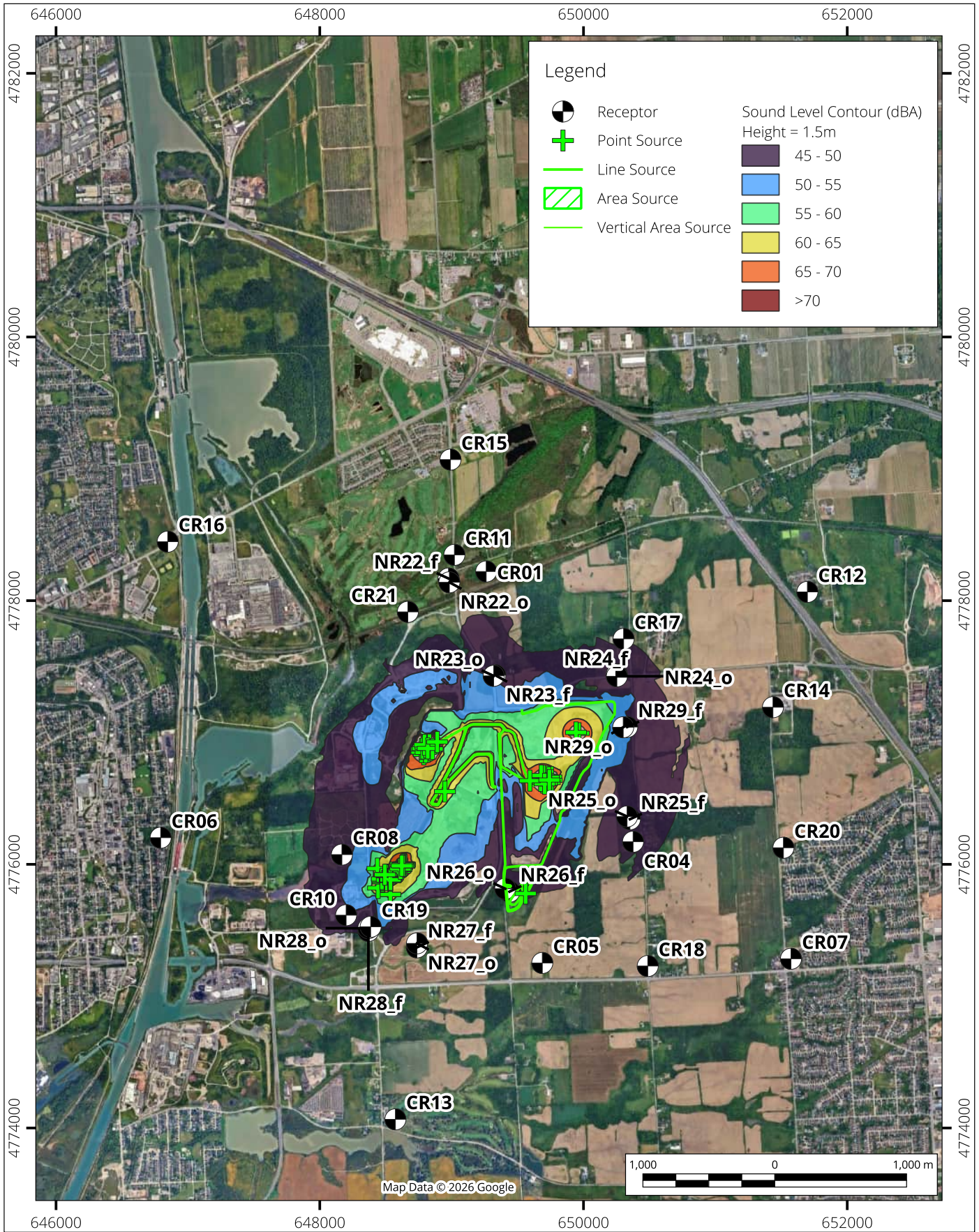
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Daytime - Scenario 3

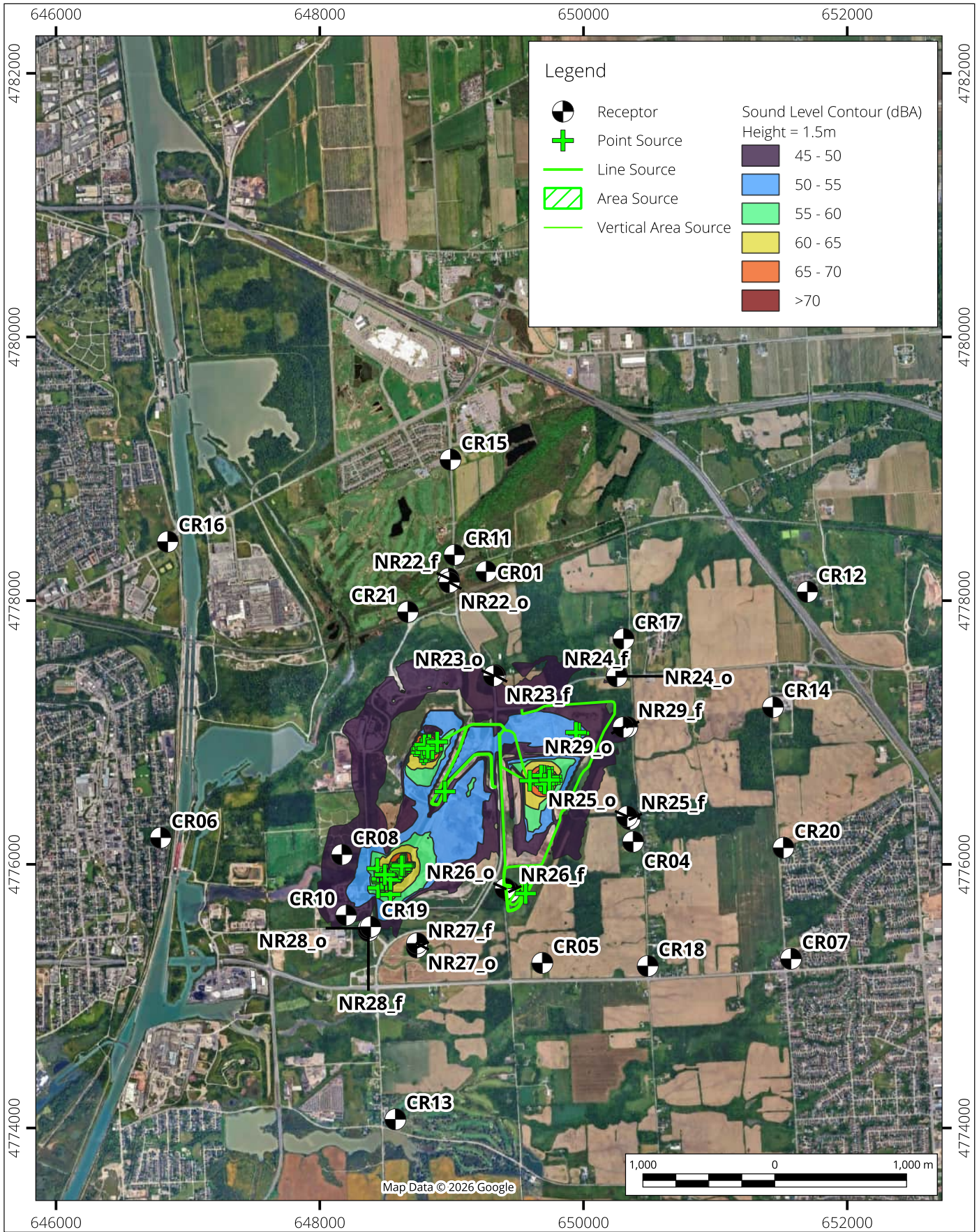
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Approx. Scale: 1:40,000	
Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Nighttime - Scenario 3

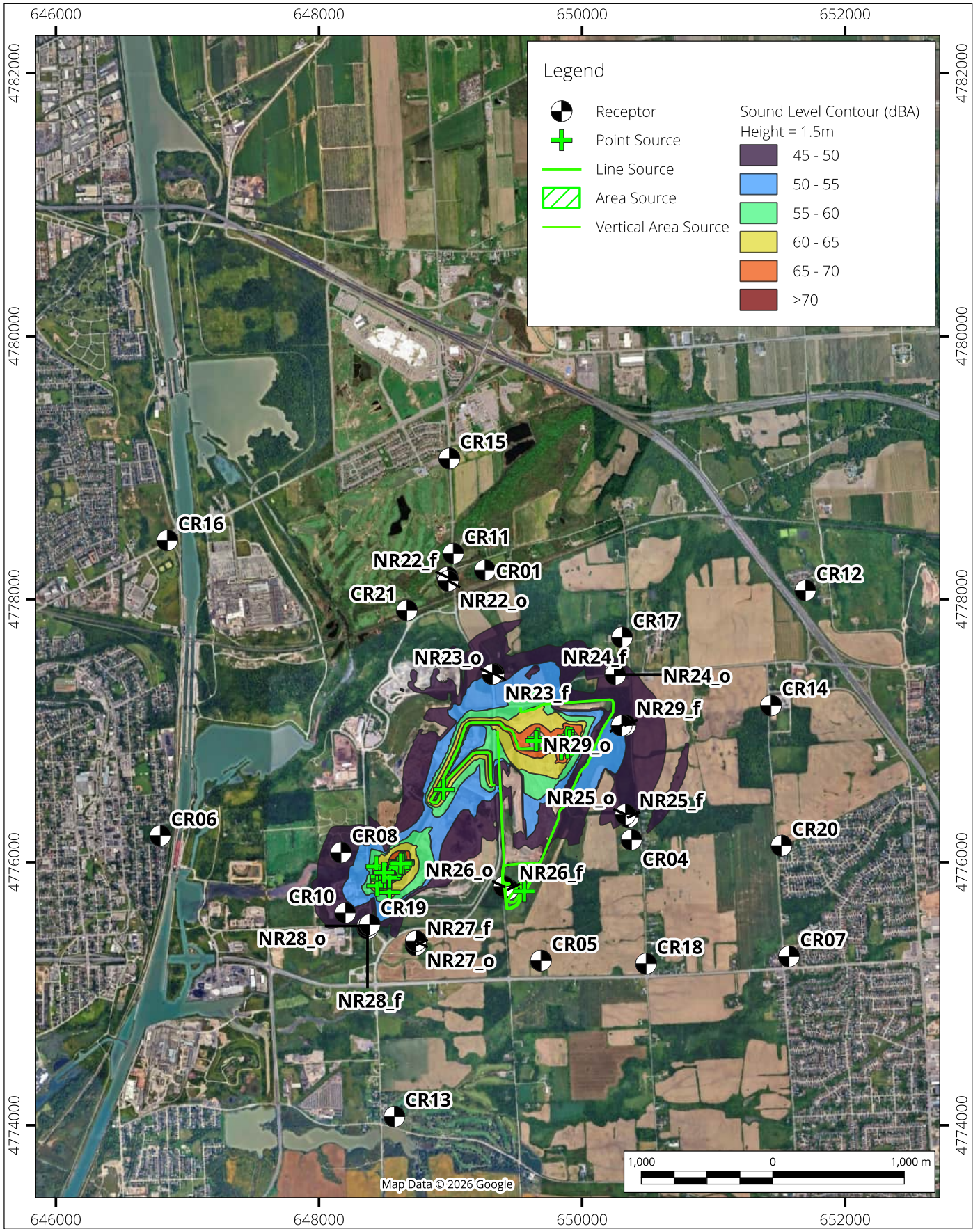
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Daytime - Scenario 4

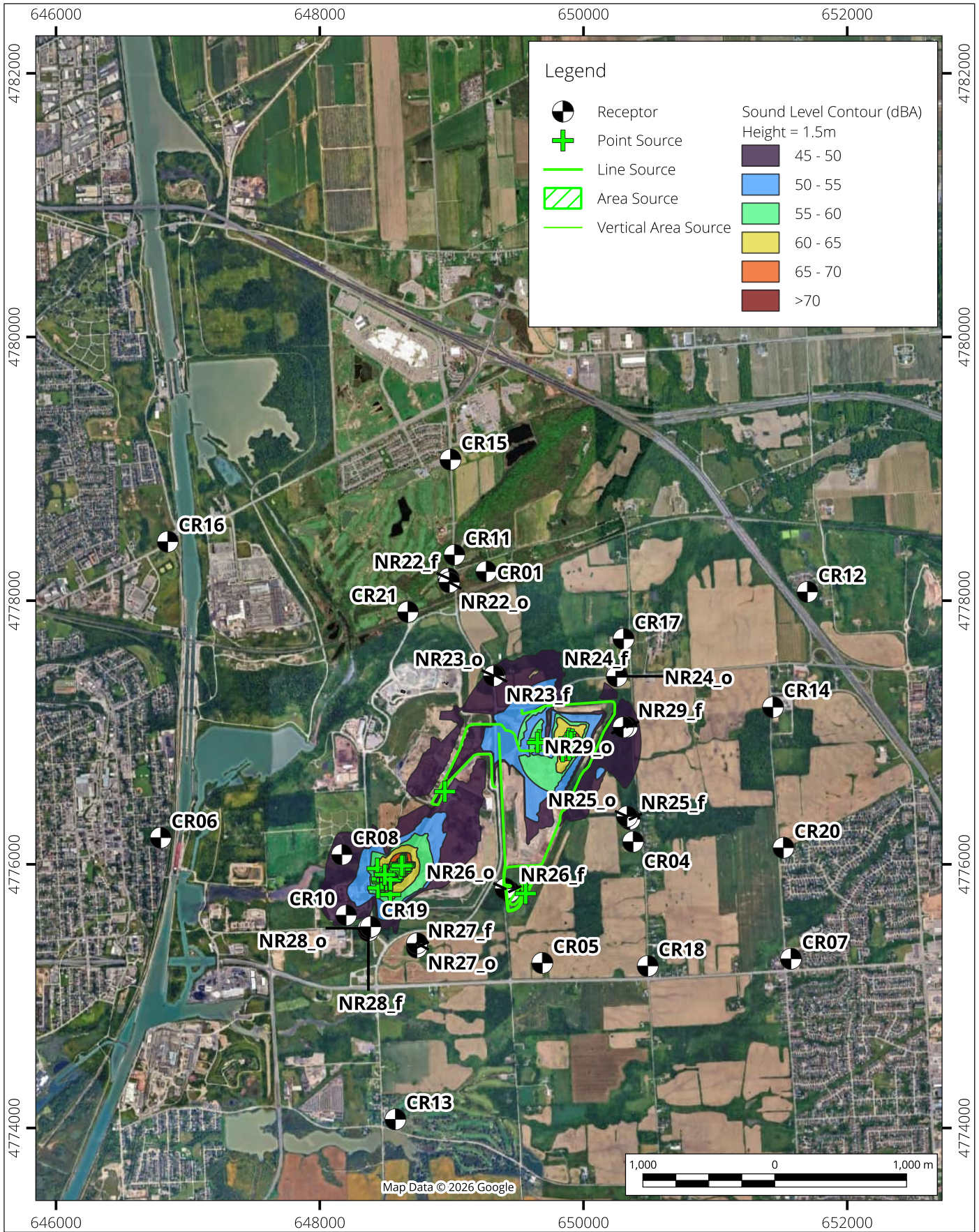
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



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Date Revised: May 22, 2026	



Project #: 2402272



WRM Campus Sound Level Contours
Nighttime - Scenario 4

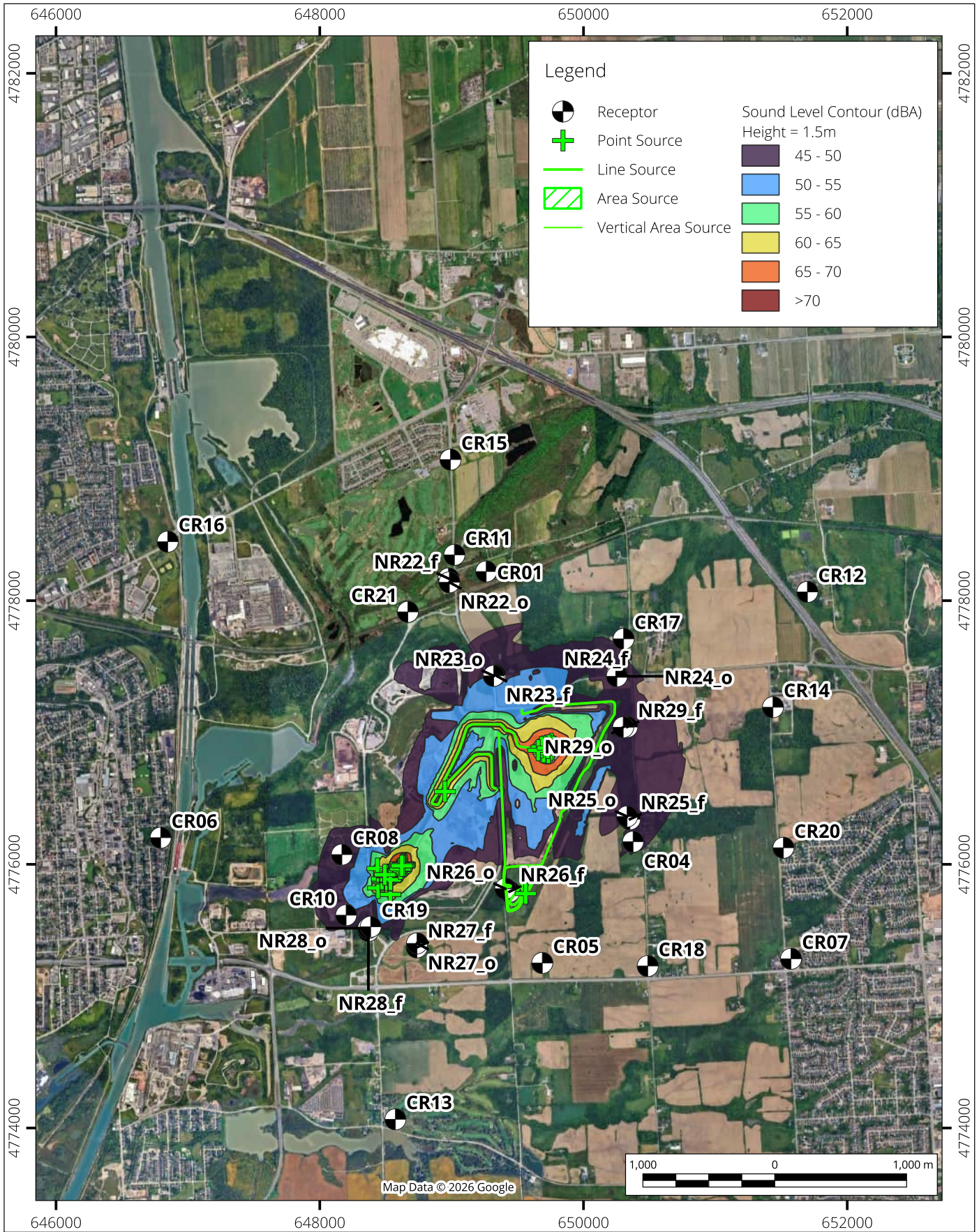


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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario

Project #: 2402272



WRM Campus Sound Level Contours
Daytime - Scenario 5

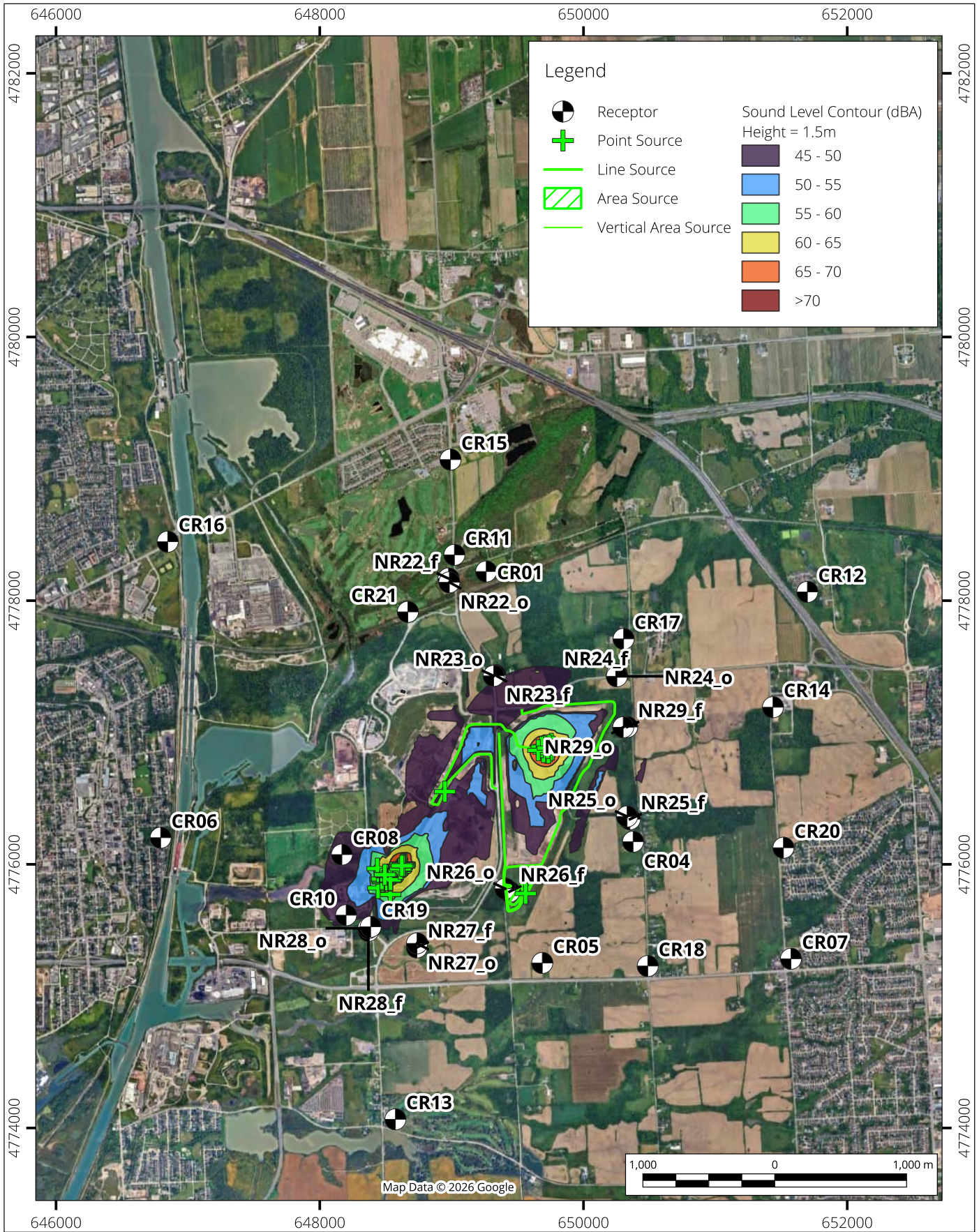
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



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Date Revised: May 22, 2026	



Project #: 2402272



WRM Campus Sound Level Contours
Nighttime - Scenario 5

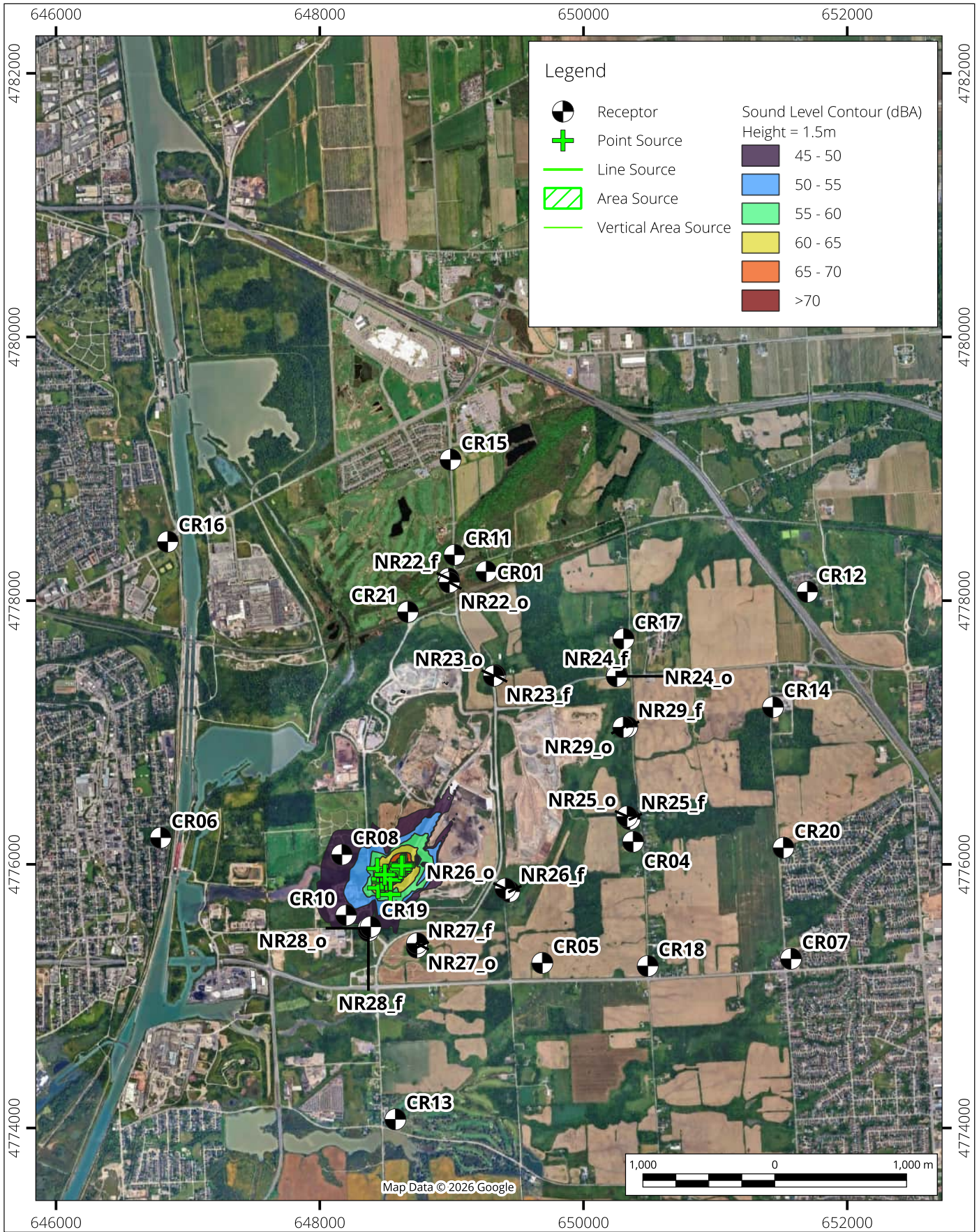
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Daytime - Scenario 6

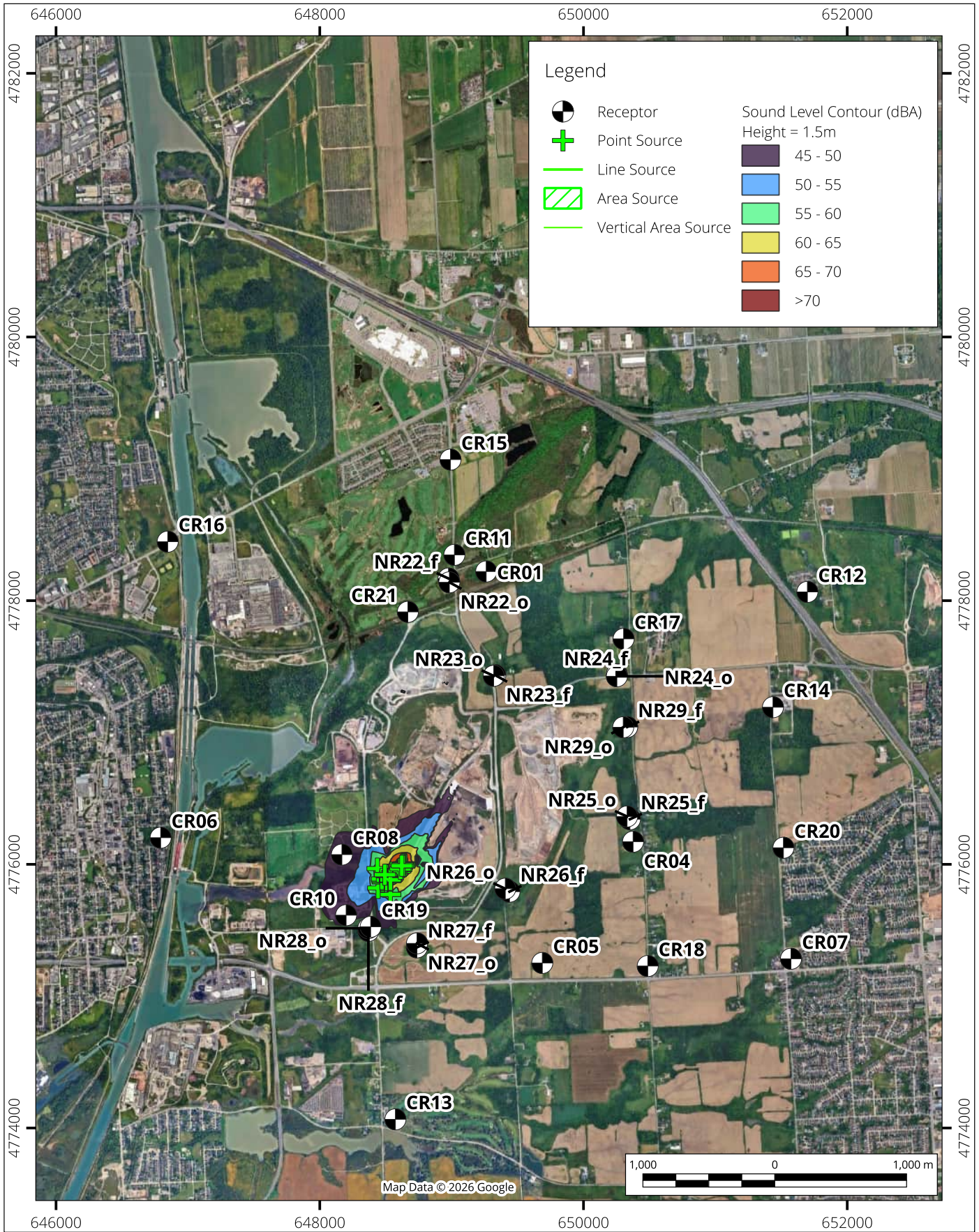
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Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

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Date Revised: May 22, 2026	





WRM Campus Sound Level Contours
Nighttime - Scenario 6

Map Projection: NAD 1983 UTM Zone 17N
Walker Phase 2 Landfill Expansion - Niagara Falls, Ontario



Project #: 2402272

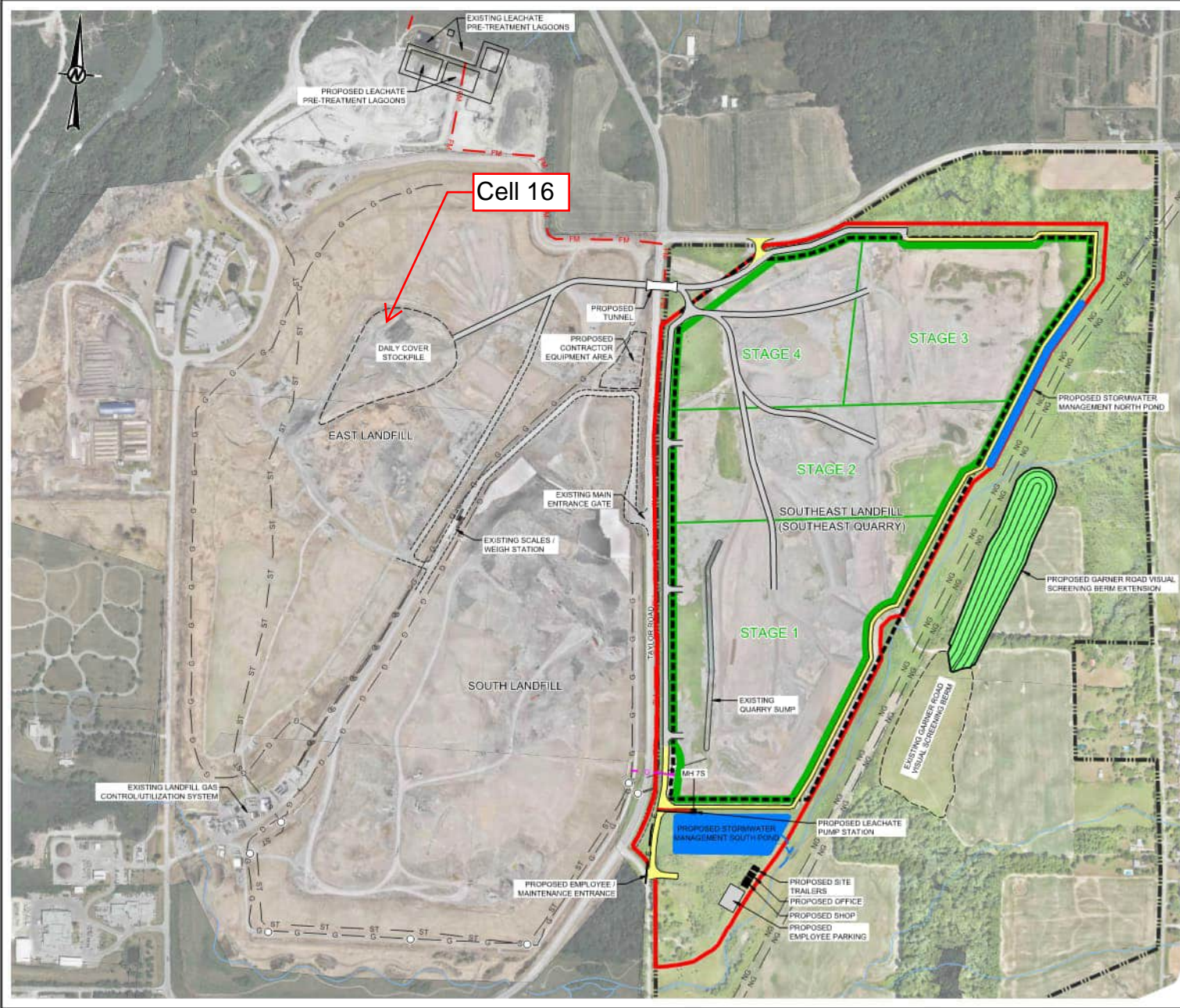
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Date Revised: May 22, 2026	



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APPENDIX A

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- LEGEND**
- SITE PROPERTY LINE
 - WASTE DISPOSAL SITE BOUNDARY LIMITS (D-4 GUIDE)
 - LIMIT OF EXTRACTED ROCK
 - LIMIT OF FILL (D-4 GUIDE)
 - HAUL ROAD
 - CREEK
 - NG --- TRANS-CANADA NATURAL GAS PIPELINE R.O.W.
 - STORMWATER MAINTENANCE HOLE
 - ST --- STORMWATER PIPE
 - G --- LANDFILL GAS COLLECTION HEADER PIPE
 - PROPOSED LANDFILL STAGE BOUNDARY
 - PROPOSED MAIN HAUL ROAD
 - PROPOSED MAINTENANCE ROAD
 - PROPOSED BUILDING
 - PROPOSED STORMWATER MANAGEMENT POND
 - PROPOSED STORMWATER MANAGEMENT DITCH / FLOW
 - E --- E --- PROPOSED ELECTRICAL SERVICE
 - PROPOSED LEACHATE PUMP STATION
 - FM --- PROPOSED LEACHATE FORCEMAIN
 - G --- PROPOSED LANDFILL GAS BOOSTER STATION AND CROSS CONNECT

- NOTE(S)**
1. PROJECTION: UTM NAD83-17N (CSRS 2010)
 2. ELEVATION ARE GEODETIC (masl), DATUM IS BASED ON NRCAN HT2.0 (CGVD2013).

- REFERENCE(S)**
1. IMAGERY: ©2025 MICROSOFT CORP. ©MAXAR ©CNES (2025) DIST. AIRBUS DS.
 2. BASE PLAN FEATURES FROM OPEN DATA, CITY OF NIAGARA FALLS.
 3. EXISTING GROUND IS BASED ON UAV SURVEY DATED JUNE 12, 2025 BY WALKER.



CLIENT
WALKER ENVIRONMENTAL GROUP

PROJECT
FACILITY CHARACTERISTIC REPORT
SOUTH LANDFILL PHASE 2
THOROLD, ONTARIO

TITLE
SITE INFRASTRUCTURE

CONSULTANT	WSP	YYYY-MM-DD	2026-03-30
DESIGNED		PREPARED	FC
		REVIEWED	FSB
		APPROVED	CL

PROJECT NO. CA0018521.3292.0001 CONTROL G REV. G FIGURE 6