FUTURE INFRASTRUCTURE AND OPERATIONS STUDY

LINDSAY OPS LANDFILL

CITY OF KAWARTHA LAKES

PROJECT NO.: 171-10835-04
DATE: APRIL 22, 2022

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April 22, 2022

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Subject: Lindsay Ops Landfill Future Infrastructure and Operations Study

WSP Canada Inc. (WSP) and Urban & Environmental Management Inc. (UEM) were retained by the City to assess the ability of the Lindsay Ops Landfill to manage the waste and recyclables currently accepted at the Fenelon and Laxton landfills upon closure of these two landfill sites, in addition to the materials currently managed at the Lindsay Ops Landfill. The study also included evaluating different options and associated capital costs at Fenelon and Laxton landfills for conversion of those sites into waste and recyclables transfer stations rather than closing the sites completely.

The project team reviewed the background documentation available for the three (3) landfill sites and conducted a site visit to the Lindsay Ops Landfill on July 26, 2020, to assess the current site conditions. Based on this information, and a follow up discussion with City staff, the draft report was updated to reflect comments received. This final report presents several infrastructure and operational upgrade options for consideration by the City at the Lindsay Ops landfill to manage waste and recyclables generated by all three (3) sites upon closure of the Fenelon and Laxton landfills. For each of the options presented, site infrastructure modifications and associated operating and financial implications are discussed. Conceptual site plans detailing existing site conditions and proposed upgrades are presented as figures at the end of the report. Alternatives for management of materials from Fenelon and Laxton upon closure of those sites were also examined.

Yours truly,

WSP Canada Inc.
Paul Mulholland, P.Eng., PMP

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QUALITY MANAGEMENT

	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3	REVISION 4	REVISION 5
Remarks	Draft for Review	Draft for Review	Draft for Review	Draft for Review	Final Report	Revised Final Report
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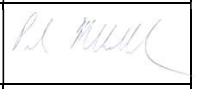
Signature	DRAFT	DRAFT	DRAFT	DRAFT		
Project number	171-10835-04	171-10835-04	171-10835-04	171-10835-04	171-10835-04	171-10835-04

SIGNATURES

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The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

WSP disclaims any obligation to update this report if, after the date of this report, any conditions appear to differ significantly from those presented in this report; however,

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Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

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Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

This limitations statement is considered an integral part of this report.

PRODUCTION TEAM

CITY OF KAWARTHA LAKES

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1 INTRODUCTION

The City of Kawartha Lakes (City) currently disposes of household, commercial, institutional and industrial waste generated within the City and collects and separates recyclables at its five (5) operating landfills: Lindsay Ops, Somerville, Eldon, Fenelon, and Laxton. Refer to Figure 1-1 for a map of the City and the five (5) above mentioned landfill sites. The Fenelon and Laxton landfills are approaching their approved waste disposal capacities. Based on the most recent remaining site life calculations reported in the 2019 Annual Monitoring Report (AMR), the Fenelon and Laxton landfills are anticipated to reach approved capacities in 2023/2024. From 2017 to 2019 the Fenelon landfill received an average of 11,056 tonnes of waste per year and the Laxton landfill received an average of 1,257 tonnes of waste per year. Recyclables were also collected and managed at these sites. Upon closure of the Fenelon and Laxton landfills the City is contemplating diverting waste and recyclables currently being managed at these sites to the Lindsay Ops landfill.

The City currently disposes approximately 27,500 tonnes of waste per year at the Lindsay Ops landfill. Closure of the Fenelon and Laxton landfills and diverting waste previously received for disposal at those sites to Lindsay Ops will result in an approximately 34% increase in annual waste disposal at the Lindsay Ops landfill.

WSP Canada Inc. (WSP) and Urban & Environmental Management Inc. (UEM) were retained by the City to assess the ability of the Lindsay Ops landfill infrastructure and operational practices to manage the additional waste and recyclables currently accepted at the Fenelon and Laxton landfills upon their closure. The need to upgrade the existing Lindsay Ops site infrastructure, increasing operating staff and equipment needs was assessed. Other waste management options such as operation of the closed landfill sites as waste and recyclables transfer station, diverting waste to other landfill sites, etc. was also explored.

2 BACKGROUND REVIEW

The project team completed a background review of existing drawings of the Lindsay Ops landfill, waste and diverted material tonnages accepted at the three (3) landfill sites, regulatory and Environmental Compliance Approval (ECA) conditions of approval, annual reports for the three (3) sites, and other resources provided by the City to fully understand existing site conditions, constraints and opportunities for changes to

infrastructure. Existing site operational procedures were reviewed to identify possible constraints and potential areas of improvement for future operations at the Lindsay Ops landfill if the City elects to manage some or all of the additional waste and recyclables currently managed at the Fenelon and Laxton landfills at the Lindsay Ops site.

A site visit was completed by WSP staff at the Lindsay Ops landfill on June 26, 2020. Observations and discussions from the site visit are summarized in Section 2.3. Previous reports and site visits completed by WSP project team members were reviewed for the Fenelon and Laxton landfills and considered in this report.

2.1 EXISTING SITE INFRASTRUCTURE

2.1.1 *LINDSAY OPS LANDFILL*

The Lindsay Ops landfill site is located at 51 Wilson Road on approximately 53.9 hectares (ha) of land located approximately 2.5 kilometres (km) north of the former Town of Lindsay and about 500 metres (m) east of the Scugog River on the west side of County Road 36 (adjacent to the Lindsay Water Pollution Control Plant). The approved waste fill area is 21.2 ha. The site is governed by Ministry of the Environment, Conservation and Parks (MECP) consolidated ECA No. A321504 issued on December 5, 2019 and ECA No. 8401-AFST88 issued on May 25, 2017 for the construction of the stormwater management facility.

The former Town of Lindsay began operating a landfill at this location in 1980. Landfilling originally took place in the south part of the site. On December 14, 2001 the MECP approved the City's application for the continued use and north expansion of the site. The landfill expansion was designed to provide an additional waste disposal capacity of 960,000 tonnes, or 1,487,240 m^3. This landfill expansion allowed for a minimum additional landfill lifespan of 25 years to accommodate a maximum disposal rate of 58,000 tonnes per year or 240 tonnes per day. Current landfill operations take place in the northerly expansion area as shown on Figure 2-1. The south part of the landfill is closed and capped. The landfill has a leachate collection system and a landfill gas collection system.

The total approved disposal capacity for the north expansion area including waste, daily cover and interim cover is 1,487,240 m^3. Based on the 2019 Lindsay Ops AMR, approximately 788,133 m^3 of the north expansion area landfill capacity was utilized by the end of December 2019. Therefore approximately 699,107 m^3 of landfill capacity is remaining. Using an average disposal rate of 45,000 m^3 per year (27,500 tonnes per

year with an apparent waste density of 0.61 tonnes/m^3) it is estimated that the landfill site will reach its capacity in mid-2035.

A Leaf and Yard (L&Y) Waste Program was established in 2003. An on-site L&Y waste compost pad was constructed and began operating in April 2005. The original compost pad was relocated to the north section of the site in 2017 to accommodate construction and operation of future landfill cells.

A Household Hazardous Waste (HHW) depot was established in September 2005 to divert HHW from the landfill.

The landfill site also includes a Municipal Curbside Recycling Transfer Facility where curbside collected recyclables are received from municipal haulers. Recyclables are weighed on site at the weigh scale, consolidated into roll-off bins or walking floor trailers and then transferred to an off-site licensed Materials Recycling Facility (MRF) for processing.

A number of other materials including car batteries, goods requiring Freon removal, scrap metal, clean wood, drywall and waste electrical and electronic equipment (WEEE) are received at the on-site public-drop off area and diverted from disposal. Figure 2-1 shows the location of the various facilities at the site.

During the Environmental Assessment (EA) Study completed in 1999, it was identified that the site's final use will be open space allowed to revegetate to a natural state. According to the 2018 Financial Liability Report, the estimated contaminating lifespan for the landfill is 95 years after site closure.

2.1.2 *FENELON LANDFILL*

The Fenelon Landfill Site is a 21.3 ha property located at 341 Mark Road, Cameron, Ontario. The City is responsible for operation and maintenance of the landfill site in accordance with ECA No. A321206 issued by the MECP on January 20, 2016 and last amended on January 11, 2019.

The landfill has been active since 1972, receiving domestic, commercial and industrial wastes from the Township of Fenelon and the Village of Fenelon Falls. The Township of Fenelon operated the site until 1992, at which time the County of Victoria (now the City of Kawartha Lakes) took responsibility for site operations. The approved landfill has an 8.0 ha footprint divided into Phase I (6.1 ha) and Phase II (1.9 ha). The landfill does not have an engineered liner or leachate collection system and does not collect landfill gas. Contaminants emanating from the site are naturally attenuated in the native soils. A

102.6 ha contaminant attenuation zone south and southeast of the approved waste footprint is used to further attenuate leachate from the landfill. There are no stormwater management facilities on site. The site was designed with a naturally attenuated storm water management system including a series of ditches which discharge to the surrounding property/wetland.

The site currently has an outdoor L&Y waste compost facility, a HHW depot, a re-use centre, a public drop-off area with containers for recyclables, WEEE, scrap metal, and areas for household appliances. The site access roads consist of native sandy material graded and compacted to access the various facilities on site.

Phase I of the landfill reached it's designed capacity in 2017. Since then, landfilling has occurred in Phase II which has a capacity of 101,500 m^3. Based on the 2019 AMR approximately 44,223 m^3 of the Phase II landfill capacity was utilized by the end of December 2019 and, approximately 57,277 m^3 of landfill capacity is remaining. Using an average disposal rate of 14,741 m^3 per year (11,056 tonnes per year with an apparent waste density of 0.75 tonnes/m^3) it is estimated that the Fenelon landfill site will reach capacity in 2023/2024.

According to the 2018 Financial Liability Report, the estimated contaminating lifespan for the landfill is 50 years after site closure. The site will continue to be monitored for groundwater and surface water quality until MECP authorizes the City to terminate the environmental monitoring program at the site. Use of the site as a transfer station after closure of the landfill is under consideration by the City.

2.1.3 *LAXTON LANDFILL*

The Laxton Landfill Site is located approximately 2 km west of Highway 35 at 3225 Monck Road. The City is responsible for operation and maintenance of the landfill site in accordance with ECA No. A321304 issued by the MECP on February 14, 1980 and last amended on October 29, 2012.

The site accepts municipal waste, non-hazardous solid industrial wastes, commercial waste and L&Y waste. The site also operates a public drop-off area to accept HHW, WEEE and scrap tires. The site does not collect leachate or landfill gas and relies on natural attenuation of contaminants.

The approved landfill capacity is 125,000 m^3 excluding final cover. Based on the 2019 AMR, approximately 109,674 m^3 of landfill capacity was utilized by the end of December 2019. Approximately 15,326 m^3 of landfill capacity is remaining. From 2015 to 2019 the annual disposal rate for the site ranged between approximately 3,300 m^3 and 5,200 m^3.

Using an average disposal rate of 4,500 m^3 per year it is estimated that the landfill will reach its capacity in 2023/2024.

According to the 2018 Financial Liability Report, the estimated contaminating lifespan for the landfill is 50 years after site closure. The site will continue to be monitored for groundwater and surface water quality until MECP authorizes the City to terminate the environmental monitoring program at the site. Use of the site as a transfer station after closure of the landfill is under consideration by the City.

2.2 SITE OPERATION

2.2.1 *LINDSAY OPS LANDFILL*

The approved operating hours for the Lindsay Ops landfill are Monday through Saturday 7:00 am to 7:00 pm. The landfill is open to the public between 8:00 am and 5:00 pm on Monday, Tuesday, Thursday, and Friday. On Saturday operating hours are from 8:00 am to 3:00 pm. On Wednesdays the landfill is closed for public drop-off but the site does accept only municipal and septic waste. On Sundays and statutory holidays, the landfill site is closed.

There are currently five (5) regular staff employed on site. During busy periods, and on Saturdays, a private contractor is employed to operate the HHW facility. During summer months, the City employs students to assist customers on site. The five (5) regular staff include:

- Two (2) to operate the scalehouse;
- Two (2) to operate heavy equipment, to place and compact waste and daily cover; and
- One (1) to assist customers at the HHW depot and the public drop-off area.

The existing weigh scales are located approximately 270 m north of the Wilson Road entrance. There is one scale dedicated for inbound traffic and one scale dedicated for outbound traffic. All vehicles are required to weigh in and weigh out regardless of materials received.

The City began using steel plates in August 2014 as alternative daily cover in conjunction with soil/sand. This change has resulted in the use of approximately 22% less soil/sand as daily cover.

2.2.2 *FENELON LANDFILL*

The site is accessed by the public at the main entrance gate. The facility is approved to accept waste from the entire City, although most of the waste originates from residents within the local area.

The site has historically been open year-round to the public on Mondays, Wednesday, and Saturdays from 9:00 AM to 5:00 PM. However, since the beginning of 2022 the site will be temporarily closed every winter for approximately six (6) months to prolong site life. Waste will be diverted to the other sites in the City in order to ensure landfill service is maintained. Recyclable roll-off bins and other diverted materials are generally picked up on days the site is closed to the public.

There is one (1) scale near the site entrance for both inbound and outbound traffic. All vehicles are required to weigh in and weigh out regardless of materials received.

There are currently four (4) regular staff employed on site. During busy periods, the City may employ an additional staff. The four (4) regular staff include:

- One (1) to operate the scalehouse;
- Two (2) to operate equipment on site including placement of waste and soil cover;
- One (1) to assist customers at the HHW depot and the public drop-off area.

2.2.3 *LAXTON LANDFILL*

The landfill site is accessed by the public at the main entrance gate. The facility is approved to accept waste from the entire City, although most of the waste originates from residents in the local area. The site plays an important role in providing seasonal residents with a waste facility on Sundays and holiday Mondays. The hours of operation are as follows:

<u>Winter – October 16 to April 30</u>
- Thursday: 11:00 AM to 5:00 PM
- Sunday: 12:00 PM to 4:00 PM

<u>Summer – May 1 to October 15</u>
- Thursday: 11:00 AM to 5:00 PM
- Sunday: 11:00 AM to 5:00 PM
- Holiday Mondays: 11:00 AM to 5:00 PM

One (1) staff is employed to operate the site/scalehouse and assist customers. A private contractor is employed by the City and is responsible for placement of waste and cover.

2.3 LINDSAY OPS LANDFILL SITE VISIT, OBSERVATIONS AND SITE-SPECIFIC DISCUSSIONS

WSP met with City staff and completed a site visit on July 26, 2020. Site operations, issues, constraints, and future needs were among the items discussed. The following sections outline several key items discussed and observed. Locations of all the site facilities are shown on Figure 2-1.

2.3.1 *IMPACT OF COVID-19 PANDEMIC*

Due to the COVID-19 Pandemic, the Lindsay Ops landfill was temporarily closed to the public from March 24, 2020 to May 11, 2020 when the government of Ontario ordered the closing of all non-essential places of business. The only exception to this was that contractors with accounts with the City were permitted to drop off waste at the landfill. The Fenelon and Laxton landfills re-opened to the public on May 18, 2020 and June 14, 2020, respectively.

Due to shut down of all the landfills, the City increased the allowable quantities for curbside pickup to City residents. In addition, the City added a second L&Y Curbside Collection event for 2020.

Since re-opening of the Lindsay Ops landfill, the City implemented several safety measures to limit the spread of COVID-19. This includes restricting the number of users allowed to enter the site. These temporary restrictions and their potential effects on traffic and operations of the Lindsay Ops landfill were therefore not taken into account in the options established in Section 6 of this report. However, all options considered will enhance operation of the landfill site with temporary restrictions in place.

2.3.2 *TRAFFIC QUEUING*

When the landfill re-opened to the public on May 11, 2020, following the COVID-19 temporary closure, a large influx of customers was observed and longer than average wait times were experienced. During these temporary peak times, traffic was observed to be backed up onto Highway 36. The City has indicated that this translates to approximately two (2) hours of wait time prior to entering the weigh scales.

Prior to COVID-19 restrictions, traffic has been observed to be backed up onto the site entrance on Wilson Road during peak times. The City has indicated that this translates to approximately one (1) hour wait time to the weigh scales. During winter hours (mid-October to end of April) lineups are shorter as the City's seasonal population decreases.

2.3.3 *TRAFFIC FLOW*

The entrance to the landfill site is on Wilson Road along the east side of the landfill. The weigh scales are approximately 270 m north of the site entrance and service both inbound and outbound traffic. There are by-pass lanes for both inbound and outbound scales for site staff and emergency vehicle access.

There is a steel gate with a City lock and chain at the site entrance. A former entrance off Lagoon Road is gated and locked. However, the Lagoon Road entrance is only unlocked during landfill operating hours to allow for septage disposal. There is also an alternate route for trucks to bypass the scales off of the unopened Wilson Road allowance north of the main entrance. This alternate route is periodically used if maintenance work causes any of the other entrances to be restricted.

All vehicles accessing the site register and weigh in with an attendant at the inbound scale. After weighing in, vehicles can either travel to the active landfill area or the public drop-off area and the L&Y waste compost facility. Access to the active landfill area is through a two-way gravel road. After disposing of materials, vehicles travel back to the scalehouse and weigh out at the outbound scales.

Access to the L&Y waste compost facility is through a two-way paved road. After disposing of L&Y waste vehicles travel back on the same road to the outbound scales.

Access to the public drop-off area is by a one-way paved road. One-way traffic enters the drop-off area from the north end and exits at the south end. After disposing of materials, vehicles travel back along a two-way road to the scalehouse and weigh out at the outbound scales. When users enter the drop-off area they generally back onto the desired drop-off bay/bin. If the desired drop-off bay/bin is occupied, the next vehicle waits until the bay/bin is cleared. Other vehicles either wait for the queued vehicle to move or go around the vehicle if there is adequate space. As a result, traffic congestion is frequently experienced at the drop-off area.

Areas west of the public drop off area and north of the Maintenance/Administration building are inaccessible to the public and only utilized by City staff for operations and storage needs.

There is adequate parking for the site operations staff south of the Maintenance/Administration building. Parking for site employees is located on the south side of the Maintenance/Administration building.

2.3.4 *PUBLIC DROP-OFF AREA*

A total of eight (8) roll-off bins are placed in a sawtooth configuration along the west side of the public drop-off area. The sawtooth area is grade separated allowing the bins to be placed on the low level of the grade separation and user vehicles to use the upper level to facilitate waste and recyclable material disposal. Each drop-off bay can accommodate two (2) vehicles. There are also four (4) roll-off bins placed on the upper level along the east edge of the drop-off area for recyclable material disposal. These four (4) upper level bins allow one (1) vehicle to be parked at a time in front of each bin.

Existing conditions and features at the public drop-off area are shown on Figure 2-2. In its current configuration, the public drop off area cannot manage increased user traffic without causing more congestions and longer delays.

CONSTRUCTION AND DEMOLITION WASTE

The City implemented a mixed residential Construction and Demolition (C&D) waste diversion program in June 2020 at the Lindsay Ops landfill. The program is intended to increase the quantities of diverted materials and extend the life of the Landfill. Currently, most of the C&D waste received is from residential sources. C&D waste from commercial sources are also received but in small quantities as it is difficult for commercial users to dispose of large loads at the sawtooth roll-off bin.

Items accepted as C&D waste include painted/unpainted wood, wood containing nails and hardware (knobs, hinges, etc.), shingles, concrete and rubble, and drywall (gypsum). Unacceptable items include garbage, hazardous waste, mattresses and rolls of carpet. These items are required to be separated and disposed of in the other disposal areas. There is a fee for the disposal of C&D material.

There is one (1) bay dedicated to the disposal of C&D waste at the sawtooth area. When full, the roll-off bin is emptied once a week (or more often if needed) by City staff using a roll-off truck. During summer/peak times the bin is emptied 2 to 3 times a week. C&D material is hauled by off-site by a private contractor for recycling.

Prior to implementation of the C&D waste diversion program, the City was only accepting clean wood and drywall for diversion. At the time of this study, the annual C&D waste quantities collected since implementation of the C&D waste diversion

program were not available. Therefore, only clean wood and drywall quantity data from previous years were used to project future C&D waste quantities. Clean wood and drywall quantities collected were increased by 10% to account for the increase to projected C&D waste quantities.

HOUSEHOLD HAZARDOUS WASTE DEPOT

The HHW depot is located at the north end of the landfill, at the entrance to the public drop-off area. The HHW facility is a one-room building approximately 10 m x 7 m x 3 m in dimension. There is an underground 2,270 litre double walled spill containment tank and the floor is sloped to a floor drain leading to the tank. The liquid storage capacity at the HHW depot is 5,000 litres and solid waste storage capacity is 40 tonnes. There is also a bulk-oil storage tank adjacent to the building. HHW materials cannot be stored on-site for more than 3 months.

Lead-acid batteries and waste propane tanks are received at the HHW depot and stored outside of the building. Batteries are stored in one (1) open-top bin. There are two (2) pallets on the ground for placement of propane tanks.

The City has one (1) staff dedicated to operating the HHW depot and the public drop-off area. During busy periods, and on Saturdays, a private contractor is employed to operate the HHW facility while the City staff operates the public drop-off area. HHW materials are accepted free of charge for City residents. HHW material is dropped off at the receiving table in front of the HHW depot. The operating staff transfers the HHW material to the storage area. Other duties of the HHW staff include:

- Inspect, accept and sort HHW
- Lab-pack and bulk HHW
- Ensure quantities onsite do not exceed storage capacity and duration
- Ensure sufficient supplies onsite (empty drums, lab-packs, records)
- Ensure removal of HHW materials by licensed haulers to proper management and disposal facilities
- General maintenance and housekeeping of the building and depot area
- Emergency spill response.

HHW is transported off-site by qualified and licensed contractors. During summer/peak times the HHW depot is emptied once a week. However, during the winter/off-peak

times the HHW depot is emptied once every two weeks. The bulk-oil tank is emptied using a vacuum truck as required.

LEAF AND YARD WASTE

The L&Y waste compost facility is located at the north end of the landfill site. The compost pad has an area of approximately 1.4 ha on which material windrows are placed. L&Y waste is received on site from City collection vehicles and residents/contractors.

Condition 6.3 of the ECA limits the amount of L&Y waste at the composting facility at any time to 8,000 tonnes. Incoming material must be chipped at least twice per year. However, depending on the L&Y waste quantities received, material may be chipped more frequently. A private contractor with their own equipment undertakes chipping and grinding the L&Y waste. L&Y waste may not be stored for more than four days before being placed in windrows. Grass has historically been landfilled but has recently been diverted to the L&Y compost facility. Large tree stumps and woody materials beyond the capability of the chipping equipment are landfilled on site.

All incoming loads of L&Y waste are weighed at the inbound scale. Disposal of L&Y waste up to 250 kilograms (kg) is free for customers. L&Y waste over the 250 kg limit is a paid item.

Segregated coarse material such as tree stumps, limbs or other woody materials greater than 7 centimetres in diameter stored at the compost facility at any time cannot exceed 750 tonnes and is required to be grinded twice per year as per ECA requirement.

In 2020, the City had four L&Y Curbside Collection events at which residents were allowed to place an unlimited number of L&Y waste bags at curbside for pickup. Two events were held in the spring and two in the fall. At all other times L&Y waste was hauled by the public to the site. Before 2020 the City held three L&Y waste collection events annually. In 2021 the City went back to the three regular curbside collection events..

The City’s L&Y Curbside Collection program will likely cause an influx of L&Y materials and an increase in traffic on collection days, however the City can direct the collection trucks to any landfill to better manage receipt and operations.

MATTRESSES

Mattresses received at the Lindsay Ops landfill are stored inside a tractor trailer at the south end of the public drop-off area. The trailer can be accessed from an elevated platform south of the sawtooth area. Disposal of mattresses is a paid item. The trailer is generally emptied once a week. The tractor trailer is transported off-site by a private contractor for recycling.

RECYCLABLES

There are four (4) roll-off bins available on site for the disposal of Blue Box Recycling (BBR) items. One (1) bin for containers and one (1) bin for fibres are placed at grade, along the east end of the public drop-off area. These bins are filled from the side and when a bin reaches its disposal capacity from the side, it is moved into a sawtooth bay where the bin continues to be filled from the top until the full bin capacity is reached. Once a bin reaches capacity, it is transported and emptied at the Municipal Curbside Recycling Transfer Facility. A third bin, placed at grade, is used as a spare when either of the other two other bins are full and cannot be emptied at the time. A fourth bin for cardboard is located at the sawtooth bay and is filled from the elevated platform. It takes City staff approximately 10 to 15 minutes to load, haul, and empty one bin using the roll-off truck. Bins for recyclable materials are emptied once a day. Disposal of recyclable material at the site is free for residents.

Recyclable materials collected at curbside or received from the public at the landfill are transferred to the Municipal Curbside Recycling Transfer Facility. This allows the City to consolidate recyclable materials for bulk transfer to an off-site MRF for processing.

RE-USE PROGRAM

The City operates a discarded material re-use program at the Lindsay Ops landfill. The program is intended to promote re-use of materials to decrease the amount of material disposed. An attendant screens incoming material for quality. Acceptable items are stored inside a roll-off bin opened on one side, placed at grade, along the east edge of the public drop-off area. Items that are not deemed acceptable for re-use are either disposed in the landfill or sent for recycling through one of the diversion programs available at the site.

Due to the COVID-19 Pandemic, the reuse center was temporarily closed in 2020 but in 2021 started to accept donations again.

The impact of the reuse center on waste disposal is minimal compared to diversion of other recyclable waste streams in 2019. No significant changes are expected for the

reuse program. Therefore, it is assumed that the program will have a negligible impact on the future use of the site.

SCRAP METAL

Scrap metal is collected at the public drop-off area in a roll-off bin. The bin is accessed from an elevated platform at the sawtooth area. Disposal of scrap metal is free for residents. The roll-off bin is emptied by a private contractor once a week and the materials are diverted from disposal.

TIRES

Historically, tires were accepted at the public drop-off area, adjacent to the HHW depot. As of July 2020, the City stopped accepting tires at all landfills. As per the Tires Regulation (Ontario Reg. 225/18) under the Resource Recovery and Circular Economy Act, 2016; tire producers are now responsible for collecting and managing tires supplied to customers by reusing, retreading and recycling them. There are other collection sites within the City, such as garages and vendors, that accept tires for recycling. Tires are therefore not considered for future diversion material quantity projections.

WASTE ELECTRONICS AND ELECTRICAL EQUIPMENT

WEEE is collected on site at the public drop-off area within roll-off bins. There is one (1) WEEE bin that is accessed from an elevated platform at the sawtooth area. Another WEEE bin is placed at grade, along the east end of the public drop-off area, and is used for disposal of heavier items. Disposal of WEEE is a free item for residents. WEEE is removed from the site by a private contractor when storage containers are full. Typically, bins are replaced three (3) to four (4) times a week.

2.3.5 *OPERATING DAYS*

The landfill is open to the public from 8:00 am to 5:00 pm on Monday, Tuesday, Thursday, and Friday. On Saturday the landfill is open from 8:00 am to 3:00 pm. The site can accept municipal and septic waste on Wednesdays but is typically closed to the public. Instead, waste is sent to the Fenelon landfill on Wednesdays (with recyclables coming to Lindsay). The landfill is closed on Sundays and statutory holidays. With the Fenelon landfill currently being closed in the winter, the Lindsay Ops landfill is in full service to the public on Wednesdays in the winter.

The site is closed on Wednesdays in the summer for scheduled maintenance activities. Completing maintenance activities with the site operational is considered a safety

concern and may limit public accessibility and negatively impact the level of service provided to users.

2.3.6 *SITE EQUIPMENT*

The City currently uses the following equipment to operate the landfill:

- Wheel Loader
- Compactor
- Roll-off Truck
- Water Truck
- Lawnmower

The City has one (1) staff dedicated to operating the wheel loader. The loader is used at the active landfill area as well as the L&Y compost facility. The equipment is used at full capacity. On average, once per month, the City may borrow a second wheel loader from a different department to turn the L&Y piles.

The City has a second staff that operates all other equipment on site. The compactor is used at the active landfill area and is utilized 90% of the time.

During slow and off-peak times there may be only one staff operating equipment on site.

All equipment is stored at the Equipment Garage on site. There are currently four (4) bays at the Equipment Garage with three (3) bays fully utilized. If needed, there is room for one additional equipment storage.

2.3.7 *SITE MAINTENANCE*

Site access roads are maintained regularly to ensure vehicles can travel readily and safely. Gravel access roads are graded and maintained as required. During winter months, all access roads and parking areas are plowed and/or sanded as required. The use of chloride based de-icing salts are minimized on site to limit the potential for groundwater contamination and interference with groundwater/leachate/surface water monitoring for the site.

Water is used on site for dust control. The City also has approval from the MECP to use calcium chloride to control dust on site.

The stormwater management system includes stormwater quality control ponds, a stormwater quantity control lagoon, and a series of perimeter drainage ditches. The stormwater management system is inspected by the City monthly to ensure there is positive drainage, no erosion/siltation problems and no litter or debris inhibiting flows. If erosion, siltation or excess vegetation inhibits positive drainage, the affected area is cleared and the ditch is regraded.

2.3.8 *EXISTING WEIGH SCALES*

The existing inbound and outbound scales are nearing the end of their service life. Water is entering the scales regularly causing scales to corrode and malfunction. The City is required to perform frequent maintenance/calibration on the weigh scales.

The cost to replace both existing inbound and outbound weigh scales were included as part of proposed infrastructure upgrades.

2.4 SUMMARY OF RELEVANT STUDIES AND RESEARCH

2.4.1 *GROWTH MANAGEMENT STRATEGY AND MUNICIPAL MASTER PLAN*

The City of Kawartha Lakes Growth Management Strategy (GMS) and Municipal Master Plan (UEM & MHBC Planning Ltd., March 2010) was used as the basis for estimating future quantities of materials to be managed by the City.

The GMS details population projections for the entire City, and for individual urban settlement areas, to the year 2031. Four urban settlement areas identified in the GMS are Lindsay, Fenelon Falls, Bobcaygeon and Omemee. City staff have confirmed that the population projections in the GMS are the most current. The population forecast estimates that the total population of the City will reach 100,000 by 2031. The average annual rate of population growth is approximately 1.2%. Additionally, seasonal population growth is expected to increase by approximately 6,361 by 2031. An increase in residents to the City during the summer months results in seasonally increased waste generation, diversion and disposal quantities. Table 2-1 provides population forecasts from the GMS.

Table 2-1 Population Forecasts from Growth Management Strategy

Year	2001	2006	2011	2016	2021	2026	2031
Population	71,956	77,543	79,526	84,465	91,302	96,411	100,000

2.4.2 *SOLID WASTE MANAGEMENT MASTER PLAN UPDATE*

The Solid Waste Management Master Plan (SWMMP) Update in 2012 utilized the population projections in the GMS to estimate future waste generation. The average diversion rate of residential waste at the time of the SWMMP Update was 41%. Increasing waste diversion is stressed several times in the SWMMP Update as a key factor in extending the lifespans of the five (5) operating landfills (Lindsay Ops, Fenelon, Somerville, Eldon and Laxton). Since the SWMMP Update, the City has implemented additional diversion programs and activities. Table 2-2 presents waste generation, disposal and diversion tonnages based on maintaining the 41% residential waste diversion rate and the anticipated population projections to 2031.

Table 2-2 Total Waste Generation, Disposal and Diversion for the Planning ` Period of 2011 – 2031

Year	2011	2016	2021	2026	2031	Total for Planning Period
Population	77,472	82,577	88,018	93,818	100,000	N/A
Total Waste Generated (Tonnes)	58,104	61,932	66,014	70,364	75,000	1,332,325
Total Waste Disposed (Tonnes)	46,882	50,721	54,063	57,626	61,423	1,091,141
Total Waste Diverted (Tonnes)	11,221	11,211	11,950	12,738	13,577	241,184

2.4.3 *TRAFFIC IMPACT STUDY*

The former County of Victoria (County), now part of the City of Kawartha Lakes, completed an EA Study in 1999 for the provision of long-term waste disposal capacity. The EA Study concluded that the continued use and northern expansion of the existing Lindsay Ops landfill was the preferred option for the County's long-term waste disposal requirements. The EA Study was undertaken based on disposal capacity requirements of approximately 1.1 million tonnes, as initially determined in the Terms of Reference for the EA Study.

A Traffic Impact Study (TIS) was carried out in December of 1998 in support of the EA Study. The TIS was also used in support of the subsequent Environmental Protection

Act (EPA) approval. The TIS examined traffic on Wilson Road and on County Road 36 within 1 km of the site, where most of the landfill related travel was predicted. The County Road 36 – Wilson Road intersection was also assessed. The TIS determined that the existing level of service in 1998 along these roads and at the intersection was "Level A", representing a "free flow" condition with substantial reserve capacity for all turning movements. Traffic projections to the year 2022 considered peak weekday site usage with a 100% increase in traffic to account for population growth and peak weekday and weekend usage. Based on the study, the TIS determined that the level of service "Level A" would be maintained and that there would still be significant reserve capacity along the roads and at the intersections to 2022.

Tables 2-3 and 2-4 identify average daily/annual traffic and peak traffic as predicted in the TIS.

Table 2-3 Projected Average Daily and Annual Landfill Traffic Volumes

Projected Average Daily Landfill Traffic Volumes			
Year	**Large Vehicles**	**Small Vehicles**	**Total**
1998	32	100	132
2022	44	136	180
Projected Annual Landfill Traffic Volumes			
Year	**Large Vehicles**	**Small Vehicles**	**Total**
1998	8,298	30,863	39,161
2022	11,431	42,578	54,009

Notes:
Large vehicles include: packer trucks, dump trucks, double and triple axle roll-off/container trucks and flatbed trucks.
Small vehicles include: cars, vans and pick-up trucks, as well as these types of vehicles hauling small trailers.

Table 2-4 Projected Daily Landfill Traffic during Peak Periods

	Weekday	**Weekend**
Daily Peak Traffic – 1998	164 vehicles	155 vehicles
Projected Daily Peak Traffic – 2022	328 vehicles	388 vehicles

The TIS indicated that peak hours for weekday landfill traffic were from 9:45 am to 10:45 am and from 11:45 am to 12:45 pm. For Saturday the peak period was observed from 10:30 am to 11:30 am. At the time of the TIS it was also observed that on Saturdays during peak months (typically May and/or June) small vehicle traffic to the

Lindsay Ops landfill could increase by as much as 200%. Small vehicle counts in the range of 300 to 350 were observed during these Saturdays. Large vehicles normally arrived at the site only on weekdays. The number of waste collection vehicles arriving each day was relatively consistent. According to County staff, Friday was generally the busiest day. During months when construction activity was underway in the County, there would be days when several large vehicles hauling soil arrived at the site. Counts of ten (10) to fifteen (15) additional large vehicles per day were observed during these times.

On-site roadways and queuing requirements were not considered in the TIS.

TRAFFIC IMPACT STUDY COMPARED TO CURRENT PROJECTIONS

Future traffic projections were prepared as part of this study to analyze the potential traffic impact on the landfill site. Future traffic projections were prepared based on 2019 data and is discussed in Section 4.2 of this report. The projected 2022 traffic volumes are significantly higher than what was calculated in the 1998 TIS. Detailed calculations of the projected traffic volumes can be found in Appendix A. According to the 2020 projections, the average daily traffic volume for 2022 is expected to be 311 vehicles. This is an increase of approximately 72.8% compared to the 1998 TIS projection for 2022 (180 vehicles). The annual traffic volume for 2022 is expected to be 95,272 vehicles. This is an increase of approximately 76.4% compared to the 1998 TIS projection for 2022 (54,009 vehicles). Due to the large differences in the projected traffic volumes it is recommended that a formal TIS be completed to support proposed infrastructure and operational upgrades at the Lindsay Ops landfill.

2.4.4 *INTEGRATED WASTE MANAGEMENT STRATEGY*

The Making Waste Matter: Integrated Waste Management Strategy (IWMS) was developed and implemented by the City in 2015 to provide clear short-term and long-term initiatives for waste management services until 2048. The goal of the IWMS is to guide the City towards an overall residential diversion rate of 70% by the year 2048 through phased implementation of strategically chosen initiatives, operational updates, and educational activities. Since the strategy was adopted in 2015 the residential diversion rate has increased from 39% to 43% in 2019. For this study the 2019 waste and recyclable material quantities of 43% diversion rate was utilized.

Initiatives implemented through the IWMS are identified in Table 2-5.

Table 2-5 Initiatives implemented through the IWMS

Year	Initiatives
2016	Curbside Battery Collection
2017	Habitat for Humanity Reuse Bin, Clear Bag Program
2018	Mattress Recycling, Construction and Demolition Recycling Pilot (Clean Wood)
2019	Construction and Demolition Recycling Pilot (Drywall)
2021	Construction and Demolition (wood /drywall/shingles etc.) permanent program, Textile pilot program

2.4.5 *BLUE BOX RECYCLING PROGRAM*

In August 2019 the MECP directed the producers of paper and packaging in Ontario to begin transitioning the management of Ontario's BBR Program from municipalities to producers. The BBR Program will transition to the new regulatory policy starting January 1, 2023 and continuing through to December 31, 2025. The City is required to transition in 2024. The existing industry funding program that reimburses a portion of municipalities' BBR costs will move to a full producer responsibility model where industry will be wholly responsible for the cost and operations of designated diversion programs. This change will affect how municipal programs such as Blue Box materials, tires, electronics and hazardous waste are managed and funded.

On October 19, 2020, the Ontario government released a proposal detailing the transition of the Blue Box Program to Extended Producer Responsibility (EPR). The proposal was open for public comment for a 45 day period to December 2, 2020. The stated goal of the transition to EPR is to improve recycling abilities province-wide and address various environmental issues with the current model. The government proposal indicates that the transition to EPR will not disrupt current blue box services and allows for existing programs to be expanded. This will include allowing additional materials to be collected in the blue box (i.e. single-use items such as straws, stir-sticks, single-use packaging, etc.) and extending the blue box services to locations that do not have access under the current model. Overall, the objective is that with producers being fully responsible for the materials they produce and use, they will be able to develop more innovative solutions to reduce costs and increase diversion rates. This will aid in improving the environment while also supporting economic growth.

Further, the government proposal states that producers with less than $2 million in annual sales will not be required to register with the Resource Productivity and Recovery Authority (RPRA) or provide collection/management services for their products. Producers with $2 million or more in annual sales will be required to register

with RPRA, report and keep records, though they would be exempt from management requirements if they produce/supply less than the following amounts for specific materials:

- 9 tonnes of paper
- 2 tonnes of rigid plastic
- 2 tonnes of flexible plastic
- 1 tonne of glass
- 1 tonne of metal
- 1 tonne of non-alcoholic beverage containers

Once the program has transitioned it is expected that municipalities will be approached by producers to continue to provide collection services under contract to the producers. Instead of receiving funding, participating municipalities would be paid a set fee by producers to provide the required services. However, producers will not be obligated to contract with municipalities for collection or processing services. Under the new transition policy, producers are expected to have the autonomy to re-design and make changes to the BBR Program to ensure they can meet their regulatory obligations. As a result, municipalities with service contracts and assets, such as vehicles and depots, may need to develop appropriate management strategies to ensure their capital and operating costs are considered.

Municipalities will have to consider the implications of various scenarios for collecting and processing BBR material. However, currently the draft proposed regulation to make producers responsible for blue box programs and amending the recycling and composting municipal obligations was open for public feedback to December 2, 2020. At this time, it is difficult to predict the implications of the new policy on the City's current waste diversion program.

2.4.6 *GREEN BIN ORGANICS COLLECTION*

Ontario's Food and Organic Waste Policy Statement (2018) states that select municipalities in Southern Ontario will be required to develop a green bin collection program by the year 2025. The criteria that determines which municipalities will require a program is as follows:

- Municipalities with a population greater than 50,000 and population density greater than 300 persons/km^2 must provide curbside green bin collection to single-family dwellings in an urban settlement.

- Municipalities with a population greater than 50,000 and a population density lower than 300 persons/km^2 or a population greater than 20,000 but less than 50,000 and a population density of 100 persons/km^2 or more must provide collection options for green bin waste to single-family dwellings in an urban settlement.

The City does not have a green bin organics collection program. Based on the 2016 census, the City has a population of 75,423 and a population density of 24.5 persons/km^2. This requires the City to provide collection options within the urban settlement areas for green bin waste by the year 2025. There are four urban settlement areas within the City; Lindsay, Bobcaygeon, Fenelon Falls and Omemee. The Lindsay Ops landfill currently accepts L&Y waste. Depending on the approach taken by the City, this could impact future operations of the Lindsay Ops landfill. The City could establish a public drop-off at the Lindsay Ops landfill for kitchen organics from single-family residences in the urban settlement areas. However, it should be noted there is a potential for odours depending on where organics are stored and how they are processed at the site. Alternatively, the City could offer a City-wide organics collection program. Depending on the approach selected by the City, this could affect the options presented to the City in this report regarding infrastructure changes. The acceptance of the green bin organic waste stream could result in further increased traffic from separate collection vehicles or the public. Other operational impacts at the landfill may occur and public concerns may result.

3 WASTE AND DIVERTED MATERIAL

Available data on material quantities received at the Lindsay Ops, Fenelon and Laxton landfills for 2017, 2018 and 2019 were reviewed and analyzed to assess infrastructure needs for short-term and long-term use of the Lindsay Ops landfill. Historical, current and projected future incoming material quantities are discussed in the following sections. Detailed calculations can be found in Appendix B.

3.1 CURRENT/HISTORICAL WASTE AND DIVERTED MATERIAL QUANTITIES

Materials and quantities being accepted at the Lindsay Ops, Fenelon and Laxton landfill sites from 2017 to 2019 are presented below. Material tonnages were obtained from weigh scale data at each site.

Table 3-1 Lindsay Ops Landfill Current/Historical Material Quantities (tonnes)

	2019	2018	2017
Total Waste Disposed	28,218	27,585	25,167
Total Diverted Materials	9,855	10,031	9,283
Batteries	1.6	1.3	1.8
Clean Wood	46	Not Available	
Drywall	31	Not Available	
HHW	179	225	161
L&Y Waste	2,288	1,906	1,655
Mattresses	113	36	Not Available
Recyclables (Containers)	3,390	3,256	3,226
Recyclables (Fibres)	3,208	3,872	3,858
Reuse	3.2	1.4	1.3
Scrap Metal	297	292	324
Tires	157	305	253
WEEE	141	136	128

Table 3-2 Fenelon Landfill Current/Historical Material Quantities (tonnes)

	2019	2018	2017
Total Waste Disposed	15,202	10,072	7,985
Total Diverted Materials	1,936	1,141	702
Batteries	0.6	0.7	0.9
Drywall	3.4	Not Available	
HHW	85	86	106
L&Y Waste	1,501	830	304
Recyclables (Containers)	23	25	25
Recyclables (Fibres)	19	26	31

	2019	2018	2017
Scrap Metal	138	152	145
Tires	127	51	41
WEEE	39	56	49

Table 3-3 Laxton Landfill Current/Historical Material Quantities (tonnes)

	2019	2018	2017
Total Waste Disposed	935	1,238	1,599
Total Diverted Materials	185	217	164
L&Y Waste	100	118	115
Recyclables (Containers)	23	12	13
Recyclables (Fibres)	14	16	15
Scrap Metal	11	23	31
Tires	20	36	20
WEEE	17	12	21

Current tipping fees for materials accepted by the City for all sites are presented in Table 3-4. The tipping fees were obtained from the City's website (https://www.kawarthalakes.ca/en/living-here/landfills.aspx)

Table 3-4 Tipping Fees

Item	Price
Garbage Bag (Clear)	$10 minimum, $125 per tonne
Garbage Bag (Opaque)	$10 minimum, $250 per tonne
Loose Waste (Standard)	$10 minimum, $125 per tonne
Mixed Load	$10 minimum, $250 per tonne
Freon Removal Charge	$20 per item
Single Large Items (Couches, Chairs, etc.)	$10 minimum, $125 per tonne
Asbestos (Pre-approval Required)	$250 per tonne
C&D Waste (Clean Wood, Drywall, Shingles, etc.)	$10 minimum, $125 per tonne
HHW (Including Batteries and Propane Tanks)	Free
L&Y Waste	Up to 250 kg is free, over is $125 per tonne

Item	Price
Mattresses	$15 each
Recyclables (Containers)	Free
Recyclables (Fibres)	Free
Reuse	Free
Scrap Metal	Free
Tires	No longer accepted
WEEE	Free

3.2 PROJECTED WASTE AND DIVERTED MATERIAL ESTIMATES

The 2010 GMS and 2012 Municipal Waste Master Plan were used as the basis for estimating future quantities of materials to be managed by the City. The average annual rate of population growth for the City is expected to be approximately 1.2%. The projected waste and diverted material generation calculations assume that material generation quantities will increase proportionately as population increases. It is also assumed that there will not be any significant changes to types of materials diverted from disposal that would be managed at the sites or impact operations. The City may consider implementing a Source Separated Organics (SSO) diversion program in the future to address Ontario's Food and Organic Waste Policy Statement requirements. However, the SSO diversion program is yet to be developed or implemented and therefore was not considered in the projections.

In 2020 the City implemented a residential mixed C&D waste diversion program. Prior to implementation of the C&D waste diversion program the City was only accepting clean wood and drywall. At the time of this study, only quantities for clean wood and drywall were available from 2019 and previous years for analysis. Therefore, the 2019 clean wood and drywall quantities were increased by 10% to account for the increase to projected C&D waste quantities.

Projected waste and diverted material expected at the Lindsay Ops, Fenelon and Laxton landfill sites are presented in Tables 3.5, 3.6, and 3.7 below. These projected waste and diverted material quantities are based on continued operation of all three (3) sites.

Table 3-5 Lindsay Ops Landfill Projected Material Generation (tonnes)

	2020	2022	2024	2026	2028	2030
Total Waste Disposed	28,556	29,246	29,952	30,675	31,416	32,174
Total Diverted Materials	9,815	10,052	10,294	10,543	10,798	11,058
Batteries	1.6	1.6	1.7	1.7	1.8	1.8
Clean Wood	51	52	53	54	56	57
Drywall	34	35	36	37	38	39
HHW	181	186	190	195	200	204
L&Y Waste	2,316	2,372	2,429	2,488	2,548	2,609
Mattresses	115	118	120	123	126	129
Recyclables (Containers)	3,152	3,228	3,306	3,386	3,467	3,551
Recyclables (Fibres)	3,525	3,610	3,698	3,787	3,878	3,972
Reuse	3.2	3.3	3.4	3.5	3.6	3.6
Scrap Metal	301	308	315	323	331	339
WEEE	143	146	150	153	157	161

Table 3-6 Fenelon Landfill Projected Material Generation (tonnes)

	2020	2022	2024	2026	2028	2030
Total Waste Disposed	15,384	15,756	16,136	16,526	16,925	17,334
Total Diverted Materials	1,830	1,874	1,919	1,966	2,013	2,062
Batteries	0.6	0.6	0.6	0.6	0.6	0.6
Drywall	3.8	3.9	4.0	4.1	4.2	4.3
HHW	86	88	90	92	94	97
L&Y Waste	1,519	1,555	1,593	1,631	1,671	1,711
Recyclables (Containers)	23	24	25	25	26	26
Recyclables (Fibres)	19	19	20	20	21	21
Scrap Metal	139	143	146	150	153	157

	2020	2022	2024	2026	2028	2030
WEEE	40	41	42	43	44	45

Table 3-7 Laxton Landfill Projected Material Generation (tonnes)

	2020	2022	2024	2026	2028	2030
Total Waste Disposed	946	969	993	1,017	1,041	1,066
Total Diverted Materials	166	170	174	179	183	187
L&Y Waste	101	104	106	109	111	114
Recyclables (Containers)	23	23	24	24	25	26
Recyclables (Fibres)	14	14	15	15	15	16
Scrap Metal	12	12	12	12	13	13
WEEE	17	17	18	18	19	19

3.3 PROJECTED WASTE AND DIVERTED MATERIAL QUANTITIES TO LINDSAY OPS LANDFILL

For the study, it is assumed that upon closure of the Fenelon and Laxton landfills, all waste and diverted materials will be directed to the Lindsay Ops landfill. The Fenelon and Laxton landfills are expected to reach their operating capacities in 2023/2024 (Note: with continued winter closure the Fenelon landfill, the site life will be extended beyond 2024). In order to simplify calculations for comparison purposes, it is assumed that materials generated at the Fenelon and Laxton landfills will be diverted to the Lindsay Ops landfill starting in 2024.

Under current conditions, the Lindsay Ops landfill was expected to reach its disposal capacity in mid-2035. However, by diverting waste and recyclables from the Fenelon and Laxton landfills to Lindsay Ops starting in 2024, the Lindsay Ops landfill site life will be reduced. Assuming a 6:1 waste to daily cover ratio and a waste density of 0.63 tonnes/m^3 (based on the 2019 AMR), it is estimated that the Lindsay Ops landfill would reach its waste disposal capacity by mid-2030.

Projected total waste and diverted materials and quantities to be received at the Lindsay Ops landfill upon closure of the Fenelon and Laxton landfills are presented below in Table 3-8.

Table 3-8 Lindsay Ops Landfill Projected Material Quantities (tonnes)

	2020	2022	2024[1]	2026	2028	2030
Total Waste Disposed	28,556	29,246	47,081	48,218	49,382	50,574
Total Diverted Materials	9,865	10,060	12,397	12,696	13,002	13,316
Batteries	1.6	1.6	2.3	2.3	2.4	2.4
C&D Waste[2]	85	87	93	96	98	100
HHW	181	186	280	287	294	301
L&Y Waste	2,316	2,372	4,128	4,228	4,330	4,434
Mattresses	115	118	120	123	126	129
Recyclables (Containers)	3,152	3,228	3,354	3,435	3,518	3,603
Recyclables (Fibres)	3,525	3,610	3,732	3,822	3,914	4,009
Reuse	3.2	3.3	3.4	3.5	3.6	3.6
Scrap Metal	301	308	474	485	497	509
WEEE	143	146	209	214	219	225

Notes:
1. Includes waste diverted from Fenelon and Laxton landfills upon site closure.
2. Clean Wood and Drywall was combined into C&D Waste at the Lindsay Ops landfill in 2020.

3.4 MAXIMUM ALLOWABLE INCOMING WASTE QUANTITY

Condition 4.6 of the ECA states the following:

The maximum rates at which this Site may receive waste are 240 tonnes per day and 58,200 tonnes per calendar year. Receipt of waste in excess of the daily maximum fill rate may only be allowed on a limited short-term basis, on no more than two consecutive operating days.

To date, the City has never exceeded the annual approved fill rate of 58,200 tonnes. In 2019, a total of 28,218 tonnes of waste was disposed or 48.5% of the annual allowable limit. Over the last 5 years (2015 to 2019), an average of 27,572 tonnes of waste was disposed which is 47.4% of the annual allowable limit. Based on current disposal rates, future waste projections indicate that the allowable maximum of 58,200 tonnes of waste

per year will not be exceeded. This includes the projected waste expected to be received from Fenelon and Laxton landfills upon their closure.

In 2019 there were 9 days where the maximum allowable daily fill rate of 240 tonnes was exceeded. None of these exceedances occurred on more than two consecutive days. A review of the daily landfill records indicates that the days when exceedances occurred the City undertook road clean-ups and the landfill received street sweepings.

It is anticipated that the allowable daily fill rate of 240 tonnes will be exceeded more frequently based on the future waste projections when waste from Fenelon and Laxton landfills are directed to the Lindsay Ops landfill. Refer to Appendix B for a detailed breakdown. The month of June is expected to receive the highest waste tonnages in 2030 (The year of anticipated site closure of the Lindsay Ops landfill if waste from Fenelon and Laxton are diverted to Lindsay Ops landfill). Approximately 7,389 tonnes of waste are projected to be received at Lindsay Ops landfill in June 2030. The site is expected to be operational 21 days in June 2030. Therefore, the average daily incoming waste tonnage for June 2030 is 352 tonnes.

If all waste from Fenelon and Laxton are diverted to Lindsay Ops landfill, the ECA condition should be amended to increase the allowable daily fill rate at the Lindsay Ops landfill.

4 TRAFFIC ANALYSIS

Available data on incoming traffic volumes at the Lindsay Ops, Fenelon and Laxton landfills were reviewed and analyzed to assess infrastructure needs for short-term and long-term use of the Lindsay Ops landfill. Current and projected future incoming traffic volumes are discussed in the following sections. Detailed calculations can be found in Appendix A.

4.1 2019 INCOMING TRAFFIC VOLUME

Incoming traffic counts at the Lindsay Ops, Fenelon and Laxton landfill sites for 2019 are presented below. Traffic counts were electronically recorded by City staff at the scale house at each site.

Table 4-1 Lindsay Ops Landfill 2019 Traffic Volume

Month	Monthly Total	Average Vehicles	Vehicles on Peak
January	4,223	169	493

Month	Monthly Total	Average Vehicles	Vehicles on Peak
February	3,464	144	228
March	4,841	186	301
April	8,932	357	698
May	10,782	415	712
June	9,519	381	523
July	10,110	389	655
August	9,854	379	533
September	8,332	347	549
October	9,420	362	640
November	7,017	270	441
December	4,675	187	479
Total	91,169	299	712

Table 4-2 Fenelon Landfill 2019 Traffic Volume

Month	Monthly Total	Average Vehicles	Vehicles on Peak
January	835	64	119
February	591	49	79
March	926	71	114
April	1,861	143	253
May	2,828	218	308
June	2,584	172	289
July	2,726	210	282
August	2,582	199	245
September	2,330	179	237
October	2,282	176	254
November	1,603	115	184
December	864	72	181
Total	22,012	139	308

Table 4-3 Laxton Landfill 2019 Traffic Volume

Month	Monthly Total	Average Vehicles	Vehicles on Peak
January	157	17	40
February	107	13	19
March	167	24	44
April	273	46	79
May	630	70	125
June	670	74	144
July	656	94	153
August	763	76	97
September	619	62	117
October	471	47	78

Month	Monthly Total	Average Vehicles	Vehicles on Peak
November	305	38	62
December	194	24	51
Total	5,012	49	153

Traffic counts vary depending on time of year. In general, higher traffic counts are experienced from spring to fall (April to October) due in part to spring to fall clean-up and other activities as well as the influx of seasonal residents. From winter to spring traffic to the landfills is lower, however there are no distinguishable trends in traffic counts, other than a noticeable increase in January, which is likely due to the increased waste generation following the annual Christmas holiday season.

4.2 PROJECTED TRAFFIC VOLUME AT LINDSAY OPS LANDFILL

The GMS and Municipal Waste Master Plan was used as the basis for estimating future traffic generation. The average annual rate of population growth for the City is expected to be approximately 1.2%. The projected traffic generation calculations assume that current incoming traffic volumes will increase proportionately as population increases. It is also assumed that there will not be any significant changes to materials diverted from disposal that would be managed at the sites.

It is assumed that all waste and diverted materials will be directed to the Lindsay Ops landfill starting in 2024 upon closure of the Fenelon and Laxton landfills. This change will result in the Lindsay Ops landfill reaching its operating capacity in mid-2030. All vehicles currently using the Fenelon and Laxton landfills are assumed to be re-directed to the Lindsay Ops landfill.

Worst case traffic projections at the Lindsay Ops landfill in 2030 (the year the Lindsay Ops landfill is anticipated to reach capacity and resulting site closure) are shown in Table 4-4 below. This estimate assumes that all vehicles currently using the Fenelon and Laxton sites, will travel to the Lindsay Ops landfill at current rates. The highest traffic volumes are anticipated to occur in May. However, the travel distance to Lindsay Ops from the other sites may reduce the actual number of trips to Lindsay Ops from residents currently using Fenelon or Laxton. Residents may utilize available curbside collection programs instead of travelling the greater distance to the Lindsay Ops landfill or go to other closer landfills in the north part of the City, such as Somerville or Eldon. Hence, the number of trips shown in the table below is likely overestimated.

Table 4-4 Lindsay Ops Landfill 2030 Traffic Volume

Month	Monthly Total	Average Vehicles	Vehicles on Peak
January	6,560	318	711
February	5,445	268	429
March	6,766	320	523
April	12,618	623	1,174
May	16,237	802	1,306
June	14,564	715	1,090
July	15,384	790	1,243
August	15,050	746	998
September	12,863	670	1,030
October	13,880	667	1,108
November	10,176	482	783
December	6,537	323	811
Total	136,080	560	1306

Table 4-5 below shows the monthly increase in anticipated traffic counts in the year 2030 as compared to 2019 traffic counts when, the Fenelon and Laxton landfills were still operating. The increases are shown as a percentage increase from 2019 traffic counts to 2030 projected traffic counts.

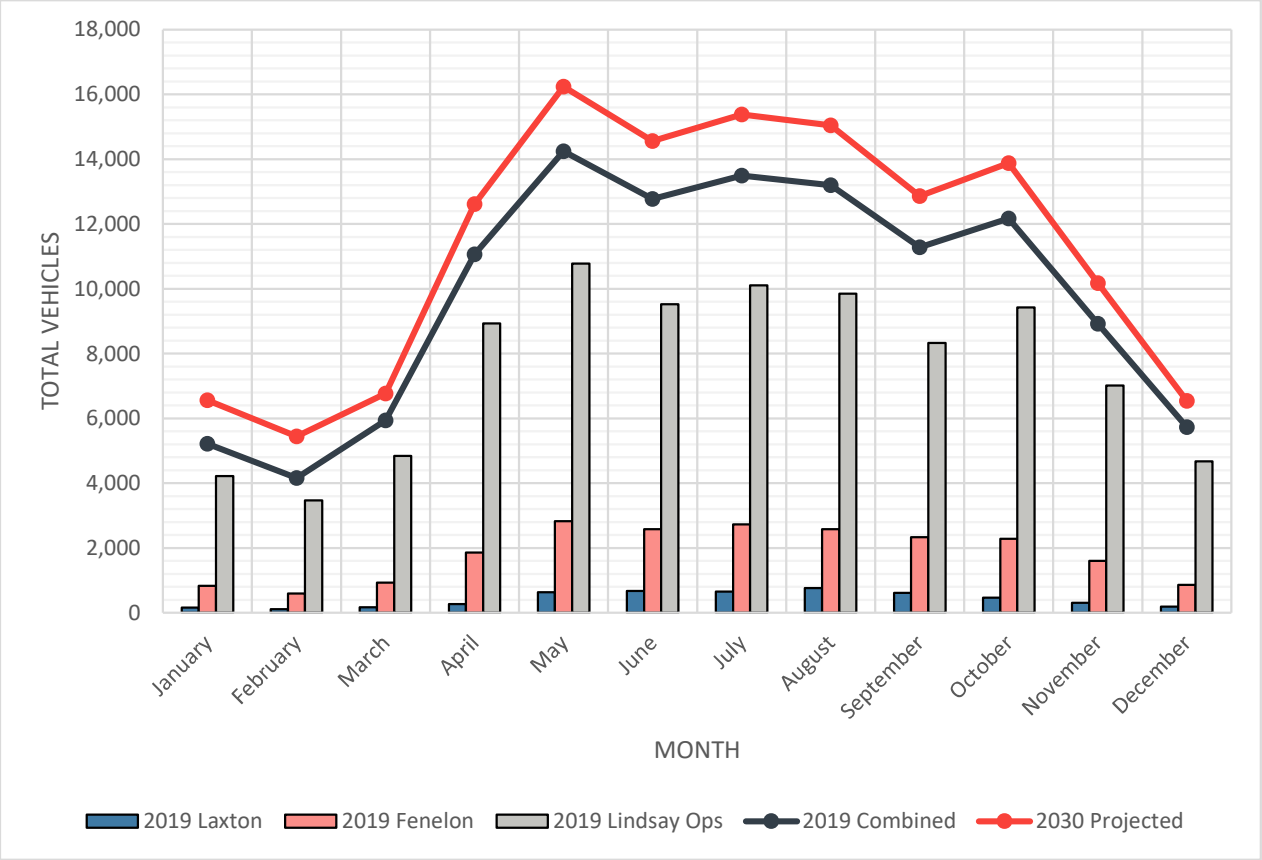
Table 4-5 Lindsay Ops Landfill Traffic Count Increase from 2019 Counts to 2030 Projections

Month	Monthly Increase	Average Daily Vehicle increase	Vehicles Increase on Peak Day
January	55%	88%	44%
February	57%	86%	88%
March	40%	72%	74%
April	41%	74%	68%
May	51%	93%	83%
June	53%	88%	108%
July	52%	103%	90%
August	53%	97%	87%
September	54%	93%	88%
October	47%	84%	73%
November	45%	79%	78%
December	40%	73%	69%
Average	49%	86%	79%

It is estimated that the number of vehicles visiting the site in a month will increase by an average of 49% from 2019 to 2030. The number of vehicles visiting the site on peak days are expected to increase by an average of 79% from 2019 counts to 2030

projections, with a maximum increase of 108% during the month of June. Figure 4-1 below shows a plot of the monthly 2019 traffic counts from the individual Laxton, Fenelon, and Lindsay Ops landfill in comparison to the combined traffic anticipated at the Lindsay Ops landfill in 2030 assuming all materials are delivered to Lindsay Ops in 2030.

Figure 4-1 Monthly Traffic Counts at Lindsay Ops, Fenelon and Laxton Landfills 2019 Counts and 2030 Projection



5 OBSERVATIONS, ISSUES AND CONCERNS WITH DIVERTING FENELON AND LAXTON WASTE TO LINDSAY OPS

The following observations, issues and concerns were identified after review of existing infrastructure and operations at the Lindsay Ops landfill. To improve the level of service and reduce waiting times, the issues identified below should be addressed.

- The existing weigh scales are located approximately 270 m from Wilson Road. During peak times in the past (i.e. Saturdays – April/May and Fall) traffic was observed to be backed up onto Wilson Road (The City has indicated that this translates to approximately one (1) hour wait time to the weigh scales). In 2019 the maximum number vehicles entering the site in one day was 712 vehicles (peak day in May). If vehicles currently using the Fenelon and Laxton sites are diverted to Lindsay Ops upon their closure, the number of vehicles using the Lindsay Ops landfill is projected to be over 1,300 vehicles (increase of over 83%) in 2030. As a result, on peak days, traffic will queue on Wilson Road prior to entering the site.

- The distance between the weigh scales and the active landfill tipping face is approximately 600 m. There are currently no issues with the queuing of vehicles between the scales and the active landfill area.

- The current public drop off area consists of roll-off bins placed in sawtooth bays with a grade separation and upper and lower platforms with roll-off bins placed at grade along the east side of the area. Material quantities received on site will significantly increase if all waste and recyclables are diverted to Lindsay Ops upon closure of Fenelon and Laxton landfills. As a result, roll-off bins will be required to be emptied or hauled off-site for recycling and disposal more frequently.

- Traffic is incoming/outgoing from both the east and west side of the access road through the drop-off area. Some traffic congestion was observed during the site visit on July 26, 2020 while the drop off area was operated with limited capacity (maximum of 10 vehicles at the time). When operations return to pre-COVID-19 or similar conditions, greater congestion levels are expected. Even heavier

congestion is anticipated when waste and recyclables from both Fenelon and Laxton is diverted to Lindsay Ops landfill.

- The existing inbound and outbound scales are nearing the end of their service life and show signs of heavy wear and deterioration. Furthermore, water and ice are entering the scales regularly causing scales to corrode and malfunction, resulting in the need for the City to perform frequent maintenance/calibration on the weigh scales. With the anticipated increase in traffic and usage of the scales, maintenance/calibration/repair will likely be even more frequent.

- The annual approved fill rate at Lindsay Ops landfill is 58,200 tonnes. The daily approved waste disposal rate is 240 tonnes. The annual waste disposal rate has never been exceeded, though the maximum daily waste disposal rate of 240 tonnes is typically exceeded several times each year (nine (9) times in 2019). The maximum daily waste disposal rate has never been exceeded for more than two (2) days in a row. With the increase in waste and diverted materials to be received at the Lindsay Ops landfill after closure of Fenelon and Laxton, the daily waste disposal rate will likely be exceeded more often. Amending the ECA condition relating to maximum daily fill rate will be required.

- The Lindsay Ops landfill has a total approved capacity of 1,487,240 m^3 and a remaining capacity of 699,107 m^3 as of December 2019. It is currently estimated that the landfill will reach capacity in mid-2035. With the additional waste expected with the closure of the Fenelon and Laxton landfills, the Lindsay-Ops landfill could reach waste disposal capacity as early as mid-2030. The City is currently identifying and evaluating alternative waste disposal strategies for when the Lindsay Ops landfill reaches its approved disposal capacity.

6 INFRASTRUCTURE AND WASTE MANAGEMENT UPGRADE OPTIONS

With the Fenelon and Laxton landfills anticipated to reach capacity by 2023/2024, waste and recyclables currently received at these sites will continue to be managed by the City. The preceding sections discussed anticipated future waste and recyclables quantities, traffic congestion and other impacts associated with directing all waste and recyclables from the Fenelon and Laxton landfills starting in 2024 to the Lindsay Ops landfill.

Several optional upgrades to site infrastructure and operational management of waste and recyclables were identified and assessed. The key improvements required include:

- Reduction of queuing and wait times to enter and exit the landfill site and vehicle queuing on adjacent Wilson Road
- Reduction of traffic congestion, queuing and wait times at the public drop-off area
- Improvements related to the weigh scales

Preliminary high-level cost estimates for the proposed options were provided to assist the City with budgetary consideration associated with each option. These cost estimates should be revised/updated during the detailed design phase. Cost estimate calculations can be found in Appendix C. All costs provided in this report are in 2020 dollar values.

With any contemplated modifications at the Lindsay Ops landfill, the City should consider potential site use after the landfill reaches its approved disposal capacity. For example, the public drop off area could continue to be used by residents as a transfer station for recyclables and as a L&Y waste compost facility.

6.1 OPTION 1: DO NOTHING

Under this scenario the Lindsay Ops landfill will continue to operate without any infrastructure or operational improvements. Vehicles would continue to queue at the weigh scales and provide necessary documentation and weight to the attendant.

From the scale house, one-way traffic will continue to enter the drop-off area from the north end and exit at the south end. With the current configuration there are grade separated drop-off bays, with an upper and lower platform, in a sawtooth pattern along the west side and additional roll-off bins placed at grade along the east side. The drop off bins can accommodate two (2) vehicles at a time. Traffic will continue to back up onto the desired drop-off bays and the following vehicles will wait until the vehicle unloading has left the area. The bins placed at grade can accommodate one (1) vehicle at a time. The bin will be accessed by vehicles parking in front of the bins. Traffic currently enters and exits both the east and west side of the access road through the drop-off area. If a user desired drop-off bay/bin is occupied, the user will wait at the drop-of area until the bay is cleared. Other vehicles behind the current user vehicle will either wait for the current user to move or go around the user if there is adequate space. Congestion will continue to be frequently experienced at the drop-off area.

There will be no changes to the existing scalehouse and weigh scales. Existing scales will continue to be used and continue to require frequent maintenance and repair. Congestion will occur as a result of scales malfunction. If both scales malfunction at the same time, congestion will be that much worse. Maintenance will be required more frequently as the scales further degrade. During peak times, more traffic queuing will be experienced if the Fenelon and Laxton sites are closed and materials are diverted to Lindsay Ops landfill. Traffic is expected to more frequently back up onto Wilson Road.

The City could continue operating the site without making any changes. With the anticipated addition of Fenelon and Laxton materials to Lindsay Ops, additional congestion and longer queue times should be expected. More frequent exceedances of the daily rate of fill limit will also occur.

COST ESTIMATE (2020 COSTS)

- Capital Costs: None
- Operational Costs: No changes from current operational costs

6.2 OPTION 2: EXPAND EXISTING PUBLIC DROP-OFF AREA

Option 2 is intended to alleviate some traffic congestion at the public drop-off area. Under this option, the existing public drop-off area will be expanded along the west side. Details of proposed works are shown on Figure 6-1. The expansion will increase the drop-off area by approximately 700 m^2. The maximum increase in width of the public drop off area will be approximately 12 m in the area of expansion.

The proposed expansion of the sawtooth drop off area (grade separation with upper and lower platforms) will be an expansion of the existing drop-off area. The proposed expansion area is located between the elevated platform (drop-off area) and existing ground (east roadway). A geotechnical assessment and the need for a retaining wall, will be determined during detailed design.

Approval from the MECP and an ECA amendment will be required to expand the existing public drop-off area. In addition, a traffic study will be required to confirm existing traffic volumes, typical processing times at the scalehouse, and the length of the queue entering the site at peak times. The traffic study will also look at waiting times experienced by customers using the drop-off area.

Under Option 2, traffic will continue to back up onto the upper platform of the desired drop-off bays along the west side of the drop off area, which can accommodate two (2)

vehicles. The bins placed on the upper platform along the east side will be accessed by vehicles parking in front of the bins. Only one (1) vehicle can be accommodated at a time. Traffic is incoming/outgoing from both the east and west side of the access road through the drop-off area. If a desired drop-off bay/bin is occupied, the vehicle must wait at the drop-of area until the bay is cleared. Other vehicles behind the queued vehicle must either wait for the queued vehicle to move or go around if there is adequate space. The increased useable area resulting from the Option 2 expansion, will allow existing bins placed on the upper platform to be spaced further apart to provide additional by-pass space for vehicles. Congestion is expected to continue but will be reduced from current levels.

The location and arrangement of materials at the drop-off bins shown on the drawing are conceptual and can be modified/adjusted to meet City needs. There are no proposed changes to the site operation or staff. Existing traffic flow/patterns will be maintained.

Modifications under this option may slightly improve but not completely resolve the issue of longer queuing and wait times anticipated at the weigh scales.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $118,250
- Operational Costs: No changes from current operational costs

6.3 OPTION 3: UTILIZE AREA NORTH OF MUNICIPAL CURBSIDE RECYCLING TRANSFER FACILITY

Option 3 involves using the area north of the Municipal Curbside Recycling Transfer Facility for operation. This approach would alleviate some congestion at the public drop-off area and improve operational efficiency. For this option some roll-off bins, particularly bins currently placed on the upper platform and bins for free items, will be relocated north of the Municipal Curbside Recycling Transfer Facility as required. Spare bins and storage containers will also be relocated from their current storage area to optimize operational space. Details of proposed works are shown on Figure 6-2.

The relocated bins will be accessed via the existing access road located between the HHW and the L&Y waste compost facility.

Traffic will continue to back up at the desired drop-off bin which can only accommodate two (2) vehicles at a time. Vehicles with attached trailers will have adequate space to

maneuver into position. If the desired drop-off bin is occupied, the vehicle will wait until the bay is cleared. In this option, there is adequate space for other vehicles to bypass queued vehicles. Traffic will enter the relocated bins on the upper platform from the west side and exit from the east side. Jersey barriers will be placed as required to direct/control traffic and prevent traffic from accessing the area east of the Municipal Curbside Recycling Transfer Facility which is currently only used by City staff for operation and maintenance. There will be adequate space for bin haul vehicles west of the relocated bins to place empty bins and retrieve filled bins.

Alternatively, if the City prefers one-way traffic flow, the existing road west of the existing equipment garage can be utilized. Instead of traffic turning around at the proposed relocated drop-off bins, vehicles will exit via the access road west of the equipment garage. Currently, this access road is only used by City staff operation and maintenance equipment/vehicles. In this scenario the access road would be shared by City staff and the public. Traffic control measures and additional signage would be needed.

Relocation of bins will reduce congestion at the existing drop-off area. The location and arrangement of the dedicated drop-off bins shown on the drawing are conceptual and can be modified/adjusted as required. One (1) additional staff member will be required at the relocated bins to assist customers. Additional signage will be required at select locations to direct users to the appropriate location to dispose of materials. Relocation of bins for free items will help to distribute traffic more evenly between the grade separated drop-off area and the area north of the Municipal Curbside Recycling Transfer Facility further reducing congestion.

Proposed work under this option may slightly improve but not resolve the issue of longer queuing and wait times anticipated at the weigh scales.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $20,000
- Operational Costs: Additional $80,000 per year for one (1) full time staff

6.4 OPTION 4: UTILIZE AREA EAST OF EXISTING PUBLIC DROP-OFF AREA

Option 4, using the area east of the public drop off area, is expected to alleviate some congestion at the public drop-off area and improve operational efficiency. For this option a secondary grade separated public drop-off area, with upper and lower platforms, will

be constructed east of the existing public drop-off area. Some roll-off bins, specifically bins currently placed on the upper platform and bins for free items, will be relocated to the secondary drop-off area as required. Required work would include earthworks, site grading, constructing new access roads, retaining wall, etc. Details will be determined during the design phase. Approval from the MECP and an ECA amendment will be required.

There are two (2) variations of Option 4. Under Option 4A, the secondary drop-off area will be accessed via site access roads. Under Option 4B, the secondary drop-off area will be accessed via Wilson Road.

There are currently eight (8) grade separated sawtooth drop-off bays with bins on the lower platform, at the existing drop-off area. There are also four (4) roll-off bins placed on the upper platform, for a total of twelve (12) bins currently being utilized. The conceptual designs shown in Option 4 shows an additional eight (8) grade separated sawtooth drop-off bays at the secondary drop-off area. This would provide a total of sixteen (16) drop-off bays. Therefore, under this Option the City could add four (4) additional drop-off bins as/if required in the future. The location and arrangement of the drop-off bins shown on the drawing are conceptual and can be modified/adjusted as required.

Relocating drop-off bins to the secondary drop-off area will reduce congestion experienced at the current drop-off area and overall site congestion. The design allows for one-way traffic flow through both the existing and secondary drop-off areas. At both locations, vehicles will back-up onto the desired drop-off bay and dispose of items. Vehicles with attached trailers will have adequate space to maneuver into position. Each drop-off bay can accommodate two vehicles. If the desired drop-off bay/bin is occupied, the vehicle will have to wait at the drop-off area until the bay is cleared. There is adequate space at both drop-off area for other vehicles to pass queued vehicles to access other vacant bin areas. If the City observes frequent queuing at a particular drop-off bay, an additional drop-off bin can be added for that material at one of the four (4) unoccupied drop-off bays. Furthermore, the drop-off bins can be rearranged to allow for an even distribution/flow of traffic (i.e. bins more frequently used can be spaced further apart).

Approval from the MECP and an ECA amendment will be required. In addition, a geotechnical assessment to confirm the soil characteristics and foundation requirements for the proposed expansion and traffic study is required prior to the design phase.

6.4.1 *OPTION 4A: SECONDARY DROP-OFF AREA ACCESSED FROM SITE*

Details of Option 4A are shown on Figure 6-3. The secondary grade separated sawtooth drop-off area will be accessed via the existing service road opposite to the existing access road to the current drop-off area. The existing service road will be expanded and upgraded to accommodate two-way traffic. The conceptual drawing shows relocation of all free items, except for scrap metals, HHW, and L&Y waste, to the secondary drop-off area. The drop-off bins can be relocated/rearranged between the two drop-off areas as required to distribute traffic more evenly. Additional signage will be required to direct traffic to the desired disposal bin. One (1) additional staff member will be required at the secondary drop-off area to assist customers.

The existing service entrance off Wilson Road will be utilized by City staff for operation and maintenance of the secondary drop-off area. There is adequate space for service and maintenance vehicles to access the drop-off bins from the east side. Upgrades to the existing service entrance may be required to accommodate operation and maintenance vehicles.

Proposed work under this Option 4A may slightly improve but does not resolve the issue of longer queuing and wait times anticipated at the weigh scales.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $1,746,250
- Operational Costs: Additional $80,000 per year for one (1) full time staff

6.4.2 *OPTION 4B: SECONDARY DROP-OFF AREA ACCESSED FROM WILSON ROAD*

Details of Option 4B are shown on Figure 6-4 The secondary grade separated sawtooth drop-off area will be accessed via the existing service entrance off Wilson Road. Both Wilson Road and the existing service entrance will be expanded and upgraded to accommodate two-way traffic.

The conceptual drawing shows relocation of all free items, except for HHW and L&Y waste, to the secondary drop-off area. A total of seven (7) bins will initially be relocated from the existing to the secondary drop-off area. As previously discussed, the conceptual design of the secondary drop-off area allows for eight (8) bins. Therefore, an additional drop-off bin can be added as needed. Customers using the secondary drop-off area, used for disposal of free recyclables only, will not be required to weigh in or out

at the weigh scales. Additional signage will be required to direct traffic to the desired disposal bin. One (1) additional staff member will be required at the secondary drop-off area to assist customers. Reducing the number of vehicles required to pass over the inbound and outbound weigh scales will reduce traffic queuing and wait times at the weigh scales.

The existing service road opposite to the existing access road to the current drop-off area will also be utilized by City staff for operation and maintenance of the secondary drop-off area. There is adequate space for service and maintenance vehicles to access the drop-off bins from the west side. Upgrades to the existing access road may be required to accommodate operation and maintenance vehicles. Vehicles hauling the roll-off bins off-site for disposal can weigh out at the outbound scales as required to maintain records of waste disposal.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $2,186,250
- Operational Costs: Additional $80,000 per year for one (1) full time staff

6.5 OPTION 5: REDESIGN EXISTING PUBLIC DROP-OFF AREA

Option 5, redesign of the existing public drop-off area, will alleviate some congestion at the public drop-off area and improve operational efficiency. The existing public drop-off area will be completely redesigned to include additional grade separated sawtooth drop-off bays and roll-off bins. A conceptual re-design of the drop-off area is shown on Figure 6-5. The conceptual re-design maximizes the use of existing site infrastructure and features. It should be noted that this conceptual design can be modified to reflect any specific City needs. Traffic will enter the drop-off area from the south end, travel in a counter clockwise loop, and exit from the south end. The conceptual design has space for sixteen (16) sawtooth drop-off bays. Currently there is a total of twelve (12) drop-off bins on site. Four (4) additional drop-off bins can be added if required in the future. Required work would include earthworks, site grading, access roads, retaining wall, etc. In addition, geotechnical and traffic studies are required prior to the design phase. Approval from the MECP and an ECA amendment will be required.

The re-design/expansion of the existing drop-off area will significantly reduce congestion at the drop-off area as well as overall site congestion. The design allows for one-way traffic to flow through the re-designed drop-off area. Vehicles will back-up onto

the desired drop-off bay and dispose of items. Vehicles with attached trailers will have adequate space to maneuver into position. Each drop-off bay can accommodate two vehicles. If the desired drop-off bay/bin is occupied, the vehicle will have to wait at the drop-off area until the bay is cleared. There is adequate space at the drop-off area for other vehicles to pass queued vehicles. If the City observes frequent queuing at a specific drop-off bay, an additional drop-off bin can be added for that material at one of the four (4) unoccupied drop-off bays. The drop-off bins can be rearranged to allow for an even distribution/flow of traffic (i.e. bins more frequently used can be spaced further apart).

There is adequate space for service and maintenance vehicles to access the drop-off bins from the east and west side of the drop-off area. The existing service entrance will not be accessible by the public and will only be used by service vehicles. The access road to the L&Y waste compost facility and adjacent drainage ditches will be relocated east of the expanded drop-off area. Additional signage will be required at select locations to ensure residents are directed to the appropriate location to dispose of materials. Due to the close proximity of the drop-off areas, it is assumed that one (1) staff will be capable of assisting customers. However, if required in the future, an additional staff can be hired.

Proposed work under this option may slightly improve but does not resolve the issue of longer queuing and wait times anticipated at the weigh scales.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $3,814,910
- Operational Costs: No additional cost if one (1) staff can continue to assist customers at the public drop-off area

6.6 OPTION 6: REPLACE EXISTING WEIGH SCALES AND INSTALL ADDITIONAL WEIGH SCALE

With wastes and recyclables currently managed by the Fenelon and Laxton landfills directed to the Lindsay Ops landfill in 2024, increased traffic and more lengthy queuing at the weigh scales could be expected unless modification are made on site. Under Option 6, the existing outbound weigh scale will be replaced with a new outbound scale installed approximately 200 m south of its current location (closer to the main site entrance) to allow outbound traffic a queuing lane to wait on the access road and away from the drop off area. The existing inbound scale will be replaced with a new scale and

a second inbound scale will be added adjacent to the existing weigh scale. A new access road will be constructed east of the existing access road and will be utilized for inbound traffic only. The new road will access the two (2) new inbound scales to allow for queuing of additional vehicles. The new access road will be wide enough to provide two (2) lane queuing, doubling the current capacity. Option 6 will create additional (approximately double) queuing capacity which will result in reduced waiting times at the scales. Details of proposed works are shown on Figure 6-6.

A new outbound scale and scalehouse will be located closer to the site entrance as shown on Figure 6-6 to provide additional space for queuing of outbound vehicles. A new scalehouse will be placed in between the two new inbound scales. Incoming vehicles will be able to select the scale with the shorter queue. During non-peak times the City can operate a single inbound scale. The existing access road will be utilized for outbound traffic only. There is also adequate space for installation of a second outbound scale if required in the future.

Alternatively, in order to reduce capital cost, one or both of the existing weigh scales can be utilized instead of the purchase of new scales. However, replacement of the existing weigh scales will likely be required in the next few years due to current, ongoing maintenance and repair issues as previously noted in this report. In any event, one new scale and scalehouse will be required in Option 6.

The required work will include earthworks, site grading, new access road, electrical work, new scales and scalehouse, etc. Approval from the MECP and an ECA amendment will be required. In addition, geotechnical and traffic studies are required prior to the design phase.

Two (2) staff will operate the inbound scalehouse (one at each scale). An additional staff will be required to operate the outbound scalehouse and scale. During off-peak hours only one staff may be required to operate the inbound scales.

Two (2) inbound weigh scales will reduce queuing and wait times at the inbound weigh scales and is expected to eliminate vehicle backed up onto Wilson Road during peak hours. A new outbound scale further south will provide additional queuing room for outbound traffic.

The proposed work under this option does not affect waste disposal operations. Congestion is still expected to occur at the existing public drop-off area. This option, in conjunction with one of the other options identified to reduce congestion, would significantly increase the overall operational efficiency of the landfill site.

COST ESTIMATE (2020 COSTS)

- Capital Costs: $1,677,500 with three (3) new weigh scales installed
- Operational Costs: Additional $90,000 per year which includes $80,000 per year for one (1) full time staff and $10,000 per year for maintenance of one (1) additional weigh scale

6.7 SUMMARY OF OPTIONS

The following table summarizes the advantages and disadvantages of the six (6) options discussed above and provides high-level capital and additional operating costs associated with each option.

Table 6-1 Summary of Advantages and Disadvantages for Proposed Options

Option	Advantages	Disadvantages	Cost Estimate
Option 1: Do Nothing	• No cost • No changes to current operations or traffic patterns	• Does not address existing congestion and queues or anticipated increased traffic at the public drop-off area • Does not address longer queues and wait times anticipated at the weigh scales • Existing weigh scales will continue to malfunction and require frequent repair if not replaced	• Capital: $0 • Operational: $0

Option	Advantages	Disadvantages	Cost Estimate
Option 2: Expand Existing Public Drop-Off Area	• Relatively lower capital cost compared to other options • No changes to current operations or traffic patterns • Increases the size of the drop-off area allowing additional room for traffic to maneuver	• Congestion and queues anticipated at the public drop-off area, however less congestion than Option 1 • Does not address longer queues and wait times anticipated at the weigh scales	• Capital: $118,250 • Operational: $0
Option 3: Utilize Area North of Municipal Curbside Recycling Transfer Facility	• Relatively low capital cost compared to other options • Reduces congestion and queues at the public drop-off areas	• Relocated bins placed at grade may be more difficult for (elderly or physically challenged) public to use when disposing items • Does not address longer queues and wait times anticipated at the weigh scales • Requires additional signage and staff	• Capital: $20,000 • Operational: $80,000 per year
Option 4A: Utilize Area East of Existing Public Drop-off Area (Accessed from Site)	• Reduces congestion and queues at the public drop-off areas • Allows easier disposal of items from elevated platform compared to at grade (Option 3)	• Relatively higher capital cost • Does not address longer queues and wait times anticipated at the weigh scales • Requires additional signage and staff	• Capital: $1,746,250 • Operational: $80,000 per year

Option	Advantages	Disadvantages	Cost Estimate
Option 4B: Utilize Area East of Existing Public Drop-off Area (Accessed from Wilson Road)	• Reduces congestion and queues at the public drop-off areas • Reduces queues and wait times at the weigh scales • Allows easier disposal of items from elevated platform compared to at grade (Option 3)	• Relatively higher capital cost • Requires additional signage and staff • Having the recyclable disposal area separate from waste disposal area could increase contamination of recyclables or increase waste placed by users unless carefully monitored by staff • Vehicles disposing recyclables will not be individually weighed (less data available for record keeping)	• Capital: $2,186,250 • Operational: $80,000 per year
Option 5: Redesign Existing Public Drop-off Area	• Reduces congestion and queues at the public drop-off area • Allows easier disposal of items from elevated platform compared to at grade (Option 3) • One public drop-off area instead of two separate areas	• Highest capital cost option • Does not address longer queues and wait times anticipated at the weigh scales • Requires additional signage and possibly additional staff	• Capital: $3,814,910 • Operational: $0

Option	Advantages	Disadvantages	Cost Estimate
Option 6: Replace Existing Weigh Scales and Install Additional Weigh Scale	• Reduces queues and wait times at the weigh scales (both inbound and outbound) which reduces potential for traffic to back up into the landfill and onto Wilson Road • New weigh scales installed which addresses existing scale malfunctions	• Relatively higher capital cost • Congestion and queues still anticipated at the public drop-off area (same as Option 1) • Requires additional staff	• Capital: $1,677,500 • Operational: $90,000 per year

Notes:
1. All costs are in 2020 dollar values.

6.8 OTHER OPTIONS

The following identifies other options that could be combined with one or more of the above options to further reduce traffic and other operational impacts at the Lindsay Ops landfill.

6.8.1 *REPLACEMENT OF EXISTING SCALES*

The existing inbound and outbound scales are nearing the end of their service life. Both inbound and outbound scales are malfunctioning on a regular basis and require frequent maintenance and repair. It is recommended that both inbound and outbound scales be replaced with new scales for continued operation of the landfill. This will be particularly important with additional traffic once the Fenelon and Laxton landfills close and materials are diverted to the Lindsay Ops Landfill.

The estimated cost to install one (1) new weigh scale is approximately $250,000. This includes costs for earthworks, electrical, communications, mechanical and instrumentation. Therefore, the total cost to replace both the inbound and outbound scale would be approximately $500,000.

The cost to replace both inbound and outbound weigh scales were not included in any other options discussed with the exception of Option 6.

6.8.2 *ESTABLISH TRANSFER STATIONS AT FENELON AND/OR LAXTON LANDFILLS AFTER SITE CLOSURE*

Residents, including seasonal residents and businesses, are accustomed to the convenience of using the Fenelon & Laxton landfills. To reduce use of the Lindsay Ops landfill when these sites close, transfer depots could be established at one or both sites. All existing infrastructure at these sites including weigh scales and roll-off bins will continue to be utilized. Roll-off bins for diverted materials will continue to be hauled off-site to appropriate facilities for recycling. Additional roll-off bin(s) will be added for disposal of waste. Roll-off bins for waste will be hauled to either Lindsay Ops or another City owned landfill for disposal. In order to maintain the current level of service is it assumed that both sites will operate under current operating hours. If desired to reduce costs, operating hours could be reduced as determined by the City. Approval from the MECP and an ECA amendment will be required to operate the sites as transfer stations.

For this option it is assumed that if Fenelon and Laxton are operated as transfer stations there will be minimal impact to the traffic volumes anticipated at the Lindsay Ops landfill. Haul vehicles may take waste and some diverted materials to Lindsay Ops landfill. However, at the City's discretion, operators or private contractors can be directed to dispose of materials only during off-peak hours to minimize traffic impacts. This may not be achievable during peak times when residents generally tend to dispose of excess material (spring and fall clean up times).

Under a best possible scenario, the transfer stations at Fenelon and Laxton will divert all waste and recyclables to alternate facilities. In that scenario, the Lindsay Ops landfill will reach its waste disposal capacity in mid-2035. Based solely on the anticipated population growth in the City, the projected traffic volumes expected at Lindsay Ops in 2035 is about 20% higher than current traffic volumes. Detailed calculations of the projected traffic volumes can be found in Appendix A. It is evident, that even with diversion of waste and recyclables from Fenelon and Laxton landfills to other facilities, some infrastructure and operation upgrades are still required at the Lindsay Ops landfill to provide better service, or at least match the current level of service.

TRANSFER STATION AT FENELON LANDFILL

The Fenelon landfill will continue to operate on Mondays, Wednesday, and Saturdays from 9:00 AM to 5:00 PM as a transfer station. L&Y waste, HHW, recyclables (containers and fibres), WEEE, scrap metals and waste will be collected and diverted to appropriate recycling/disposal facilities.

The existing scale will continue to be used for both inbound and outbound traffic. For this analysis it is assumed the existing scale is in good working condition and a replacement scale is not required to operate the site as a transfer station. Two (2) full time staff will be required for continued operation of the transfer station. One staff will operate the scalehouse while the other staff assists users at the public drop-off area.

The capital cost, which includes site grading and preparation for an additional roll-off bin for waste diversion, is approximately $20,000. The estimated operational cost to operate a transfer station at the Fenelon landfill is approximately $140,000 per year. This includes the cost for site staff, operations, maintenance, and reporting. The costs for hauling and disposal/recycling of diverted materials were not included in the operational cost since this cost would be incurred by the City regardless of operation of a transfer station at Fenelon.

TRANSFER STATION AT LAXTON LANDFILL

The Laxton landfill will continue to operate as a transfer station under current seasonal hours as indicated on Section 2.2.3. As such, this transfer station would continue to provide a level of service to seasonal residents on Sundays and holidays. L&Y waste, recyclables (containers and fibres), WEEE, scrap metals and waste will be collected and diverted to appropriate recycling/disposal facilities.

The existing scale will continue to be used for both inbound and outbound traffic. City staff indicated that a new scale was recently installed at the Laxton landfill. Therefore, for this analysis it is assumed the existing scale is in good working condition and a replacement scale is not required to operate the site as a transfer station. One (1) full time staff will be required for continued operation of the transfer station. The staff will operate the scalehouse as well as assist users at the public drop-off area.

The capital cost, which includes site grading and preparation for an additional roll-off bin for waste diversion, is approximately $20,000. The approximate operational cost to operate a transfer station at the Laxton landfill is approximately $55,000 per year. This includes cost for site staff, operations, maintenance, and reporting. The cost for hauling and disposal/recycling of diverted materials were not included in the operational since this cost would be incurred by the City regardless of operation of a transfer station at Laxton.

6.8.3 *EXPANSION OF FENELON AND/OR LAXTON LANDFILLS*

WSP completed feasibility studies in 2021 to assess the for potential expansions of the Fenelon and Laxton landfills and increasing the landfilling capacity at each site. Below is

a summary of findings from study. Copies of the feasibility studies for both Fenelon and Laxton landfills can be found in Appendix D and Appendix E respectively.

The feasibility studies demonstrated both Fenelon and Laxton landfills could be expanded to allow for additional landfilling capacity and delay the closure of both landfills by a few years. It is understood that the MECP generally grants approval for a landfill to increase their landfilling capacity up to a maximum of 40,000 m^3 as an amendment to the existing ECA. Continued operation of Fenelon and Laxton landfills will delay the influx of additional traffic anticipated at the Lindsay Ops landfill for a few years. In order to maintain the current level of service is it assumed that both sites will operate under current operating hours. ECA amendments will be required for each site to increase the landfilling capacities.

EXPANSION OF FENELON LANDFILL

Four (4) options were considered in the feasibility study for expansion of the Fenelon Landfill. Three (3) options proposed to increase the landfilling capacity of the site by approximately 40,000 m^3. Considering an average waste disposal rate of 14,741 m^3 per year, the additional capacity will extend closure of the site to 2027. The fourth option combines the previous three (3) options to increase the landfilling capacity of the site by approximately 142,400 m^3. Considering an average waste disposal rate of 14,741 m^3 per year, the additional capacity will extend closure of the site to 2034.

Option 1 – Existing 4H:1V side slopes in Phase 1 will be extended up approximately 3 m and transition to 5% at the top of the landfill to a peak elevation 275 metres above sea level (MASL). The cost for Option 1 was estimated to be approximately $281,075.

Option 2 – Existing 4H:1V side slopes in the east part of Phase 1 and west part of Phase 2 will be extended up approximately 4 m and transition to 5% at the top of the landfill to a peak elevation 276 MASL. The cost for Option 2 was estimated to be approximately $210,100.

Option 3 – Existing 4H:1V side slopes in Phase 2 will be extended south for a lateral expansion. The slopes will also be extended up approximately 4.5 m and transition to 5% at the top of the landfill to a peak elevation 275.5 MASL. The cost for Option 3 was estimated to be approximately $88,700 (rounded to $90,000).

Option 4 – Combines Options 1, 2 and 3. The cost for Option 4 was estimated to be approximately $1,508,075. A more comprehensive approval process will be required for Option 4 compared to the previous three (3) options as the increase in landfilling capacity is larger than 40,000 m^3. Considering the level of effort required to obtain the environmental approvals and associated fees for Option 4, alternatives that take into

consideration steeper side slopes or additional lands can be contemplated to extend the site life by another 20 years or more.

EXPANSION OF LAXTON LANDFILL

Two (2) options were considered in the feasibility study for expansion of the Laxton Landfill.

Option 1 – The approved top of waste elevation of 280 MASL will be increased to an elevation of 282.5 MASL. Existing 4H:1V side slopes will be extended up approximately 4.5 m and then transition to a 5% slope to a peak elevation of 282.5 MASL. The additional capacity gained with this option is estimated to be approximately 15,500 m^3. Considering an average waste disposal rate of 4,500 m^3 per year, the additional capacity will extend closure of the site to 2028. The cost for Option 1 was estimated to be approximately $301,200 (rounded to $305,000).

Option 2 – The approved top of waste elevation of 280 MASL will be increased to an elevation of 283.5 MASL. Existing 4H:1V side slopes will be extended up approximately 5.2 m at 3H:1V side slopes and then transition to a 5% slope to a peak elevation of 283.5 MASL. The additional capacity gained with this option is estimated to be approximately 21,500 m^3. Considering an average fill rate of 4,500 m^3 per year, the additional capacity will extend closure of the site to 2029. The cost for Option 2 was also estimated to be approximately $301,200 (rounded to $305,000).

6.8.4 *REDIRECT TRAFFIC TO ELDON AND SOMERVILLE LANDFILL*

This study assumes that upon closure of the Fenelon and Laxton landfills the City will send waste and recyclables that were being landfilled at these sites to the Lindsay Ops landfill. If the City redirects some waste and recyclables to either the Eldon and/or Somerville landfill the impact on the Lindsay Ops landfill will be reduced. However, even with diversion of waste and recyclables to other landfill sites, some infrastructure and operation upgrades are still required at the Lindsay Ops landfill due to the expected population growth in order to maintain or improve the existing level of service. Current site operations and remaining site life of Eldon and/or Somerville landfills will be impacted if waste and recyclables are diverted to those sites.

6.8.5 *NO USE OF WEIGH SCALES FOR FREE MATERIALS*

The City currently requires all vehicles to weigh in and out at the weigh scales regardless of the type or amount of materials being brought in. Under this option, vehicles disposing of recyclable items that are permitted to be disposed at no charge,

will not be required to weigh in or out at the weigh scales. Vehicles disposing of free items will instead use weigh scales bypass lanes. Additional signage will be installed on site to direct traffic. Additional staff may be required to enforce that only vehicles with free recyclable items are using the bypassing lanes. Vehicles hauling the roll-off bins off-site for disposal can weigh out at the outbound scales as required to maintain records of recyclables received. Reducing the number of vehicles required to pass over the inbound and outbound weigh scales will reduce traffic queuing and wait times at the weigh scales.

6.8.6 *OPEN LANDFILL ON WEDNESDAYS AND/OR EXTEND SATURDAY HOURS*

Currently, the Lindsay Ops landfill is closed on Wednesdays in the summer and closes at 3 pm on Saturdays. Opening the landfill on Wednesdays in the summer and extending Saturday hours will provide more opportunity for residents to go to the landfill, which could reduce demand during peak time hours. Increasing operating hours will require an amendment to the ECA if the hours are outside currently approved operating hours.

6.8.7 *USE OF COMPACTED BINS*

The implementation of a compacted bin (i.e., Transtor) can be considered for the disposal of recyclable materials to reduce the number of hauling trips off site. This type of container integrates easily with compacting trailers to maximize payload. The estimated capital cost one (1) compacted bin is approximately $150,000. Operational costs, which includes maintenance for one (1) compacted bin is approximately $5,000 per year.

7 IDENTIFICATION OF PREFERRED OPTIONS

7.1 FEEDBACK FROM CITY

The options identified in Section 6 were presented to the City for their review and feedback. These options were also presented to the City's Waste Management Advisory Committee on November 16, 2020 and the Public Review Committee on November 18, 2020. Feedback received from both presentations as well as City's engineering department were considered and incorporated into this report.

7.2 REGULATORY CONSIDERATIONS

The management of Ontario's BBR Program by municipalities will transition to management by producers between January 1, 2023 and December 31, 2025. The details of the program are currently unavailable, and as such, the implications of the new policy on the City's current waste diversion program is not considered in this report.

Furthermore, as per Ontario's Food and Organic Waste Policy Statement (2018) the City is required to provide green bin waste collection options within the urban settlement areas by 2025. Depending on the approach selected by the City, this could affect operations and traffic at the Lindsay Ops landfill, if the site is utilized for any component of that program.

As such, the City may want to consider deferring construction of major upgrades to the Lindsay Ops landfill's infrastructure until it has determined how Ontario BBR program transition and Organic Waste Policy directives will impact waste management operation in the City.

7.3 RECOMMENDED OPTIONS

Based on WSP's analysis and feedback received from the City, three (3) different recommendations are considered feasible. Recommendation A is based on closure of the Fenelon and Laxton landfill sites once their currently approved landfill capacity is reached in 2023/2024. In order to accommodate increased traffic diverted from these sites, capital upgrades are required at the Lindsay Ops landfill to maintain or improve current level of service.

Recommendation B is based on obtaining approvals to allow for additional landfilling capacity at both Fenelon and Laxton landfills. Based on Option 3 of WSP's Feasibility Study of the Fenelon landfill, increasing the landfilling capacity at the site by approximately 40,000 m^3 will allow the site to remain operational until at least 2027 (and likely longer if winter closure continues). Based on Option 2 of WSP's Feasibility Study of the Laxton landfill, increasing the landfilling capacity at the site by approximately 21,500 m^3 will allow the site to remain operational until 2029. Continued operation of these sites will reduce the traffic impact on the Lindsay Ops landfill. Upgrades at the Lindsay Ops landfill will still be required to maintain or improve current level of service, but recommended upgrades are not as extensive as those in Recommendation A.

Recommendation C is based on operation of the Fenelon and Laxton landfill sites as transfer stations once approved landfilling capacity is reached. Recommendation C

should be considered after implementation of Recommendation B to increase the site lives at the Fenelon and Laxton landfills. Operation of these sites as transfer stations will reduce the traffic impact on the Lindsay Ops landfill. Upgrades at the Lindsay Ops landfill under Recommendation B is still required to maintain or improve current level of service.

RECOMMENDATION A

Additional traffic due to the closure of Fenelon and Laxton landfills will negatively impact the current level of service at the Lindsay Ops landfill. A combination of one or more options presented in Section 6 should be considered by the City for implementation at the Lindsay Ops landfill to maintain the level of service expected by the City and users when Fenelon and Laxton waste is diverted to Lindsay Ops. Based on WSP's analysis the following options are recommended:

- Redesign the existing public drop-off area (Option 5)
- Replace existing weigh scales, relocate outbound weigh scale and install additional inbound weigh scale (Option 6)
- Based on projected incoming waste tonnages, the allowable daily fill rate of 240 tonnes is expected to be exceeded more frequently in the future. Therefore, the average daily incoming waste tonnage for the site should continue to be monitored. The ECA condition should be amended if/when required to increase the allowable daily fill rate.

Details of proposed works under Recommendation A are shown on Figure 7-1. Redesign of the existing drop-off area will streamline disposal of waste and recyclables and significantly reduce traffic congestion experienced in this area. Installation of an additional inbound weigh scale will reduce queuing and wait times at the inbound weigh scales and is expected to eliminate vehicle queuing onto Wilson Road during peak hours. A new outbound weigh scale further south will provide additional queuing room for outbound traffic. Replacement of existing scales will reduce down time due to repair and maintenance.

RECOMMENDATION B

Due to uncertainties and limited information available with regards to City's future blue box recycling and organics diversion program requirements as well as that the City is currently undertaking a long-term waste management needs study, the City may want to avoid pursuing large capital projects at this time. Therefore, in the short-term, the

following measures are recommended to improve existing operations at the Lindsay Ops landfill.

- Seek approval to increase landfilling capacity at the Fenelon landfill by approximately 40,000 m^3 and Laxton landfill by approximately 21,500 m^3 and continue to operate the landfills until 2027 and 2029 respectively. This will minimize the traffic impact at the Lindsay Ops landfill.

- Relocate roll-off bins, particularly bins currently placed on the upper platform and bins for free items, to the north of the Municipal Curbside Recycling Transfer Facility (Option 3).

- Replace existing weigh scales, relocate outbound weigh scale and install additional inbound weigh scale (Option 6)

- Based on projected incoming waste tonnages, the allowable daily fill rate of 240 tonnes is expected to be exceeded more frequently in the future. Therefore, the average daily incoming waste tonnage for the site should continue to be monitored. The ECA condition should be amended if/when required to increase the allowable daily fill rate.

- If required, other options to improve site infrastructure and management of waste and recyclables can be revisited when details of Ontario's new BBR Program and the City's green bin waste collection program are available.

Details of proposed works under Recommendation B are shown on Figure 7-2. These options will reduce the influx of traffic from Fenelon and Laxton landfills, reduce congestion and improve traffic flow through the public drop-off areas, provide additional queuing, and reduce the frequency/costs associated with maintenance of the weigh scales. Depending on the outcome of Ontario's BBR program and the City's green bin waste collection program, other infrastructure upgrade options at the Lindsay Ops landfill can be considered in the future.

RECOMMENDATION C

Recommendation C can be considered after implementation of Recommendation B to help maintain or improve level of service at the Lindsay Ops Landfill. The following measures are recommended for when the Fenelon and Laxton landfills reach their extended capacity in 2027 and 2029 respectively.

- Continue to operate both Fenelon and Laxton landfills sites as transfer stations for both waste and recyclables upon closure to maintain level of service provided

to residents using the two sites. This will minimize the traffic impact at the Lindsay Ops landfill.

- Direct waste from the Laxton transfer station to either the Somerville or Eldon landfills, which are both closer to the Laxton landfill than the Lindsay Ops landfill.

- Possibly direct waste from the Fenelon transfer station to the Eldon landfill which is approximately the same distance from the Fenelon landfill as the Lindsay Ops landfill.

7.4 SCHEDULE

The City is currently conducting a future waste management options study to review waste disposal options after the Lindsay Ops landfill reaches its approved waste disposal capacity. The outcome of that study may have an impact on the timing of the implementation of the recommendations presented.

RECOMMENDATION A

The redesign of the existing drop-off area will help alleviate existing congestion as well as future congestion and therefore should be implemented as soon as possible. In order to redesign the existing public drop-off area approval from the MECP is required. As the regulatory approvals process can be quite lengthy, the City should commence the approval process as soon as possible.

Installation of an additional inbound weigh scale and relocation of the outbound weigh scale are operational changes and therefore approval from MECP is not required. These changes can be implemented by the City at any time. However, since traffic congestion and weigh scale malfunction is already an issue on site, implementing these upgrades as soon as possible is recommended.

RECOMMENDATION B

In order to increase the landfilling capacities at the Fenelon and Laxton landfills an amendment to the ECA will be required. As the regulatory approvals process can be quite lengthy, the City should commence the approval process as soon as possible.

Relocation of roll-off bins to the north of the Municipal Curbside Recycling Transfer Facility (Option 3), installation of an additional weigh scale, as well as relocation of the outbound weigh scale south of its current location are operational changes and therefore approval from MECP is not required. These changes can be implemented by

the City at any time. However, since traffic congestion and weigh scale malfunction is already an issue on site, implementing these upgrades as soon as possible is recommended.

RECOMMENDATION C

In order to operate the Fenelon and Laxton landfills as transfer stations upon closure in 2027 and 2029 respectively, approval from the MECP is required. Approvals, design, and construction of a transfer station can take up to 2 years to complete. Therefore, design and approval process to operate the Fenelon landfill as a transfer station should start by 2025. Design and approval process to operate the Laxton landfill as a transfer station should start by 2027.

7.5 COST ESTIMATE

Tables 7-1, 7-2 and 7-3 below summarizes the approximate costs associated with the recommended options. The operational costs indicated below only include additional costs to be incurred as a result of the proposed upgrades.

RECOMMENDATION A

Table 7-1 Recommendation A Cost Estimate

Proposed Work	Capital Cost	Operational Cost (Per year)
Redesign the existing public drop-off area (Option 5)	$3,814,910	$0
Replace existing weigh scales, relocate outbound weigh scale and install additional inbound weigh scale (Option 6)	$1,677,500	$90,000
Total	**$5,492,410**	**$90,000**

Notes:
1. All costs are in 2020 dollar values.

The capital cost for the proposed work is approximately $5,492,410 and the operational costs are approximately $90,000 per year. However, it is anticipated that there will be some operational cost savings as a result of closure of Fenelon and Laxton landfills. Operational cost savings from closure of the Fenelon landfill is approximately $215,000 per year and the Laxton landfill is approximately $120,000 per year for a total of $335,000 per year. Detailed cost savings calculations are provided in Appendix C.

As noted in this report, there is congestion leading to queuing back ups and delays during peak times at the existing drop-off area. The redesign of the drop-off area will address that existing congestion. This congestion and queuing back ups have reduced level of service and results from increased use of the site due to population growth. Therefore, costs related to the redesign of the public drop-off area may be eligible for development charges funding. A Development Charges Background Study (Watson & Associates, October 2019) indicated that some waste management services are eligible for development charges recovery. Specifically, waste diversion facilities and waste diversion vehicles and equipment (with a 7 year or greater lifespan) were eligible. However, landfills and other disposal facilities, as well as landfill collection, transfer vehicles and equipment were not eligible for development charges recovery.

If there are development charges reserve funds for waste diversion, then the capital cost component of the public drop-off redesign related to waste diversion activities could be eligible for development charges funds. Out of the twelve (12) roll-off bins located at the public drop-off area, four (4) bins are used for the collection and disposal of waste. The remaining eight (8) bins are utilized for diversion of materials from the landfill. Therefore, approximately 67% of the costs associated with redesign of the public drop-off area may be eligible for development charges funds.

RECOMMENDATION B

Table 7-2 Recommendation B Cost Estimate

Proposed Work	Capital Cost	Operational Cost (Per year)
Expansion of Fenelon and Laxton landfills	$395,000	
Relocate roll-off bins north of the Municipal Curbside Recycling Transfer Facility (Option 3)	$20,000	$80,000
Replace existing weigh scales, relocate outbound weigh scale and install additional inbound weigh scale (Option 6)	$1,677,500	$90,000
Total	**$2,092,500**	**$170,000**

Notes:
1. All costs are in 2020 dollar values.

The capital cost for the proposed work is approximately $2,092,500 and the operational costs are approximately $170,000 per year.

Similar to Recommendation A, the costs related to relocating the roll-off bins north of the Municipal Curbside Recycling Transfer Facility (Option 3) may be eligible for

development charges funding as the current issues at the public drop-off can be attributed to additional use based on population growth. In the conceptual drawing prepared for Option 3, all of the roll-off bins relocated north of the Municipal Curbside Recycling Transfer Facility are to be utilized for diversion of materials from the landfill. Therefore, 100% of the costs associated with relocation of the roll-off bins may be eligible for development charges funds.

RECOMMENDATION C

Table 7-3 Recommendation C Cost Estimate

Proposed Work	Capital Cost	Operational Cost (Per year)
Operate Fenelon and Laxton landfills as Transfer Stations	$40,000	$195,000
Total	**$40,000**	**$195,000**

Notes:
1. All costs are in 2020 dollar values.

The capital cost for the proposed work is approximately $40,000 and the current operational costs related to operating both sites are approximately $195,000 per year. Operational cost savings from closure of the Fenelon landfill is approximately $215,000 per year and the Laxton landfill is approximately $120,000 per year for a total of $335,000 per year. Detailed cost savings calculations are provided in Appendix C.

Table 7-4 below summarizes the costs and savings for Recommendations A, B and C.

Table 7-4 Cost Estimate Summary

	Recommendation A	Recommendation B	Recommendation C
Capital Cost	$5,492,410	$2,092,500	$40,000
Operational Cost (Per year)	$90,000	$170,000	$195,000
Operational Savings (Per year)	$335,000	-	$335,000
Net Operational Cost (Per Year)	-$245,000	$170,000	-$140,000

	Recommendation A	Recommendation B	Recommendation C
Costs Potentially Eligible for Development Charges Funds	$2,555,990	$20,000	-

Notes:
1. Costs potentially eligible for development charges for Recommendation A calculated based on 67% of $3,814,910 (Option 5).
2. Costs potentially eligible for development charges for Recommendation B calculated based on 100% of $20,000 (Option 3).
3. Negative cost indicate savings.
4. All costs are in 2020 dollar values.

8 GLOSSARY OF TERMS

AMR: Annual Monitoring Report

BBR: Blue Box Recycling

City: City of Kawartha Lakes

County: County of Victoria

C&D: Construction and Demolition

EA: Environmental Assessment

ECA: Environmental Compliance Approval

EPA: Environmental Protection Act

EPR: Extended Producer Responsibility

GMS: Growth Management Strategy

ha: hectare

HHW: Household Hazardous Waste

IWMS: Integrated Waste Management Strategy

kg: kilogram

km: kilometre

L&Y: Leaf and Yard

m: metre

MASL: Metres Above Sea Level

MECP: Ontario Ministry of the Environment, Conservation and Parks

MRF: Materials Recycling Facility

RPRA: Resource Productivity and Recovery Authority

SSO: Source Separated Organics

SWMMP: Solid Waste Management Master Plan

TIS: Traffic Impact Study

UEM: Urban & Environmental Management Inc.

WEEE: Waste Electrical and Electronic Equipment

WSP: WSP Canada Inc.

9 REFERENCES

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Urban & Environmental Management Inc. February 2012. City of Kawartha Lakes Solid Waste Management Master Plan Update.

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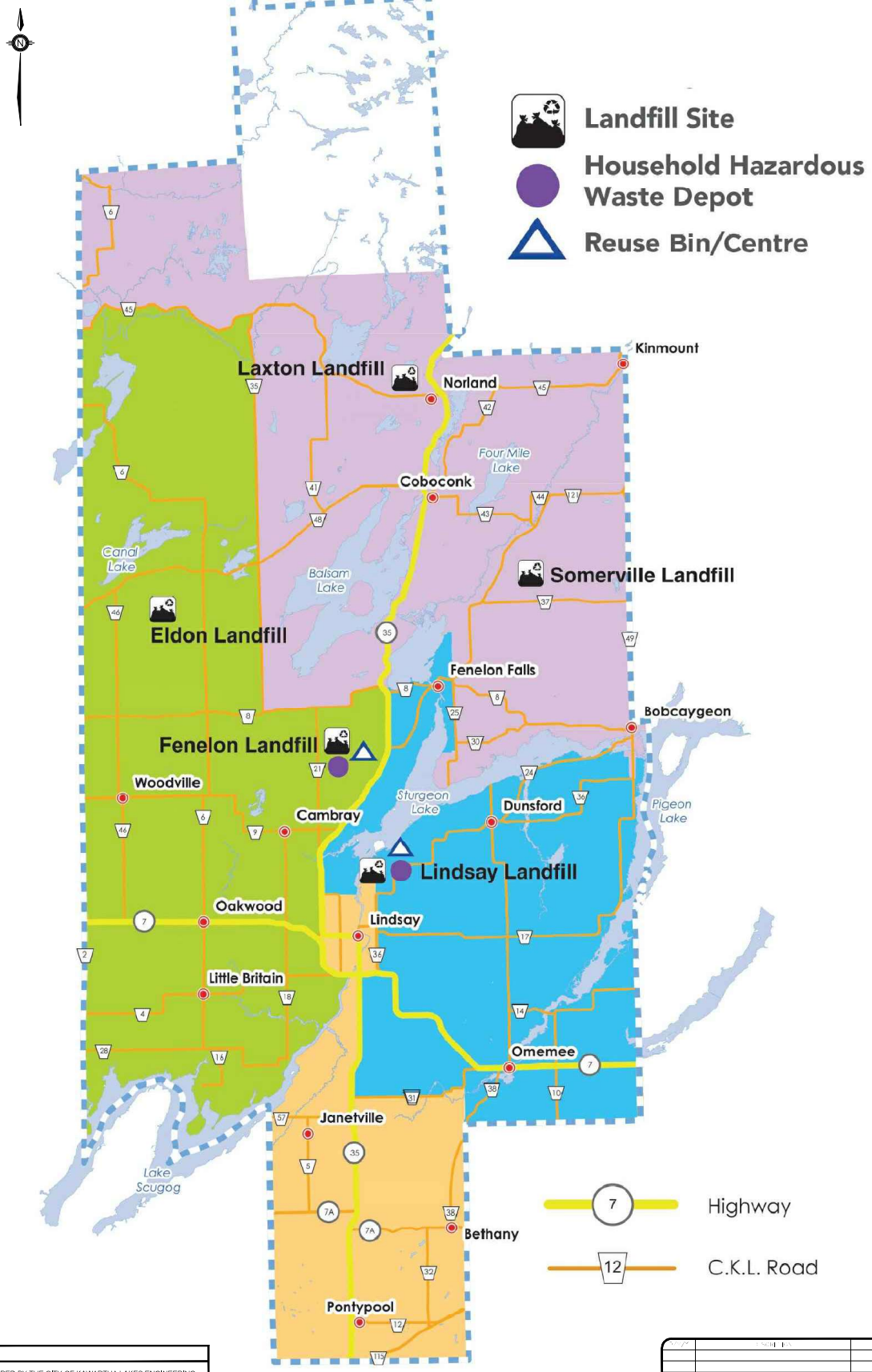
FIGURES



REFERENCE

1. MAP PREPARED BY THE CITY OF KAWARTHA LAKES ENGINEERING DEPARTMENT.

10/03/2022	ISSUED FOR FUTURE INFRASTRUCTURE/OPERATIONS REPORT	P R M

FIGURE 1-1	DWN BY: I F H DATE: MARCH 10, 2022 CHK BY: P R M SCALE: NOT TO SCALE CITY OF KAWARTHA LAKES PROJECT NO. 171-10835-04	MAP OF LANDFILLS IN THE CITY OF KAWARTHA LAKES FUTURE INFRASTRUCTURE AND OPERATIONS STUDY LINDSAY OPS LANDFILL, LINDSAY, ONTARIO	DISCLAIMER: THIS DRAWING AND DESIGN IS COPYRIGHT PROTECTED WHICH SHALL NOT BE USED, REPRODUCED OR REVISED WITHOUT WRITTEN PERMISSION BY WSP. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND UTILITY LOCATIONS AND REPORT ALL ERRORS AND OMISSIONS PRIOR TO COMMENCING WORK. THIS DRAWING IS NOT TO BE SCALED.

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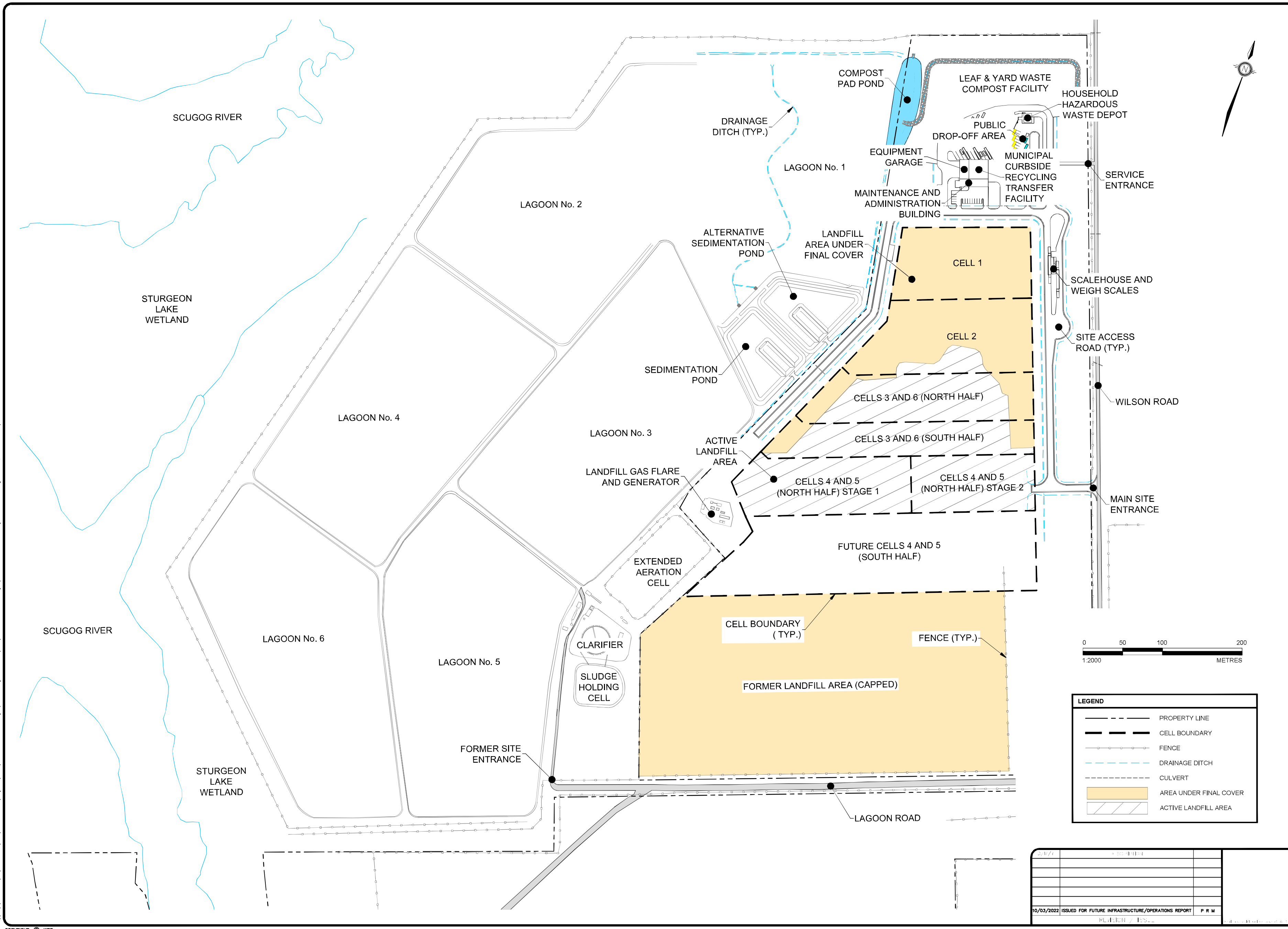

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EXISTING LANDFILL SITE FACILITIES

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LINDSAY OPS LANDFILL, LINDSAY, ONTARIO

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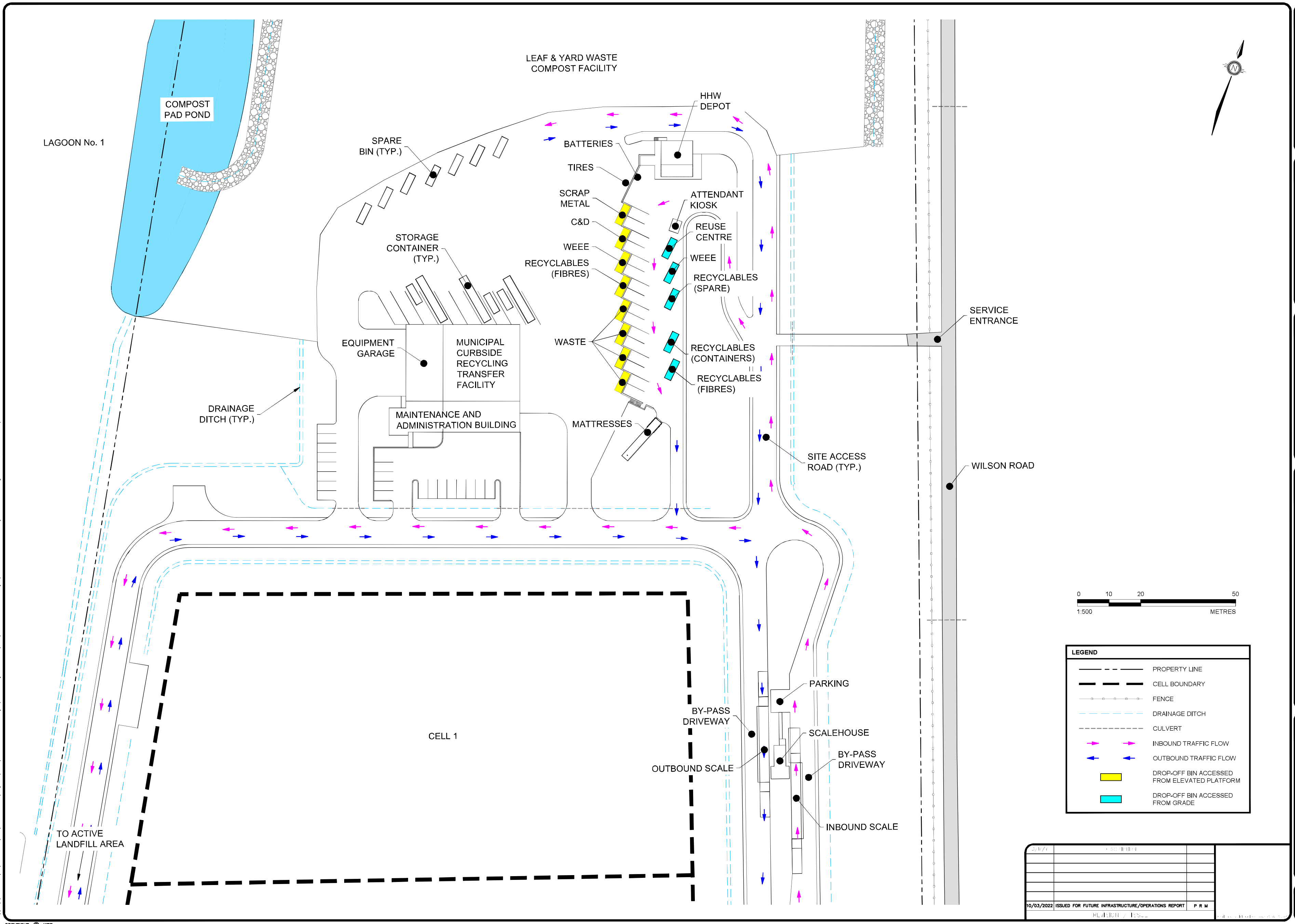
CITY OF KAWARTHA LAKES

PROJECT NO. 171-10835-04

FIGURE 2-1



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EXISTING PUBLIC DROP-OFF AREA

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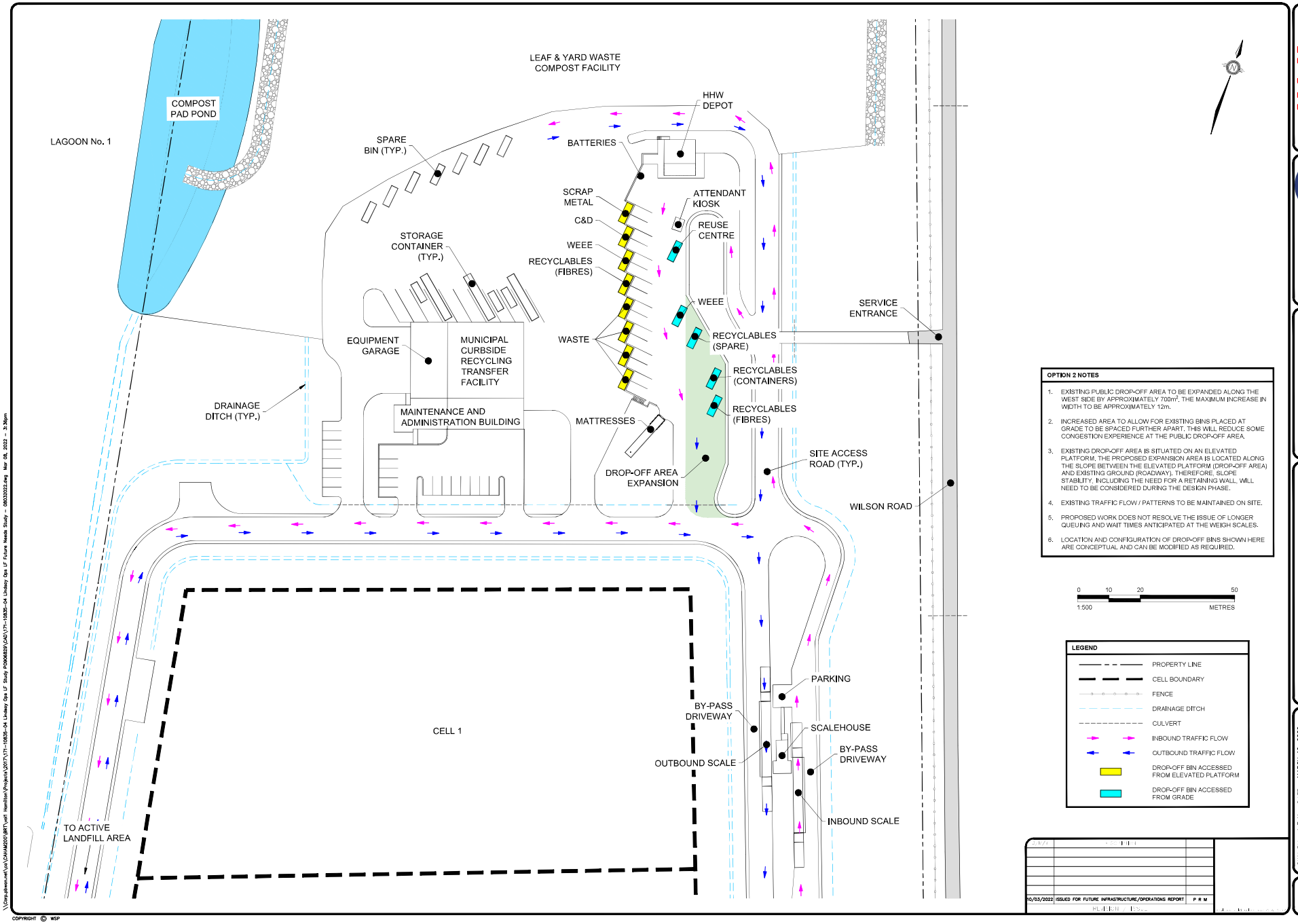
FIGURE 2-2



OPTION 2 NOTES

1. EXISTING PUBLIC DROP-OFF AREA TO BE EXPANDED ALONG THE WEST SIDE BY APPROXIMATELY 700m². THE MAXIMUM INCREASE IN WIDTH TO BE APPROXIMATELY 12m.
2. INCREASED AREA TO ALLOW FOR EXISTING BINS PLACED AT GRADE TO BE SPACED FURTHER APART. THIS WILL REDUCE SOME CONGESTION EXPERIENCE AT THE PUBLIC DROP-OFF AREA.
3. EXISTING DROP-OFF AREA IS SITUATED ON AN ELEVATED PLATFORM. THE PROPOSED EXPANSION AREA IS LOCATED ALONG THE SLOPE BETWEEN THE ELEVATED PLATFORM (DROP-OFF AREA) AND EXISTING GROUND (ROADWAY). THEREFORE, SLOPE STABILITY, INCLUDING THE NEED FOR A RETAINING WALL, WILL NEED TO BE CONSIDERED DURING THE DESIGN PHASE.
4. EXISTING TRAFFIC FLOW / PATTERNS TO BE MAINTAINED ON SITE.
5. PROPOSED WORK DOES NOT RESOLVE THE ISSUE OF LONGER QUEUING AND WAIT TIMES ANTICIPATED AT THE WEIGH SCALES.
6. LOCATION AND CONFIGURATION OF DROP-OFF BINS SHOWN HERE ARE CONCEPTUAL AND CAN BE MODIFIED AS REQUIRED.

0 10 20 50
1:500 METRES

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW
- DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
- DROP-OFF BIN ACCESSED FROM GRADE

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OPTION 2: EXPAND EXISTING PUBLIC DROP-OFF AREA

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CITY OF KAWARTHA LAKES

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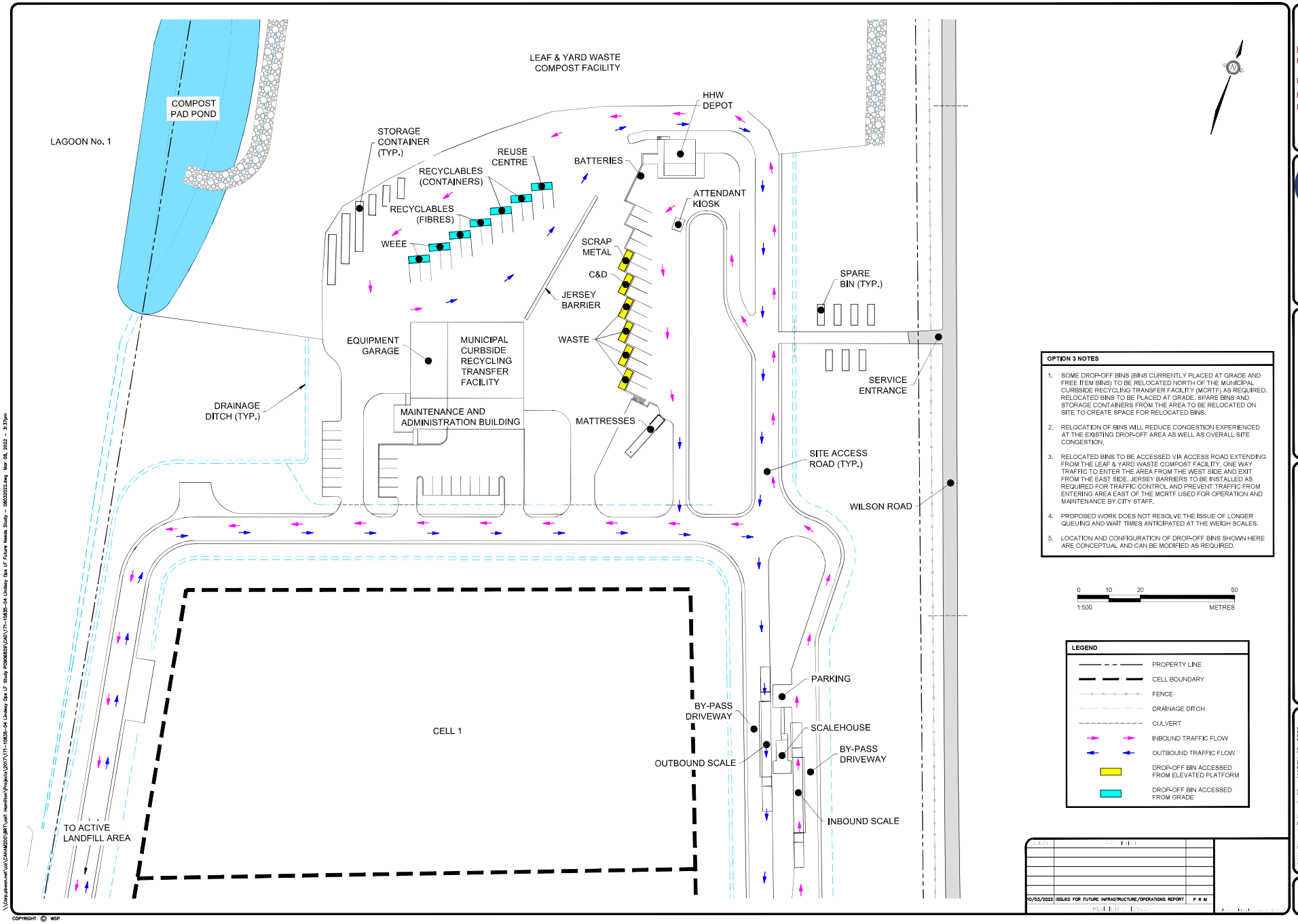
FIGURE
6-1



OPTION 3 NOTES

1. SOME DROP-OFF BINS (BINS CURRENTLY PLACED AT GRADE AND FREE ITEM BINS) TO BE RELOCATED NORTH OF THE MUNICIPAL CURBSIDE RECYCLING TRANSFER FACILITY (MCRTF) AS REQUIRED. RELOCATED BINS TO BE PLACED AT GRADE. SPARE BINS AND STORAGE CONTAINERS FROM THE AREA TO BE RELOCATED ON SITE TO CREATE SPACE FOR RELOCATED BINS.
2. RELOCATION OF BINS WILL REDUCE CONGESTION EXPERIENCED AT THE EXISTING DROP-OFF AREA AS WELL AS OVERALL SITE CONGESTION.
3. RELOCATED BINS TO BE ACCESSED VIA ACCESS ROAD EXTENDING FROM THE LEAF & YARD WASTE COMPOST FACILITY. ONE WAY TRAFFIC TO ENTER THE AREA FROM THE WEST SIDE AND EXIT FROM THE EAST SIDE. JERSEY BARRIERS TO BE INSTALLED AS REQUIRED FOR TRAFFIC CONTROL AND PREVENT TRAFFIC FROM ENTERING AREA EAST OF THE MCRTF USED FOR OPERATION AND MAINTENANCE BY CITY STAFF.
4. PROPOSED WORK DOES NOT RESOLVE THE ISSUE OF LONGER QUEUING AND WAIT TIMES ANTICIPATED AT THE WEIGH SCALES.
5. LOCATION AND CONFIGURATION OF DROP-OFF BINS SHOWN HERE ARE CONCEPTUAL AND CAN BE MODIFIED AS REQUIRED.

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OPTION 3: UTILIZE AREA NORTH OF MUNICIPAL CURBSIDE RECYCLING TRANSFER FACILITY

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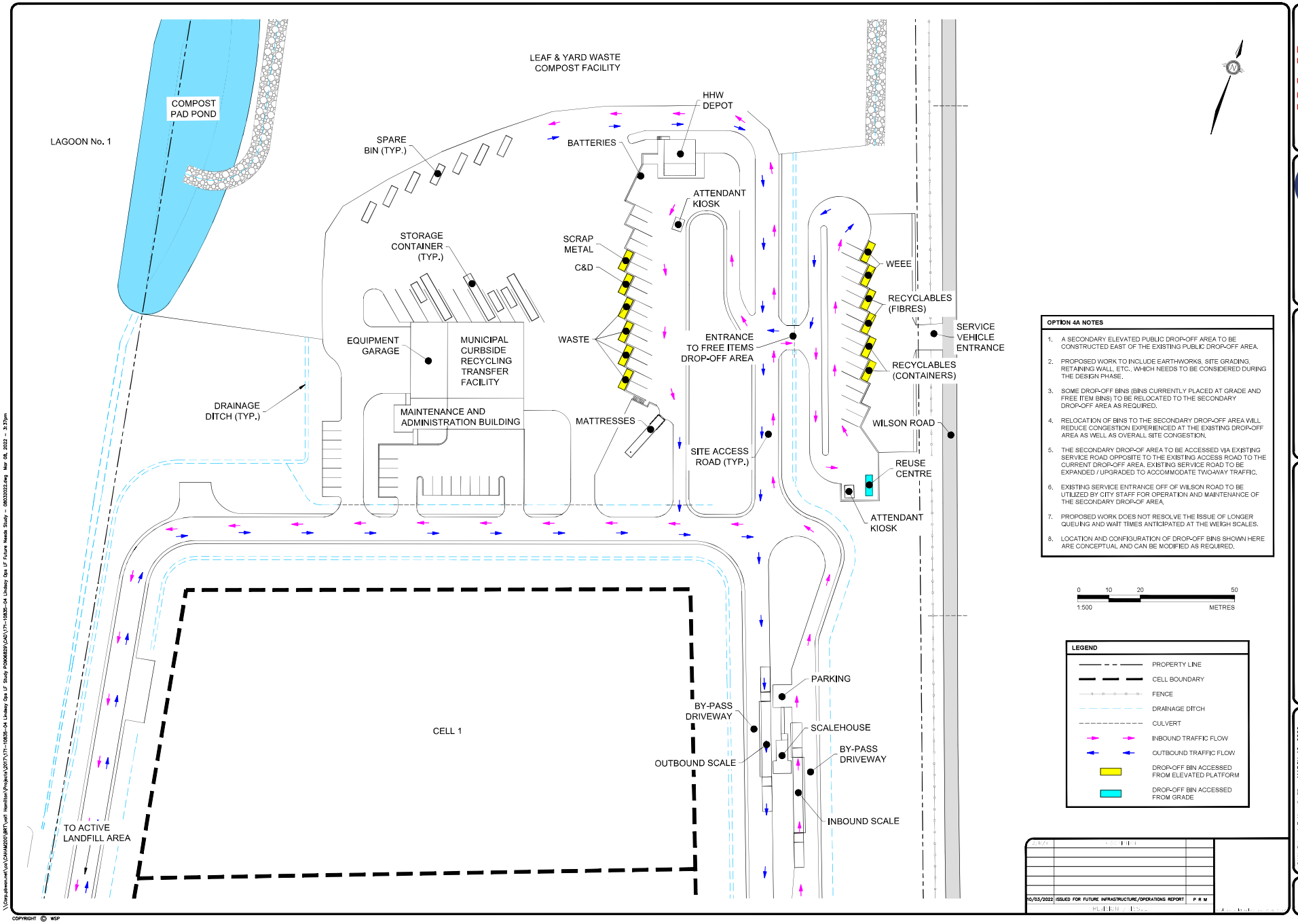
FIGURE
6-2



OPTION 4A NOTES

1. A SECONDARY ELEVATED PUBLIC DROP-OFF AREA TO BE CONSTRUCTED EAST OF THE EXISTING PUBLIC DROP-OFF AREA.
2. PROPOSED WORK TO INCLUDE EARTHWORKS, SITE GRADING, RETAINING WALL, ETC., WHICH NEEDS TO BE CONSIDERED DURING THE DESIGN PHASE.
3. SOME DROP-OFF BINS (BINS CURRENTLY PLACED AT GRADE AND FREE ITEM BINS) TO BE RELOCATED TO THE SECONDARY DROP-OFF AREA AS REQUIRED.
4. RELOCATION OF BINS TO THE SECONDARY DROP-OFF AREA WILL REDUCE CONGESTION EXPERIENCED AT THE EXISTING DROP-OFF AREA AS WELL AS OVERALL SITE CONGESTION.
5. THE SECONDARY DROP-OF AREA TO BE ACCESSED VIA EXISTING SERVICE ROAD OPPOSITE TO THE EXISTING ACCESS ROAD TO THE CURRENT DROP-OFF AREA. EXISTING SERVICE ROAD TO BE EXPANDED / UPGRADED TO ACCOMMODATE TWO-WAY TRAFFIC.
6. EXISTING SERVICE ENTRANCE OFF OF WILSON ROAD TO BE UTILIZED BY CITY STAFF FOR OPERATION AND MAINTENANCE OF THE SECONDARY DROP-OF AREA.
7. PROPOSED WORK DOES NOT RESOLVE THE ISSUE OF LONGER QUEUING AND WAIT TIMES ANTICIPATED AT THE WEIGH SCALES.
8. LOCATION AND CONFIGURATION OF DROP-OFF BINS SHOWN HERE ARE CONCEPTUAL AND CAN BE MODIFIED AS REQUIRED.

0 10 20 50
1:500 METRES

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW
- DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
- DROP-OFF BIN ACCESSED FROM GRADE

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OPTION 4A: UTILIZE AREA EAST OF EXISTING PUBLIC DROP-OFF AREA (ACCESSED FROM SITE)

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CITY OF KAWARTHA LAKES

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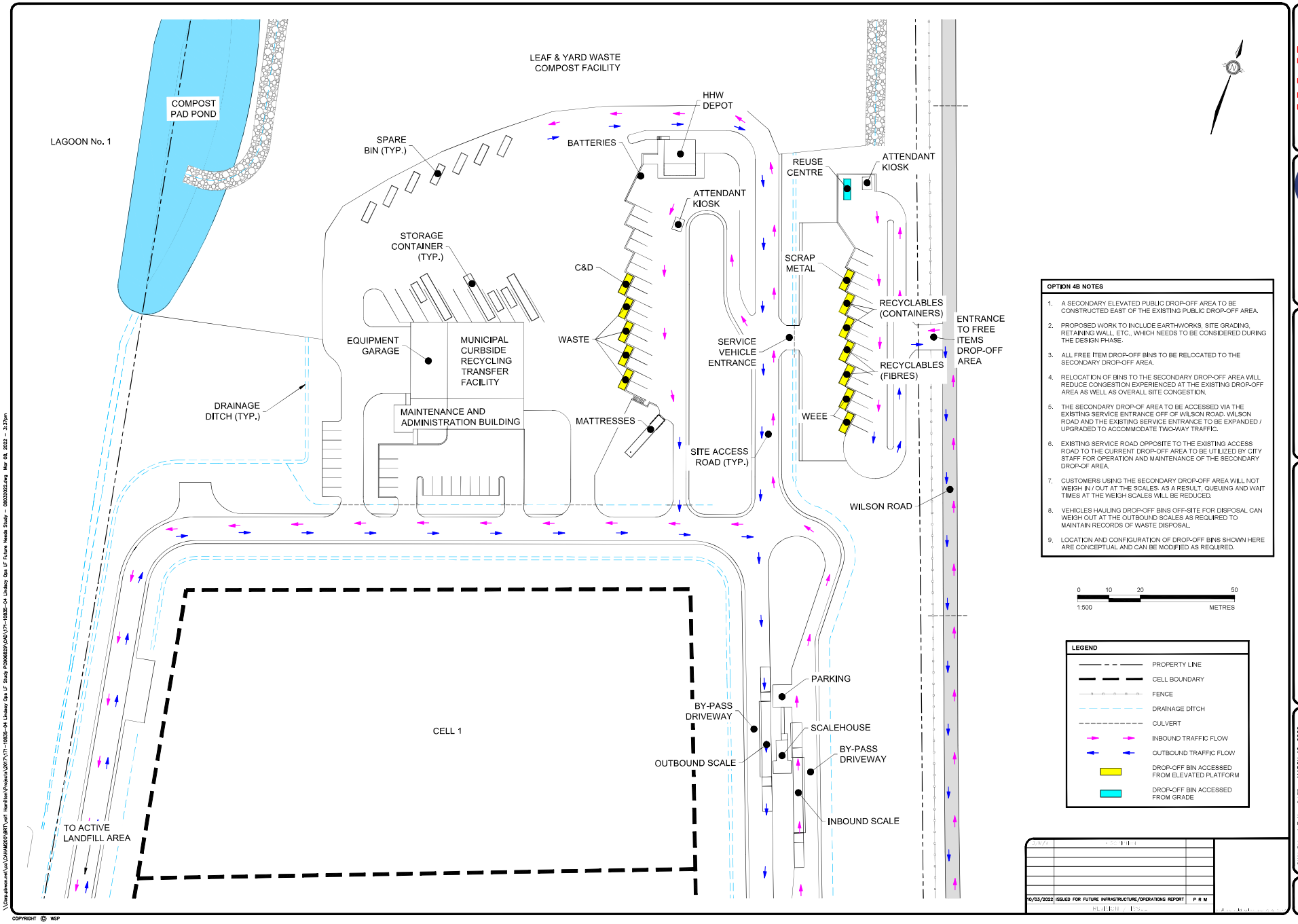
FIGURE
6-3



OPTION 4B NOTES

1. A SECONDARY ELEVATED PUBLIC DROP-OFF AREA TO BE CONSTRUCTED EAST OF THE EXISTING PUBLIC DROP-OFF AREA.
2. PROPOSED WORK TO INCLUDE EARTHWORKS, SITE GRADING, RETAINING WALL, ETC., WHICH NEEDS TO BE CONSIDERED DURING THE DESIGN PHASE.
3. ALL FREE ITEM DROP-OFF BINS TO BE RELOCATED TO THE SECONDARY DROP-OFF AREA.
4. RELOCATION OF BINS TO THE SECONDARY DROP-OFF AREA WILL REDUCE CONGESTION EXPERIENCED AT THE EXISTING DROP-OFF AREA AS WELL AS OVERALL SITE CONGESTION.
5. THE SECONDARY DROP-OF AREA TO BE ACCESSED VIA THE EXISTING SERVICE ENTRANCE OFF OF WILSON ROAD. WILSON ROAD AND THE EXISTING SERVICE ENTRANCE TO BE EXPANDED / UPGRADED TO ACCOMMODATE TWO-WAY TRAFFIC.
6. EXISTING SERVICE ROAD OPPOSITE TO THE EXISTING ACCESS ROAD TO THE CURRENT DROP-OFF AREA TO BE UTILIZED BY CITY STAFF FOR OPERATION AND MAINTENANCE OF THE SECONDARY DROP-OF AREA.
7. CUSTOMERS USING THE SECONDARY DROP-OFF AREA WILL NOT WEIGH IN / OUT AT THE SCALES. AS A RESULT, QUEUING AND WAIT TIMES AT THE WEIGH SCALES WILL BE REDUCED.
8. VEHICLES HAULING DROP-OFF BINS OFF-SITE FOR DISPOSAL CAN WEIGH OUT AT THE OUTBOUND SCALES AS REQUIRED TO MAINTAIN RECORDS OF WASTE DISPOSAL.
9. LOCATION AND CONFIGURATION OF DROP-OFF BINS SHOWN HERE ARE CONCEPTUAL AND CAN BE MODIFIED AS REQUIRED.

0 10 20 50
1:500 METRES

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW
- DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
- DROP-OFF BIN ACCESSED FROM GRADE

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OPTION 4B: UTILIZE AREA EAST OF EXISTING PUBLIC DROP-OFF AREA (ACCESSED FROM WILSON ROAD)

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CITY OF KAWARTHA LAKES

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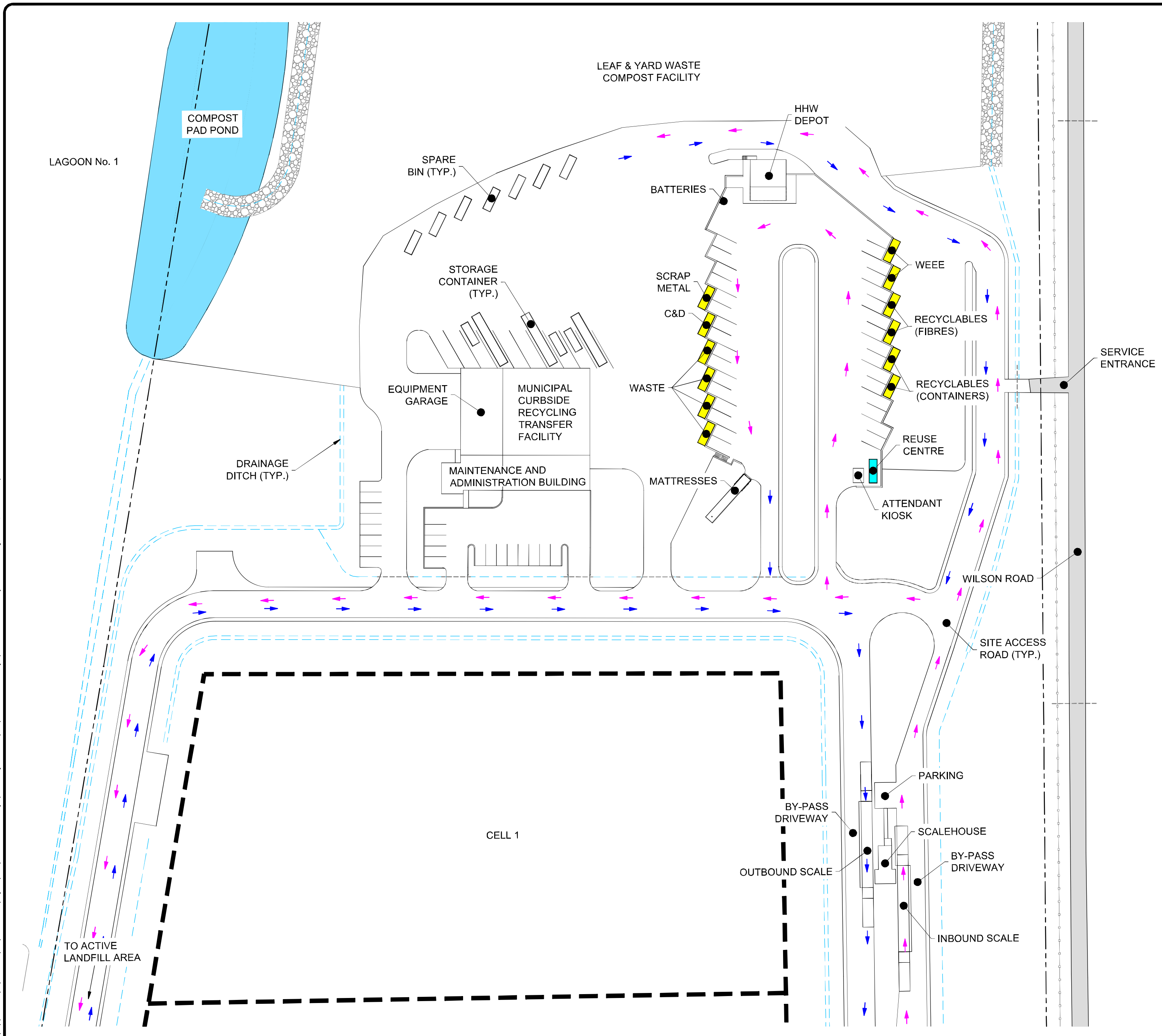
FIGURE
6-4



OPTION 5 NOTES

1. EXISTING PUBLIC DROP-OFF AREA TO BE RE-DESIGNED TO INCLUDE ADDITIONAL ELEVATED DROP-OFF BAYS / BINS.
2. PROPOSED WORK TO INCLUDE EARTHWORKS, SITE GRADING, ACCESS ROADS, RETAINING WALL, ETC., WHICH NEEDS TO BE CONSIDERED DURING THE DESIGN PHASE.
3. EXPANDING THE EXISTING DROP-OFF AREA WILL REDUCE TRAFFIC CONGESTION AND REDUCE WAITING TIME.
4. ACCESS TO THE DROP-OFF AREA TO BE RELOCATED AS REQUIRED. ACCESS ROAD TO THE LEAF & YARD WASTE COMPOST FACILITY AND ADJACENT DRAINAGE DITCHES TO BE RELOCATED EAST OF THE RE-DESIGNED DROP-OFF AREA.
5. PROPOSED WORK DOES NOT RESOLVE THE ISSUE OF LONGER QUEUING AND WAIT TIMES ANTICIPATED AT THE WEIGH SCALES.
6. LOCATION AND CONFIGURATION OF DROP-OFF AREA / BINS SHOWN HERE ARE CONCEPTUAL AND CAN BE MODIFIED AS REQUIRED.

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW
- DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
- DROP-OFF BIN ACCESSED FROM GRADE

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OPTION 5: REDESIGN EXISTING PUBLIC DROP-OFF AREA

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FIGURE 6-5

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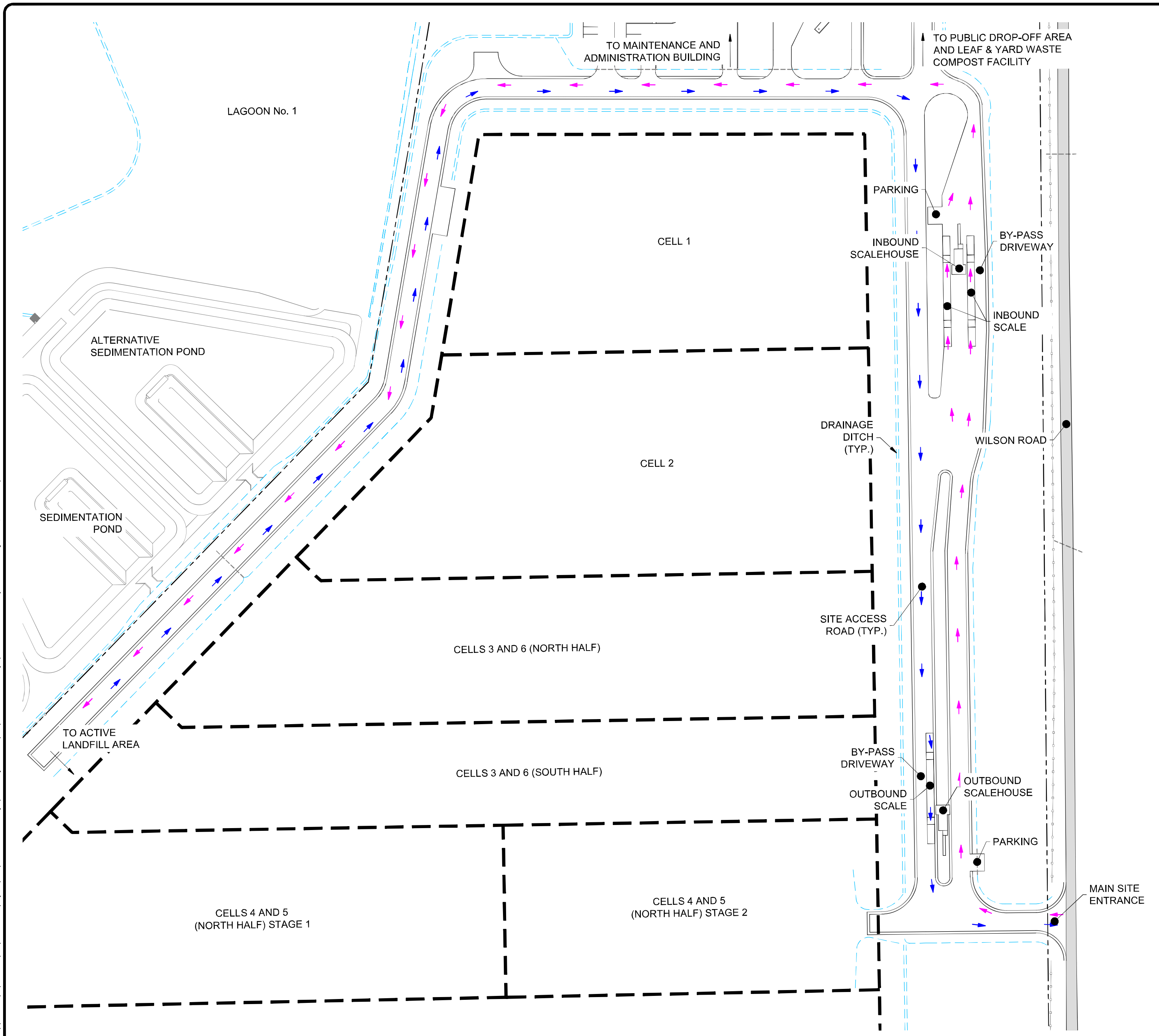

OPTION 6 NOTES

1. EXISTING OUTBOUND WEIGH SCALE TO BE REPLACED WITH NEW WEIGH SCALE SOUTH OF IT'S CURRENT LOCATION (CLOSER TO THE MAIN SITE ENTRANCE). EXISTING INBOUND SCALE TO BE REPLACED. ADDITIONAL NEW INBOUND WEIGH SCALE TO BE INSTALLED ADJACENT TO EXISTING INBOUND WEIGH SCALE.
2. EXISTING ACCESS ROAD FROM WEIGH SCALES TO THE SITE ENTRANCE TO BE USED FOR OUTBOUND TRAFFIC / QUEUING. NEW ACCESS ROAD TO BE CONSTRUCTED EAST OF THE EXISTING ACCESS ROAD FOR INBOUND TRAFFIC / QUEUING. NEW ACCESS ROAD TO BE WIDE ENOUGH TO PROVIDE TWO (2) LANE QUEUING. ADJACENT DRAINAGE DITCHES TO BE RELOCATED EAST OF THE NEW ACCESS ROAD.
3. EXISTING SCALEHOUSE TO BE RELOCATED IN BETWEEN THE TWO INBOUND WEIGH SCALES. NEW OUTBOUND SCALEHOUSE TO BE INSTALLED NEXT TO RELOCATED OUTBOUND WEIGH SCALE.
4. PROPOSED WORK TO INCLUDE EARTHWORKS, SITE GRADING, ACCESS ROAD, ELECTRICAL WORK, ETC., WHICH NEEDS TO BE CONSIDERED DURING THE DESIGN PHASE.
5. ADDITIONAL INBOUND WEIGH SCALE WILL REDUCE QUEUING AND WAIT TIMES AT THE INBOUND WEIGH SCALES. RELOCATION OF THE OUTBOUND SCALE WILL PROVIDE ADDITIONAL QUEUING AREA FOR OUTBOUND TRAFFIC.
6. PROPOSED WORK DOES NOT AFFECT WASTE DISPOSAL ON SITE. CONGESTION IS EXPECTED TO OCCUR AT THE EXISTING PUBLIC DROP-OFF AREA.

0 25 50 75
1:750 METRES

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW

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OPTION 6: REPLACE EXISTING WEIGH SCALES AND INSTALL ADDITIONAL WEIGH SCALE

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FIGURE 6-6

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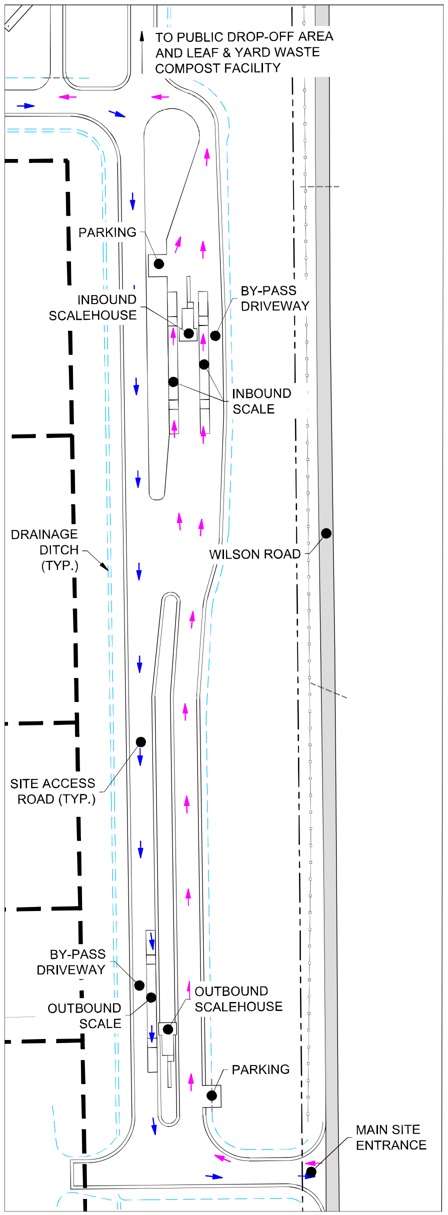
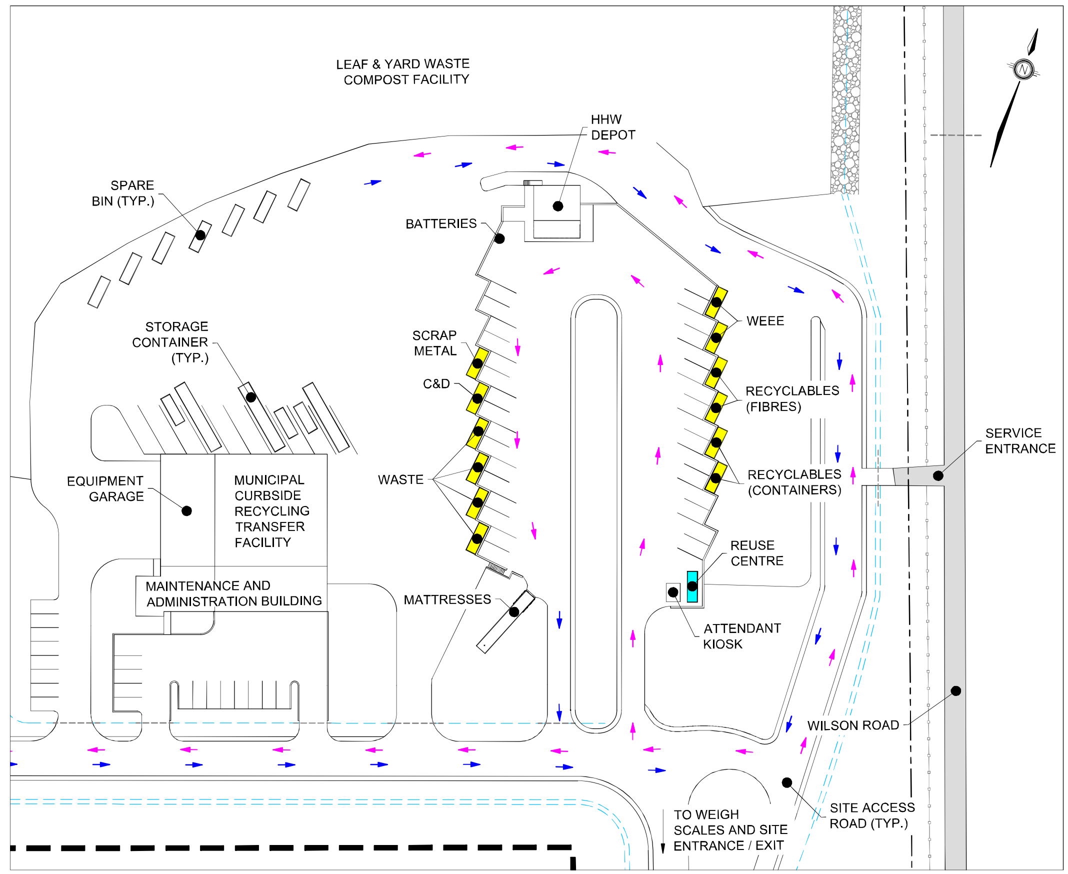


SITE ENTRANCE / EXIT AND WEIGH SCALE

0 25 50 75
1:750 METRES



PUBLIC DROP-OFF AREA

0 10 20 50
1:500 METRES

LEGEND

- PROPERTY LINE
- CELL BOUNDARY
- FENCE
- DRAINAGE DITCH
- CULVERT
- INBOUND TRAFFIC FLOW
- OUTBOUND TRAFFIC FLOW
- DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
- DROP-OFF BIN ACCESSED FROM GRADE

RECOMMENDATION A NOTES

1. REDESIGN THE EXISTING PUBLIC DROP-OFF AREA (OPTION 5)
2. REPLACE EXISTING WEIGH SCALES, RELOCATE OUTBOUND WEIGH SCALE AND INSTALL ADDITIONAL INBOUND WEIGH SCALE (OPTION 6)

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RECOMMENDATION A

FUTURE INFRASTRUCTURE AND OPERATIONS STUDY
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FIGURE 7-1

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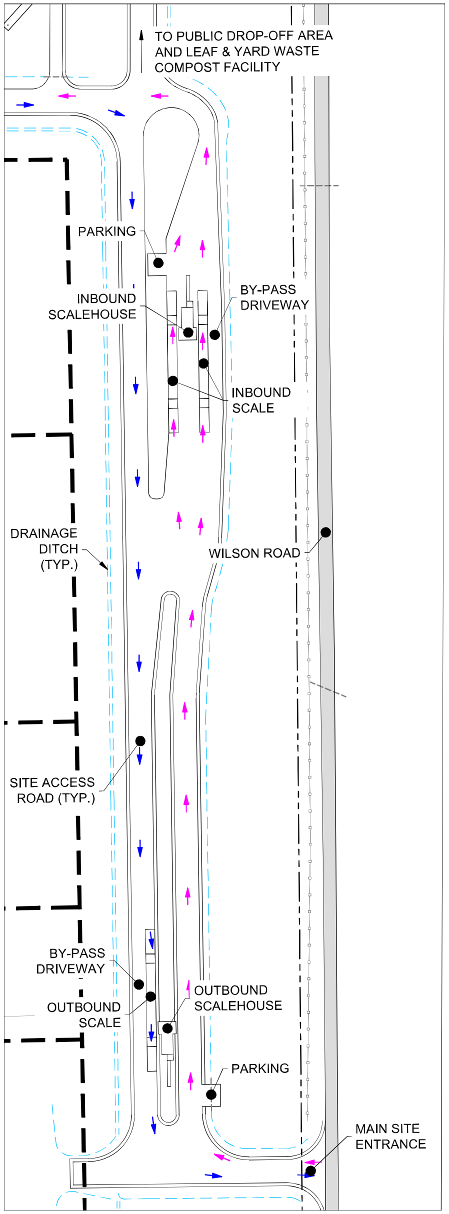
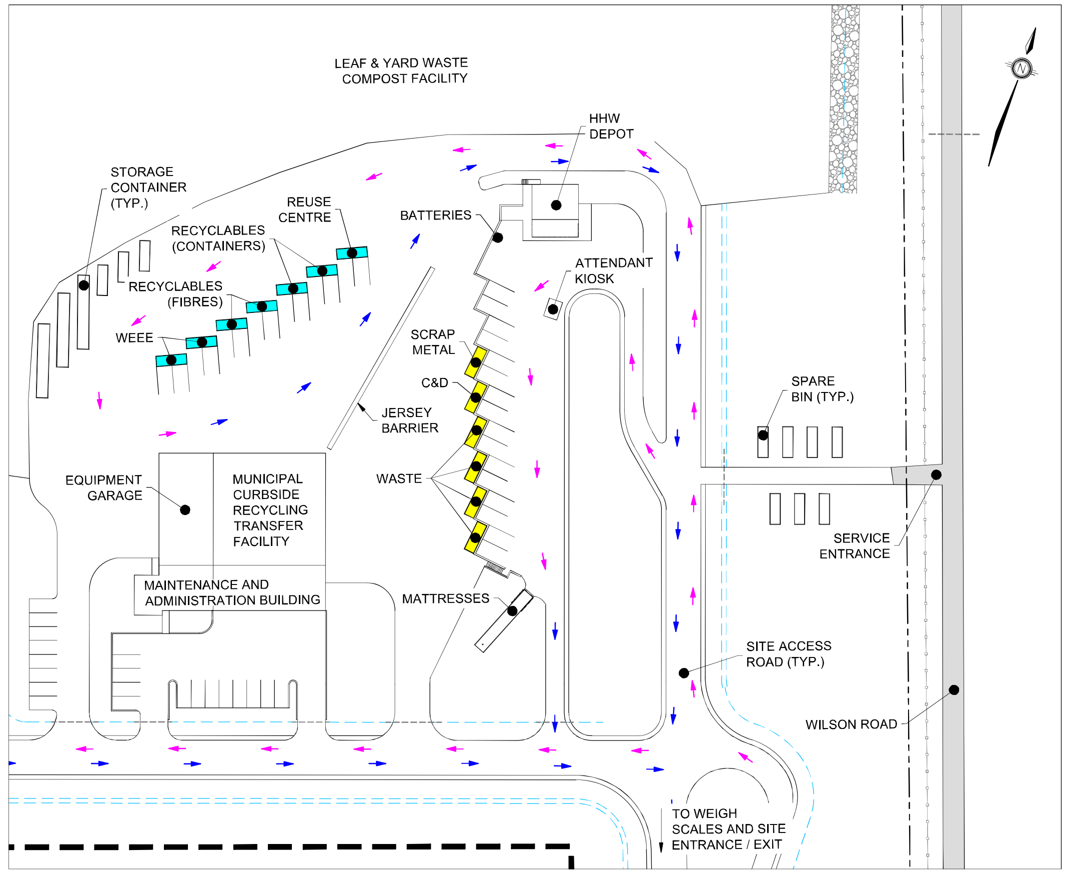


SITE ENTRANCE / EXIT AND WEIGH SCALE

0 25 50 75 METRES
1:750



PUBLIC DROP-OFF AREA

0 10 20 50 METRES
1:500

LEGEND

— · — · —	PROPERTY LINE
— — —	CELL BOUNDARY
—o—o—	FENCE
- - - -	DRAINAGE DITCH
- - - -	CULVERT
magenta arrows	INBOUND TRAFFIC FLOW
blue arrows	OUTBOUND TRAFFIC FLOW
yellow box	DROP-OFF BIN ACCESSED FROM ELEVATED PLATFORM
cyan box	DROP-OFF BIN ACCESSED FROM GRADE

RECOMMENDATION B NOTES

1. CONTINUE TO OPERATE BOTH FENELON AND LAXTON LANDFILL SITES AS TRANSFER STATIONS FOR BOTH WASTE AND RECYCLABLES UPON CLOSURE TO MAINTAIN LEVEL OF SERVICE PROVIDED TO RESIDENTS USING THE TWO SITES. THIS WILL MINIMIZE THE TRAFFIC IMPACT AT THE LINDSAY OPS LANDFILL.
2. RELOCATE ROLL-OFF BINS, PARTICULARLY BINS CURRENTLY PLACED ON THE UPPER PLATFORM AND BINS FOR FREE ITEMS, TO THE NORTH OF THE MUNICIPAL CURBSIDE RECYCLING TRANSFER FACILITY (OPTION 3).
3. REPLACE EXISTING WEIGH SCALES, RELOCATE OUTBOUND WEIGH SCALE AND INSTALL ADDITIONAL INBOUND WEIGH SCALE (OPTION 6)

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RECOMMENDATION B

FUTURE INFRASTRUCTURE AND OPERATIONS STUDY
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FIGURE 7-2

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APPENDIX

A TRAFFIC CALCULATIONS

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2019	January	17	40	157
	February	13	19	107
	March	24	44	167
	April	46	79	273
	May	70	125	630
	June	74	144	670
	July	94	153	656
	August	76	97	763
	September	62	117	619
	October	47	78	471
	November	38	62	305
	December	24	51	194
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2020	January	28	61	256
	February	24	40	190
	March	24	45	169
	April	47	80	276
	May	71	127	638
	June	75	146	678
	July	95	155	664
	August	77	98	772
	September	63	118	626
	October	48	79	477
	November	38	63	309
	December	24	52	196
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2021	January	28	62	259
	February	24	40	192
	March	25	45	171
	April	47	81	280
	May	72	128	645
	June	76	147	686
	July	96	157	672
	August	78	99	781
	September	63	120	634
	October	48	80	482
	November	39	63	312
	December	25	52	199

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2022	January	29	62	262
	February	25	41	195
	March	25	46	173
	April	48	82	283
	May	73	130	653
	June	77	149	694
	July	97	159	680
	August	79	101	791
	September	64	121	642
	October	49	81	488
	November	39	64	316
	December	25	53	201

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2023	January	29	63	265
	February	25	41	197
	March	25	46	175
	April	48	83	286
	May	73	131	661
	June	78	151	703
	July	99	160	688
	August	80	102	800
	September	65	123	649
	October	49	82	494
	November	40	65	320
	December	25	53	203

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2024	January	29	64	269
	February	25	42	199
	March	25	47	177
	April	49	84	290
	May	74	133	669
	June	79	153	711
	July	100	162	696
	August	81	103	810
	September	66	124	657
	October	50	83	500
	November	40	66	324
	December	25	54	206

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2025	January	30	65	272
	February	25	42	202
	March	26	47	179
	April	49	85	293
	May	75	134	677
	June	79	155	720
	July	101	164	705
	August	82	104	820
	September	67	126	665
	October	50	84	506
	November	41	67	328
	December	26	55	208

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2026	January	30	66	275
	February	26	43	204
	March	26	48	182
	April	50	86	297
	May	76	136	685
	June	80	157	728
	July	102	166	713
	August	83	105	829
	September	67	127	673
	October	51	85	512
	November	41	67	332
	December	26	55	211

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2027	January	30	66	278
	February	26	43	207
	March	26	48	184
	April	51	87	300
	May	77	138	693
	June	81	158	737
	July	103	168	722
	August	84	107	839
	September	68	129	681
	October	52	86	518
	November	42	68	336
	December	26	56	213

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2028	January	31	67	282
	February	26	44	209
	March	27	49	186
	April	51	88	304
	May	78	139	701
	June	82	160	746
	July	105	170	730
	August	85	108	849
	September	69	130	689
	October	52	87	524
	November	42	69	340
	December	27	57	216

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2029	January	31	68	285
	February	27	45	212
	March	27	50	188
	April	52	89	308
	May	79	141	710
	June	83	162	755
	July	106	172	739
	August	86	109	860
	September	70	132	697
	October	53	88	531
	November	43	70	344
	December	27	57	219

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2030	January	32	69	288
	February	27	45	214
	March	27	50	190
	April	52	90	311
	May	80	143	718
	June	84	164	764
	July	107	174	748
	August	87	111	870
	September	71	133	706
	October	54	89	537
	November	43	71	348
	December	27	58	221

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2031	January	32	70	292
	February	27	46	217
	March	28	51	193
	April	53	91	315
	May	81	144	727
	June	85	166	773
	July	108	177	757
	August	88	112	880
	September	72	135	714
	October	54	90	543
	November	44	72	352
	December	28	59	224

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2032	January	32	70	295
	February	28	46	219
	March	28	51	195
	April	54	92	319
	May	82	146	736
	June	86	168	782
	July	110	179	766
	August	89	113	891
	September	72	137	723
	October	55	91	550
	November	44	72	356
	December	28	60	227

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2033	January	33	71	299
	February	28	47	222
	March	28	52	197
	April	54	93	323
	May	83	148	745
	June	87	170	792
	July	111	181	775
	August	90	115	902
	September	73	138	732
	October	56	92	557
	November	45	73	360
	December	28	60	229

Projected Traffic Volumes at Laxton Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2034	January	33	72	303
	February	28	47	225
	March	29	53	200
	April	55	94	326
	May	84	149	753
	June	88	172	801
	July	112	183	785
	August	91	116	912
	September	74	140	740
	October	56	93	563
	November	45	74	365
	December	29	61	232

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2035	January	33	73	306
	February	29	48	227
	March	29	53	202
	April	56	96	330
	May	85	151	762
	June	90	174	811
	July	114	185	794
	August	92	117	923
	September	75	142	749
	October	57	94	570
	November	46	75	369
	December	29	62	235

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2036	January	34	74	310
	February	29	48	230
	March	29	54	205
	April	56	97	334
	May	86	153	772
	June	91	176	821
	July	115	187	803
	August	93	119	935
	September	76	143	758
	October	58	96	577
	November	47	76	374
	December	29	62	238

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2019	January	64	119	835
	February	49	79	591
	March	71	114	926
	April	143	253	1,861
	May	218	308	2,828
	June	172	289	2,584
	July	210	282	2,726
	August	199	245	2,582
	September	179	237	2,330
	October	176	254	2,282
	November	115	184	1,603
	December	72	181	864
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2020	January	74	188	885
	February	60	88	782
	March	72	115	937
	April	145	256	1,883
	May	221	312	2,862
	June	174	292	2,615
	July	213	285	2,759
	August	201	248	2,613
	September	181	240	2,358
	October	178	257	2,309
	November	116	186	1,622
	December	73	183	874
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2021	January	75	190	896
	February	61	89	791
	March	73	117	948
	April	146	259	1,906
	May	223	315	2,896
	June	176	296	2,646
	July	215	289	2,792
	August	204	251	2,644
	September	183	243	2,386
	October	180	260	2,337
	November	118	188	1,642
	December	74	185	885

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2022	January	76	193	906
	February	61	90	801
	March	74	118	960
	April	148	262	1,929
	May	226	319	2,931
	June	178	300	2,678
	July	218	292	2,825
	August	206	254	2,676
	September	186	246	2,415
	October	182	263	2,365
	November	119	191	1,661
	December	75	188	895

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2023	January	77	195	917
	February	62	91	810
	March	74	120	971
	April	150	265	1,952
	May	229	323	2,966
	June	180	303	2,710
	July	220	296	2,859
	August	209	257	2,708
	September	188	249	2,444
	October	185	266	2,394
	November	121	193	1,681
	December	76	190	906

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2024	January	78	197	928
	February	63	92	820
	March	75	121	983
	April	152	269	1,975
	May	231	327	3,002
	June	183	307	2,743
	July	223	299	2,894
	August	211	260	2,741
	September	190	252	2,473
	October	187	270	2,422
	November	122	195	1,702
	December	76	192	917

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2025	January	79	200	939
	February	64	93	830
	March	76	122	995
	April	154	272	1,999
	May	234	331	3,038
	June	185	310	2,776
	July	226	303	2,928
	August	214	263	2,774
	September	192	255	2,503
	October	189	273	2,451
	November	124	198	1,722
	December	77	194	928

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2026	January	79	202	951
	February	64	95	840
	March	77	124	1,007
	April	155	275	2,023
	May	237	335	3,074
	June	187	314	2,809
	July	228	307	2,963
	August	216	266	2,807
	September	195	258	2,533
	October	191	276	2,481
	November	125	200	1,743
	December	78	197	939

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2027	January	80	204	962
	February	65	96	850
	March	78	125	1,019
	April	157	278	2,047
	May	240	339	3,111
	June	189	318	2,843
	July	231	310	2,999
	August	219	270	2,841
	September	197	261	2,563
	October	194	279	2,510
	November	127	202	1,764
	December	79	199	951

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2028	January	81	207	974
	February	66	97	860
	March	79	127	1,031
	April	159	282	2,072
	May	243	343	3,149
	June	191	322	2,877
	July	234	314	3,035
	August	222	273	2,875
	September	199	264	2,594
	October	196	283	2,541
	November	128	205	1,785
	December	80	202	962

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2029	January	82	209	985
	February	67	98	871
	March	80	128	1,043
	April	161	285	2,097
	May	246	347	3,186
	June	194	326	2,911
	July	237	318	3,071
	August	224	276	2,909
	September	202	267	2,625
	October	198	286	2,571
	November	130	207	1,806
	December	81	204	973

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2030	January	83	212	997
	February	68	99	881
	March	81	130	1,056
	April	163	288	2,122
	May	249	351	3,225
	June	196	330	2,946
	July	239	322	3,108
	August	227	279	2,944
	September	204	270	2,657
	October	201	290	2,602
	November	131	210	1,828
	December	82	206	985

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2031	January	84	214	1,009
	February	68	100	892
	March	82	132	1,069
	April	165	292	2,147
	May	252	355	3,263
	June	198	333	2,982
	July	242	325	3,146
	August	230	283	2,979
	September	207	273	2,689
	October	203	293	2,633
	November	133	212	1,850
	December	83	209	997

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2032	January	85	217	1,021
	February	69	102	902
	March	83	133	1,081
	April	167	295	2,173
	May	255	360	3,302
	June	201	337	3,017
	July	245	329	3,183
	August	232	286	3,015
	September	209	277	2,721
	October	206	297	2,665
	November	134	215	1,872
	December	84	211	1,009

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2033	January	86	220	1,033
	February	70	103	913
	March	84	135	1,094
	April	169	299	2,199
	May	258	364	3,342
	June	203	342	3,054
	July	248	333	3,221
	August	235	290	3,051
	September	212	280	2,753
	October	208	300	2,697
	November	136	217	1,894
	December	85	214	1,021

Projected Traffic Volumes at Fenelon Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2034	January	87	222	1,046
	February	71	104	924
	March	85	136	1,107
	April	171	303	2,226
	May	261	368	3,382
	June	206	346	3,090
	July	251	337	3,260
	August	238	293	3,088
	September	214	283	2,787
	October	210	304	2,729
	November	138	220	1,917
	December	86	216	1,033

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2035	January	88	225	1,058
	February	72	105	935
	March	86	138	1,121
	April	173	306	2,252
	May	264	373	3,423
	June	208	350	3,127
	July	254	341	3,299
	August	241	297	3,125
	September	217	287	2,820
	October	213	307	2,762
	November	139	223	1,940
	December	87	219	1,046

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2036	January	90	228	1,071
	February	73	107	946
	March	87	140	1,134
	April	175	310	2,279
	May	267	377	3,464
	June	211	354	3,165
	July	257	345	3,339
	August	244	300	3,162
	September	219	290	2,854
	October	216	311	2,795
	November	141	225	1,963
	December	88	222	1,058

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2019	January	169	493	4,223
	February	144	228	3,464
	March	186	301	4,841
	April	357	698	8,932
	May	415	712	10,782
	June	381	523	9,519
	July	389	655	10,110
	August	379	533	9,854
	September	347	549	8,332
	October	362	640	9,420
	November	270	441	7,017
	December	187	479	4,675
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2020	January	180	382	4,681
	February	154	253	3,861
	March	188	305	4,899
	April	361	706	9,039
	May	420	721	10,911
	June	386	529	9,633
	July	394	663	10,231
	August	384	539	9,972
	September	351	556	8,432
	October	366	648	9,533
	November	273	446	7,101
	December	189	485	4,731
	Actual vehicle counts (Not projected)			

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2021	January	182	387	4,737
	February	156	256	3,907
	March	190	308	4,958
	April	366	715	9,148
	May	425	729	11,042
	June	390	536	9,749
	July	398	671	10,354
	August	388	546	10,092
	September	355	562	8,533
	October	371	655	9,647
	November	277	452	7,186
	December	192	491	4,788

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2022	January	184	391	4,794
	February	158	259	3,954
	March	193	312	5,017
	April	370	723	9,257
	May	430	738	11,175
	June	395	542	9,866
	July	403	679	10,478
	August	393	552	10,213
	September	360	569	8,636
	October	375	663	9,763
	November	280	457	7,273
	December	194	496	4,845

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2023	January	187	396	4,852
	February	160	262	4,002
	March	195	316	5,078
	April	374	732	9,369
	May	435	747	11,309
	June	400	549	9,984
	July	408	687	10,604
	August	398	559	10,336
	September	364	576	8,739
	October	380	671	9,880
	November	283	463	7,360
	December	196	502	4,903

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2024	January	189	401	4,910
	February	162	265	4,050
	March	197	319	5,139
	April	379	741	9,481
	May	441	756	11,445
	June	404	555	10,104
	July	413	695	10,731
	August	402	566	10,460
	September	368	583	8,844
	October	384	679	9,999
	November	287	468	7,448
	December	198	508	4,962

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2025	January	191	405	4,969
	February	163	269	4,098
	March	200	323	5,200
	April	383	750	9,595
	May	446	765	11,582
	June	409	562	10,225
	July	418	704	10,860
	August	407	573	10,585
	September	373	590	8,950
	October	389	687	10,119
	November	290	474	7,538
	December	201	515	5,022

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2026	January	193	410	5,028
	February	165	272	4,147
	March	202	327	5,263
	April	388	759	9,710
	May	451	774	11,721
	June	414	569	10,348
	July	423	712	10,990
	August	412	579	10,712
	September	377	597	9,058
	October	394	696	10,240
	November	294	479	7,628
	December	203	521	5,082

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2027	January	196	415	5,089
	February	167	275	4,197
	March	205	331	5,326
	April	393	768	9,826
	May	457	783	11,862
	June	419	575	10,472
	July	428	721	11,122
	August	417	586	10,841
	September	382	604	9,166
	October	398	704	10,363
	November	297	485	7,720
	December	206	527	5,143

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2028	January	198	420	5,150
	February	169	278	4,248
	March	207	335	5,390
	April	397	777	9,944
	May	462	793	12,004
	June	424	582	10,598
	July	433	729	11,256
	August	422	593	10,971
	September	386	611	9,276
	October	403	713	10,488
	November	301	491	7,812
	December	208	533	5,205

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2029	January	200	425	5,212
	February	171	282	4,299
	March	210	339	5,454
	April	402	786	10,064
	May	468	802	12,148
	June	429	589	10,725
	July	438	738	11,391
	August	427	601	11,102
	September	391	619	9,388
	October	408	721	10,613
	November	304	497	7,906
	December	211	540	5,267

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2030	January	203	430	5,274
	February	174	285	4,350
	March	212	343	5,520
	April	407	796	10,184
	May	473	812	12,294
	June	434	596	10,854
	July	444	747	11,528
	August	432	608	11,236
	September	396	626	9,500
	October	413	730	10,741
	November	308	503	8,001
	December	213	546	5,330

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2031	January	205	436	5,337
	February	176	288	4,402
	March	215	347	5,586
	April	412	805	10,307
	May	479	822	12,441
	June	440	603	10,984
	July	449	756	11,666
	August	437	615	11,370
	September	400	633	9,614
	October	418	738	10,870
	November	312	509	8,097
	December	216	553	5,394

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2032	January	208	441	5,401
	February	178	292	4,455
	March	217	351	5,653
	April	417	815	10,430
	May	485	831	12,591
	June	445	611	11,116
	July	454	765	11,806
	August	443	622	11,507
	September	405	641	9,730
	October	423	747	11,000
	November	315	515	8,194
	December	218	559	5,459

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2033	January	210	446	5,466
	February	180	295	4,509
	March	220	356	5,721
	April	422	825	10,555
	May	490	841	12,742
	June	450	618	11,249
	July	460	774	11,948
	August	448	630	11,645
	September	410	649	9,846
	October	428	756	11,132
	November	319	521	8,292
	December	221	566	5,525

Projected Traffic Volumes at Lindsay Ops Landfill

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2034	January	213	451	5,532
	February	182	299	4,563
	March	222	360	5,790
	April	427	835	10,682
	May	496	852	12,895
	June	456	625	11,384
	July	465	783	12,091
	August	453	637	11,785
	September	415	657	9,965
	October	433	765	11,266
	November	323	527	8,392
	December	224	573	5,591

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2035	January	215	457	5,598
	February	184	303	4,618
	March	225	364	5,859
	April	432	845	10,810
	May	502	862	13,049
	June	461	633	11,521
	July	471	793	12,236
	August	459	645	11,926
	September	420	664	10,084
	October	438	775	11,401
	November	327	534	8,493
	December	226	580	5,658

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2036	January	218	462	5,665
	February	186	306	4,673
	March	228	369	5,929
	April	437	855	10,940
	May	508	872	13,206
	June	467	641	11,659
	July	476	802	12,383
	August	464	653	12,069
	September	425	672	10,205
	October	443	784	11,538
	November	331	540	8,594
	December	229	587	5,726

Projected Traffic Volumes at Lindsay Ops Landfill

Percent Increase from 2020 to 2030

	Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
January	13%	13%	13%
February	13%	13%	13%
March	13%	13%	13%
April	13%	13%	13%
May	13%	13%	13%
June	13%	13%	13%
July	13%	13%	13%
August	13%	13%	13%
September	13%	13%	13%
October	13%	13%	13%
November	13%	13%	13%
December	13%	13%	13%

Percent Increase from 2020 to 2035

	Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
January	20%	20%	20%
February	20%	20%	20%
March	20%	20%	20%
April	20%	20%	20%
May	20%	20%	20%
June	20%	20%	20%
July	20%	20%	20%
August	20%	20%	20%
September	20%	20%	20%
October	20%	20%	20%
November	20%	20%	20%
December	20%	20%	20%

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2019	January	169	493	4,223
	February	144	228	3,464
	March	186	301	4,841
	April	357	698	8,932
	May	415	712	10,782
	June	381	523	9,519
	July	389	655	10,110
	August	379	533	9,854
	September	347	549	8,332
	October	362	640	9,420
	November	270	441	7,017
	December	187	479	4,675
	Actual vehicle counts (Not projected)			
	Monthly Average Vehicles per Day		299	
	Yearly Total		91,169	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2020	January	180	382	4,681
	February	154	253	3,861
	March	188	305	4,899
	April	361	706	9,039
	May	420	721	10,911
	June	386	529	9,633
	July	394	663	10,231
	August	384	539	9,972
	September	351	556	8,432
	October	366	648	9,533
	November	273	446	7,101
	December	189	485	4,731
	Actual vehicle counts (Not projected)			
	Monthly Average Vehicles per Day		304	
	Yearly Total		93,026	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2021	January	182	387	4,737
	February	156	256	3,907
	March	190	308	4,958
	April	366	715	9,148
	May	425	729	11,042
	June	390	536	9,749
	July	398	671	10,354
	August	388	546	10,092
	September	355	562	8,533
	October	371	655	9,647
	November	277	452	7,186
	December	192	491	4,788
	Monthly Average Vehicles per Day		308	
	Yearly Total		94,142	

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2022	January	184	391	4,794
	February	158	259	3,954
	March	193	312	5,017
	April	370	723	9,257
	May	430	738	11,175
	June	395	542	9,866
	July	403	679	10,478
	August	393	552	10,213
	September	360	569	8,636
	October	375	663	9,763
	November	280	457	7,273
	December	194	496	4,845
Monthly Average Vehicles per Day			311	
Yearly Total			95,272	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2023	January	187	396	4,852
	February	160	262	4,002
	March	195	316	5,078
	April	374	732	9,369
	May	435	747	11,309
	June	400	549	9,984
	July	408	687	10,604
	August	398	559	10,336
	September	364	576	8,739
	October	380	671	9,880
	November	283	463	7,360
	December	196	502	4,903
Monthly Average Vehicles per Day			315	
Yearly Total			96,415	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2024	January	296	662	6,107
	February	250	400	5,069
	March	298	487	6,299
	April	580	1,093	11,746
	May	746	1,215	15,115
	June	666	1,015	13,558
	July	736	1,157	14,321
	August	694	929	14,010
	September	624	958	11,974
	October	621	1,032	12,921
	November	449	729	9,474
	December	300	755	6,085
Monthly Average Vehicles per Day			522	
Yearly Total			126,679	

***Traffic diverted to Lindsay Ops from Fenelon and Laxton starting 2024**

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2025	January	299	670	6,180
	February	253	404	5,130
	March	302	493	6,374
	April	587	1,106	11,887
	May	755	1,230	15,297
	June	674	1,027	13,721
	July	744	1,171	14,493
	August	703	940	14,178
	September	632	970	12,118
	October	628	1,044	13,076
	November	454	738	9,587
	December	304	764	6,158
Monthly Average Vehicles per Day			528	
Yearly Total			128,199	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2026	January	303	678	6,254
	February	256	409	5,192
	March	305	499	6,451
	April	594	1,120	12,030
	May	764	1,245	15,480
	June	682	1,039	13,885
	July	753	1,185	14,667
	August	711	951	14,348
	September	639	982	12,263
	October	636	1,057	13,233
	November	460	747	9,702
	December	308	773	6,232
Monthly Average Vehicles per Day			534	
Yearly Total			129,738	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2027	January	307	686	6,329
	February	259	414	5,254
	March	309	505	6,528
	April	601	1,133	12,174
	May	773	1,260	15,666
	June	690	1,052	14,052
	July	762	1,199	14,843
	August	719	963	14,521
	September	647	993	12,411
	October	644	1,069	13,392
	November	465	756	9,819
	December	311	782	6,307
Monthly Average Vehicles per Day			541	
Yearly Total			131,295	

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2028	January	310	694	6,405
	February	262	419	5,317
	March	313	511	6,607
	April	608	1,147	12,320
	May	783	1,275	15,854
	June	698	1,064	14,221
	July	772	1,214	15,021
	August	728	974	14,695
	September	655	1,005	12,559
	October	651	1,082	13,553
	November	471	765	9,936
	December	315	792	6,383
Monthly Average Vehicles per Day			547	
Yearly Total			132,870	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2029	January	314	703	6,482
	February	265	424	5,381
	March	317	517	6,686
	April	615	1,160	12,468
	May	792	1,290	16,044
	June	706	1,077	14,391
	July	781	1,228	15,201
	August	737	986	14,871
	September	662	1,017	12,710
	October	659	1,095	13,715
	November	477	774	10,056
	December	319	801	6,459
Monthly Average Vehicles per Day			554	
Yearly Total			134,465	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2030	January	318	711	6,560
	February	268	429	5,445
	March	320	523	6,766
	April	623	1,174	12,618
	May	802	1,306	16,237
	June	715	1,090	14,564
	July	790	1,243	15,384
	August	746	998	15,050
	September	670	1,030	12,863
	October	667	1,108	13,880
	November	482	783	10,176
	December	323	811	6,537
Monthly Average Vehicles per Day			560	
Yearly Total			136,078	

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2031	January	322	719	6,638
	February	271	434	5,511
	March	324	530	6,847
	April	630	1,189	12,769
	May	811	1,321	16,431
	June	723	1,103	14,739
	July	800	1,258	15,568
	August	755	1,010	15,230
	September	678	1,042	13,017
	October	675	1,122	14,046
	November	488	793	10,299
	December	327	820	6,615
Monthly Average Vehicles per Day			567	
Yearly Total			137,711	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2032	January	325	728	6,718
	February	275	440	5,577
	March	328	536	6,929
	April	638	1,203	12,922
	May	821	1,337	16,629
	June	732	1,116	14,916
	July	809	1,273	15,755
	August	764	1,022	15,413
	September	687	1,054	13,173
	October	683	1,135	14,215
	November	494	802	10,422
	December	330	830	6,695
Monthly Average Vehicles per Day			574	
Yearly Total			139,364	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2033	January	329	737	6,799
	February	278	445	5,644
	March	332	542	7,013
	April	645	1,217	13,077
	May	831	1,353	16,828
	June	741	1,130	15,095
	July	819	1,288	15,944
	August	773	1,034	15,598
	September	695	1,067	13,331
	October	691	1,149	14,385
	November	500	812	10,547
	December	334	840	6,775
Monthly Average Vehicles per Day			581	
Yearly Total			141,036	

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2034	January	333	746	6,880
	February	281	450	5,711
	March	336	549	7,097
	April	653	1,232	13,234
	May	841	1,369	17,030
	June	750	1,143	15,276
	July	829	1,304	16,136
	August	782	1,046	15,785
	September	703	1,080	13,491
	October	700	1,162	14,558
	November	506	822	10,674
	December	338	850	6,856
Monthly Average Vehicles per Day			588	
Yearly Total			142,728	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2035	January	337	755	6,963
	February	285	456	5,780
	March	340	556	7,182
	April	661	1,247	13,393
	May	851	1,386	17,234
	June	759	1,157	15,459
	July	839	1,319	16,329
	August	792	1,059	15,975
	September	712	1,093	13,653
	October	708	1,176	14,733
	November	512	831	10,802
	December	343	861	6,939
Monthly Average Vehicles per Day			595	
Yearly Total			144,441	

		Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
2036	January	341	764	7,046
	February	288	461	5,849
	March	344	562	7,268
	April	669	1,262	13,554
	May	861	1,402	17,441
	June	768	1,171	15,644
	July	849	1,335	16,525
	August	801	1,072	16,166
	September	720	1,106	13,817
	October	717	1,191	14,910
	November	518	841	10,931
	December	347	871	7,022
Monthly Average Vehicles per Day			602	
Yearly Total			146,175	

Projected Traffic Volumes at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

Percent Increase from 2020 to 2030

	Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
January	77%	86%	40%
February	74%	70%	41%
March	70%	72%	38%
April	72%	66%	40%
May	91%	81%	49%
June	85%	106%	51%
July	101%	87%	50%
August	94%	85%	51%
September	91%	85%	53%
October	82%	71%	46%
November	77%	76%	43%
December	71%	67%	38%
AVERAGE	**82%**	**79%**	**45%**

Percent Increase from 2020 to 2035

	Average Vehicles per Day	Vehicles on Peak Day	Monthly Total
January	87%	98%	49%
February	85%	80%	50%
March	81%	82%	47%
April	83%	76%	48%
May	103%	92%	58%
June	97%	119%	60%
July	113%	99%	60%
August	106%	96%	60%
September	103%	97%	62%
October	93%	82%	55%
November	87%	86%	52%
December	81%	78%	47%
AVERAGE	**93%**	**90%**	**54%**

APPENDIX

B

INCOMING MATERIAL QUANTITIES CALCULATIONS

Historic Material Quantities at Laxton Landfill

ITEM	YEAR				4-YEAR AVERAGE
	2019	2018	2017	2016	
Leaf and Yard Waste	100.06	117.67	114.57	169.00	125.33
Recyclables (Containers)	22.5	12.1	13.31	10.46	14.59
Recyclables (Fibres)	13.68	15.76	15.29	16.77	15.38
Scrap Metal	11.45	23.05	31.01	48.90	28.60
Tires	20.12	36.46	19.89	10.00	21.62
Waste Electrical and Electronic Equipment	16.70	11.72	21.02	21.00	17.61
TOTAL DIVERTED	184.51	216.75	215.09	276.13	223.12
WASTE	935.23	1,237.68	1,598.71	1,442.12	1,303.43
TOTAL	1,119.73	1,454.43	1,813.80	1,718.25	1,526.55

2019 Material Quantities at Laxton Landfill

ITEM	2019												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.09		6.28	5.31	29.17	9.16	11.50	8.93	17.13	4.60	7.81	0.08	100.06
Recyclables (Containers)	0.75		11.07		1.51	1.82	1.93	1.59	1.73	0.56	1.01	0.53	22.50
Recyclables (Fibres)	1.08		1.1		2.46	1.32	2.12	1.13	1.57	0.99	1.27	0.64	13.68
Scrap Metal					11.45								11.45
Tires	1.30	0.41	0.18	1.79	1.64	6.09	1.20	3.16	1.53	0.37	1.43	1.02	20.12
Waste Electrical and Electronic Equipment		2.76			2.36		2.90	1.87		2.99		3.82	16.70
TOTAL DIVERTED	3.22	3.17	18.63	7.10	48.59	18.39	19.65	16.68	21.96	9.51	11.52	6.09	184.51
WASTE	20.97	16.29	38.41	46.94	138.49	132.63	99.35	143.98	129.73	91.09	51.95	25.41	935.23
TOTAL	24.19	19.46	57.04	54.04	187.08	151.02	118.99	160.65	151.69	100.60	63.47	31.50	1,119.73

Projected Material Quantities at Laxton Landfill

ITEM	2020												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.09		6.36	5.37	29.52	9.27	11.64	9.04	17.34	4.66	7.90	0.08	101
Recyclables (Containers)	0.76		11.20		1.53	1.84	1.95	1.61	1.75	0.57	1.02	0.54	23
Recyclables (Fibres)	1.09		1.11		2.49	1.34	2.15	1.14	1.59	1.00	1.29	0.65	14
Scrap Metal					11.59								12
Tires	1.32	0.41	0.18	1.81	1.66	6.16	1.21	3.20	1.55	0.37	1.45	1.03	20
Waste Electrical and Electronic Equipment		2.79			2.39		2.93	1.89		3.03		3.87	17
TOTAL DIVERTED	3.26	3.21	18.85	7.19	49.18	18.61	19.88	16.88	22.22	9.62	11.66	6.17	187
WASTE	21.22	16.49	38.87	47.50	140.15	134.22	100.54	145.70	131.29	92.18	52.57	25.71	946
TOTAL	24.48	19.69	57.72	54.69	189.33	152.83	120.42	162.58	153.51	101.81	64.23	31.87	1,133

ITEM	2021												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.09		6.43	5.44	29.87	9.38	11.78	9.15	17.54	4.71	8.00	0.08	102
Recyclables (Containers)	0.77		11.34		1.55	1.86	1.98	1.63	1.77	0.57	1.03	0.54	23
Recyclables (Fibres)	1.11		1.13		2.52	1.35	2.17	1.16	1.61	1.01	1.30	0.66	14
Scrap Metal					11.72								12
Waste Electrical and Electronic Equipment		2.82			2.42		2.97	1.91		3.06		3.91	17
TOTAL DIVERTED	1.97	2.82	18.90	5.44	48.09	12.60	18.89	13.85	20.92	9.36	10.33	5.19	168
WASTE	21.48	16.68	39.34	48.07	141.83	135.83	101.74	147.45	132.86	93.29	53.20	26.02	958
TOTAL	23.44	19.51	58.23	53.51	189.92	148.43	120.64	161.30	153.79	102.65	63.54	31.21	1,126

ITEM	2022												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.09		6.51	5.50	30.23	9.49	11.92	9.26	17.75	4.77	8.09	0.08	104
Recyclables (Containers)	0.78		11.47		1.57	1.89	2.00	1.65	1.79	0.58	1.05	0.55	23
Recyclables (Fibres)	1.12		1.14		2.55	1.37	2.20	1.17	1.63	1.03	1.32	0.66	14
Scrap Metal					11.87								12
Waste Electrical and Electronic Equipment		2.86			2.45		3.00	1.94		3.10		3.96	17
TOTAL DIVERTED	1.99	2.86	19.12	5.50	48.66	12.75	19.12	14.01	21.17	9.47	10.46	5.26	170
WASTE	21.73	16.88	39.81	48.65	143.54	137.46	102.96	149.22	134.46	94.41	53.84	26.33	969
TOTAL	23.72	19.74	58.93	54.15	192.20	150.21	122.09	163.23	155.63	103.88	64.30	31.59	1,140

Projected Material Quantities at Laxton Landfill

ITEM	2023												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.09		6.59	5.57	30.60	9.61	12.06	9.37	17.97	4.82	8.19	0.08	105
Recyclables (Containers)	0.79		11.61		1.58	1.91	2.02	1.67	1.81	0.59	1.06	0.56	24
Recyclables (Fibres)	1.13		1.15		2.58	1.38	2.22	1.19	1.65	1.04	1.33	0.67	14
Scrap Metal					12.01								12
Waste Electrical and Electronic Equipment		2.89			2.48		3.04	1.96		3.14		4.01	18
TOTAL DIVERTED	2.01	2.89	19.35	5.57	49.25	12.90	19.35	14.18	21.43	9.59	10.58	5.32	172
WASTE	21.99	17.09	40.29	49.23	145.26	139.11	104.20	151.01	136.07	95.54	54.49	26.65	981
TOTAL	24.01	19.98	59.64	54.80	194.51	152.01	123.55	165.19	157.50	105.13	65.07	31.97	1,153

*Landfill expected to reach capacity by the end of 2023

ITEM	2024												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		6.67	5.64	30.96	9.72	12.21	9.48	18.18	4.88	8.29	0.08	106
Recyclables (Containers)	0.80		11.75		1.60	1.93	2.05	1.69	1.84	0.59	1.07	0.56	24
Recyclables (Fibres)	1.15		1.17		2.61	1.40	2.25	1.20	1.67	1.05	1.35	0.68	15
Scrap Metal					12.15								12
Waste Electrical and Electronic Equipment		2.93			2.51		3.08	1.98		3.17		4.06	18
TOTAL DIVERTED	2.04	2.93	19.58	5.64	49.84	13.06	19.58	14.35	21.69	9.70	10.71	5.38	174
WASTE	22.26	17.29	40.77	49.82	147.00	140.78	105.45	152.82	137.70	96.69	55.14	26.97	993
TOTAL	24.30	20.22	60.35	55.46	196.84	153.84	125.03	167.17	159.39	106.39	65.85	32.35	1,167

ITEM	2025												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		6.75	5.70	31.33	9.84	12.35	9.59	18.40	4.94	8.39	0.09	107
Recyclables (Containers)	0.81		11.89		1.62	1.96	2.07	1.71	1.86	0.60	1.08	0.57	24
Recyclables (Fibres)	1.16		1.18		2.64	1.42	2.28	1.21	1.69	1.06	1.36	0.69	15
Scrap Metal					12.30								12
Waste Electrical and Electronic Equipment		2.96			2.54		3.11	2.01		3.21		4.11	18
TOTAL DIVERTED	2.06	2.96	19.82	5.70	50.44	13.21	19.82	14.52	21.95	9.82	10.84	5.45	177
WASTE	22.53	17.50	41.26	50.42	148.77	142.47	106.72	154.66	139.36	97.85	55.80	27.29	1,005
TOTAL	24.59	20.46	61.08	56.13	199.20	155.68	126.53	169.18	161.30	107.67	66.64	32.74	1,181

ITEM	2026												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		6.83	5.77	31.71	9.96	12.50	9.71	18.62	5.00	8.49	0.09	109
Recyclables (Containers)	0.82		12.03		1.64	1.98	2.10	1.73	1.88	0.61	1.10	0.58	24
Recyclables (Fibres)	1.17		1.20		2.67	1.43	2.30	1.23	1.71	1.08	1.38	0.70	15
Scrap Metal					12.44								12
Waste Electrical and Electronic Equipment		3.00			2.57		3.15	2.03		3.25		4.15	18
TOTAL DIVERTED	2.09	3.00	20.06	5.77	51.04	13.37	20.06	14.70	22.21	9.94	10.97	5.51	179
WASTE	22.80	17.71	41.75	51.03	150.55	144.18	108.00	156.51	141.03	99.02	56.47	27.62	1,017
TOTAL	24.88	20.71	61.81	56.80	201.59	157.55	128.05	171.21	163.24	108.96	67.44	33.13	1,195

Projected Material Quantities at Laxton Landfill

ITEM	2027												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		6.91	5.84	32.09	10.08	12.65	9.82	18.85	5.06	8.59	0.09	110
Recyclables (Containers)	0.83		12.18		1.66	2.00	2.12	1.75	1.90	0.62	1.11	0.58	25
Recyclables (Fibres)	1.19		1.21		2.71	1.45	2.33	1.24	1.73	1.09	1.40	0.70	15
Scrap Metal					12.59								13
Waste Electrical and Electronic Equipment		3.03			2.60		3.19	2.06		3.29		4.20	18
TOTAL DIVERTED	2.11	3.03	20.30	5.84	51.65	13.53	20.30	14.87	22.48	10.05	11.10	5.58	181
WASTE	23.07	17.92	42.26	51.64	152.36	145.91	109.29	158.39	142.72	100.21	57.15	27.95	1,029
TOTAL	25.18	20.95	62.55	57.48	204.01	159.44	129.59	173.26	165.20	110.27	68.25	33.53	1,210

ITEM	2028												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		6.99	5.91	32.48	10.20	12.80	9.94	19.07	5.12	8.70	0.09	111
Recyclables (Containers)	0.83		12.32		1.68	2.03	2.15	1.77	1.93	0.62	1.12	0.59	25
Recyclables (Fibres)	1.20		1.22		2.74	1.47	2.36	1.26	1.75	1.10	1.41	0.71	15
Scrap Metal					12.75								13
Waste Electrical and Electronic Equipment		3.07			2.63		3.23	2.08		3.33		4.26	19
TOTAL DIVERTED	2.14	3.07	20.54	5.91	52.27	13.69	20.54	15.05	22.75	10.18	11.23	5.65	183
WASTE	23.35	18.14	42.76	52.26	154.19	147.66	110.60	160.29	144.43	101.41	57.84	28.28	1,041
TOTAL	25.48	21.21	63.30	58.17	206.46	161.36	131.14	175.34	167.18	111.59	69.07	33.93	1,224

ITEM	2029												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		7.08	5.98	32.87	10.32	12.96	10.06	19.30	5.18	8.80	0.09	113
Recyclables (Containers)	0.85		12.47		1.70	2.05	2.17	1.79	1.95	0.63	1.14	0.60	25
Recyclables (Fibres)	1.22		1.24		2.77	1.49	2.39	1.27	1.77	1.12	1.43	0.72	15
Scrap Metal					12.90								13
Waste Electrical and Electronic Equipment		3.11			2.66		3.27	2.11		3.37		4.31	19
TOTAL DIVERTED	2.16	3.11	20.79	5.98	52.90	13.86	20.79	15.23	23.02	10.30	11.37	5.71	185
WASTE	23.63	18.35	43.28	52.89	156.04	149.43	111.93	162.22	146.17	102.63	58.53	28.62	1,054
TOTAL	25.79	21.46	64.06	58.87	208.94	163.29	132.72	177.45	169.18	112.93	69.90	34.34	1,239

ITEM	2030												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		7.16	6.05	33.26	10.44	13.11	10.18	19.53	5.24	8.91	0.09	114
Recyclables (Containers)	0.86		12.62		1.72	2.08	2.20	1.81	1.97	0.64	1.15	0.60	26
Recyclables (Fibres)	1.23		1.25		2.80	1.51	2.42	1.29	1.79	1.13	1.45	0.73	16
Scrap Metal					13.05								13
Waste Electrical and Electronic Equipment		3.14			2.70		3.30	2.13		3.41		4.36	19
TOTAL DIVERTED	2.19	3.14	21.04	6.05	53.54	14.02	21.04	15.42	23.29	10.42	11.50	5.78	187
WASTE	23.91	18.57	43.80	53.52	157.91	151.23	113.27	164.16	147.92	103.86	59.23	28.97	1,066
TOTAL	26.10	21.72	64.83	59.58	211.44	165.25	134.31	179.58	171.21	114.28	70.74	34.75	1,254

Projected Material Quantities at Laxton Landfill

ITEM	2031												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.10		7.25	6.13	33.66	10.57	13.27	10.30	19.77	5.31	9.01	0.09	115
Recyclables (Containers)	0.87		12.77		1.74	2.10	2.23	1.83	2.00	0.65	1.17	0.61	26
Recyclables (Fibres)	1.25		1.27		2.84	1.52	2.45	1.30	1.81	1.14	1.47	0.74	16
Scrap Metal					13.21								13
Waste Electrical and Electronic Equipment		3.18			2.73		3.34	2.16		3.45		4.41	19
TOTAL DIVERTED	2.22	3.18	21.29	6.13	54.18	14.19	21.29	15.60	23.57	10.55	11.64	5.85	190
WASTE	24.20	18.80	44.32	54.16	159.80	153.04	114.63	166.13	149.69	105.11	59.94	29.31	1,079
TOTAL	26.41	21.98	65.61	60.29	213.98	167.23	135.92	181.73	173.27	115.65	71.59	35.17	1,269

ITEM	2032												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.11		7.33	6.20	34.06	10.70	13.43	10.43	20.00	5.37	9.12	0.09	117
Recyclables (Containers)	0.88		12.93		1.76	2.13	2.25	1.86	2.02	0.65	1.18	0.62	26
Recyclables (Fibres)	1.26		1.28		2.87	1.54	2.48	1.32	1.83	1.16	1.48	0.75	16
Scrap Metal					13.37								13
Waste Electrical and Electronic Equipment		3.22			2.76		3.38	2.18		3.49		4.46	20
TOTAL DIVERTED	2.24	3.22	21.54	6.20	54.83	14.36	21.54	15.79	23.86	10.67	11.78	5.92	192
WASTE	24.49	19.02	44.85	54.81	161.72	154.88	116.01	168.13	151.49	106.37	60.66	29.67	1,092
TOTAL	26.73	22.24	66.40	61.01	216.55	169.24	137.55	183.91	175.35	117.04	72.45	35.59	1,284

ITEM	2033												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.11		7.42	6.28	34.47	10.82	13.59	10.55	20.24	5.44	9.23	0.09	118
Recyclables (Containers)	0.89		13.08		1.78	2.15	2.28	1.88	2.04	0.66	1.19	0.63	27
Recyclables (Fibres)	1.28		1.30		2.91	1.56	2.51	1.34	1.86	1.17	1.50	0.76	16
Scrap Metal					13.53								14
Waste Electrical and Electronic Equipment		3.26			2.79		3.43	2.21		3.53		4.52	20
TOTAL DIVERTED	2.27	3.26	21.80	6.28	55.49	14.54	21.80	15.98	24.14	10.80	11.92	5.99	194
WASTE	24.78	19.25	45.39	55.47	163.66	156.74	117.40	170.14	153.31	107.65	61.39	30.02	1,105
TOTAL	27.05	22.51	67.19	61.75	219.15	171.27	139.20	186.12	177.45	118.45	73.32	36.02	1,299

ITEM	2034												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.11		7.51	6.35	34.89	10.95	13.75	10.68	20.49	5.50	9.34	0.10	120
Recyclables (Containers)	0.90		13.24		1.81	2.18	2.31	1.90	2.07	0.67	1.21	0.63	27
Recyclables (Fibres)	1.29		1.32		2.94	1.58	2.54	1.35	1.88	1.18	1.52	0.77	16
Scrap Metal					13.69								14
Waste Electrical and Electronic Equipment		3.30			2.83		3.47	2.24		3.58		4.57	20
TOTAL DIVERTED	2.30	3.30	22.07	6.35	56.15	14.71	22.06	16.17	24.43	10.93	12.07	6.07	197
WASTE	25.08	19.48	45.94	56.14	165.63	158.62	118.81	172.18	155.15	108.94	62.13	30.38	1,118
TOTAL	27.37	22.78	68.00	62.49	221.78	173.33	140.87	188.35	179.58	119.87	74.20	36.45	1,315

Projected Material Quantities at Laxton Landfill

ITEM	2035												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.11		7.60	6.43	35.30	11.09	13.92	10.81	20.73	5.57	9.45	0.10	121
Recyclables (Containers)	0.91		13.40		1.83	2.20	2.34	1.92	2.09	0.68	1.22	0.64	27
Recyclables (Fibres)	1.31		1.33		2.98	1.60	2.57	1.37	1.90	1.20	1.54	0.77	17
Scrap Metal					13.86								14
Waste Electrical and Electronic Equipment		3.34			2.86		3.51	2.26		3.62		4.63	20
TOTAL DIVERTED	2.32	3.34	22.33	6.43	56.83	14.89	22.33	16.36	24.73	11.06	12.21	6.14	199
WASTE	25.38	19.72	46.49	56.81	167.61	160.52	120.24	174.25	157.01	110.25	62.87	30.75	1,132
TOTAL	27.70	23.05	68.82	63.24	224.44	175.41	142.56	190.61	181.74	121.31	75.09	36.89	1,331

ITEM	2036												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Leaf and Yard Waste	0.11		7.69	6.50	35.73	11.22	14.09	10.94	20.98	5.63	9.57	0.10	123
Recyclables (Containers)	0.92		13.56		1.85	2.23	2.36	1.95	2.12	0.69	1.24	0.65	28
Recyclables (Fibres)	1.32		1.35		3.01	1.62	2.60	1.38	1.92	1.21	1.56	0.78	17
Scrap Metal					14.02								14
Waste Electrical and Electronic Equipment		3.38			2.90		3.55	2.29		3.66		4.68	20
TOTAL DIVERTED	2.35	3.38	22.60	6.50	57.51	15.07	22.60	16.56	25.02	11.19	12.36	6.21	201
WASTE	25.68	19.95	47.04	57.49	169.62	162.45	121.68	176.34	158.89	111.57	63.63	31.12	1,145
TOTAL	28.04	23.33	69.64	64.00	227.13	177.51	144.27	192.90	183.92	122.76	75.99	37.33	1,347

Historic Material Quantities at Fenelon Landfill

ITEM	YEAR					5-YEAR AVERAGE
	2019	2018	2017	2016	2015	
Batteries	0.55	0.73	0.85	0.93	0.82	0.78
Drywall	3.43					3.43
Household Hazardous Waste	84.69	85.50	106.00	116.00	105.00	99.44
Leaf and Yard Waste	1,500.55	830.15	304.00	1,162.00	1,381.00	1,035.54
Recyclables (Containers)	23.12	24.70	25.00	23.00	22.00	23.56
Recyclables (Fibres)	18.69	26.06	31.00	27.00	35.00	27.55
Scrap Metal	137.72	152.06	145.00	183.00	158.00	155.16
Tires	127.41	51.41	41.00	48.00	39.00	61.36
Waste Electrical and Electronic Equipment	39.36	55.58	49.00	59.00		50.73
TOTAL DIVERTED	1,935.53	1,226.19	701.85	1,618.93	1,740.82	1,457.56
WASTE	15,202.03	10,071.55	7,985.00	7,433.00	6,806.00	9,499.52
TOTAL	17,137.56	11,297.74	8,686.85	9,051.93	8,546.82	10,957.07

Information Not Available

2019 Material Quantities at Fenelon Landfill

ITEM	2019												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.02	0.05	0.09	0.03		0.07	0.14	0.09	0.05	0.55
Drywall						3.43							3.43
Household Hazardous Waste	2.67	2.04	4.01	6.51	9.10	7.81	15.44	9.83	7.47	8.20	7.59	4.02	84.69
Leaf and Yard Waste	2.81	1.57	3.43	75.32	151.16	396.46	114.29	154.21	200.00	197.40	155.07	48.83	1,500.55
Recyclables (Containers)	1.57	1.26	1.24	1.86	2.29	1.63	3.23	2.3	2.3	1.72	2.04	1.68	23.12
Recyclables (Fibres)	1.24	1.09	1.19	0.92	3.15	1.98	1.69	2.73	1.07	0.63	1.36	1.64	18.69
Scrap Metal	3.71	3.71	3.40	9.47	18.39	17.38	18.12	19.85	14.46	11.07	11.85	6.31	137.72
Tires	8.23	2.60	1.14	11.34	10.39	38.56	7.60	20.01	9.69	2.34	9.06	6.46	127.41
Waste Electrical and Electronic Equipment			5.09		4.69	2.50	7.93	3.05	2.24	11.11	2.75		39.36
TOTAL DIVERTED	20.25	12.27	19.50	105.44	199.22	469.84	168.33	211.98	237.30	232.61	189.81	68.99	1,935.53
WASTE	967.92	428.38	909.46	1,455.12	1,924.80	1,977.01	1,361.07	1,165.78	1,680.47	1,567.56	1,123.18	641.28	15,202.03
TOTAL	988.17	440.65	928.96	1,560.56	2,124.02	2,446.85	1,529.40	1,377.76	1,917.77	1,800.16	1,312.99	710.27	17,137.56

Monthly Quantities Estimated based on Laxton Quantities

Projected Material Quantities at Fenelon Landfill

ITEM	2020												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.09	0.03		0.07	0.14	0.09	0.05	0.56
Drywall						3.82							3.82
Household Hazardous Waste	2.70	2.06	4.06	6.59	9.21	7.90	15.63	9.94	7.56	8.29	7.69	4.07	85.71
Leaf and Yard Waste	2.84	1.59	3.47	76.22	152.97	401.22	115.66	156.06	202.40	199.77	156.93	49.42	1,518.56
Recyclables (Containers)	1.59	1.28	1.25	1.88	2.32	1.65	3.27	2.33	2.33	1.74	2.06	1.70	23.40
Recyclables (Fibres)	1.25	1.10	1.20	0.93	3.19	2.00	1.71	2.76	1.08	0.64	1.38	1.66	18.91
Scrap Metal	3.75	3.75	3.44	9.58	18.61	17.59	18.34	20.09	14.63	11.20	11.99	6.39	139.38
Tires	8.33	2.63	1.15	11.47	10.51	39.03	7.69	20.25	9.80	2.37	9.16	6.54	128.94
Waste Electrical and Electronic Equipment			5.15		4.75	2.53	8.03	3.09	2.27	11.24	2.79		39.83
TOTAL DIVERTED	20.49	12.42	19.73	106.71	201.61	475.83	170.35	214.52	240.15	235.40	192.09	69.81	1,959.10
WASTE	979.54	433.52	920.37	1,472.58	1,947.90	2,000.73	1,377.40	1,179.77	1,700.64	1,586.37	1,136.66	648.98	15,384.45
TOTAL	1,000.03	445.94	940.11	1,579.29	2,149.50	2,476.56	1,547.75	1,394.29	1,940.78	1,821.76	1,328.74	718.79	17,343.56

Monthly Quantities Estimated based on Laxton Quantities

ITEM	2021												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.09	0.03		0.07	0.14	0.09	0.05	0.57
Drywall						3.86							3.86
Household Hazardous Waste	2.74	2.09	4.11	6.67	9.32	8.00	15.82	10.06	7.65	8.39	7.78	4.12	86.74
Leaf and Yard Waste	2.88	1.61	3.51	77.14	154.81	406.03	117.05	157.93	204.83	202.17	158.81	50.01	1,536.78
Recyclables (Containers)	1.61	1.29	1.27	1.90	2.35	1.67	3.31	2.36	2.36	1.76	2.09	1.72	23.68
Recyclables (Fibres)	1.27	1.12	1.22	0.94	3.23	2.03	1.73	2.80	1.10	0.65	1.39	1.68	19.14
Scrap Metal	3.80	3.80	3.48	9.70	18.83	17.80	18.56	20.33	14.81	11.34	12.14	6.46	141.05
Waste Electrical and Electronic Equipment			5.21		4.81	2.56	8.12	3.12	2.30	11.38	2.82		40.31
TOTAL DIVERTED	12.31	9.91	18.80	96.38	193.39	442.04	164.61	196.60	233.10	235.82	185.12	64.04	1,852.13
WASTE	991.29	438.72	931.42	1,490.25	1,971.27	2,024.74	1,393.93	1,193.93	1,721.04	1,605.40	1,150.30	656.77	15,569.07
TOTAL	1,003.60	448.63	950.22	1,586.63	2,164.66	2,466.79	1,558.54	1,390.53	1,954.15	1,841.23	1,335.41	720.80	17,421.19

ITEM	2022												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.09	0.03		0.07	0.15	0.09	0.05	0.57
Drywall						3.91							3.91
Household Hazardous Waste	2.77	2.11	4.16	6.75	9.44	8.09	16.01	10.18	7.74	8.49	7.87	4.17	87.78
Leaf and Yard Waste	2.91	1.63	3.55	78.06	156.67	410.90	118.45	159.83	207.29	204.59	160.72	50.61	1,555.22
Recyclables (Containers)	1.63	1.31	1.29	1.93	2.37	1.69	3.35	2.38	2.38	1.78	2.11	1.74	23.96
Recyclables (Fibres)	1.29	1.13	1.23	0.95	3.26	2.05	1.75	2.83	1.11	0.65	1.41	1.70	19.37
Scrap Metal	3.85	3.85	3.52	9.82	19.06	18.02	18.78	20.57	14.99	11.47	12.28	6.54	142.74
Waste Electrical and Electronic Equipment			5.28		4.86	2.59	8.22	3.16	2.32	11.51	2.85		40.80
TOTAL DIVERTED	12.45	10.03	19.03	97.54	195.71	447.35	166.59	198.96	235.90	238.65	187.34	64.81	1,874.35
WASTE	1,003.18	443.99	942.60	1,508.14	1,994.93	2,049.04	1,410.66	1,208.25	1,741.70	1,624.67	1,164.10	664.65	15,755.90
TOTAL	1,015.64	454.01	961.62	1,605.67	2,190.64	2,496.39	1,577.25	1,407.21	1,977.60	1,863.32	1,351.44	729.45	17,630.25

Projected Material Quantities at Fenelon Landfill

ITEM	2023												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.10	0.03		0.07	0.15	0.09	0.05	0.58
Drywall						3.96							3.96
Household Hazardous Waste	2.80	2.14	4.21	6.83	9.55	8.19	16.20	10.31	7.83	8.60	7.97	4.22	88.83
Leaf and Yard Waste	2.95	1.65	3.60	79.00	158.55	415.84	119.88	161.75	209.77	207.05	162.65	51.22	1,573.88
Recyclables (Containers)	1.65	1.32	1.30	1.95	2.40	1.71	3.39	2.41	2.41	1.80	2.14	1.76	24.25
Recyclables (Fibres)	1.30	1.14	1.25	0.96	3.30	2.08	1.77	2.86	1.12	0.66	1.43	1.72	19.60
Scrap Metal	3.89	3.89	3.57	9.93	19.29	18.23	19.01	20.82	15.17	11.61	12.43	6.62	144.45
Waste Electrical and Electronic Equipment			5.34		4.92	2.62	8.32	3.20	2.35	11.65	2.89		41.28
TOTAL DIVERTED	12.60	10.15	19.26	98.71	198.06	452.72	168.59	201.35	238.73	241.52	189.59	65.58	1,896.84
WASTE	1,015.22	449.32	953.91	1,526.23	2,018.87	2,073.63	1,427.59	1,222.75	1,762.60	1,644.16	1,178.07	672.62	15,944.97
TOTAL	1,027.83	459.46	973.16	1,624.94	2,216.93	2,526.34	1,596.17	1,424.10	2,001.33	1,885.68	1,367.66	738.21	17,841.81

*Landfill expected to reach capacity by the end of 2023

ITEM	2024												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.10	0.03		0.07	0.15	0.09	0.05	0.59
Drywall						4.00							4.00
Household Hazardous Waste	2.84	2.16	4.26	6.91	9.66	8.29	16.39	10.43	7.93	8.70	8.06	4.27	89.90
Leaf and Yard Waste	2.98	1.67	3.64	79.95	160.45	420.83	121.31	163.69	212.29	209.53	164.60	51.83	1,592.77
Recyclables (Containers)	1.67	1.34	1.32	1.97	2.43	1.73	3.43	2.44	2.44	1.83	2.17	1.78	24.54
Recyclables (Fibres)	1.32	1.16	1.26	0.98	3.34	2.10	1.79	2.90	1.14	0.67	1.44	1.74	19.84
Scrap Metal	3.94	3.94	3.61	10.05	19.52	18.45	19.23	21.07	15.35	11.75	12.58	6.70	146.19
Waste Electrical and Electronic Equipment			5.40		4.98	2.65	8.42	3.24	2.38	11.79	2.92		41.78
TOTAL DIVERTED	12.75	10.27	19.49	99.89	200.44	458.15	170.61	203.76	241.60	244.42	191.86	66.37	1,919.61
WASTE	1,027.41	454.71	965.35	1,544.55	2,043.09	2,098.51	1,444.72	1,237.43	1,783.75	1,663.89	1,192.21	680.70	16,136.31
TOTAL	1,040.16	464.97	984.84	1,644.44	2,243.53	2,556.66	1,615.33	1,441.19	2,025.34	1,908.31	1,384.07	747.07	18,055.91

ITEM	2025												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.10	0.03		0.08	0.15	0.09	0.05	0.59
Drywall						4.05							4.05
Household Hazardous Waste	2.87	2.19	4.31	7.00	9.78	8.39	16.59	10.56	8.02	8.80	8.16	4.32	90.98
Leaf and Yard Waste	3.02	1.69	3.68	80.91	162.38	425.88	122.77	165.65	214.84	212.05	166.58	52.45	1,611.88
Recyclables (Containers)	1.69	1.35	1.33	2.00	2.46	1.75	3.47	2.47	2.47	1.85	2.19	1.80	24.84
Recyclables (Fibres)	1.33	1.17	1.28	0.99	3.38	2.13	1.82	2.93	1.15	0.68	1.46	1.76	20.08
Scrap Metal	3.99	3.99	3.65	10.17	19.75	18.67	19.46	21.32	15.53	11.89	12.73	6.78	147.94
Waste Electrical and Electronic Equipment			5.47		5.04	2.68	8.52	3.27	2.41	11.93	2.96		42.28
TOTAL DIVERTED	12.91	10.39	19.72	101.09	202.84	463.65	172.66	206.21	244.50	247.35	194.16	67.17	1,942.64
WASTE	1,039.73	460.16	976.94	1,563.08	2,067.61	2,123.69	1,462.05	1,252.27	1,805.15	1,683.86	1,206.51	688.86	16,329.94
TOTAL	1,052.64	470.55	996.66	1,664.17	2,270.45	2,587.34	1,634.71	1,458.48	2,049.65	1,931.21	1,400.68	756.03	18,272.58

Projected Material Quantities at Fenelon Landfill

ITEM	2026												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.10	0.03		0.08	0.15	0.09	0.05	0.60
Drywall						4.10							4.10
Household Hazardous Waste	2.91	2.21	4.36	7.08	9.90	8.49	16.79	10.68	8.12	8.91	8.26	4.37	92.07
Leaf and Yard Waste	3.05	1.71	3.73	81.88	164.32	430.99	124.24	167.64	217.42	214.59	168.57	53.08	1,631.23
Recyclables (Containers)	1.71	1.37	1.35	2.02	2.49	1.77	3.51	2.50	2.50	1.87	2.22	1.83	25.13
Recyclables (Fibres)	1.35	1.18	1.29	1.00	3.42	2.15	1.84	2.97	1.16	0.68	1.48	1.78	20.32
Scrap Metal	4.03	4.03	3.70	10.29	19.99	18.90	19.70	21.58	15.72	12.03	12.88	6.86	149.72
Waste Electrical and Electronic Equipment			5.53		5.10	2.72	8.62	3.31	2.44	12.08	2.99		42.79
TOTAL DIVERTED	13.06	10.52	19.96	102.30	205.28	469.21	174.73	208.68	247.43	250.32	196.49	67.97	1,965.95
WASTE	1,052.21	465.69	988.66	1,581.84	2,092.42	2,149.18	1,479.60	1,267.30	1,826.81	1,704.07	1,220.99	697.13	16,525.90
TOTAL	1,065.27	476.20	1,008.62	1,684.14	2,297.70	2,618.39	1,654.33	1,475.98	2,074.24	1,954.38	1,417.49	765.10	18,491.85

ITEM	2027												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.01	0.01		0.03	0.05	0.10	0.03		0.08	0.15	0.09	0.05	0.61
Drywall						4.15							4.15
Household Hazardous Waste	2.94	2.24	4.41	7.17	10.01	8.59	16.99	10.81	8.22	9.02	8.35	4.42	93.17
Leaf and Yard Waste	3.09	1.73	3.77	82.86	166.30	436.16	125.73	169.65	220.03	217.17	170.60	53.72	1,650.80
Recyclables (Containers)	1.73	1.39	1.36	2.05	2.52	1.79	3.55	2.53	2.53	1.89	2.24	1.85	25.44
Recyclables (Fibres)	1.36	1.20	1.31	1.01	3.47	2.18	1.86	3.00	1.18	0.69	1.50	1.80	20.56
Scrap Metal	4.08	4.08	3.74	10.42	20.23	19.12	19.93	21.84	15.91	12.18	13.04	6.94	151.51
Waste Electrical and Electronic Equipment			5.60		5.16	2.75	8.72	3.35	2.47	12.22	3.03		43.30
TOTAL DIVERTED	13.22	10.64	20.20	103.53	207.74	474.84	176.83	211.19	250.40	253.32	198.85	68.79	1,989.54
WASTE	1,064.84	471.27	1,000.52	1,600.82	2,117.53	2,174.97	1,497.35	1,282.51	1,848.74	1,724.51	1,235.64	705.50	16,724.21
TOTAL	1,078.06	481.92	1,020.72	1,704.35	2,325.27	2,649.81	1,674.18	1,493.70	2,099.14	1,977.84	1,434.50	774.28	18,713.76

ITEM	2028												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.10	0.03		0.08	0.16	0.10	0.05	0.62
Drywall						4.20							4.20
Household Hazardous Waste	2.98	2.27	4.47	7.25	10.14	8.69	17.19	10.94	8.31	9.12	8.45	4.48	94.29
Leaf and Yard Waste	3.13	1.75	3.82	83.86	168.29	441.39	127.24	171.69	222.67	219.77	172.64	54.36	1,670.61
Recyclables (Containers)	1.75	1.40	1.38	2.07	2.55	1.81	3.60	2.56	2.56	1.91	2.27	1.87	25.74
Recyclables (Fibres)	1.38	1.21	1.32	1.02	3.51	2.20	1.88	3.04	1.19	0.70	1.51	1.83	20.81
Scrap Metal	4.13	4.13	3.79	10.54	20.47	19.35	20.17	22.10	16.10	12.32	13.19	7.03	153.33
Waste Electrical and Electronic Equipment			5.67		5.22	2.78	8.83	3.39	2.49	12.37	3.06		43.82
TOTAL DIVERTED	13.38	10.77	20.44	104.77	210.23	480.54	178.95	213.72	253.40	256.36	201.24	69.61	2,013.42
WASTE	1,077.62	476.93	1,012.53	1,620.03	2,142.94	2,201.07	1,515.32	1,297.90	1,870.92	1,745.21	1,250.47	713.96	16,924.90
TOTAL	1,090.99	487.70	1,032.97	1,724.81	2,353.17	2,681.61	1,694.27	1,511.62	2,124.33	2,001.57	1,451.71	783.58	18,938.32

Projected Material Quantities at Fenelon Landfill

ITEM	2029												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.10	0.03		0.08	0.16	0.10	0.05	0.62
Drywall						4.25							4.25
Household Hazardous Waste	3.01	2.29	4.52	7.34	10.26	8.80	17.40	11.07	8.41	9.23	8.56	4.53	95.42
Leaf and Yard Waste	3.17	1.77	3.86	84.86	170.31	446.69	128.77	173.75	225.34	222.41	174.72	55.02	1,690.66
Recyclables (Containers)	1.77	1.42	1.40	2.10	2.58	1.84	3.64	2.59	2.59	1.94	2.30	1.89	26.05
Recyclables (Fibres)	1.40	1.23	1.34	1.04	3.55	2.23	1.90	3.08	1.21	0.71	1.53	1.85	21.06
Scrap Metal	4.18	4.18	3.83	10.67	20.72	19.59	20.42	22.36	16.29	12.47	13.35	7.11	155.17
Waste Electrical and Electronic Equipment			5.73		5.29	2.82	8.93	3.43	2.52	12.52	3.10		44.35
TOTAL DIVERTED	13.54	10.90	20.69	106.03	212.75	486.31	181.09	216.28	256.45	259.44	203.65	70.45	2,037.58
WASTE	1,090.55	482.65	1,024.68	1,639.47	2,168.66	2,227.48	1,533.51	1,313.47	1,893.37	1,766.15	1,265.48	722.53	17,128.00
TOTAL	1,104.09	493.55	1,045.37	1,745.50	2,381.41	2,713.79	1,714.60	1,529.76	2,149.82	2,025.59	1,469.13	792.98	19,165.58

ITEM	2030												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.10	0.03		0.08	0.16	0.10	0.05	0.63
Drywall						4.30							4.30
Household Hazardous Waste	3.05	2.32	4.57	7.43	10.38	8.90	17.61	11.20	8.52	9.35	8.66	4.58	96.57
Leaf and Yard Waste	3.20	1.79	3.91	85.88	172.35	452.05	130.31	175.83	228.04	225.08	176.81	55.68	1,710.95
Recyclables (Containers)	1.79	1.44	1.41	2.12	2.61	1.86	3.68	2.62	2.62	1.96	2.33	1.92	26.36
Recyclables (Fibres)	1.41	1.24	1.36	1.05	3.59	2.26	1.93	3.11	1.22	0.72	1.55	1.87	21.31
Scrap Metal	4.23	4.23	3.88	10.80	20.97	19.82	20.66	22.63	16.49	12.62	13.51	7.19	157.03
Waste Electrical and Electronic Equipment			5.80		5.35	2.85	9.04	3.48	2.56	12.67	3.14		44.88
TOTAL DIVERTED	13.70	11.03	20.94	107.30	215.31	492.14	183.27	218.88	259.52	262.55	206.10	71.29	2,062.03
WASTE	1,103.63	488.44	1,036.98	1,659.15	2,194.68	2,254.21	1,551.91	1,329.24	1,916.09	1,787.35	1,280.66	731.20	17,333.54
TOTAL	1,117.34	499.47	1,057.91	1,766.45	2,409.99	2,746.35	1,735.18	1,548.12	2,175.62	2,049.90	1,486.76	802.49	19,395.57

ITEM	2031												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.10	0.03		0.08	0.16	0.10	0.05	0.64
Drywall						4.35							4.35
Household Hazardous Waste	3.08	2.35	4.63	7.52	10.50	9.01	17.82	11.34	8.62	9.46	8.76	4.64	97.73
Leaf and Yard Waste	3.24	1.81	3.96	86.91	174.42	457.47	131.88	177.94	230.78	227.78	178.93	56.34	1,731.48
Recyclables (Containers)	1.81	1.45	1.43	2.15	2.64	1.88	3.73	2.65	2.65	1.98	2.35	1.94	26.68
Recyclables (Fibres)	1.43	1.26	1.37	1.06	3.63	2.28	1.95	3.15	1.23	0.73	1.57	1.89	21.57
Scrap Metal	4.28	4.28	3.92	10.93	21.22	20.06	20.91	22.90	16.69	12.77	13.67	7.28	158.92
Waste Electrical and Electronic Equipment			5.87		5.41	2.88	9.15	3.52	2.59	12.82	3.18		45.42
TOTAL DIVERTED	13.87	11.16	21.19	108.59	217.89	498.05	185.47	221.51	262.64	265.70	208.57	72.15	2,086.78
WASTE	1,116.88	494.31	1,049.42	1,679.06	2,221.02	2,281.26	1,570.53	1,345.19	1,939.09	1,808.79	1,296.03	739.97	17,541.54
TOTAL	1,130.74	505.47	1,070.61	1,787.65	2,438.91	2,779.31	1,756.00	1,566.69	2,201.72	2,074.49	1,504.60	812.12	19,628.32

Projected Material Quantities at Fenelon Landfill

ITEM	2032												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.11	0.03		0.08	0.16	0.10	0.06	0.65
Drywall						4.41							4.41
Household Hazardous Waste	3.12	2.38	4.68	7.61	10.63	9.12	18.03	11.47	8.72	9.57	8.87	4.69	98.90
Leaf and Yard Waste	3.28	1.83	4.01	87.95	176.52	462.96	133.46	180.08	233.55	230.51	181.08	57.02	1,752.25
Recyclables (Containers)	1.83	1.47	1.45	2.17	2.67	1.90	3.77	2.69	2.69	2.01	2.38	1.96	27.00
Recyclables (Fibres)	1.45	1.27	1.39	1.07	3.68	2.31	1.97	3.19	1.25	0.74	1.59	1.92	21.83
Scrap Metal	4.33	4.33	3.97	11.06	21.47	20.30	21.16	23.18	16.89	12.93	13.84	7.37	160.82
Waste Electrical and Electronic Equipment			5.94		5.48	2.92	9.26	3.56	2.62	12.97	3.21		45.96
TOTAL DIVERTED	14.03	11.30	21.44	109.90	220.51	504.02	187.69	224.16	265.79	268.89	211.07	73.02	2,111.82
WASTE	1,130.28	500.24	1,062.01	1,699.20	2,247.67	2,308.64	1,589.38	1,361.33	1,962.35	1,830.50	1,311.58	748.85	17,752.04
TOTAL	1,144.31	511.53	1,083.45	1,809.10	2,468.17	2,812.66	1,777.07	1,585.49	2,228.14	2,099.39	1,522.66	821.87	19,863.85

ITEM	2033												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.11	0.03		0.08	0.17	0.10	0.06	0.65
Drywall						4.46							4.46
Household Hazardous Waste	3.16	2.41	4.74	7.70	10.76	9.23	18.25	11.61	8.83	9.69	8.97	4.75	100.09
Leaf and Yard Waste	3.32	1.86	4.05	89.01	178.63	468.52	135.06	182.24	236.35	233.28	183.25	57.71	1,773.28
Recyclables (Containers)	1.86	1.49	1.47	2.20	2.71	1.93	3.82	2.72	2.72	2.03	2.41	1.99	27.32
Recyclables (Fibres)	1.47	1.29	1.41	1.09	3.72	2.34	2.00	3.23	1.26	0.74	1.61	1.94	22.09
Scrap Metal	4.38	4.38	4.02	11.19	21.73	20.54	21.41	23.46	17.09	13.08	14.00	7.46	162.75
Waste Electrical and Electronic Equipment			6.02		5.55	2.95	9.37	3.60	2.65	13.13	3.25		46.52
TOTAL DIVERTED	14.20	11.43	21.70	111.21	223.15	510.07	189.94	226.85	268.98	272.12	213.60	73.89	2,137.16
WASTE	1,143.84	506.24	1,074.76	1,719.59	2,274.64	2,336.34	1,608.45	1,377.67	1,985.90	1,852.46	1,327.32	757.84	17,965.06
TOTAL	1,158.04	517.67	1,096.46	1,830.81	2,497.79	2,846.41	1,798.40	1,604.52	2,254.88	2,124.58	1,540.93	831.73	20,102.22

ITEM	2034												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.11	0.03		0.08	0.17	0.10	0.06	0.66
Drywall						4.51							4.51
Household Hazardous Waste	3.20	2.44	4.80	7.79	10.89	9.34	18.47	11.75	8.93	9.80	9.08	4.81	101.29
Leaf and Yard Waste	3.36	1.88	4.10	90.08	180.78	474.14	136.68	184.43	239.19	236.08	185.45	58.40	1,794.56
Recyclables (Containers)	1.88	1.51	1.48	2.22	2.74	1.95	3.86	2.75	2.75	2.06	2.44	2.01	27.65
Recyclables (Fibres)	1.48	1.30	1.42	1.10	3.77	2.37	2.02	3.26	1.28	0.75	1.63	1.96	22.35
Scrap Metal	4.44	4.44	4.07	11.33	21.99	20.79	21.67	23.74	17.29	13.24	14.17	7.55	164.71
Waste Electrical and Electronic Equipment			6.09		5.61	2.99	9.48	3.65	2.68	13.28	3.29		47.07
TOTAL DIVERTED	14.37	11.57	21.96	112.55	225.83	516.19	192.22	229.58	272.21	275.38	216.17	74.78	2,162.80
WASTE	1,157.57	512.31	1,087.66	1,740.23	2,301.94	2,364.38	1,627.75	1,394.20	2,009.73	1,874.69	1,343.25	766.93	18,180.64
TOTAL	1,171.94	523.88	1,109.61	1,852.78	2,527.77	2,880.57	1,819.98	1,623.77	2,281.94	2,150.08	1,559.42	841.71	20,343.45

Projected Material Quantities at Fenelon Landfill

ITEM	2035												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.05	0.11	0.03		0.09	0.17	0.10	0.06	0.67
Drywall						4.57							4.57
Household Hazardous Waste	3.23	2.46	4.85	7.88	11.02	9.45	18.69	11.89	9.04	9.92	9.19	4.87	102.50
Leaf and Yard Waste	3.40	1.90	4.15	91.16	182.95	479.83	138.32	186.64	242.06	238.91	187.68	59.10	1,816.10
Recyclables (Containers)	1.90	1.52	1.50	2.25	2.77	1.97	3.91	2.78	2.78	2.08	2.47	2.03	27.98
Recyclables (Fibres)	1.50	1.32	1.44	1.11	3.81	2.40	2.05	3.30	1.30	0.76	1.65	1.98	22.62
Scrap Metal	4.49	4.49	4.11	11.46	22.26	21.04	21.93	24.02	17.50	13.40	14.34	7.64	166.68
Waste Electrical and Electronic Equipment			6.16		5.68	3.02	9.60	3.69	2.71	13.44	3.33		47.64
TOTAL DIVERTED	14.54	11.71	22.22	113.90	228.54	522.39	194.53	232.33	275.47	278.69	218.76	75.68	2,188.76
WASTE	1,171.46	518.46	1,100.71	1,761.11	2,329.56	2,392.75	1,647.28	1,410.93	2,033.85	1,897.19	1,359.37	776.14	18,398.81
TOTAL	1,186.00	530.17	1,122.93	1,875.01	2,558.10	2,915.14	1,841.82	1,643.26	2,309.32	2,175.88	1,578.13	851.81	20,587.57

ITEM	2036												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.02	0.01		0.03	0.06	0.11	0.03		0.09	0.17	0.11	0.06	0.68
Drywall						4.62							4.62
Household Hazardous Waste	3.27	2.49	4.91	7.98	11.15	9.56	18.92	12.03	9.15	10.04	9.30	4.92	103.73
Leaf and Yard Waste	3.44	1.92	4.20	92.25	185.14	485.59	139.98	188.88	244.96	241.78	189.93	59.81	1,837.89
Recyclables (Containers)	1.92	1.54	1.52	2.28	2.80	2.00	3.96	2.82	2.82	2.11	2.50	2.06	28.32
Recyclables (Fibres)	1.52	1.34	1.46	1.13	3.86	2.43	2.07	3.34	1.31	0.77	1.67	2.01	22.89
Scrap Metal	4.54	4.54	4.16	11.60	22.52	21.29	22.19	24.31	17.71	13.56	14.51	7.73	168.68
Waste Electrical and Electronic Equipment			6.23		5.75	3.06	9.71	3.73	2.74	13.61	3.37		48.21
TOTAL DIVERTED	14.72	11.85	22.49	115.27	231.28	528.66	196.87	235.12	278.78	282.03	221.39	76.58	2,215.02
WASTE	1,185.52	524.68	1,113.92	1,782.25	2,357.51	2,421.46	1,667.05	1,427.86	2,058.26	1,919.96	1,375.68	785.45	18,619.60
TOTAL	1,200.24	536.53	1,136.40	1,897.51	2,588.80	2,950.12	1,863.92	1,662.98	2,337.03	2,201.99	1,597.07	862.04	20,834.62

Historic Material Quantities at Lindsay Ops Landfill

ITEM	YEAR			3-YEAR AVERAGE
	2019	2018	2017	
Batteries	1.57	1.33	1.81	1.57
Clean Wood	45.54			45.54
Drywall	30.90			30.90
Household Hazardous Waste	179.21	225.14	161.00	188.45
Leaf and Yard Waste	2,288.41	1,906.07	1,655.14	1,949.87
Mattresses	113.46	36.18		74.82
Recyclables (Containers)	3,389.68	3,255.83	3,225.71	3,290.41
Recyclables (Fibres)	3,208.30	3,872.00	3,857.73	3,646.01
Reuse	3.19	1.43	1.33	1.98
Scrap Metal	297.20	291.51	323.76	304.16
Tires	157.01	304.89	252.58	238.16
Waste Electrical and Electronic Equipment	140.93	136.45	128.12	135.17
TOTAL DIVERTED	9,855.41	10,030.84	9,607.18	9,907.04
WASTE	28,217.80	27,585.50	25,166.85	26,990.05
TOTAL	38,073.21	37,616.34	34,774.03	36,897.09

Information Not Available

2019 Material Quantities at Lindsay Ops Landfill

ITEM	2019												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.07	0.08	0.08	0.05	0.29	0.17	0.19	0.13	0.18	0.14	0.11	0.08	1.57
Clean Wood					14.49	6.93	11.13	6.50	6.49				45.54
Drywall	6.60						6.86	4.10	6.83	6.51			30.90
Household Hazardous Waste	10.60	4.87	7.37	19.20	19.21	22.04	24.37	18.70	16.31	16.20	11.89	8.45	179.21
Leaf and Yard Waste	14.60	3.28	55.99	286.06	372.69	289.16	185.14	166.40	211.15	247.20	437.87	18.87	2,288.41
Mattresses	13.43	3.86	5.30	10.88	11.59	8.62	10.47	14.15	9.88	12.57	9.18	3.53	113.46
Recyclables (Containers)	248.11	229.76	207.10	274.47	132.66	279.76	372.69	312.15	281.39	275.32	299.86	201.17	3,114.44
Recyclables (Fibres)	401.11	128.41	284.96	317.09	363.95	285.03	285.83	285.90	293.61	375.68	127.84	334.14	3,483.54
Reuse	0.36				0.38	2.44	0.01						3.19
Scrap Metal	10.68	7.87	12.43	22.92	38.14	29.31	37.73	37.81	29.39	31.71	25.83	13.38	297.20
Tires	10.14	3.20	1.40	13.97	12.80	47.52	9.36	24.66	11.94	2.89	11.16	7.96	157.01
Waste Electrical and Electronic Equipment	15.42	4.53	8.56	15.21	5.06	14.61	25.05	0.00	9.49	19.68	9.20	14.13	140.93
TOTAL DIVERTED	731.14	385.85	583.21	959.85	971.25	985.58	968.83	870.50	876.67	987.89	932.92	601.71	9,855.41
WASTE	1,615.05	1,491.42	1,681.91	2,479.01	3,014.30	4,370.75	2,601.18	3,089.07	2,769.69	2,071.02	1,512.20	1,522.20	28,217.80
TOTAL	2,346.19	1,877.27	2,265.12	3,438.86	3,985.55	5,356.33	3,570.01	3,959.57	3,646.36	3,058.91	2,445.12	2,123.91	38,073.21

Monthly Quantities Estimated based on Laxton Quantities

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2020												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.08	0.05	0.29	0.17	0.19	0.14	0.19	0.14	0.11	0.08	1.59
Clean Wood					16.13	7.71	12.39	7.24	7.22				50.70
Drywall	7.35						7.64	4.56	7.60	7.25			34.40
Household Hazardous Waste	10.73	4.93	7.46	19.43	19.44	22.30	24.66	18.93	16.51	16.40	12.03	8.55	181.36
Leaf and Yard Waste	14.78	3.32	56.66	289.49	377.16	292.63	187.36	168.40	213.68	250.17	443.12	19.10	2,315.87
Mattresses	13.59	3.91	5.36	11.01	11.73	8.72	10.60	14.32	10.00	12.72	9.29	3.57	114.82
Recyclables (Containers)	251.09	232.52	209.59	277.77	134.25	283.12	377.17	315.89	284.77	278.62	303.46	203.58	3,151.81
Recyclables (Fibres)	405.92	129.95	288.38	320.90	368.31	288.45	289.26	289.33	297.14	380.19	129.37	338.15	3,525.34
Reuse	0.36				0.38	2.47	0.01						3.23
Scrap Metal	10.81	7.96	12.58	23.20	38.60	29.66	38.18	38.26	29.74	32.09	26.14	13.54	300.76
Tires	10.27	3.24	1.42	14.14	12.95	48.09	9.48	24.96	12.08	2.92	11.29	8.06	158.89
Waste Electrical and Electronic Equipment	15.61	4.58	8.66	15.40	5.12	14.78	25.35		9.61	19.92	9.31	14.30	142.62
TOTAL DIVERTED	740.58	390.48	590.20	971.37	984.37	998.11	982.27	882.02	888.54	1,000.41	944.12	608.93	9,981.41
WASTE	1,634.43	1,509.32	1,702.09	2,508.76	3,050.47	4,423.20	2,632.39	3,126.14	2,802.93	2,095.87	1,530.35	1,540.47	28,556.41
TOTAL	2,375.01	1,899.80	2,292.30	3,480.13	4,034.84	5,421.31	3,614.67	4,008.15	3,691.47	3,096.28	2,474.46	2,149.40	38,537.82

Monthly Quantities Estimated based on Laxton Quantities

ITEM	2021												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.29	0.17	0.19	0.14	0.19	0.14	0.11	0.09	1.61
Clean Wood					16.32	7.81	12.54	7.32	7.31				51.30
Drywall	7.44						7.73	4.62	7.69	7.33			34.81
Household Hazardous Waste	10.86	4.99	7.55	19.66	19.67	22.57	24.95	19.15	16.71	16.59	12.17	8.66	183.54
Leaf and Yard Waste	14.95	3.36	57.34	292.97	381.69	296.14	189.61	170.42	216.25	253.17	448.44	19.33	2,343.66
Mattresses	13.75	3.95	5.43	11.14	11.87	8.83	10.72	14.49	10.12	12.87	9.40	3.62	116.20
Recyclables (Containers)	254.10	235.31	212.10	281.10	135.86	286.51	381.69	319.68	288.19	281.96	307.10	206.02	3,189.64
Recyclables (Fibres)	410.79	131.51	291.84	324.75	372.73	291.91	292.73	292.80	300.70	384.75	130.92	342.21	3,567.65
Reuse	0.37				0.39	2.50	0.01						3.27
Scrap Metal	10.94	8.06	12.73	23.47	39.06	30.01	38.64	38.72	30.10	32.48	26.45	13.70	304.37
Waste Electrical and Electronic Equipment	15.80	4.64	8.77	15.58	5.18	14.96	25.65		9.72	20.15	9.42	14.47	144.34
TOTAL DIVERTED	739.08	391.89	595.85	968.72	983.08	961.41	984.47	867.34	886.97	1,009.46	944.02	608.09	9,940.38
WASTE	1,654.04	1,527.43	1,722.52	2,538.86	3,087.08	4,476.28	2,663.98	3,163.65	2,836.56	2,121.02	1,548.71	1,558.95	28,899.09
TOTAL	2,393.12	1,919.32	2,318.37	3,507.58	4,070.16	5,437.69	3,648.45	4,031.00	3,723.54	3,130.48	2,492.73	2,167.04	38,839.47

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2022												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.30	0.17	0.20	0.14	0.19	0.15	0.11	0.09	1.63
Clean Wood					16.52	7.90	12.69	7.41	7.40				51.92
Drywall	7.52						7.82	4.67	7.79	7.42			35.23
Household Hazardous Waste	10.99	5.05	7.64	19.90	19.91	22.84	25.25	19.38	16.91	16.79	12.32	8.76	185.74
Leaf and Yard Waste	15.13	3.40	58.03	296.48	386.27	299.70	191.89	172.46	218.84	256.21	453.82	19.56	2,371.79
Mattresses	13.92	4.00	5.49	11.28	12.01	8.93	10.85	14.67	10.24	13.03	9.51	3.66	117.59
Recyclables (Containers)	257.15	238.13	214.65	284.47	137.49	289.95	386.27	323.52	291.64	285.35	310.78	208.49	3,227.91
Recyclables (Fibres)	415.72	133.09	295.34	328.64	377.21	295.41	296.24	296.31	304.31	389.37	132.49	346.32	3,610.46
Reuse	0.37				0.39	2.53	0.01						3.31
Scrap Metal	11.07	8.16	12.88	23.76	39.53	30.37	39.11	39.19	30.46	32.87	26.77	13.87	308.02
Waste Electrical and Electronic Equipment	15.99	4.70	8.87	15.77	5.25	15.14	25.96		9.84	20.40	9.53	14.64	146.07
TOTAL DIVERTED	747.95	396.60	603.00	980.35	994.87	972.95	996.29	877.75	897.62	1,021.57	955.35	615.38	10,059.67
WASTE	1,673.89	1,545.76	1,743.19	2,569.33	3,124.12	4,529.99	2,695.95	3,201.62	2,870.60	2,146.47	1,567.30	1,577.66	29,245.88
TOTAL	2,421.84	1,942.35	2,346.19	3,549.68	4,119.00	5,502.94	3,692.24	4,079.37	3,768.22	3,168.04	2,522.64	2,193.04	39,305.55

ITEM	2023												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.30	0.17	0.20	0.14	0.19	0.15	0.11	0.09	1.65
Clean Wood					16.72	8.00	12.84	7.50	7.49				52.54
Drywall	7.61						7.91	4.73	7.88	7.51			35.65
Household Hazardous Waste	11.12	5.11	7.73	20.14	20.15	23.12	25.56	19.61	17.11	16.99	12.47	8.87	187.97
Leaf and Yard Waste	15.31	3.44	58.73	300.04	390.90	303.29	194.19	174.53	221.47	259.28	459.27	19.79	2,400.25
Mattresses	14.09	4.05	5.56	11.41	12.16	9.04	10.98	14.84	10.36	13.18	9.63	3.70	119.00
Recyclables (Containers)	260.24	240.99	217.22	287.89	139.14	293.43	390.91	327.40	295.14	288.77	314.51	211.00	3,266.65
Recyclables (Fibres)	420.71	134.68	298.89	332.59	381.73	298.96	299.80	299.87	307.96	394.04	134.08	350.47	3,653.78
Reuse	0.38				0.40	2.56	0.01						3.35
Scrap Metal	11.20	8.25	13.04	24.04	40.00	30.74	39.58	39.66	30.83	33.26	27.09	14.03	311.72
Waste Electrical and Electronic Equipment	16.18	4.75	8.98	15.96	5.31	15.32	26.27		9.96	20.64	9.65	14.82	147.82
TOTAL DIVERTED	756.92	401.36	610.23	992.11	1,006.81	984.62	1,008.24	888.29	908.39	1,033.83	966.81	622.77	10,180.38
WASTE	1,693.98	1,564.31	1,764.11	2,600.16	3,161.61	4,584.35	2,728.30	3,240.04	2,905.05	2,172.23	1,586.10	1,596.59	29,596.83
TOTAL	2,450.90	1,965.66	2,374.34	3,592.27	4,168.42	5,568.98	3,736.54	4,128.32	3,813.44	3,206.06	2,552.91	2,219.36	39,777.22

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2024												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.31	0.18	0.20	0.14	0.19	0.15	0.11	0.09	1.67
Clean Wood					16.92	8.09	13.00	7.59	7.58				53.17
Drywall	7.71						8.01	4.79	7.97	7.60			36.08
Household Hazardous Waste	11.26	5.17	7.83	20.38	20.39	23.39	25.86	19.85	17.32	17.20	12.62	8.97	190.23
Leaf and Yard Waste	15.50	3.48	59.43	303.64	395.59	306.93	196.52	176.63	224.13	262.39	464.78	20.03	2,429.05
Mattresses	14.26	4.10	5.63	11.55	12.30	9.15	11.11	15.02	10.49	13.34	9.74	3.75	120.43
Recyclables (Containers)	263.36	243.88	219.83	291.34	140.81	296.95	395.60	331.33	298.69	292.24	318.29	213.53	3,305.85
Recyclables (Fibres)	425.76	136.30	302.47	336.58	386.31	302.55	303.39	303.47	311.66	398.77	135.69	354.68	3,697.63
Reuse	0.38				0.40	2.59	0.01						3.39
Scrap Metal	11.34	8.35	13.19	24.33	40.48	31.11	40.05	40.13	31.20	33.66	27.42	14.20	315.46
Waste Electrical and Electronic Equipment	16.37	4.81	9.08	16.15	5.37	15.50	26.58		10.07	20.89	9.76	14.99	149.60
TOTAL DIVERTED	766.01	406.17	617.56	1,004.02	1,018.89	996.44	1,020.34	898.94	919.29	1,046.23	978.41	630.24	10,302.55
WASTE	1,714.31	1,583.08	1,785.28	2,631.36	3,199.55	4,639.36	2,761.04	3,278.92	2,939.91	2,198.30	1,605.14	1,615.75	29,951.99
TOTAL	2,480.31	1,989.25	2,402.83	3,635.38	4,218.45	5,635.80	3,781.38	4,177.86	3,859.20	3,244.53	2,583.55	2,245.99	40,254.54

ITEM	2025												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.31	0.18	0.20	0.14	0.20	0.15	0.11	0.09	1.69
Clean Wood					17.12	8.19	13.15	7.68	7.67				53.81
Drywall	7.80						8.11	4.84	8.07	7.69			36.51
Household Hazardous Waste	11.39	5.23	7.92	20.62	20.64	23.67	26.17	20.09	17.52	17.40	12.77	9.08	192.51
Leaf and Yard Waste	15.68	3.52	60.14	307.28	400.34	310.61	198.88	178.75	226.82	265.54	470.36	20.27	2,458.20
Mattresses	14.43	4.15	5.69	11.69	12.45	9.26	11.25	15.20	10.61	13.50	9.86	3.79	121.88
Recyclables (Containers)	266.52	246.81	222.47	294.84	142.50	300.52	400.35	335.30	302.27	295.74	322.11	216.09	3,345.52
Recyclables (Fibres)	430.87	137.93	306.10	340.62	390.95	306.18	307.04	307.11	315.40	403.55	137.32	358.94	3,742.00
Reuse	0.39				0.41	2.62	0.01						3.43
Scrap Metal	11.47	8.45	13.35	24.62	40.97	31.48	40.53	40.62	31.57	34.06	27.75	14.37	319.25
Waste Electrical and Electronic Equipment	16.57	4.87	9.19	16.34	5.44	15.69	26.90		10.20	21.14	9.88	15.17	151.39
TOTAL DIVERTED	775.20	411.05	624.97	1,016.06	1,031.12	1,008.40	1,032.58	909.73	930.32	1,058.79	990.15	637.80	10,426.18
WASTE	1,734.88	1,602.08	1,806.70	2,662.94	3,237.95	4,695.04	2,794.17	3,318.26	2,975.19	2,224.68	1,624.40	1,635.14	30,311.42
TOTAL	2,510.08	2,013.12	2,431.67	3,679.00	4,269.07	5,703.43	3,826.76	4,228.00	3,905.51	3,283.47	2,614.55	2,272.94	40,737.60

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2026												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.31	0.18	0.20	0.15	0.20	0.15	0.12	0.09	1.71
Clean Wood					17.33	8.29	13.31	7.77	7.76				54.46
Drywall	7.89						8.20	4.90	8.17	7.78			36.95
Household Hazardous Waste	11.53	5.29	8.02	20.87	20.88	23.96	26.49	20.33	17.73	17.61	12.92	9.19	194.82
Leaf and Yard Waste	15.87	3.57	60.87	310.97	405.15	314.34	201.26	180.89	229.54	268.73	476.00	20.51	2,487.70
Mattresses	14.60	4.20	5.76	11.83	12.60	9.37	11.38	15.38	10.74	13.66	9.98	3.84	123.34
Recyclables (Containers)	269.72	249.77	225.14	298.38	144.21	304.12	405.15	339.33	305.90	299.29	325.97	218.68	3,385.66
Recyclables (Fibres)	436.04	139.59	309.78	344.71	395.64	309.85	310.72	310.79	319.18	408.40	138.97	363.24	3,786.90
Reuse	0.39				0.41	2.65	0.01						3.47
Scrap Metal	11.61	8.56	13.51	24.92	41.46	31.86	41.02	41.10	31.95	34.47	28.08	14.55	323.08
Waste Electrical and Electronic Equipment	16.77	4.92	9.30	16.54	5.50	15.88	27.23		10.32	21.39	10.00	15.36	153.21
TOTAL DIVERTED	784.50	415.98	632.47	1,028.26	1,043.50	1,020.50	1,044.97	920.65	941.49	1,071.49	1,002.04	645.46	10,551.29
WASTE	1,755.70	1,621.30	1,828.38	2,694.90	3,276.80	4,751.38	2,827.70	3,358.08	3,010.89	2,251.38	1,643.89	1,654.76	30,675.15
TOTAL	2,540.20	2,037.28	2,460.85	3,723.15	4,320.30	5,771.88	3,872.68	4,278.73	3,952.38	3,322.87	2,645.93	2,300.22	41,226.45

ITEM	2027												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.32	0.18	0.21	0.15	0.20	0.15	0.12	0.09	1.73
Clean Wood					17.53	8.39	13.47	7.87	7.85				55.11
Drywall	7.99						8.30	4.96	8.27	7.88			37.39
Household Hazardous Waste	11.67	5.36	8.11	21.12	21.13	24.24	26.81	20.57	17.95	17.82	13.08	9.30	197.16
Leaf and Yard Waste	16.06	3.61	61.60	314.70	410.01	318.11	203.68	183.06	232.29	271.95	481.71	20.76	2,517.55
Mattresses	14.77	4.25	5.83	11.97	12.75	9.48	11.52	15.57	10.87	13.83	10.10	3.88	124.82
Recyclables (Containers)	272.96	252.77	227.84	301.96	145.94	307.77	410.01	343.40	309.57	302.88	329.88	221.31	3,426.29
Recyclables (Fibres)	441.27	141.26	313.49	348.84	400.39	313.57	314.45	314.52	323.01	413.30	140.64	367.60	3,832.35
Reuse	0.40				0.42	2.68	0.01						3.51
Scrap Metal	11.75	8.66	13.67	25.21	41.96	32.24	41.51	41.60	32.33	34.89	28.42	14.72	326.96
Waste Electrical and Electronic Equipment	16.97	4.98	9.42	16.74	5.57	16.07	27.55		10.44	21.65	10.12	15.54	155.05
TOTAL DIVERTED	793.91	420.97	640.06	1,040.60	1,056.02	1,032.74	1,057.51	931.70	952.78	1,084.35	1,014.06	653.20	10,677.91
WASTE	1,776.77	1,640.76	1,850.32	2,727.23	3,316.12	4,808.39	2,861.64	3,398.38	3,047.02	2,278.39	1,663.62	1,674.62	31,043.25
TOTAL	2,570.68	2,061.73	2,490.38	3,767.83	4,372.14	5,841.14	3,919.15	4,330.08	3,999.80	3,362.74	2,677.68	2,327.82	41,721.16

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2028												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.09	0.09	0.05	0.32	0.18	0.21	0.15	0.20	0.16	0.12	0.09	1.75
Clean Wood					17.75	8.49	13.63	7.96	7.95				55.77
Drywall	8.08						8.40	5.02	8.36	7.97			37.84
Household Hazardous Waste	11.81	5.42	8.21	21.37	21.39	24.54	27.13	20.82	18.16	18.04	13.23	9.41	199.52
Leaf and Yard Waste	16.25	3.65	62.34	318.48	414.93	321.93	206.12	185.26	235.08	275.22	487.49	21.01	2,547.76
Mattresses	14.95	4.30	5.90	12.11	12.90	9.60	11.66	15.75	11.00	13.99	10.22	3.93	126.32
Recyclables (Containers)	276.23	255.80	230.58	305.58	147.69	311.47	414.93	347.52	313.28	306.52	333.84	223.96	3,467.41
Recyclables (Fibres)	446.57	142.96	317.26	353.03	405.19	317.33	318.22	318.30	326.89	418.26	142.32	372.01	3,878.34
Reuse	0.40				0.42	2.72	0.01						3.55
Scrap Metal	11.89	8.76	13.84	25.52	42.46	32.63	42.01	42.10	32.72	35.30	28.76	14.90	330.88
Waste Electrical and Electronic Equipment	17.17	5.04	9.53	16.94	5.63	16.26	27.88		10.57	21.91	10.24	15.73	156.91
TOTAL DIVERTED	803.44	426.02	647.74	1,053.08	1,068.69	1,045.14	1,070.20	942.88	964.22	1,097.36	1,026.23	661.04	10,806.04
WASTE	1,798.09	1,660.45	1,872.52	2,759.96	3,355.92	4,866.09	2,895.98	3,439.16	3,083.58	2,305.73	1,683.58	1,694.71	31,415.77
TOTAL	2,601.53	2,086.47	2,520.26	3,813.04	4,424.61	5,911.23	3,966.18	4,382.04	4,047.80	3,403.10	2,709.81	2,355.76	42,221.82

ITEM	2029												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.09	0.09	0.05	0.32	0.19	0.21	0.15	0.21	0.16	0.12	0.09	1.77
Clean Wood					17.96	8.59	13.79	8.06	8.04				56.44
Drywall	8.18						8.50	5.08	8.46	8.07			38.30
Household Hazardous Waste	11.95	5.49	8.31	21.63	21.64	24.83	27.45	21.07	18.38	18.25	13.39	9.52	201.92
Leaf and Yard Waste	16.45	3.70	63.08	322.30	419.91	325.79	208.60	187.48	237.90	278.52	493.34	21.26	2,578.33
Mattresses	15.13	4.35	5.97	12.26	13.06	9.71	11.80	15.94	11.13	14.16	10.34	3.98	127.83
Recyclables (Containers)	279.55	258.87	233.34	309.25	149.46	315.20	419.91	351.69	317.04	310.20	337.85	226.65	3,509.01
Recyclables (Fibres)	451.93	144.68	321.06	357.26	410.05	321.14	322.04	322.12	330.81	423.27	144.03	376.48	3,924.88
Reuse	0.41				0.43	2.75	0.01						3.59
Scrap Metal	12.03	8.87	14.00	25.82	42.97	33.02	42.51	42.60	33.11	35.73	29.10	15.08	334.85
Waste Electrical and Electronic Equipment	17.38	5.10	9.64	17.14	5.70	16.46	28.22		10.69	22.17	10.36	15.92	158.79
TOTAL DIVERTED	813.08	431.13	655.51	1,065.72	1,081.51	1,057.68	1,083.05	954.19	975.79	1,110.53	1,038.54	668.98	10,935.72
WASTE	1,819.66	1,680.37	1,894.99	2,793.08	3,396.19	4,924.49	2,930.73	3,480.43	3,120.59	2,333.40	1,703.78	1,715.05	31,792.76
TOTAL	2,632.75	2,111.50	2,550.51	3,858.80	4,477.70	5,982.17	4,013.78	4,434.62	4,096.37	3,443.93	2,742.33	2,384.03	42,728.48

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2030												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.05	0.33	0.19	0.21	0.15	0.21	0.16	0.12	0.10	1.79
Clean Wood					18.17	8.69	13.96	8.15	8.14				57.12
Drywall	8.28						8.60	5.14	8.57	8.17			38.76
Household Hazardous Waste	12.09	5.55	8.41	21.89	21.90	25.13	27.78	21.32	18.60	18.47	13.55	9.64	204.34
Leaf and Yard Waste	16.65	3.74	63.84	326.17	424.95	329.70	211.10	189.73	240.76	281.86	499.26	21.52	2,609.27
Mattresses	15.31	4.40	6.04	12.41	13.22	9.83	11.94	16.13	11.27	14.33	10.47	4.02	129.37
Recyclables (Containers)	282.90	261.98	236.14	312.96	151.26	318.99	424.95	355.91	320.85	313.92	341.90	229.37	3,551.12
Recyclables (Fibres)	457.35	146.41	324.92	361.55	414.98	324.99	325.90	325.98	334.78	428.35	145.76	380.99	3,971.97
Reuse	0.41				0.43	2.78	0.01						3.64
Scrap Metal	12.18	8.97	14.17	26.13	43.49	33.41	43.02	43.11	33.51	36.16	29.45	15.26	338.87
Waste Electrical and Electronic Equipment	17.59	5.17	9.76	17.35	5.77	16.65	28.56		10.82	22.44	10.49	16.11	160.69
TOTAL DIVERTED	822.84	436.31	663.38	1,078.51	1,094.49	1,070.37	1,096.04	965.64	987.50	1,123.86	1,051.01	677.00	11,066.95
WASTE	1,841.50	1,700.54	1,917.73	2,826.60	3,436.94	4,983.58	2,965.90	3,522.19	3,158.03	2,361.40	1,724.23	1,735.63	32,174.28
TOTAL	2,664.34	2,136.84	2,581.11	3,905.11	4,531.43	6,053.95	4,061.94	4,487.84	4,145.53	3,485.26	2,775.24	2,412.63	43,241.22

ITEM	2031												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.05	0.33	0.19	0.22	0.15	0.21	0.16	0.12	0.10	1.82
Clean Wood					18.39	8.80	14.13	8.25	8.24				57.80
Drywall	8.38						8.71	5.20	8.67	8.26			39.22
Household Hazardous Waste	12.24	5.62	8.51	22.15	22.17	25.43	28.12	21.58	18.82	18.69	13.71	9.75	206.79
Leaf and Yard Waste	16.85	3.78	64.61	330.08	430.04	333.66	213.63	192.01	243.64	285.24	505.26	21.77	2,640.58
Mattresses	15.50	4.45	6.12	12.55	13.37	9.95	12.08	16.33	11.40	14.50	10.59	4.07	130.92
Recyclables (Containers)	286.29	265.12	238.98	316.71	153.07	322.81	430.05	360.18	324.70	317.69	346.01	232.12	3,593.74
Recyclables (Fibres)	462.84	148.17	328.81	365.89	419.95	328.89	329.82	329.89	338.80	433.49	147.51	385.57	4,019.64
Reuse	0.42				0.44	2.82	0.01						3.68
Scrap Metal	12.32	9.08	14.34	26.45	44.01	33.81	43.54	43.63	33.91	36.59	29.81	15.44	342.93
Waste Electrical and Electronic Equipment	17.80	5.23	9.88	17.55	5.84	16.85	28.90		10.95	22.71	10.61	16.30	162.62
TOTAL DIVERTED	832.71	441.54	671.34	1,091.45	1,107.63	1,083.21	1,109.20	977.23	999.35	1,137.35	1,063.62	685.13	11,199.75
WASTE	1,863.60	1,720.94	1,940.75	2,860.52	3,478.18	5,043.38	3,001.49	3,564.46	3,195.93	2,389.74	1,744.92	1,756.46	32,560.37
TOTAL	2,696.31	2,162.48	2,612.08	3,951.97	4,585.81	6,126.60	4,110.68	4,541.69	4,195.28	3,527.08	2,808.54	2,441.59	43,760.12

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2032												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.06	0.34	0.19	0.22	0.16	0.21	0.16	0.12	0.10	1.84
Clean Wood					18.61	8.90	14.30	8.35	8.34				58.50
Drywall	8.48						8.81	5.27	8.77	8.36			39.69
Household Hazardous Waste	12.38	5.69	8.61	22.42	22.43	25.73	28.45	21.84	19.05	18.92	13.88	9.87	209.27
Leaf and Yard Waste	17.05	3.83	65.38	334.04	435.21	337.66	216.20	194.31	246.57	288.67	511.32	22.04	2,672.27
Mattresses	15.68	4.51	6.19	12.71	13.53	10.07	12.23	16.52	11.54	14.68	10.72	4.12	132.49
Recyclables (Containers)	289.73	268.30	241.84	320.52	154.91	326.69	435.21	364.50	328.59	321.50	350.16	234.91	3,636.86
Recyclables (Fibres)	468.39	149.95	332.76	370.28	424.99	332.84	333.77	333.85	342.86	438.70	149.28	390.19	4,067.87
Reuse	0.42				0.44	2.85	0.01						3.73
Scrap Metal	12.47	9.19	14.52	26.76	44.54	34.22	44.06	44.15	34.32	37.03	30.16	15.62	347.05
Waste Electrical and Electronic Equipment	18.01	5.29	9.99	17.77	5.91	17.06	29.25		11.08	22.98	10.74	16.50	164.57
TOTAL DIVERTED	842.71	446.84	679.39	1,104.55	1,120.92	1,096.21	1,122.51	988.96	1,011.34	1,150.99	1,076.38	693.35	11,334.15
WASTE	1,885.96	1,741.59	1,964.04	2,894.84	3,519.92	5,103.91	3,037.51	3,607.23	3,234.28	2,418.42	1,765.86	1,777.54	32,951.09
TOTAL	2,728.67	2,188.43	2,643.43	3,999.39	4,640.84	6,200.12	4,160.01	4,596.19	4,245.62	3,569.41	2,842.24	2,470.88	44,285.24

ITEM	2033												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.06	0.34	0.20	0.22	0.16	0.22	0.17	0.13	0.10	1.86
Clean Wood					18.84	9.01	14.47	8.45	8.44				59.20
Drywall	8.58						8.92	5.33	8.88	8.46			40.17
Household Hazardous Waste	12.53	5.76	8.71	22.69	22.70	26.04	28.79	22.10	19.28	19.15	14.05	9.99	211.79
Leaf and Yard Waste	17.25	3.88	66.17	338.05	440.43	341.72	218.79	196.64	249.53	292.13	517.45	22.30	2,704.34
Mattresses	15.87	4.56	6.26	12.86	13.70	10.19	12.37	16.72	11.68	14.85	10.85	4.17	134.08
Recyclables (Containers)	293.21	271.52	244.75	324.36	156.77	330.61	440.43	368.88	332.54	325.36	354.36	237.73	3,680.50
Recyclables (Fibres)	474.01	151.75	336.75	374.72	430.09	336.83	337.78	337.86	346.98	443.96	151.07	394.88	4,116.69
Reuse	0.43				0.45	2.88	0.01						3.77
Scrap Metal	12.62	9.30	14.69	27.09	45.07	34.63	44.59	44.68	34.73	37.47	30.52	15.81	351.21
Waste Electrical and Electronic Equipment	18.23	5.35	10.11	17.98	5.98	17.26	29.60		11.22	23.26	10.87	16.69	166.55
TOTAL DIVERTED	852.82	452.20	687.55	1,117.80	1,134.37	1,109.37	1,135.98	1,000.82	1,023.48	1,164.81	1,089.30	701.67	11,470.16
WASTE	1,908.59	1,762.49	1,987.60	2,929.58	3,562.16	5,165.15	3,073.96	3,650.52	3,273.09	2,447.44	1,787.05	1,798.87	33,346.51
TOTAL	2,761.41	2,214.70	2,675.15	4,047.38	4,696.53	6,274.52	4,209.93	4,651.35	4,296.57	3,612.24	2,876.35	2,500.53	44,816.66

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2034												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.06	0.34	0.20	0.23	0.16	0.22	0.17	0.13	0.10	1.88
Clean Wood					19.06	9.12	14.64	8.55	8.54				59.91
Drywall	8.68						9.02	5.39	8.99	8.56			40.65
Household Hazardous Waste	12.68	5.82	8.82	22.96	22.98	26.36	29.14	22.37	19.51	19.38	14.21	10.11	214.33
Leaf and Yard Waste	17.46	3.92	66.96	342.11	445.71	345.82	221.42	199.00	252.52	295.64	523.66	22.57	2,736.79
Mattresses	16.06	4.62	6.34	13.01	13.86	10.31	12.52	16.92	11.82	15.03	10.98	4.22	135.69
Recyclables (Containers)	296.73	274.78	247.68	328.25	158.65	334.57	445.72	373.31	336.53	329.26	358.61	240.58	3,724.67
Recyclables (Fibres)	479.70	153.57	340.79	379.22	435.26	340.88	341.83	341.91	351.14	449.29	152.88	399.61	4,166.09
Reuse	0.43				0.45	2.92	0.01						3.82
Scrap Metal	12.77	9.41	14.87	27.41	45.61	35.05	45.13	45.22	35.15	37.92	30.89	16.00	355.43
Waste Electrical and Electronic Equipment	18.45	5.42	10.24	18.19	6.05	17.47	29.95		11.35	23.54	11.00	16.89	168.55
TOTAL DIVERTED	863.05	457.63	695.80	1,131.22	1,147.98	1,122.68	1,149.61	1,012.83	1,035.76	1,178.78	1,102.37	710.09	11,607.80
WASTE	1,931.50	1,783.64	2,011.46	2,964.74	3,604.91	5,227.13	3,110.84	3,694.33	3,312.37	2,476.81	1,808.49	1,820.45	33,746.66
TOTAL	2,794.55	2,241.27	2,707.25	4,095.95	4,752.89	6,349.81	4,260.45	4,707.16	4,348.13	3,655.59	2,910.86	2,530.54	45,354.46

ITEM	2035												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.06	0.35	0.20	0.23	0.16	0.22	0.17	0.13	0.10	1.90
Clean Wood					19.29	9.23	14.82	8.65	8.64				60.63
Drywall	8.79						9.13	5.46	9.09	8.67			41.14
Household Hazardous Waste	12.83	5.89	8.93	23.23	23.25	26.67	29.49	22.63	19.74	19.61	14.38	10.23	216.90
Leaf and Yard Waste	17.67	3.97	67.76	346.21	451.06	349.97	224.07	201.39	255.55	299.18	529.95	22.84	2,769.63
Mattresses	16.25	4.67	6.41	13.17	14.03	10.43	12.67	17.13	11.96	15.21	11.11	4.27	137.32
Recyclables (Containers)	300.29	278.08	250.65	332.19	160.55	338.59	451.07	377.79	340.56	333.21	362.91	243.47	3,769.36
Recyclables (Fibres)	485.46	155.41	344.88	383.77	440.48	344.97	345.93	346.02	355.36	454.68	154.72	404.41	4,216.08
Reuse	0.44				0.46	2.95	0.01						3.86
Scrap Metal	12.93	9.52	15.04	27.74	46.16	35.47	45.67	45.76	35.57	38.38	31.26	16.19	359.69
Waste Electrical and Electronic Equipment	18.67	5.48	10.36	18.41	6.13	17.68	30.31		11.49	23.82	11.13	17.10	170.57
TOTAL DIVERTED	873.41	463.12	704.15	1,144.79	1,161.76	1,136.15	1,163.40	1,024.99	1,048.19	1,192.93	1,115.60	718.61	11,747.09
WASTE	1,954.67	1,805.05	2,035.59	3,000.31	3,648.17	5,289.86	3,148.17	3,738.66	3,352.12	2,506.53	1,830.20	1,842.30	34,151.62
TOTAL	2,828.08	2,268.17	2,739.74	4,145.10	4,809.92	6,426.01	4,311.58	4,763.65	4,400.30	3,699.46	2,945.79	2,560.91	45,898.71

Projected Material Quantities at Lindsay Ops Landfill

ITEM	2036												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.10	0.06	0.35	0.20	0.23	0.16	0.23	0.17	0.13	0.10	1.93
Clean Wood					19.52	9.34	15.00	8.76	8.74				61.36
Drywall	8.89						9.24	5.52	9.20	8.77			41.63
Household Hazardous Waste	12.99	5.96	9.03	23.51	23.53	26.99	29.84	22.91	19.98	19.84	14.56	10.35	219.50
Leaf and Yard Waste	17.88	4.02	68.58	350.37	456.47	354.17	226.76	203.81	258.62	302.77	536.31	23.11	2,802.87
Mattresses	16.45	4.73	6.49	13.33	14.20	10.56	12.82	17.33	12.10	15.40	11.24	4.32	138.97
Recyclables (Containers)	303.89	281.41	253.66	336.18	162.48	342.65	456.48	382.32	344.65	337.21	367.27	246.39	3,814.60
Recyclables (Fibres)	491.28	157.27	349.02	388.38	445.76	349.11	350.09	350.17	359.62	460.14	156.58	409.26	4,266.67
Reuse	0.44				0.47	2.99	0.01						3.91
Scrap Metal	13.08	9.64	15.22	28.07	46.71	35.89	46.21	46.31	36.00	38.84	31.64	16.39	364.01
Waste Electrical and Electronic Equipment	18.89	5.55	10.48	18.63	6.20	17.89	30.68		11.63	24.10	11.27	17.30	172.62
TOTAL DIVERTED	883.89	468.68	712.60	1,158.53	1,175.70	1,149.79	1,177.36	1,037.29	1,060.76	1,207.24	1,128.99	727.23	11,888.06
WASTE	1,978.13	1,826.71	2,060.02	3,036.32	3,691.94	5,353.34	3,185.95	3,783.52	3,392.34	2,536.61	1,852.16	1,864.41	34,561.44
TOTAL	2,862.02	2,295.39	2,772.62	4,194.84	4,867.64	6,503.12	4,363.32	4,820.81	4,453.11	3,743.85	2,981.14	2,591.64	46,449.50

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2020												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.08	0.05	0.29	0.17	0.19	0.14	0.19	0.14	0.11	0.08	1.59
Clean Wood					16.13	7.71	12.39	7.24	7.22				50.70
Drywall	7.35						7.64	4.56	7.60	7.25			34.40
Household Hazardous Waste	10.73	4.93	7.46	19.43	19.44	22.30	24.66	18.93	16.51	16.40	12.03	8.55	181.36
Leaf and Yard Waste	14.78	3.32	56.66	289.49	377.16	292.63	187.36	168.40	213.68	250.17	443.12	19.10	2,315.87
Mattresses	13.59	3.91	5.36	11.01	11.73	8.72	10.60	14.32	10.00	12.72	9.29	3.57	114.82
Recyclables (Containers)	251.09	232.52	209.59	277.77	134.25	283.12	377.17	315.89	284.77	278.62	303.46	203.58	3,151.81
Recyclables (Fibres)	405.92	129.95	288.38	320.90	368.31	288.45	289.26	289.33	297.14	380.19	129.37	338.15	3,525.34
Reuse	0.36				0.38	2.47	0.01						3.23
Scrap Metal	10.81	7.96	12.58	23.20	38.60	29.66	38.18	38.26	29.74	32.09	26.14	13.54	300.76
Tires	10.27	3.24	1.42	14.14	12.95								42.01
Waste Electrical and Electronic Equipment	15.61	4.58	8.66	15.40	5.12	14.78	25.35		9.61	19.92	9.31	14.30	142.62
TOTAL DIVERTED	740.58	390.48	590.20	971.37	984.37	950.01	972.80	857.06	876.46	997.49	932.83	600.88	9,864.53
WASTE	1,634.43	1,509.32	1,702.09	2,508.76	3,050.47	4,423.20	2,632.39	3,126.14	2,802.93	2,095.87	1,530.35	1,540.47	28,556.41
TOTAL	2,375.01	1,899.80	2,292.30	3,480.13	4,034.84	5,373.21	3,605.19	3,983.20	3,679.38	3,093.36	2,463.17	2,141.34	38,420.94

Monthly Quantities Estimated based on Laxton Quantities

*Tires stopped bing accepted in June 2020

ITEM	2021												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.29	0.17	0.19	0.14	0.19	0.14	0.11	0.09	1.61
Clean Wood					16.32	7.81	12.54	7.32	7.31				51.30
Drywall	7.44						7.73	4.62	7.69	7.33			34.81
Household Hazardous Waste	10.86	4.99	7.55	19.66	19.67	22.57	24.95	19.15	16.71	16.59	12.17	8.66	183.54
Leaf and Yard Waste	14.95	3.36	57.34	292.97	381.69	296.14	189.61	170.42	216.25	253.17	448.44	19.33	2,343.66
Mattresses	13.75	3.95	5.43	11.14	11.87	8.83	10.72	14.49	10.12	12.87	9.40	3.62	116.20
Recyclables (Containers)	254.10	235.31	212.10	281.10	135.86	286.51	381.69	319.68	288.19	281.96	307.10	206.02	3,189.64
Recyclables (Fibres)	410.79	131.51	291.84	324.75	372.73	291.91	292.73	292.80	300.70	384.75	130.92	342.21	3,567.65
Reuse	0.37				0.39	2.50	0.01						3.27
Scrap Metal	10.94	8.06	12.73	23.47	39.06	30.01	38.64	38.72	30.10	32.48	26.45	13.70	304.37
Waste Electrical and Electronic Equipment	15.80	4.64	8.77	15.58	5.18	14.96	25.65		9.72	20.15	9.42	14.47	144.34
TOTAL DIVERTED	739.08	391.89	595.85	968.72	983.08	961.41	984.47	867.34	886.97	1,009.46	944.02	608.09	9,940.38
WASTE	1,654.04	1,527.43	1,722.52	2,538.86	3,087.08	4,476.28	2,663.98	3,163.65	2,836.56	2,121.02	1,548.71	1,558.95	28,899.09
TOTAL	2,393.12	1,919.32	2,318.37	3,507.58	4,070.16	5,437.69	3,648.45	4,031.00	3,723.54	3,130.48	2,492.73	2,167.04	38,839.47

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2022												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.30	0.17	0.20	0.14	0.19	0.15	0.11	0.09	1.63
Clean Wood					16.52	7.90	12.69	7.41	7.40				51.92
Drywall	7.52						7.82	4.67	7.79	7.42			35.23
Household Hazardous Waste	10.99	5.05	7.64	19.90	19.91	22.84	25.25	19.38	16.91	16.79	12.32	8.76	185.74
Leaf and Yard Waste	15.13	3.40	58.03	296.48	386.27	299.70	191.89	172.46	218.84	256.21	453.82	19.56	2,371.79
Mattresses	13.92	4.00	5.49	11.28	12.01	8.93	10.85	14.67	10.24	13.03	9.51	3.66	117.59
Recyclables (Containers)	257.15	238.13	214.65	284.47	137.49	289.95	386.27	323.52	291.64	285.35	310.78	208.49	3,227.91
Recyclables (Fibres)	415.72	133.09	295.34	328.64	377.21	295.41	296.24	296.31	304.31	389.37	132.49	346.32	3,610.46
Reuse	0.37				0.39	2.53	0.01						3.31
Scrap Metal	11.07	8.16	12.88	23.76	39.53	30.37	39.11	39.19	30.46	32.87	26.77	13.87	308.02
Waste Electrical and Electronic Equipment	15.99	4.70	8.87	15.77	5.25	15.14	25.96		9.84	20.40	9.53	14.64	146.07
TOTAL DIVERTED	747.95	396.60	603.00	980.35	994.87	972.95	996.29	877.75	897.62	1,021.57	955.35	615.38	10,059.67
WASTE	1,673.89	1,545.76	1,743.19	2,569.33	3,124.12	4,529.99	2,695.95	3,201.62	2,870.60	2,146.47	1,567.30	1,577.66	29,245.88
TOTAL	2,421.84	1,942.35	2,346.19	3,549.68	4,119.00	5,502.94	3,692.24	4,079.37	3,768.22	3,168.04	2,522.64	2,193.04	39,305.55

ITEM	2023												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.08	0.08	0.09	0.05	0.30	0.17	0.20	0.14	0.19	0.15	0.11	0.09	1.65
Clean Wood					16.72	8.00	12.84	7.50	7.49				52.54
Drywall	7.61						7.91	4.73	7.88	7.51			35.65
Household Hazardous Waste	11.12	5.11	7.73	20.14	20.15	23.12	25.56	19.61	17.11	16.99	12.47	8.87	187.97
Leaf and Yard Waste	15.31	3.44	58.73	300.04	390.90	303.29	194.19	174.53	221.47	259.28	459.27	19.79	2,400.25
Mattresses	14.09	4.05	5.56	11.41	12.16	9.04	10.98	14.84	10.36	13.18	9.63	3.70	119.00
Recyclables (Containers)	260.24	240.99	217.22	287.89	139.14	293.43	390.91	327.40	295.14	288.77	314.51	211.00	3,266.65
Recyclables (Fibres)	420.71	134.68	298.89	332.59	381.73	298.96	299.80	299.87	307.96	394.04	134.08	350.47	3,653.78
Reuse	0.38				0.40	2.56	0.01						3.35
Scrap Metal	11.20	8.25	13.04	24.04	40.00	30.74	39.58	39.66	30.83	33.26	27.09	14.03	311.72
Waste Electrical and Electronic Equipment	16.18	4.75	8.98	15.96	5.31	15.32	26.27		9.96	20.64	9.65	14.82	147.82
TOTAL DIVERTED	756.92	401.36	610.23	992.11	1,006.81	984.62	1,008.24	888.29	908.39	1,033.83	966.81	622.77	10,180.38
WASTE	1,693.98	1,564.31	1,764.11	2,600.16	3,161.61	4,584.35	2,728.30	3,240.04	2,905.05	2,172.23	1,586.10	1,596.59	29,596.83
TOTAL	2,450.90	1,965.66	2,374.34	3,592.27	4,168.42	5,568.98	3,736.54	4,128.32	3,813.44	3,206.06	2,552.91	2,219.36	39,777.22

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2024												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.09	0.09	0.09	0.08	0.35	0.27	0.23	0.14	0.27	0.30	0.20	0.14	2.26
Clean Wood					16.92	8.09	13.00	7.59	7.58				53.17
Drywall	7.71					4.00	8.01	4.79	7.97	7.60			40.08
Household Hazardous Waste	14.09	7.33	12.09	27.29	30.05	31.68	42.26	30.28	25.24	25.90	20.68	13.24	280.12
Leaf and Yard Waste	18.58	5.15	69.74	389.23	587.01	737.48	330.04	349.79	454.60	476.81	637.67	71.95	4,128.03
Mattresses	14.26	4.10	5.63	11.55	12.30	9.15	11.11	15.02	10.49	13.34	9.74	3.75	120.43
Recyclables (Containers)	265.82	245.22	232.90	293.32	144.84	300.62	401.08	335.46	302.96	294.66	321.52	215.87	3,354.27
Recyclables (Fibres)	428.22	137.46	304.90	337.56	392.27	306.05	307.44	307.56	314.46	400.49	138.48	357.10	3,731.99
Reuse	0.38				0.40	2.59	0.01						3.39
Scrap Metal	15.27	12.29	16.80	34.38	72.16	49.56	59.28	61.20	46.54	45.41	40.00	20.90	473.80
Waste Electrical and Electronic Equipment	16.37	7.74	14.49	16.15	12.86	18.16	38.08	5.22	12.45	35.85	12.68	19.05	209.10
TOTAL DIVERTED	780.80	419.37	656.63	1,109.54	1,269.17	1,467.64	1,210.53	1,117.06	1,182.57	1,300.35	1,180.98	702.00	12,396.65
WASTE	2,763.97	2,055.08	2,791.40	4,225.74	5,389.65	6,878.66	4,311.21	4,669.17	4,861.36	3,958.88	2,852.49	2,323.41	47,081.00
TOTAL	3,544.77	2,474.44	3,448.03	5,335.28	6,658.82	8,346.30	5,521.74	5,786.22	6,043.93	5,259.23	4,033.47	3,025.41	59,477.65

* Incoming materials from Fenelon and Laxton Landfills

ITEM	2025												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.09	0.09	0.08	0.36	0.28	0.23	0.14	0.27	0.30	0.21	0.14	2.29
Clean Wood					17.12	8.19	13.15	7.68	7.67				53.81
Drywall	7.80					4.05	8.11	4.84	8.07	7.69			40.56
Household Hazardous Waste	14.26	7.42	12.23	27.62	30.42	32.06	42.76	30.64	25.55	26.21	20.92	13.40	283.49
Leaf and Yard Waste	18.80	5.21	70.57	393.90	594.05	746.33	334.00	353.99	460.06	482.53	645.32	72.81	4,177.57
Mattresses	14.43	4.15	5.69	11.69	12.45	9.26	11.25	15.20	10.61	13.50	9.86	3.79	121.88
Recyclables (Containers)	269.01	248.16	235.69	296.84	146.58	304.22	405.89	339.48	306.60	298.19	325.38	218.47	3,394.52
Recyclables (Fibres)	433.36	139.11	308.56	341.61	396.97	309.72	311.13	311.26	318.23	405.29	140.15	361.38	3,776.77
Reuse	0.39				0.41	2.62	0.01						3.43
Scrap Metal	15.46	12.44	17.00	34.79	73.02	50.15	60.00	61.94	47.10	45.95	40.48	21.15	479.49
Waste Electrical and Electronic Equipment	16.57	7.83	14.66	16.34	13.02	18.37	38.54	5.28	12.60	36.28	12.84	19.28	211.61
TOTAL DIVERTED	790.17	424.40	664.51	1,122.86	1,284.40	1,485.26	1,225.06	1,130.46	1,196.76	1,315.96	1,195.16	710.42	12,545.41
WASTE	2,797.14	2,079.74	2,824.90	4,276.44	5,454.32	6,961.20	4,362.94	4,725.20	4,919.69	4,006.39	2,886.72	2,351.29	47,645.97
TOTAL	3,587.31	2,504.14	3,489.41	5,399.30	6,738.72	8,446.46	5,588.00	5,855.66	6,116.46	5,322.34	4,081.87	3,061.71	60,191.38

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2026												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.09	0.09	0.08	0.36	0.28	0.23	0.15	0.28	0.31	0.21	0.14	2.31
Clean Wood					17.33	8.29	13.31	7.77	7.76				54.46
Drywall	7.89					4.10	8.20	4.90	8.17	7.78			41.05
Household Hazardous Waste	14.43	7.51	12.38	27.95	30.78	32.44	43.28	31.01	25.85	26.52	21.18	13.56	286.89
Leaf and Yard Waste	19.02	5.27	71.42	398.62	601.18	755.29	338.01	358.24	465.58	488.32	653.07	73.68	4,227.70
Mattresses	14.60	4.20	5.76	11.83	12.60	9.37	11.38	15.38	10.74	13.66	9.98	3.84	123.34
Recyclables (Containers)	272.24	251.14	238.52	300.40	148.34	307.87	410.76	343.56	310.28	301.77	329.29	221.09	3,435.25
Recyclables (Fibres)	438.56	140.77	312.27	345.71	401.74	313.44	314.86	314.99	322.05	410.16	141.83	365.72	3,822.09
Reuse	0.39				0.41	2.65	0.01						3.47
Scrap Metal	15.64	12.59	17.21	35.21	73.90	50.75	60.72	62.68	47.67	46.51	40.96	21.40	485.24
Waste Electrical and Electronic Equipment	16.77	7.92	14.84	16.54	13.17	18.59	39.00	5.35	12.75	36.72	12.99	19.51	214.15
TOTAL DIVERTED	799.65	429.49	672.48	1,136.33	1,299.81	1,503.08	1,239.76	1,144.03	1,211.13	1,331.75	1,209.50	718.95	12,695.95
WASTE	2,830.70	2,104.69	2,858.79	4,327.76	5,519.77	7,044.74	4,415.30	4,781.90	4,978.73	4,054.46	2,921.36	2,379.51	48,217.72
TOTAL	3,630.35	2,534.19	3,531.28	5,464.10	6,819.59	8,547.82	5,655.06	5,925.93	6,189.86	5,386.21	4,130.85	3,098.45	60,913.68

ITEM	2027												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.09	0.09	0.08	0.37	0.28	0.24	0.15	0.28	0.31	0.21	0.14	2.34
Clean Wood					17.53	8.39	13.47	7.87	7.85				55.11
Drywall	7.99					4.15	8.30	4.96	8.27	7.88			41.54
Household Hazardous Waste	14.61	7.60	12.53	28.29	31.15	32.83	43.80	31.38	26.16	26.84	21.43	13.72	290.33
Leaf and Yard Waste	19.25	5.34	72.28	403.41	608.39	764.35	342.06	362.54	471.16	494.18	660.90	74.57	4,278.43
Mattresses	14.77	4.25	5.83	11.97	12.75	9.48	11.52	15.57	10.87	13.83	10.10	3.88	124.82
Recyclables (Containers)	275.51	254.15	241.38	304.00	150.12	311.57	415.69	347.68	314.00	305.39	333.24	223.74	3,476.48
Recyclables (Fibres)	443.82	142.46	316.01	349.85	406.56	317.20	318.64	318.77	325.92	415.08	143.53	370.11	3,867.96
Reuse	0.40				0.42	2.68	0.01						3.51
Scrap Metal	15.83	12.74	17.42	35.63	74.78	51.36	61.44	63.43	48.24	47.06	41.45	21.66	491.06
Waste Electrical and Electronic Equipment	16.97	8.02	15.02	16.74	13.33	18.82	39.47	5.41	12.91	37.16	13.15	19.75	216.72
TOTAL DIVERTED	809.25	434.65	680.55	1,149.97	1,315.41	1,521.12	1,254.64	1,157.76	1,225.66	1,347.73	1,224.01	727.57	12,848.30
WASTE	2,864.67	2,129.95	2,893.10	4,379.70	5,586.01	7,129.27	4,468.28	4,839.28	5,038.48	4,103.12	2,956.41	2,408.06	48,796.34
TOTAL	3,673.92	2,564.60	3,573.65	5,529.67	6,901.42	8,650.39	5,722.92	5,997.04	6,264.13	5,450.85	4,180.42	3,135.64	61,644.64

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2028												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.09	0.09	0.08	0.37	0.29	0.24	0.15	0.28	0.31	0.21	0.15	2.37
Clean Wood					17.75	8.49	13.63	7.96	7.95				55.77
Drywall	8.08					4.20	8.40	5.02	8.36	7.97			42.04
Household Hazardous Waste	14.78	7.69	12.68	28.63	31.52	33.23	44.32	31.76	26.48	27.16	21.69	13.89	293.81
Leaf and Yard Waste	19.48	5.40	73.15	408.25	615.69	773.52	346.17	366.89	476.82	500.11	668.83	75.46	4,329.77
Mattresses	14.95	4.30	5.90	12.11	12.90	9.60	11.66	15.75	11.00	13.99	10.22	3.93	126.32
Recyclables (Containers)	278.81	257.20	244.28	307.65	151.92	315.31	420.68	351.85	317.77	309.06	337.24	226.42	3,518.20
Recyclables (Fibres)	449.15	144.17	319.81	354.05	411.44	321.01	322.46	322.60	329.83	420.06	145.25	374.55	3,914.37
Reuse	0.40				0.42	2.72	0.01						3.55
Scrap Metal	16.02	12.89	17.62	36.06	75.68	51.98	62.18	64.19	48.82	47.63	41.95	21.92	496.96
Waste Electrical and Electronic Equipment	17.17	8.11	15.20	16.94	13.49	19.04	39.94	5.48	13.06	37.61	13.30	19.98	219.32
TOTAL DIVERTED	818.96	439.86	688.72	1,163.77	1,331.20	1,539.37	1,269.69	1,171.65	1,240.37	1,363.90	1,238.70	736.30	13,002.48
WASTE	2,899.05	2,155.51	2,927.82	4,432.25	5,653.04	7,214.82	4,521.90	4,897.35	5,098.94	4,152.35	2,991.89	2,436.96	49,381.89
TOTAL	3,718.01	2,595.37	3,616.54	5,596.02	6,984.24	8,754.19	5,791.59	6,069.00	6,339.30	5,516.26	4,230.59	3,173.26	62,384.38

ITEM	2029												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.09	0.09	0.08	0.38	0.29	0.24	0.15	0.29	0.32	0.22	0.15	2.40
Clean Wood					17.96	8.59	13.79	8.06	8.04				56.44
Drywall	8.18					4.25	8.50	5.08	8.46	8.07			42.55
Household Hazardous Waste	14.96	7.78	12.83	28.97	31.90	33.63	44.85	32.14	26.79	27.49	21.95	14.05	297.34
Leaf and Yard Waste	19.72	5.46	74.02	413.15	623.08	782.80	350.32	371.29	482.54	506.11	676.86	76.37	4,381.73
Mattresses	15.13	4.35	5.97	12.26	13.06	9.71	11.80	15.94	11.13	14.16	10.34	3.98	127.83
Recyclables (Containers)	282.16	260.29	247.21	311.34	153.75	319.09	425.72	356.07	321.58	312.77	341.28	229.14	3,560.41
Recyclables (Fibres)	454.54	145.90	323.64	358.30	416.38	324.86	326.33	326.47	333.79	425.10	147.00	379.05	3,961.35
Reuse	0.41				0.43	2.75	0.01						3.59
Scrap Metal	16.21	13.05	17.84	36.49	76.59	52.60	62.93	64.97	49.41	48.20	42.45	22.18	502.92
Waste Electrical and Electronic Equipment	17.38	8.21	15.38	17.14	13.65	19.27	40.42	5.54	13.22	38.06	13.46	20.22	221.95
TOTAL DIVERTED	828.78	445.14	696.99	1,177.73	1,347.17	1,557.84	1,284.93	1,185.71	1,255.25	1,380.27	1,253.56	745.14	13,158.51
WASTE	2,933.84	2,181.38	2,962.95	4,485.44	5,720.88	7,301.40	4,576.17	4,956.12	5,160.12	4,202.18	3,027.79	2,466.20	49,974.47
TOTAL	3,762.62	2,626.52	3,659.94	5,663.17	7,068.05	8,859.24	5,861.09	6,141.83	6,415.38	5,582.45	4,281.36	3,211.34	63,132.99

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2030												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.10	0.10	0.08	0.38	0.29	0.25	0.15	0.29	0.32	0.22	0.15	2.43
Clean Wood					18.17	8.69	13.96	8.15	8.14				57.12
Drywall	8.28					4.30	8.60	5.14	8.57	8.17			43.06
Household Hazardous Waste	15.14	7.87	12.98	29.32	32.28	34.03	45.39	32.53	27.12	27.82	22.21	14.22	300.91
Leaf and Yard Waste	19.95	5.53	74.91	418.10	630.56	792.20	354.53	375.75	488.33	512.18	684.98	77.28	4,434.31
Mattresses	15.31	4.40	6.04	12.41	13.22	9.83	11.94	16.13	11.27	14.33	10.47	4.02	129.37
Recyclables (Containers)	285.55	263.41	250.18	315.08	155.59	322.92	430.83	360.35	325.44	316.52	345.38	231.89	3,603.14
Recyclables (Fibres)	459.99	147.65	327.53	362.60	421.37	328.76	330.25	330.38	337.79	430.20	148.76	383.59	4,008.88
Reuse	0.41				0.43	2.78	0.01						3.64
Scrap Metal	16.41	13.20	18.05	36.93	77.51	53.23	63.68	65.74	50.00	48.78	42.96	22.45	508.95
Waste Electrical and Electronic Equipment	17.59	8.31	15.56	17.35	13.82	19.50	40.90	5.61	13.38	38.51	13.62	20.47	224.62
TOTAL DIVERTED	838.73	450.48	705.35	1,191.87	1,363.34	1,576.54	1,300.35	1,199.94	1,270.31	1,396.83	1,268.61	754.08	13,316.42
WASTE	2,969.04	2,207.55	2,998.51	4,539.26	5,789.53	7,389.02	4,631.08	5,015.59	5,222.05	4,252.61	3,064.13	2,495.80	50,574.17
TOTAL	3,807.77	2,658.03	3,703.86	5,731.13	7,152.87	8,965.56	5,931.43	6,215.53	6,492.36	5,649.44	4,332.73	3,249.88	63,890.58

ITEM	2031												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.10	0.10	0.08	0.38	0.30	0.25	0.15	0.29	0.32	0.22	0.15	2.45
Clean Wood					18.39	8.80	14.13	8.25	8.24				57.80
Drywall	8.38					4.35	8.71	5.20	8.67	8.26			43.57
Household Hazardous Waste	15.32	7.97	13.14	29.67	32.67	34.44	45.94	32.92	27.44	28.15	22.48	14.39	304.52
Leaf and Yard Waste	20.19	5.60	75.81	423.12	638.13	801.70	358.78	380.25	494.19	518.33	693.20	78.21	4,487.52
Mattresses	15.50	4.45	6.12	12.55	13.37	9.95	12.08	16.33	11.40	14.50	10.59	4.07	130.92
Recyclables (Containers)	288.97	266.57	253.18	318.86	157.46	326.79	436.00	364.67	329.35	320.32	349.52	234.67	3,646.38
Recyclables (Fibres)	465.51	149.43	331.46	366.95	426.43	332.70	334.21	334.35	341.84	435.36	150.54	388.20	4,056.99
Reuse	0.42				0.44	2.82	0.01						3.68
Scrap Metal	16.60	13.36	18.27	37.37	78.44	53.87	64.45	66.53	50.60	49.36	43.48	22.72	515.06
Waste Electrical and Electronic Equipment	17.80	8.41	15.75	17.55	13.98	19.74	41.39	5.67	13.54	38.98	13.79	20.71	227.31
TOTAL DIVERTED	848.79	455.89	713.81	1,206.17	1,379.70	1,595.45	1,315.95	1,214.34	1,285.56	1,413.59	1,283.83	763.13	13,476.21
WASTE	3,004.67	2,234.04	3,034.49	4,593.74	5,859.00	7,477.69	4,686.65	5,075.78	5,284.71	4,303.64	3,100.90	2,525.75	51,181.06
TOTAL	3,853.47	2,689.93	3,748.30	5,799.91	7,238.70	9,073.14	6,002.60	6,290.12	6,570.27	5,717.23	4,384.73	3,288.88	64,657.27

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2032												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.10	0.10	0.08	0.39	0.30	0.25	0.16	0.30	0.33	0.23	0.15	2.48
Clean Wood					18.61	8.90	14.30	8.35	8.34				58.50
Drywall	8.48					4.41	8.81	5.27	8.77	8.36			44.10
Household Hazardous Waste	15.50	8.06	13.30	30.02	33.06	34.85	46.49	33.31	27.77	28.49	22.75	14.56	308.17
Leaf and Yard Waste	20.44	5.66	76.72	428.20	645.78	811.32	363.09	384.82	500.12	524.55	701.52	79.15	4,541.37
Mattresses	15.68	4.51	6.19	12.71	13.53	10.07	12.23	16.52	11.54	14.68	10.72	4.12	132.49
Recyclables (Containers)	292.44	269.77	256.22	322.69	159.35	330.72	441.24	369.05	333.30	324.16	353.72	237.49	3,690.13
Recyclables (Fibres)	471.10	151.22	335.43	371.35	431.55	336.69	338.22	338.36	345.95	440.59	152.35	392.86	4,105.67
Reuse	0.42				0.44	2.85	0.01						3.73
Scrap Metal	16.80	13.52	18.49	37.82	79.38	54.52	65.22	67.33	51.21	49.96	44.00	22.99	521.24
Waste Electrical and Electronic Equipment	18.01	8.51	15.94	17.77	14.15	19.97	41.89	5.74	13.70	39.44	13.95	20.96	230.04
TOTAL DIVERTED	858.98	461.36	722.38	1,220.64	1,396.25	1,614.60	1,331.74	1,228.91	1,300.99	1,430.56	1,299.24	772.29	13,637.93
WASTE	3,040.73	2,260.85	3,070.90	4,648.86	5,929.31	7,567.42	4,742.89	5,136.69	5,348.13	4,355.28	3,138.11	2,556.06	51,795.23
TOTAL	3,899.71	2,722.21	3,793.28	5,869.50	7,325.56	9,182.02	6,074.63	6,365.60	6,649.11	5,785.84	4,437.34	3,328.34	65,433.16

ITEM	2033												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.10	0.10	0.10	0.09	0.39	0.30	0.25	0.16	0.30	0.33	0.23	0.16	2.51
Clean Wood					18.84	9.01	14.47	8.45	8.44				59.20
Drywall	8.58					4.46	8.92	5.33	8.88	8.46			44.63
Household Hazardous Waste	15.69	8.16	13.45	30.38	33.46	35.27	47.05	33.71	28.10	28.83	23.02	14.74	311.87
Leaf and Yard Waste	20.68	5.73	77.64	433.34	653.53	821.06	367.44	389.44	506.12	530.84	709.94	80.10	4,595.87
Mattresses	15.87	4.56	6.26	12.86	13.70	10.19	12.37	16.72	11.68	14.85	10.85	4.17	134.08
Recyclables (Containers)	295.95	273.01	259.29	326.56	161.26	334.68	446.53	373.48	337.30	328.05	357.96	240.34	3,734.41
Recyclables (Fibres)	476.75	153.03	339.46	375.81	436.72	340.73	342.28	342.42	350.10	445.87	154.18	397.57	4,154.94
Reuse	0.43				0.45	2.88	0.01						3.77
Scrap Metal	17.01	13.68	18.71	38.28	80.33	55.17	66.00	68.14	51.82	50.56	44.53	23.27	527.50
Waste Electrical and Electronic Equipment	18.23	8.61	16.13	17.98	14.32	20.21	42.39	5.81	13.86	39.92	14.12	21.21	232.80
TOTAL DIVERTED	869.29	466.89	731.05	1,235.29	1,413.01	1,633.98	1,347.72	1,243.66	1,316.60	1,447.72	1,314.83	781.55	13,801.58
WASTE	3,077.22	2,287.98	3,107.75	4,704.65	6,000.46	7,658.23	4,799.81	5,198.33	5,412.30	4,407.55	3,175.76	2,586.73	52,416.77
TOTAL	3,946.50	2,754.88	3,838.80	5,939.94	7,413.47	9,292.20	6,147.53	6,441.99	6,728.90	5,855.27	4,490.59	3,368.28	66,218.36

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2034												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.11	0.10	0.10	0.09	0.40	0.31	0.26	0.16	0.30	0.34	0.23	0.16	2.54
Clean Wood					19.06	9.12	14.64	8.55	8.54				59.91
Drywall	8.68					4.51	9.02	5.39	8.99	8.56			45.16
Household Hazardous Waste	15.88	8.26	13.62	30.75	33.86	35.69	47.61	34.12	28.44	29.18	23.30	14.92	315.61
Leaf and Yard Waste	20.93	5.80	78.57	438.54	661.38	830.91	371.85	394.11	512.20	537.21	718.46	81.06	4,651.02
Mattresses	16.06	4.62	6.34	13.01	13.86	10.31	12.52	16.92	11.82	15.03	10.98	4.22	135.69
Recyclables (Containers)	299.50	276.29	262.40	330.48	163.19	338.70	451.89	377.96	341.35	331.99	362.26	243.22	3,779.23
Recyclables (Fibres)	482.48	154.87	343.53	380.32	441.96	344.82	346.39	346.53	354.30	451.23	156.03	402.34	4,204.80
Reuse	0.43				0.45	2.92	0.01						3.82
Scrap Metal	17.21	13.85	18.93	38.74	81.30	55.84	66.80	68.96	52.44	51.16	45.06	23.55	533.83
Waste Electrical and Electronic Equipment	18.45	8.72	16.32	18.19	14.49	20.46	42.90	5.88	14.03	40.40	14.29	21.47	235.60
TOTAL DIVERTED	879.72	472.50	739.82	1,250.12	1,429.96	1,653.58	1,363.90	1,258.58	1,332.40	1,465.10	1,330.60	790.93	13,967.20
WASTE	3,114.14	2,315.44	3,145.05	4,761.10	6,072.47	7,750.13	4,857.40	5,260.71	5,477.25	4,460.44	3,213.87	2,617.77	53,045.78
TOTAL	3,993.86	2,787.93	3,884.87	6,011.22	7,502.43	9,403.71	6,221.30	6,519.29	6,809.65	5,925.53	4,544.48	3,408.70	67,012.98

ITEM	2035												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.11	0.10	0.10	0.09	0.40	0.31	0.26	0.16	0.31	0.34	0.23	0.16	2.57
Clean Wood					19.29	9.23	14.82	8.65	8.64				60.63
Drywall	8.79					4.57	9.13	5.46	9.09	8.67			45.70
Household Hazardous Waste	16.07	8.36	13.78	31.12	34.27	36.12	48.18	34.53	28.78	29.53	23.58	15.09	319.40
Leaf and Yard Waste	21.18	5.87	79.52	443.80	669.31	840.88	376.31	398.84	518.34	543.66	727.08	82.03	4,706.83
Mattresses	16.25	4.67	6.41	13.17	14.03	10.43	12.67	17.13	11.96	15.21	11.11	4.27	137.32
Recyclables (Containers)	303.09	279.60	265.55	334.44	165.15	342.77	457.31	382.49	345.44	335.97	366.61	246.14	3,824.58
Recyclables (Fibres)	488.27	156.73	347.66	384.88	447.27	348.96	350.55	350.69	358.55	456.64	157.90	407.17	4,255.26
Reuse	0.44				0.46	2.95	0.01						3.86
Scrap Metal	17.42	14.02	19.16	39.20	82.27	56.51	67.60	69.79	53.07	51.78	45.60	23.83	540.23
Waste Electrical and Electronic Equipment	18.67	8.82	16.52	18.41	14.67	20.70	43.42	5.95	14.20	40.88	14.46	21.72	238.42
TOTAL DIVERTED	890.28	478.17	748.70	1,265.12	1,447.12	1,673.43	1,380.26	1,273.68	1,348.39	1,482.68	1,346.57	800.42	14,134.81
WASTE	3,151.51	2,343.22	3,182.79	4,818.24	6,145.34	7,843.13	4,915.69	5,323.84	5,542.98	4,513.96	3,252.44	2,649.18	53,682.32
TOTAL	4,041.79	2,821.39	3,931.49	6,083.35	7,592.46	9,516.55	6,295.96	6,597.52	6,891.36	5,996.64	4,599.01	3,449.61	67,817.13

Projected Material Quantities at Lindsay Ops Landfill with Diversion from Fenelon and Laxton

ITEM	2036												YEAR TOTAL
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	0.11	0.10	0.10	0.09	0.41	0.31	0.26	0.16	0.31	0.34	0.24	0.16	2.61
Clean Wood					19.52	9.34	15.00	8.76	8.74				61.36
Drywall	8.89					4.62	9.24	5.52	9.20	8.77			46.25
Household Hazardous Waste	16.26	8.46	13.95	31.49	34.68	36.55	48.76	34.94	29.13	29.88	23.86	15.28	323.23
Leaf and Yard Waste	21.43	5.94	80.47	449.13	677.34	850.97	380.83	403.62	524.56	550.18	735.80	83.02	4,763.31
Mattresses	16.45	4.73	6.49	13.33	14.20	10.56	12.82	17.33	12.10	15.40	11.24	4.32	138.97
Recyclables (Containers)	306.73	282.96	268.74	338.46	167.13	346.88	462.80	387.08	349.59	340.00	371.01	249.10	3,870.47
Recyclables (Fibres)	494.12	158.61	351.83	389.50	452.64	353.15	354.75	354.90	362.85	462.12	159.80	412.06	4,306.32
Reuse	0.44				0.47	2.99	0.01						3.91
Scrap Metal	17.63	14.18	19.39	39.67	83.26	57.18	68.41	70.62	53.71	52.40	46.15	24.12	546.72
Waste Electrical and Electronic Equipment	18.89	8.93	16.72	18.63	14.84	20.95	43.94	6.02	14.37	41.37	14.64	21.98	241.28
TOTAL DIVERTED	900.96	483.90	757.68	1,280.30	1,464.49	1,693.51	1,396.83	1,288.97	1,364.57	1,500.47	1,362.73	810.03	14,304.43
WASTE	3,189.33	2,371.34	3,220.98	4,876.05	6,219.08	7,937.25	4,974.68	5,387.72	5,609.49	4,568.13	3,291.47	2,680.97	54,326.51
TOTAL	4,090.29	2,855.25	3,978.66	6,156.35	7,683.57	9,630.75	6,371.51	6,676.69	6,974.06	6,068.60	4,654.20	3,491.00	68,630.94

Percent Increase from 2019 to 2030

ITEM													YEAR AVERAGE
	January	February	March	April	May	June	July	August	September	October	November	December	
Batteries	35%	24%	14%	74%	32%	76%	31%	14%	58%	128%	106%	79%	56%
Clean Wood					25%	25%	25%	25%	25%				25%
Drywall	25%						25%	25%	25%	25%			25%
Household Hazardous Waste	43%	62%	76%	53%	68%	54%	86%	74%	66%	72%	87%	68%	67%
Leaf and Yard Waste	37%	69%	34%	46%	69%	174%	91%	126%	131%	107%	56%	310%	104%
Mattresses	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
Recyclables (Containers)	15%	15%	21%	15%	17%	15%	16%	15%	16%	15%	15%	15%	16%
Recyclables (Fibres)	15%	15%	15%	14%	16%	15%	16%	16%	15%	15%	16%	15%	15%
Reuse	14%				14%	14%	14%						14%
Scrap Metal	54%	68%	45%	61%	103%	82%	69%	74%	70%	54%	66%	68%	68%
Waste Electrical and Electronic Equipment	14%	83%	82%	14%	173%	34%	63%		41%	96%	48%	45%	63%
TOTAL DIVERTED	15%	17%	21%	24%	40%	60%	34%	38%	45%	41%	36%	25%	33%
WASTE	84%	48%	78%	83%	92%	69%	78%	62%	89%	105%	103%	64%	80%
TOTAL	62%	42%	64%	67%	79%	67%	66%	57%	78%	85%	77%	53%	66%

APPENDIX

C

COST ESTIMATE CALCULATIONS

Option 2: Expand Existing Public Drop-Off Area
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Drop off area widening (Area = 700 m^2)	m^2	700	$ 100	$ 70,000
2	Geotechnical Study		LS		$ 20,000
3	Engineering Fees (Design, Tendering and Construction Assistance)		LS		$ 17,500
				10% Contingency	$ 10,750
				Total, excluding HST	**$ 118,250**

Breakdown of Costs

Drop off area widening by 700 m^2	Thickness (m)	Quantity	Unit	Unit Price	Total
Granular B (Density 2.0 tonnes/m^3)	0.35	490.00	tonnes	$ 22.00	$ 10,780.00
Granular A (Density 2.4 tonnes/m^3)	0.15	252.00	tonnes	$ 20.00	$ 5,040.00
HL8 (Density 2.5 tonnes/m^3)	0.065	113.75	tonnes	$ 150.00	$ 17,062.50
HL3 (Density 2.5 tonnes/m^3)	0.045	78.75	tonnes	$ 180.00	$ 14,175.00
Clearing, excavation and fine grading		1,000.00	m^2	$ 20.00	$ 20,000.00
				Total	**$ 67,057.50**
***Price per m^2 rounded up to $100/$m^2$ to include drainage**				***Price per m^2**	**$ 95.80**

Option 3: Utilize Area North of Municipal Curbside Recycling Transfer Facility
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Drop off area paving (A = 100 m2)	LS			$ 12,000
2	Line Painting/signs	LS			$ 8,000
				Total, excluding HST	**$ 20,000**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	Staff (2,236 hours/year x $35/hour)	hour	2,236	$ 35	$ 78,260
				***Total, excluding HST**	**$ 78,260**

***Round to $80,000 per year**

Option 4A: Utilize Area East of Existing Public Drop-Off Area (Accessed from Site)
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Drop off area expansion (A = 12,000 m2)	m^2	12,000	$ 100	$ 1,200,000
2	*New Attendant Kiosk	LS			$ 50,000
3	Geotechnical Study	LS			$ 25,000
4	Engineering Fees (Design, Tendering and Construction Assistance)	LS			$ 312,500
				10% Contingency	$ 158,750
				Total, excluding HST	**$ 1,746,250**

***10' x 12' prefabricated building**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	Staff (2,236 hours/year x $35/hour)	hour	2,236	$ 35	$ 78,260
				***Total, excluding HST**	**$ 78,260**

***Round to $80,000 per year**

Option 4B: Utilize Area East of Existing Public Drop-off Area (Accessed from Wilson Road)
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Drop off area expansion (A = 12,000 m2)	m^2	12,000	$ 100	$ 1,200,000
2	Wilson Road and drop off area entrance expansion (A = 3,200 m2)	m^2	3,200	$ 100	$ 320,000
3	*New Attendant Kiosk	LS			$ 50,000
4	Geotechnical Study	LS			$ 25,000
5	Engineering Fees (Design, Tendering and Construction Assistance)	LS			$ 392,500
				10% Contingency	$ 198,750
				Total, excluding HST	**$ 2,186,250**

***10' x 12' prefabricated building**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	Staff (2,236 hours/year x $35/hour)	hour	2,236	$ 35	$ 78,260
				***Total, excluding HST**	**$ 78,260**

***Round to $80,000 per year**

Option 5: Redesign Existing Public Drop-off Area
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Access Road (12,000 m^2)	m^2	12,000	$ 100	$ 1,200,000
2	Drop off area expansion (A = 7,000 m^2)	m^2	7,000	$ 100	$ 700,000
3	Retaining Wall	m^2	1,000	$ 1,000	$ 1,000,000
4	Separation Area	m^2	4,700	$ 20	$ 94,000
5	Geotechnical Study	LS			$ 25,000
6	Engineering Fees (Design, Tendering and Construction Assistance)	LS			$ 449,100
				10% Contingency	$ 346,810
				Total, excluding HST	**$ 3,814,910**

Option 6: Install Additional Weigh Scale
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	New Inbound Access Road	m^2	4,500	$ 100	$ 450,000
2	New Weigh Scale	each	3	$ 250,000	$ 750,000
3	*New Scalehouse	each	2	$ 50,000	$ 100,000
4	Geotechnical Study		LS		$ 30,000
5	Engineering Fees (Design, Tendering and Construction Assistance)		LS		$ 195,000
				10% Contingency	$ 152,500
				Total, excluding HST	**$ 1,677,500**

***10' x 12' prefabricated building**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	Staff (2,236 hours/year x $35/hour)	hour	2,236	$ 35	$ 78,260
2	Scale maintenance, electricity, road maintenance, etc.		LS		$ 10,000
				***Total, excluding HST**	**$ 88,260**

***Round to $90,000 per year**

Fenelon Landfill Expansion
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Total Cost for Option 3 from Fenelon Feasibility Study (WSP 2021)	LS			$ 88,700
				***Total, excluding HST**	**$ 88,700**

***Round to $90,000 per year**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations	Allowance			$ 30,000
2	Site maintenance (roads, fences, etc.)	Allowance			$ 10,000
3	Staff (4 staff x 1,248 hours/year x $35/hour)	hour	4,992	$ 35	$ 174,720
				***Total, excluding HST**	**$ 214,720**

***Round to $215,000 per year**

Laxton Landfill Expansion
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Total Cost for Option 2 from Laxton Feasibility Study (WSP 2021)	LS			$ 301,200
				***Total, excluding HST**	**$ 301,200**

***Round to $305,000 per year**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations	Allowance			$ 15,000
2	Site maintenance (roads, fences, etc.)	Allowance			$ 10,000
3	Staff (1 staff x 594 hours/year x $35/hour)	hour	594	$ 35	$ 20,790
4	Contract to operate active landfill area	LS			$ 70,000
				***Total, excluding HST**	**$ 115,790**

***Round to $120,000 per year**

Fenelon Landfill Transfer Station
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Site preparation and grading for additional roll-off bin for waste		LS		$ 20,000
				Total, excluding HST	**$ 20,000**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations		Allowance		$ 30,000
2	Reporting (in addition to current reporting)		Allowance		$ 10,000
3	Site maintenance (roads, fences, etc.)		Allowance		$ 10,000
4	Staff (2 staff x 1,248 hours/year x $35/hour)	hour	2,496	$ 35	$ 87,360
				***Total, excluding HST**	**$ 137,360**

***Round to $140,000 per year**

Laxton Landfill Transfer Station
Cost Estimate

Estimated Capital Cost

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Site preparation and grading for additional roll-off bin for waste		LS		$ 20,000
				Total, excluding HST	**$ 20,000**

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations		Allowance		$ 15,000
2	Reporting (in addition to current reporting)		Allowance		$ 10,000
3	Site maintenance (roads, fences, etc.)		Allowance		$ 10,000
4	Staff (1 staff x 594 hours/year x $35/hour)	hour	594	$ 35	$ 20,790
				***Total, excluding HST**	**$ 55,790**

***Round to $55,000 per year**

Cost Savings from Site Closure
Fenelon Landfill

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations		Allowance		$ 30,000
2	Site maintenance (roads, fences, etc.)		Allowance		$ 10,000
3	Staff (4 staff x 1,248 hours/year x $35/hour)	hour	4,992	$ 35	$ 174,720
				***Total, excluding HST**	**$ 214,720**

***Round to $215,000 per year**

Cost Savings from Site Closure
Laxton Landfill

Estimated Annual Operational Cost

Item No.	Description	Unit	Quantity	Unit Price	Cost Per Year
1	General site operations		Allowance		$ 15,000
2	Site maintenance (roads, fences, etc.)		Allowance		$ 10,000
3	Staff (1 staff x 594 hours/year x $35/hour)	hour	594	$ 35	$ 20,790
4	Contract to operate active landfill area		LS		$ 70,000
				***Total, excluding HST**	**$ 115,790**

***Round to $120,000 per year**

APPENDIX

D

FENELON LANDFILL EXPANSION FEASIBILITY STUDY

THE CITY OF KAWARTHA LAKES

FENELON LANDFILL
LANDFILL EXPANSION FEASIBILITY STUDY

DECEMBER 07, 2021

FINAL REPORT

wsp

FENELON LANDFILL

LANDFILL EXPANSION FEASIBILITY STUDY

CITY OF KAWARTHA LAKES

FINAL REPORT

PROJECT NO.: 171-10835-04
DATE: DECEMBER 07, 2021

WSP
SUITE 300
4 HUGHSON STREET SOUTH
HAMILTON, ON, CANADA L8N 3Z1

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December 07, 2021

Tauhid Khan, CET, EIT, M.Sc.
Asset Management Coordinator
Department of Engineering & Corporate Assets
City of Kawartha Lakes
322 Kent St. West, Lindsay, ON, K9V 4T7

Dear Mr. Khan:

Subject: Fenelon Landfill Expansion Feasibility Study

Please find attached the Landfill Expansion Feasibility Study for the Fenelon Landfill (Site) currently governed by Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) No. A321206.

The proposed Site expansion contemplates three alternatives to allow increasing the remaining capacity by less than 40,000 m^3 and one alternative combining the proposed options to optimize landfill airspace.

Should you require further information concerning this report, please contact the undersigned at 647-261-6062, or by email to Cristina.Olarte@wsp.com.

Yours sincerely,

Cristina Olarte, P.Eng., EP
Waste Management Engineer

Encl.

WSP ref.: 171-10835-04

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SIGNATURES

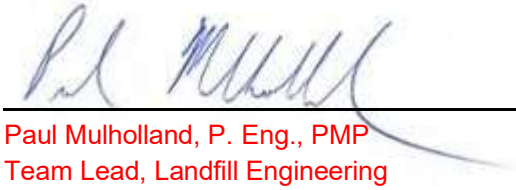
PREPARED BY

December 7, 2021

Cristina Olarte, P. Eng., EP
Waste Management Engineer

Date

APPROVED BY



December 7, 2021

Paul Mulholland, P. Eng., PMP
Team Lead, Landfill Engineering

Date

WSP Canada Inc. ("WSP") prepared this report solely for the use of the intended recipient, CITY OF KAWARTHA LAKES, in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

This limitations statement is considered an integral part of this report.

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1 INTRODUCTION

WSP Canada Inc. (WSP) has prepared the following Landfill Expansion Feasibility Study for the Fenelon Landfill (Site) located at 341 Mark Road, Cameron, Ontario. The Site comprises part of Lot 16, Concession 4, in the former Township of Fenelon as shown on **Figure 1**. The Site is owned and operated by the City of Kawartha Lakes (City) under Environmental Compliance Approval (ECA) No. A321206. A copy of the ECA is included in **Appendix A**.

In accordance with ECA No. A321206, Condition 7(8), the final contours shall not exceed 274.5 metres above sea level (masl) at any point on the approved landfill area, including final cover. Condition 7(9) of the ECA for the Site states that as of October 28, 2003 the remaining capacity in the landfill including daily and intermediate cover is 276,000 m^3. At the end of 2020 the remaining airspace for waste, daily and intermediate cover was estimated to be 34,300 tonnes representing 45,733 m^3 considering an apparent waste density of 0.75 tonnes/m^3. Based on the past four years (2017 to 2020) average waste disposal rate of 10,456 tonnes equivalent to about 13,940 m^3 per year, the remaining capacity is estimated to be reached by early 2023.

The purpose of this feasibility study is to assess four alternatives. Three alternatives propose to increase the remaining capacity by less than 40,000 m^3, which could potentially extend the Site life by about three years, and the fourth alternative combines the three previous alternatives to maximize the landfill airspace. The fourth alternative will provide an additional 10 years of Site life, considering the waste disposal rate remains consistent with previous years.

1.1 SITE DESCRIPTION

The Site is licensed for the use and operation of 21.3 hectares for waste disposal/transfer/composting and reuse, and 102.6 hectares of contaminant attenuation zone (CAZ). The Site can accept solid non-hazardous waste within the boundaries of the City. The Site includes an active landfill; Household Hazardous Waste (HHW) Depot; Re-use Centre; Leaf and Yard (L&Y) waste composting facility; a public drop off area with containers for recyclables, electronics, scrap metal, and other materials; disposal area for appliances; and a storage building for City staff and equipment storage as shown on **Figure 2**.

The Site has been active since 1972, receiving domestic, commercial and industrial wastes from the Township of Fenelon and the Village of Fenelon Falls. The Township of Fenelon operated the Site until 1992, at which time the County of Victoria (now the City of Kawartha Lakes) took responsibility for site operations. The approved landfill has an 8.0 hectare footprint. The landfill does not have an engineered liner or leachate collection system. Contaminants emanating from the Site are naturally attenuated in the native soils. A 102.6 hectares CAZ south and southeast of the approved waste footprint is used to further attenuate leachate discharging from the landfill.

The Martin Creek Wetland, a provincially significant wetland, exists in and around the Site property boundary. The Site is adjacent to agricultural land and a sand and gravel pit. The nearest residential dwellings are located on Mark Road, approximately 700 m south and 450 m north of the waste fill area.

2 REGIONAL TOPOGRAPHY, GEOLOGY AND HYDROGEOLOGY

According to Chapman and Putnam (1984), the Fenelon Landfill Site is located within the physiographic region named the "Peterborough Drumlin Field". The Peterborough Drumlin Field is located north of Lake Ontario, covering an area of ~5000 km^2. It covers regions of the Lowlands between the Niagara Escarpment and the Algonquin Uplands, encompassing a belt of southwestern trending glacial terrain spanning 140 km east of Lake Simcoe.

The Site is at a geologic transition point (esker) between an upland area that has a substantial thickness of glaciofluvial sand and gravel deposits (~20 m) and an adjacent lower lying "wetland area". A glacial till unit of approximately 5 m thickness (i.e., Peterborough Drumlin Till Plain) lies over the underlying Ordovician limestone of the Verulam Formation (Golder, 2010). Over top of the till and present around the site periphery is a glaciolacustrine silty fine sand unit which is evidenced in the borehole logs to be approximately 8 m thick. A wetland complex has developed over this unit and supports a peat bog community.

Based on these conditions, the monitoring network at the Site has historically been subdivided into three target aquifer units (shallow overburden, lower overburden and shallow bedrock).

The Site geochemistry has been used to potentially differentiate the individual flow regimes within the three aquifer units. The ability to distinguish different ground water signatures has allowed the physical flow regime to be better defined and suggests some degree of isolation between different flow zones. The one notable difference between the shallow and deeper ground water flow units is the consistency in water quality over time. The deep units (lower overburden and bedrock units) indicate very consistent ground water signatures, while the shallow unit is noted to have a bit more variability, likely owing to its proximity to surface influences (i.e. precipitation, runoff and leachate infiltration).

The ground water flow system underlying the Site is controlled by the Site geology. Ground water flows principally through both the underlying sand and gravel unit from the esker as well as the more regional silty fine sand aquifer, which due to their high permeability forms the pathway of least resistance. These units are underlain by a regional till unit which is locally discontinuous due to glaciofluvial processes. The till unit is in turn underlain by a weathered / fractured limestone. It should also be noted that much of the waste area is also deposited atop a 1.5 m layer of compacted peat soils associated with the surrounding wetland. Given the low hydraulic conductivities in the peat and presence of leachate mounding, it is likely that this unit provides a hydraulic barrier between the waste and underlying sand unit. However, as the peat layer does not extend completely across the base of the waste mound, there is still expected to be a hydraulic connection between the waste mound and underlying sand unit closest to the esker. Ground water flow direction within the overburden has been shown to reflect the local topography of the Site with elevated water table conditions observed within the highpoints of the site (i.e. waste mound and centre of esker), although not significantly elevated around the surrounding area (~1 m). As such, ground water would be expected to migrate in a radial direction from the waste mound / esker.

Surface water from Martin Creek as well as the background station within the wetland immediately west of the waste mound was noted to have a similar characteristic to that of the ground water aquifers with some slight variations (seasonal variation). The expectation is that ground waters from the esker complex are flowing toward and discharging to Martin Creek. However, there does not appear to be any similarities to that of the leachate signature and there does not appear to be any meaningful difference in quality between the upstream and downstream sampling locations owing to leachate influence. These data suggest that there is no detectable influence this far downgradient of the landfill. If ground water originating from the landfill is discharging to the adjacent wetland area, the quantity and / or leachate presence is sufficiently diluted such that no influence is observable any significant distance into the wetland from the landfill periphery (i.e. within Site limits) and adjacent creek.

The monitoring program includes 45 groundwater monitoring wells and 12 surface water locations.

2.1 GROUNDWATER QUALITY

Groundwater is assessed by evaluating analytical results from groundwater monitoring samples collected semi-annually (spring and fall) against the MECP Ontario Drinking Water Quality Standards (ODWQS). The ODWQS consider factors that affect the quality of water and the public health significance and include health-based standards as well as non-health related objectives for drinking water quality.

The Site is monitored by 45 locations which are:

Table 2.1 Monitoring Wells

BACKGROUND WELLS	LEACHATE WELL	DOWNGRADIENT WELLS		WETLAND PROBES
MW11A	MW7-17	MW1	MW2	WP1
Office Well		MW12	MW3	WP2
		MW13	MW3A	WP3
		MW14	MW5	WP4
		MW15	MW5A	WP5
		MW15A	MW6-07	WP6
		MW15B	MW6A-07	
		MW16	MW10	
		MW17	MW19	
		MW18	MW22	
		MW18A	MW22A	
		MW18B	MW22B	
		MW23	MW27-I	
		MW23A	MW27-II	
		MW23B	MW27-III	
		MW26	MW28-I	
		MW26-1	MW28-II	
		MW26-2	MW28-III	

2.1.1 BACKGROUND WATER QUALITY

The background water quality is monitored at the two upgradient locations (MW11A and the Office Well). MW11A monitors the shallow overburden unit northeast of the waste area and the Office Well targets the shallow fractured bedrock aquifer northeast of the landfill limit Phase 1.

Elevated concentrations of sodium, chloride and TDS have been noted at these background locations likely from road salting activities along Mark Road. The water quality can be characterized by a moderate level of mineralization, exceeding the ODWQS for iron, manganese, dissolved organic content (DOC) and hardness.

The natural organic rich peat environment can deplete/reduce the dissolved oxygen raising the iron and manganese concentrations. The hardness comes from the carbonate-rich sediments in both the overburden and bedrock environments. Elevated DOC may be the result of influence of the surrounding wetlands on the underlying groundwater quality through decay of natural organic materials.

2.1.2 LEACHATE QUALITY

Leachate quality is obtained from MW7, which is screened within the waste. For the Site the leachate strength is relatively high as it is still an active site. The leachate indicator parameters (LIPs) which have been historically consistent are:

- Alkalinity
- Chloride
- Iron
- Chemical Oxygen Demand (COD)
- Total Dissolved Solids (TDS)
- Ammonia
- Boron
- Dissolved Organic Content (DOC)
- Manganese
- Potassium
- Total Kjeldahl Nitrogen (TKN)

The parameter concentrations have all remained elevated and within consistent range except for COD, TKN and chloride, which have shown some variability since the monitor was last replaced in 2017. The leachate condition is expected to remain steady throughout the operational lifespan of the Site and will likely decline over time. This assumption is based on the Site landfilling similar waste stream and maintaining annual waste volumes.

2.1.3 DOWNGRADIENT WATER QUALITY

The downgradient water quality is monitored at the wells listed on **Table 2.1** and the six Wetland Probes (WP1, 2, 3, 4, 5, 6) located in closed proximity to the perimeter of the waste fill areas except for WP6 which is located south of the Site.

The water quality in the shallow and lower overburden units at the Site have generally consistent water quality, unless influenced by leachate. Leachate influence is present in all directions of the landfill except for MW5 located southeast of the landfill Phase 1 boundary.

It is noted that concentrations are reduced downgradient from those observed in the perimeter and leachate wells within a short distance downgradient of the landfill. The groundwater flows southeast in the shallow and lower overburden; and bedrock. The centre line of the leachate plume extents to MW18 and the distant locations (MW26 /26-2 and MW28-II/III) concentrations are within or below those observed in the background wells indicating the leachate likely does not extent beyond Mark Road.

LIP exceedances include hardness, iron, manganese, DOC, aluminum and TDS, with the most elevated concentrations found in the lower overburden and bedrock. Beyond these exceedances, other parameters included selenium, barium, chloride and sodium were exceeded at MW27-I. This location has been determined to target naturally mineralized horizon within the bedrock such that these exceedances are not landfill related.

2.1.4 WETLAND GROUNDWATER QUALITY

Given the location and water quality WP1 and WP6 are representative of background locations, while the other wetland probes provide an indication of shallow groundwater impacts beyond the waste boundary.

Elevated iron concentrations are present at WP1 and WP6 associated to the natural anoxic wetland conditions beyond the influence of the landfill. Leachate influence is observed within the three closest locations (WP2, WP3 and WP4) while a more subtle influence is observed at WP5, suggesting an attenuation process.

Exceedances of the PWQO include iron, aluminum, zinc, phenols, unionized ammonia, chromium and cobalt at various locations.

2.2 SURFACE WATER QUALITY

The Site is located within the catchment area of Martin Creek which flows in a northeast direction and drains into Cameron Lake at Sackett Bay. The size of the catchment area is approximately 4,450 ha, with about 1,750 ha upstream of the Site. The bulk of the catchment area is occupied by the Martin Creek Wetland, a provincially significant wetland. The landfill area (8 ha) represents a very small portion (0.5%) of the creek recharge area west of Mark Road.

Most of the landfill drains to the north and west into the wetland via the upland area of the esker, resulting in a very slow and indirect drainage over relatively flat ground through the wetland near the landfill. The remaining landfill runoff drains into the wetland south of the landfill.

The monitoring network consists of the sampling locations (SW2, SW3, SW4, SW12, SW13, SW14, SW15, SW16, SW17). Sampling is conducted three times annually (spring, summer and late fall) for a comprehensive list of parameters including general water quality, VOC's and PCB's. In accordance to the ECA, electrical conductivity monitoring is performed in the spring along transect lines extending from the toe of the landfill to approximately 30 m into the wetland. The conductivity monitoring serves to delineate the lateral extent and magnitude of leachate impacts within the wetland adjacent to the toe of the landfill.

The water quality is consistent between the upper and downstream locations except for slightly elevated iron, COD and DOC in the downstream locations.

2.3 LANDFILL GAS

Due to the shallow depth to the groundwater table, surrounding wetland and the distance between the waste fill area and the nearest residences, the potential for lateral landfill gas migration is unlikely. Permanent methane monitors were installed in the on-site building in March 2016 and are currently operating without detecting any landfill gas to date.

3 EXISTING SITE CONDITIONS

The Site is accessible by the public at the main entrance gate and information signage exists which states the hours of operation, permitted users, and types of waste accepted at the Site. The facility is approved to accept solid non-hazardous wastes from the City of Kawartha Lakes, although most of the waste originates from residents within the local area.

The Site is open to the public from 9:00 a.m. to 5:00 p.m. Mondays, Wednesdays and Saturdays all year, including holiday Mondays. Site operations and maintenance activities are allowed from Monday to Saturday from 7:00 a.m. to 7:00 p.m. The Site, except for the CAZ lands, is fenced along the east side of the fill area and along a portion of the former right-of-way south of the fill area.

Site services include hydro connection to the buildings and a groundwater well close to the Attendant Building provides non-potable water for equipment wash down, emergency purge shower located adjacent to the HHW Depot. An indoor washroom for landfill staff is located adjacent to the HHW building. Wastewater is directed to an on-site holding tank and pumped out as required.

Internal access roads are constructed using sandy soils taken from on-site borrow areas.

3.1 LANDFILL AND REMAINING CAPACITY

The Site is approved to landfill solid non-hazardous waste as defined in Ontario Regulation (O. Reg.) 347. Waste is brought to the Site by curbside collection vehicles, residents, and private industrial/commercial haulers. Prior to landfilling, incoming waste is inspected by an attendant as required by the ECA. The approved top of waste contours are shown on **Figure 3**. As per ECA Condition 7.(8), final contours may not exceed 274.5 masl.

The soil used for daily cover consisted of imported sandy soil from a private source located within the City. The amount of soil imported was recorded and tracked by landfill staff. Based on the sensitivity and proximity of the Martin Creek Wetland to the limit of waste, the current ECA (Condition 7(19)) does not allow the use of contaminated (non-hazardous) soils for daily cover.

As per 2020 annual monitoring report, the remaining capacity at the end of 2020 was 34,300 tonnes and considering the average waste disposal rate for the past four years of 10,456 tonnes, the remaining landfill capacity is expected to be reached by early 2024.

3.2 DIVERTED MATERIALS

Diverted materials received on site include L&Y, scrap metal, batteries, paper and plastic recyclables, electronics, tires, and HHW.

3.2.1 COMPOSTING

On December 8, 2009, the City received MECP approval to establish and operate an outdoor open windrow composting facility for L&Y waste.

The L&Y facility is a 350 m^2 soil and granular pad located at the east end of Phase 2 on which windrows are placed. L&Y waste is received on site from City collection vehicles and residents. The existing L&Y facility is located within the future landfill footprint.

In 2020, approximately 1,078 tonnes of L&Y waste was received at the Site without exceeding the daily limit of 250 tonnes. Composting is currently being done within the Phase 2 footprint and will be relocated west of the existing buildings to allow landfilling operations to continue in this area.

3.2.2 RECYCLABLES

The Site currently uses storage areas on grade for tires and appliances containing Freon. Freon is periodically removed from appliances by a licensed contractor and the appliance then recycled as scrap metal. The remainder of materials are stored in bins on grade that are placed in a somewhat circular arrangement directly south of the existing scale. This allows the scale house attendant to view materials being placed in bins.

The City is required to transfer materials off-site once their storage bins are full. Scrap metal is required to be transferred off-site at least twice a year. If odours are detected, the material causing the odours is required to be transferred off-site immediately.

Waste electronics and electrical equipment (WEEE) are accepted at the Site. WEEE is collected within securable, steel roll-off type containers. The maximum volume of WEEE to be stored on-site is 62 m^3, which represents the approximate volume of two storage containers. WEEE is removed from the Site when storage containers are full, or within 120 days of receipt of the material.

The HHW Depot is located at the Site entrance near the attendant building and beside the Reuse Centre. The HHW Depot has been operational since November 3, 2001. ECA Condition 11 governs the operation of the HHW Depot and outlines acceptable and unacceptable waste types, hours of operation, storage requirements, reporting requirements, spill contingencies, and other items. The HHW Depot is limited to residents only and provides storage of 7,000 litres of liquid waste and 40 tonnes of solid waste at any time. Materials cannot be stored at the HHW Depot for more than three months.

The HHW Depot is operated in accordance with the City of Kawartha Lakes Household Hazardous Waste Depot Operations Manual (August 2010). The City is responsible for the receipt, handling, packing, and safe storage of waste, as well as general housekeeping of the HHW Depot and emergency and spill response. Trained landfill staff complete operations and material hauling at the HHW Depot. As a contingency, the building is designed with a 250 mm curbing that extends around the perimeter of each of the two rooms to contain any spills. The floor curbing is sealed with an epoxy. The oil bulking tank located west of the HHW Depot is constructed with 100% secondary containment.

The HHW Depot is registered as Waste Generator No. ON0293706 with Ontario's Hazardous Waste Information Network ("HWIN"). Wastes that are accepted at the HHW Depot are described according to their Waste Class as defined in the MECP "New Ontario Waste Classes", dated January 1986.

Quantities of recyclable materials received at the Site in 2020 were as follow:

Table 3.1 Diverted Materials in 2020

ITEM	QUANTITY (TONNES)
Recycling (containers)	18.5
Recycling (fibres)	16.7
L&Y	1,078
Electronics	36.3
Scrap Metal	146.1
Tires	37.4
Drywall	18.3
Household Hazardous Waste	58.5

3.2.3 REUSE CENTRE

The City operates a Reuse Centre at the north end of the Site near the existing entrance. ECA Condition 12 governs the operation of the Reuse Centre allowing to accept materials from residents only.

The Reuse Centre is only open during regular Site hours and accepts used furniture, dishes, utensils pots and pans, books records, CDs and DVDs, doors, windows, mirrors and other reusable household items. Unacceptable items are either deposited in the landfill or sent for recycling through one of the diversion programs available at the Site.

4 PROPOSED LANDFILL EXPANSION ALTERNATIVES

The landfill is divided in two phases. Phase 1 has an area of 6.1 ha and most of the area has final cover placed to a maximum elevation of 274.5 masl in accordance with the ECA Condition 7(8). Phase 2 is 1.9 ha in area, which consists of approximately 1.0 ha under interim cover and 0.9 ha is the active landfill area. Currently the L&Y area located along the east side of Phase 2 is being relocated to allow landfill operations to resume in this area.

Based on the Updated Design & Operation Report prepared by Golder Associates and dated November 2015 (Golder, 2015), the development plan considered side slopes of 3H:1V between Phase 1 and 2 and 4H:1V along the perimeter slopes. Phase 2 has been developed by constructing containment berms along the north and south boundaries to hold potentially impacted run-off from the active landfill from discharging to the adjacent wetland.

Figure 2 shows the existing site features based on the topographic survey performed in June 2021. The figure shows the landfill areas with final and interim cover, surrounding land use, waste diversion areas, building and scale.

The options contemplated to increase the landfill capacity are described in more detail in Section 4.2.

4.1 FINAL APPROVED CONTOURS

The approved top of waste contours are shown on **Figure 3** and include the following design criteria:

- 30 m buffer between Phase 2 area and east Site boundary;
- 50 m buffer between Phase 2 area and the former road allowance south of the landfill;
- Overall fill area of 8.0 hectares;
- Final side slopes of 4H:1V;
- Top of landfill slope of 5%;
- Maximum elevation of landfill will not exceed 274.5 masl (including final cover) as per ECA Condition 7(8); and
- Final cover composition of minimum 600 mm thick layer of medium permeability soil and a 150 mm thick vegetative cover soil layer.

Condition 7 (11c) of the ECA requires placement of a minimum 600 mm thick layer of soil of medium permeability and 150 mm of topsoil in areas where landfilling has been completed to final waste contours within 12 months from reaching final waste contours. The topsoil is required to meet O. Reg. 153 Table 9 standards. The Table 9 standards apply because the landfill is situated within 30 m of a water body (i.e., Martin Creek Wetland).

The proposed final soil cover layer is to be constructed from medium permeable soil typically having a minimum of 60 percent fines (silt and clay) by weight passing the No. 200 sieve (0.074 mm) of which a minimum of 15 percent is clay. The soil cover should be applied and compacted in lifts no greater than 300 mm having a moisture content within plus 3 and minus 1 percent of optimum moisture content and compacted to a minimum 95% Standard Proctor Density, with the objective of achieving an initial cover layer system with a maximum permeability of $1x10^{-8}$ m/sec or better.

The vegetated topsoil layer will be constructed of well graded topsoil and applied in one lift of 150 mm. The topsoil should be fertile, typically capable of sustaining vigorous plant growth. The topsoil should be free of clay, impurities, plants, weeds, and roots.

In accordance to the Updated Design and Operations Report (Golder, 2015), seeding of the final cover should use a low maintenance, hardy and drought resistant seed mix such as Ontario Ministry of Transportation "Reclamation Mix" consisting of:

- 10% White Clover
- 20% Top Gun Perennial Rye Grass
- 25% Inferno Turf Tyte Tall Fescue
- 15% Timothy
- 10% Common Kentucky Bluegrass
- 20% Creeping Red Fescue.

4.2 LANDFILL EXPANSION OPTIONS

Options 1 to 3 are contemplated to gain less than 40,000 m^3 of additional airspace, and option 4 combines the previous three options to optimize the landfill airspace. All options contemplate a vertical expansion within the approved landfill boundary and options 3 and 4 also include a lateral expansion towards the southeast corner of Phase 2. Considering a fill rate of 14,000 m^3/year, the landfill site life will be extended by about three years for options 1 to 3; and about 10 years for option 4.

Leachate generation volumes calculated for each of the options are conservative, as the Thornthwaite method for water budget calculation assumes the snowfall received during the winter period remains available for infiltration and evapotranspiration during the warmer portion of the year. The estimated leachate generation rates may vary depending upon the climate conditions and exact rate of infiltration through the capped, interim covered and active landfill areas.

4.2.1 OPTION 1: VERTICAL EXPANSION WITHIN PHASE 1

Option 1 contemplates extending the final side slopes 4H:1V between original grade and transition to 5% at the top of the landfill to a peak elevation 275 masl (excluding final cover) within Phase 1. This represents an increase of 3 m compared to the approved top of waste contours.

This will require removal of the final cover, stripping and stockpiling separately the topsoil and clay soil cover for future use. Exposed waste should be covered by applying 150 mm of clean soil or approved alternative daily cover to minimize odours and windblown litter.

Since the increase in height is minimal, the amount of additional leachate to be generated is expected to be around 2,480 m^3/year which compared to the approved landfill design is an increase of 16%. A contaminant lifespan evaluation should be conducted to confirm if this additional leachate can be managed by the existing CAZ. The surface water management system will remain the same.

Figure 4 shows the Option 1 proposed final contours and cross sections.

4.2.2 OPTION 2: VERTICAL EXPANSION WITHIN PHASES 1 AND 2

Option 2 proposes extending the final side slopes 4H:1V between original grade and transition to 5% at the top of the landfill to a peak elevation 276 masl (excluding final cover) within Phases 1 and 2. This will be an increase of 4 m compared to the approved top of waste contours.

This will require removal of final and interim cover placed within Phase 1 and part of interim cover within Phase 2. Exposed waste should be covered by applying 150 mm of clean soil or approved alternative daily cover to minimize odours and windblown litter. The east portion of Phase 2 is considered the active landfill area.

Since the increase in height is minimal, the amount of additional leachate to be generated is expected to be around 2,480 m^3/year which compared to the approved landfill design is an increase of 16%. Similar to Option 1, a contaminant lifespan evaluation should be conducted to confirm if this additional leachate can be managed by the existing CAZ. The surface water management system will remain the same.

Figure 5 shows the Option 2 proposed final contours and cross sections.

4.2.3 OPTION 3: VERTICAL AND LATERAL EXPANSION WITHIN PHASE 2

Option 3 contemplates a lateral expansion southeast corner of Phase 2, extending the final side slopes 4H:1V between original grade and transition to 5% at the top of the landfill to a peak elevation 275.5 masl (excluding final cover). There is small area where interim cover is currently in place that will require to be removed and the south perimeter berm will need to be relocated.

The top of the landfill height will be increased by 4.5 m compared to the approved top of waste contours in the Phase 2 active landfill area.

The amount of additional leachate to be generated within Option 3 is expected to be around 1,540 m^3/year which compared to the approved landfill design is an increase of 10%. A contaminant lifespan evaluation should be conducted to confirm if this additional leachate can be managed by the existing CAZ. The surface water management system will remain the same.

Figure 6 shows the Option 3 proposed final contours and cross sections.

4.2.4 OPTION 4: VERTICAL AND LATERAL EXPANSION WITHIN THE ENTIRE LANDFILL AREA

Option 4 combines the previous three options by considering vertical expansion within the approved landfill footprint as per options 1 and 2 and a lateral expansion towards the southeast corner of Phase 2 as per option 3. Option 4 considers extending the side slopes 4H:1V from the approved top of waste grades and transition to a 5%, having a maximum elevation of 274.5 masl (excluding final cover). The top of the landfill height will be increased by 2.5 m compared to the approved top of waste contours in Phase 1.

This option will provide an additional capacity of about 142,400 m^3. Considering the current waste disposal rate of 14,000 m^3/year, the estimated Site life can be increased by about 10 years.

The amount of additional leachate to be generated within Option 4 is expected to be around 8,500 m^3/year. This represents an increase of more than 50% to the approved landfill design. A contaminant lifespan evaluation should be conducted to confirm the CAZ capacity and if additional leachate management options need to be implemented. The surface water management system will remain the same.

In terms of approvals, an Individual Environmental Assessment will be required. This involves the preparation of Terms of Reference, supporting documentation from different disciplines (geotechnical, hydrogeology, surface water air, noise, traffic assessments, and other studies) and public consultations are some of the requirements to be considered.

Figure 7 shows the Option 4 proposed final contours and cross sections.

5 PRELIMINARY COST ESTIMATES

For each of the options a Class C engineering cost estimate is presented below and is based on similar construction projects. The fees are based on 2021 Canadian Dollars. The operational costs include the supporting documentation associated to the landfill expansion which includes the design brief, the contaminant lifespan evaluation to confirm if the current CAZ will be able handle the additional leachate rate, ECA application form and ECA fees.

Table 5.1 Option 1: Vertical Expansion Within Phase 1

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Operational Costs				
ECA Amendment Supporting Documentation	1	L.S.		$25,000
MECP Application Fee	1	L.S.		$22,700
			Total Operational Costs	$47,700

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Capital Costs				
Topsoil Stripping and Stockpile on Site (150mm thickness)	2,500	m^3	$10	$25,000
Clay Soil Removal and Stockpile on Site (600mm thickness)	9,900	m^3	$8	$79,200
Waste Grading and Compaction	16,500	m^2	$5	$82,500
Contingency Allowance (10%)	1	L.S		$18,670
Engineering Allowance (15%)	1	L.S		$28,005
			Total Capital Costs	$233,375
			Total Cost Option 1	**$281,075**

Table 5.2 Option 2: Vertical Expansion Within Phases 1 and 2

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Operational Costs				
ECA Amendment Supporting Documentation	1	L.S.		$25,000
MECP Application Fee	1	L.S.		$22,700
			Total Operational Costs	$47,700

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Capital Costs				
Topsoil Stripping and Stockpile on Site (150mm thickness)	600	m^3	$10	$6,000
Clay Soil Removal and Stockpile on Site (600mm thickness)	2,200	m^3	$8	$17,600
Interim Cover Removal and Stockpile on Site (300mm thickness)	4,400	m^3	$8	$35,200
Waste Grading and Compaction	18,000	m^2	$5	$90,000
Contingency Allowance (10%)	1	L.S		$14,880
Engineering Allowance (15%)	1	L.S		$22,320
			Total Capital Costs	$162,400
			Total Cost Option 2	**$210,100**

Table 5.3 Option 3: Vertical and Lateral Expansion Within Phase 2

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Operational Costs				
ECA Amendment Supporting Documentation	1	L.S.		$25,000
MECP Application Fee	1	L.S.		$22,700
			Total Operational Costs	$47,700
Capital Costs				
Interim Cover Removal and Stockpile on Site (300mm thickness)	400	m^3	$8	$3,200
Waste Grading and Compaction	1,200	m^2	$5	$6,000
Remove and Reinstall Chain Link Fence	50	m	$150	$7,500
Remove Perimeter Berm	90	m	$10	$900
Construct South Perimeter Berm	60	m	$20	$1,200
Grade and Compact Base Along SE Corner	2,000	m^2	$7	$14,000
Contingency Allowance (10%)	1	L.S		$3,280
Engineering Allowance (15%)	1	L.S		$4,920
			Total Capital Costs	$41,000
			Total Cost Option 3	**$88,700**

Table 5.4 Option 4: Vertical and Lateral Expansion Within the Entire Landfill Area

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Operational Costs				
Environmental Assessment (Terms of Reference, Supporting Documentation, Consultation)	1	L.S.		$1,000,000
ECA Amendment Supporting Documentation	1	L.S.		$25,000
MECP Application Fee	1	L.S.		$22,700
			Total Operational Costs	$1,047,700
Capital Costs				
Topsoil Stripping and Stockpile on Site (150mm thickness)	3,100	m^3	$10	$31,000
Clay Soil Removal and Stockpile on Site (600mm thickness)	12,100	m^3	$8	$96,800
Interim Cover Removal and Stockpile on Site (300mm thickness)	4,800	m^3	$8	$38,400
Waste Grading and Compaction	35,700	m^2	$5	$178,500
Remove and Reinstall Chain Link Fence	50	m	$150	$7,500
Remove Perimeter Berm	90	m	$10	$900
Construct South Perimeter Berm	60	m	$20	$1,200
Grade and Compact Base Along southeast Corner	2,000	m^2	$7	$14,000
Contingency Allowance (10%)	1	L.S		$36,830
Engineering Allowance (15%)	1	L.S		$55,245
			Total Capital Costs	$460,375
			Total Cost Option 4	**$1,508,075**

Table 5.5 Summary of the Landfill Expansion Options

ITEM	OPERATIONAL COST	CAPITAL COST	TOTAL COST	EXTENSION TO SITE LIFE (years)
Option 1	$47,700	$233,375	$281,075	3
Option 2	$47,700	$162,400	$210,100	3
Option 3	$47,700	$41,000	$88,700	3
Option 4	$1,047,700	$460,375	$1,508,075	10

Overall, the options presented ranged from $88,700 to $1,508,075. Option 3 is the most cost effective alternative to allow gaining additional capacity at the Site by amending the current Environmental Compliance Approval.

If the City wants to consider expanding the landfill by more than 40,000 m^3 a more comprehensive approval process will be required, and costs will increase as shown in Option 4. Considering the level of effort required to obtain the environmental approvals and associated fees for Option 4, alternatives that take into consideration steeper side slopes or additional lands can be contemplated to extend the Site life by about 20 years or more.

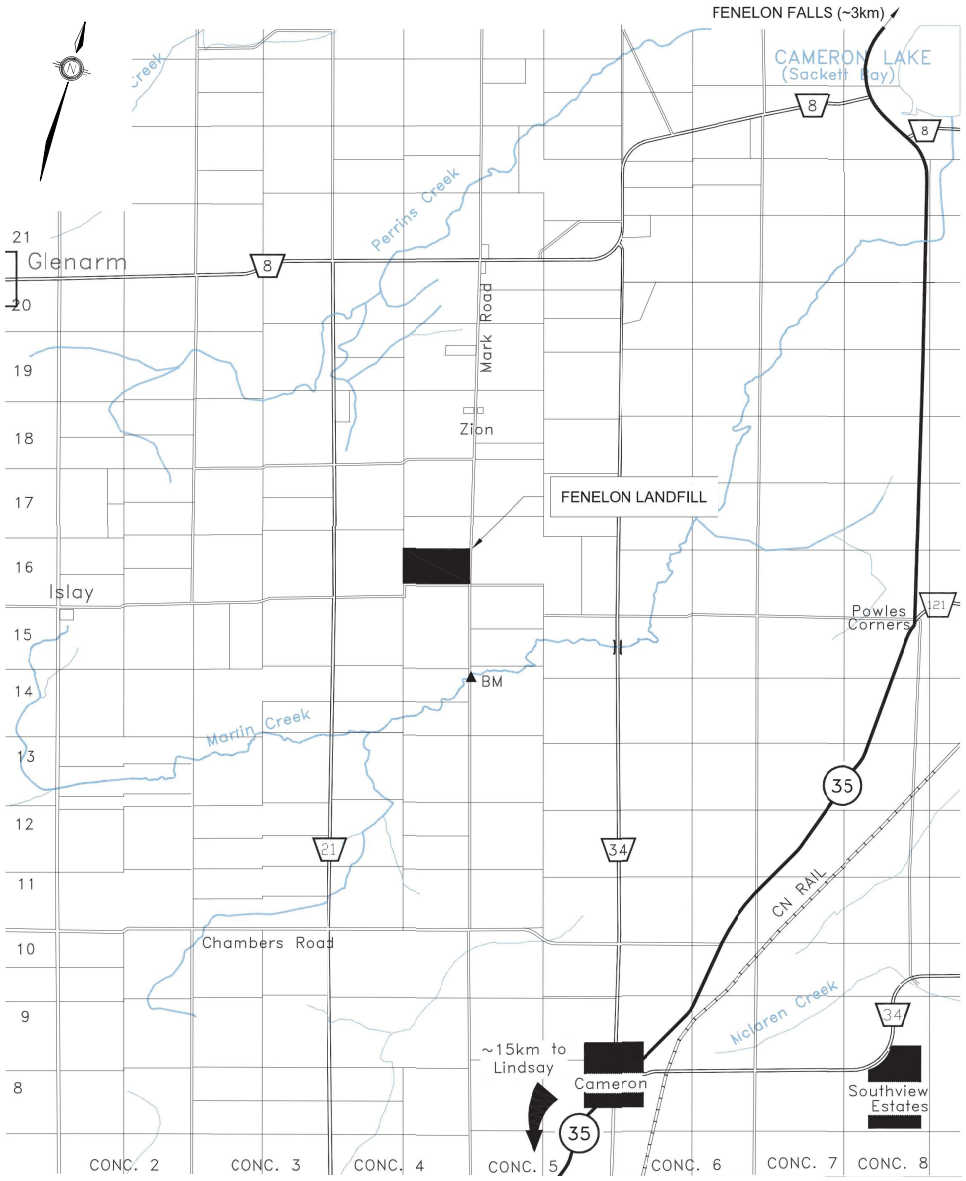
6 CLOSURE

This landfill expansion feasibility study was prepared for the exclusive use of the City of Kawartha Lakes for the Fenelon Landfill Site. This report was prepared in accordance with the scope of work, terms and conditions outlined in WSP's proposal No. P21-11028-34 dated June 22, 2021 and with generally accepted practices.

7 BIBLIOGRAPHY

- 2020 Annual Monitoring Report, Fenelon Waste Disposal Site, Azimuth Environmental Consulting Inc., dated May 2021.
- Fenelon Falls Landfill Site, 2021-44-CQ Phase 2 Base, Diversion Berms and Road Construction, March 2021.
- Ontario Landfill Standards: A Guideline on the Regulatory and Approval Requirement for New or Expanding Landfilling Sites, dated January 2012.
- Ontario Regulation 232/98 Landfilling Sites.
- Updated Design & Operation Report, Fenelon Landfill Site (Rev. B), Golder Associates Ltd., dated November 2015.

FIGURES



DATE	DESCRIPTION	BY
12/01/21	ISSUED FOR FINAL REPORT	CO
08/20/21	ISSUED FOR CLIENT REVIEW	CO

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WSP
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Kawartha Lakes

GENERAL SITE LOCATION PLAN

FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DRAWN BY: T.C.G.
CHK BY: C.E.O.
DATE: DECEMBER 1, 2021
SCALE: N.T.S.

CITY OF KAWARTHA LAKES

DRAWING NO. 181-10835-04 - 1

FIGURE 1

DATE	DESCRIPTION	
12/01/21	ISSUED FOR FINAL REPORT	CO
09/20/21	ISSUED FOR CLIENT REVIEW	CO
DATE	DESCRIPTION	
REVISION / ISSUE		

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Kawartha Lakes

JUNE 2021 EXISTING CONDITIONS

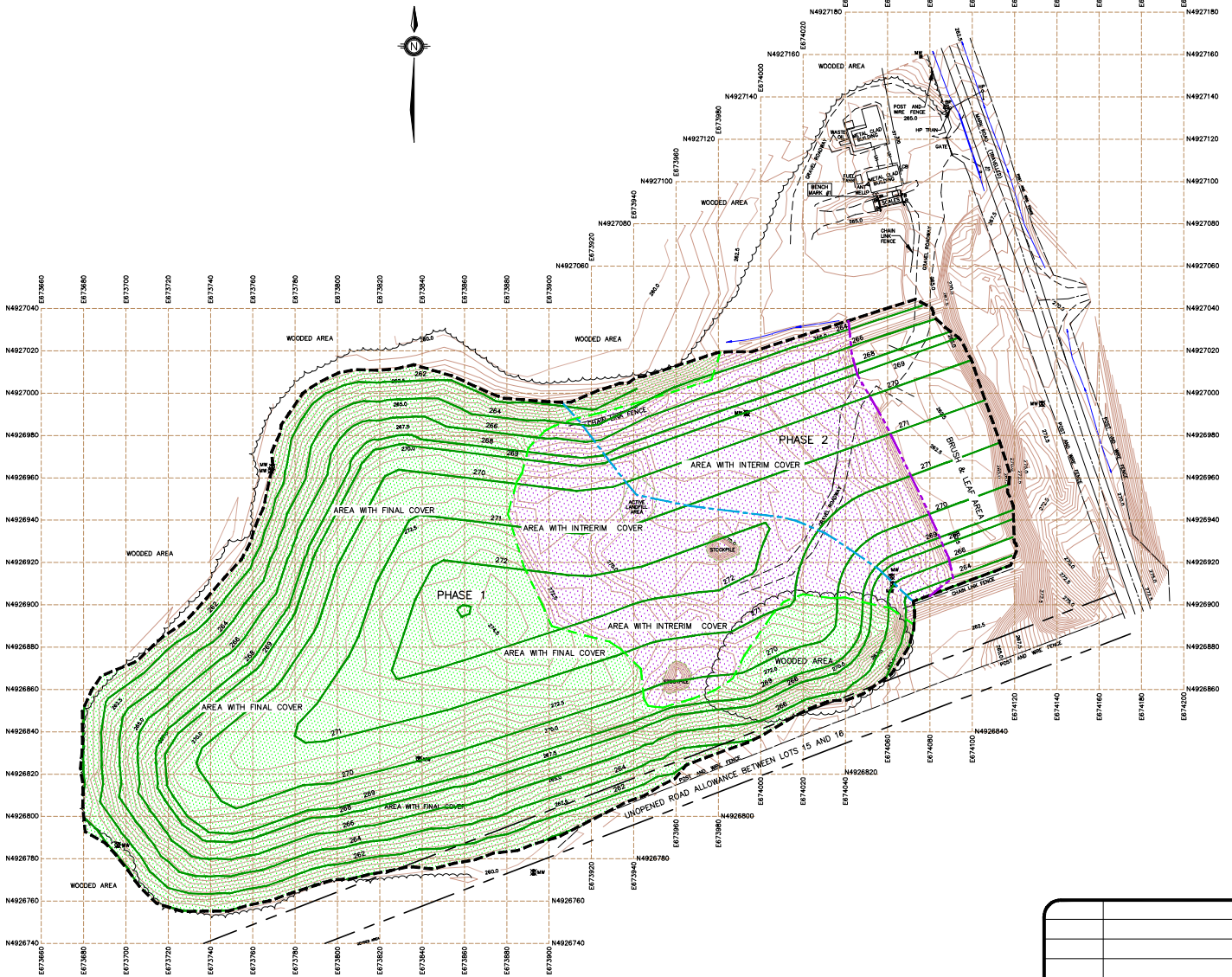
FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DWN BY: T.C.G. DATE: DECEMBER 1, 2021
CHK BY: C.O.R SCALE: SEE BAR SCALE

CITY OF KAWARTHA LAKES

DRAWING NO.: 181-10835-04 - 2

FIGURE
2



LEGEND :

- AREA UNDER FINAL COVER
- AREA WITH INTERIM COVER
- 268 APPROVED FINAL LANDFILL CONTOURS
- APPROVED LIMIT OF LANDFILLING
- EXISTING LIMIT OF FINAL COVER
- LIMIT BETWEEN PHASES 1 AND 2
- EXISTING LIMIT OF WASTE
- EXISTING GROUND CONTOURS AT 2.5m INTERVALS
- EXISTING GROUND CONTOURS AT 0.5m INTERVALS
- EXISTING EDGE OF GRAVEL ROAD
- EXISTING DRAINAGE DITCH
- EXISTING FENCE LINE
- EXISTING TREE LINE
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING UNDERGROUND HYDRO
- EXISTING LEACHATE CLEANOUT
- HP EXISTING HYDRO POLE
- HP TRAN EXISTING HYDRO POLE TRANSFORMER
- WELL EXISTING DOMESTIC WELL
- TS EXISTING TRAFIC SIGN
- SIB EXISTING 1" SQUARE STANDARD IRON BAR
- CB EXISTING CATCH BASIN
- BP EXISTING BELL PEDESTAL
- ANT EXISTING ANTENNA
- B EXISTING BOLLARD
- CC EXISTING CUT CROSS IN CONCRETE

NOTE :

1. TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY DATA OBTAINED BY WSP ON JUNE 28, 2021

B.M. #1 ELEV. - 266.203 GEODETIC
CUT CROSS ON NORTH CORNER OF RETAINING WALL AT WEST END OF EXISTING LANDFILL SCALE.
N4927092.637, E674055.027

B.M. #2 ELEV. - 259.980 GEODETIC
TOP OF 1" SQUARE SIB AT UTM COORDINATES
N4927199.023, E674067.557.

SCALE : 1:2000

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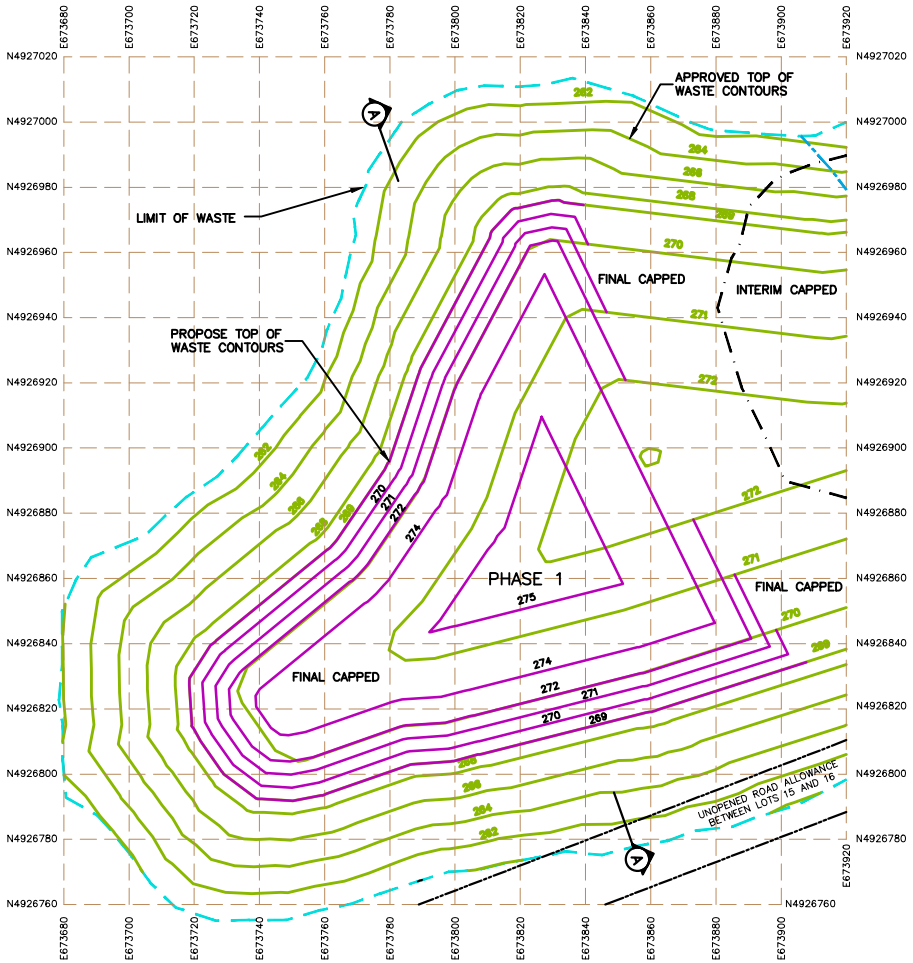
Kawartha Lakes

APPROVED
TOP OF WASTE CONTOURS
FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

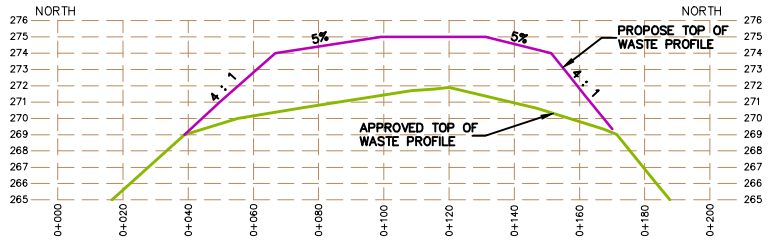
DWN BY: TCG
CHK BY: CEO
DATE: DECEMBER 1, 2021
SCALE: SEE BAR SCALE
CITY OF KAWARTHA LAKES
DRAWING NO. 181-10834-04 - 3

FIGURE 3



OPTION 1 – 40,109m^3

SCALE : 1 : 1500



SECTION A – A

SCALES :
1 : 1500 HORIZONTAL
1 : 300 VERTICAL

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wsp
4 HUGHSON STREET SOUTH, SUITE 300
HAMILTON (ONTARIO) CANADA L8N 3Z1
TEL.: 905-529-4414 | FAX:905-521-2699 | WWW.WSPGROUP.COM

Kawartha Lakes

PROPOSED EXPANSION CONTOURS
OPTION 1

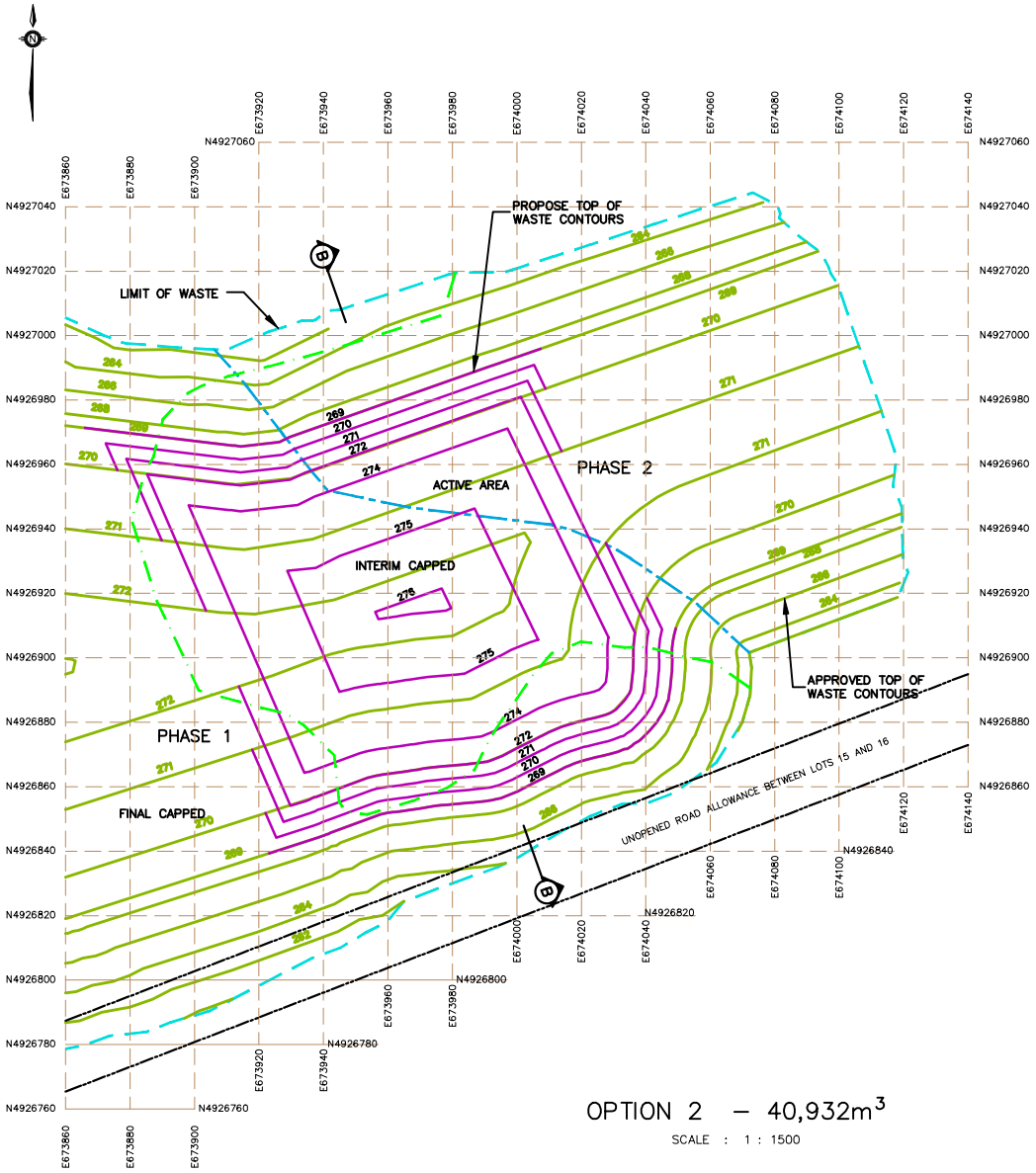
FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DWN BY: T C G DATE: DECEMBER 1, 2021
CHK BY: C E O SCALE: AS SHOWN

CITY OF KAWARTHA LAKES

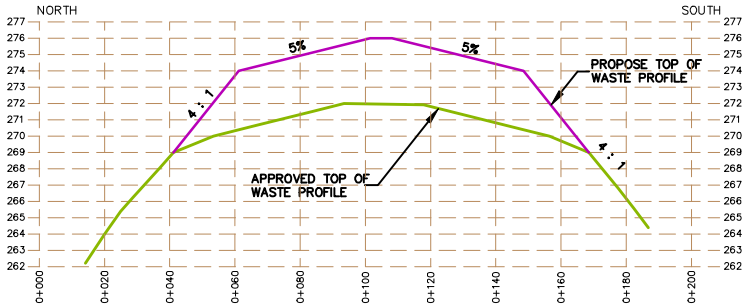
DRAWING NO. 181-10835-04 - 4

FIGURE 4



OPTION 2 – 40,932m^3

SCALE : 1 : 1500



SECTION B – B

SCALES :
1 : 1500 HORIZONTAL
1 : 300 VERTICAL

DATE	DESCRIPTION	BY
12/01/21	ISSUED FOR FINAL REPORT	CO
08/20/21	ISSUED FOR CLIENT REVIEW	CO

REVISION / ISSUE

Seal not valid unless signed & dated

WSP
4 HUGHSON STREET SOUTH, SUITE 300
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Kawartha Lakes

PROPOSED EXPANSION CONTOURS OPTION 2

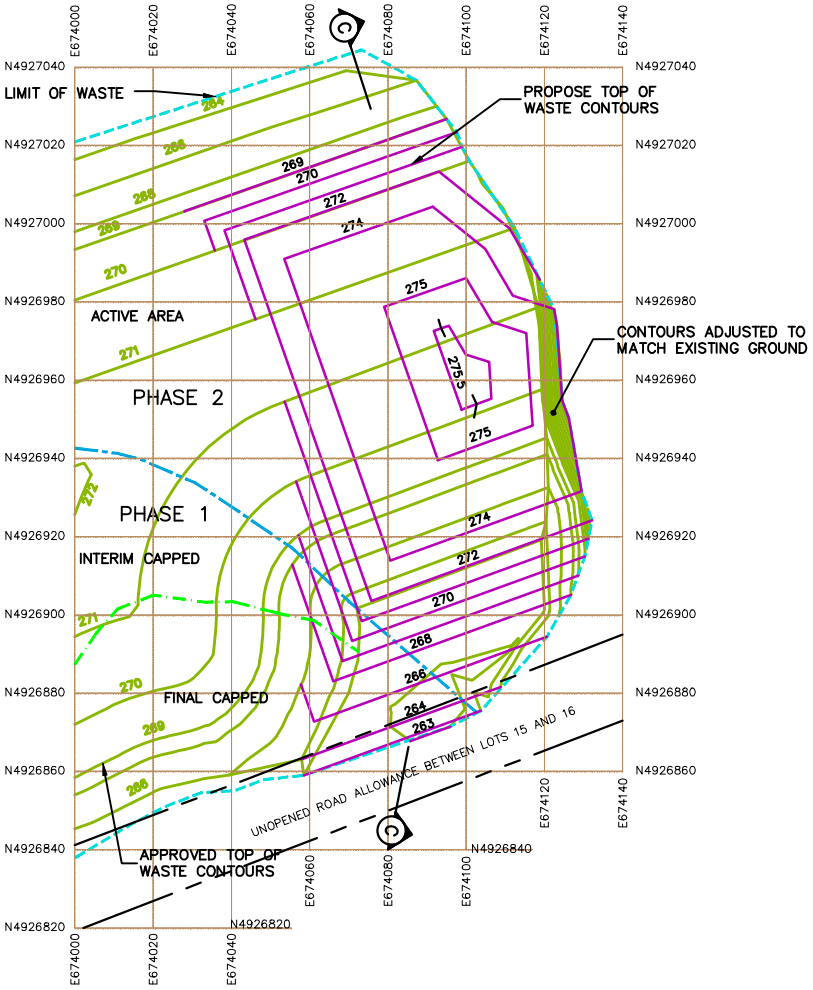
FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DWN BY: T C G DATE: DECEMBER 1, 2021
CHK BY: C E O SCALE: AS SHOWN

CITY OF KAWARTHA LAKES

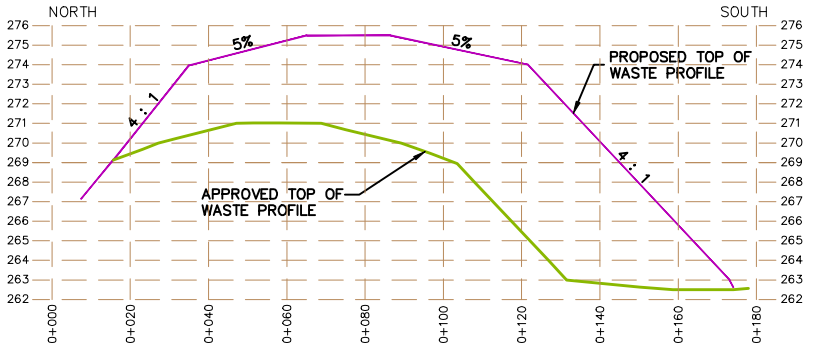
DRAWING NO. 181-10835-04 - 5

FIGURE 5



OPTION 3 – 41,236m^3

SCALE : 1 : 1250



SECTION C – C

SCALES :
1 : 1250 HORIZONTAL
1 : 250 VERTICAL

12/01/21	ISSUED FOR FINAL REPORT	CO
08/20/21	ISSUED FOR CLIENT REVIEW	CO
DATE	DESCRIPTION	BY
	REVISION / ISSUE	

Seal not valid unless signed & dated

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Kawartha Lakes

PROPOSED EXPANSION CONTOURS OPTION 3

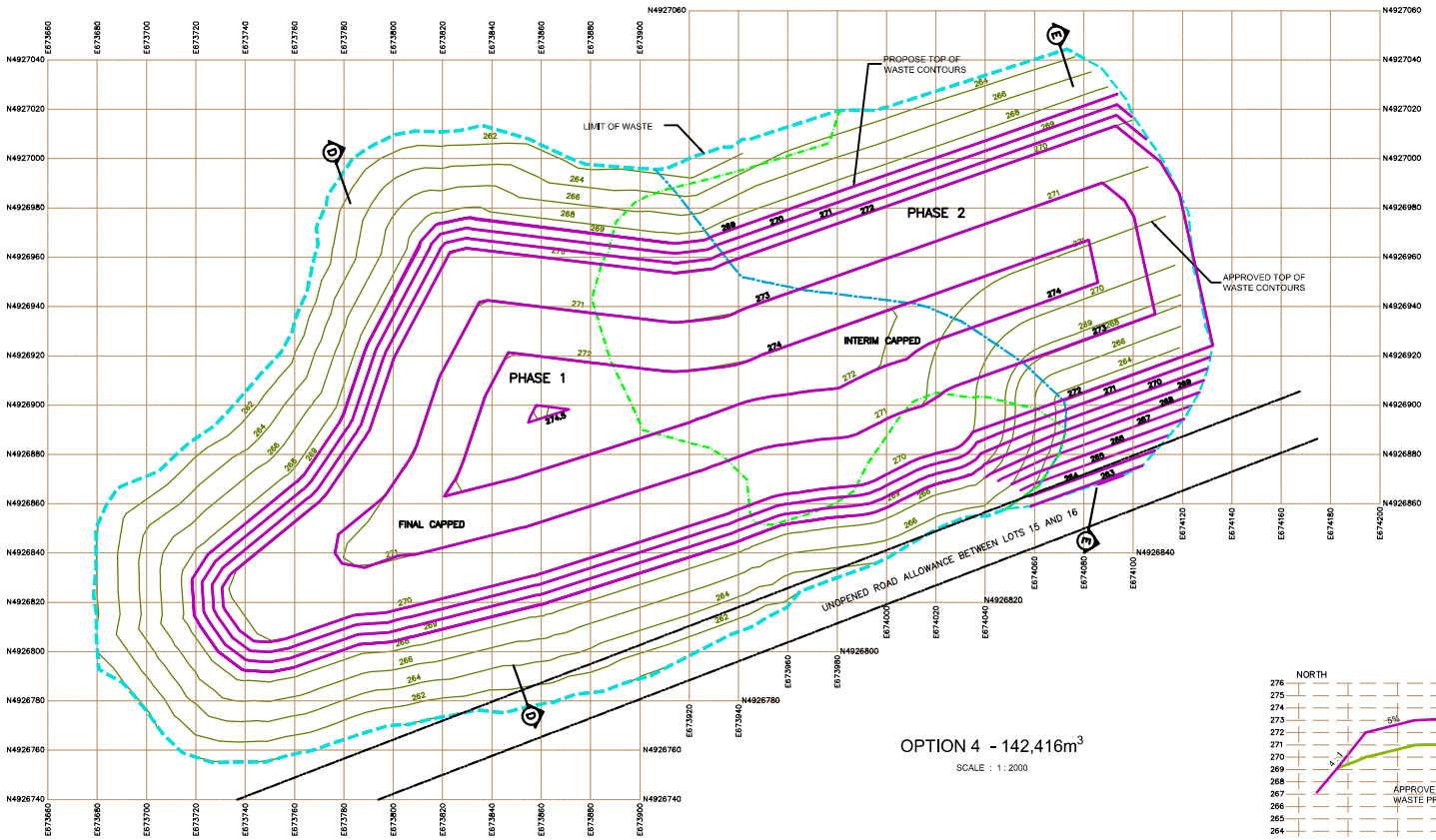
FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DWN BY: T C G
CHK BY: C E O
DATE: DECEMBER 1, 2021
SCALE: AS SHOWN

CITY OF KAWARTHA LAKES

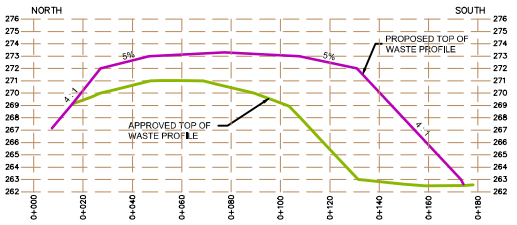
DRAWING NO. 181-10835-04 - 6

FIGURE 6



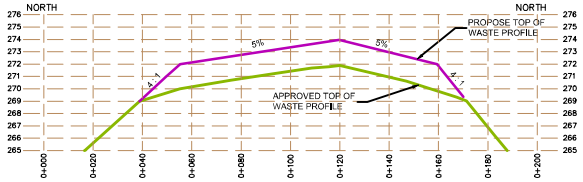
OPTION 4 - 142,416m^3

SCALE : 1 : 2000



SECTION E - E

SCALES :
1 : 1250 HORIZONTAL
1 : 250 VERTICAL



SECTION D - D

SCALES :
1 : 1500 HORIZONTAL
1 : 300 VERTICAL

DATE	DESCRIPTION	BY
12/01/21	ISSUED FOR FINAL REPORT	CO
08/20/21	ISSUED FOR CLIENT REVIEW	CO

REVISION / ISSUE

Seal not valid unless signed & dated.

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HAMILTON (ONTARIO) CANADA L8N 3Z1
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Kawartha Lakes

PROPOSED EXPANSION CONTOURS
OPTION 4

FENELON LANDFILL
EXPANSION FEASIBILITY STUDY

DWN BY: I F H
CHK BY: C E O
DATE: DECEMBER 1, 2021
SCALE: SEE BAR SCALE

CITY OF KAWARTHA LAKES

DRAWING NO. 181-10835-04 - 7

FIGURE 7

APPENDIX

A

ENVIRONMENTAL COMPLIANCE APPROVAL
No. A321206

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A321206
Issue Date: January 20, 2016

The Corporation of the City of Kawartha Lakes
12 Peel St
Lindsay, Ontario
K9V 3L8

Site Location: Fenelon Landfill Site
341 Mark Rd Lot 16, Concession 4, former Township of Fenelon
Kawartha Lakes City,

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use and operation of 21.3 hectare waste disposal/transfer/composting and reuse site, and 102.6 hectares of contaminant attenuation zone for the following types of waste:

solid non-hazardous waste as defined in Reg. 347, generated within the boundaries of the City of Kawartha Lakes.

Note: Use of the Site for any other type of waste is not authorized under this Approval, and requires obtaining a separate amendment for this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" or "ECA" means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation listed in Schedule "A".

"Contaminating Life Span" means contaminating life span as defined in Ontario Regulation 232/98;

"Compost" means Leaf and Yard Waste that has been composted and fully cured and tested to confirm it meets the criteria in Table 1 of O.Reg. 101/94. Compost is not considered a waste if testing for the compost quality criteria is completed and compliance with the criteria is demonstrated;

"Depot" means the Household Hazardous Waste Depot, and includes any building, drop-off areas,

storage areas and any other structures, areas and facilities associated with the handling, consolidation, storage, transfer and transport of HHW.

"Director" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" means the District Manager of the local district office of the Ministry in which the Site is geographically located;

"EPA" means Environmental Protection Act, R.S.O. 1990, c. E. 19, as amended;

"HHW" means household hazardous waste (also known as municipal hazardous and special waste) ;

"Leaf and Yard Waste" means waste consisting of leaves, grass clippings, natural Christmas trees and other plant materials, generally less than seven (7) centimetres in diameter;

"Coarse Leaf and Yard Waste" means Leaf and Yard Waste that consists of tree stumps, limbs or other woody materials in excess of seven (7) centimetres in diameter;

"Ministry" means the Ontario Ministry of the Environment and Climate Change;

"NMA" means Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended;

"Operator" means any person, other than the Owner's employees, authorized by the Owner as having the charge, management or control of any aspect of the Site and includes its successors or assigns;

"Owner" means any person that is responsible for the establishment or operation of the Site being approved by this Approval, and includes The Corporation of the City of Kawartha Lakes its successors and assigns;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

"PA" means the Pesticides Act, R.S.O. 1990, c. P-11, as amended;

"PRC" means the Public Review Committee for this site, as described in the conditions in this Approval.

"Provincial Officer" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the OWRA or Section 5 of the EPA or Section 17 of PA or Section 4 of NMA or Section 8 of SDWA.

"PWQO" means the Provincial Water Quality Objectives, dated July 1994, as amended;

"Reasonable Use Guideline" means the Ministry Guideline B-7 entitled "Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities", dated April 1994, as amended;

"Regional Director" means the Regional Director of the local Regional Office of the Ministry in which the Site is located.

"Regulation 101" means Regulation 101/94, Recycling and Composting of Municipal Waste, as amended;

"Regulation 347" or "Reg. 347" means Regulation 347/90, as amended;

"SDWA" means Safe Drinking Water Act, 2002, S.O. 2002, c. 32, as amended;

"Site" means the entire waste disposal site including the landfilling area, buffer lands, Household Hazardous Waste Depot, Reuse Centre, Leaf and Yard Waste Compost facility authorized by this Approval located at 341 Mark Rd Lot 16, Concession 4, former Township of Fenelon, City of Kawartha Lakes; and

"Trained personnel" means personnel knowledgeable in the following through instruction and/or practice:

a. relevant waste management legislation, regulations and guidelines;
b. major environmental concerns pertaining to the waste to be handled;
c. occupational health and safety concerns pertaining to the processes and wastes to be handled;
d. management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. emergency response procedures;
f. specific written procedures for the control of nuisance conditions;
g. specific written procedures for refusal of unacceptable waste loads; and
h. the requirements of this Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

Compliance

(1) The Owner and Operator shall ensure compliance with all the conditions of this Approval and shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

In Accordance

(3) Except as otherwise provided by this Approval, the Site shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule "A".

Interpretation

(4) Where there is a conflict between a provision of any document listed in Schedule "A" in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

(5) Where there is a conflict between the application and a provision in any document listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment.

(6) Where there is a conflict between any two documents listed in Schedule "A", the document bearing the most recent date shall take precedence.

(7) The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Other Legal Obligations

(8) The issuance of, and compliance with, this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or

(b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner and Operator to furnish any further information related to compliance with this Approval.

Adverse Effect

(9) The Owner and Operator shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

(10) Despite an Owner, Operator or any other person fulfilling any obligations imposed by this Approval the person remains responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

Change of Ownership

(11) The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:

(a) the ownership of the Site;
(b) the Operator of the Site;
(c) the address of the Owner or Operator; and
(d) the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification.

(12) No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

(13) In the event of any change in Ownership of the Site, other than change to a successor Owner, the Owner shall notify the successor of and provide the successor with a copy of this Approval, and the Owner shall provide a copy of the notification to the District Manager and the Director.

Certificate of Requirement/Registration on Title

(14) The Owner shall:

(a) Within six (6) months of the date of the issuance of this Approval, submit to the Director for review, two copies of a completed Certificate of Requirement with a registerable description of the Site; and
(b) Within 10 calendar days of receiving the Certificate of Requirement authorized by the Director, register the Certificate of Requirement in the appropriate Land Registry Office on title to the Site and submit to the Director and the District Manager the duplicate registered copy immediately following registration.

(15) Pursuant to Section 197 of the Environmental Protection Act, neither the Owner nor any person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.

Registration on Title Requirement - Contaminant Attenuation Zone (CAZ)

(16) For any new lands added, or if not done previously for existing CAZ lands, the Owner shall, within six (6) months from the date of issuance of this Approval, submit to the Director documents confirming that a contaminant attenuation zone (CAZ) has been established, in either fee simple or by way of a groundwater easement.

(a) If rights are obtained in fee simple, the Owner shall provide:
  (i) documentation evidencing ownership of the CAZ obtained in compliance with O.Reg. 232/98, as amended;
  (ii) a completed Certificate of Requirement and supporting documents containing a registerable description of the CAZ; and
  (iii) a letter signed by a member of the Law Society of Upper Canada; or other qualified legal practitioner acceptable to the Director, verifying the legal description of the CAZ.

(b) within fifteen (15) calendar days of receiving a Certificate of Requirement signed or authorized by the Director,the Owner shall:
  (i) register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
  (ii) submit to the Director a written verification that the Certificate of Requirement has been registered on title.

(c) The Owner shall not amend or remove or consent to the removal of the easement or CAZ from title without the prior written consent of the Director.

Inspections by the Ministry

(17) No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, the PA, the SDWA or the NMA, of any place to which this Approval relates, and without limiting the foregoing:
  (a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
  (b) to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
  (c) to inspect the Site, related equipment and appurtenances;
  (d) to inspect the practices, procedures, or operations required by the conditions of this Approval; and
  (e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA, the PA, the SDWA or the NMA.

Information and Record Retention

(18) (a) Except as authorized in writing by the Director, all records required by this ECA

shall be retained at the Site for a minimum of two (2) years from their date of creation.

(b) The Owner shall retain all documentation listed in Schedule "A" for as long as this ECA is valid.

(c) All daily logs are to be kept at the Site for the current operating year.

(d) The Owner shall retain employee training records as long as the employee is working at the Site.

(e) The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

(19) The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

(a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Approval or any statute, regulation or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

(20) (a) The Owner shall ensure that a copy of this Approval, in its entirety and including all its Notices of Amendment are retained at the Site at all times.

(b) Copies of all documentation listed in Schedule "A" shall be retained in the Solid Waste Services administration office.

(21) Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

2. SITE OPERATION

Operation

(1) The Site shall be operated and maintained at all times including management and disposal of all waste, in accordance with the EPA, Regulation 347, and the conditions of this Approval. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

Signs

(2) A sign shall be installed and maintained at the main entrance/exit to the Site on which is

legibly displayed the following information:

(a) the name of the Site and Owner;
(b) the number of the Approval;
(c) the name of the Operator;
(d) the normal hours of operation;
(e) the allowable and prohibited waste types;
(f) the telephone number to which complaints may be directed;
(g) a warning against unauthorized access;
(h) a twenty-four (24) hour emergency telephone number (if different from above); and
(i) a warning against dumping outside the Site.

(3) The Owner shall install and maintain signs to direct vehicles to working face, recycling, re-use and transfer area.

(4) The Owner shall provide signs at recycling storage areas, HHW Depot and re-use centre informing users what materials are acceptable and directing users to appropriate storage areas.

Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic

(5) The Site shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

Burning Waste Prohibited

(6) (a) Burning of waste at the Site is prohibited.

(b) Notwithstanding Condition 2. (6) (a) above, burning of segregated, clean wood and brush at the landfill may be carried out in strict compliance with the Ministry of the Environment Document titled "Guideline C-7, Burning at Landfill Sites" dated April 1994.

Site Access

(7) The operating hours for the Site for the receipt of waste for disposal , site preparation, site maintenance and daily cover activities are Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m.

(8) On-site equipment used for daily site preparation and closing activities may be operated one (1) hour before and one (1) hour after the hours of operation approved by this Approval.

(9) With the prior written approval from the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste.

Site Security

(10) No waste shall be received, landfilled or removed from the Site unless a site supervisor or an attendant is present and supervises the operations during operating hours. The Site shall be closed when a site attendant is not present to supervise landfilling operations.

(11) The Site shall be operated and maintained in a safe and secure manner. During non-operating hours, the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.

Public Review Committee (PRC)

(12) The Owner shall forthwith take all reasonable steps to establish, maintain and participate in a Public Review Committee (PRC), which is to function within terms of reference for the PRC, as prepared by the Owner, and as amended from time to time according to appropriate amending procedures. A copy of the terms of reference shall be provided to the District Manager. The PRC shall serve as a focal point for dissemination, consultation, review and exchange of information regarding the operation of the Site.

(13) The Owner shall develop Terms of Reference for the PRC. The membership of the PRC shall include at least one member from the Owner and at least two members from interested parties.

(14) Copies of all reports or other submissions required by the conditions of this Approval shall be made available to the PRC.

(15) The Owner shall provide to members of the PRC and to any neighbouring residents reasonable notice and opportunities to make comments regarding any proposed amendment to this Approval. The Owner shall forward to the Director for consideration any written comments received by the Owner.

(16) The PRC shall meet twice annually.

3. EMPLOYEE TRAINING

(1) A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Operator. Only Trained Personnel shall operate any aspect of the Site or carry out any activity required under this Approval.

4. COMPLAINTS RESPONSE PROCEDURE

(1) If at any time the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints according to the following procedure:

(a) The Owner shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;

(b) The Owner, upon notification of the complaint, shall initiate appropriate steps to determine possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

(c) The Owner shall complete a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

5. EMERGENCY RESPONSE

(1) Any spills, fires or other emergency situations shall be forthwith reported directly to the Ministry's Spills Action Centre (1-800-268-6060) and shall be cleaned up immediately.

(2) In addition, the Owner shall submit, to the District Manager a written report within one (1) week of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the Site.

(3) All wastes resulting from an emergency situation shall be managed and disposed of in accordance with O.Reg. 347, unless otherwise specified by the District Manager.

(4) The Owner shall ensure that adequate fire extinguishers and contingency spill clean up material is available and that emergency response personnel are familiar with its use and location.

6. RECORD KEEPING AND REPORTING

Daily Log Book

(1) A daily log shall be maintained and shall include the following information:

(a) the type, date and time of arrival, hauler, and quantity (tonnes) of all waste and cover material received at the Site;

(b) the area of the Site in which waste disposal operations are taking place;

(c) a record of litter collection activities and the application of any dust suppressants;

(d) a record of the daily inspections; and

(e) a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore

and maintain service.

(f) A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

(g) A daily inspection of the Site and all equipment on the site shall be conducted to ensure that: the Site is secure; that the operations of the Site is not causing any nuisances and that the Site is being operated in compliance with this Approval. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the Site if needed.

(2) Any information requested, by the Director or a Provincial Officer, concerning the Site and its operation under this Approval, including but not limited to any records required to be kept by this Approval shall be provided to the Ministry, upon request.

Inspections and Log Book

(3) (a) A comprehensive Site inspection shall occur semi-annually. Inspections shall consider, at a minimum, leachate break-outs, condition of vegetation, erosion, condition of Site access roads, ditches, berms and swales, signs, evidence of nuisance factors such as litter and odours. The results of Site inspections shall be recorded as part of the Condition 6 (4).

(b) Within ten (10) business days within noting a leachate outbreak during an inspection, the Owner shall notify the District Manager in writing, including the location of the outbreak on a map of the Site and remedial measures taken.

(4) A record of the inspections shall be maintained and include:
(a) the name and signature of person that conducted the inspection;
(b) the date and time of the inspection;
(c) the list of any deficiencies discovered;
(d) the recommendations for remedial action; and
(e) the date, time and description of actions taken.

Annual Report

(5) A written report on the development, operation and monitoring of the Site, shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the District Manager, by May 31st of the year following the period being reported upon.

(6) The Annual Report shall include the following:
(a) the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;
(b) an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the Site, and the adequacy of and need to implement the contingency plans;

(c) site plans showing the existing contours of the Site; areas of landfilling operation during the reporting period; areas of intended operation during the next reporting period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; facilities existing, added or removed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;

(d) calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

(e) a calculation of the remaining capacity of the Site and an estimate of the remaining Site life;

(f) total annual quantity (tonnes) of waste received at the Site;

(g) a summary of any complaints received and the responses made;

(h) a discussion of any operational problems encountered at the Site and corrective action taken;

(i) any changes to the Design and Operations Report and the Closure Plan that have been approved by the Director since the last Annual Report;

(j) a report on the status of all monitoring wells requiring decommissioning or repair during the reporting period; and

(k) any other information with respect to the Site which the Regional Director may require from time to time.

7. LANDFILL DESIGN AND DEVELOPMENT

Approved Waste Types

(1) The site may accept solid non-hazardous waste as defined in Reg. 347 for landfilling.

(2) The Owner shall develop and implement a program to inspect waste to ensure that the waste received at the Site is of a type approved for acceptance under this Approval.

(3) The Owner shall ensure that all loads of waste are properly inspected by Trained personnel prior to acceptance at the Site and that the waste vehicles are directed to the appropriate areas for disposal or transfer of the waste. The Owner shall notify the District Manager, in writing, of load rejections at the Site within one (1) week from their occurrence.

Approval for Filling of Phase 2

(4) Approval is hereby granted for filling of Phase 2, as shown in Figure 15 of the updated Design and Operations Report, November 2015, item 22 of Schedule "A".

(5) The Owner shall ensure that landfilling in Phase 2 is carried out as described in the proposed (updated) development plan, described in Section 6.5 of the Updated Design

and Operations report, item 22 of Schedule A.

(6) The containment berms as shown in Figure 19 a, and described in Section 6.5 of the Updated Design and Operations Report, shall be constructed, prior to landfilling of any waste in Phase 2.

Capacity

(7) No waste shall be landfilled outside of the limit of waste final contours as shown on Figure 15, of the updated Design and Operations Report, item 22 of Schedule "A".

(8) Final contours shall not exceed 274.5 metres above sea level at any point on the approved landfill area and includes allowances for final cover.

(9) The total approved remaining capacity inclusive of daily and intermediate cover, but exclusive of final cover for this Site as of October 28, 2003 is 276,000 cubic metres.

Service Area

(10) Only waste that is generated within the boundaries of the City of Kawartha Lakes may be accepted at the Site.

Cover

(11) Cover material shall be applied as follows:

(a) Daily Cover - Weather permitting, deposited waste shall be covered with 15 centimetres of clean soil or approved alternative daily cover on each operating day in a manner acceptable to the District Manager so that no waste is exposed to the atmosphere;

(b) Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 millimetre of soil cover or an approved thickness of alternative cover material shall be placed; and

(c) Final Cover - In areas where landfilling has been completed to final waste contours within twelve (12) months from reaching final waste contours, a minimum 600 millimetre thick layer of soil of medium permeability and 150 millimetres of top soil (vegetative cover) shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.

(12) (a) The Owner shall ensure that Phase 1 is progressively capped with final cover.

(b) By December 31, 2016, final cover shall be placed on Phase 1, up to the Phase 1/2 boundary, as shown in Figure 19, Proposed Filling Plan, in item 22 of Schedule A.

Approved Daily Cover and Alternative Daily Cover Materials

(13) Alternative materials to soil may be used as daily and interim cover material, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the Owner to the Director, copied to the District Manager and as approved by the Director via an amendment to this Approval. The alternative material shall be non-hazardous according to Reg. 347 and will be expected to perform at least as well as soil in relation to the following functions:

(a) Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires;
(b) Provision for an aesthetic condition of the landfill during the active life of the Site;
(c) Provision for vehicle access to the active tipping face; and
(d) Compatibility with the design of the Site for groundwater protection, leachate management and landfill gas management.

(14) Construction/demolition wastes, clean, dry wood wastes and brush wastes, all of which are segregated from other wastes, are exempted from the daily cover requirement.

(15) The Owner is hereby permitted to use "paper fibre product" as daily and interim cover at the Fenelon Landfill Site in accordance with the documents in the Schedule "A".

(16) The Owner is hereby permitted to use soil, Compost, wood chips, foundry sand, shingles, non-hazardous wood/construction waste (fines) and flexible membranes (tarps, enviro cover systems as alternative daily cover material. Flexible membranes shall be removed prior to the next layer of waste is deposited.

(17) (a) The Owner is permitted to conduct a pilot test for the use of steel plates as alternative daily cover at the Site. Steel plates may be used for a two (2) year period, expiring at two calendar years from the date of this Approval.

(b) If the Owner will seek continued use of the plates as alternative daily cover, an application to amend this Approval shall be submitted to the Director prior to the expiry date, including a pilot report with an assessment on the performance of the plates in consideration of the requirements in Condition 7. (13).

(18) Partially composted Leaf and Yard Waste may be used as alternative daily cover at the Site.

(19) Contaminated (non-hazardous) soils may not be used as alternative daily cover at the Site.

Compaction of Waste

(20) The Owner shall ensure that waste is compacted with a minimum of three (3) passes over each lift of waste.

8. LANDFILL MONITORING

Landfill Gas

(1) The Owner shall ensure that any buildings or structures at the Site contain adequate ventilation systems to relieve any possible landfill gas accumulation to prevent methane concentration reaching the levels within its explosive range. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the Site, especially enclosed structures which at times are occupied by people.

Compliance

(2) The Site shall be operated in such a way as to ensure compliance with the following:

(a) Reasonable Use Guideline B-7 for the protection of the groundwater at the Site; and

(b) Provincial Water Quality Objectives included in the July 1994 publication entitled Water Management Policies, Guidelines, Provincial Water Quality Objectives, as amended from time to time or limits set by the Regional Director, for the protection of the surface water at and off the Site.

Surface Water and Ground Water

(3) The Owner shall monitor surface water and ground water in accordance with appendix H of the Updated Design and Operations Report, November 2015, item 22 in Schedule "A".

(4) In addition to Condition (3), the Owner shall:

- Monitor monitoring well nest MW27 and MW28 on a quarterly basis for the following two calendar years from the date of issue of this Approval.
- Include spring and fall sampling for volatile organic compounds at wells WP1-10, WP2-10, WP3-10, and WP4-10.

(5) A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience shall oversee the execution of the groundwater monitoring and

reporting program.

Groundwater Wells and Monitors

(6) The Owner shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

(7) Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

(8) Any groundwater monitoring well included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the Owner, as required.

(a) The Owner shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

(b) All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the Director for abandonment, shall be decommissioned by the Owner, as required, in accordance with O.Reg. 903, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

Changes to the Monitoring Plan

(9) The Site monitoring programs may be amended with approval from the Director.

Trigger Mechanisms and Contingency Plans

(10) (a) The Site surface water trigger mechanism is established as follows:

- two consecutive exceedances of one or more of the trigger parameter concentrations; with the exceedance confirmed by a third sample within thirty (30) days of exceedance.
- the triggers are applied to the surface water stations located 30 m from the toe of the landfill, at transect lines WP4, SW13, and SW15.

(b) The Owner shall initiate the following steps upon confirmation of an exceedance as follows:

- notification of the District Manager within thirty (30) working days of receipt of confirmation of results;

- initiation of an assessment of potential sources of the exceedance;
- the assessment shall include an evaluation of biological impacts (including vegetation and toxicity surveys);
- provision of a written assessment of the results, to the District Manager within one (1) calendar year of the date of receipt of confirmation of the exceedance, and included in the Annual Site Monitoring Report for the year in which the exceedance was confirmed.

(c) If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

i. The *Owner* shall notify the *Director* and *District Manager* , in writing, of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;

ii. Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *Director* and *District Manager* for approval within 90 days after confirmation of the exceedances; and

iii.. The contingency measures shall be implemented by the *Owner* upon approval by the *Director* .

(d) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to surface water or groundwater, shall be approved in advance by the *Director* prior to implementation

(e) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the *Director* via an amendment to this *Approval* .

9. CLOSURE PLAN

(1) At least three (3) years prior to the anticipated date of closure of this Site, the Owner shall submit to the Director for approval, with copies to the District Manager, a detailed Site closure plan pertaining to the termination of landfilling operations at this Site, post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

(a) a plan showing Site appearance after closure;

(b) a description of the proposed end use of the Site;

(c) a description of the procedures for closure of the Site, including:
  (i) advance notification of the public of the landfill closure;
  (ii) posting of a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements for a period of one year after closure;
  (iii) completion, inspection and maintenance of the final cover and landscaping;
  (iv) Site security;
  (v) removal of unnecessary landfill-related structures, buildings and facilities;
  (vi) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas; and
  (vii) a schedule indicating the time-period for implementing sub-conditions (i) to (vi) above;

(d) descriptions of the procedures for post-closure care of the Site, including:
  (i) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
  (ii) record keeping and reporting; and
  (iii) complaint contact and response procedures;

(e) an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and

(f) an updated estimate of the Contaminating Life Span of the Site, based on the results of the monitoring programs to date.

(2) The Site shall be closed in accordance with the closure plan as approved by the Director.

10. LEAF AND YARD WASTE COMPOSTING

(1) The Owner shall ensure that the Leaf and Yard Waste Compost facility accepts:
  (a) not more than 250 tonnes of Leaf and Yard Waste in any given day; and
  (b) not more than 2000 tonnes of Leaf and Yard Waste annually.

(2) The Owner shall ensure that composting and curing are conducted in accordance with Sections 31 to 33 of Regulation 101/94, Part V - Leaf and Yard Waste Composting Sites.

(3) Notwithstanding any of the provisions in Section 31 to 33 of Part V of the Regulation 101/94, the Owner shall operate subject to the following Conditions;

(a) waste accepted for composting shall be limited to Leaf and Yard Waste and chipped wood.

(b) all activities associated with the Leaf and Yard Waste composting operation shall take place on the designated pad constructed of wood chips;

(c) Leaf and Yard Waste segregated fine material may not be stored for more than four days before it is placed in windrows.

(d) Coarse Leaf and Yard Waste that is segregated for grinding shall be ground twice per year at a minimum.

(e) The maximum quantity of the segregated/stored Coarse Leaf and Yard Waste at any time at the Leaf and Yard composting facility shall not be greater than 1500 tonnes.

(f) On a trial basis, during the year 2016, 2017 and 2018, the temperature of each composting mass shall be measured and recorded weekly, at a minimum until the requirements in paragraphs 4 and 5 of Section 31 of Part V of the Regulation 101/94 have been satisfied. During the curing phase the temperature shall be measured and recorded weekly.

(g) The Owner shall prepare and submit a written summary providing results of the monitoring of the Leaf and Yard composting process and compliance with Conditions 10 (2) and (3) (f). The summary shall be provided with the annual monitoring report for 2018, and shall include at a minimum, the sampling analysis of the Compost and document recommendations for continuation or amendment of Conditions 10 (2) and (3).

(h) The Owner shall maintain, at the Leaf and Yard Waste Compost facility for a minimum of two (2) years, a log book or electronic file format which records daily the following information:

- date of record;
- quantities and source of Leaf and Yard Waste received;
- the amount of Compost and/or rejected Compost shipped from the Site;
- a record of daily inspections including the following information as a minimum;
  - (i) time and date of inspection;
  - (ii) name and title of inspector;
  - (iii) potential impacts noted;
  - (iv) remedial actions taken; and
  - (v) measures to prevent the problem from recurring;
- windrow temperature readings;
- composting activities undertaken (e.g. windrow formation, turning, screening etc);
- meteorological information including ambient temperature, wind direction and wind speed; and
- with respect to the Compost sampling required by Condition 10 (2) and (3) (f), the Owner shall maintain the following records as a minimum:
  - (i) sample collection locations and volume of the samples collected;
  - (ii) day and time of collection;
  - (iii) sample handling procedures;
  - (iv) parameters tested for and the resulting concentrations;
  - (v) name of the laboratory facility doing the testing; and
  - (vi) conclusions drawn with respect to the results of the monitoring and testing.

(4) By May 31st of each year, the Owner shall include the following information as a minimum in the Annual Report required under the Condition 6 (5):

(a) a monthly summary of the quantity of Leaf and Yard Waste received;

(b) a monthly summary of Compost transferred and the amount and destination of any rejected Compost;

(c) analytical results of samples taken from the Compost;

(d) a description of any environmental or operational problems, that could negatively impact the environment, encountered during the operation of the Leaf and Yard Waste Compost facility and the mitigative actions taken;

(e) a statement as to compliance with all Conditions of this Approval and with the inspection and reporting requirements of the Conditions herein; and

(f) any recommendations to minimize environmental impacts from, or improve the operations of, the Leaf and Yard Waste Compost facility.

11. HOUSEHOLD HAZARDOUS WASTE

(1) (a) The HHW Depot shall operate in accordance with Item 10 of Schedule "A". Administrative amendments to Item 12 of Schedule "A" (i.e. HHW Depot Operations Manual) shall be submitted to the District Office for approval;

(b) The operation of the HHW Depot is limited to the receipt and transfer of household hazardous waste consisting of classes 112, 113, 114, 122, 123, 135, 145, 146, 147, 148, 212, 213, 221, 232, 241, 242, 252, 261, 263, 269, 312 and 331 as defined in the "New Ontario Waste Classes" dated January 1986 or as amended; and

(c) The HHW Depot shall not receive any pathological waste (class 312) other than syringes, lancets and needles.

(2) (a) The total amount of liquid waste stored at the HHW Depot, at any one time, shall not exceed 7,000 litres (7 cubic metres) or equivalent;

(b) The total amount of solid waste stored at the HHW Depot, at any one time, shall not exceed 40 tonnes;

(c) No HHW waste shall be stored at the Depot for a period longer than three (3) months without written approval of the District Manager.

(3) The Depot may receive HHW only during hours of operation of the Site unless prior approval is given in writing, by the District Manager.

(4) The Depot shall be maintained in a secure manner such that unauthorized persons cannot enter the HHW building nor access the storage areas outside.

(5) No radioactive wastes shall be accepted at the Depot.

(6) No PCBs (243) shall be accepted at the Depot. Oil and oil based paints which have been

manufactured prior to 1972, or whose manufacturing date cannot be determined, may contain PCBs, shall be handled in the following manner:

(a) Oil and oil based paints shall not be mixed or bulked with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this Approval.

(b) Oil and oil-based paints shall be tested by a certified laboratory for PCB content and shall be handled in the manner as prescribed in this Approval.

(c) If the oil and oil-based paints are found to have PCBs at 50 parts per million or above, it shall be forthwith reported to the District Manager and shall be managed in accordance with Regulation 362/92 and stored or removed from the Depot to an approved PCB storage facility in accordance with written instructions from the District Manager.

(d) Oil and oil-based paints shall not be distributed for reuse if any measurable PCBs are found after being tested by a certified laboratory for PCBs.

(7) Except for oil and oil-based paints having any measurable PCB content, paints collected at the Depot may be returned or sold to the general public for reuse provided all transactions are recorded by invoice. Information on the type and volume of paint returned to the public through this Depot shall be recorded in a log book kept at the Depot.

(8) The Log Book shall record, on each day of operation:

(a) date of record;
(b) types, quantities and source of waste received;
(c) quantities of waste stored at the Depot;
(d) quantities and destination of waste shipped from the Depot;
(e) quantities of paints returned or sold to the general public;
(f) results of routine, visual inspection of the Depot; and
(g) any reporting of spills or upsets and actions taken to contain and manage the waste.

(9) Sufficient numbers of drums and lab-packed containers shall be available at the Depot such that all HHW, in quantities unanticipated or otherwise, can be safely stored.

(10) The Owner shall conduct routine, visual inspection of the entire Depot area to ensure its security and to minimize off-site impacts such as odour, dust, litter and other nuisance factors.

(11) Emergency response in the event of a spill or upset shall be undertaken in accordance with the "Spill Contingency and Emergency Response Plan" prepared by the City of Kawartha Lakes, as contained in Item 5 of Schedule "A".

(12) A copy of the "Spill Contingency and Emergency Response Plan" shall be kept at the Depot at all times and made easily available to all staff.

(13) The Owner shall ensure that all contingency equipment and materials as outlined in Item 5 of Schedule "A" are immediately available at the Depot at all times, in a good state of repair and fully operational.

(14) All operators of the Depot shall be trained with respect to the following areas:
- (a) terms, conditions and operating requirements of this Approval as related to the operation of the Depot;
- (b) operation and management of the Depot;
- (c) responsibilities of Depot personnel;
- (d) personnel training protocols;
- (e) environmental concerns pertaining to wastes to be handled, mixed, transferred;
- (f) receiving and recording procedures including procedures to record wastes which are refused at the Depot;
- (g) waste paint identification, analysis information and separating procedures;
- (h) storage, handling, sorting and shipping procedures;
- (i) occupational health and safety concerns pertaining to the wastes;
- (j) relevant waste management legislation and regulations;
- (k) use, operation of contingency equipment and related materials; and
- (l) emergency procedures.

(15) Within four (4) months of the scheduled closure of the Depot, the Owner shall submit a detailed Closure Plan for approval by the Director. The Closure Plan shall include, as a minimum, description of the work required to close the Depot, schedule of works and decommissioning of the HHW area.

12. REUSE CENTRE

(1) The Owner may operate a "Reuse Centre" located adjacent to the HHW Depot for the handling, temporary storage of reusable items.

(2) The Owner shall ensure that the "Reuse Centre" is only open during regular Site hours and that the facility is securely locked during other times.

(3) Any solid, non-hazardous residual wastes arising from the operation of the Reuse Centre shall be disposed of at the Site as part of regular and normal operations.

13. WASTE DIVERSION

(1) The Owner shall ensure that:
- (a) all bins and waste storage areas are clearly labelled;
- (b) all lids or doors on bins shall be kept closed during non-operating hours and during high wind events; and
- (c) if necessary to prevent litter, waste storage areas shall be covered during high winds events.

(2) The Owner shall transfer waste and recyclable materials from the Site as follows:

(a) recyclable materials shall be transferred off-site once their storage bins are full;

(b) scrap metal shall be transferred off-site at least twice a year;

(c) tires shall be transferred off-site as soon as a load for the contractor hired by the Owner has accumulated or as soon as the accumulated volume exceeds the storage capacity of its storage container; and

(d) immediately, in the event that waste is creating an odour or vector problem.

(3) Collection, storage and transfer of Waste Electrical and Electronic Equipment shall be in accordance with the documents in the Schedule "A".

SCHEDULE "A"

1. Hydrogeology Study, Phase 3, Fenelon Landfill, Fenelon TP, Victoria County, prepared by Middle Earth Hydrogeology Inc., dated 31 March 2000.
2. Fenelon Landfill Site-Design and Operations Report, prepared by Gartner Lee Limited, dated March 2000.
3. Fenelon Landfill, Natural Environment Assessment, prepared by D.G. Cunningham & Associates and Michael Michalski Associates, dated April 2000.
4. Design and Operations Report For the Establishment of Permanent Household Hazardous Waste (HHW) Depot at the Fenelon Landfill Site, prepared by the County of Victoria, dated November 2000.
5. City of Kawartha Lakes, Household Hazardous Waste Depot, Spill Contingency and Emergency Response Plan, prepared by the City of Kawartha Lakes, undated.
6. Landfill Safety and Emergency Response Procedures, prepared by the City of Kawartha Lakes, dated February 2002.
7. Letter dated February 22, 2001 from the City to MOE regarding responses to questions posed in letter from MOE to the City dated January 23, 2001, complete with Figures 1, 2 and 3, and Attachments A to F inclusive.
8. The application dated May 15, 1996, and the supporting information as provided in the document entitled "The Use of Paper Fibre Product as Daily, Interim and Final Cover at Municipal Solid Waste Landfill Sites" prepared by Transportation and Public Works Department dated February 1996.
9. The letter dated May 15, 1996 to Mr. Wilfrid Ng, MOE, from P. Jeffrey Seaton, County Engineer, The Corporation of the County of Victoria outlining the operational considerations for the use of "paper fibre product" as daily and interim cover.
10. Letter dated August 22, 2005 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, to Chris Johnston, MOE, with information regarding the continued operations plan.
11. Letter dated September 19, 2007 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, with further information on vehicle counts and dealing with leachate seeps.
12. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated January 16, 2009 and signed by Andrew Boyd, Supervisor, Solid Waste Services including the City of Kawartha Lakes Household Hazardous Waste Depot Operations Manual dated January 2009.
13. E-mail dated August 21, 2009 (4:08 PM) from Heather Van Bruinessen, Regulatory Compliance Officer to B. Wilkinson, MOE re: storage of batteries (on shelving unit with roof) & oil bins (double-lined walls).
14. Application for a Provisional Certificate of Approval for a Waste Disposal Site, signed by Bill Packard, Manager of Solid Waste Services, dated February 1, 2008.
15. Design and Operations Report, Compost Facility at Fenelon Landfill, City of Kawartha Lakes, prepared by Totten Sims Hubicki Associates, dated December 2007.
16. Letter from R. Perdue, City of Kawartha Lakes, to MOE Environmental Assessment and Approvals Branch, dated July 17, 2008 re: additional information on the source separated organics compost pilot project.

17. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application for the contaminant attenuation zone and a revision to the record retention condition.
18. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application requesting the increasing of storage times for the composting operation.
19. Letter report dated November 12, 2012 from Amy Burke, Golder Associates to Ranjani Munasinghe, Ministry of the Environment in response to Ministry's letter dated September 12, 2012.
20. Report titled "Annual Status Report (2011) - Fenelon Waste Disposal Site" dated July, 2012 prepared by Golder Associates.
21. Application for an Environmental Compliance Approval, signed by David Kerr, dated 2013/10/15
22. Updated Design and Operation Report, Fenelon Landfill Site (rev. B)., by Golder Associates, dated November, 2015

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

1. The reason for Conditions 1(1), (2), (4), (5), (6), (7), (8), (9), (10), (18), (19) and (20) is to clarify the legal rights and responsibilities of the Owner and Operator under this Approval.

2. The reasons for Condition 1(3) are to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

3. The reasons for Condition 1(11) are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

4. The reasons for Condition 1(12) are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.

5. The reason for Condition 1(13) is to ensure that the successor is aware of its legal responsibilities.

6. Conditions 1 (14), (15) and (16) are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.

7. The reason for Condition 1(17) is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Act, the OWRA, the PA, the NMA and the SDWA.

8. Condition 1 (21) has been included in order to clarify what information may be subject to the Freedom of Information Act.

SITE OPERATION

9. The reasons for Conditions 2(1), 2(5) and 6(3) are to ensure that the Site is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

10. The reason for Conditions 2 (2), 2(3) and 2(4) is to ensure that users of the Site are fully aware of

important information and restrictions related to Site operations and access under this Approval.

11. The reasons for Condition 2(6) (a) and (b) are open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance effects, and the potential fire hazard and to make sure burning of brush and wood are carried out in accordance with Ministry guidelines.

12. The reasons for Condition 2(7), 2(8) and 2(9) are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.

13. The reasons for Condition 2(10) and 2(11) are to ensure that the Site is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.

14. The reason for Conditions 2(12) to 2(16) inclusive is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and protection of the natural environment.

EMPLOYEE TRAINING

15. The reason for Condition 3(1) is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

COMPLAINTS RESPONSE PROCEDURE

16. The reason for Condition 4(1) is to ensure that any complaints regarding landfill operations at this Site are responded to in a timely and efficient manner.

EMERGENCY RESPONSE

17. Conditions 5(1) and 5(2) are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.

18. Conditions 5(3) and 5(4) are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

RECORD KEEPING AND REPORTING

19. The reason for Conditions 6(1) and 6(2) is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.

20. The reason for Condition 6(4) is to ensure that detailed records of Site inspections are recorded and maintained for inspection and information purposes.

21. The reasons for Conditions 6(5) and 6(6) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

LANDFILL DESIGN AND DEVELOPMENT

22. The reason for Conditions 7(1) to 7(3) and 7(10) is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

23. The reason for Conditions 7(4) to 7(6) is to approve landfilling in Phase 2, and to ensure measures are in place to protect the adjacent wetland.

24. The reason for Conditions 7(7) to 7(9) is to clarify the approved capacity for the Site, and ensure landfilling takes place within the approved fill area.

25. Condition 7(13) is to provide the Owner the process for getting the approval for alternative daily and intermediate cover material.

26. The reasons for Condition 7(11) are to ensure that daily and intermediate cover are used to control potential nuisance effects, to facilitate vehicle access on the Site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.

27. The reason for conditions 7 (14) to 7(19) is to state the alternative cover materials approved for this Site.

28. The reason for Condition 7(20) is to ensure minimum waste compaction is achieved as per industry standards.

LANDFILL MONITORING

29. Reasons for Condition 8(1) are to ensure that off-site migration of landfill gas is monitored and all buildings at the Site are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the Site.

30. Condition 8(2) is included to provide the groundwater and surface water limits to prevent water

pollution at the Site.

31. Conditions 8(3) and 8(4) are included to require the Owner to demonstrate that the Site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

32. Conditions 8(5), 8(6), 8(7) and 8(8) are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

33. Conditions 8(8) to 8(10) inclusive are added to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the Site's compliance point.

34. Condition 8(9) is included to streamline the approval of the changes to the monitoring plan.

CLOSURE PLAN

35. The reasons for Condition 9 are to ensure that final closure of the Site is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

COMPOSTING

36. Condition 10(1), 10(2) and 10(3) have been included to ensure that the leaf and yard waste compost facility is built, maintained and operated in accordance with the application and supporting documentation and not in a manner in which the Director has not been asked to consider.

37. An additional reason for condition 10 (3) is to ensure the Owner use the compost in a manner that doesn't result in a negative environmental or health and safety impact to the environment or the public, and to allow for processing on a trial basis.

38. Condition 10 (4) is included to ensure that the Owner can demonstrate that the leaf and yard waste compost facility is operating according to this Approval.

39. The reasons for Condition 11 are to approve the establishment and operation of a household hazardous waste collection depot and to ensure that the wastes are managed in a manner that protects the environment and the health and safety of the public.

40. The reason for Condition 12 is to ensure Reuse centre is built, maintained and operated in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

WASTE DIVERSION

41. Condition 13 is included to ensure that the recyclable materials are stored in their temporary storage locations in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A321206 issued on December 14, 2012

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 20th day of January, 2016

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

LM/
c: District Manager, MOECC Peterborough
Frank Barone, Golder Associates Ltd.

APPENDIX

E

LAXTON LANDFILL EXPANSION FEASIBILITY STUDY

THE CITY OF KAWARTHA LAKES

LAXTON LANDFILL
LANDFILL EXPANSION FEASIBILITY STUDY

NOVEMBER 15, 2021

FINAL REPORT

LAXTON LANDFILL

LANDFILL EXPANSION FEASIBILITY STUDY

CITY OF KAWARTHA LAKES

FINAL REPORT

PROJECT NO.: 171-10835-04
DATE: NOVEMBER 15, 2021

WSP
SUITE 300
4 HUGHSON STREET SOUTH
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F: +1 905 521-2699
WSP.COM

November 15, 2021

Tauhid Khan, CET, EIT, M.Sc.
Asset Management Coordinator
Department of Engineering & Corporate Assets
City of Kawartha Lakes
322 Kent St. West, Lindsay, ON, K9V 4T7

Dear Mr. Khan:

Subject: Laxton Landfill Expansion Feasibility Study

Please find attached the Landfill Expansion Feasibility Study for the Laxton Landfill (Site) currently governed by Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) No. A321304.

The potential Site expansion contemplates two alternatives to allow increasing the landfill capacity by less than 40,000 m^3.

Should you require further information concerning this report, please contact the undersigned at 647-261-6062, or by email to Cristina.Olarte@wsp.com.

Yours sincerely,

Cristina Olarte, P.Eng., EP
Waste Management Engineer

Encl.

WSP ref.: 171-10835-04

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SIGNATURES

PREPARED BY

November 15, 2021

Cristina Olarte, P. Eng., EP
Waste Management Engineer

Date

APPROVED BY

November 15, 2021

Paul Mulholland, P. Eng., PMP
Team Lead, Landfill Engineering

Date

WSP Canada Inc. ("WSP") prepared this report solely for the use of the intended recipient, CITY OF KAWARTHA LAKES, in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

WSP disclaims any obligation to update this report if, after the date of this report, any conditions appear to differ significantly from those presented in this report; however, WSP reserves the right to amend or supplement this report based on additional information, documentation or evidence.

WSP makes no other representations whatsoever concerning the legal significance of its findings.

The intended recipient is solely responsible for the disclosure of any information contained in this report. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report.

WSP has provided services to the intended recipient in accordance with the professional services agreement between the parties and in a manner consistent with that degree of care, skill and diligence normally provided by members of the same profession performing the same or comparable services in respect of projects of a similar nature in similar circumstances. It is understood and agreed by WSP and the recipient of this report that WSP provides no warranty, express or implied, of any kind. Without limiting the generality of the foregoing, it is agreed and understood by WSP and the recipient of this report that WSP makes no representation or warranty whatsoever as to the sufficiency of its scope of work for the purpose sought by the recipient of this report.

In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

This limitations statement is considered an integral part of this report.

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TABLES

FIGURES

APPENDICES

1 INTRODUCTION

WSP Canada Inc. (WSP) has prepared this Landfill Expansion Feasibility Study for the Laxton Landfill (Site) located at 3225 Monck Road, Township of Laxton, Ontario as shown on **Figure 1**. The Site is owned and operated by the City of Kawartha Lakes (City) under Environmental Compliance Approval (ECA) No. A321304. A copy of the ECA is included in **Appendix A**.

In accordance with Condition 23 of ECA No. A321304, the maximum landfill capacity including waste, daily and intermediate cover is 125,000 m^3. As of December 2020, the remaining airspace for waste, daily and intermediate cover was estimated to be 12,834 m^3 (Azimuth, June 2021). Considering the waste disposal rate ranges from 3,000 to 5,000 m^3/year, the remaining capacity is expected to be reached within 2.5 to 4 years.

The purpose of this feasibility study is to assess alternatives to allow increasing the remaining capacity of the landfill by less than 40,000 m^3.

1.1 SITE DESCRIPTION

The Site is licensed for the use and operation of 2.5 hectares of the 29 hectares Site for waste disposal/recycling/reuse/composting. The Site can accept municipal waste, non-hazardous solid industrial waste, commercial waste, leaf and yard waste, Household Hazardous Waste (HHW), Waste Electrical and Electronic Equipment (WEEE) and scrap tires. The Site is surrounded by woodlots, a wetland north of the waste mound, a gravel pit along the western limit of the Site and the Ontario Hydro easement along the southwest and northeast boundaries, as shown on **Figure 2**. The Site relies on natural attenuation for leachate and landfill gas management.

The Site has been active since 1973, receiving domestic, commercial and industrial wastes from the Township of Laxton. The City took responsibility for the Site operations in 2001. The landfill does not have an engineered liner or leachate or gas collection system. Contaminants emanating from the Site are naturally attenuated in the native soils. The Site is located within a sand and gravel formation and is surrounded by low lying peat and wetland areas.

2 REGIONAL TOPOGRAPHY, GEOLOGY AND HYDROGEOLOGY

According to Chapman and Putnam (1984), the Laxton Landfill Site is located within the physiographic region named the "Carden Plain". The Carden Plan is located between the Kawartha Lakes and Lake Couchiching and is comprised on a limestone plain with very little overburden deposits.

Based on the Annual Monitoring Report, prepared by Azimuth Environmental Consulting Inc, the Site is located along an ice contact sand and gravel formation that extends along a southwest – northeast axis that is surrounded by low lying wetland areas. The soils underlying the Site are stated to be granular, varying from coarse sands and gravel to silty fine sands that extend to a bedrock contact. At the Site, the bedrock contact was observed to be approximately 17 to 23 m below ground surface (mbgs) at MW10 & MW19, respectively. Peat deposits are also present away from the landfill into the wetland areas surrounding the landfill with depths to around 2 m. Since the water table at the Site is relatively shallow, most of the monitoring locations are also shallow.

Regional mapping suggests the esker orientation is northeast to southwest through the Site, which accounts for the sand and gravel pits located immediately northeast and southwest of the Site. Peat bog surrounds the landfill Site. A peat thickness of up to 2 m was reported during the drilling of MW12, MW13, MW14, MW16, MW17 and MW18. Peat forms in wetland conditions, where a near permanent inundation of shallow surface water is present, obstructing oxygen flow from the atmosphere. This lack of oxygen slows the rate of decomposition (i.e., anaerobic conditions) and creates a naturally geochemically reduced condition.

Ground water flows principally through both the underlying sand and gravel unit from the esker as well as the more regional silty fine sand aquifer, which due to their high permeability forms the pathway of least resistance. As the Site is operated as a natural attenuation facility, the waste is deposited on top of the native overburden materials. As such, there is an expected hydraulic connection between the waste mound and underlying aquifer system. Compacted waste forms a less conductive layer limiting water percolation through the fill. Placement of daily/interim/final cover reduce the infiltration rate through the waste, minimizing the leachate generation rate.

Site ground water elevations have been monitored from 2002 to present. The water elevation data suggest that the ground water table shows minimal seasonal variation (i.e., <1.5 m) in the ice contact deposit monitors, while the surrounding monitoring locations show almost no variation (i.e., <0.5 m). The hydraulic gradient is also consistent with a differential lateral hydraulic head of less than 1 m over the entire Site.

Given the relative elevation of the landfill compared to the surrounding low lying wetland areas, it is interpreted that groundwater originating from the landfill would migrate in a radial direction from the waste area into the silty-fine sand aquifer. The regional groundwater flow is assumed to flow in an easterly to northeasterly direction based on the measured groundwater elevations and geological setting.

As the overburden material is known to be granular, there is likely a hydraulic connection between the surface water levels and the underlying groundwater conditions, such that the north flooding of the waste mound has the ability to slightly skew the local hydraulic gradients.

2.1 GROUNDWATER QUALITY

Groundwater is assessed by evaluating analytical results from groundwater monitoring samples collected semi-annually (spring and fall) against the MECP Ontario Drinking Water Quality Standards (ODWQS). The ODWQS assess the quality of collected water relative to public health-based and non-health objectives for drinking water quality.

The Site water quality is monitored at 17 locations which are as follows:

Table 2-1 Monitoring Wells

BACKGROUND WELLS (OUTSIDE LANDFILL)	LEACHATE WELL (WITHIN THE WASTE)	DOWNGRADIENT WELLS (OUTSIDE THE WASTE)	
MW14	MW4	MW1	MW12
		MW2	MW13
		MW3	MW16-I
		MW6	MW16
		MW7	MW17
		MW8	MW18
		MW10	MW19

2.1.1 BACKGROUND WATER QUALITY

The background water quality has historically been monitored at MW8 until it became influenced by leachate. A new background location (MW14) was established in 2015. MW14 is outside of the landfill radial disperse flow path

The organic nitrogen (i.e., TKN minus Ammonia) and phosphorous concentrations, indicative of decaying vegetation, appear to reflect the peat environment present at this Site. Hardness and iron parameters routinely exceeding the Ontario Drinking Water Quality Standards (ODWQS, 2006). However, these parameters are known to be naturally sourced and are commonly found within the ground water within the Canadian Shield and peat environment.

2.1.2 LEACHATE QUALITY

Leachate quality is sampled from MW4, which is screened within the waste. The leachate strength is relatively low despite it being an active Site. This is likely because the landfill has a relatively small footprint and receives small amounts of waste annually. Precipitation infiltrating the waste may also be diluting leachate strength. The leachate indicator parameters (LIPs) used historically are the following:

- Alkalinity
- Chloride
- Iron
- Chemical Oxygen Demand (COD)
- Total Dissolved Solids (TDS)
- Ammonia
- Calcium
- Boron
- Dissolve Organic Carbon (DOC)
- Manganese
- Potassium
- Total Kjeldahl Nitrogen (TKN)
- Sodium
- Sulphate

The leachate quality is expected to remain relatively consistent throughout the operational lifespan of the Site and will likely decline over time. This assumes the waste stream will not change significantly and waste disposal rates remain consistent.

2.1.3 DOWNGRADIENT WATER QUALITY

The downgradient water quality is monitored at the 14 wells listed on **Table 2-1.** These monitoring wells target three aquifer units including 11 shallow wells within the silty sand, two deep sand and gravel, and one well screened within the underlying bedrock.

The Site is located in an area which can be characterized as marshy / boggy lands with slow ground water movement. The slow ground water movement and organic-rich peat materials create a naturally geochemically reduced environment, with an elevated dissolved organic signature sometimes associated with high nitrogen levels. As can be observed by monitoring data, downgradient leachate influence is negligible at most locations, with the exception of MW3, MW6 & MW7 which have the most elevated leachate indicator concentrations (i.e. ammonia, potassium & boron). It is noted that these locations are in proximity to the toe of the waste and as such, this influence is expected.

The dilute leachate influence observed at the perimeter monitoring wells is likely the result of radial ground water dispersion from the ice contact formation / waste mound, with radial dispersion likely minimal given the limited horizontal gradients observed at the Site and the attenuative capacity of the natural peat layer.

As there appears to be a slight but measurable leachate influence in the downgradient wells, it was important to look at any potential leachate parameter concentrations trending over time to determine how the leachate plume originating from the Site has evolved and will continue to evolve over time. This trending will help to determine an appropriate monitoring program for the Site.

2.2 SURFACE WATER QUALITY

Monitoring locations SWA, SWC22, SWD, SWF, and SWG represent locations along the surface water tributary north of the waste mound with SWA representing background surface water quality.

Surface water quality over time has been relatively variable; however, no clear seasonal trending has been noted, except during drier years, when more elevated parameter concentrations are observed. This variability is attributed in part to the presence of sediment in the samples due to the stagnant nature of the surrounding wetland area.

The elevated DOC, found at all monitoring locations, is likely attributed to the peat rich environment opposed to leachate influence. The elevated iron and manganese concentrations, which are most notable at SWF and SWG suggest sediment entrainment during sample collection as these locations do not show the more dominant leachate indicator parameter (ammonia, boron & chloride) concentrations much above those observed at SWA.

PWQO was exceeded at the downstream locations for several parameters including iron, total phosphorus and chromium; however, chromium was not exceeded at the upstream location (SWA). The overall surface water quality does not reflect an obvious leachate influence from landfill operations.

2.3 LANDFILL GAS

Landfill gas monitoring is comprised of methane gas measurements at two dedicated gas monitoring wells (GP-1 & GP-2), located south of the active waste area. Measurements have been completed since 2015 and there have been no methane detections over the years.

Due to the shallow depth to the groundwater table, surrounding wetland and the distance between the waste fill area and the nearest residences, the potential for lateral landfill gas migration is unlikely.

3 EXISTING SITE CONDITIONS

The Site is accessible by the public at the main entrance gate. Information signage exists which states the hours of operation, permitted users, tipping fees and types of waste accepted at the Site. The facility is approved to accept solid non-hazardous wastes from the City of Kawartha Lakes, although most of the waste originates from residents within the local area.

The Site is open to the public based on the following schedule:

Winter hours: Thursdays from 11:00 a.m. to 5:00 p.m. and Sundays from 12:00 p.m. to 4:00 p.m.

Summer hours: Thursdays from 11:00 a.m. to 5:00 p.m. and Sundays from 11:00 a.m. to 5:00 p.m. Holiday Mondays from 11:00 a.m. to 5:00 p.m.

The Site has a site attendant shed equipped with propane heater, fire extinguisher, eye wash station and first aid kit. There is a weigh scale along the main access road entrance to weigh vehicles in and out. There is a drop off area west of the landfill for the disposal of leaf and yard waste, tires, scrap metal, containers and electronics.

3.1 LANDFILL AND REMAINING CAPACITY

The Site is approved to landfill solid non-hazardous waste as defined in Ontario Regulation (O. Reg.) 347. Waste is brought to the Site by curbside collection vehicles, residents, and private industrial/commercial haulers. Prior to landfilling, incoming waste is inspected by an attendant as required by the ECA. Waste is currently being disposed of in the active area shown in **Figure 2**. The approved top of waste contours are shown on **Figure 3**.

Unfinished compost consisting of leaf and yard cuttings only is mixed with sand or sandy soil and used for daily/interim cover.

In accordance to ECA No. A321304, Condition 23, the landfill maximum capacity including waste, daily and intermediate cover is 125,000 m^3. As of December 2020, the remaining airspace for waste, daily and intermediate cover was estimated to be 12,834 m^3 (Azimuth, June 2021). Considering the waste disposal rate ranges between 3,000 to 5,000 m^3/year, the remaining capacity is estimated to be reached within 2.5 to 4 years.

3.2 DIVERTED MATERIALS

Diverted materials received on Site include paper, containers, leaf and yard waste, scrap metal, electronics and tires. Based on previous years, it is estimated that about 20% of received material is diverted from the landfill.

According to the ECA, no more than 5,000 tires can be stored at the Site at any time. Scrap tires can be stockpiled without exceeding a volume of 300 m^3 and should be kept at least 15 m away from the property boundary, building and active landfill area. Around each pile, a firebreak of at least 4.5 m needs to be established free of vegetation.

4 PROPOSED LANDFILL EXPANSION ALTERNATIVES

The approved landfill area is 2.5 ha and currently the active area is about 1.1 ha. The approved top of waste contours as shown on **Figure 3**, are based on 4H:1V side slope and 5% slope at the top of the landfill. The maximum approved elevation of the landfill is 280 metres above sea level (excluding final cover).

The final cover is comprised of a minimum 600 mm thick layer of medium permeability soil and a 150 mm thick vegetative cover layer. Interim cover is applied in areas that will remain inactive for six or more months and consist of 300 mm of soil cover or alternative cover. Daily cover is required to be applied on a weekly basis in the landfill active area with a 150 mm minimum thickness.

The potential for expanding the landfill horizontally is limited due to the presence of the adjacent wetland, marsh area and hydro corridor. Therefore, two vertical expansion options have been contemplated within the approved landfill boundary.

4.1 LANDFILL EXPANSION OPTIONS

The following two options are contemplated to gain less than 40,000 m^3 of additional airspace by increasing the height of the approved 2.5 ha landfill footprint.

The vertical expansion options are limited to the approved landfill footprint due to the wetland and hydro easement proximity. Leachate is expected to continue to be managed through natural attenuation. Leachate generation rates will depend on climate conditions and infiltration rates through the landfill areas.

The surface water management system will remain the same for both options.

4.1.1 OPTION 1: VERTICAL EXPANSION WITH 4H:1V SIDE SLOPES

Option 1 contemplates increasing the height of the landfill from a current approved top of waste elevation of 280 masl to a peak top of waste elevation of 282.5 masl. This would be done by extending the 4H:1V side slopes by about 4.5 m and then transitioning to a 5% slope to a peak elevation of 282.5 masl (excluding final cover).

The additional capacity gained with this option is estimated to be around 15,500 m^3. Considering an average fill rate of 4,000 m^3/year, the additional capacity can extend the site life by about four years.

This option will require removal of the interim/final cover over approximately 1.4 ha, stripping and separately stockpiling the topsoil and soil cover for future use. Temporarily exposed waste should be covered by applying 150 mm of clean soil or approved alternative daily cover over stripped areas to minimize odours and windblown litter. It should be noted that the capacity gained by Option 1 is limited by the long narrow geometry of the approved fill area.

Figure 4 shows the Option 1 proposed final contours and cross section.

4.1.2 OPTION 2: VERTICAL EXPANSION WITH 3H:1V SIDE SLOPES

Option 2 contemplates steepening the final side slopes from the existing top of waste by transition from a 4H:1V to 3H:1V side slopes by about 5.2 m. From there the grade will transition to 5% to the landfill peak elevation 283.5

masl (excluding final cover). This will be an increase in top of waste and daily/interim cover height of 3.5 m compared to the approved top of waste contours.

The additional capacity gained with this option is estimated to be around 21,500 m^3. Considering an average fill rate of 4,000 m^3/year, the additional capacity can extend the site life by about 5 years.

Option 2 will require removal of the interim cover placed in the majority of Phase 2. Exposed waste should be temporarily covered by applying 150 mm of daily cover or approved alternative daily cover to minimize odours and windblown litter.

Figure 5 shows the Option 2 proposed final contours and cross section.

5 PRELIMINARY COST ESTIMATES

Since both options will involved the same landfill area the costs will be the same. A Class C engineering cost estimate is presented below and is based on similar construction projects. The fees are based on 2021 Canadian Dollars.

Table 5-1 Preliminary Cost Estimate

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
Operational Costs				
ECA Amendment Supporting Documentation	1	L.S.		$12,000
MECP Application Fee	1	L.S.		$22,700
			Total Operational Costs	**34,700**
Capital Costs				
Topsoil Stripping and Stockpile on Site (150mm thickness)	2,100	m^3	$10	$21,000
Soil Removal and Stockpile on Site (600mm thickness)	8,400	m^3	$8	$67,200
Waste Grading and Compaction	25,000	m^2	$5	$125,000
Contingency Allowance (10%)	1	L.S		$21,320
Engineering Allowance (15%)	1	L.S		$31,980
			Total Capital Costs	**$266,500**

The overall operational and capital cost regardless of the option selected is estimated to be **$301,200**.

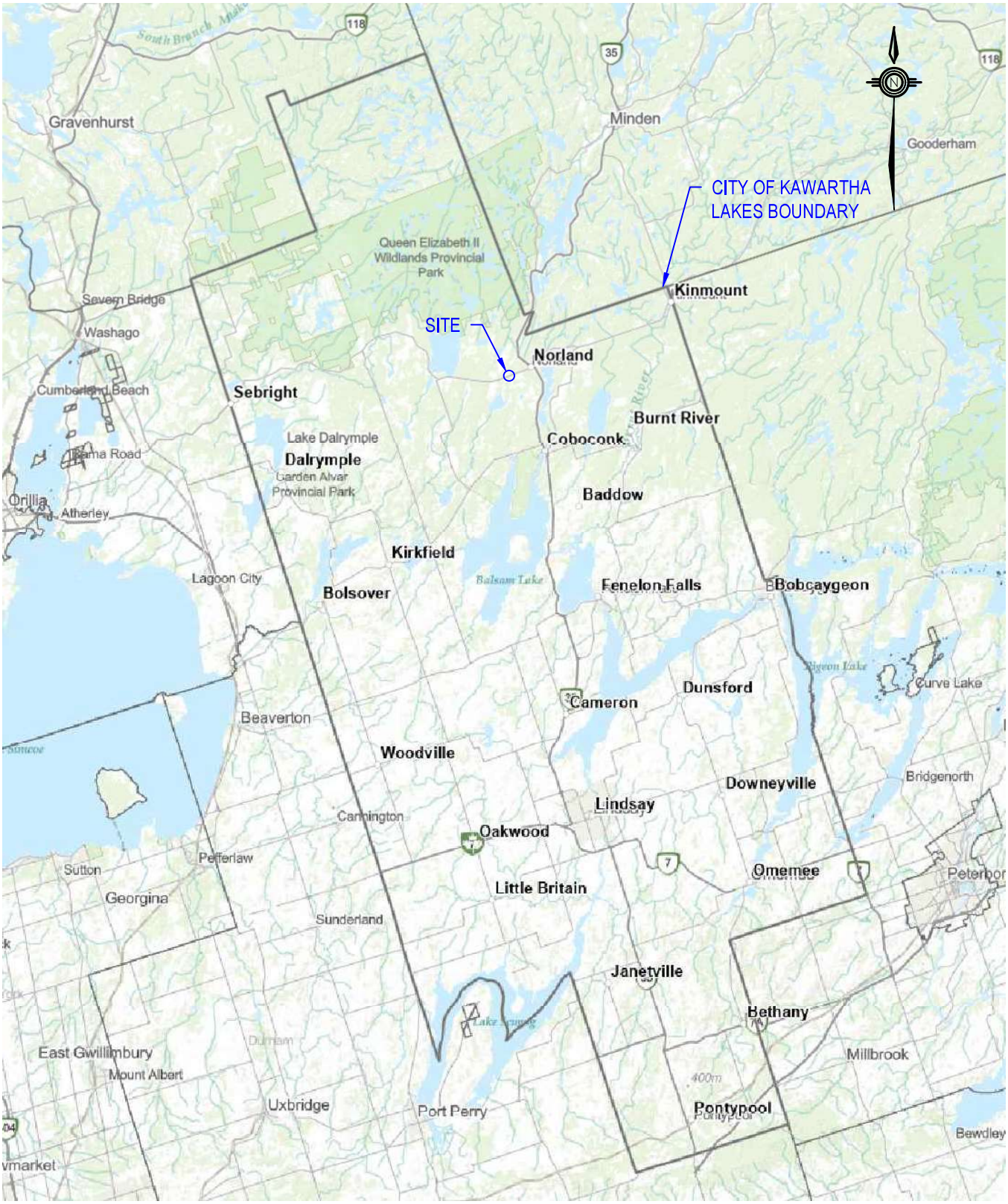
6 CLOSURE

This landfill expansion feasibility study was prepared for the exclusive use of the City of Kawartha Lakes for the Fenelon Landfill Site. This report was prepared in accordance with the scope of work, terms and conditions outlined in WSP's proposal No. P21-11028-34 dated June 22, 2021 and with generally accepted practices.

7 BIBLIOGRAPHY

- 2020 Annual Monitoring Report, Laxton Waste Disposal Site, Azimuth Environmental Consulting Inc., dated June 2021.
- 2019 Annual Monitoring Report, Laxton Waste Disposal Site, Azimuth Environmental Consulting Inc., dated June 2020.
- Design and Operations Plan, Laxton Waste Disposal Site, Cambium Environmental Inc., dated April 25, 2012.
- Landfill Site Life Investigation (Remaining Capacity), Laxton Landfill, Golder Associates, dated January 2017.
- Ontario Landfill Standards: A Guideline on the Regulatory and Approval Requirement for New or Expanding Landfilling Sites, dated January 2012.
- Ontario Regulation 232/98 Landfilling Sites.

FIGURES



SOURCE: © 2020 CITY OF KAWARTHA LAKES

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PROJECT: LAXTON LANDFILL SITE FEASIBILITY STUDY

TITLE: SITE LOCATION PLAN

SCALE: NTS

DATE: 2021.08.17

PROJECT NO: 171-10835-04

DRAWING NO: FIG 1

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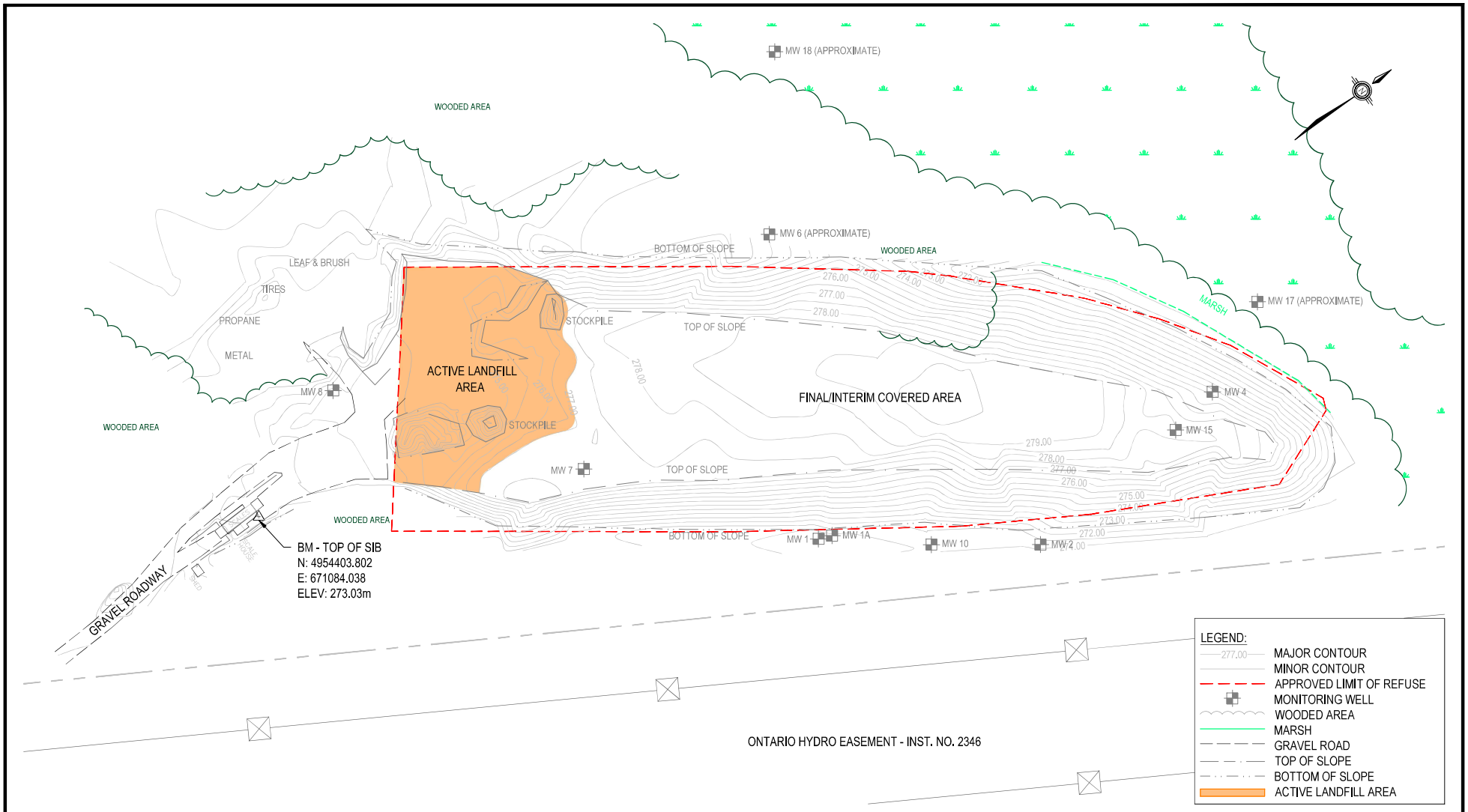

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CLIENT: KAWARTHA LAKES

PROJECT: LAXTON LANDFILL SITE FEASIBILITY STUDY

TITLE: EXISTING SITE CONDITIONS AS OF JUNE 2021

SCALE: 1:1,250

DATE: 2021.08.17

PROJECT NO: 171-10835-04

DRAWING NO: FIG 2

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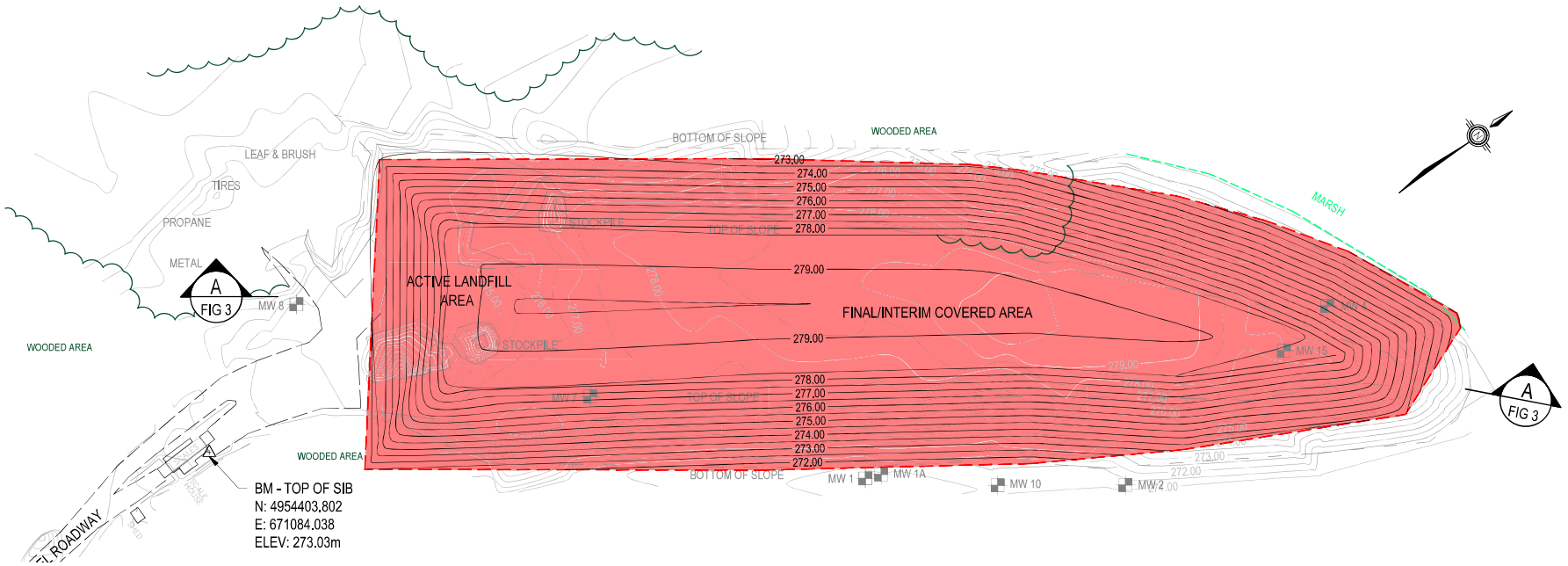

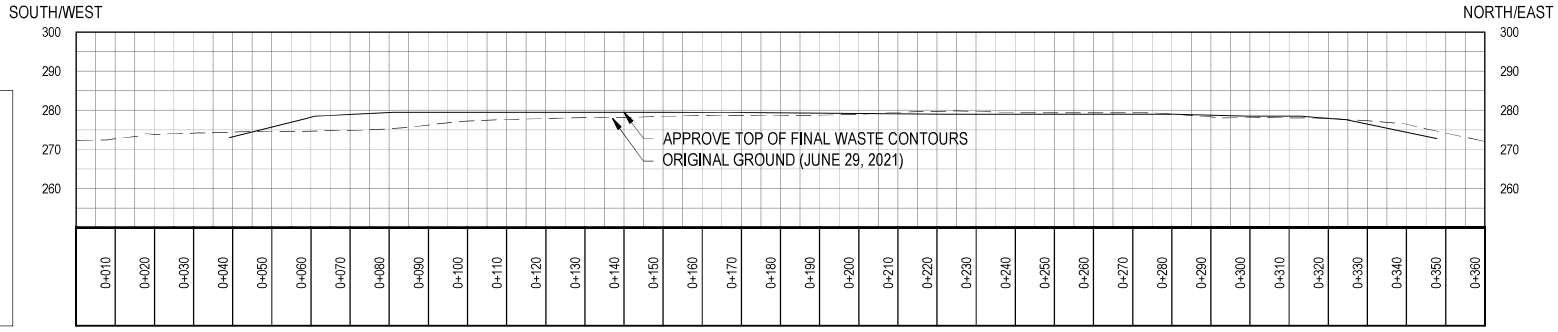

LEGEND:

- 277.00 MAJOR CONTOUR
- MINOR CONTOUR
- APPROVED LIMIT OF REFUSE
- MONITORING WELL
- WOODED AREA
- MARSH
- GRAVEL ROAD
- TOP OF SLOPE
- BOTTOM OF SLOPE

A FIG 3 ELEVATION

SCALE: 1:1250

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CLIENT: KAWARTHA LAKES

PROJECT: LAXTON LANDFILL SITE FEASIBILITY STUDY

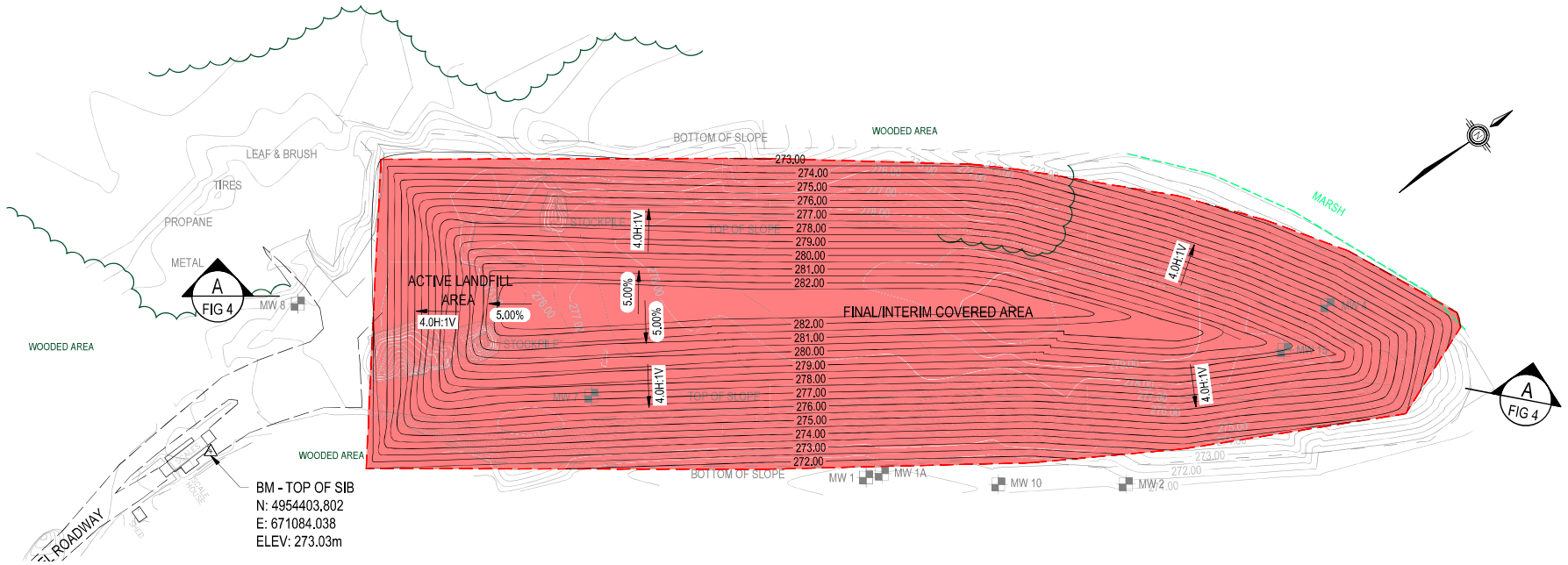
TITLE: TOP OF FINAL WASTE CONTOURS (GOLDER 2017)

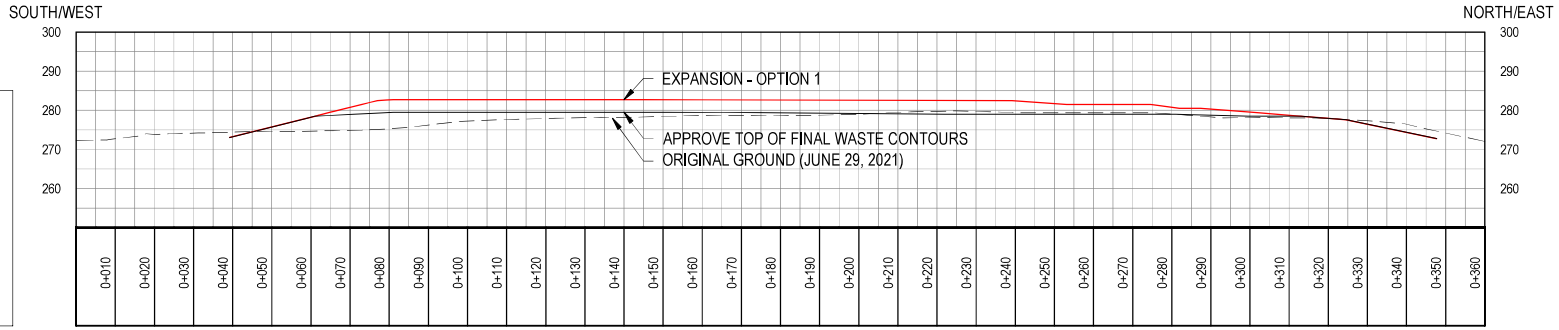
SCALE: 1:1,250

DATE: 2021.08.17

PROJECT NO: 171-10835-04

DRAWING NO: FIG 3





LEGEND:
- 277.00 MAJOR CONTOUR
- MINOR CONTOUR
- APPROVED LIMIT OF REFUSE
- MONITORING WELL
- WOODED AREA
- MARSH
- GRAVEL ROAD
- TOP OF SLOPE
- BOTTOM OF SLOPE

A FIG 4 **ELEVATION**
SCALE: 1:1250

wsp
4 HUGHSON STREET SOUTH, SUITE 300
HAMILTON, ONTARIO
CANADA L8N 3Z1
PHONE: 905-529-4414
WWW.WSP.COM

CLIENT: KAWARTHA LAKES

PROJECT: LAXTON LANDFILL SITE FEASIBILITY STUDY

TITLE: LANDFILL EXPANSION - OPTION 1

SCALE: 1:1,250
DATE: 2021.08.17
PROJECT NO: 171-10835-04
DRAWING NO: FIG 4

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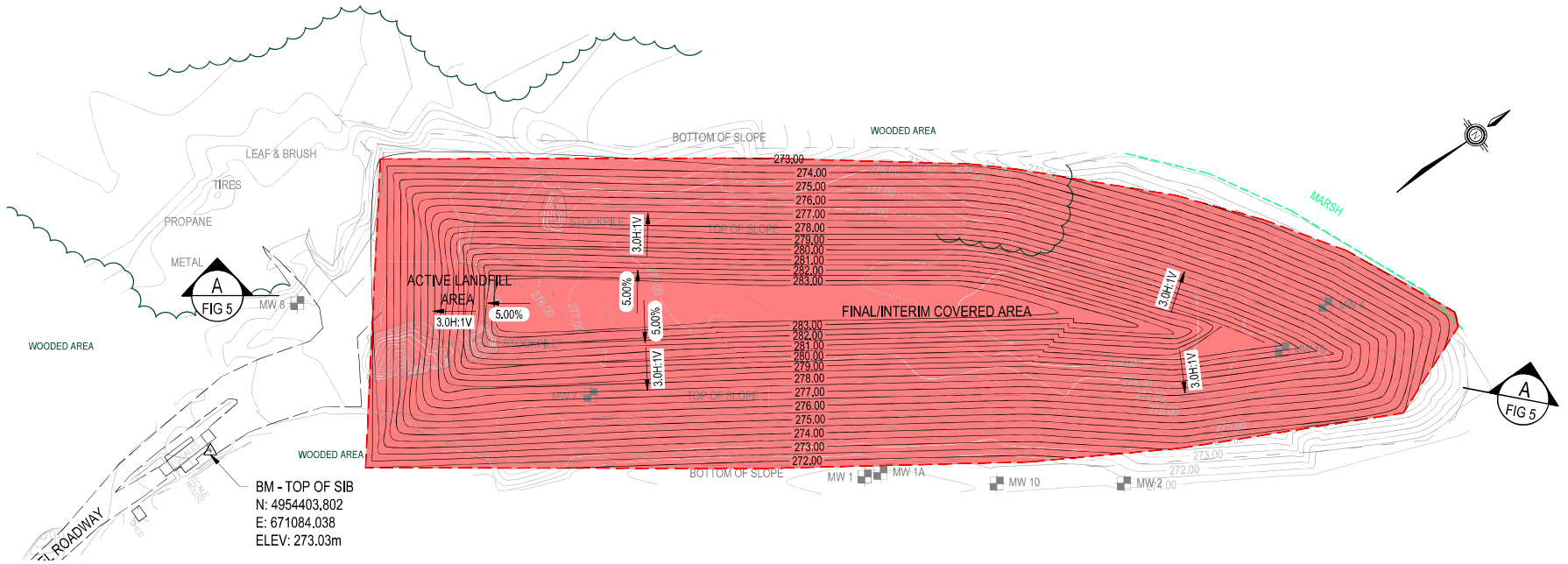

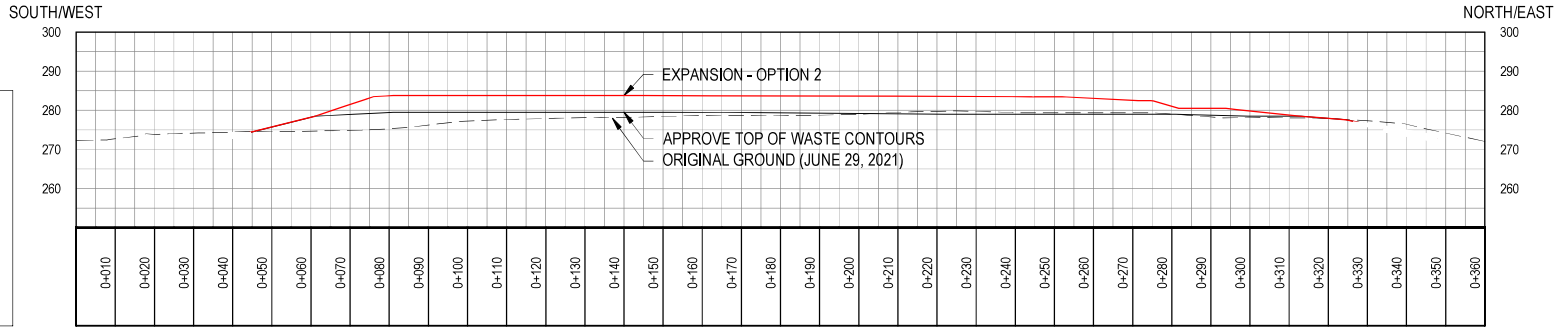

LEGEND:
- 277.00 MAJOR CONTOUR
- MINOR CONTOUR
- APPROVED LIMIT OF REFUSE
- MONITORING WELL
- WOODED AREA
- MARSH
- GRAVEL ROAD
- TOP OF SLOPE
- BOTTOM OF SLOPE

A FIG 5 **ELEVATION**
SCALE: 1:1250

wsp
4 HUGHSON STREET SOUTH, SUITE 300
HAMILTON, ONTARIO
CANADA L8N 3Z1
PHONE: 905-529-4414
WWW.WSP.COM

CLIENT: KAWARTHA LAKES

PROJECT: LAXTON LANDFILL SITE FEASIBILITY STUDY

TITLE: LANDFILL EXPANSION - OPTION 2

SCALE: 1:1,250
DATE: 2021.08.17
PROJECT NO: 171-10835-04
DRAWING NO: FIG 5

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APPENDIX

A

ENVIRONMENTAL COMPLIANCE APPROVAL
No. A321304

Ontario

Ministry of the Environment **Ministère de l Environnement**

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A321304
Notice No. 1
Issue Date: May 3, 2007

The Corporation of the City of Kawartha Lakes
PO Box 9000 Stn Main
Lindsay, Ontario
K9V 5R8

Site Location: Laxton Landfill Site
Lot 6, Concession 9, Laxton
Kawartha Lakes City

You are hereby notified that I have amended Provisional Certificate of Approval No. A321304 issued on February 14, 1980 for the use and operation of a 2.5 *hectare of waste disposal/recycling/reuse/composting site within a total site area of 29 hectares,, as follows:*

Condition 1 in the Certificate of Approval dated February 14, 1980 is hereby revoked.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"*Certificate*" means this entire provisional Certificate of Approval document, issued in accordance with section 39 of the *EPA*, and includes any schedules to it, the application and the supporting documentation listed in schedule "A;
"*Director*" means any *Ministry* employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"*District Manager*" means the District Manager of the local district office of the Ministry in which the *Site* is geographically located;

"District Office" means the Peterborough District Office, Ministry of the Environment;

"*EPA*" means *Environmental Protection Act*, R.S.O. 1990, c. E. 19, as amended;

"*HHW*" means household hazardous waste;

"*Operator"* means any person, other than the *Owner*'s employees, authorized by the *Owner* as having the charge, management or control of any aspect of the site and includes its successors or assigns;

"*Owner*" means any person that is responsible for the establishment or operation of the site being approved by this *Certificate*, and includes The Corporation of the City of Kawartha Lakes, its successors and assigns;

"*PA*" means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amended from time to time;

"*Provincial Officer*" means any person designated in writing by the Minister as a *provincial officer* pursuant to section 5 of the *OWRA* or section 5 of the *EPA* or section 17 of *PA*;

"*Regional Director"* means the Regional Director of the local Regional Office of the Ministry in which the Site is located;

"*Regulation 347*" or "*Reg. 347*" means Regulation 347, R.R.O. 1990, made under the *EPA,* as amended from time to time;

"Re-use Area" means the area of land identified as Reuse in the Plan 3 dated November 2004;

"Site" means the entire waste disposal site, including the buffer lands, contaminant attenuation zone located at Part of East

Half of Lot 6, Concession 9, City of Kawartha Lake, approved by this *Certificate;* and

Trained personnel" means knowledgeable in the following through instruction and/or practice:
a. relevant waste management legislation, regulations and guidelines;
b. major environmental concerns pertaining to the waste to be handled;
c. occupational health and safety concerns pertaining to the processes and wastes to be handled;
d. management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. emergency response procedures;
f. specific written procedures for the control of nuisance conditions;
g. specific written procedures for refusal of unacceptable waste loads; and
h. the requirements of this *Certificate*.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1.0 Compliance

1.1 The *Owner* and *Operator* shall ensure compliance with all the conditions of this *Certificate* and shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

1.2 Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *Certificate*.

2.0 In Accordance

2.1 Except as otherwise provided for in this *Certificate,* the *Site* shall be designed, developed, built, operated and maintained in accordance with the application for this *Certificate,* dated October 17, 1972, and the supporting documentation listed in Schedule "A".

3.0 Interpretation

3.1 Where there is a conflict between a provision of any document, including the application, referred to in this *Certificate,* and the conditions of this *Certificate,* the conditions in this *Certificate* shall take precedence.

3.2 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.

3.3 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

3.4 The conditions of this *Certificate* are severable. If any condition of this *Certificate,* or the application of any condition of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

4.0 Other Legal Obligations

4.1 The issuance of, and compliance with, this *Certificate* does not:
(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
(b) limit in any way the authority of the *Ministry* to require certain steps be taken or to require the *Owner* and *Operator* to furnish any further information related to compliance with this *Certificate;*

5.0 Adverse Effect

5.1 The *Owner* and *Operator* shall take steps to minimize any adverse effect on the natural environment or impairment of water quality resulting from the *Site,* including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

5.2 Despite an *Owner, Operator* or any other person fulfilling any obligations imposed by this *Certificate,* the person remains responsible for any contravention of any other condition of this *Certificate* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

6.0 Change of Owner

6.1 The *Owner* shall notify the *Director,* in writing, and forward a copy of the notification to the *District Manager,* within 30 days of the occurrence of any changes in the following information:
(a) the ownership of the *Site;*
(b) the *Operator* of the *Site;*
(c) the address of the *Owner* or *Operator;* and
(d) the partners, where the *Owner* or *Operator* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act*, R. S. O. 1990, c. B.17, shall be included in the notification.

6.2 No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out. In the event of any change in *Ownership* of the works, other than change to a successor municipality, the *Owner* shall notify the successor of and provide the successor with a copy of this *Certificate*, and the *Owner* shall provide a copy of the notification to the *District Manager* and the *Director.*

7.0 Certificate of Requirement

7.1 Pursuant to Section 197 of the *EPA,* no person having an interest in the *Site* shall deal in any way with the *Site* without first giving a copy of this *Certificate* to each person acquiring an interest in the *Site* as a result of the dealing.

7.2 Two copies of a completed Certificate of Requirement, containing a registerable description of the *Site,* shall be submitted to the *Director* for the *Director's* signature within six (6) calendar months of the date of this *Certificate.*

7.3 The Certificate of Requirement, shall be registered in the appropriate land registry office on title to the *Site* by the *Owner* within ten (10) calendar days of receiving the Certificate of Requirement, signed by the *Director,* and a duplicate registered copy shall be submitted to the *Director.*

8.0 Inspections

8.1 No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *OWRA,* the *EPA,* or the *PA,* of any place to which this *Certificate* relates, and without limiting the foregoing:
(a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *Certificate* are kept;
(b) to have access to, inspect, and copy any records required to be kept by the conditions of this *Certificate;*
(c) to inspect the *Site,* related equipment and appurtenances;
(d) to inspect the practices, procedures, or operations required by the conditions of this *Certificate;* and
(e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *Certificate* or the *EPA,* the *OWRA* or the *PA.*

9.0 Information and Record Retention

9.1 Any information requested, by the *Ministry,* concerning the *Site* and its operation under this *Certificate,* including but not limited to any records required to be kept by this *Certificate* shall be provided to the Ministry, upon request**,** in a timely manner. Records shall be retained for contaminating life span of the *Site* except for as otherwise authorized in writing by

the *Director.*

9.2 The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *Certificate* or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
(a) an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any term or condition of this *Certificate* or any statute, regulation or other legal requirement; or
(b) acceptance by the *Ministry* of the information's completeness or accuracy.

10.0 Signs

10.1 A sign shall be installed and maintained at the main entrance/exit to the *Site* on which is legibly displayed the following information:
(a) the name of the *Site* and *Owner;*
(b) the number of the *Certificate;*
(c) the name of the *Operator;*
(d) the normal hours of operation;
(e) the allowable and prohibited waste types;
(f) the telephone number to which complaints may be directed;
(g) a twenty-four (24) hour emergency telephone number (if different from above); and
(h) a warning against dumping outside the *Site.*

11.0 Operation

11.1 The *Site* shall be operated and maintained at all time including management and disposal of all waste in accordance with the *EPA, Regulation 347,* and the conditions of this *Certificate.* At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

11.2 The Design and Operations Report shall be retained at the *Site;* kept up to date through periodic revisions; and be available for inspection by *Ministry* staff. Changes to the Design and Operations Report shall be submitted to the *Director* for approval.

12.0 Vermin, etc.

12.1 The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

13.0 Hours of Operation

13.1 Waste/reuse material shall only be accepted at the *Site* during the following time periods:

6:00 am to 8:00 pm - Monday to Sunday

13.2 On-site equipment used for daily site preparation and closing activities shall only be used during the following time periods:

6:00 am to 8:00 pm - Monday to Sunday

13.3 With the prior written approval from the *District Manager,* the time periods may be extended to accommodate seasonal or unusual quantities of waste.

14.0 Site Security

14.1 No waste/reuse material shall be received, landfilled or removed from the *Site* unless a site supervisor or attendant is present and supervises the operations during operating hours. The *Site* shall be closed when a site attendant is not present to supervise landfilling operations.

14.2 The *Site* shall be operated and maintained in a secure manner. During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons.

15.0 Employees and Training

15.1 A training plan for all employees that operate any aspect of the site shall be developed and implemented by the *Operator.* Only *Trained Personnel* shall operate any aspect of the *Site* or carry out any activity required under this *Certificate*.

16.0 Complaints Procedure

16.1 If at any time, the *Owner* receives complaints regarding the operation of the *Site,* the *Owner* shall respond to these complaints according to the following procedure:
(a) The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;
(b) The *Owner,* upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
(c) The *Owner* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

17.0 Emergency Situation

17.1 Any spills, fires or other emergency situations shall be forthwith reported directly to the Ministry's Spills Action Centre (1-800-268-6060) and shall be cleaned up immediately.

17.2 In addition, the *Owner* shall submit, to the *District Manager* a written report within three (3) business days of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the *Site.*

17.3 All wastes resulting from an emergency situation shall be managed and disposed of in accordance with *O.Reg. 347.*

17.4 All equipment and materials required to handle the emergency situations shall be:
(a) kept on hand at all times that waste landfilling and/or handling is undertaken at the *Site;* and
(b) be adequately maintained and kept in good repair.

17.5 The *Owner* shall ensure that the emergency response personnel are familiar with the use of such equipment and its location(s).

18.0 Daily Log Book

18.1 A daily log shall be maintained in written format and shall include the following information:
(a) the type, date and time of arrival, hauler, and quantity (tonnes) of all waste and cover material received at the *Site;*
(b) the area of the *Site* in which waste disposal operations are taking place;
(c) a calculation of the total quantity (tonnes) of waste received at the *Site* during each operating day and each operating week;
(d) a record of litter collection activities and the application of any dust suppressants;
(e) a record of the daily inspections; and
(f) a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service.

18.2 Any information requested, by the *Director* or a *Provincial Officer,* concerning the *Site* and its operation under this *Certificate,* including but not limited to any records required to be kept by this *Certificate* shall be provided to the *Ministry,* upon request.

19.0 Daily Inspections and Log Book

19.1 An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that: the *Site* is secure; that the operation of the *Site* is not causing any nuisances; that the operation of the *Site* is not causing any adverse effects on the environment and that the site is being operated in compliance with this *Certificate.* Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed**.**

19.2 A record of the inspections shall be kept in a daily log book that includes:
(a) the name and signature of person that conducted the inspection;
(b) the date and time of the inspection;
(c) the list of any deficiencies discovered;
(d) The recommendations for remedial action; and
(e) the date, time and description of actions taken.

19.3 A record shall be kept in the daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

19.4 The *Owner* shall forthwith notify the *District Office,* of any and all waste load refusals at the *Site* related to the requirements of this *Certificate,* including service area and waste type. The *Owner* shall confirm the verbal notification in writing within seven (7) business days.

20.0 Approved Waste Types

20.1 The *Operator* shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this *Certificate.*

20.2 Only the following types of waste shall be accepted at the *Site:*
(a) Municipal Waste;
(b) Non-hazardous Solid Industrial Wastes;
(c) Commercial Waste;
(d) Leaf and Yard Waste; and
(e) Household Hazardous Waste (HHW).

21.0 Service Area

21.1 Only waste that is generated in the City of Kawartha Lake shall be accepted at the *Site.*

LANDFILL DESIGN AND DEVELOPMENT

22.0 Approved Waste Types

22.1 The waste to be received at the landfill for disposal is restricted to non-hazardous domestic, municipal, commercial, institutional and solid industrial waste.

22.2 No liquid industrial wastes or hazardous wastes, as defined under *Ontario Regulation 347,* shall be disposed of in the landfill area of the *Site.*

23.0 Capacity

23.1 The maximum theoretical waste disposal volume of the *Site,* consisting of the waste, daily cover and intermediate cover, but excluding the final cover is 125,000 cubic metres.

LANDFILL OPERATION

24.0 Cover

24.1 The *Owner* shall ensure that all waste accepted for disposal at the site is disposed of in the waste fill zone and is covered weekly in accordance with this section.

24.2 The approved cover material are the following waste material considered to be solid non-hazardous waste including: soil, foundry sand, wood chips, compost, auto fluff, shredder fluff, dredged materials, grill ash, tire shreds, processed asphalt shingles and contaminated soil.

24.3 Odourous waste materials shall not be used as cover material.

24.4 Alternative materials to cover material approved in 24.2 may be used, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the *Owner* to the *Director,* copied to the *District Manager* and as approved by the *Director* via an amendment to this *Certificate.* The alternative material shall be non-hazardous according to *Reg. 347* and will be expected to perform at least as well as soil in relation to the following functions:
(a) Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires;
(b) Provision for an aesthetic condition of the landfill during the active life of the *Site;*
(c) Provision for vehicle access to the active tipping face; and
(d) Compatibility with the design of the *Site* for groundwater protection, leachate management and landfill gas management.

24.5 Cover material shall be applied as follows:
(a) Daily Cover - entire working face shall be covered weekly with a minimum thickness of 150 millimetre of soil cover or an approved thickness of alternative cover material;
(b) Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 millimetre of soil cover or an approved thickness of approved alternative intermediate cover material shall be placed; and
(c) Final Cover - In areas where landfilling has been completed to final contours, a minimum 600 millimetre thick layer of clay and 150 millimetres of top soil (final cover) shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.

24.6 If in the opinion of the *District Manager,* covering the waste weekly is creating nuisance/adverse effects, the frequency of the cover application may be changed by the *District Manager.*

LANDFILL MONITORING

25.0 Landfill Gas

25.1 The *Owner* shall ensure that any buildings or structures at the *Site* contain adequate ventilation systems to relieve any possible landfill gas accumulation. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the *Site,* especially enclosed structures which at times are occupied by people.

26.0 Compliance Limits

26.1 The *Site* shall be operated in such a way as to ensure compliance with the following:
(a) Reasonable Use Guideline B-7 for the protection of the groundwater at the *Site;*
(b) Provincial Water Quality Objectives included in the July 1994 publication entitled Water Management Policies, Guidelines, Provincial Water Quality Objectives, as amended from time to time or limits set by the Regional Director, for the protection of the surface water at and off the *Site.*

27.0 Surface Water and Groundwater

27.1 The *Owner* shall monitor surface water and groundwater as approved; construct and maintain to the satisfaction of the *Ministry,* a groundwater monitoring network which fully delineates the horizontal and vertical extent of leachate migration resulting from the activities at the *Site.*

27.2 Groundwater samples from all wells in the above-described monitoring network will be obtained and analyzed at least

once between March and May and at least once August and November. Groundwater elevations in all monitoring wells shall be measured during each monitoring event prior to obtaining water quality samples.

27.3 A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience will prepare and evaluate the execution of the groundwater monitoring and reporting program.

28.0 Groundwater Wells/Monitors

28.1 The *Owner* shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

28.2 Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

28.3 Any groundwater monitoring wells included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the *Owner,* as required.
(a) The *Owner* shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.
(b) All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the *District Manager* for abandonment, shall be decommissioned by the *Owner,* as required, in accordance with *O.Reg. 903,* that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

29.0 Remedial Measures/Contaminant Attenuation Zone

29.1 Should unacceptable groundwater quality conditions be established at the property boundary, the *Owner* shall implement remedial measures; or purchase or obtain a written easement agreement with the property owner(s) of the land(s) required for the Contaminant Attenuation Zone, which will provide the property rights necessary to establish the Contaminant Attenuation Zone; to bring the site into compliance with Reasonable Use Policy Objectives at the property boundary.

29.2 The *Owner* must continue to own the property rights to the Contaminant Attenuation Zone for all of the contaminating life span of the *Site.*

29.3 The ownership of the property rights must include the right to:
(a) discharge contaminants from the operations at the Site into the Contaminant Attenuation Zone;
(b) enter into the Contaminant Attenuation Zone and onto the surface above the Contaminant Attenuation Zone for purposes of testing, monitoring, intercepting contaminants and carrying out remedial work;
(c) install, operate and maintain works, for the purposes mentioned in clause (ii), in or the Contaminant Attenuation Zone, including on the surface above the Contaminant Attenuation Zone; and
(d) prevent the owner(s) of the land(s) in which the Contaminant Attenuation Zone is located from paving, erecting a structure or making any use of land(s) above or in the vicinity of the contaminant attenuation zone that would interfere with the functioning of the Contaminant Attenuation Zone or with the exercise of any of the rights mentioned in this subsection.

29.4 The *Owner* shall notify the *Director* in writing within thirty (30) days after any change in his, her or its ownership of the property rights in the Contaminant Attenuation Zone.

29.5 The *Owner* shall ensure that the written easement agreement, specified in Condition 29.1 includes an agreement of the property owner(s) of the land(s) required for the Contaminant Attenuation Zone, to register a Certificate of Requirement on title to the land(s) to be used as the Contaminant Attenuation Zone.

30.0 Trigger Mechanisms and Contingency Plan

30.1 Within ninety (90) days from the date of this *Certificate,* the *Owner* shall submit to the *Director,* for approval, and copies to the *District Manager,* details of a trigger mechanisms plan for surface water and groundwater quality monitoring

for the purpose of initiating investigative activities into the cause of increased contaminant concentrations at the monitoring locations.

30.2 By July 30, 2007, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager,* a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds the a trigger level.

30.3 In the event of a confirmed exceedence of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts, the *Owner* shall immediately notify the *District Manager,* and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

30.4 If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:
(a) The *Owner* shall notify the *District Manager,* in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedences;
(b) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and
(c) The contingency measures shall be implemented by the *Owner* upon approval by the *District Manager.*

30.5 *The* Owner shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the *Director* via an amendment to this *Certificate.*

LANDFILL CLOSURE

31.0 Closure Plan

31.1 At least 2 years prior to the anticipated date of closure of this *Site,* the *Owner* shall submit to the *Director* for approval, with copies to the *District Manager,* a detailed site closure plan pertaining to the termination of landfilling operations at this *Site,* post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:
(a) a plan showing *Site* appearance after closure;
(b) a description of the proposed end use of the *Site;*
(c) a descriptions of the procedures for closure of the *Site,* including:

(i) advance notification of the public of the landfill closure;
(ii) posting of a sign at the *Site* entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
(iii) completion, inspection and maintenance of the final cover and landscaping;
(iv) *Site* security;
(v) removal of unnecessary landfill-related structures, buildings and facilities;
(vi) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas; and
(vii) a schedule indicating the time-period for implementing sub-conditions (i) to (vi) above;

(d) descriptions of the procedures for post-closure care of the *Site,* including:

(i) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
(ii) record keeping and reporting; and
(iii) complaint contact and response procedures;

(e) an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and
(f) an updated estimate of the contaminating life span of the *Site,* based on the results of the monitoring programs to date.

31.2 The *Site* shall be closed in accordance with the closure plan as approved by the *Director.*

COMPOSTING

32.0 Approved Waste Types

32.1 Only leaf and yard waste shall be composted at this *Site.*

33.0 Operations

33.1 Composting operations at the *Site* shall be carried out in a manner as not to interfere with normal waste disposal operations as approved in this *Certificate.*

33.2 Should the ensuing compost be destined for use by the general public, composting operations at the *Site* shall be carried out in accordance with the *Ministry's* Interim Guidelines for the Production and Use of Aerobic Compost in Ontario, dated November 2004, and revised from time to time.

33.4 Composting operations at the *Site* must be carried out in a manner that does not cause groundwater or surface water contamination, offensive odours or encourage the presence of vermin or any other adverse effect.

RE-USE PROGRAM

34.0 Re-use Facility Operations

34.1 The operation of the Re-Use Facility shall be limited to the receipt, temporary storage and public pick-up of non-hazardous items and any other items as approved in advance in writing by the *District Manager,* after they have successfully undergone screening and found to have some residual value, subject to the following conditions:
(a) Records of the quantities of re-use items (summarized by individual category) received and offered to the public for reuse, are kept and reported in the Annual Report.
(b) A "Re-Use material Exchange Disclaimer and Release" form signed by the individual prior to release of the re-use item from the site; and
(c) The item is not a commercially banned product.

34.2 The total amount of re-use items (non-hazardous items of some residual value) stored at the Re-Use Facility at any one time, shall not exceed 200 tonnes.

34.3 Prior to being accepted at the Re-Use Facility, all incoming re-use items shall be inspected by the *Owner,* and shall only be permitted to enter the Re-Use Facility if that type of item is approved to be accepted at the Re-Use Facility .

34.4 The Re-Use Facility shall be operated in a secure manner within an enclosed-type structure, such that unauthorized persons cannot enter the Re-Use Facility without supervision.

34.5 The *Owner* shall ensure that the Re-Use Facility is operated in a safe and secure manner, and that the re-use items are properly handled, packaged and stored so as not to pose any threat to the general public, site personnel and the natural environment.

34.6 All wastes generated at the Re-Use Facility shall be managed and disposed of in accordance with the *EPA* and Ontario Regulation 347.

HOUSEHOLD HAZARDOUS WASTE DEPOT

35.0 HHW Facility Operations

35.1 The *HHW* depot shall not receive more than 20 cubic metres of *HHW* per day; and

35.2 The *HHW* depot shall not store in excess of 50 cubic metres of *HHW* on *Site.*

35.3 *HHW* shall not be stored at the *Site* for longer than one hundred eighty (180) days, unless the consent of the *District*

Manager has been obtained, with the exception of waste oil which shall be stored on *Site* in accordance with Condition 35.2.

35.4 All household hazardous waste received and stored must be managed in accordance with *Ontario Regulation 347, R.R.O. 1990,* as amended, and with the Ministry of Environment document entitled "Household Hazardous Waste Collection and Facility Guidelines" dated May 1993.

35.5 All storage of liquid wastes shall be in accordance with this *Ministry's* publication "Guidelines of Environmental Protection Measures at Chemical Storage Facilities", dated October 1978 as amended.

35.6 All *HHW* shall be stored in secondary containment that is adequate to contain any spills or leaks. Segregated secondary containment shall be provided for incompatible types of waste.

35.7 Incoming *HHW* shall be inspected by *Trained Personnel*, prior to being accepted at the *Site,* to ensure that the *Site* is approved to accept that type of waste.

35.8 All containers shall be clearly labelled indicating the type and nature of the hazardous waste stored as required by regulation. All points of access to the *Site* shall be posted to warn that the area contains hazardous materials.

35.9 No radioactive wastes shall be accepted at this *Site.*

35.10 Oil and oil-based paints which have been manufactured prior to 1972; or whose manufacturing date cannot be determined, may contain PCBs and shall be handled as follows:
(a) The oil and oil-based paints shall not be mixed (bulked) with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this *Certificate;*
(b) The oil and oil-based paints shall be tested by a certified laboratory for PCB content and shall be handled in the manner outlined in Condition 35.10 (c) if found to contain PCBs;
(c) If the oil and oil-based paints are found to have PCBs at or above levels identified in Condition 35.10 (d), it shall be forthwith reported to the *District Manager* and shall be managed in accordance with Regulation 362 and stored or removed from the *Site* to an approved PCB storage site, in accordance with written instructions from the *District Manager;* and
(d) The oil and oil-based paints shall not be distributed for reuse if they have any measurable PCB content. The oil and oil-based paint is considered to be a PCB waste, if measured levels are equal to or greater than 50 parts per million.

35.11 Except for oil based paints that become classified as PCB Waste, paints may be offered for reuse to the public. Records shall be kept of the type, volume and recipient of paint returned to the public.

35.12 The *Owner* shall maintain, at the *Site,* a log book which records daily, the following information:
(a) date of record;
(b) types, quantities and source of *HHW* received;
(c) quantities of *HHW* stored at the *Site;*
(d) quantities and destination of *HHW* shipped from the *Site;* and
(e) quantities of waste returned to the public as noted in Condition 35.11.

ANNUAL REPORTING

36.0 Reporting Requirements

36.1 A written report on the development, operation and monitoring of the *Site,* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager* no later than June 30 th of the year following the year being reported upon.

36.2 The Annual Report shall include the following:
(a) the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;
(b) an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site,* and the adequacy of and need to implement the contingency plans;

(c) site plans showing the existing contours of the *Site;* areas of landfilling operation during the reporting period; areas of intended operation during the next reporting period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; previously existing site facilities; facilities installed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;
(d) calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the *Site* during the reporting period and a calculation of the total volume of *Site* capacity used during the reporting period;
(e) a calculation of the remaining capacity of the *Site* and an estimate of the remaining *Site* life;
(f) a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the Site;
(g) a summary of any complaints received and the responses made;
(h) a discussion of any operational problems encountered at the *Site* and corrective action taken;
(i) any changes to the Design and Operations Report and the Closure Plan that have been approved by the *Director* since the last *Annual Report;*
(j) a report on the status of all monitoring wells and a statement as to compliance with Ontario Regulation 903; and
(k) any other information with respect to the *Site* which the *Regional Director* may require from time to time.

SCHEDULE "A"

1. Supporting information to an Application for Approval of a Landfill Disposal Site dated October 17, 1972.

2. Site development Plan and Survey submitted to the Waste Management Branch, June 21, 1973 by F.V. Lecraw.

3. Sketch map entitled "Township of Laxton" 321304, Lot 6, C9.

4. Instructions in the letter to Mr. F.V. LeCraw dated August 28, 1974.

5. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated January 14, 2005 signed by Bill Pickard, Manager of Solid Waste Services.

6. Report entitled "Laxton Landfill Site Design/Operations & Closure Report" prepared by City of Kawartha Lakes, Environmental Services Division.

The reason(s) for this amendment to the Certificate of Approval is (are) as follows:

1. The reasons for this amendment are to approve the establishment of Leaf and Yard Waste Composting Operation, Re-use Centre and Household Hazardous Waste Depot.

2. The reason for Conditions 1, 3, 4, 5 and 9 is to clarify the legal rights and responsibilities of the *Owner* and *Operator* under this Certificate of Approval.

3. The reasons for Conditions 2 and 11.2 is to ensure that the *Site* is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the *Owner,* and not in a manner which the *Director* has not been asked to consider.

4. The reasons for Condition 6.1 are to ensure that the *Site* is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the *Director* is informed of any changes.

5. The reason for Condition 6.2 is to restrict potential transfer or encumbrance of the *Site* without the approval of the *Director* and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Certificate of Approval.

6. Condition 7 is included, pursuant to subsection 197(1) of the *EPA*, to provide that any persons having an interest in the *Site* are aware that the land has been approved and used for the purposes of waste disposal.

7. The reason for Condition 8 is to ensure that appropriate Ministry staff has ready access to the *Site* for inspection of facilities, equipment, practices and operations required by the conditions in this Certificate of Approval. This condition is supplementary to the powers of entry afforded a *Provincial Officer* pursuant to the *EPA* and *OWRA*.

8. The reason for Condition 10 is to ensure that users of the *Site* are fully aware of important information and restrictions related to *Site* operations and access under this Certificate of Approval.

9. The reasons for Conditions 11, 12, 19.1 and 20.1 are to ensure that the *Site* is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

10. The reasons for Condition 13 are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.

11. The reasons for Condition 14 are to ensure that the Site is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.

12. The reason for Condition 15 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

13. The reason for Condition 16 is to ensure that any complaints regarding landfill operations at this Site are responded to in a timely and efficient manner.

14. Conditions 17.1 and 17.2 are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.

15. Condition 17.3, 17.4 and 17.5 are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

16. The reason for Condition 18 is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Certificate of Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the *EPA* and its regulations.

17. The reason for Conditions 19.2, 19.3 and 19.4 is to specify record keeping requirements which are necessary to determine compliance with this Certificate of Approval. Notification of the District Manager of load refusals is required to allow the MOE to consider and take appropriate action in a timely manner under this Certificate, the EPA or its regulations.

18. The reason for Conditions 20.2, 21, 22, 23 and 32 is to specify the approved areas from which waste may be accepted at the *Site* and the types and amounts of waste that may be accepted for disposal at the *Site*, based on the *Owner*'s application and supporting documentation.

19. The reasons for Condition 24 are to ensure that daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the *Site,* and to ensure an acceptable *Site* appearance is maintained. The proper closure of a landfill *Site* requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the site.

20. Condition 25 is included to ensure that all buildings at the *Site* are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the *Site.*

21. Condition 26 is included to provide the groundwater and surface water limits to prevent water pollution at the *Site.*

22. Condition 27 is included to require the *Owner* to demonstrate that the *Site* is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

23. Condition 28 is included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

24. Condition 29 is included to require the *Owner* to obtain property rights to land(s) that is required for a Contaminant Attenuation Zone that is necessary for attenuation of contamination resulting from the operation of the *Site* or to use an alternative method to bring the site into compliance with Reasonable Use Policy Objectives.

25. Condition 30 is added to ensure the *Owner* has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination near or at the site's compliance point.

26. The reasons for Condition 31 are to ensure that final closure of the *Site* is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

27. Condition 33 is included to ensure that the Owner undertake the composting activities in accordance with Ministry's requirements and in a manner that would not result in a hazard or nuisance to the natural environment.

28. The reason for Condition 34.1 is to ensure that the Re-Use Facility is operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

29. The reason for Conditions 34.2 to 34.7 inclusive to allow sufficient quantity of re-use items to be stocked and released for re-use, and to ensure the operation of the Re-Use Facility will not result in a nuisance or a hazard to public health and safety.

30. The reason for the condition 35 is to approve the establishment and operation of a household hazardous waste transfer station and to ensure that the wastes are managed in a manner that protects the environment and the health and safety of the public.

31. The reasons for Condition 36 are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A321304 dated February 14, 1980

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry ofthe Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 3rd day of May, 2007

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

RM/
c: District Manager, MOE Peterborough

Ontario

Ministry of the Environment | **Ministère de l Environnement**

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A321304
Notice No. 2
Issue Date: July 17, 2007

The Corporation of the City of Kawartha Lakes
2573 Highway 7 R.R. #5
Lindsay, Ontario
K9V 4R5

Site Location: Laxton Landfill Site
Lot 6, Concession 9, Laxton
Kawartha Lakes City,

You are hereby notified that I have amended Provisional Certificate of Approval No. A321304 issued on February 14, 1980 and amended on May 3, 2007 for the use and operation of a 2.5 *hectare of waste disposal/recycling/reuse/composting site within a total site area of 29 hectares, as follows:*

Condition 27.2 is revoked and replaced with the following:

27.2 Groundwater samples from all wells in the monitoring network described in Condition 27.1 shall be obtained and analyzed at least once between March and May and at least once between August and November of each year. Groundwater elevations in all monitoring wells shall be measured during each monitoring event prior to obtaining water quality samples.

The reason for this amendment to the Certificate of Approval is

to correct a typographical error.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A321304 dated February 14, 1980, as amended.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry ofthe Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal s requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 17th day of July, 2007

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

RM/
c: District Manager, MOE Peterborough
Roberta Perdue, The Corporation of the City of Kawartha Lakes

Ontario

Ministry of the Environment | **Ministère de l Environnement**

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A321304
Notice No. 3
Issue Date: June 11, 2009

The Corporation of the City of Kawartha Lakes
40 Wolfe St
Rural Route, No. 5
Lindsay, Ontario
K9V 2J2

Site Location: Laxton Landfill Site
Lot 6, Concession 9, Laxton
Kawartha Lakes City,

You are hereby notified that I have amended Provisional Certificate of Approval No. A321304 issued on February 14, 1980 and amended on May 3, 2007 and July 17, 2007 for disposal/recycling/reuse/composting site within a total site area of 29 hectares, as follows:

Conditions 30.1 and 30.2 are revoked and replaced by the following:

30.1 Trigger mechanisms for the Laxton landfill site is approved as proposed in Items 7 and 8 of Schedule "A".

30.2 The *Owner* shall include in the 2008 Annual Report and submit to the *Director* for approval, and copies to the *District Manager,* a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds the trigger level .

Schedule "A"

7. Report titled "Laxton Landfill Site, Status Report, January 1 to December 31, 2006" prepared by City of Kawartha Lakes and Hydroterra Limited" submitted with the cover letter from Bill Pickard addressed to Tesfaye Gebrezghi, Ministry of the Environment, dated July 30, 2007.

8. Report titled "Laxton Landfill Site, Status Report, January 1 to December 31, 2007" prepared by City of Kawartha Lakes and Cambium Environmental".

The reasons for this amendment to the Certificate of Approval are as follows:

1. The reason for Condition 30.1 is to approve the trigger mechanisms.

2. The reason for Condition 30.2 is to require the Owner to have a contingency plan approved by the Director in the event that the surface water or groundwater quality exceeds a trigger level. The reason for having an approved contingency plan before the trigger criteria is exceeded is to implement contingency plans in a timely manner to minimize adverse effects and to ensure public health and safety and environmental protection.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A321304 dated February 14, 1980 as amended

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry ofthe Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal s requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 11th day of June, 2009

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

RM/
c: District Manager, MOE Peterborough
Bill Pickard, The Corporation of the City of Kawartha Lakes

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A321304
Notice No. 4
Issue Date: October 29, 2012

The Corporation of the City of Kawartha Lakes
12 Peel St
Post Office Box, No. 9000
Lindsay, Ontario
K9V 2J2

Site Location: Laxton Landfill Site
3225 Monck Road, Lot 6, Concession 9, former Laxton Township
Kawartha Lakes City,

You are hereby notified that I have amended Approval No. A321304 issued on February 14, 1980 and amended on May 3, 2007, July 17, 2007 and June 11, 2009 for a disposal / recycling / reuse / composting site within a total site area of 29 hectares , as follows:

Condition 20.2 is hereby revoked and replaced with:

20.2 Only the following types of waste shall be accepted at the *Site:*
(a) Municipal Waste;
(b) Non-hazardous Solid Industrial Wastes;
(c) Commercial Waste;
(d) Leaf and Yard Waste;
(e) Household Hazardous Waste (HHW);
(f) Waste electrical and electronic equipment (WEEE);
(g) Scrap Tires;
(h) Other waste that meets the requirements of Condition 36.5

Condition 27.4, 27.5 and 27.6 have hereby been added:

27.4 The *Owner* may request to make changes to the monitoring program(s) to the *District Manager* in accordance with the recommendations of the Annual Report. The *Owner* shall make clear reference to the proposed changes in a separate letter that shall accompany the Annual Report.

27.5 Within fourteen (14) days of receiving the written correspondence from the *District Manager* confirming that the *District Manager* is in agreement with the proposed changes to the environmental monitoring program, the *Owner* shall forward a letter identifying the proposed changes and a copy of the correspondences from the *District Manager* and all other correspondences and responses related to the changes to the monitoring program, to the *Director* requesting the *Approval* be amended to approve the proposed changes to the environmental monitoring plan prior to implementation.

27.6 In the event any other changes to the environmental monitoring program are proposed outside of the recommendation of the Annual Report, the *Owner* shall follow current ministry procedures for seeking approval for amending the *Approval.*

Condition 36 is hereby revoked and replaced with:

WASTE DIVERSION

36.0 Waste Diversion

36.1 The *Owner* may receive, temporarily store and transfer WEEE subject to the following:
(a) prior to being accepted at the *Site,* all incoming WEEE shall be inspected by the *Owner* to ensure that it meets the *Owner's* acceptance criteria for the WEEE diversion program;
(b) WEEE shall only be stored in designated WEEE storage bins;
(c) no processing / dismantling of WEEE shall take place at the *Site;* and
(d) WEEE shall be managed and disposed of in accordance with the *EPA* and *Regulation 347;*
(e) a daily record is kept of all WEEE that is accepted, stored and transferred (including destination) from the *Site.*

36.2 (a) The total amount of WEEE that may be stored on the *Site* at any one time shall not exceed 50 tonnes; and

(b) In the event that WEEE can not be removed from the *Site* and the total storage capacity as approved in Condition 36.2(a) has been reached, the *Owner* shall, forthwith upon reaching the approved storage capacity:
(i) cease accepting additional WEEE to ensure that the total approved storage capacity is not exceeded;
(ii) notify the *District Manager* that the approved storage capacity has been reached, that the *Site* has ceased to accept additional WEEE and provide a contingency plan for the long term removal and disposal and/or diversion of WEEE from the *Site.*

36.3 The *Owner* may receive, temporarily store and transfer scrap tires subject to the following:
(a) the total amount of scrap tires stored on *Site* shall not exceed 5000 tire units; and
(b) a daily record is kept of the number of tire units accepted, stored and transferred from the *Site;* and
(c) scrap tires shall be stockpiled as follows:
(i) no individual stockpile shall exceed a volume of 300 m 3 ; and
(ii) stockpiles shall be located a minimum of 15 metres from the property line, any buildings and the active landfilling area; and
(iii) stockpiles shall be separated from each other and from other waste piles by a minimum of 6 metres; and
(iv) an area of no less than 4.5 metres around each stockpile shall be kept free of vegetation; or
(d) scrap tires shall be stockpiled in accordance with a plan approved by the local Fire Department.

36.4 In the event that scrap tires can not be removed from the *Site* and the total storage capacity as approved in Condition 36.3 has been reached, the *Owner* shall, forthwith upon reaching the approved storage capacity,:
(a) cease accepting additional scrap tires to ensure that the total approved storage capacity is not exceeded;
(b) notify the *District Manager* that the approved storage capacity has been reached and that the *Site* has ceased to accept addition scrap tires and provide a contingency plan for the long term removal and disposal and/or diversion of scrap tires from the *Site.*

36.5 The *Owner* may implement other waste diversion programs subject to the following:
(a) the waste diversion program is technically and economically viable; and

(b) the implementation of the waste diversion program does not entail design changes to the *Site,* does not impact existing approved activities on *Site* nor impact existing monitoring and/or control programs; and
(c) the *Owner* has notified the *District Manager* of the proposed waste diversion program (type of waste to be diverted and maximum amount to be stored) and has obtained confirmation, in writing, from the *District Manager* that the implementation of the waste diversion program satisfies Condition 36.5(b);
(d) the *Owner* maintains a record of all waste received, stored and transferred (including destination) from the *Site,* under the waste diversion program.
Waste diversion programs that would not meet the requirements of Condition 36.5(b) require *Director's* approval.

Condition 37 has hereby been added:

ANNUAL REPORTING

37.0 Reporting Requirements

37.1 A written report on the development, operation and monitoring of the *Site,* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager* no later than June 30 th of the year following the year being reported upon.

37.2 The Annual Report shall include the following:
(a) the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;
(b) an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site,* and the adequacy of and need to implement the contingency plans;
(c) site plans showing the existing contours of the *Site;* areas of landfilling operation during the reporting period; areas of intended operation during the next reporting period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; previously existing site facilities; facilities installed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;
(d) calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the *Site* during the reporting period and a calculation of the total volume of *Site* capacity used during the reporting period;
(e) a calculation of the remaining capacity of the *Site* and an estimate of the remaining *Site* life;
(f) a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the Site;
(g) a description of the waste diversion activities undertaken during that operating year, the amount of waste diverted, by type of waste and the destination of the diverted waste;
(h) a summary of any complaints received and the responses made;
(i) a discussion of any operational problems encountered at the *Site* and corrective action taken;
(j) any changes to the Design and Operations Report and the Closure Plan that have been approved by the *Director* since the last *Annual Report;*
(k) a report on the status of all monitoring wells and a statement as to compliance with Ontario Regulation 903; and
(l) any other information with respect to the *Site* which the *Regional Director* may require from time to time.

All other Terms and Conditions on Provisional Certificate of Approval No. A321304, which was issued on February 14, 1980, and subsequent notices of amendment, not affected by this amendment, continue to remain in effect.

The reason(s) for this amendment to the Approval is (are) as follows:

31. Condition 20.2 was amended to approve the receipt of tires and waste electrical and electronic equipment. The condition also provides conditional flexibility for inclusion of other wastes in the Owner's waste diversion program subject to the requirements of Condition 36.5.

32. Conditions 27.4, 27.5 and 27.6 were added to provide a mechanism for the Owner to make alterations to the Site monitoring program(s).

33. The reason for Conditions 36.1, 36.2, 36.3 and 36.4 is to approve the establishment of waste electrical and electronic equipment and scrap tire diversion programs and to ensure that the waste diversion programs are conducted in an acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

34. The reason for Condition 36.5 is to facilitate the implementation of future waste diversion programs. The Ministry supports the goal of maximizing waste diversion where such diversion is technically feasible and viable end markets exist. These programs may be implemented with the concurrence of the District Manager provided that the implementation of the program does not involve Site design changes, for example the construction of permanent structures, and the programs are accounted for in the Annual Report. Waste diversion programs which require Site design changes must be approved by the Director.

35. The reasons for Condition 37 (formerly Condition 36) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

This Notice shall constitute part of the approval issued under Approval No. A321304 dated February 14, 1980

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of October, 2012

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

VP/
c: District Manager, MOE Peterborough