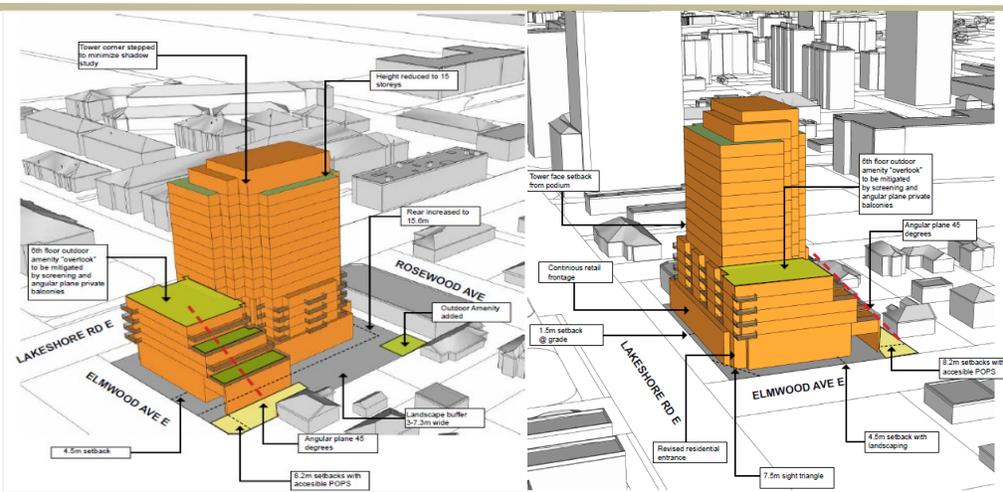


Solid Waste Plan 170 Lakeshore Road East Mississauga, ON



PRESENTED TO
Lightpoint (170 Lakeshore Road East Port Credit) Inc.

SEPTEMBER 22, 2021
ISSUED FOR USE
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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Lightpoint (170 Lakeshore Road East Port Credit) Inc. (Lightpoint) and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Lightpoint, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Lightpoint (170 Lakeshore Road East Port Credit) Inc. (Lightpoint) to prepare a Solid Waste Plan (Plan) to support the development of 170 Lakeshore Road East, Mississauga, ON. Lightpoint intends to submit applications to amend the City of Mississauga's (the City) Official Plan (OPA) and Zoning By-Law (ZBA) to permit a high-density, mixed-use development located at the above-noted address.

Lightpoint and its agents have met with the City and Region of Peel (the Region) staff and have received initial input from both jurisdictions on the development plans. This input included comments from the Region Solid Waste Management Division which were based on Peel's Waste Collection Design Standards Manual (WCDSM 2020). The comments are based on the following elements of the Manual:

- On-site waste collection from the retail units will be undertaken by a private waste hauler.
- For residential units, the Region will provide front-end collection of recyclables and garbage subject to the following conditions:
 - Identified vehicle access and egress routes.
 - Minimum turning radius of 13 metres (m) from the centre line of turns in the internal laneways.
 - Minimum internal roadway width of 6 m.
 - Straight head-on approach to the collection point of 18 m.
 - Minimum clear height of 7.5 m from the concrete pad comprising the floor of the collection point which must be clear of sprinkler systems and ducts and should be large enough to accommodate the set-out of the required number of bins without jockeying being required for collection.
 - An area of 10 m² for both the storage and set out of bulky items.
 - Enough space for the storage of both Blue Box (BB) recyclables and garbage bins.
 - The number, size, and allocation of receptacles for BB recyclables and garbage.

This input from the Region staff will require the preparation of the Plan, for submission to the Region and the City, that will provide a clear outline of how BB recyclables and garbage will be stored, transferred, and collected from the proposed community. The Plan, outlined herein, presents the calculated waste material quantity and characteristics that are anticipated to be generated from the development and presents a preliminary plan for the storage and collection of the generated waste materials in compliance with the Region's Waste Collection Design Standards.

1.1 Summary Description of Proposed Development

The development is comprised of a 15-storey residential building, with a mechanical penthouse comprising the 16th storey. The complex consists of a 9-storey residential tower extending from a 6-storey residential/commercial podium. Lightpoint has included commercial space on the ground level. There will be a total of 147 residential suites in the complex together with 477.7 m² of commercial space.

1.2 Objectives of the Solid Waste Plan

The objectives of the Plan are as follows:

- To calculate the volume of BB recyclables and garbage that will be collected from residences in the complex once developed together with calculation of recyclables, source-separated organics (SSO) and garbage collected from the commercial spaces.
- To determine the number of bins required to provide for the storage and collection of wastes from each of the buildings in the complex.
- To develop a plan, with accompanying drawings in CAD format, for the receipt, transfer, set out and collection of wastes that provides for the efficient and effective storage, transfer and transport of these materials on each collection day. The drawings, in Appendix A to this report, illustrate the storage, set out and collection of BB recyclables and garbage from each storage and collection facility as well as the routing for the collection vehicles including direction and turning radii which comply with the Region's WCDSM requirements.

Material generation and composition data for comparable residential developments were obtained from the documents titled "Roadmap to a Circular Economy in the Region of Peel, Region of Peel Waste Management Division", and Continuous Improvement Fund (CIF) Project No.872: "Multi-Residential Audits & Superintendent Training, City of Toronto, 2016". These data were used to calculate anticipated volumetric requirements for the storage of generated materials, as well as the requirements for set out prior to collection.

2.0 MATERIAL QUANTITIES, COMPOSITION AND VOLUME

As a first step in the design of the Plan for the proposed complex, the quantity of waste materials generated from the residential suites was calculated for BB recyclables and mixed waste. The Region does not require the collection of SSO from multi residential developments. Our volumetric calculations, therefore, have been completed for just the BB recyclables and mixed waste (garbage) streams. The garbage stream can be compacted in the identified garbage room. This will significantly reduce the volume of these materials and, therefore, the number of bins needed for storage, transfer, and collection.

2.1 Material Quantities and Composition

The proposed development will create a high-density, mixed-use community comprised of a mix of apartment residences with space for commercial uses on the ground floor and facing Lakeshore Road. The quantity of waste generated by each household in a high-density multi-residential community was identified by the Region to average 620 kg per year¹.

The composition of waste materials was determined based on the results of audits, undertaken in 2015, at multi-residential developments in the City of Toronto². For the purposes of this Plan, the breakdown of the composition of waste materials was determined to be: 30% for BB recyclables; and 70% for the mixed waste or garbage stream. The quantity of BB recyclables, therefore, would equal 186 kg per household and the quantity of mixed waste would equal 434 kg per household.

¹ Region of Peel, Waste Management Division, Roadmap to a Circular Economy in the Region of Peel, 2018-2041.

² City of Toronto, CIF Project No. 872: Multi-Residential Audits & Superintendent Training, January 2016, Figure 2, Total Waste Stream Composition (kg/hh/year) pg. 5, volume

According to subsection 3.5 (c) of Peel's By-Law to regulate the collection of waste (By-Law 35-2015) the Region collects mixed waste twice per week from multi-residential complexes on the scheduled collection days and according to subsection 3.6 (a) BB recyclables are collected on a weekly basis. The amount of each material type that would be generated on a weekly basis from each apartment suite (household or hh) in the development was determined by multiplying the annual total (in kg) by the projected % composition and dividing that by 52 weeks.

The calculations are as follows:

- BB recyclables $(620 \times 0.30/52) = 3.6$ kg/hh/week collection
- Mixed waste $(620 \times 0.70/52) = 8.3$ kg/hh/week or 4.2 kg/hh per twice-weekly collection

The quantity of recyclables and mixed waste generated per collection day from the residential suites in the complex is as follows:

- BB recyclables: 3.6 kg/hh/week $\times 147$ hh = 529 kg/week collection
- Mixed waste: 4.2 kg/hh per twice-weekly collection $\times 147$ hh = 617 kg per twice-weekly collection

Mixed waste is typically collected by the Region on Mondays and Thursdays with BB recyclables collected on Mondays. Also, bulky items are collected on Thursdays as may be required. For mixed waste, we have assumed that 40% of the material's weekly generation would be collected on Thursday and 60% of the materials would be collected on Monday.

The development proposes to establish 477.7 m² of commercial space provided on the ground floor of the complex. The amount of waste generated from these commercial spaces has been calculated based on a referenced number = 0.05 kg/m² of space = 24 kg per day. Assuming a 6-day work week, the total weekly waste generation would be 144 kg from the designated commercial space. We understand that Lightpoint is proposing to use this commercial space possibly for an open market or food hall concept. For the purposes of this Plan, we have assumed that the waste materials from the businesses in this area would be comprised of 40% organics or SSO comprised of excess, unsold food, and food waste; 30% recyclables; and 30 % garbage, the quantities of commercial waste are estimated to be as follows:

- BB recyclables: 43 kg per week
- SSO: 58 kg per week
- Garbage: 43 kg per week

These calculations have been included in the volumetric analyses provided in the following section of this plan.

2.2 Material Volume Calculations

The volume requirements for storage/collection containers for BB recyclables and mixed waste were calculated by dividing the weekly amount for recyclables by a density factor for these materials of 70 kg/m³ and the twice-weekly amount for uncompacted mixed waste by the density factor of 130 kg/m³, then multiplying by 1,000 to generate a required volume in litres (L). We have assumed that the mixed waste stream from the residential suites in the complex would not have to be compacted due to the relatively small volume of materials generated per week.

The calculations are as follows:

Residential Wastes:

- BB recyclables: $(529/70) \times 1000 = 7,557\text{L}$ per weekly collection
- Mixed waste: $(617/130) \times 1000 = 4,746\text{L/week}$ with Monday's collection at $4,746 \times 0.6 = 2,848\text{L}$ and Thursday's collection at $4,746 \times 0.4 = 1,898\text{L}$

Commercial Wastes:

- BB recyclables: $(43/70) \times 1000 = 614\text{L}$ per weekly collection
- SSO: $(58/500) \times 1000 = 116\text{L}$ per weekly collection
- Garbage: $(43/130) \times 1000 = 331\text{L}$ per weekly collection

Since recyclables and garbage collection of the residential wastes will be provided by way of front-end loaders, bins are the container of choice for this part of the development. The size of front-end loaded containers is typically expressed as "cubic yards" or "yd³". Please note that we have also included the storage requirements for the waste generated from the commercial areas. The Region expects that these materials would be collected by way of a private contract. The storage capacity required to accommodate the BB recyclables and mixed waste generated from the residential suites has been calculated by dividing the volume in L by 765 to convert the value to cubic yards (yd³). The volume of materials generated from the commercial area has been expressed in litres since we have assumed that they would be stored in containers for collection and not bins.

Residential Wastes:

- BB recyclables: $7,557/765 = 10\text{yd}^3$. per weekly collection which will require one, 4 yd³ bin and two 3 yd³ bins
- Mixed waste: $4,746/765 = 6.2\text{yd}^3$ per week which would require one, 4-yd³ for Monday's collection [$(4,746 \times 0.6)/765 = 3.7 \text{ yd}^3$] and one 3-yd³ bin for Thursday's collection [$(4,746 \times 0.40)/765 = 2.5 \text{ yd}^3$]. Note, we understand that this is the smallest collection bin which the Region uses for front-end waste collection

Commercial Wastes:

- BB recyclables: 614L per weekly collection which would require two 360L recycling carts
- SSO: 116L per weekly collection which would require two 100L organics carts
- Garbage: 331L per weekly collection which would require one 360L garbage cart

3.0 MATERIAL HANDLING-DESIGN CONSIDERATIONS

The waste material handling for the proposed development was evaluated based on the material volume calculations outlined in Section 2.2 of this report as well as the associated requirements set forth in the Region's WCDSM.

3.1 Applicable Waste Collection Standards

The design standards applicable to the subject development have been outlined in the Region's input to the initial meeting with the Equity and as summarized in Section 1.0 of this report. In addition, **Section 4** of the WCDSM, which applies to multi-residential complexes, states that:

- Solid waste from the residential suites will be collected in a dedicated room on the ground floor of the complex and transferred to the designated garbage staging and collection area as depicted on the drawing in Appendix A to this Plan.
- BB recyclables will not be compacted after received via the materials chutes.
- Waste materials will be transferred from each residential suite via a gravity-based, bi-sorter chute system which will be equipped to direct materials into respective front-end bins. The mixed waste materials will not be compacted. The waste materials storage room is located on the ground floor of the complex.
- The concealed and ventilated collection room will be designed and constructed in compliance with the following requirements:
 - A minimum width of 3 m for each front-end bin is required and a minimum depth of 3 m is required for 4 cubic yard bins.
 - A minimum of 10 m² is required for the set out of bulky items.

3.2 Material Staging and Collection

3.2.1 Staging

The residents in each of the apartment suites will dispose of their BB recyclables and garbage via a chute-based system. As the materials are received in the garbage room, located on the ground floor of the complex, they will be directed to either the recycling or garbage front-end bins. The bins will be moved to the storage/staging area in the garbage room as required between collection days. On each collection day, the bins will be transported, by building maintenance staff, from the storage room to the collection area (refer to Appendix A "Recyclables and Garbage Storage & Collection Plan").

The waste materials from the residences will be placed at the designated waste collection area as identified on the Waste Collection Plan (Appendix A) before 7:30 a.m. on the designated waste collection day. Waste materials will be set out for collection. The set-out area identified on the attached Plan provides enough space for the bins as well as room for jockeying the bins into position for collection if required. There is also enough space to accommodate the 10 m² area needed to set out bulky items as required by the Region for collection on a Thursday.

For the wastes generated from the commercial areas, it has been assumed that the material would be collected by a third-party maintenance provider. The waste materials generated from the future retail/commercial uses will be collected by building maintenance staff and stored in the "Commercial Waste" room identified on the attached Plan. The carts, used to store these materials, will be transferred to the collection area used to set out and collect the

residential wastes. The schedule for the set out and collection of commercial wastes will be established by the Contract with a third-party services provider. The collection day for the commercial wastes should not be scheduled on either Monday or Thursday when the residential wastes are collected.

3.2.2 Collection

The routing of the collection vehicle has been depicted on the Collection Plan in Appendix A. On each collection day, the vehicle would access the complex from Elmwood Avenue as depicted on the attached Plan. A similar pattern would be followed for the collection of bulky items. Please be advised that the collection vehicle will be completing its turn into the collection facility at the start of the 18-metre straight line approach. There is sufficient distance to ensure that the vehicle will be in the proper position to complete collection of materials.

4.0 CONCLUSIONS

The subject Solid Waste Plan supports the conclusion that the development at 170 Lakeshore Road East, as proposed, will provide enough space for the storage, staging and collection of BB recyclables and garbage from the residential suites. It has been assumed, in this Plan, that the solid waste generated by the occupants of the commercial spaces will be serviced via direct contracts with private waste management collection provider(s). If desired, the property owners may apply to the Region for the provision of its services for the commercial tenants.

The Plan has not accommodated for the management of SSO from the residential suites since the Region does not require this for multi-unit residential developments.

5.0 CLOSURE

We trust this Solid Waste Plan meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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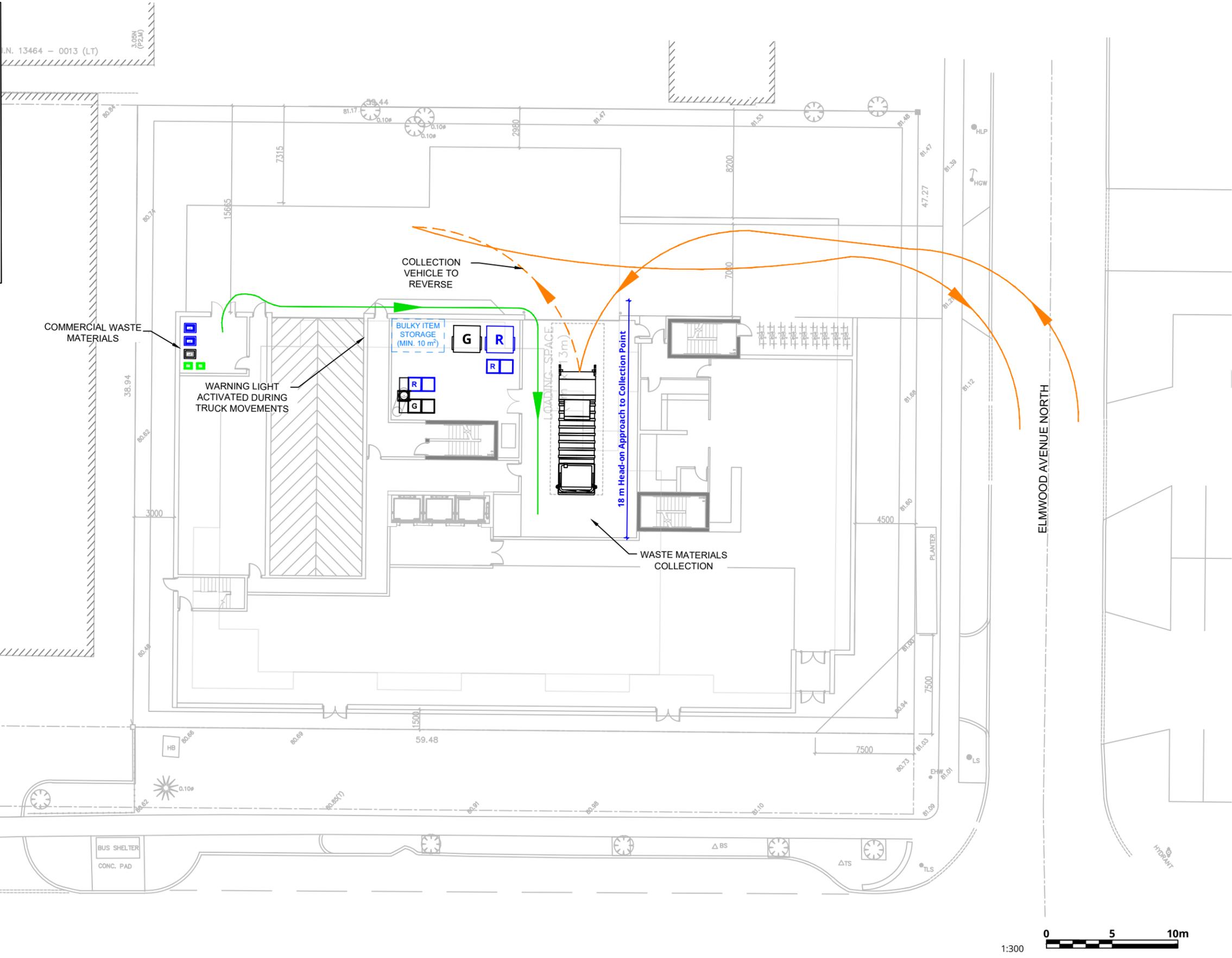
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APPENDIX A

RECYCLABLES AND MIXED WASTE COLLECTION PLAN

LEGEND:

- R 4-CUBIC YARD FRONT-END BIN - RECYCLABLES
- R 3-CUBIC YARD FRONT-END BIN - RECYCLABLES
- G 4-CUBIC YARD FRONT-END BIN - MIXED WASTE
- G 3-CUBIC YARD FRONT-END BIN - MIXED WASTE
- D 360 L CART - RECYCLABLES (COMMERCIAL SPACE)
- D 360 L CART - GARBAGE (COMMERCIAL SPACE)
- O 100 L CART - ORGANICS (COMMERCIAL SPACE)
- PROPOSED COLLECTION ROUTE AND DIRECTION OF TRAVEL
- TRANSFER ROUTE FOR MATERIAL SET-OUT AND COLLECTION (COMMERCIAL SPACE)
- COLLECTION VEHICLE



- NOTES:**
1. RESIDENTS TO BE RESPONSIBLE FOR TRANSPORTING WASTE MATERIALS TO THE DESIGNATED WASTE CHUTE AS REQUIRED.
 2. PROPERTY MANAGEMENT TO BE RESPONSIBLE FOR JOCKEYING FRONT-END BINS FROM THE GARBAGE ROOM TO THE DESIGNATED COLLECTION AREA ON COLLECTION DAY.
 3. GARBAGE IS NOT TO BE COMPACTED.
 4. PROPERTY MANAGEMENT TO BE RESPONSIBLE FOR MONITORING AVAILABLE CAPACITY WITHIN THE RESPECTIVE FRONT-END BINS, AND REPLACING FULL BINS WITH EMPTY BINS AS REQUIRED.
 5. GARBAGE TO BE COLLECTED TWICE-WEEKLY. BB RECYCLABLES TO BE COLLECTED WEEKLY.
 6. RESIDENTS TO NOTIFY BUILDING MANAGEMENT TO TRANSFER BULKY ITEMS TO THE DESIGNATED STAGING AREA WITHIN THE RESPECTIVE GARBAGE ROOM AS REQUIRED.
 7. PROPERTY MANAGEMENT TO BE RESPONSIBLE FOR TRANSPORTING BULKY ITEMS FROM THE STAGING AREAS TO THE DESIGNATED COLLECTION AREA ON COLLECTION DAY.
 8. COMMERCIAL WASTE COLLECTION TO BE ADMINISTERED VIA PRIVATE CONTRACT.

Recyclables and Mixed Waste Collection Plan
 Solid Waste Management Plan, 170 Lakeshore Road East, Mississauga, Ontario
 LightPoint Properties Inc.

NOTES:
 1. Base plan provided by IBI (2021).

True North

Drawn by: TFB Figure: 1

Approx. Scale: 1:300

Date Revised: Sep. 22, 2021

Project #2200472

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APPENDIX B

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

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The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.