COMMITTEE OF ADJUSTMENT
City Hall, 5th floor, 71 Main Street West, Hamilton, ON L8P 4Y5
Telephone (905) 546-2424, ext. 4221
E-mail: cofa@hamilton.ca

NOTICE OF PUBLIC HEARING
Consent/Land Severance

You are receiving this notice because you are either:

- Assessed owner of a property located within 60 metres of the subject property
- Applicant/agent on file, or
- Person likely to be interested in this application

APPLICATION NO.:	**HM/B-23:96**	**SUBJECT PROPERTY:**	100 FERGUSON AVE S, HAMILTON

APPLICANTS: Owner: DAINTY INVESTMENTS LIMITED (C/O EPHRAIM ALON)
Agent: WESTON CONSULTING (C/O RYAN GUETTER)
Applicant: E. ALON

PURPOSE & EFFECT: To permit the conveyance of a parcel of land for residential purposes (existing structures to remain) and to retain a parcel of land for residential development.

	Frontage	**Depth**	**Area**
SEVERED LANDS:	48.4 m±	56.4 m±	2,705 m^2 ±
RETAINED LANDS:	51.5 m±	45.8 m±	2,158 m^2 ±

Associated Planning Act File(s): DA-24-004

This Notice must be posted by the owner of any land which contains seven or more residential units so that it is visible to all residents.

This application will be heard by the Committee as shown below:

DATE:	**Tuesday, February 13, 2024**
TIME:	**1:30 p.m.**
PLACE:	**City Hall Council Chambers (71 Main St. W., Hamilton)**
	To be streamed (viewing only) at www.hamilton.ca/committeeofadjustment

For more information on this matter, including access to drawings illustrating this request and other information submitted:

- Visit www.hamilton.ca/committeeofadjustment
- Email Committee of Adjustment staff at cofa@hamilton.ca
- Call 905-546-CITY (2489) or 905-546-2424 extension 4221

PUBLIC INPUT

Written: If you would like to submit written comments to the Committee of Adjustment you may do so via email or hardcopy. Please see attached page for complete instructions, written comments must be received no later than **February 9, 2024**

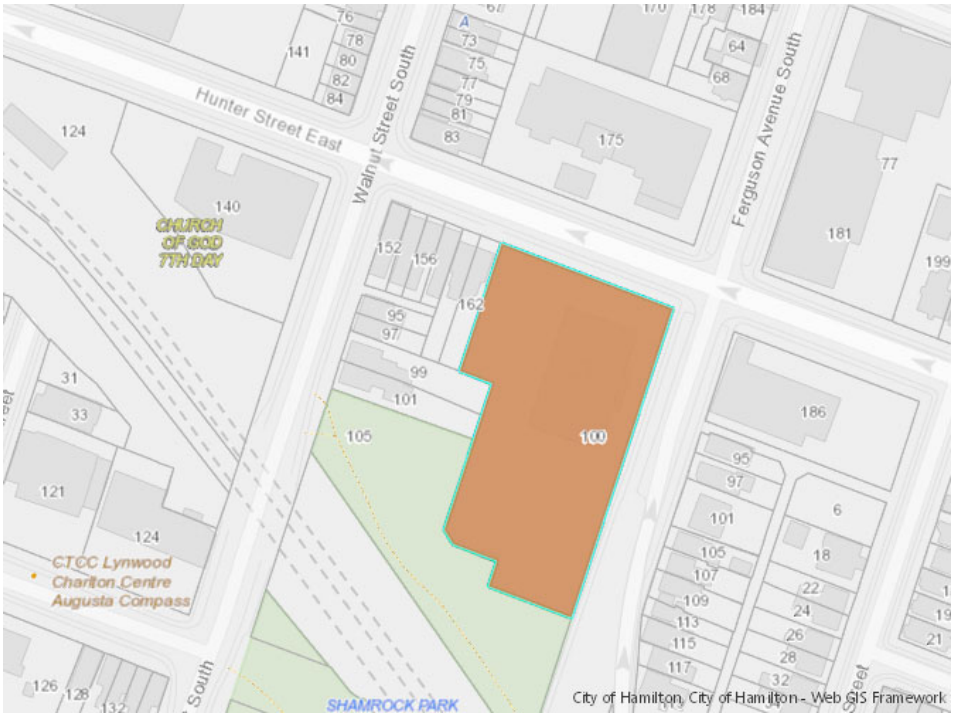
Orally: If you would like to speak to this item at the hearing you may do so via video link, calling in, or attending in person. Please see attached page for complete instructions, registration to participate virtually must be received no later than **February 12, 2024**

FURTHER NOTIFICATION

If you wish to be notified of future Public Hearings, if applicable, regarding HM/B-23:96, you must submit a written request to cofa@hamilton.ca or by mailing the Committee of Adjustment, City of Hamilton, 71 Main Street West, 5th Floor, Hamilton, Ontario, L8P 4Y5**.**

If you wish to be provided the Notice of Decision of the proposed consent, you must make a written request to the Secretary-Treasurer of The City of Hamilton Committee of Adjustment by email at cofa@hamilton.ca or by mail through City Hall, 5th floor, 71 Main Street West, Hamilton, ON L8P 4Y5.

If a person or public body that files an appeal of a decision of The City of Hamilton Committee of Adjustment in respect of the proposed consent does not make written submissions to The City of Hamilton Committee of Adjustment before it gives or refuses to give a provisional consent, the Ontario Land Tribunal may dismiss the appeal.



Subject Lands

DATED: January 25, 2024

_____

Jamila Sheffield,
Secretary-Treasurer
Committee of Adjustment

Information respecting this application is being collected under the authority of the Planning Act, R.S.O., 1990, c. P. 13. All comments and opinions submitted to the City of Hamilton on this matter, including the name, address, and contact information of persons submitting comments and/or opinions, will become part of the public record and will be made available to the Applicant and the general public.

COMMITTEE OF ADJUSTMENT

City Hall, 5th floor, 71 Main Street West, Hamilton, ON L8P 4Y5

Telephone (905) 546-2424, ext. 4221

E-mail: cofa@hamilton.ca

PARTICIPATION PROCEDURES

Written Submissions

Members of the public who would like to participate in a Committee of Adjustment meeting are able to provide comments in writing advance of the meeting. Comments can be submitted by emailing cofa@hamilton.ca or by mailing the Committee of Adjustment, City of Hamilton, 71 Main Street West, 5th Floor, Hamilton, Ontario, L8P 4Y5. **Comments must be received by noon on the date listed on the Notice of Public Hearing.**

Comments are available the Friday prior to the Hearing and are available on our website: **www.hamilton.ca/committeeofadjustment**

Oral Submissions

Members of the public are also able to provide oral comments regarding Committee of Adjustment Hearing items by participating Virtually through Webex via computer or phone or by attending the Hearing In-person. Participation Virtually requires pre-registration in advance. Please contact staff for instructions if you wish to make a presentation containing visual materials.

1. Virtual Oral Submissions

Interested members of the public, agents, and owners **must register by noon on the day listed on the Notice of Public Hearing to** participate Virtually.

To register to participate Virtually by Webex either via computer or phone, please contact Committee of Adjustment staff by email cofa@hamilton.ca. The following information is required to register: Committee of Adjustment file number, hearing date, name and mailing address of each person wishing to speak, if participation will be by phone or video, and if applicable the phone number they will be using to call in.

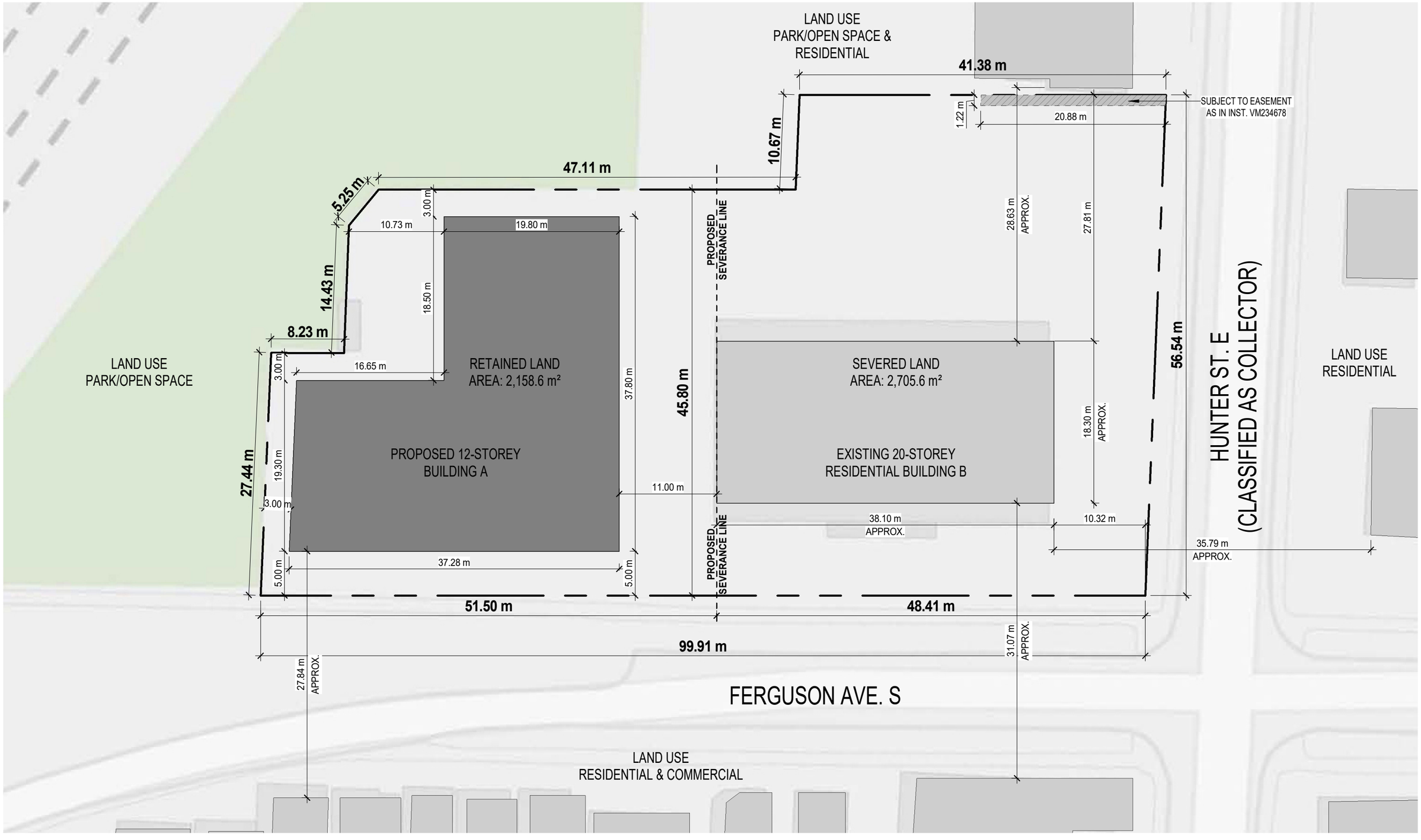
A separate registration for each person wishing to speak is required. Upon registering for a meeting, members of the public will be emailed a link for the Webex meeting one business day before the Hearing. Only those registered will be called upon to speak.

2. In person Oral Submissions

Interested members of the public, agents, and owners who wish to participate in person may attend Council Chambers on the date and time listed on the Notice of Public Hearing. Please note, you will be required to provide your name and address for the record. It is advised that you arrive **no less than 10 minutes** before the time of the Public Hearing as noted on the Notice of Public Hearing.

We hope this is of assistance and if you need clarification or have any questions, please email cofa@hamilton.ca or by phone at 905-546-2424 ext. 4221.

Please note: Webex (video) participation requires either a compatible computer or smartphone and an application (app/program) must be downloaded by the interested party in order to participate. It is the interested party's responsibility to ensure that their device is compatible and operating correctly prior to the Hearing.



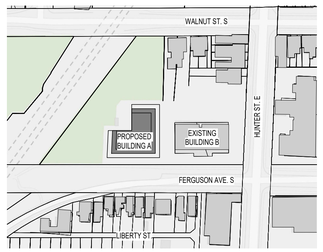
BDP. Quadrangle

Project No.23011 / 12/08/23 / **100 Ferguson Ave. S**

Severance Plan

Scale: 1 : 400

A103.S



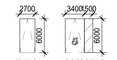
KEY PLAN

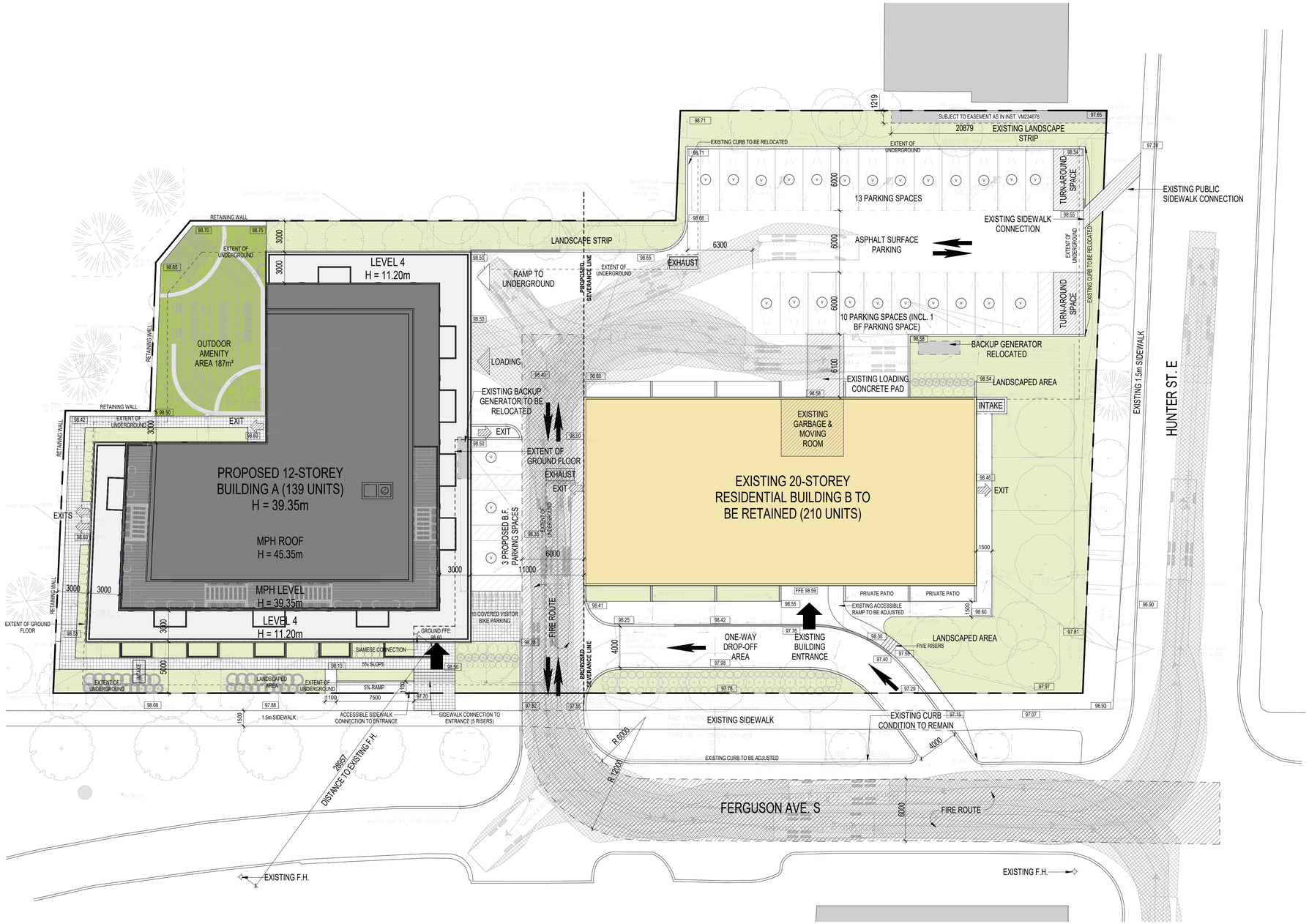
PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2700mm WIDE X 6000mm LONG (NO SIDES OBSTRUCTED)
   - 3000mm WIDE X 6000mm LONG (ONE SIDE OBSTRUCTED)
   - 3300mm WIDE X 6000mm LONG (TWO SIDES OBSTRUCTED)
2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6000mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- (V) VISITOR PARKING SPACE
- (E) EXISTING PARKING SPACE
- BIKE LOCKER
- BIKE PARKING (STACKED)
- BIKE PARKING (VERTICAL)
- CONVEX MIRROR
- ELECTRIC VEHICLE





SITE PLAN LEGEND

- PROPERTY LINE
- LINE OF UNDER GROUND GARAGE BELOW
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION
- F.F.E. FINISH FLOOR ELEVATION
- ### ### PROPOSED ELEVATION
- BUILDING ENVELOPE
- FIRE ACCESS ROUTE HEAVY DUTY PAVING. ASSEMBLY TO BE DESIGNED TO MEET THE LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT.
- TERRACE PAVERS

Date	No.	Description
REVISION RECORD		

DEC 2023	ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011 1:200	EL	SSC
PROJECT SCALE	DRAWN	REVIEWED

Site Plan

A101.S

C:\Users\EL.45368\Documents\BDPQ_AR_23011_100 Ferguson Ave_R2022_EL45368.rvt

12/14/2023 3:38:41 PM

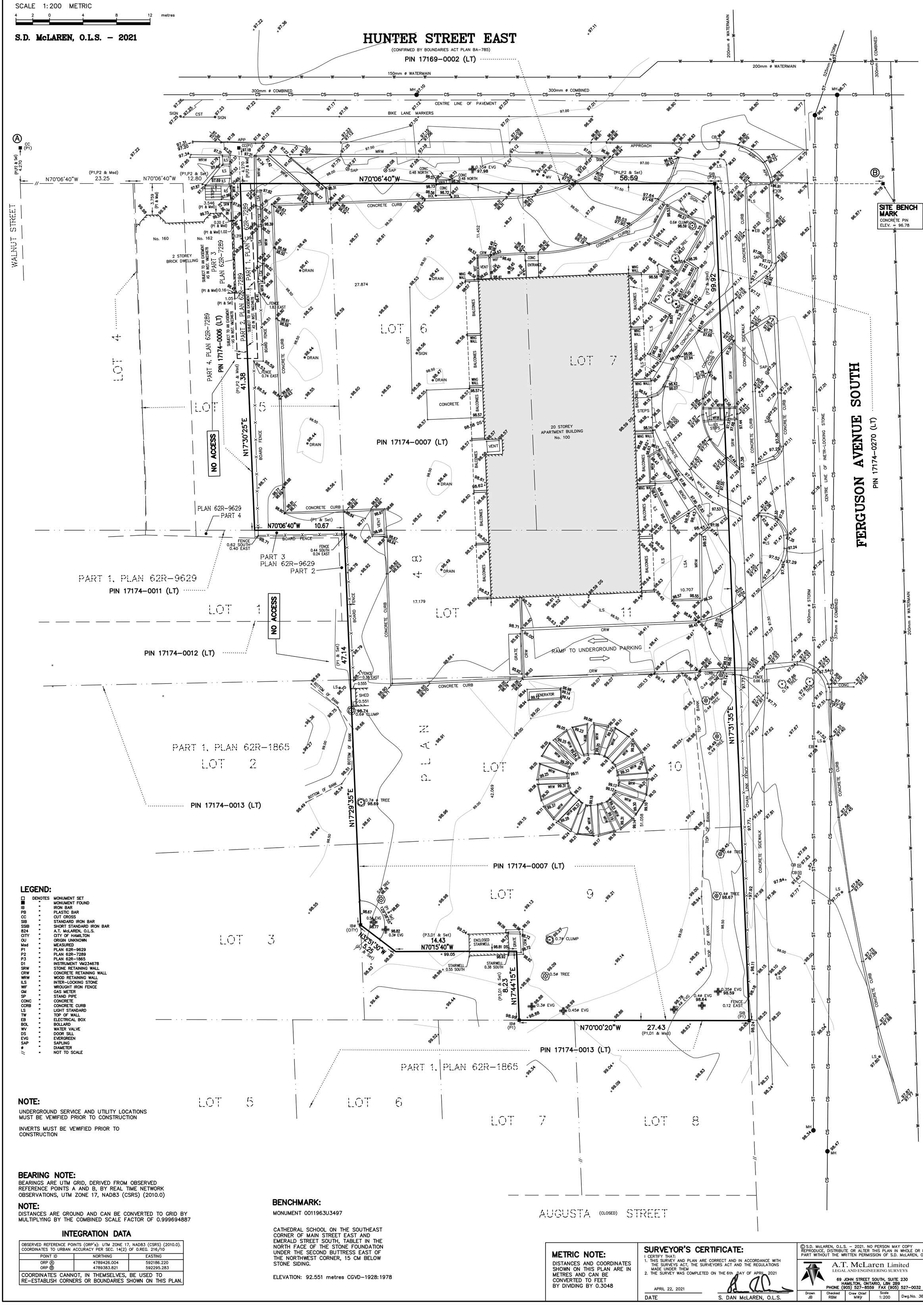
TOPOGRAPHIC SURVEY

OF PART OF
LOT 5
AND ALL OF
LOTS 6 AND 7
SOUTH SIDE OF HUNTER STREET
OF PART OF
LOT 9
AND ALL OF
LOTS 10 AND 11
FRONTING ON FERGUSON AVENUE
REGISTERED PLAN 48
IN THE
CITY OF HAMILTON

SCALE 1:200 METRIC

4 2 0 4 8 12 metres

S.D. McLAREN, O.L.S. – 2021



LEGEND:

□	DENOTES	MONUMENT SET
■	"	MONUMENT FOUND
IB	"	IRON BAR
PB	"	PLASTIC BAR
CC	"	CUT CROSS
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
824	"	A.T. McLAREN, O.L.S.
CITY	"	CITY OF HAMILTON
OU	"	ORIGIN UNKNOWN
Msd	"	MEASURED
P1	"	PLAN 62R–9629
P2	"	PLAN 62R–7289
P3	"	PLAN 62R–1865
D1	"	INSTRUMENT VM234678
SRW	"	STONE RETAINING WALL
CRW	"	CONCRETE RETAINING WALL
WRW	"	WOOD RETAINING WALL
ILS	"	INTER–LOCKING STONE
WIF	"	WROUGHT IRON FENCE
GM	"	GAS METER
SP	"	STAND PIPE
CONC	"	CONCRETE
CCRB	"	CONCRETE CURB
LS	"	LIGHT STANDARD
TW	"	TOP OF WALL
EB	"	ELECTRICAL BOX
BOL	"	BOLLARD
WV	"	WATER VALVE
DS	"	DOOR SILL
EVG	"	EVERGREEN
SAP	"	SAPLING
ø	"	DIAMETER
≈	"	NOT TO SCALE

NOTE:

UNDERGROUND SERVICE AND UTILITY LOCATIONS MUST BE VEWIFIED PRIOR TO CONSTRUCTION

INVERTS MUST BE VEWIFIED PRIOR TO CONSTRUCTION

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0)

NOTE:

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999694887

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORP's): UTM ZONE 17, NAD83 (CSRS) (2010.0).
COORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O.REG. 216/10

POINT ID	NORTHING	EASTING
ORP Ⓐ	4789426.004	592186.220
ORP Ⓑ	4789383.821	592295.283

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

BENCHMARK:

MONUMENT 0011963U3497

CATHEDRAL SCHOOL ON THE SOUTHEAST CORNER OF MAIN STREET EAST AND EMERALD STREET SOUTH, TABLET IN THE NORTH FACE OF THE STONE FOUNDATION UNDER THE SECOND BUTTRESS EAST OF THE NORTHWEST CORNER, 15 CM BELOW STONE SIDING.

ELEVATION: 92.551 metres CGVD–1928:1978

METRIC NOTE:

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SURVEYOR'S CERTIFICATE:

I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM
2. THE SURVEY WAS COMPLETED ON THE 6th DAY OF APRIL, 2021

APRIL 22, 2021
DATE

S. DAN McLAREN, O.L.S.

A.T. McLaren Limited
LEGAL AND ENGINEERING SURVEYS
69 JOHN STREET SOUTH, SUITE 230
HAMILTON, ONTARIO, L8N 2B9
PHONE (905) 527–8559 FAX (905) 527–0032

Drawn	Checked	Crew Chief	Scale	Dwg.No.
JB	RBM	MWjr	1:200	36618

WESTON CONSULTING

Hamilton City Hall
Committee of Adjustment
71 Main Street West, 5th Floor
Hamilton, ON. L8P 4Y5

December 21, 2023
File 11302

Attn: Jamila Sheffield, Secretary-Treasurer of the Committee of Adjustments

RE: Applications for Consent – Lot Severance
100 Feguson Ave South, Hamilton
Related City File: Formal Consultation Site Plan Application: FCSP-23-060 and Minor Variance Application HM/A-09:11

Weston Consulting is the planning consultant for Dainty Investments Limited, the owner of the property municipally known as 100 Ferguson Ave South, herein referred to as the "subject property".

The concurrent site plan and consent applications are being submitted together. The severance application is for the purpose of financing and distinctive ownership arrangements for purposes of managing the development. The site plan application is in support of a proposed 12-storey residential development in accordance with the Formal Consultation Site Plan Control meeting held with City staff on May 31, 2023, and the City of Hamilton Pre-Application Consultation checklist, which was issued on July 5, 2023 identifying the requirements for a complete Site Plan Control Application.

Description of Subject Lands and Site Context

The subject property is 0.49 hectares (1.21 acres) in area, with a frontage of approximately 56.7 metres (186.0 feet) onto Hunter Street East to the north and 100.1 metres (328.5 feet) onto Ferguson Avenue South to the east. The subject property is located within 30 metres of the CN Rail corridor, which is located the south of the property. The subject property currently contains a single, twenty-storey apartment building with associated parking above and below ground. The rear of the property contains a sizeable landscaped open area where a second development is proposed to be located. The surrounding lands consist of the following:

North: The lands to the north across from Hunter Street East contain a six-storey residential building and a single detached dwelling.

East: The adjacent lands to the south across from the landscaped amenity area on the property contain the Shamrock Park, which includes a basketball court and is adjacent to the CN railway.

South: The lands to the east across from Ferguson Avenue South contain a parking garage and

some single detached dwellings. Further east are semi-detached dwellings.

West: The adjacent lands to the west across from the above-ground parking area on the subject property contain townhouse dwellings. Further west across from Walnut Street South is a church.

Figure 1: Aerial Image of the Subject Lands

Planning Policy Framework

The subject property is in the settlement area of 2020 Provincial Policy Statement (PPS). Also, it is within the Built-Up Area Conceptual of the Growth Plan and near an Urban Growth Centre which is intended to support varied housing forms and intensification and efficient use of structure and community facilities. The subject application and proposed severance seek to intensify underutilized property for additional dwelling units and is consistent with the policies of the PPS and conform to the growth plan policies.

The Urban Hamilton Official Plan (May 2022 Consolidation) designates the subject property as Neighbourhoods. This designation permits wide range of residential uses. Also, Residential Intensification is a recurring theme within the Urban Hamilton Official Plan (UHOP) and the UHOP speak on intensification and outline targets and guidelines on residential intensification. The proposed development at 100 Ferguson Avenue South aligns with Urban Hamilton Official Plan

(UHOP) requirements, focusing on residential intensification. Complying with UHOP sections B.2.4, E.2.7, and E.3.0, the project helps to provide additional housing for the City to the 30% intensification target in Neighbourhood Areas. It integrates diverse housing forms by providing a mid-rise building and maintains the neighborhood's character. The proposed mid-rise building strategically minimizes its impact on surroundings, preserving views and vistas. Careful consideration is given to services, utilities, and circulation, with parking solutions emphasizing underground facilities and landscaped screening. It is our opinion that the subject application and proposed severance conforms with the overall objectives and the vision of the UHOP.

The current zoning according to the City of Hamilton Zoning By-law 6593, June 2022 Consolidation, is E/S-267, enacted by By-law 73-136 on April 24, 1973. The site-specific zoning provides for 20 storeys in height, 210 dwelling units, and 138,800 square feet (12,848.5 m²) of GFA among other standards. The "E" District zoning class permits a variety of residential uses, including multiple dwellings. The subject application and proposed severance conforms with the land use designation based on the foregoing use of the land. A minor variance application be required during site plan application approval process and will be submitted at the appropriate time.

Purpose of the Consent Application for Severance

The purpose of the current Consent Application is to sever the subject lands, into two distinct land parcels, each designated for residential use. These parcels are identified as 'Building A' (to be retained) and 'Building B' (to be severed). The land area for the retained Parcel is 2,158.6 sqm (0.53 acres), and the resulting land area for the severed Parcel is 2,705.6 sqm (0.66 acres), as shown in the enclosed severance sketch.

The existing building on the subject property will remain on the site. The existing vehicular access off Hunter Street East will be closed, and a new driveway access is proposed off Ferguson Avenue South. This results in a more pedestrian-friendly street frontage with an enhanced landscaped area along Hunter Street East. The existing drop-off loop is adjusted to connect with this driveway for a smooth flow of vehicles. The new driveway is conveniently located between the two buildings and provides access to the existing surface parking area and existing and proposed service areas, as shown in the enclosed site plan.

Planning Analysis and Justification of the Proposed Consent Application

Section 51 of the *Planning Act* authorizes an approval authority to make decisions regarding the subdivision of land. The *Planning Act* sets the standard to which provincial interests, provincial and local policies and goals are implemented. Accordingly, in order to recommend a severance for approval, the application must have regard for the criteria listed in subsection 51(24) of the *Planning Act*. Table 1 provides an assessment of how the consent application meets the prescribed criteria.

Table 1: Assessment of Section 51 of the Planning Act (Land Division)

Criteria	Proposed Applications
(a) the effect of development of the proposed subdivision on matters of provincial interest referred to in section 2;	The proposed consent application has regard for matters of provincial interest as the subject lands are located within a *built-up area* of the Provincial Policy Statement and provides an appropriate location for the continuation of residential uses and efficient use of the lands.
(b) whether the proposed subdivision is premature or in the public interest;	The proposal retains the existing building on the site serve a residential function and adds new residential dwellings. The Consent application results in the creation of two parcels, each intended to maintain their uses. This proposed division of land is not premature and supports the use of the land in a manner that is in the public interest.
(c) whether the plan conforms to the official plan and adjacent plans of subdivision, if any;	The proposal conforms to the policies of the City of Urban Hamilton Official Plan (May 2022 Consolidation).
(d) the suitability of the land for the purposes for which it is to be subdivided;	The land is suitable to be provided for residential uses. The proposal retains the residential building and uses currently operating on the lands.
(d.1) if any affordable housing units are being proposed, the suitability of the proposed units for affordable housing;	Not applicable.
(e) the number, width, location and proposed grades and elevations of highways, and the adequacy of them, and the highways linking the highways in the proposed subdivision with the established highway system in the vicinity and the adequacy of them;	The number, width, location and proposed grades and elevations of highways, and their linkages are adequate and no road conveyances are required.
(f) the dimensions and shapes of the proposed lots;	The proposed severance line has been positioned to ensure that each of the two lots will maintain proper and independent functionality after the severance is completed.

	The dimensions of the proposed lots are applicable.
(g) the restrictions or proposed restrictions, if any, on the land proposed to be subdivided or the buildings and structures proposed to be erected on it and the restrictions, if any, on adjoining land;	Not applicable.
(h) conservation of natural resources and flood control;	Not applicable.
(i) the adequacy of utilities and municipal services;	The buildings are already connected to municipal infrastructure. A Functional Servicing and Stormwater Management Report, prepared by counterpoint engineering, has assessed the servicing adequacy. The report concludes that the proposed redevelopment can be accommodated with no adverse downstream impact or any external upgrades.
(j) the adequacy of school sites;	Not applicable.
(k) the area of land, if any, within the proposed subdivision that, exclusive of highways, is to be conveyed or dedicated for public purposes;	Not applicable.
(l) the extent to which the plan's design optimizes the available supply, means of supplying, efficient use and conservation of energy; and	The proposed building followed by the lot severance, presents an opportunity to enhance the utilization of the currently serviced land in a more efficient and effective manner. Through efficient land use, proposed lot severance can contribute to sustainable development goals by reducing land consumption and promoting denser, more sustainable communities.
(m) the interrelationship between the design of the proposed plan of subdivision and site plan control matters relating to any development on the land, if the land is also located within a site plan control area	This Consent application is being submitted along with the site plan application concurrently. The site plan application is being submitted based on the Formal Consultation comments issued on July 5,

designated under subsection 41 (2) of this Act or subsection 114 (2) of the *City of Toronto Act, 2006*. 1994, c. 23, s. 30; 2001, c. 32, s. 31 (2); 2006, c. 23, s. 22 (3, 4); 2016, c. 25, Sched. 4, s. 8 (2).	2023.

Based on our analysis, it is our opinion that the Consent application meets the criteria of Section 51 (24) of the Planning Act. The proposed application has merit and represents good planning. It is our opinion that this application should proceed through the planning process.

In support of these applications, please find enclosed the following materials:

- Justification Letter (this correspondence);
- Completed Consent Application Form;
- Consent sketch;
- Site Plan;
- Property Survey;
- Hydrogeological Assessment;
- Noise Study; and
- Parking Study

The application fee of $3,220 has been paid and the receipt of the application payment included with this submission. We trust that the submitted materials meet the application requirements and request that the hearing of this application be scheduled for the earliest possible Committee of Adjustment date. Should you have any questions, please contact the undersigned at extension 241.

Yours truly,
Weston Consulting

Ryan Guetter, BES, MCIP, RPP
Executive Vice President

c. Dainty Investments Limited

Preliminary Hydrogeological Investigation

100 Ferguson Avenue South
Hamilton, Ontario

Prepared For:

Amelin Property Management

Project No.: 23-229-100
Date: August 17th, 2023
Revised: December 4th, 2023 (Rev.1)

DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

23-229-100 **December 4th, 2023 (Rev. 1)**

Mr. Ephraim Alon
c/o Neil Robinson
Amelin Property Management
155 Balliol Street, Toronto
M4S 1C4

Via email: neilrrealestate@gmail.com

RE: Preliminary Hydrogeological Investigation – 100 Ferguson Avenue South, Hamilton, ON

DS Consultants Limited (DS) was retained by Amelin Property Management to complete a preliminary hydrogeological investigation for the proposed development at 100 Ferguson Ave. S., Hamilton, ON (Site) located at the southwest corner of Ferguson Ave S and Hunter St. The Site currently consists of a 20-storey residential building, paved parking area and a landscaped area located south of the existing building. The existing building on site consists of two (2) levels of underground parking (P2) extending beneath the building and landscaped area. It is DS' understanding that the existing building will remain, and the underground parking structure will be partially demolished for the proposed residential 12-storey building with three levels of underground parking (P3) proposed within the landscaped area. Based on below grade designs provided to DS, the P3 floor slab is proposed to extend to 88.6 meters above seal level (masl). This investigation is based on four (4) boreholes and four (4) monitoring wells installed by DS in June 2023 in support of the geotechnical, and hydrogeological investigations at the Site. Additional boreholes and monitoring wells are recommended to be advanced at the site following demolition to support the P3 design.

Based on the results of this investigation, the following conclusions and recommendations are presented:

1. Based on the review of the Ministry of Environment Conservation and Parks (MECP) Water Well Records (WWRs), there are one-hundred eighty-one (181) water wells within a 500 m radius of the Site. All wells were noted as monitoring (MO/MT), test hole (TH), not in use or unknown status. Based on the WWRs, the reported groundwater levels range from 4.0 meters below ground surface (mbgs) and 7.0 mbgs.
2. In June 2023, test drilling of four (4) boreholes was carried out by a licensed water well contractor The boreholes were advanced within the existing P2 to depths ranging between 1.9 to 5.4 meters below the P2 floor slab to approximate corresponding elevations of 87.9 to 91.4 masl meters above sea level (masl). All the boreholes were equipped with monitoring wells screened to depths ranging from 1.9 to 3.8 m below the P2 floor slab to approximate corresponding elevations of 91.4 to 89.5 masl. All monitoring wells were developed before any use to allow for groundwater level monitoring, hydraulic conductivity testing, and to assess groundwater quality.
3. The stratigraphy at the Site generally consists of fill material overlying overburden consisting of silty clay to clayey silt (till) overlying clayey silt till/shale complex. A silty clay till/shale complex was

encountered across the Site at approximate depths of 1.9 and 2.6 m below the basement floor slab in boreholes BH23-1 and BH23-2, respectively. Shale fragments were also encountered in BH23-4 below 3.1 m below the P2 floor slab.

4. Groundwater levels were measured in all available wells on July 28th, 2023, by DS. Groundwater levels ranged from at surface of the P2 floor slab to 1.6 m below the P2 floor slab (91.7 to 93.3 masl) within the overburden. Based on groundwater elevations, the flow direction is inferred to be northeast towards Lake Ontario.

5. Three (3) Single Well Response Tests (SWRTs) were completed by DS in July 2023, to estimate hydraulic conductivity (k) for the representative geological units in which the wells were completed. Hydraulic conductivity (k) values were calculated using the Bouwer and Rice method using the AquiferTest® Software. The k-values ranged between 1.3 x 10^{-9} to a maximum of 8.1 X 10^{-9} m/s.

6. One (1) unfiltered groundwater sample was collected from monitoring well BH23-1 on July 31st, 2023, and submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). The analytical results were compared to the parameter limits listed under the City of Hamilton sewer use by-law 14-090. The reported analytical results indicate that Total Suspended Solids (TSS) exceeded the Hamilton sanitary and storm sewer limits, and that sulphate and chloride exceeded the Hamilton sanitary sewer limits.

7. Groundwater quality at the development site is not suitable for direct discharge into the City's storm and sanitary sewers without treatment during construction dewatering. Best management practices should be used to pre-treat the water of particulates to meet discharge criteria.

8. The estimated dewatering rate for the unsealed excavation method for the P3 underground parking structures is approximately 25,760 L/day. This value incorporates a 100% safety factor and accounts for a 10 mm storm event in the open excavations during construction.

9. The radius of influence (Ro) or zone of influence (ZOI) for the construction dewatering was calculated based on the Sichardt equation. ZOI is the distance at which the drawdown resulting from pumping is negligible. The ZOI for the proposed development at the Site is approximately 28m from the center of the excavation for the underground parking structure.

10. Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and drainage along the foundation wall. The permanent drainage for the building is estimated to be less than 1,000 L/day. However, as a conservative approach up to 5,000 L/day should be accounted for.

11. The estimated dewatering rate does not exceed the MECP criteria of an Environmental Activity Sector Registry (EASR) for the underground parking structure. Therefore, an EASR application is not required to be submitted to the MECP for the development before construction, however, is recommended for any construction dewatering project should volumes exceed 50,000 L/day. The estimated permanent drainage volume is below the MEPC Permit to Take Water (PTTW) criteria. Therefore, a PTTW will not be required permanently.

12. There are structures and utilities (buildings, sewers etc.) within the estimated ZOI. Since the proposed development is to extend within low permeable till deposits, settlement will likely not occur. However, DS recommends consulting a geotechnical engineer to access settlement because of dewatering activities.
13. The site is located within the Hamilton Region Source Protection Area (SPA), and a Highly Vulnerable Aquifer (HVA) and was designated a score of six (6), indicating that the threat activities can be moderate or low. The site is not within a wellhead protection area (WHPA), and intake protection zone (IPZ).
14. In conformance with Regulation 903 of the Ontario Water Resources Act, the decommissioning of any monitoring wells should be carried out by a licensed contractor under the supervision of a licensed water well technician.

Should you have any questions regarding these findings, please contact the undersigned.

DS Consultants Ltd.

Prepared By:

Dorothy Santos, M.Sc.
Project Manager

Reviewed By:

Martin Gedeon, M.Sc., P.Geo.
Senior Hydrogeologist

Pradeep Patel, M.Sc., P.Geo
Hydrogeologist

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FIGURES

APPENDICES

1.0 INTRODUCTION

DS Consultants Limited (DS) was retained by Amelin Property Management to complete a preliminary hydrogeological investigation for the proposed development at 100 Ferguson Ave. S., Hamilton, ON (Site) located at the southwest corner of Ferguson Ave S and Hunter St. The Site currently consists of a 20-storey residential building, paved parking area and a landscaped area located south of the existing building. The existing building on site consists of two (2) levels of underground parking (P2) extending beneath the building and landscaped area. It is DS' understanding that the existing building will remain, and the underground parking structure will be partially demolished for the proposed residential 12-storey building with three levels of underground parking (P3) proposed within the landscaped area. Based on below grade designs provided to DS, the P3 floor slab is proposed to extend to 88.6 masl. This investigation is based on four (4) boreholes and monitoring wells installed by DS in June 2023 in support of the geotechnical, and hydrogeological investigations at the Site. Additional boreholes and monitoring wells are recommended to be advanced at the site following demolition to support the P3 design.

This hydrogeological investigation includes an overview of the existing geological and hydrogeological conditions at the site and the surrounding area, provides an estimation of construction dewatering and an impact assessment associated with the potential dewatering activities and determines dewatering and discharge permitting requirements from the MECP. This hydrogeological assessment was prepared in accordance with the Ontario Water Resources Act and Ontario Regulation 387/04.

1.1 Purpose

The purpose of this investigation was to review and determine the need for dewatering, estimate dewatering rates, assess groundwater quality, and determine the need for a PTTW or an EASR from the MECP. Potential impacts related to construction dewatering and associated monitoring/mitigation measures were also to be investigated.

1.2 Scope of Work

The scope of work for this investigation included:

- Site visits;
- Desktop review of pertinent geological and hydrogeological resources;
- Review the MECP Water Well Records and water use in the surrounding area;
- Fieldwork including monitoring well drilling program consisting of four (4) boreholes with all boreholes equipped with monitoring wells;
- Conducting single well response tests (slug tests) to determine hydraulic conductivity values across the site;

- Characterize the stratigraphy and measure the groundwater levels across the site;
- Collection and analysis of groundwater samples to quantify and characterize any possible contaminants that may impact future discharge applications;
- Estimation of construction dewatering volumes, which is to be used to predict the short-term groundwater control requirements for the construction of the proposed building on site.

2.0 FIELDWORK

In June 2023, test drilling of four (4) boreholes was carried out by a licensed water well contractor. All the boreholes were equipped with monitoring wells for hydrogeological assessment purposes. A representative from DS was onsite for all drilling activities. Due to site access limitations, the boreholes were advanced in the existing basement with portable drilling equipment with limited power and reach. Therefore, additional deeper boreholes with monitoring wells are recommended following demolition and once final below grade designs become available. The boreholes were advanced within the existing P2 to depths ranging between 1.9 to 5.4 meters below the P2 floor slab. Based on the information provided to DS, the P2 floor slab elevation is understood to be approximately 93.3 masl. As such, depths to boreholes are estimated to extend approximately 87.9 to 91.4 masl. Monitoring wells screened to depths ranging from 1.9 to 3.8 m below the P2 floor slab to approximate corresponding elevations of 91.4 to 89.5 masl. All monitoring wells were developed before any use to allow for groundwater level monitoring, hydraulic conductivity testing, and to assess groundwater quality. Three (3) single well response tests (SWRTs) were completed by performing a rising head test to estimate the hydraulic conductivity values of formations/soils at the Site. One (1) unfiltered groundwater sample was also collected and analyzed for the parameters listed under the Hamilton Sewer Use Bylaw 14-090 to assess groundwater quality before any discharge to the City's sewer system. The borehole and monitoring well location plan are shown in **Figure 3**.

3.0 PHYSICAL SETTING

Available topographic maps, environmental, geotechnical, and hydrogeological reports were used to develop an understanding of the physical setting of the study area. The Ontario Geological Survey, borehole logs and the MECP WWRs were used to interpret the geological and hydrogeological conditions at the development site.

3.1 Physiography and Drainage

The topography at the development site and within the study area generally slopes north towards Lake Ontario. Surface elevation across the site ranges from approximately 98 to 101 masl. The shallow groundwater flow direction at the Site was inferred to be northeast towards Lake Ontario located approximately 2 km north of the Site. The inferred groundwater contour map is presented in **Figure 4.** Drainage in the study area is generally controlled by streams, artificial channels, and the local topography, and may also be influenced by fill, underground utilities, and dewatering activities within the vicinity of the Site.

3.2 Geology

The following presents a brief description of regional and development site geology based on the review of available information and development site-specific soil investigations.

3.2.1 Quaternary Geology

According to the Ontario Geological Survey mapping across the region, the Site lies within the Iroquois Plain physiographic region of Southern Ontario, characterized by sand plains. The surficial geology at the site is characterized by coarse-textured glaciolacustrine deposits which consist of sand and gravel. The surficial geology map is shown in **Figure 2.**

3.2.2 Bedrock Geology

According to the Ontario Geological Survey mapping across the region, the bedrock at the site is predominantly comprised of sandstone, shale, dolostone, siltstone of the Lockport Formation. A shale complex was encountered during the current investigation at depths ranging from 1.2 to 2.5 m below the P2 floor slab to corresponding elevations of 92.1 and 90.8 masl in boreholes BH23-1 and BH23-2, respectively. Shale fragments were encountered in BH23-4 approximately 3.1 m below the P2 floor slab. According to the MECP WWRs, grey to red shale bedrock ranged from 4.6 mbgs to 13.7 mbgs from northeast to southwest within the study area.

3.2.3 Site Geology

On-site subsurface soil conditions were summarised from the subsurface hydrogeological and environmental site investigation at the site from the boreholes advanced by DS for the current investigation. Detailed subsurface conditions are presented in **Figure 5** and the borehole logs are in **Appendix A**. The subsurface conditions in the boreholes are summarized in the following paragraphs.

Concrete Slab:

All boreholes were drilled from the existing basement concrete floor slab, varying in thickness from approximately 130 to 240 mm.

Fill:

Fill materials, consisting of clayey silt to silty clay with inclusions of sand, gravel, and occasional rock fragments were encountered below the concrete slab in BH23-1, BH23-2, and BH23-4, and extended to approximate depths ranging from about 0.6 to 1.9 m below basement floor slabs.

Silty Clay to Clayey Silt (Till):

Silty clay to clayey silt glacial (till) deposits were encountered below the fill in BH23-1, BH23-2, and BH23-4 and below the concrete slab in BH23-3 and extended to depths ranging from 1.2 to 5.4 m below basement floor slabs, i.e., maximum depth (portable auger refusal) explored in BH23-3 and BH23-4.

Silty Clay Till / Shale Complex:

Silty clay till/shale complex was encountered below the silty clay/clayey silt till in BH23-1 and BH23-2 and extended to the portable auger refusal depth, i.e., a depth of 1.9 and 2.6 m below basement floor slabs, respectively. This deposit consisted of a glacial till with a clayey texture mixed with highly weathered shale.

3.3 Hydrogeology

The hydrogeology at the development site was evaluated using the on-site monitoring wells installed by DS, and the MECP WWRs in the study area.

3.3.1 Local Groundwater Use

Based on the review of the MECP WWRs, there are one-hundred eighty-one (181) water wells within a 500 m radius of the Site. All wells were noted as monitoring (MO/MT), test hole (TH), not in use or unknown status. Based on the WWRs, the reported groundwater levels range from 4.0 mbgs and 7.0 mbgs. Groundwater level readings were not reported in all other wells. **Figure 1** shows the MECP water well location plan.

3.3.2 Groundwater Conditions

Groundwater levels were measured in all available wells on July 28th, 2023, by DS. **Table 3-1** presents the groundwater levels in all monitoring wells. Groundwater levels ranged from at surface within P2 to 1.6 m below the P2 floor slab (91.7 to 93.3 masl) within the overburden. Based on groundwater elevations, the flow direction is inferred to be northeast towards Lake Ontario. Elevated groundwater levels found in BH23-1 and BH23-4 are likely influenced by the underlying shale bedrock. Any water within the impermeable clay material where the shale complex was not encountered is interpreted as perched water. Additional measurements of groundwater levels are recommended to confirm the groundwater table and groundwater flow direction at the Site. The groundwater levels are subject to seasonal fluctuations and may vary in response to changing climate conditions and may also affect the shallow groundwater flow direction at the Site. Infilled material may also affect shallow groundwater flow direction at the Site.

Table 3-1: Groundwater Levels in Monitoring Wells

MW ID	Surface Elevation (top of P2 floor slab)	Screened Formation	Depth (m below P2 floor slab)	Groundwater Level (m below P2 floor slab)	Groundwater Level (masl)
BH23-1	93.3	Fill & Clayey Silt Till/Shale Complex	1.9	0	93.3
BH23-2	93.3	Fill & Clayey Silt Till	2.6	1.6	91.7

BH23-3	93.3	Silty Clay Till	3.2	dry	
BH23-4	93.3	Silty Clay to Clayey Silt Till (Shale Fragments)	3.8	0	93.3
* water level at the surface within P2					

3.3.3 Hydraulic Conductivity

Three (3) Single Well Response Tests (slug tests) were completed by DS in July 2023 to estimate hydraulic conductivity (k) for the representative geological units in which the wells were screened. The testing was completed using data loggers set to 5-second intervals and placed at the bottom of the monitoring wells for 1-2 hours to accurately measure the change in the hydraulic head versus time. Hydraulic conductivity (k) values were calculated using the Bouwer and Rice method using the AquiferTest® Software. The semi-log plots for normalized drawdown versus time are provided in **Appendix B.** The k-values ranged between 1.3 x 10^{-9} to a maximum of 8.1 X 10^{-9} m/s. **Table 3-2** presents the Hydraulic Conductivity (k) values for the representative geological units.

Table 3-2: Summary of Hydraulic Conductivity (k) Test Results

Well ID	Screened Interval (mbgs)	Screened Formation	k-value (m/s)	Geomean (m/s)
BH23-1	3.1-4.6	Fill & Clayey Silt Till/Shale Complex	8.1 X 10^{-9}	3.5 X 10^{-9}
BH23-2	5.7-7.2	Fill & Clayey Silt Till	4.1 X 10^{-9}	
BH23-4	3.1-4.6	Silty Clay to Clayey Silt Till	1.3 X 10^{-9}	

3.3.4 Groundwater Quality

To assess the suitability for discharge of groundwater to the City of Hamilton sewers, one (1) unfiltered groundwater sample was collected from monitoring well BH23-1 on July 31st, 2023. The samples were placed in pre-cleaned laboratory-supplied vials and/or bottles provided with analytical test group-specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). The analytical results were compared to the parameter limits listed under the City of Hamilton sewer use by-law 14-090. The reported analytical results indicate that only TSS exceeded Hamilton storm and sanitary sewer limits, and that sulphate and chloride exceeded sanitary sewer limits only. **Table 3-3** presents a summary of the exceeded parameters, and the certificate of analysis is provided in **Appendix D.**

Table 3-3: Parameters in Groundwater Exceeding the City of Hamilton Sewer Use Bylaws

Parameter	Unit	Hamilton Sanitary Sewer Use By-Law Criteria	Hamilton Storm Sewer Use By-Law Criteria	BH23-1
Total Suspended Solids (TSS)	mg/L	350	15	**2,210**
Sulphate	mg/L	1,500	n/a	1,700
Chloride	mg/L	1,500	n/a	1,800
Note: 0.00- Exceeded Hamilton Sanitary Bylaw **; 0.00-** Exceeded Hamilton Storm Bylaw; **0.00**- Exceeded Hamilton Storm & Sanitary Bylaw n/a- Not Applicable				

4.0 CONSTRUCTION DEWATERING

The proposed development will consist of a 12-storey residential building proposed within the landscaped area adjacent to the existing 20-storey building within the Site. The existing P2 will be partially demolished, and the proposed building is to consist of three (3) levels of underground parking (P3). Based on below grade designs provided to DS, the proposed P3 basement level is proposed to extend to 88.6 masl. Footings and elevator shaft pits are estimated to extend approximately 2.5 m below the P3 floor slab (86.1 masl). Target water level elevations should be lowered 1 m below the estimated excavation depth of P3 to maintain dry conditions within the excavation to approximately 85.1 masl.

4.1 Estimation of Flow Rate- Unsealed Excavation Method

Any excavation below the groundwater table will require dewatering of any groundwater seepage into the excavation. Based on the stratigraphy at the site, the construction is generally expected to be ended into the low permeable till. However, additional deep boreholes are required to confirm the subsurface conditions of the entire P3 footprint. Due to the variability of the permeability achieved through the hydraulic conductivity testing, the highest calculated hydraulic conductivity (k) value of 8.1 x10^{-9} m/s was considered to estimate the dewatering flow rate. This section calculates the estimated dewatering required during the construction of the proposed structures using the steady-state flow equation for unsealed excavation.

$$Q = \frac{\pi(H^2 - h^2)}{2.3 \log\left(\frac{R_0}{re}\right)}$$ Equation 4.1

$$R_0 = C(H - h)\sqrt{k}$$ Equation 4.2

$$r_e = \sqrt{\frac{ab}{\pi}}$$ Equation 4.3

H- Initial Elevation of Water Table (m)	9.2
h- Final Elevation of Water Table (m)	1
K- Hydraulic Conductivity (m/s)	8.1 X 10^{-9}
Ro- Radius of Influence (m)	28
Re- Equivalent Radius (m)	26
A- Unit Area (m^2)	2,116
C- Dimensionless constant	3
Q- Flow rate (L/d)	2,300
Q- Total Flow Rate - 100% safety factor (L/d)	4,600
Q- Flow rate 10 mm storm water (L/day)	21,160
Q- Total Flow Rate (L/d)	**25,760**

Additional pumping capacity may be required to maintain dry conditions within the open excavations during and following a major precipitation event. The estimated flow rate is based on the proposed building area and a 10 mm precipitation event in 24 hours. The total estimated dewatering that may be required from a 10 mm precipitation event is approximately 21,160 L/day.

The total estimated daily rate for short-term construction for the P3 is approximately **25,760 L/day.** This value incorporates a 100% safety factor and the above-mentioned stormwater. It is expected that the initial dewatering rate will be higher to remove groundwater from within the overburden formation. The dewatering rates are expected to decrease once the target water level is achieved in the excavation footprint as groundwater will have been removed locally from storage resulting in lower seepage rates into the excavation. The maximum flow calculation is intended to provide a conservative value to account for unforeseeable conditions that may arise during construction. These estimated values should be further refined during detailed design, shoring design, and construction sequencing information that is not yet available.

4.2 Zones of Influence During Construction

The radius of influence (Ro) for the construction dewatering was calculated based on the Sichardt equation (Equation 4.2). Ro is the distance at which the drawdown resulting from pumping is negligible. The equation is empirical and was developed to provide representative flow rates using the steady-state flow dewatering

equations as indicated above. Under steady-state conditions, Ro of pumping will extend until boundary flow conditions are reached, and sufficient water inputs are equal to the discharge rate due to pumping. Therefore, the Sichardt equation is used to provide a representative flow rate but is not precise in determining the actual radius of influence by pumping. Based on the Sichardt equation the ZOI is approximately 28m from the centre of the excavation for the underground parking structure.

4.3 Permanent Drainage (Long-term Discharge)

Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and drainage along the foundation wall. A private Water Drainage System (PWDS) will be required to manage the uplift and pressure from the underlying water. Based on the below grade elevations provided to DS, the permanent drainage for the building is estimated to be approximately 1,000 L/day. However, as a conservative approach up to **5,000 L/day** should be accounted for. Most of the permanent drainage received for the proposed building is expected to be stormwater. The drainage control system around and beneath the building should be designed with enough capacity to handle the expected permanent volume. This value is recommended to be verified once the underground construction is completed and access is provided to DS to assess actual flow rates at the sumps.

4.4 Permit Requirements

4.4.1 Environmental Activity and Sector Registry (EASR) /Permit to Take Water (PTTW) Application

An EASR is required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is between 50,000 L/day and 400,000 L/ day. The EASR application is an online registry and should be submitted to the MECP before any construction dewatering. A PTTW is only required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is more than 400,000 L/ day. A PTTW is required permanently if permanent drainage volumes exceed 50,000 L/day.

The estimated dewatering rate does not exceed the MECP criteria of an EASR for the underground parking structure. Therefore, an EASR application is not required to be submitted to the MECP for the development before construction, however, is recommended for any construction dewatering project should volumes exceed 50,000 L/day. The estimated permanent drainage volume does not exceed the PTTW threshold. Therefore, a PTTW will not be required to be submitted to the MECP for permanent drainage.

4.4.2 Discharge Permits

A discharge permit will be required from the City of Hamilton if private water is to be sent to the City's sewer system for short-term discharge and permanent drainage.

5.0 POTENTIAL IMPACTS

The following are the predicted potential impacts as a result of construction dewatering:

5.1 Local Groundwater Use

Water supply wells have not been identified within the study area. The area is serviced by a municipal water supply. Therefore, there are no impacts anticipated to water supply wells.

5.2 Point of Discharge and Groundwater Quality

Groundwater quality analysis indicated that TSS exceeded the City of Hamilton storm and sanitary sewer discharge criteria and that sulphate and chloride exceeded sanitary sewer criteria. Therefore, groundwater at the development site is not suitable for discharge into the City's storm and sanitary sewers without treatment. Based on the analytical results, groundwater may be discharged to the sanitary sewer with the implementation of basic treatment (i.e., settlement tank/flocculants) to reduce fines and associated metals that may be elevated from construction dewatering activities. Best management practices should be used to treat the water of particulates to meet discharge criteria.

5.3 Settlement Due to Dewatering Activities

There are structures and utilities (buildings, sewers etc.) within the estimated ZOI. Since the proposed development is to extend within low permeable till deposits, settlement will likely not occur. However, DS recommends consulting a geotechnical engineer to assess settlement from dewatering activities.

5.4 Current PTTW Search

The MECP PTTW Open Data Catalogue was searched within a 1 km radius of the Site. The search indicated that there are no active PTTWs within 1 km of the Site. Therefore, groundwater interferences from the nearby water-taking activities are not anticipated to influence the proposed construction.

5.5 Natural Heritage Areas & Surface Water

Understanding of natural heritage areas and ecological features in the area are based on the Ministry of Natural Resources and Forestry Natural Heritage Mapping. The Site is not within any designated nature heritage areas.

5.6 Source Protection Area

The Site is located within the Hamilton Region Source Protection Area (SPA). The Source Protection Plan contains policies aimed at protecting drinking water sources by reducing or eliminating significant threats to sources of municipal drinking water. The study area is serviced by municipal water. Therefore, no impacts are anticipated on the drinking water supply within the ZOIs.

5.7 Highly Vulnerable Aquifer

The Site is located within a Highly Vulnerable Aquifer (HVA) and was designated a score of six (6), indicating that the threat activities can be moderate or low. HVAs are aquifers that are more susceptible to

contamination generally consisting of granular material (i.e., sand & gravel, and fractured rock near the surface of the ground).

5.8 Wellhead Protection Area

The site and the study area are not located within a municipal Wellhead Protection Area-Quantity (WHPA-Q). Therefore, there is no risk identified to the drinking water supply in the area.

5.9 Intake Protection Zone

The site and the study area are not located within a water intake protection zone (IPZ). No IPZ impacts are anticipated due to the proposed temporary dewatering.

5.10 Well Decommissioning

Following the completion of construction activities, all dewatering wells, well points, eductors and monitoring wells installed at various stages of this project must be decommissioned. The installation and eventual decommissioning of the wells and the dewatering system must be carried out by a licenced water well contractor in accordance with Regulation 903 of the Ontario Water Resources Act.

6.0 MONITORING AND MITIGATION

Based on the finding of hydrogeological assessment and associated potential impacts due to development, the following monitoring and mitigation program is provided:

- Baseline groundwater quality has been assessed and established before construction. However, groundwater quality can change based on several factors (land-use change, spills, etc.) and should be monitored during construction dewatering and after construction to ensure that water quality meets the guideline or regulations associated with any permits from the MECP and the City of Hamilton.

- Once a groundwater dewatering system is set up at the Site, daily and weekly monitoring should be implemented to assess the groundwater conditions such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts as a result of dewatering including settlement.

- Following the completion of construction activities, all dewatering wells, well points, eductors and monitoring wells installed at various stages of this project must be decommissioned. The installation and eventual decommissioning of the wells and the dewatering system must be carried out by a licensed water well contractor in accordance with Regulation 903 of the Ontario Water Resources Act.

Should you have any questions regarding these findings, please contact the undersigned.

DS Consultants Ltd.

Prepared By:

Dorothy Santos, M.Sc.
Project Manager

Reviewed By:

Martin Gedeon, M.Sc., P.Geo.
Senior Hydrogeologist

Pradeep Patel, M.Sc., P.Geo
Hydrogeologist

7.0 CONSULTANT QUALIFICATIONS

Martin Gedeon, M.Sc., P.Geo., is a Professional Geoscientist (P.Geo.) with over 26 years of experience as an environmental/hydrogeological consultant in the areas of groundwater and soil monitoring, environmental site assessments, environmental due diligence, and remediation. Martin has significant experience in physical and contaminant hydrogeology across Canada and overseas and has provided hydrogeological/environmental technical support on various projects. Martin has prepared hundreds of hydrogeological reports in support of permit applications for a private sector development application, municipal dewatering operations, and provincial infrastructure projects across the province.

Ms. Dorothy Santos, M.Sc., is project manager with DS Consultants Ltd. Dorothy holds a master's degree in Earth and Environmental Science (Hydrogeology) from the University of Waterloo and has several years of experience conducting hydrogeological investigations and environmental assessments. Dorothy has experience with conducing Phase One and Phase Two Environmental Site Assessments, hydrogeological investigations and has provided technical support for discharge permits. Dorothy has been involved with project coordination, field assessments, data interpretation and reporting.

Pradeep Patel, M.Sc., P.Geo. is a hydrogeologist at DS Consultants Ltd. and has more than 10 years of experience working in the environmental industry. He participates in numerous Hydrogeological and Geotechnical investigation projects. His experience includes the preparation of construction dewatering activities and hydrogeological investigations in support of Environmental Activity and Sector Registry (EASR) and Permit to Take Water (PTTW) applications.

8.0 REFERENCES

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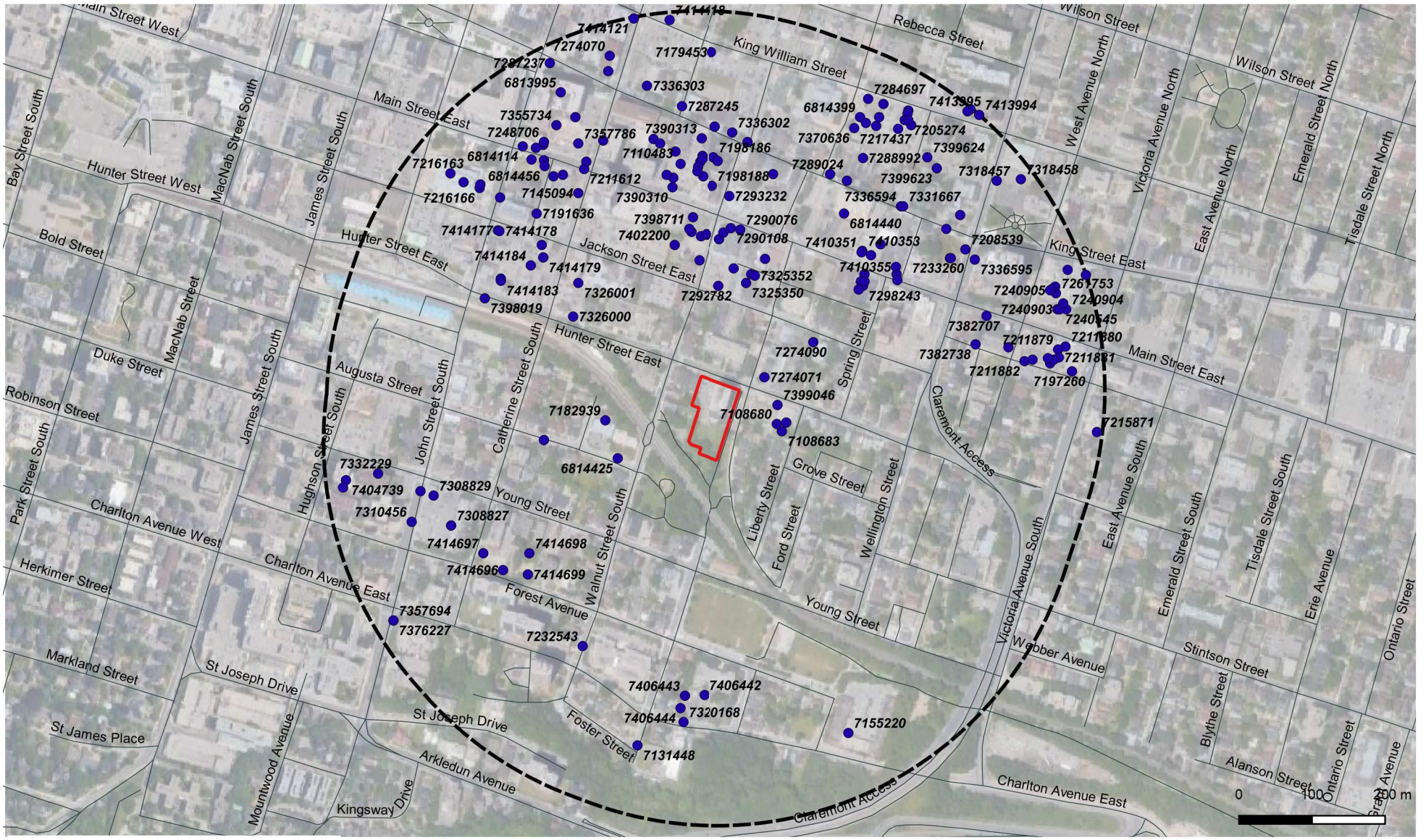
The City of Hamilton Sewer Use Bylaw 14-090 Dated April 23, 2014

Figures

C:\0Sharon\23-229-100 100 Ferguson Ave S., Hamilton\1-QGIS\HydroG\Figure 1 – Site Location and MECP Well Records.qgs Aug-05 14:41



Legend

- Approx Property Boundary
- 500m Buffer
- Registered Water Well (MECP WWR)

DS CONSULTANTS LTD.
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Vaughan, Ontario L4H 0K8
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www.dsconsultants.ca

Project: HYDROGEOLOGICAL INVESTIGATION
100 Ferguson Avenue South
Hamilton, ON

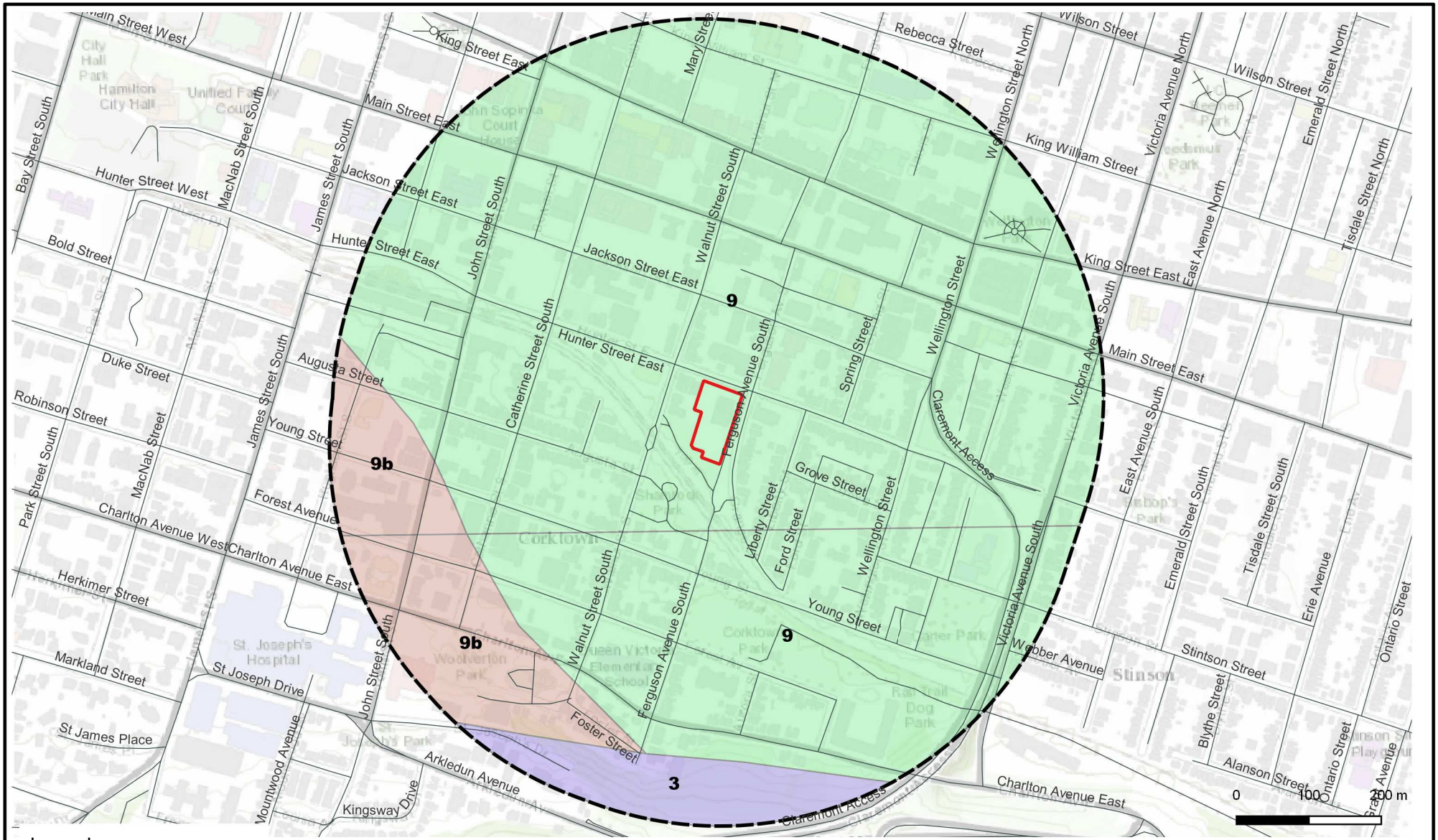
Title: **SITE LOCATION AND MECP WELL RECORDS**

Client: AMELIN PROPERTY MANAGEMENT

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	S.Y	August 2023
Rev: 0	Scale: As Shown	Project No.: 23-229-100	Figure No.: 1

Image/Map Source: *Google Satellite Image*

C:\0Sharon\23-229-100 100 Ferguson Ave S., Hamilton\1-QGIS\HydroG\Figure 2 – Surficial Geology Map.qgs Aug-06 12:52



Legend

- Approx Property Boundary
- 500m Buffer
- 3 - Queenston Formation
- 9- Glaciolacustrine Sand
- 9b - Glaciolacustrine Beach Sand And Gravel

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Project: HYDROGEOLOGICAL INVESTIGATION
100 Ferguson Avenue South, Hamilton, ON

Title: **SURFICIAL GEOLOGY MAP**

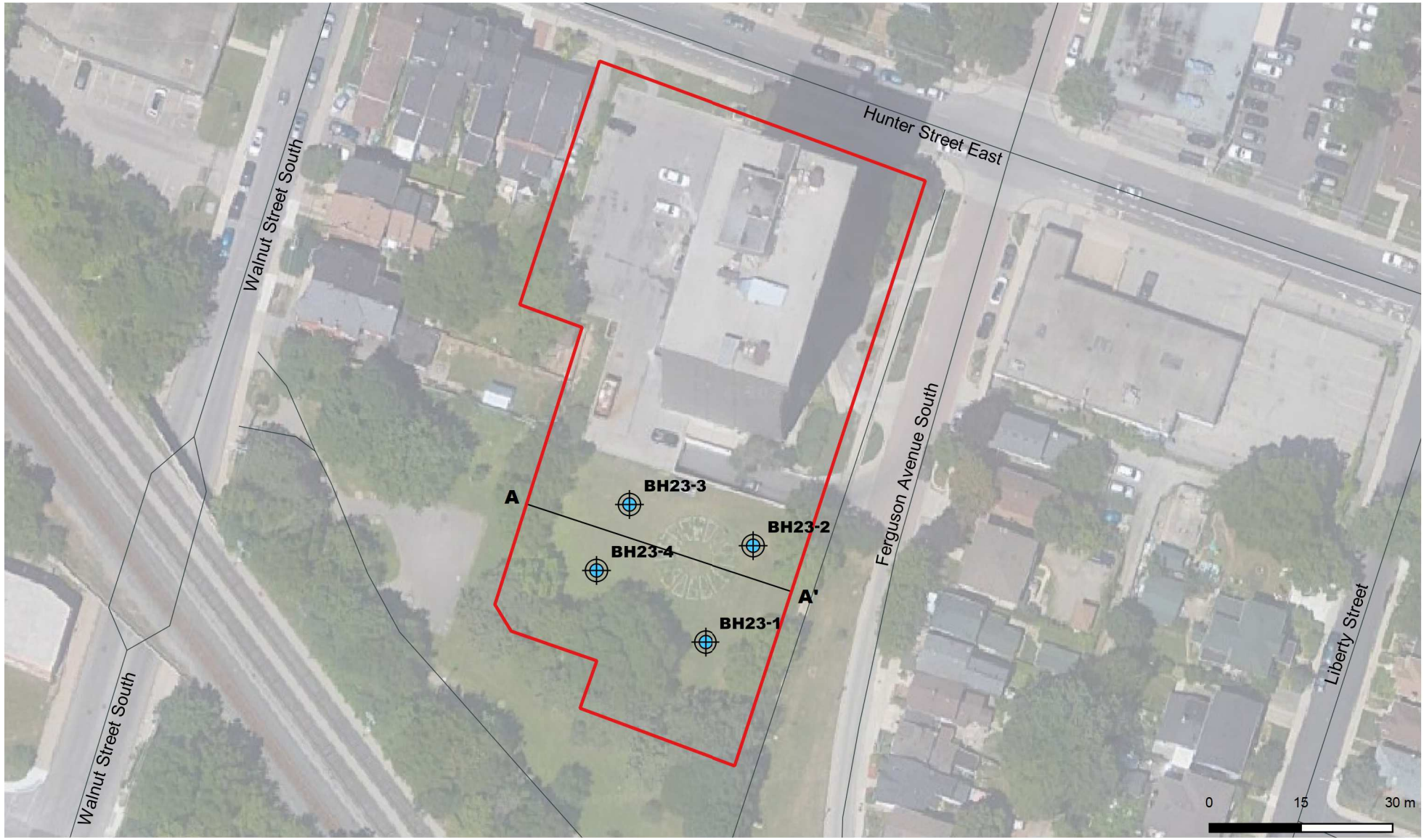
N

Client: AMELIN PROPERTY MANAGEMENT

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	S.Y	August 2023
Rev: 0	Scale: As Shown	Project No.: 23-229-100	Figure No.: 2

Image/Map Source: *https://www.mndm.gov.on.ca/ & Esri Topo Map*

J:\-GIS\2023 PROJECTS\23-229-100 100 Ferguson Ave S., Hamilton\1-QGIS\HydroG\Figure 3 – Borehole and Monitoring Well Locations.qgs Aug-14 08:17



Legend

- Approx Property Boundary
- Monitoring Well
- Cross Section

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client: AMELIN PROPERTY MANAGEMENT

Project: HYDROGEOLOGICAL INVESTIGATION
100 Ferguson Avenue South, Hamilton, ON

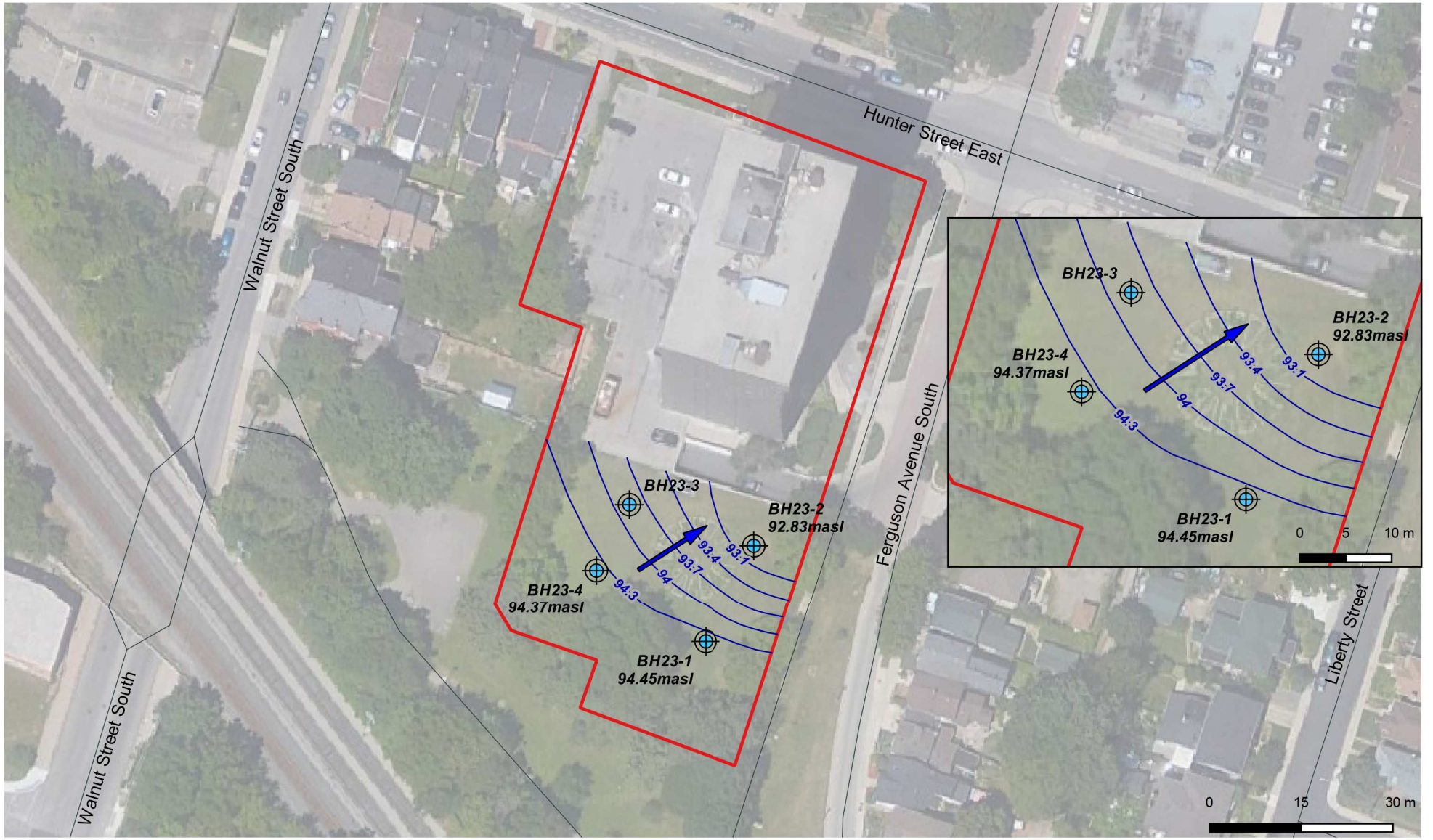
Title: **BOREHOLE AND MONITORING WELL LOCATIONS**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	S.Y	August 2023
Rev: 0	Scale: As Shown	Project No.: 23-229-100	Figure No.: 3

Image/Map Source: *Google Satellite Image*

C:\0Sharon\23-229-100 100 Ferguson Ave S., Hamilton\1-QGIS\HydroG\Figure 4 - Groundwater Elevation Contours and Flow Direction.qgs Aug-06 13:39



Legend

- Approx Property Boundary
- Monitoring Well
- Inferred Groundwater Flow Direction
- Groundwater Elevation Contour July 28 2023

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client: AMELIN PROPERTY MANAGEMENT

Project: HYDROGEOLOGICAL INVESTIGATION
100 Ferguson Avenue South, Hamilton, ON

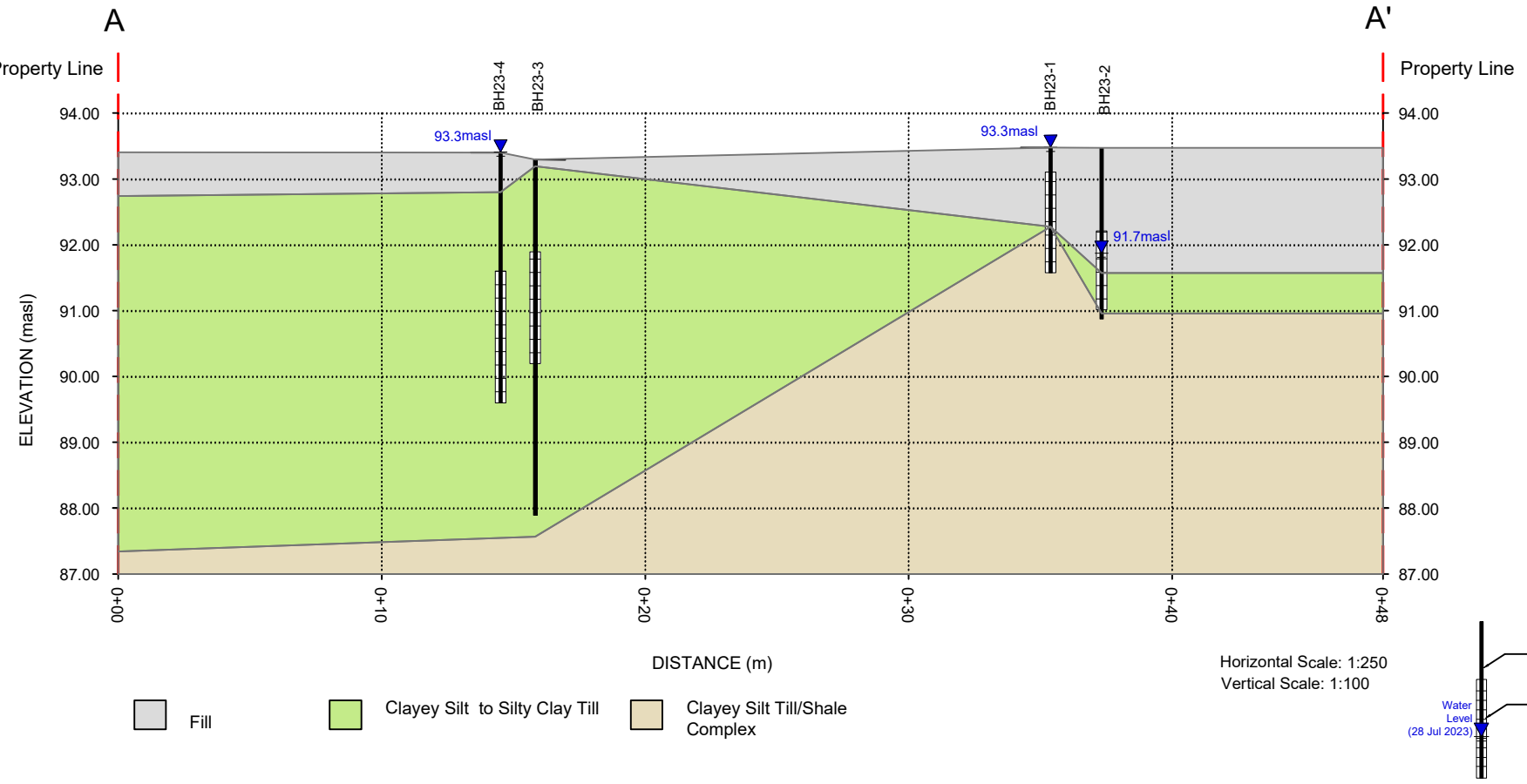
Title: **INFERRED GROUNDWATER CONTOURS AND FLOW DIRECTION MAP**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	S.Y	August 2023
Rev: 0	Scale: As Shown	Project No.: 23-229-100	Figure No.: 4

Image/Map Source: *Google Satellite Image*

Path:j:\-gis\2023 projects\23-229-100 100 ferguson ave s., hamilton\7-misc\cad\geological cross section 23-229.dwg



DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: HYDROGEOLOGICAL INVESTIGATION
100 Ferguson Avenue South, Hamilton, ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Client:	Size:	Approved By:	Drawn By:	Date:
AMELIN PROPERTY MANAGEMENT	8.5 x 11	D.S	S.Y	December 2023
	Rev.	Scale: As Shown	Project No: 23-229-100	Figure No. 5

Appendix A

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-1

PROJECT: Preliminary Geotechnical Investigation
CLIENT: Amelin Property Management
PROJECT LOCATION: 100 Ferguson Ave. S, Hamilton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4789316.34 E 592239.83

DRILLING DATA
Method: Big Beaver/Dynamic Ram Sounder
Diameter: 150mm
Date: Jul-24-2023

REF. NO.: 23-229-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
93.3							
0.0	**CONCRETE SLAB:** 220mm					W. L. 93.3 m Jul 28, 2023	
93.1							
0.2	**FILL:** clayey silt to silty clay, some sand, trace gravel, reddish brown with grey seams, moist, very stiff to hard		1	SS	24		93
	trace rock fragments at 0.6m		2	SS	61		
92.1							
1.2	**SILTY CLAY TILL/SHALE COMPLEX:** some sand, trace gravel, reddish brown, moist, hard		3	SS	50/ 25mm		92
91.4			4	SS	50/ 25mm		
1.9	**END OF BOREHOLE:** Notes: 1) Auger refusal at 1.9m. 2) 50mm dia. monitoring well installed upon completion. 3) Water Level Readings: Date: Water Level(mbgl): July 28, 2023 (0.02) above ground surface						

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 23-229-100 GEO COPY.GPJ DS.GDT 23-11-10

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-2

PROJECT: Preliminary Geotechnical Investigation
CLIENT: Amelin Property Management
PROJECT LOCATION: 100 Ferguson Ave. S, Hamilton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4789332.14 E 592247.73

DRILLING DATA
Method: Big Beaver/Dynamic Ram Sounder
Diameter: 150mm
Date: Jul-24-2023

REF. NO.: 23-229-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
93.3												
0.0 / 93.1	**CONCRETE SLAB:** 240mm											
0.2	**FILL:** clayey silt to silty clay, trace sand, trace gravel, reddish brown with grey seams, moist, very stiff to hard		1	SS	42		93					
			2	SS	21							
			3	SS	37	▽	92					
91.4								W. L. 91.7 m Jul 28, 2023				
1.9	**SILTY CLAY TO CLAYEY SILT TILL:** some sand, trace gravel, reddish brown, moist, hard		4	SS	50							8 17 56 19
90.8			5	SS	50/ 50mm		91					
90.7	**SILTY CLAY TILL/SHALE**		6	SS	50/ 25mm							
2.6	**COMPLEX:** some sand, trace gravel, reddish brown, moist, hard											
	END OF BOREHOLE:											

Notes:
1) Auger refusal at 2.6m.
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Readings:

Date:	Water Level(mbgl):
July 28, 2023	1.59

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 23-229-100 GEO COPY.GPJ DS.GDT 23-11-10

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-3

PROJECT: Preliminary Geotechnical Investigation
CLIENT: Amelin Property Management
PROJECT LOCATION: 100 Ferguson Ave. S, Hamilton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4789338.88 E 592227.31

DRILLING DATA
Method: Big Beaver/Dynamic Ram Sounder
Diameter: 150mm
Date: Jul-21-2023

REF. NO.: 23-229-100
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
93.3												
93.2 0.0	**CONCRETE SLAB:** 130mm											
0.1	**SILTY CLAY TILL:** some sand, trace gravel, brown to grey, moist, firm to hard		1	SS	6		93					
			2	SS	14							4 11 48 37
			3	SS	21		92					
			4	SS	17		91					
			5	SS	32							
			6	SS	17		90					
			7	SS	37							2 15 51 32
			8	SS	18		89					
			9	SS	50/ 130mm		88					
87.9 5.4	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): July 28, 2023 dry											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH23-4

PROJECT: Preliminary Geotechnical Investigation
CLIENT: Amelin Property Management
PROJECT LOCATION: 100 Ferguson Ave. S, Hamilton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4789328.08 E 592221.91

DRILLING DATA
Method: Big Beaver/Dynamic Ram Sounder
Diameter: 150mm
Date: Jul-21-2023

REF. NO.: 23-229-100
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
93.3 / 0.0	**CONCRETE SLAB:** 130mm						
93.2 / 0.1	**FILL:** clayey silt to silty clay, trace gravel, reddish brown, moist, very stiff		1	SS	15		
92.7 / 0.6	**SILTY CLAY TO CLAYEY SILT TILL:** some sand, trace gravel, reddish brown to reddish grey, moist to very moist, hard		2	SS	30		
			3	SS	37		
			4	SS	42		
			5	SS	79		
	sandy, weathered shale inclusions at 3.1m						
89.5 / 3.8	**END OF BOREHOLE:**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date: Water Level(mbgl):
July 28, 2023 (on surface level)

W. L. 93.3 m
Jul 28, 2023

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
5	15	57	23

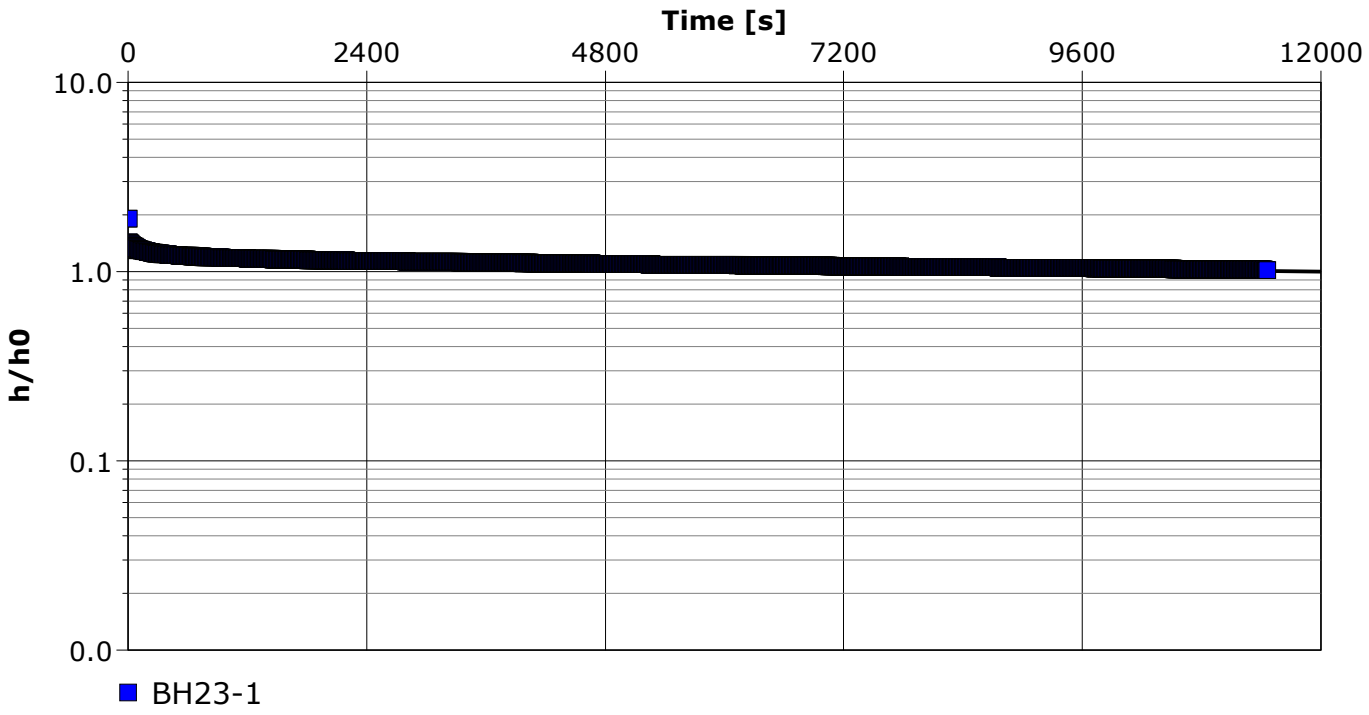
GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

Appendix B

	Slug Test Analysis Report
	Project: 100 Ferguson Ave S
	Number: 23-229-100
	Client: Amelin Property Management

Location: Hamilton, on	Slug Test: BH23-1	Test Well: BH23-1
Test Conducted by: CL		Test Date: 7/28/2023
Analysis Performed by: DS	BH23-1	Analysis Date: 8/8/2023
Aquifer Thickness: 5.00 m		

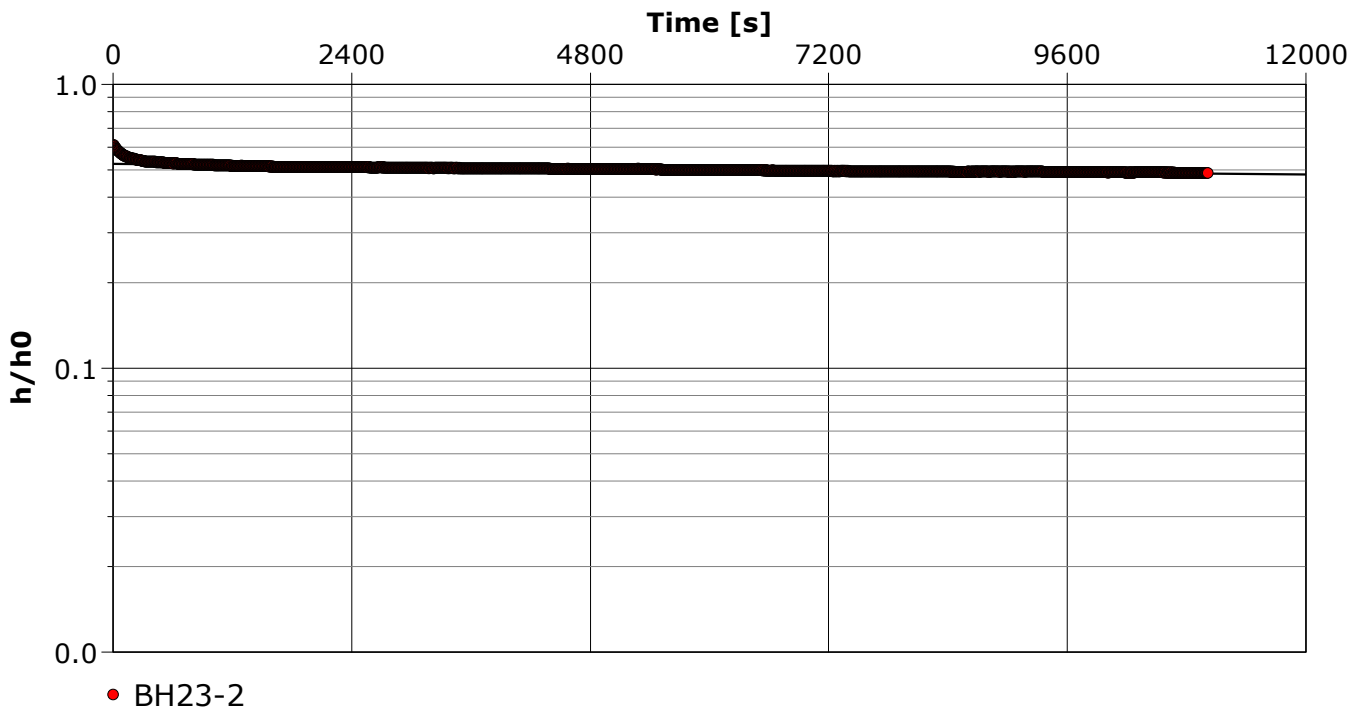


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH23-1	8.12×10^{-9}	

	Slug Test Analysis Report
	Project: 100 Ferguson Ave S
	Number: 23-229-100
	Client: Amelin Property Management

Location: Hamilton, on	Slug Test: BH23-2	Test Well: BH23-2
Test Conducted by: CL		Test Date: 7/28/2023
Analysis Performed by: DS	BH23-2	Analysis Date: 8/8/2023
Aquifer Thickness: 5.00 m		

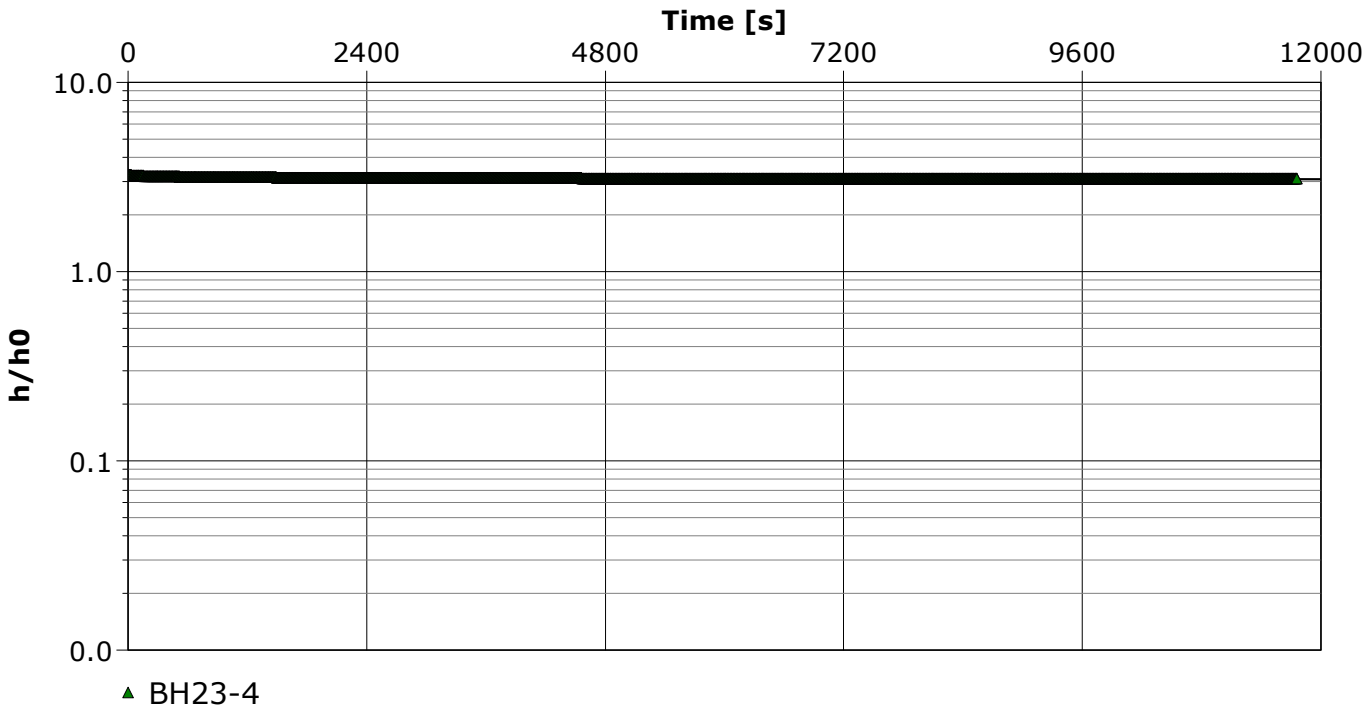


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH23-2	4.14×10^{-9}	

	Slug Test Analysis Report
	Project: 100 Ferguson Ave S
	Number: 23-229-100
	Client: Amelin Property Management

Location: Hamilton, on	Slug Test: BH23-4	Test Well: BH23-4
Test Conducted by: CL		Test Date: 7/28/2023
Analysis Performed by: DS	BH23-4	Analysis Date: 8/8/2023
Aquifer Thickness: 5.00 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH23-4	1.27×10^{-9}	

Appendix C

FINAL REPORT

CA40275-JUL23 R1

23-229-100, 100 Ferguson Ave. S, Hamilton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Dorothy Santos
Telephone	905-329-2735
Facsimile	905-264-2685
Email	dorothy.santos@dsconsultants.ca
Project	23-229-100, 100 Ferguson Ave. S, Hamilton
Order Number	
Samples	Ground Water (2)

LABORATORY DETAILS

Project Specialist	Maarit Wolfe, Hon.B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2000
Facsimile	705-652-6365
Email	Maarit.Wolfe@sgs.com
SGS Reference	CA40275-JUL23
Received	07/31/2023
Approved	08/16/2023
Report Number	CA40275-JUL23 R1
Date Reported	08/16/2023

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 036695

TKN RL raised due to sample matrix

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

Client: DS Consultants
Project: 23-229-100, 100 Ferguson Ave. S, Hamilton
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

					Sample Number	8	9
					Sample Name	BH 1	BH 1 Aug 11
					Sample Matrix	Ground Water	Ground Water
					Sample Date	31/07/2023	11/08/2023
Parameter		**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
General Chemistry							
Carbonaceous Biochemical Oxygen Demand		mg/L	2	300		< 4 ↑	---
Total Suspended Solids		mg/L	2	350	15	2210	---
Total Kjeldahl Nitrogen	as N	mg/L	5.0	100		< 5.0	---
Metals and Inorganics							
Cyanide (total)		mg/L	0.01	2		< 0.01	---
Fluoride		mg/L	0.06	10		0.35	---
Sulphate		mg/L	2	1500		1700	---
Aluminum (total)		mg/L	0.001	50		4.28	---
Antimony (total)		mg/L	0.0009	5		< 0.0009	---
Arsenic (total)		mg/L	0.0002	1		0.0037	---
Beryllium (total)		mg/L	0.000007			0.000139	---
Bismuth (total)		mg/L	0.00001	5		0.00002	---
Cadmium (total)		mg/L	0.000003	0.7	0.008	0.000065	---
Chromium (total)		mg/L	0.00008	5	0.08	0.0100	---
Cobalt (total)		mg/L	0.000004	5		0.00326	---
Copper (total)		mg/L	0.0002	2	0.05	0.0056	---
Lead (total)		mg/L	0.00009	2	0.12	0.00163	---
Manganese (total)		mg/L	0.00001	5		0.386	---
Molybdenum (total)		mg/L	0.00004	1		0.0299	---
Nickel (total)		mg/L	0.0001	2	0.08	0.0081	---
Phosphorus (total)		mg/L	0.003	10		0.128	---

Client: DS Consultants
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Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

				Sample Number	8	9
				Sample Name	BH 1	BH 1 Aug 11
				Sample Matrix	Ground Water	Ground Water
				Sample Date	31/07/2023	11/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
Metals and Inorganics (continued)						
Selenium (total)	mg/L	0.00004	1		0.00026	---
Silver (total)	mg/L	0.00005	5		< 0.00005	---
Tin (total)	mg/L	0.00006	5		0.00294	---
Titanium (total)	mg/L	0.00007	5		0.0418	---
Vanadium (total)	mg/L	0.00001	5		0.00779	---
Zinc (total)	mg/L	0.002	2	0.5	0.025	---
Microbiology						
E. Coli	cfu/100mL	0		2400	< 2↑	---
E. Coli	cfu/100mL	0		2400	---	< 2↑
Oil and Grease						
Oil & Grease (total)	mg/L	2			< 2	---
Oil & Grease (animal/vegetable)	mg/L	4	150	10	< 4	---
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4	---

Client: DS Consultants
Project: 23-229-100, 100 Ferguson Ave. S, Hamilton
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

					Sample Number	8	9
					Sample Name	BH 1	BH 1 Aug 11
					Sample Matrix	Ground Water	Ground Water
					Sample Date	31/07/2023	11/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
Organochlorine Pests (OCs)						
DDT (total)	mg/L	0.00004	0.0001		< 0.00002↓	---
Hexachlorobenzene	mg/L	0.00001	0.0001		< 0.00001	---
Other (ORP)						
pH	No unit	0.05	11	11	7.45	---
Chloride	mg/L	1	1500		1800	---
Mercury (total)	mg/L	0.00001	0.01		< 0.00001	---
PAHs						
Benzo(b+j)fluoranthene	mg/L	0.0001			< 0.0001	---
1-Methylnaphthalene Uncertainty	mg/L	0.0005			< 0.0005	---
2-Methylnaphthalene Uncertainty	mg/L	0.0005			< 0.0005	---
Methylnaphthalene, 2-(1-)	mg/L	0.0005			< 0.0005	---
PCBs						
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001		< 0.0001	---

Client: DS Consultants
Project: 23-229-100, 100 Ferguson Ave. S, Hamilton
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

				Sample Number	8	9
				Sample Name	BH 1	BH 1 Aug 11
				Sample Matrix	Ground Water	Ground Water
				Sample Date	31/07/2023	11/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
Pesticides						
Aldrin + Dieldrin	mg/L	0.00002	0.0002		< 0.00002	---
Aldrin	mg/L	0.00002			< 0.00002	---
Dieldrin	mg/L	0.00002			< 0.00002	---
Chlordane (total)	mg/L	0.001	0.1		< 0.001	---
a-chlordane	mg/L	0.001			< 0.001	---
g-chlordane	mg/L	0.001			< 0.001	---
op-DDT	mg/L	0.00002			< 0.00002	---
pp-DDD	mg/L	0.00002			< 0.00002	---
pp-DDE	mg/L	0.00001			< 0.00001	---
pp-DDT	mg/L	0.00002			< 0.00002	---
o,p-DDD	mg/L	0.00002			< 0.00002	---
o,p-DDE	mg/L	0.00001			< 0.00001	---
Hexachlorocyclohexane	mg/L	0.001	0.1		< 0.001	---
Mirex	mg/L	0.001	0.1		< 0.001	---

Client: DS Consultants
Project: 23-229-100, 100 Ferguson Ave. S, Hamilton
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

				Sample Number	8	9
				Sample Name	BH 1	BH 1 Aug 11
				Sample Matrix	Ground Water	Ground Water
				Sample Date	31/07/2023	11/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
Phenols						
4AAP-Phenolics	mg/L	0.002	1	0.02	0.006	---
SVOCs						
PAHs (Total)	mg/L		0.005		< 0.001	---
di-n-Butyl Phthalate	mg/L	0.002	0.08		< 0.002	---
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.28		< 0.002	---
3,3-Dichlorobenzidine	mg/L	0.0005	0.002		< 0.0005	---
Pentachlorophenol	mg/L	0.0005	0.005		< 0.0005	---
SVOCs - PAHs						
Acenaphthene	mg/L	0.0001			< 0.0001	---
Acenaphthylene	mg/L	0.0001			< 0.0001	---
Anthracene	mg/L	0.0001			< 0.0001	---
Benzo(a)anthracene	mg/L	0.0001			< 0.0001	---
Benzo(a)pyrene	mg/L	0.0001			< 0.0001	---
Benzo(ghi)perylene	mg/L	0.0002			< 0.0002	---
Benzo(k)fluoranthene	mg/L	0.0001			< 0.0001	---
Chrysene	mg/L	0.0001			< 0.0001	---
Dibenzo(a,h)anthracene	mg/L	0.0001			< 0.0001	---
Fluoranthene	mg/L	0.0001			< 0.0001	---
Fluorene	mg/L	0.0001			< 0.0001	---
Indeno(1,2,3-cd)pyrene	mg/L	0.0002			< 0.0002	---
Phenanthrene	mg/L	0.0001			< 0.0001	---

Client: DS Consultants
Project: 23-229-100, 100 Ferguson Ave. S, Hamilton
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090

L2 = SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090

				Sample Number	8	9
				Sample Name	BH 1	BH 1 Aug 11
				Sample Matrix	Ground Water	Ground Water
				Sample Date	31/07/2023	11/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**
SVOCs - PAHs (continued)						
Pyrene	mg/L	0.0001			< 0.0001	---
Naphthalene	mg/L	0.0005			< 0.0005	---
VOCs						
Chloroform	mg/L	0.0005	0.04		< 0.0005	---
1,4-Dichlorobenzene	mg/L	0.0005	0.08		< 0.0005	---
1,2-Dichlorobenzene	mg/L	0.0005	0.05		< 0.0005	---
cis-1,2-Dichloroethylene	mg/L	0.0005	4		< 0.0005	---
trans-1,3-Dichloropropene	mg/L	0.0005	0.14		< 0.0005	---
Methylene Chloride	mg/L	0.0005	2		< 0.0005	---
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1		< 0.0005	---
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4		< 0.0005	---
Trichloroethylene	mg/L	0.0005	0.4		< 0.0005	---
VOCs - BTEX						
Benzene	mg/L	0.0005	0.01		< 0.0005	---
Ethylbenzene	mg/L	0.0005	0.16		< 0.0005	---
Toluene	mg/L	0.0005	0.016		< 0.0005	---
Xylene (total)	mg/L	0.0005	1.4		< 0.0005	---

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Sanitary Sewer Discharge - BL_14_090 L1	SANSEW / WATER / - - Hamilton Sewer Use ByLaw - Storm Sewer Discharge - BL_14_090 L2
BH 1					
Total Suspended Solids	SM 2540D	mg/L	2210	350	15
Chloride	US EPA 325.2	mg/L	1800	1500	
Sulphate	US EPA 375.4	mg/L	1700	1500	

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5000-AUG23	mg/L	2	<2	7	20	102	80	120	100	75	125
Chloride	DIO5033-AUG23	mg/L	1	<1	1	20	101	80	120	102	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Carbonaceous Biochemical Oxygen Demand	BOD0002-AUG23	(CBOD5) mg/L	2	< 2	3	30	104	70	130	87	70	130

QC SUMMARY

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0016-AUG23	mg/L	0.01	<0.01	ND	10	94	90	110	99	75	125

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0003-AUG23	mg/L	0.06	<0.06	0	10	98	90	110	94	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0003-AUG23	mg/L	0.00001	< 0.00001	0	20	101	80	120	105	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0002-AUG23	mg/L	0.00005	<0.00005	ND	20	103	90	110	98	70	130
Aluminum (total)	EMS0002-AUG23	mg/L	0.001	<0.001	7	20	104	90	110	112	70	130
Arsenic (total)	EMS0002-AUG23	mg/L	0.0002	<0.0002	17	20	107	90	110	115	70	130
Beryllium (total)	EMS0002-AUG23	mg/L	0.000007	<0.000007	ND	20	107	90	110	92	70	130
Bismuth (total)	EMS0002-AUG23	mg/L	0.00001	<0.00001	ND	20	103	90	110	100	70	130
Cadmium (total)	EMS0002-AUG23	mg/L	0.000003	<0.000003	7	20	105	90	110	101	70	130
Cobalt (total)	EMS0002-AUG23	mg/L	0.000004	<0.000004	14	20	103	90	110	95	70	130
Chromium (total)	EMS0002-AUG23	mg/L	0.00008	<0.00008	15	20	106	90	110	88	70	130
Copper (total)	EMS0002-AUG23	mg/L	0.0002	<0.0002	3	20	102	90	110	110	70	130
Manganese (total)	EMS0002-AUG23	mg/L	0.00001	<0.00001	1	20	103	90	110	NV	70	130
Molybdenum (total)	EMS0002-AUG23	mg/L	0.00004	<0.00004	18	20	102	90	110	115	70	130
Nickel (total)	EMS0002-AUG23	mg/L	0.0001	<0.0001	6	20	101	90	110	96	70	130
Lead (total)	EMS0002-AUG23	mg/L	0.00009	<0.00009	ND	20	106	90	110	103	70	130
Phosphorus (total)	EMS0002-AUG23	mg/L	0.003	<0.003	15	20	99	90	110	NV	70	130
Antimony (total)	EMS0002-AUG23	mg/L	0.0009	<0.0009	ND	20	110	90	110	120	70	130
Selenium (total)	EMS0002-AUG23	mg/L	0.00004	<0.00004	19	20	102	90	110	126	70	130
Tin (total)	EMS0002-AUG23	mg/L	0.00006	<0.00006	ND	20	98	90	110	NV	70	130
Titanium (total)	EMS0002-AUG23	mg/L	0.00007	<0.00005	1	20	99	90	110	NV	70	130
Vanadium (total)	EMS0002-AUG23	mg/L	0.00001	<0.00001	9	20	103	90	110	108	70	130
Zinc (total)	EMS0002-AUG23	mg/L	0.002	<0.002	0	20	106	90	110	126	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9006-AUG23	cfu/100mL	-	ACCEPTED	ACCEPTED							
E. Coli	BAC9222-AUG23	cfu/100mL	-	ACCEPTED	ACCEPTED							

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0010-AUG23	mg/L	2	<2	NSS	20	104	75	125			

QC SUMMARY

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0010-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0010-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			

QC SUMMARY

Pesticides

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-018

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
a-chlordane	GCM0179-AUG23	mg/L	0.001	< 0.001	ND	30	94	50	140	101	50	140
Aldrin	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	88	50	140	98	50	140
Dieldrin	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	95	50	140	99	50	140
g-chlordane	GCM0179-AUG23	mg/L	0.001	< 0.001	ND	30	93	50	140	101	50	140
Hexachlorobenzene	GCM0179-AUG23	mg/L	0.00001	< 0.00001	ND	30	91	50	140	97	50	140
Hexachlorocyclohexane	GCM0179-AUG23	mg/L	0.001	< 0.001	ND	30	96	50	140	98	50	140
Mirex	GCM0179-AUG23	mg/L	0.001	< 0.001	ND	30	92	50	140	101	50	140
o,p-DDD	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	92	50	140	100	50	140
o,p-DDE	GCM0179-AUG23	mg/L	0.00001	< 0.00001	ND	30	93	50	140	100	50	140
op-DDT	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	99	50	140	108	50	140
pp-DDD	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	93	50	140	100	50	140
pp-DDE	GCM0179-AUG23	mg/L	0.00001	< 0.00001	ND	30	92	50	140	100	50	140
pp-DDT	GCM0179-AUG23	mg/L	0.00002	< 0.00002	ND	30	107	50	140	118	50	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0021-AUG23	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D I Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0021-AUG23	mg/L	0.002	<0.002	ND	10	100	80	120	104	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A I Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0189-AUG23	mg/L	0.0001	<0.0001	NSS	30	91	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene Uncertainty	GCM0061-AUG23	mg/L	0.0005	< 0.0005	NSS	30	86	50	140	NSS	50	140
2-Methylnaphthalene Uncertainty	GCM0061-AUG23	mg/L	0.0005	< 0.0005	NSS	30	88	50	140	NSS	50	140
Acenaphthene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	91	50	140	NSS	50	140
Acenaphthylene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	84	50	140	NSS	50	140
Anthracene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	93	50	140	NSS	50	140
Benzo(a)anthracene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Benzo(a)pyrene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
Benzo(b+j)fluoranthene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	104	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0061-AUG23	mg/L	0.0002	< 0.0002	NSS	30	99	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	99	50	140	NSS	50	140
Bis(2-ethylhexyl)phthalate	GCM0061-AUG23	mg/L	0.002	< 0.002	NSS	30	105	50	140	NSS	50	140
Chrysene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0061-AUG23	mg/L	0.002	< 0.002	NSS	30	102	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Fluoranthene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Fluorene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	94	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0061-AUG23	mg/L	0.0002	< 0.0002	NSS	30	97	50	140	NSS	50	140
Naphthalene	GCM0061-AUG23	mg/L	0.0005	< 0.0005	NSS	30	90	50	140	NSS	50	140
Pentachlorophenol	GCM0061-AUG23	mg/L	0.0005	< 0.0005	NSS	30	72	50	140	NSS	50	140
Phenanthrene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140

QC SUMMARY

Semi-Volatile Organics (continued)

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Pyrene	GCM0061-AUG23	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140
3,3-Dichlorobenzidine	GCM0187-AUG23	mg/L	0.0005	< 0.0005	NSS	30	112	30	130	NSS	30	130

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Suspended Solids	EWL0032-AUG23	mg/L	2	< 2	0	10	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Kjeldahl Nitrogen	SKA0052-AUG23	as N mg/L	5.0	<0.5	ND	10	99	90	110	114	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	96	60	130	94	50	140
1,2-Dichlorobenzene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	96	60	130	96	50	140
1,4-Dichlorobenzene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	94	60	130	94	50	140
Benzene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Chloroform	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	96	60	130	96	50	140
cis-1,2-Dichloroethylene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	99	60	130	100	50	140
Ethylbenzene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	97	50	140
Methylene Chloride	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	96	50	140
Tetrachloroethylene (perchloroethylene)	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
Toluene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	97	50	140
trans-1,3-Dichloropropene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	94	60	130	89	50	140
Trichloroethylene	GCM0101-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	95	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 036695

SGS Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Abneet
Received Date: 07/31/2023 (mm/dd/yy)
Received Time: 14:35 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C): 9 x 3
LAB LIMS #: CA40275-Jul23

REPORT INFORMATION

Company: DS consultants Ltd
Contact: Dorothy Santos
Address: 6221 Hwy 7, Unit 16, Vaughan
Phone: 905-329-2735
Fax:
Email: Dsantos@Dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 23-229-100
Site Location/ID: 100 Fergeson Ave S. Hamilton

TURNAROUND TIME (TAT) REQUIRED

☐ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table Appx.
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: Halton

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN,Hg pH,(BHWS),EC,SAR–soil) (Cl, Na–water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: Halton Sanitary/Storm Sewer use bylaw ✓	Other	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	SPLP: Specify tests	TCLP: Specify tests	COMMENTS:
1	BH 1	7/31/23	pm	18	GW	N																				Non-filtered limited water available at the source [12 bottles - half filled due to limited sample availability at the sampling point]
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Chaitanya Signature: Chaitanya Date: 7/31/23 (mm/dd/yy)
Relinquished by (NAME): Chaitanya Signature: Chaitanya Date: 7/31/23 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

Appendix D

MECP Water Well Records- 100 Ferguson Ave S., Hamilotn (500 m)

TOWNSHIP	UTM	E	N	DATE CNTR	CASING	WATER	PUMP TEST	WELL USE	SCREEN	WELL	WELL TAG	FORMATION
BARTON TOWNSHIP 02 014	17 W	592157	4789736	2008-08 7147	1.97			TH NU	0007 10	7110482	(Z87551) A070099	GREY 0001 BRWN FILL 0004 BRWN SAND 0017
BARTON TOWNSHIP 02 014	17 W	592166	4789730	2008-08 7147	1.97			TH NU	0007 10	7110483	(Z87552) A070099	GREY 0001 BRWN FILL 0004 BRWN SAND 0017
HAMILTON CITY	17 W	592287	4789732	2017-03 7295	0.8			MO	0015 5	7289021	(Z256923) A221530	BRWN SAND SILT SLTY 0010 BRWN SAND 0015 BRWN CLAY SAND SNDY 0018 GREY CLAY 0020
HAMILTON CITY	17 W	592400	4789688	2017-03 7295	0.8			MO	0015 5	7289024	(Z256921) A221527	RED SAND TILL SNDY 0010 RED SAND 0014 GREY CLAY 0020
HAMILTON CITY	17 W	592242	4789753	2017-03 7295	0.8			MO	0015 5	7289025	(Z256917) A225748	RED SAND TILL SNDY 0007 RED TILL SAND SNDY 0015 GREY CLAY 0020
HAMILTON CITY	17 W	592242	4789753	2017-03 7295	1.79			MO	0015 5	7289028	(Z256920) A221526	RED SAND 0015 GREY CLAY 0020
HAMILTON CITY	17 W	592559	4789613	2017-03 7295	1.79			MO	0015 5	7289033	(Z256908) A225757	BRWN CLAY SAND SNDY 0020
HAMILTON CITY	17 W	592248	4789599	2017-05 7241	2.5			TH MO	0004 10	7290075	(Z260860) A221890	GREY ---- 0000 BRWN FILL 0003 BRWN SAND 0014
HAMILTON CITY	17 W	592277	4789612	2017-05 7241	1.25			MO TH	0003 10	7290076	(Z260859) A221891	GREY ---- 0000 BRWN FILL 0003 BRWN SAND 0013
HAMILTON CITY	17 W	592264	4789614	2017-06 7241	2			TH MO	0035 5	7290108	(Z260953) A221732	BRWN SAND GRVL 0024 GREY CLAY 0040
HAMILTON CITY	17 W	592262	4789658	2017-07 7241	1			TH MO	0051 5	7293232	(Z241361) A195397	BRWN LOAM 0001 BRWN FILL 0005 BRWN SAND SILT SAND 0032 GREY CLAY SOFT 0056
HAMILTON CITY	17 W	592030	4789800	2004-02 6607	1.97	FR 0021			0017 11	6813995	(Z07625) A007483	BRWN FILL SHLE BLDR 0025 GREY SAND GRVL SAND 0027 BRWN CLAY 0028
HAMILTON CITY	17 W	592445	4789535	2017-08 7609						7298243	(C38030) A227312 P	
HAMILTON CITY	17 W	592033	4789687	2017-12 7295	1.79			MO	0005 10	7305833	(Z272933) A237113	BRWN TILL 0005 RED SHLE 0015
HAMILTON CITY	17 W	592184	4789683	2020-12 7215						7390311	(Z346486) A290776 P	
HAMILTON CITY	17 W	592054	4789539	2018-11 7644	2			MT	0015 20	7326001	(Z301306) A260018	
HAMILTON CITY	17 W	592725	4789557	2019-01 6607	2	UT 0013	///:	MO	0008 10	7331055	(Z282651) A246180	GREY ---- SAND FILL 0001 RED SILT SAND FILL 0004 RED SAND SILT DNSE 0018
HAMILTON CITY	17 W	591780	4789278	2019-05 7147	1.25		///:	MO	0003 10	7332229	(GQT3FFGX) A269760	GREY 0001 BRWN CLAY 0013
HAMILTON CITY	17 W	592598	4789571	2019-03 7282	2		///:	MO	0009 10	7336595	(Z306615) A263839	BRWN CLAY SAND 0020
HAMILTON CITY	17 W	592065	4789705	2019-07 7360	2		///:	MO	0015 10	7339235	(Z312306) A268823	GRVL FILL 0010 SAND SILT GVLY 0025
HAMILTON CITY	17 W	592614	4789494	2021-02 7241						7382707	(Z353886) A311757 P	
HAMILTON CITY	17 W	592599	4789455	2021-02 7241						7382738	(Z351380) A283884 P	
HAMILTON CITY	17 W	592644	4789451	2021-02 7241						7382781	(Z207250) A311911 P	
HAMILTON CITY	17 W	592183	4789670	2020-12 7215						7390310	(Z346534) A290777 P	
HAMILTON CITY	17 W	592047	4789493	2018-11 7644	2			MT	0010 10	7326000	(Z301305) A260016	

HAMILTON CITY	17 W	592050	4789766	2005-02 7215	0.79			NU	0043 33	6814190	(Z26015) A019819	
HAMILTON CITY	17 W	592007	4789707	2005-05 6607	2	FR 0020			0022 5	6814253	(Z27810) A026546	BRWN SAND GRVL 0003 BRWN SAND SILT 0015 BRWN SAND 0025 GREY CLAY SILT 0027
HAMILTON CITY	17 W	592441	4789766	2005-10 7295	1.97				0020 10	6814399	(Z32388) A031560	BRWN SILT SAND 0016 BRWN SAND SILT 0026 GREY CLAY SILT 0049
HAMILTON CITY	17 W	592108	4789299	2005-12 6607	2.31	FR 0013			0010 11	6814425	(Z42182) A036832	BRWN SAND STNS FILL 0010 BRWN SAND 0022
HAMILTON CITY	17 W	591990	4789708	2006-02 6607	1.97	FR 0021			0020 10	6814442	(Z44165) A037803	BRWN SAND 0014 BRWN SAND 0030 GREY CLAY SILT 0030
HAMILTON CITY	17 W	592008	4789699	2006-03 6607	1.97	20		NU	0018 1	6814456	(Z44208) A041066	BRWN SAND 0014 BRWN SAND 0020
HAMILTON CITY	17 W	592327	4789346	2008-07 7238				TH	0030 10	7108680	(Z80526) A066837	BRWN SAND GRVL 0010 BRWN CLAY SHLE 0040
HAMILTON CITY	17 W	592334	4789336	2008-07 7238					0030 10	7108683	(Z80480) A066839	BRWN FILL 0005 BRWN SAND GRVL 0010 BRWN SHLE CLAY 0040
HAMILTON CITY	17 W	591947	4789656	2009-07 6607	2	FR 0017		MO	0015 10	7128788	(M05225) A085320	BRWN SAND GRVL FILL 0012 BRWN SAND LOOS 0018 GREY CLAY SILT DNSE 0025
HAMILTON CITY	17 W	592135	4788906	2009-08 7295	0.87	UT 0050		MO	0055 10	7131448	(Z097377) A090328	BRWN LOAM 0005 BRWN CLAY SILT 0035 RED GRVL SAND 0045 RED SHLE WTHD 0050 RED SHLE 0065
HAMILTON CITY	17 W	592054	4789662	2010-04 6607	2.00 2.00	FR 0022		MO		7145094	(M06595) A094910	BRWN SAND GRVL PCKD 0004 BRWN SAND LOOS 0022 GREY SAND LOOS 0026 GREY SILT CLAY DNSE 0030
HAMILTON CITY	17 W	592445	4789710	2017-05 7295	1.79			MO	0010 10	7288992	(Z256954) A225711	BRWN SILT 0008 GREY SILT CLAY 0019 GREY SAND GRVL 0022
HAMILTON CITY	17 W	592007	4789324	2011-03 7003						7163905	(M05921) A091371 P	
HAMILTON CITY	17 W	592062	4789695	2013-02 7295	1.79			MO	0035 10	7211612	(Z165911) A156079	BRWN SAND 0030 GREY CLAY 0086 GREY CLAY 0103 GREY ROCK 0104
HAMILTON CITY	17 W	592712	4789448	2013-10 7241	2			MT	0009 10	7211879	(Z181128) A156256	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0015 GREY CLAY SILT LOOS 0019
HAMILTON CITY	17 W	592507	4789775	2016-06 6607						7267300	(C28832) A196779 P	
HAMILTON CITY	17 W	592473	4789784	2017-02 6607	5.09			MO	0045 5	7284694	(Z248131) A217771	BRWN SAND GRVL FILL 0005 BRWN SAND 0025 GREY SILT CLAY 0030
HAMILTON CITY	17 W	592463	4789754	2017-02 6607	5.09			MO	0005 10	7284695	(Z248168) A217844	BRWN SAND GRVL FILL 0005 BRWN SAND 0015
HAMILTON CITY	17 W	592467	4789766	2017-02 6607	5.09			MO	0005 10	7284696	(Z248169) A217852	BRWN SAND GRVL 0005 BRWN SAND 0015
HAMILTON CITY	17 W	592452	4789791	2017-02 6607	5.09			MO	0045 5	7284697	(Z248170) A201532	BRWN SAND GRVL FILL 0005 BRWN SAND 0025 GREY SILT CLAY 0050
HAMILTON CITY	17 W	592015	4789840	2017-02 7295	1.79			MO	0015 10	7287237	(Z251965) A221511	GREY FILL DNSE 0001 RED SILT SAND SNDY 0015 BRWN SAND WBRG 0018 BRWN SAND 0025
HAMILTON CITY	17 W	592423	4789679	2017-02 7295	1.79			MO	0015 5	7287238	(Z251966) A221508	GREY GRVL FILL GVLY 0003 BRWN SAND 0020
HAMILTON CITY	17 W	592196	4789781	2017-02 7295	1.79			MO	0020 5	7287245	(Z251973) A221523	BRWN SAND DRY 0007 BRWN SAND 0020 BRWN SAND WBRG 0025
HAMILTON CITY	17 W	592425	4788923	2010-10 7295	1.79			MO	0015 10	7155220	(Z120141) A090301	BLCK 0000 GREY ROCK SNDY 0002 BRWN FSND FILL SNDY 0009 RED SHLE LMSN HARD 0030
HAMILTON CITY	17 W	592179	4789899	2022-01 7644						7414118	(Z382020) A340466 P	
HAMILTON CITY	17 W	592223	4789737	2020-12 7215						7390313	(Z346488) A290761 P	

HAMILTON CITY	17 W	592194	4789702	2021-01 7215						7390314	(Z346489) A310689 P	
HAMILTON CITY	17 W	592221	4789705	2020-12 7215						7390312	(Z346487) A290762 P	
HAMILTON CITY	17 W	592175	4789687	2021-01 7215						7390316	(Z346491) A290765 P	
HAMILTON CITY 02 013	17 W	592419	4789634	2006-02 6607	2	FR 0011			0005 10	6814440	(Z44151) A037831	BRWN SAND GRVL FILL 0004 RED SAND SILT 0013 BRWN CLAY SILT 0015
HAMILTON CITY (BARTO	17 W	592254	4789608	2014-07 7241	1.25			MT	0007 10	7226879	(Z193058) A168699	BLCK LOAM SOFT 0001 BRWN FILL SOFT 0003 BLCK 0004 BRWN FILL 0006 BRWN SAND SILT 0010 BRWN SILT SAND WBRG 0018
HAMILTON CITY (BARTO	17 W	592493	4789750	2014-02 7241	1.5			MT	0005 10	7217437	(Z184565) A155655	BRWN SAND GRVL FILL 0012 GREY CLAY SILT 0015
HAMILTON CITY (BARTO	17 W	592511	4789755	2014-02 7241	1.5			MT	0005 10	7217436	(Z184564) A159136	BRWN SAND GRVL FILL 0014 GREY SILT CLAY 0015
HAMILTON CITY (BARTO	17 W	591919	4789669	2014-01 7241	2			MT	0007 10	7216166	(Z184739) A159115	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0017
HAMILTON CITY (BARTO	17 W	591920	4789674	2014-01 7241	2			MT	0008 10	7216165	(Z184740) A159116	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0018
HAMILTON CITY (BARTO	17 W	591897	4789677	2014-01 7241	2			MT	0009 10	7216164	(Z184737) A159118	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0019
HAMILTON CITY (BARTO	17 W	591879	4789689	2014-01 7241	2			MT	0009 10	7216163	(Z184736) A159117	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0019
HAMILTON CITY (BARTO	17 W	592765	4789335	2013-11 7464						7215871	(Z167991) A	
HAMILTON CITY (BARTO	17 W	592701	4789429	2013-10 7241	2.04			MT	0010 10	7211884	(Z176468) A107791	WHIT 0001 BRWN SAND SILT GRVL 0011 BRWN SAND SOFT 0016 GREY SILT CLAY SOFT 0020
HAMILTON CITY (BARTO	17 W	592060	4789042	2014-10 7320		UT 0010		MO		7232543	(Z198801) A	
HAMILTON CITY (BARTO	17 W	592666	4789432	2013-10 7241	2			MT	0010 10	7211882	(Z176467) A107794	BLCK 0000 BRWN FSND CSND SOFT 0015 GREY CLAY SILT SOFT 0020
HAMILTON CITY (BARTO	17 W	592711	4789503	2015-04 7241	1.25			MT	0008 10	7240903	(Z208079) A171080	BRWN FILL LOOS 0006 BRWN SAND LOOS 0012 GREY SILT CLAY DNSE 0020
HAMILTON CITY (BARTO	17 W	592713	4789437	2013-10 7241	2			MT	0010 10	7211881	(Z181133) A156267	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SILT SAND LOOS 0018 GREY CLAY SILT LOOS 0020
HAMILTON CITY (BARTO	17 W	592722	4789452	2013-10 7241	2			MT	0010 10	7211880	(Z181132) A156255	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SILT SAND LOOS 0015 GREY CLAY SILT LOOS 0020
HAMILTON CITY (BARTO	17 W	592677	4789434	2013-10 7241	2			MT	0010 10	7211883	(Z176465) A107793	BLCK 0000 BRWN FSND CSND SOFT 0015 GREY CLAY SILT SOFT 0020
HAMILTON CITY (BARTO	17 W	592708	4789534	2015-04 7241	2			MT	0010 10	7240907	(Z209798) A181811	BLCK SOFT 0000 BRWN FSND SILT SOFT 0008 GREY CLAY SILT SOFT 0020
HAMILTON CITY (BARTO	17 W	592268	4789559	2017-04 7464						7297241	(C37189) A208229 P	
HAMILTON CITY (BARTO	17 W	592709	4789525	2016-04 7241	2			MT	0010 10	7261753	(Z231542) A197994	BLCK ---- 0003 BRWN SAND GRVL 0004 BRWN SAND SILT 0016 GREY CLAY SILT 0020
HAMILTON CITY (BARTO	17 W	592750	4789550	2016-04 7241	2			MT	0010 10	7261752	(Z231541) A197930	BLCK ---- 0003 BRWN SAND GRVL 0005 BRWN SILT SAND 0016 GREY CLAY SILT 0020
HAMILTON CITY (BARTO	17 W	592006	4789728	2015-08 7241	1.25			MT	0004 3	7248705	(Z213438) A188632	GREY 0000 GREY STNS 0001 BRWN SAND 0006
HAMILTON CITY (BARTO	17 W	592564	4789573	2014-11 7320	1.22			MT	0020 5	7233259	(Z201864) A174508	GREY GRVL SAND FILL 0001 BRWN FSND 0007 BRWN SAND SILT 0017 GREY CLAY 0025
HAMILTON CITY (BARTO	17 W	592704	4789531	2015-04 7241	2			MT	0010 10	7240906	(Z209799) A181812	BLCK SOFT 0000 BRWN FSND SILT SOFT 0010 GREY CLAY SILT SOFT 0020
HAMILTON CITY (BARTO	17 W	592701	4789529	2015-04 7241	2			MT	0010 10	7240905	(Z209800) A161899	BLCK SOFT 0000 BRWN FSND SILT SOFT 0010 GREY CLAY SILT SOFT 0020

HAMILTON CITY (BARTO	17 W	592723	4789503	2015-04 7241	1.25			MT	0004 10	7240904	(Z208078) A172886	BRWN FILL LOOS 0008 BRWN SAND DNSE 0008 GREY SAND SILT DNSE 0014
HAMILTON CITY (BARTO	17 W	592585	4789585	2013-02 7464						7208539	(C20769) A141431 P	
HAMILTON CITY (BARTO	17 W	592714	4789503	2015-03 7464						7240545	(C27065) A174531 P	
HAMILTON CITY (BARTO	17 W	592706	4789434	2013-10 7241	2			MT	0010 10	7211878	(Z181131) A156268	BLCK 0000 BRWN SAND GRVL LOOS 0001 BRWN SAND SILT LOOS 0015 GREY CLAY SILT LOOS 0020
HAMILTON CITY (BARTO	17 W	592565	4789573	2014-11 7320	1.22			MT	0007 10	7233260	(Z201863) A174507	GREY GRVL SAND FILL 0001 BRWN FSND 0007 BRWN SAND SILT 0017 GREY CLAY 0017
HAMILTON CITY (BARTO	17 W	592007	4789732	2015-08 7241	1.25			MT	0003 2	7248706	(Z213439) A188680	GREY 0000 GREY STNS 0001 BRWN SAND 0005
HAMILTON CITY (BARTO	17 W	592004	4789591	2021-12 7644						7414181	(Z348212) A330434 P	
HAMILTON CITY (BARTO	17 W	592491	4789551	2013-08 7241	1.25			MT	0004 10	7208690	(Z160348) A098746	BLCK 0003 BRWN FILL 0004 BRWN CLAY SLTY 0012 GREY CLAY 0014
HAMILTON CITY (BARTO	17 W	592447	4789551	2012-04 7241	2.04			MT	0005 10	7181288	(Z146352) A113495	BLCK CMTD SOFT 0000 BRWN SAND GRVL SOFT 0010 GREY SILT CLAY SOFT 0015
HAMILTON CITY (BARTO	17 W	592442	4789541	2012-04 7241	2.04			MT	0008 10	7181287	(Z146371) A113496	BRWN CMTD SOFT 0000 BRWN SAND GRVL SOFT 0011 GREY SILT CLAY SOFT 0018
HAMILTON CITY (BARTO	17 W	592237	4789855	2011-11 6809						7179453	(C15777) A119962 P	
HAMILTON CITY (BARTO	17 W	591944	4789611	2021-12 7644						7414177	(Z381107) A344492 P	
HAMILTON CITY (BARTO	17 W	591946	4789610	2021-12 7644						7414178	(Z381108) A330431 P	
HAMILTON CITY (BARTO	17 W	592091	4789351	2012-05 7190						7182939	(Z146968) A091371 A	
HAMILTON CITY (BARTO	17 W	592006	4789574	2021-12 7644						7414180	(Z348211) A330435 P	
HAMILTON CITY (BARTO	17 W	592447	4789541	2012-04 6032	2			MO	0010 10	7185307	(Z131692) A116383	BRWN SAND FILL HARD 0020 BRWN SAND FILL HARD 0020 BRWN SAND FILL HARD 0020 BRWN SAND FILL HARD 0020
HAMILTON CITY (BARTO	17 W	591948	4789545	2021-12 7644						7414182	(Z348000) A330433 P	
HAMILTON CITY (BARTO	17 W	591948	4789542	2021-12 7644						7414183	(Z347999) A330432 P	
HAMILTON CITY (BARTO	17 W	591989	4789563	2021-12 7644						7414184	(Z381109) A320818 P	
HAMILTON CITY (BARTO	17 W	592209	4789609	2022-03 7644						7417981	(Z383349) A345684 P	
HAMILTON CITY (BARTO	17 W	592006	4789574	2021-12 7644						7414179	(Z348209) A344491 P	
HAMILTON CITY (BARTO	17 W	592240	4789711	2013-01 7241	1			MT	0006 10	7198186	(Z165664) A143682	BRWN SAND 0012 BRWN SAND 0016
HAMILTON CITY (BARTO	17 W	592492	4789543	2013-08 7241	1.25			MT	0005 10	7208651	(Z160352) A154085	BLCK 0003 BRWN FILL 0004 BRWN CLAY SLTY 0012 GREY CLAY 0015
HAMILTON CITY (BARTO	17 W	592130	4789901	2022-01 7644						7414121	(Z348050) A330398 P	
HAMILTON CITY (BARTO	17 W	592506	4789771	2013-07 7241	1.5			MT	0005 10	7205276	(Z174193) A150570	GREY FILL 0003 BRWN SAND 0010 BRWN SAND SILT 0013 GREY CLAY 0015
HAMILTON CITY (BARTO	17 W	592502	4789762	2013-07 7241	1.5			MT	0005 10	7205275	(Z165773) A150571	GREY FILL 0003 BRWN SAND 0010 BRWN SAND SILT 0013 GREY CLAY 0015

HAMILTON CITY (BARTO	17 W	592507	4789762	2013-07 7241	1.5			MT	0005 10	7205274	(Z174194) A098689	GREY FILL 0003 BRWN SAND 0010 BRWN SAND SILT 0013 GREY CLAY 0015
HAMILTON CITY (BARTO	17 W	592439	4789530	2012-04 7241	2.04			MT	0010 10	7181290	(Z146346) A113497	BLCK CMTD SOFT 0000 BRWN SAND SOFT 0008 GREY CLAY SILT SOFT 0020
HAMILTON CITY (BARTO	17 W	592225	4789685	2013-01 7241	1			MT	0004 8	7198187	(Z165666) A143681	BRWN SAND 0008 BRWN SAND 0012
HAMILTON CITY (BARTO	17 W	592698	4789436	2013-10 7241	2.04			MT	0010 10	7211861	(Z176466) A107792	BLCK 0000 BRWN SAND GRVL SILT 0010 BRWN MSND SOFT 0016 GREY SILT CLAY SOFT 0020
HAMILTON CITY (BARTO	17 W	592246	4789706	2013-01 7241	1			MT	0006 10	7198185	(Z165661) A143683	BRWN SAND 0012 BRWN SAND 0016
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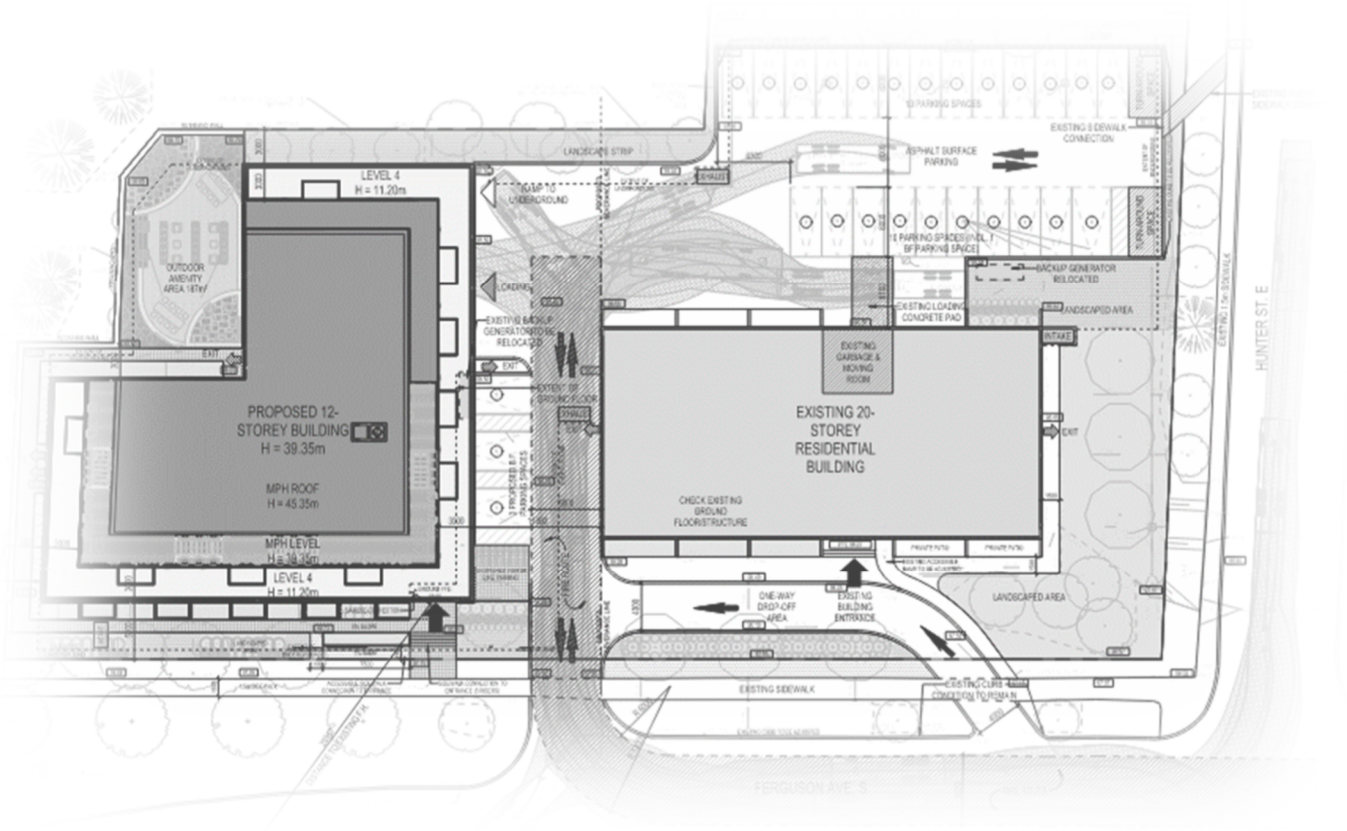
Transportation Study
FCSP-23-060 Residential Addition at
100 Ferguson Avenue South, City of Hamilton

Amelin Property Management

Prepared by WSP Canada Inc. in December 2023



Transportation Study
FCSP-23-060 Residential Addition at
100 Ferguson Avenue South, City of Hamilton

Amelin Property Management

PROJECT NO.: CA0006026.3023

PREPARED BY WSP CANADA INC. IN DECEMBER 2023

WSP

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December 20, 2023

Mr. Ephraim Alon
c/o Mr. Neil Robinson
Amelin Property Management
155 Balliol Street
Toronto, Ontario
M4S 1C4

Subject: Transportation Study for FCSP-23-060 Residential Addition
100 Ferguson Avenue South, City of Hamilton

Dear Mr. Robinson,

WSP Canada Inc. is pleased to present the findings of our Transportation Study for your upcoming FCSP-23-060 application of 100 Ferguson Avenue South, in the City of Hamilton. The study is in accordance with the Terms of Reference (TOR) found in Appendix A, duly discussed with the City representative at the onset of the project.

A detailed description of the development proposal and its context is found in Section 1.0 of the enclosed report. To highlight, you are proposing the addition of a 12-storey residential building which will be adjacent to the south side of the 20-storey rental apartment building presently occupying the site. Of particular emphasis, you took the laudable initiative to propose closing the existing Hunter Street East automobile site access, understood as preferred by City staff due to ongoing concerns about its interface with the adjacent bi-directional cycling lanes. The existing underground ramp driveway on Ferguson Avenue South is also proposed to be reconfigured as a centralized access serving both the surface and underground area of the existing and proposed building, as well as to consolidate the outbound driveway of the counterclockwise pick-up/drop-off area fronting the existing building. This is also opined to appreciably improve the pedestrian and cycling fabric by reducing the number of points whereby vehicles and more vulnerable users would need to interact, going from four existing to two ultimate site access.

As further detailed in the enclosed report, and highlighted below, we have comprehensively responded to the City's transportation requirements.

a. Section 1.0 provides a thorough description of the strong active transportation context of the area, having cycling lanes bordering the site and nearby bike share facilities along with major transit facilities like Hamilton GO Centre Station. The site is also proximate to the City's downtown, adjacent its south border, and various mixed-uses—enhancing walkability and putting various day-to-day amenities within close reach.

b. Detailed estimation of the weekday peak hour trips expected to be generated by the proposed development has been completed, in addition to reassignment of existing building trips recognizing the proposed revised access configuration. For the sake of thoroughness, multiple trip generation methodologies have been considered including the identification of site-specific rates using recent in-field driveway counts of the comparable existing building of the site and drawing upon information from the Institute of Transportation Engineers (ITE) and Data Management Group at the University of Toronto (Transportation Tomorrow Survey). Further details are in Section 2.3.2.

c. As outlined in Section 2.3.1, future background traffic forecasts (without the proposed development in place) have been established, accounting for relevant nearby development and background corridor growth consistent with information provided by the City representative in response to the TOR.

d. In addition to newly collected traffic volume data, parking utilization surveys of the existing building (proxy) have been undertaken over multiple days (also consistent with the time-of-day requested by City staff via the TOR), details of which are in Section 2.2. Section 3.0 extensively compares the newly proposed auto parking, bicycle parking and loading space supplies with the applicable minimum requirements as well as offers a strong, comprehensive five-pronged rationalization for the proposed automobile parking reduction drawing upon the recent proxy parking utilization survey, area-wide vehicle ownership data, rates of the ITE Parking Generation Manual, and various a robust set of Transportation Demand Management (TDM) initiatives. It is opined that a proposed overall parking supply of 203 spaces is adequate, and well supported through said five prongs.

e. In Section 2.3.3, suitable analysis has been prepared of vehicle traffic operations at the study area intersections for existing, as well as future conditions without the proposed development in place (background) and with the proposed development (total). This reports on the metrics of expected volume-to-capacity ratios and level of service (delay). Initiative has also been taken to discuss the historic collision data obtained from City staff for the area (Section 2.3.4).

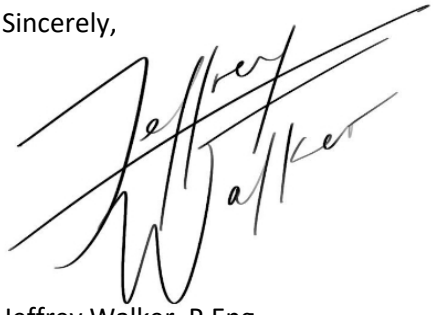
f. As detailed in Section 2.3.2, it is estimated that the proposed building addition will generate only 14 new two-way motor vehicle trips in the a.m. peak hour (5 inbound and 9 outbound) and 22 two-way trips in the p.m. peak hour (12 inbound and 10 outbound). Based on the results of the intersection capacity analyses of Section 2.3.3, the site-generated vehicle trips are forecasted to have minimal impact on the operations of the boundary road network so can be accommodated.

g. A detailed site circulation assessment has been undertaken, using the AutoTurn 11 software package, demonstrating relevant vehicle maneuvers throughout the new layout (Section 3.0).

h. Appreciable efforts to put forth a robust set of TDM strategies are found in Section 4.0 including the provision of ample bike parking (175 new stalls), as well as various proactive initiatives related to transit, cycling, pedestrians and promotional/outreach.

We thank you for the opportunity to undertake this interesting study. Please do not hesitate to contact us if you have any questions or comments.

Sincerely,



Jeffrey Walker, P.Eng.
Project Manager
WSP Transportation Planning & Science

Contributors: Sangave Gunajothy and Nima Farid

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Appendices

1 INTRODUCTION AND OVERVIEW

WSP Canada Inc. (WSP) was retained by Amelin Property Management for transportation consulting services of the upcoming FCSP-23-060 application for 100 Ferguson Avenue South, in the City of Hamilton. The development proposal is for the addition of a 12-storey residential building, adjacent to the south side of the 20-storey rental apartment building that presently occupies the site.

The representative from City Transportation Planning offered initial feedback by way of a memorandum dated May 23, 2023, requesting a Transportation Impact Study, Parking Assessment, Transportation Demand Management/Transit Oriented Design Measures and Roadway/Development Safety Audit, Cycling Route Analysis, Pedestrian Route and Sidewalk Analysis, and Parking Analysis—collectively referred to herein as the Transportation Study. This Transportation Study has been undertaken in accordance with the detailed Terms of Reference (TOR) dated July 12, 2023, and its associated feedback from staff of the City as found in **Appendix A**, as well as duly considering the City's *Traffic Impact Study Guidelines* of July 2009.

Of particular emphasis, the Applicant took the laudable initiative to propose closure of the existing Hunter Street East automobile site access, as understood from the aforementioned May 2023 memo to be preferred by City staff due to ongoing concerns about its interface with the adjacent bi-directional cycling lanes. The existing underground ramp driveway on Ferguson Avenue South is also proposed to be reconfigured into a centralized driveway serving both the surface and underground area of the existing and proposed building, as well as

HIGHLIGHTS

- ✓ Development proposal is for a second, 139 residential unit, building that would be in addition to the existing 210 unit one currently occupying the site.
- ✓ Surrounding area has a strong active transportation and mixed-use character, with adjacent cycle lanes and bike share facilities along with nearby major transit such as Hamilton GO Centre Station. It is also proximate to the City's downtown, adjacent its south border, and various mixed uses enhancing walkability.
- ✓ Recognizing the safety concerns expressed by City staff, the Applicant took the initiative to propose closure of the existing Hunter Street East driveway.
- ✓ The proposal centralizes access on Ferguson Avenue South, consolidating driveways from four existing to two in ultimate (reducing potential conflict points between pedestrians/cyclists and motor vehicles).
- ✓ Traffic operations analysis has been conducted in Section 2.0, in accordance with City guidelines and TOR input.
- ✓ Proposed loading and parking supplies have been compared with minimum requirements (Section 3.0). A comprehensive five-pronged rationalization for the proposed motor vehicle parking supply is provided.
- ✓ Section 3.0 also has a detailed site circulation assessment demonstrating relevant vehicle maneuvers of the new layout.
- ✓ The robust set of TDM strategies in Section 4.0 include ample bike parking, and other proactive initiatives related to transit, cycling, pedestrians and promotional/outreach.

to consolidate the outbound driveway of the counterclockwise pick-up/drop-off area fronting the existing building. Note for added context that Ferguson Avenue South on the south side of the main site driveway is one-way northbound only, whereas it is two-way north of it, south of Hunter Street East, so southbound traffic in this segment would primarily be that of the immediate local uses. Overall, the site access reconfiguration initiatives above are opined to appreciably improve the pedestrian and cycling fabric by reducing the number of points whereby vehicles and more vulnerable users would need to interact, going from four existing to two ultimate site driveways.

Efforts have also been made to optimize for non-single occupant trips and alternative travel opportunities, as detailed in Transportation Demand Management Plan of Section 4.0. To highlight, despite there not being specific By-law bicycle parking rates for this site the applicant has taken the initiative to put forth ample provision of such at a total of 175 stalls. Monetary incentives toward bike share and transit are also proposed.

The remainder of this section, 1.0, offers an overview of the surrounding area context along with details of the proposed development and a statement of the study objective.

1.1 SURROUNDING AREA OVERVIEW

The proposed development is in a relatively urban area slightly south of the southern border of the November 2022 *City Urban Hamilton Official Plan's* Downtown Hamilton Secondary Plan Area. Located nearby in the northwest is the Downtown Hamilton Business Improvement Area, which supports a vibrant community at the heart of City. The south and southwest sides of the site are adjacent to Shamrock Park, offering a network of paths connecting with Young Street and Walnut Street, along with a playground, greenspace and a basketball court. Additionally, the Central Memorial Recreation Centre is approximately 400 metres to the southeast. This puts an attractive mix of retail, commercial and recreational uses within reach of residents, whereby they would not necessarily need to travel far to satisfy many of their day-to-day needs.

Section 2.3.2 details the existing modal splits of the surrounding area, the combined morning and afternoon peak hour of which is summarized in **Figure 1-1**. This indicates a strong tendency of residents of the area

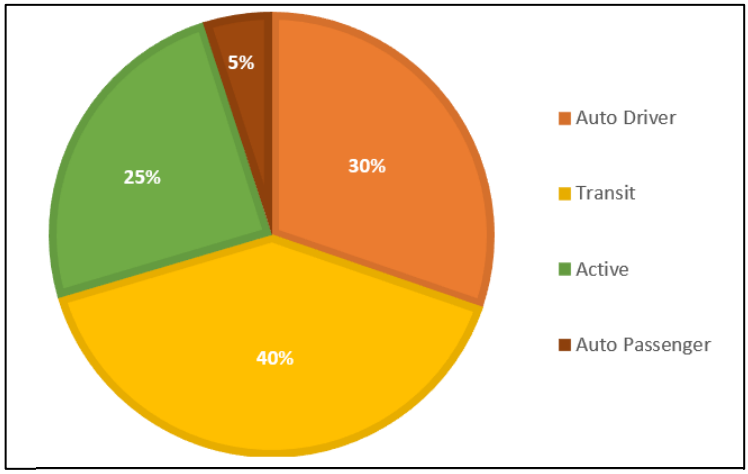

Figure 1-1: Existing Modal Splits for Combined Morning and Afternoon Peak Hour (See Section 2.3.2)

toward non-single occupant vehicle travel and alternatives, with auto driver person trips being at only 30 percent. Multimodal travel is also well-supported by the prominent cycling and transit facilities of the area. The north side of the site is adjacent to Hunter Street East which is a one-way westbound road having east-west bi-directional cycling facilities running along its south side. Hamilton Bike Share has a close-by station on the northwest corner of the Ferguson Avenue South at Hunter Street East intersection. Ferguson Avenue South is also an on-street cycling route in the north, with the south portion connecting to an in-boulevard cycling path. Hamilton GO Centre Station is nearby at around a half-kilometre to the west along Hunter Street East. The nearest bus stop is approximately 120 metres to the west. While the Urban Hamilton Official Plan, Appendix B (Major Transportation Facilities and Routes) does not identify future, new transportation infrastructure directly adjacent the site it does acknowledge a significant multimodal vision for the larger area including higher order transit facilities along the nearby James Street to the west and Main Street to the north alongside the priority transit corridor on King Street and future light rail transit stations at key intersections.

For visitors still wishing to utilize an automobile, there are various municipal car park facility located nearby including at 75 Catherine Street South (approximately 250 metres to the west), 171 Main Street East (200 metres north), 140 King William Street (275 metres northwest), 11 Ferguson Avenue North (215 metres north and 297 King Street East (325 metres northeast). There are also car share spaces in the general area via providers like Communauto and ZipCar, several of which are within approximately half-kilometre north, southwest, and southeast of the site. It is emphasized that car share availability can help to reduce the need of residents to own their own vehicle or mitigate them having to purchase a second vehicle for their household needs. It can also serve to further shift some residents that might be on the brink of automobile ownership, as it helps them to potentially strike an optimal balance with alternatives like bike, walking and transit modes while still having convenient shared access to an automobile should they occasionally require it.

1.2 PROPOSED DEVELOPMENT DETAILS

Based on the site plan provided by BDP Quadrangle on November 27, 2023, the proposal is for a new residential building addition of 139 dwelling units—24 bachelor, 32 one bedroom, 77 two bedroom and six three bedroom—on the southern portion of the site. Note that the November 27, 2023 architectural plans are the same as the December 18, 2023 version on all matters relevant to this Transportation Study, with no differences in the site statistics, parking or loading layout. The northern part of the site contains an existing rental apartment building of 210 units. In existing conditions there are 27 surface

parking spaces and an underground parking garage of 142 parking stalls, for a total of 169. For ease of reference, **Figure 1-2** is an extract of the proposed ground floor plan from BDP Quadrangle.

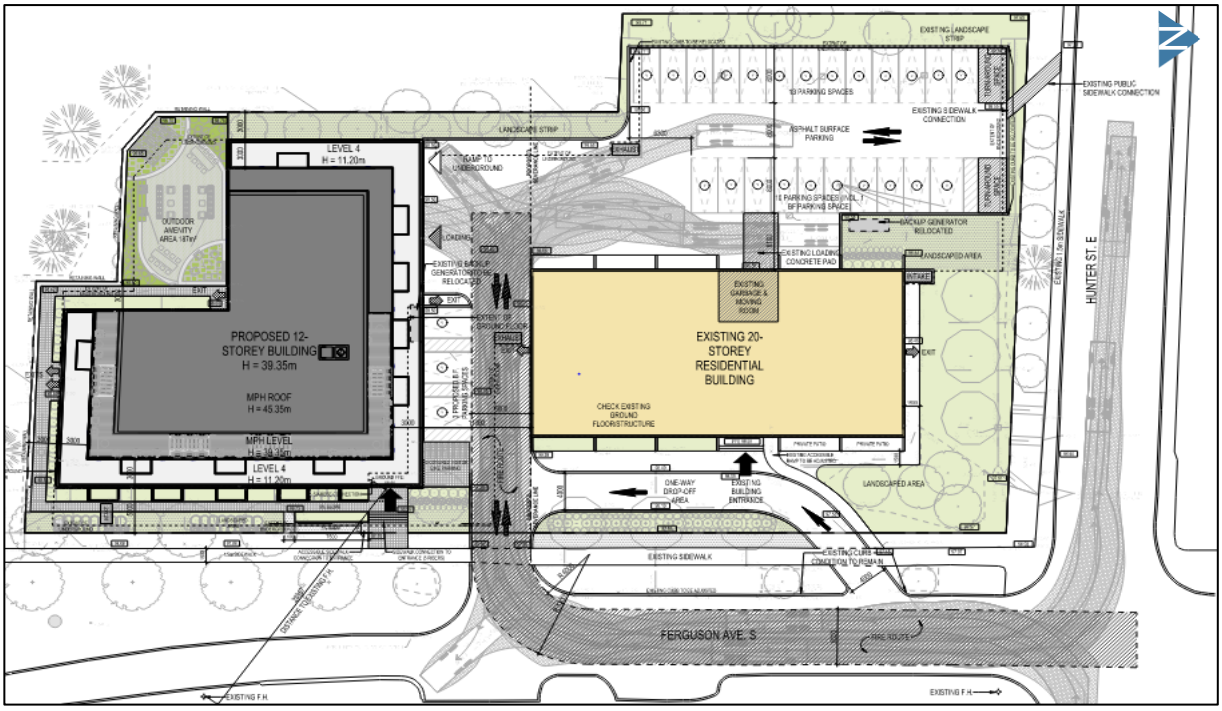

Figure 1-2: Architectural Ground Floor Plan (BDP Quadrangle, November 27, 2023)

The underground parking is proposed to be partially demolished resulting in a revised overall total of 203 stalls for the whole site (177 resident occupant and 26 visitor). The existing surface parking and loading arrangement is served only by the driveway at Hunter Street East, and not directly accessible via the driveways on Ferguson Avenue South which presently connects with the underground ramp and pick-up/drop-off area (PUDO) at the east side of the site. As mentioned earlier, the Applicant is proposing that the existing underground ramp access at Ferguson Avenue South be removed, in response to City concerns expressed in their previously noted May 23, 2023 memo, and relocated in favour of an updated main site access to both the surface and underground area of the current and new building. The existing PUDO will be maintained, in principle, but its south portion will be adjusted slightly to connect with the Ferguson Avenue South main access aisle. As a result of the proposed closure of Hunter Street East, the existing open-air loading arrangement currently located along the west-face of the existing building will be reconfigured to be accessed from the south with some of the surplus asphalt area converted into green space/landscape.

1.3 STUDY OBJECTIVE

The primary mandate of this Transportation Study is to address the following key aspects of the proposed development, and to be in accordance with the established TOR of Appendix A:

- Document newly collected turning movement count data for the Study Area, as well as parking utilization surveys. Per the TOR feedback of the City, parking utilization surveys are to capture from 7:00 p.m. to 12:00 a.m. for the existing building.
- Analyze expected traffic operation of the study area intersections for the weekday a.m. and p.m. peak hours under existing, as well as horizon 2031 background and future total conditions using Synchro 11, reporting on level of service (delay) and volume-to-capacity (v/c) ratios.
- Compare the proposed auto parking, bicycle parking and loading space supplies with the applicable minimum requirements.
- Put forth meaningful Transportation Demand Management (TDM) strategies geared at fostering optimal non-single-occupant vehicle use and alternative mode choice.
- Outline the surrounding area cycling and pedestrian context, as well as highlight the proposed development pedestrian access points and bike parking facilities.
- Undertake a parking demand assessment, drawing upon: a) New existing utilization surveys noted above and comparisons with nearby jurisdictions; b) Area-wide vehicle ownership information; c) TDM initiatives that can help to balance reductions in automobile parking supply with alternate travel mode accommodations like bike parking; and d) Opportunities offered through the strong mixed used, active transportation surrounding area context mentioned in Section 1.1.
- Document the five-year collision data obtained from City staff for nearby roads. Note that Section 3.10 of the City TIS Guidelines mention ‘safety analysis’, with the primary objective understood as being to assess the proposed development in relation to potential alternatives to enhance the level of safety of the site and adjacent roadway. With that said, it is emphasized that the discussions in Section 1.0 above already go a long way in demonstrating strong initiative by the Applicant to address a key concern expressed by City staff related to the existing Hunter Street East driveway, as well as to reduce the number of total site driveways whereby pedestrian and cyclists would need to interact with motor vehicle traffic from four to two overall.
- Undertake a detailed site circulation assessment, illustrating the adequacy of relevant vehicle maneuvers for the proposed layout of the new building.

The study approach, findings and recommendations are detailed herein. The structure of the report begins with a detailed assessment of existing and future transportation conditions (Section 2.0) followed by site circulation and access review along with detailed commentary on the proposed parking supply (3.0), and the TDM plan (4.0).

2 TRANSPORTATION CONDITIONS

2.1 BOUNDARY TRANSPORTATION NETWORK

Figure 2-1 shows the existing intersection lane configurations, which are also described below.

- **Hunter Street East** is an east-west collector road with two one-way motor vehicle lanes going westbound with a posted speed limit of 40 km/h. It also has sidewalks along both sides, as well as two-way separated bike lanes on the south part of the street.
- **Ferguson Avenue South** is a north-south local road with a posted speed limit of 40 km/h. For the most part, it has two-way motor vehicle traffic with one lane in each direction. South of the site access, it is a northbound only one-way road. It has sidewalks on both sides, as well as a well as cyclist accommodations along its west side.

The subject site is well-served by existing transit, as described below, based on information from associated transit agency websites at the time of this study.

- **Hamilton GO Centre Station** is a major transit facility offering both bus and rail transit proximate Hamilton's downtown. It currently provides stops for the Lakeshore West GO train, as well as for GO bus routes 16, 17, 18, 40, 41 and 47. These routes connect to several major areas such as Union Station, University of Waterloo, Oakville GO, Richmond Hill Centre, Pickering Station GO Rail and Highway 407 Bus Terminal.

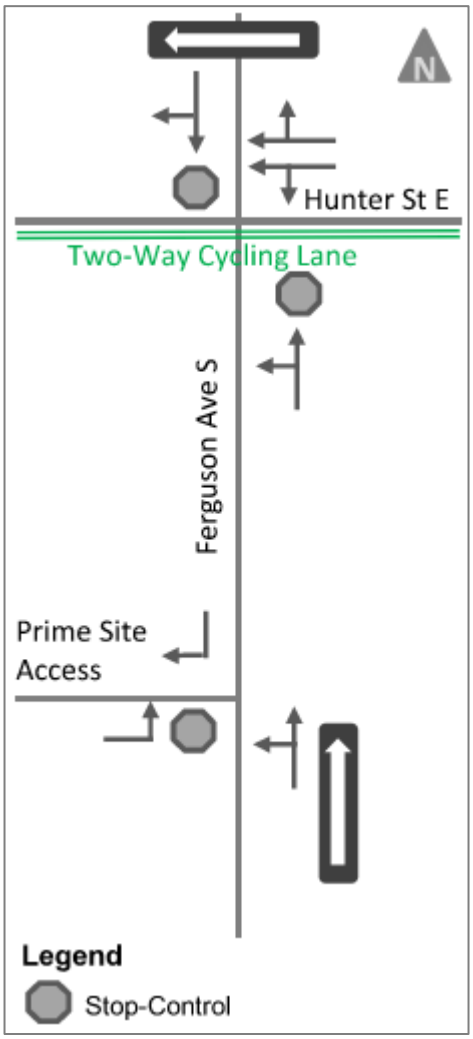

Figure 2-1: Study Area Intersection Lane Configurations

- **Bus Route 5 Delaware** generally operates in the east-west direction between Meadowlands Terminal and Greenhill at Cochrane. On weekdays, it arrives about every eight minutes until around 9:30 p.m., following which it has a frequency of approximately 15 minutes. On weekends, there is a bus frequency of about 13 minutes. The nearest stop is at the northwest corner of Hunter Street East and Walnut Street South.

As well-detailed in Section 1.1, the surrounding network has various notable transportation facilities. To highlight, this includes site-adjacent cycling lanes, as well as a Hamilton Bike Share station. Within less than half a kilometre, there are also multiple municipal car park facilities and car share options.

2.2 DATA COLLECTION

Consistent with the TOR and associated feedback from City staff, a third party specialized in data (Horizon Data Services) was commissioned to undertake the new data collection below. The raw data is included in **Appendix B.**

- Turning movement counts (TMC) at the study intersections during the weekday a.m. (7:00 to 9:00) and p.m. (4:00 to 6:30) peak periods were gathered on the typical weekday of Thursday, October 19, 2023. It is understood from communications with City staff that the only available historic TMC in the study area is from Monday, May 6, 2019 which is over four years old (dated), hence the newly collected October 2023 data has been used for this study.
- Counts for each inbound and outbound movement of all existing building driveways were undertaken for the weekday a.m. (7:00 to 9:00) and p.m. (4:00 to 6:30) peak periods on Thursday, October 19, 2023.
- Parking utilization surveys within the full surface and unground parking of the existing building has been gathered at 30-minute intervals from 7:00 p.m. through 12:30 a.m. For the sake of thoroughness, this was done over a sampling of several days being Thursday, October 19, 2023 through Saturday, October 21, 2023.

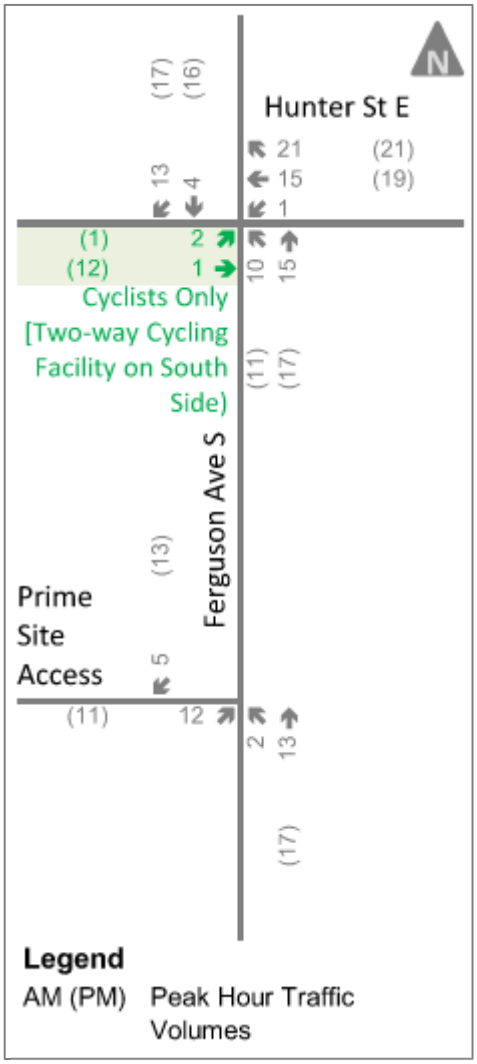

Figure 2-2: Existing Weekday AM and PM Peak Hour Traffic Volumes

Figure 2-2 summarizes the recently collected TMCs of the weekday a.m. and p.m. peak hours at the study area intersections of Hunter Street East and Ferguson Avenue South. Extensive details and discussions of trends related to the parking utilization data is found in Section 3.2. Also, the City representative provided five-year collision data for Hunter Street East between approximately east of Walnut Street and west of Liberty along with on Ferguson Avenue South from the south side of the site to a bit north of Hunter Street—commentary on that collision data is in Section 2.3.4.

It is acknowledged that Figure 2-2 does not specifically illustrate the counts undertaken for all of the existing building driveways. The full set of existing driveway volumes is summarized in **Table 2-1**, and duly considered in subsequent sections for the purpose of establishing site-specific trip rates.

Table 2-1: Summary of Existing Driveway Volumes

Description	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Ferguson Avenue South Driveways	7	12	13	11
Hunter Street East Driveway	0	1	4	3
Total	**7**	**13**	**17**	**14**

It is noted that there were some limited instances during the new data collection above of drivers travelling counter the intended roadway travel direction, as sampled in **Figure 2-3** showing a car attempting a non-compliant EB-L at the intersection of Hunter Street East and Ferguson Avenue South. Where applicable, such limited volumes have been reassigned for assumed adherence with signed regulations for the purpose of the traffic analysis.

Figure 2-3: Sample from Traffic Data Video of EB-R at Hunter Street East and Ferguson Ave S

Also, given that the driveway on Hunter Street East is inevitably proposed to be closed in ultimate conditions and its existing traffic is objectively marginal at just zero to four peak hour trips per direction as shown in Table 2-1, undertaking traffic operations analysis of that existing Hunter Street East driveway is unnecessary. Also, Table 2-1 shows that current traffic volumes using the closely spaced existing underground parking and PUDO driveways on Ferguson Avenue South are relatively low so for traffic operations analysis purposes such has been modeled with all Ferguson Avenue South volumes using the main access point (a simplified, slightly conservative approach). It is additionally noted that per Section 2.3.2, for the ultimate traffic operations analysis, volumes using the to-be-remove driveway on Hunter Street East have been duly shifted to the main driveway on Ferguson Avenue South.

2.3 TRANSPORTATION OPERATIONS ANALYSIS

2.3.1 FUTURE BACKGROUND ASSUMPTIONS

Assumptions for future background conditions, without the proposed development in place, were established through the TOR exercise as documented in Appendix A. A future horizon year of 2031 is assumed being five years from an approximate buildout of 2026. To project existing traffic volumes to that future horizon, an annual growth rate of one percent has been applied to through movements along Ferguson Avenue South and Hunter Street East. There is a single background residential development located at 186 Hunter Street East, which was specifically added to future background conditions with guidance from the trip generation and distribution as provided by the City representative (expected to generate 42 and 44 two-way a.m. and p.m. trips, respectively). **Figure 2-4** shows the resulting horizon 2031 background traffic volumes for the weekday a.m. and p.m. peak hours.

Figure 2-4: Horizon 2031 Background Weekday AM and PM Peak Hour Traffic Volumes

2.3.2 PROPOSED DEVELOPMENT TRIP GENERATION AND ASSIGNMENT

Consistent with the TOR, trip generation rates were derived for the proposed development by prorating each of the peak hour in and out traffic volumes collected at the site accesses of the existing residential building of the site (selected method). This is in recognition that the travel characteristics of the existing building can offer a strong, context-specific indicator for that of the new, proposed residential building that will be placed next to it. For the sake of thoroughness and reference, this has additionally been compared with information available from the Institute of Transportation Engineers (*ITE) Trip Generation Manual, 11th Edition,* ITE *Trip Generation Handbook*, 3rd Edition and *2016 Transportation Tomorrow Survey* (TTS) of the Data Management Group at the University of Toronto.

Starting with the selected trip generation method, it is noted that as established through the data collection of Section 2.2, the combined existing site accesses accommodate a total of 20 automobile trips in the a.m. peak period and 31 in the p.m. peak period. The field-observed peak hour site trips per direction were divided by the number of dwelling units in existing building, to establish rates. Those rates were then applied to 349 units being the existing 210 plus the proposed 139 units. The calculations are found in **Table 2-2**. This shows that the magnitude of trips projected for the proposed building is well below the 100 vehicle/hour threshold noted in Section 2.1 of the City's TIS Guidelines.

Table 2-2: Use of Field-Derived Automobile Trip Generation (Selected Methodology)

Description		Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Existing Building [A]	Trip Volume	7	13	17	14
	Rate (Trips/210 Units)	0.033	0.062	0.081	0.067
Projected Existing + New Building Trips [B]	Trips Volume (Rate * [210 Existing + 139 New Units])	12	22	29	24
Difference (B-A)		5	9	12	10

For added reference (comparison) purposes, it was also determined what the overall trips would be for the combined existing and new building (349 dwelling units) using an alternative method. To determine the proportion of trips currently being made per mode during the typical morning and afternoon peak periods, travel data from the TTS has been examined. Home-based person trip information was extracted from the TTS for zones 5168, 5172 and 5186 which was selected to allow a representative sample of travel characteristics for residents of the area. In this case, baseline site trips for the proposed development were calculated using the ITE Trip Generation Manual and Handbook. **Table 2-3** summarizes the baseline trips established from the ITE sources, as well as the site-specific modal splits derived from the TTS followed by the resulting site-specific vehicle trips. For ease of reference, further explanatory notes of the calculations and assumptions such as land use codes are found in the subscripts below the tables.

Table 2-3: Alternative Methodology for Comparison (ITE Trip Generation with TTS Modal Splits)

Description		A.M. Peak Hour		P.M. Peak Hour	
		Inbound	Outbound	Inbound	Outbound
ITE Baseline Data	Vehicle Trips[1]	25	71	71	43
	Vehicle Occupancy[2]	1.13	1.09	1.15	1.21
	Mode Share in Vehicle[2]	96.2%	97.8%	97.3%	96.2%
Total Person Trips[3]		29	79	83	54

Site-Specific	Modal Share[4]	Auto Driver	27.8%		32.8%	
		Auto Passenger	6.1%		3.7%	
		Transit	40.7%		39.6%	
		Walking and Cycling	25.4%		23.9%	
	Vehicle Occupancy		1.22		1.11	
	Resulting Vehicle Trips[5]		**9**	**22**	**28**	**18**

1. *Based on equations for general urban/suburban-Land Use Code 222 (Multifamily House High-Rise), ITE Trip Generation Manual.*
2. *Average baseline vehicle occupancy and modal splits obtained from Appendix B in the ITE Trip Generation Handbook.*
3. *Total/baseline person trip were calculated in accordance with the following formula from Section 7.3 of the ITE Trip Generation Handbook: (Baseline Vehicle Trips * Baseline Vehicle Occupancy) / Baseline Person Trip Modal Share in Vehicle.*
4. *Sourced from home-based peak period trip data of the 2016 Transportation Tomorrow Survey for surrogate zones 5168, 5172 and 5186.*
5. *Applies the following formula from Section 7.3 of the ITE Trip Generation Handbook for site vehicle trips: Baseline Vehicle Trips * (Site Vehicle Modal Share / Baseline Vehicle Modal Share) * (Baseline Vehicle Occupancy / Site Vehicle Occupancy).*

Table 2-4 compares the selected field-based trip methodology found in Table 2-2 with the alternative based on the ITE and TTS resources of Table 2-3, demonstrating that both approaches yield remarkably similar results with the latter, selected approach being a touch higher. The forecasts of Table-2-2 are carried forward for the traffic operations analysis, and this is also expected to be slightly more conservative compared to the method of Table 2-3.

Table 2-4: Site Trip Methodology Comparison

Description	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Field-Based Trips from Table 2-2 [A]	12	22	29	24
ITE/TTS Trips from Table 2-3 [B]	9	22	28	18
Difference [A-B]	3	0	1	6

TTS data and existing travel trends have been used to establish directional trip distribution for the gateways, as shown in **Table 2-5**. A gateway is the limit of the study network whereby vehicles enter or leave the analyzed system of intersections.

Table 2-5: Directional Distribution Based on Existing Travel Patterns

Direction at Gateways	A.M. In	A.M. Out	P.M. In	P.M. Out
Hunter Street East (West of Ferguson]	N/A[1]	59%	N/A[1]	74%
Hunter Street East (East of Ferguson)	61%	N/A[1]	36%	N/A[1]
Ferguson Avenue South (North of Hunter Street East)	39%	41%	64%	26%
Total	**100%**	**100%**	**100%**	**100%**

1. *Direction not applicable as one-way street.*
2. *A small portion of northbound trips were also assumed on Ferguson Avenue South, south of the site access. Such traffic is expected to be marginal given that the connectivity of that south segment with the surrounding network is not as direct compared with other routes (or in other words, it is relatively circuitous and less attractive).*

Using the information above as a base, the site traffic of the proposed development was assigned to individual movements within the study area using professional judgement considering factors like site access location, shortest distance, convenience of route choices, hierarchy of road classifications and intersection configuration. It is also acknowledged that the site layout reconfiguration discussed in Section 1.2 necessitates reassignment of some existing building trips, being those presently using the smaller surface parking area served by the to-be-closed driveway on Hunter Street East (as evidenced in Section 2.2, its volumes are minimal at zero to four peak hour trips per direction). As shown in **Figure 2-5**, to establish the horizon year 2031 total traffic conditions the primary traffic of the existing building was first removed following which an overall, updated trip assignment accounting for both the full existing and new building in the context of the site access reconfiguration was then summed with the projected background traffic from Figure 2-4.

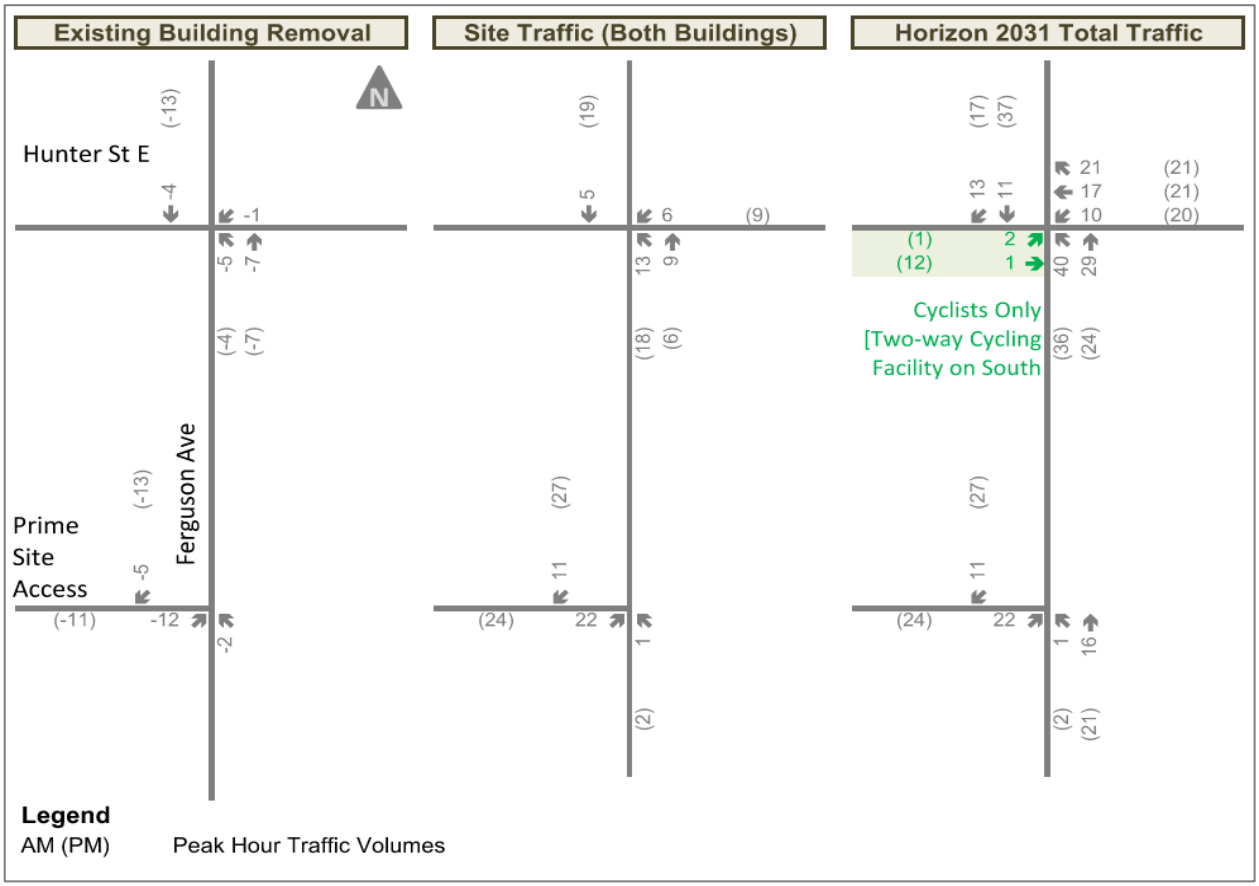

Figure 2-5: Horizon 2031 Site and Total Weekday AM and PM Peak Hour Traffic Volumes

2.3.3 INTERSECTION CAPACITY ANALYSIS

Intersection capacity analysis has been undertaken for relevant study area intersections of existing, future background and total future conditions of the weekday morning and afternoon peak hours using the Synchro 11 traffic analysis software. This software incorporates the methodology outlined in the *Highway Capacity Manual* (HCM), Transportation Research Board. Peak Hour Factors were calculated at an intersection-level based on the existing traffic volume data. The analysis results are reported in terms of volume-to-capacity (v/c) ratio, as well as level of service (LOS) based on delay. An LOS of 'A' through 'D' suggests satisfactory traffic operations, whereas 'E' and 'F' means congested conditions (detailed LOS definitions are found in **Appendix C**, based on the HCM methodology). The forecasted results of the analysis are summarized in **Table 2-6**, in terms of LOS and v/c. The detailed Synchro worksheets are provided in **Appendix D**.

Table 2-6: Intersection Capacity Analysis

Scenario/Location		Hunter St E at Ferguson Ave S	Ferguson Ave S at Site Access
Existing Conditions			
Morning	LOS (Delay in Seconds)	A (10)[2]	A (9)
	V/C	0.04 (NB-TL)	0.01 (EB-L)
Afternoon	LOS (Delay in Seconds)	A (10)	A (9)
	V/C	0.04 (SB-TR)	0.01 (EB-L)
Future Background Conditions			
Morning	LOS (Delay in Seconds)	B (10)[2]	A (9)
	V/C	0.09 (NB-TL)	0.01 (EB-L)
Afternoon	LOS (Delay in Seconds)	B (11)	A (9)
	V/C	0.08 (NB-TL)	0.01 (EB-L)
Total Future Conditions			
Morning	LOS (Delay in Seconds)	B (10)	A (9)
	V/C	0.11 (NB-TL)	0.03 (EB-L)
Afternoon	LOS (Delay in Seconds)	B (11)	A (9)
	V/C	0.10 (NB-TL)	0.03 (EB-L)

1. *For stop-controlled intersections, the level of service is based on the delay associated with the highest critical movement.*
2. *The reason that the existing and future background conditions both have 10 second delay but seemingly different LOS grade, the threshold between and 'A' and 'B' being 10 seconds, is due to rounding as existing more precisely is 9.7 seconds and future background is 10.1 seconds.*

As shown in the table above, the study area intersections are expected to operate well in all existing and future scenarios having an acceptable LOS ranging between 'A' and 'B' with no critical v/c. When

comparing the future background and total results, the difference in v/c ratio is very minimal. Therefore, it is projected that the proposed development traffic can be adequately accommodated by the surrounding road network.

2.3.4 COLLISION COMMENTARY

As found in Appendix B, the City provided their most recent historic collision data. This is further discussed below.

- A total of five collision events occurred in the surrounding area during the five-year period, the majority of which (three) being in April-March 2022 and the remainder as one collision in each of early 2020 and 2021. All collisions had clear environmental and dry surface conditions, with exception of the February 21, 2021 event during which there was reported to be packed snow on the surface. Nearly all of the collisions were during the daylight hours, except for the January 21, 2020 event which happened in the evening.
- Most of the collision events, four of five, were identified as non-reportable. Only one of the collisions, occurring in January 2020, was classified as property damage for which the detailed record indicates an apparent action of one of the drivers failing to yield the right-of-way and the other of driving improperly. The majority of collisions involved going ahead maneuvers with the exception that the March 1, 2022 event only involved a parked vehicle, as well that the second vehicle for the March 17, 2022 event was pulling away from the shoulder/curb and the other vehicle for the February 21, 2021 event had a slowing/stopping vehicle.
- Most of the collisions consisted of drivers going in the west initial direction on Hunter Street East. Aside from the parked vehicle incident on March 1, 2022, the February 21, 2022 collision has the only occurrence of a non-west initial direction (south).

3 SITE PLAN REVIEW

This section reviews the drive aisle and parking space dimensions of the proposed development in relation to the City's minimum requirements, as well as demonstrates maneuverability of relevant vehicles using the AutoTURN software package. Also offered is comprehensive commentary on the applicability of the proposed parking and loading supply.

3.1 CRITERIA

It is understood that the currently in-effect Zoning By-law for the site is that of the former City of Hamilton, 6593 (District E/S-267). The May 23, 2023 letter from the City's Planning and Economic Development Department, mentioned in Section 1.0, also cites variance HM/A-09:11 by which the existing use presently requires at least 168 parking spaces.

The scope of the WSP review herein excludes the portions of the existing building layout that are to remain. Specifically, it is understood from discussions with the Applicant that the northern part of the underground parking will remain as-is with the intent that it be for residents of the existing building only (not for the new building), and as such that untouched area is not part of the WSP assessment (area-of-scope distinction is illustrated in the vehicle maneuver testing figures of Section 3.7). Further, only the fire vehicle maneuvers associated with the new building have been considered in this study (not of the existing building).

The maneuver testing employs a standard passenger vehicle (PTAC, length 5.6 metres), medium single unit truck (MSU, 10.0 metres), front loading waste vehicle (9.76 metres length) and fire truck (13.06 metres length). The fire truck is based on the relatively large example truck from another municipality (City of Markham), understood as a comparable example based on WSP's experience from undertaking other studies in the City of Hamilton. The front-end waste vehicle is a custom template using dimensions found in the *City of Hamilton Waste Requirements for Design of New Developments and Collection*, November 2021.

This section makes occasional mention of the City's comprehensive zoning By-law, 05-200, for information purposes only—unless explicitly stated otherwise, reference herein to By-law requirements are in relation to the in-effect By-law 6593 and for the new parts of the layout only.

3.2 STANDARD AUTOMOBILE PARKING SUPPLY

By-law 6593 [Section 18A, Table 1] identifies a minimum required parking rate for 'Class A' dwellings within area 'A' of 0.8 spaces per unit. That By-law [Section 18A, Table 2] also states a minimum 0.16 spaces per unit for visitor parking. Based on Section 18A(1)(b) of the By-law, it is understood that the required visitor parking from Table 2 is to be a portion of the parking of Table 1, as opposed to in

addition to it. It is also noted that Section 18A(6) of the By-law requires the calculation of the parking supply to be rounded up to the nearest whole number. Based on these By-law rates, a minimum total parking supply of **280 spaces is required overall** for both buildings of which 56 spaces would need to be visitor.

The proposed total parking supply combined of both buildings is 203, being 26 visitor and 177 resident occupant stalls, which technically does not satisfy the minimum supply requirements above. However, offered herein is a compelling, comprehensive five-pronged rationalization for the proposed parking reduction. The first four prongs, (A) through (D), draw upon the recent proxy parking utilization survey mentioned in Section 2.2, comparable By-law rates of other areas, area-wide vehicle ownership data, and rates of the *ITE Parking Generation Manual* 5th Edition, described in detail below and summarized for ease of reference in **Table 3-1.** This information demonstrates strong opportunity toward the provision of parking below the current By-law 6593 minimum supply requirements, aligned well with that which is being proposed. This is additionally reinforced through the discussions found below of the fifth prong (E) showing that the Applicant has endeavoured various supporting TDM initiatives. It is opined that a proposed overall parking supply of 203 spaces is adequate, and well supported through these five prongs.

Table 3-1: Summary of Parking Supply Justification (139 Proposed + 210 Existing Units)

Technical Justification		**Resident Tenant / Occupant Spaces**	**Visitor Spaces**	**Total Spaces**
(A) Parking Utilization Survey Prorated to Ultimate 349 Units		175	14	189
(B) By-law Comparison for New Building (139 Units) + Surveyed for Existing (210 Units)	City of London	--	--	183
	City of Hamilton Downtown By-law	--	--	171
(C) Area-Wide Vehicle Ownership Data for Resident Tenant/Occupant of Ultimate 349 Units + Prorated Surveyed Visitor Parking		164	14	178
(D) ITE Trip Generation Manual for Resident Tenant/Occupant of Ultimate 349 Units + Prorated Surveyed Visitor Parking		161	14	175
Highest Minimum Threshold from (A) through (D)		**175**	**14**	**189**
Proposed Parking Supply		**177**	**26**	**203**

A. PARKING UTILIZATION SURVEY

As mentioned in Section 2.2, parking utilization surveys were conducted over multiple days at the existing building. Based on this data, at its peak, the existing resident tenant/occupant and visitor parking reached 105 and 8, respectively, for a total demand of 113 vehicles (around 66 percent utilization). This also equates to an overall parking rate of approximately 0.038 (visitor) and 0.50

(occupant/tenant) spaces per unit for the existing building, which if applied to the ultimate 349 existing and new units of the full site results in a minimum of **14 visitor and 175 resident tenant/occupant spaces (189 total**), which the proposed supply exceeds.

B. BY-LAW COMPARISON

The TOR put forth to the City of Hamilton representative, as identified in Section 1.0, had initially posited to compare the proposed parking supply with that of the City of Toronto By-law requirements which recently witnessed a paradigm-shift (for the most part, eliminating minimum parking rates for resident tenant/occupant parking). However, in their response to the TOR, City of Hamilton staff asked that the proposed development not be compared with the City of Toronto (instead suggesting other municipalities, like the City of London). Accordingly, it is noted that the City of London By-law Z-1 [Section 4.19] states an overall parking rate of 0.5 spaces per unit which if applied to the proposed new units of the subject site means **70 overall spaces**.

Also given the proximity of the proposed development to downtown as further highlighted in Section 1.1, the City of Hamilton By-law 05-200 is opined to be a reasonable, neighbouring comparable. Section 5.6(h) of that By-law states fractions shall be rounded down to the nearest whole number. Said By-law mentions that in the case of units greater than 50 m^2 in gross floor area, a minimum of 0.50 and 0.70 spaces per unit should be applied to units 13 through 50 and units beyond 50, respectively. As for less than 50 m^2, 0.3 spaces per unit is required for 13 units and beyond. The new building will consist of 45 units of less than 50 m^2 gross floor area and 94 greater than that, resulting in a minimum overall parking requirement for the proposed new building of **58 spaces**. Note that By-law also identifies rates for units containing three bedrooms or more, which in this case would be even lower making the calculations used here slightly conservative. **Table 3-2** details the calculation of said 58 spaces.

Table 3-2: Minimum Parking for New Building Assuming City of Hamilton By-law 05-200

Unit Range Category	Number of New Units	Rate	Resulting Parking Spaces
Units > 50 m^2 Gross Floor Area			
0 to 12	12	0 spaces/unit	0
13 to 50	38	0.50 spaces/unit	19
51+	44	0.70 spaces/unit	30
Units < 50 m^2 Gross Floor Area			
0 to 12	12	0 spaces/unit	0
13+	33	0.3 spaces/unit	9
Total			**58**

If the two alternative values above for the new building are added to the surveyed total demand of the existing building mentioned in prong (A), being 113, it would result in a total parking supply threshold for the site of **183** (drawing upon By-law Z-1) or **171** (drawing on By-law 05-200). Both of these are exceeded by the proposed parking supply of 203 spaces.

C. AREA-WIDE VEHICLE OWNERSHIP DATA

Table 3-3 examines TTS data on vehicle ownership cross-referenced with the number of relevant households for multiple zones of the surrounding area, being 5168, 5172 and 5168. This indicates a general 47 percent vehicle ownership rate which if one links with the total existing plus proposed of 349 units, as an overall average, would mean a potential vehicle ownership for the building of around 164. This value would not necessarily capture visitor parking, rather the resident tenant/occupant portion. Adding this to the survey-based prorated visitor parking from prong (A) of 14 spaces for the full site would mean **178 spaces in total**, of which the proposed supply of 203 would exceed.

Table 3-3: TTS Vehicle Ownership

	0 Vehicles	1 Vehicle	2 Vehicles	3 Vehicles	Total
Number of Households	2,056	1,201	156	32	3,445
Number of Vehicles	0	1,201	312	96	1,609
Overall Vehicle Ownership	47 Percent				

D. ITE PARKING GENERATION MANUAL

Figure 3-1 is an extract from the ITE Parking Generation Manual, used to estimate a parking supply for the overall site. This employs Land Use Code 222 (Multifamily High-Rise) using available weekday data with dwelling units as the independent variable. 'Centre City Core' was selected given, as further discussed in Section 1.1, the development is directly adjacent the south-boundary of downtown and located within about a half-kilometre from a major rail station (Hamilton GO Centre). Using the slightly higher, ITE average rate (compared to fitted-curve equation), this approach suggests a parking supply of **161 resident tenant/occupant** spaces. Adding the survey-based prorated visitor parking from prong (A) of 14 spaces would mean a total of **175 spaces**, which like all of the other prongs above is exceeded by the proposed parking supply of 203.

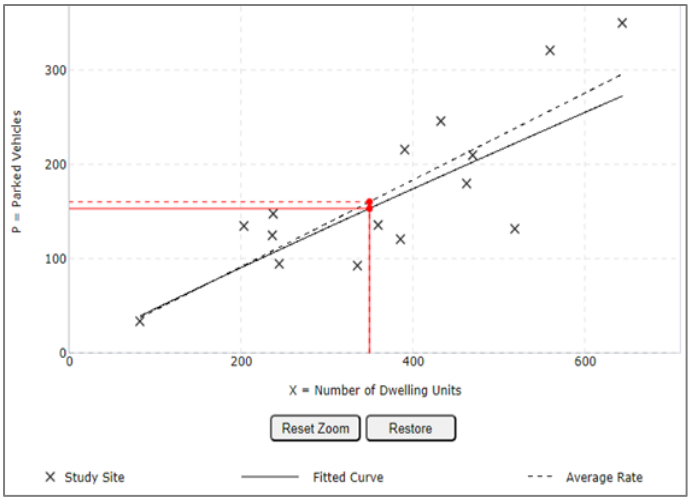

Figure 3-1: ITE Parking Generation Manual Results)

E. SUPPORTIVE FACILITIES AND MEASURES

In addition to the compelling information offered through prongs (A) through (D) above, it is important to keep in mind the existing supportive transportation context of the surrounding area. As thoroughly discussed in Section 1.1 there is a robust surrounding mixed-use character, and the site is proximate to the City's downtown boundary (contributing to walkability and placing many day-to-day amenities within reach). There are also various alternative travel choice facilities like the adjacent cycle tracks and nearby bike share station at the northwest corner of the Ferguson Avenue South at Hunter Street East intersection, as well as major transit facilities like the Hamilton GO Centre Station in the west.

A comprehensive set of TDM strategies, further facilitating alternative travel choice and limiting single occupant vehicle travel for the development, has also been put forth in Section 4.0. This includes the provision of substantial bike parking (18 short-term/visitor and 157 long-term/tenant spaces), coupled with various proactive initiatives related to transit, cycling, pedestrians and promotional/outreach. Although not definitively quantified, it is noteworthy that the *City's TDM for Development Guideline* of June 2015 acknowledges some potential level of automobile parking reduction by way of the provision of alternative measures; for example, Section 3.1 of that guideline states *'Potential to negotiate a reduction in number of vehicle parking spaces in exchange for additional bicycle parking spaces.'*

3.3 BICYCLE PARKING SUPPLY

The Applicant sought to clarify the bicycle-related requirements with the representative of the City's Planning Division Zoning Section on July 10, 2023, as documented in the email correspondence found in **Appendix E**. In response, it was confirmed that there are technically no required minimum rates of long-term and short-term bicycle parking for this particular site. Despite this, the Applicant has taken the laudable initiative to propose a new, ample 18 short-term/visitor and 157 long-term/tenant bike parking space supply recognizing the vital role of this alternative travel mode in TDM and in optimally synergizing with the surrounding area active transportation fabric as further highlighted in Section 4.0.

3.4 LOADING SUPPLY

The west face of the existing building has an open-air loading arrangement located within the surface parking area. That loading location is to be similar in ultimate conditions, albeit accessed differently due to the closure of the Hunter Street East driveaway. Additionally, two formal loading bays are proposed within the new building on the south side of the site. This is in accordance with By-law 6593 Section 18A (Table 3), which indicates a minimum of two loading spaces when there are greater than 100 dwelling units being one 'Column 2' bay and one 'Column 3' bay. Note that vehicle maneuverability testing of the above-mentioned loading spaces is illustrated in Section 3.7.

3.5 BARRIER-FREE PARKING

The in-effect By-law 6593 appears to not have specific requirements for the supply of accessible parking spaces, as also confirmed by the representative of the City in the correspondence found in **Appendix E**.

With that said, Ontario regulation 191/11 (80.36) indicates that off-street parking facilities must have a minimum number of parking spaces for use of persons with disabilities of one plus three percent of the parking spaces where there are between 101 and 200 spaces (rounded up)—Focusing on just the proposed new building, which would on its own require a total minimum parking supply of 112 spaces if calculated with the By-law 6593 rates, translates using the rates of 191/11 to five accessible parking spaces for that new building. Alternatively, if the 191/11 calculation were done using the overall proposed overall 203 parking spaces of the site, the minimum would be calculated as two parking spaces plus two percent for the use of persons with disabilities where there are between 201 and 1,000 parking spaces (rounded up)—applying this approach would translate to a minimum of seven accessible parking spaces. The proposed development is showing 203 parking spaces, seven of which are accessible stalls.

3.6 SITE LAYOUT DIMENSIONS

For ease of reference, key site dimensions are summarized in **Figures 3-1 (for the ground floor), 3-2 (P1), 3-3 (P2) and 3-4 (P3)**. These are also discussed below.

a. Standard parking space dimensions are to be a minimum of 6.0 metres long by 2.7 metres wide where perpendicular to the drive aisle per By-law 6593 Section 18A(7). Table 6 of the By-law also requires that perpendicular parking have adjacent maneuvering space/aisle widths of 6.0 metres. For comparison, By-law 05-200 Section 5.2(b) identifies a minimum of 5.8 metres long by 2.8 metres with the need for additional width of 0.3 metres beyond in the event of an obstruction. As shown in the above-cited figures, the proposed parking spaces satisfies the By-law 6593 minimum requirements.

b. Section 18A Table 3 of By-law 6593 requires a minimum of two loading spaces where there are greater than 100 units, including a ‘Column 2’ space of minimum 9.0 metres length by 3.7 metre wide and ‘Column 3’ space of minimum 18.0 metres long and 3.7 metres wide. Two new loading spaces are being proposed within the new building, meeting these minimum requirements.

c. There appears to be no explicit dimensional requirement for barrier free accessible parking by way of the in-effect By-law 6593, as also confirmed by the City representative per the email of August 22, 2023 found in Appendix E. Ontario regulation 191/11 (80.34/80.35) requires that off-street parking facilities provide two types of parking spaces for use of persons with disabilities being a Type ‘B’ standard space of minimum 2.4 metres wide and wider Type ‘A’ of 3.4 metres wide (van accessible), served by access aisles of minimum 1.5 metres width which may be shared between two parking

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Figure 3-1
Dimensions
100 Ferguson Ave S

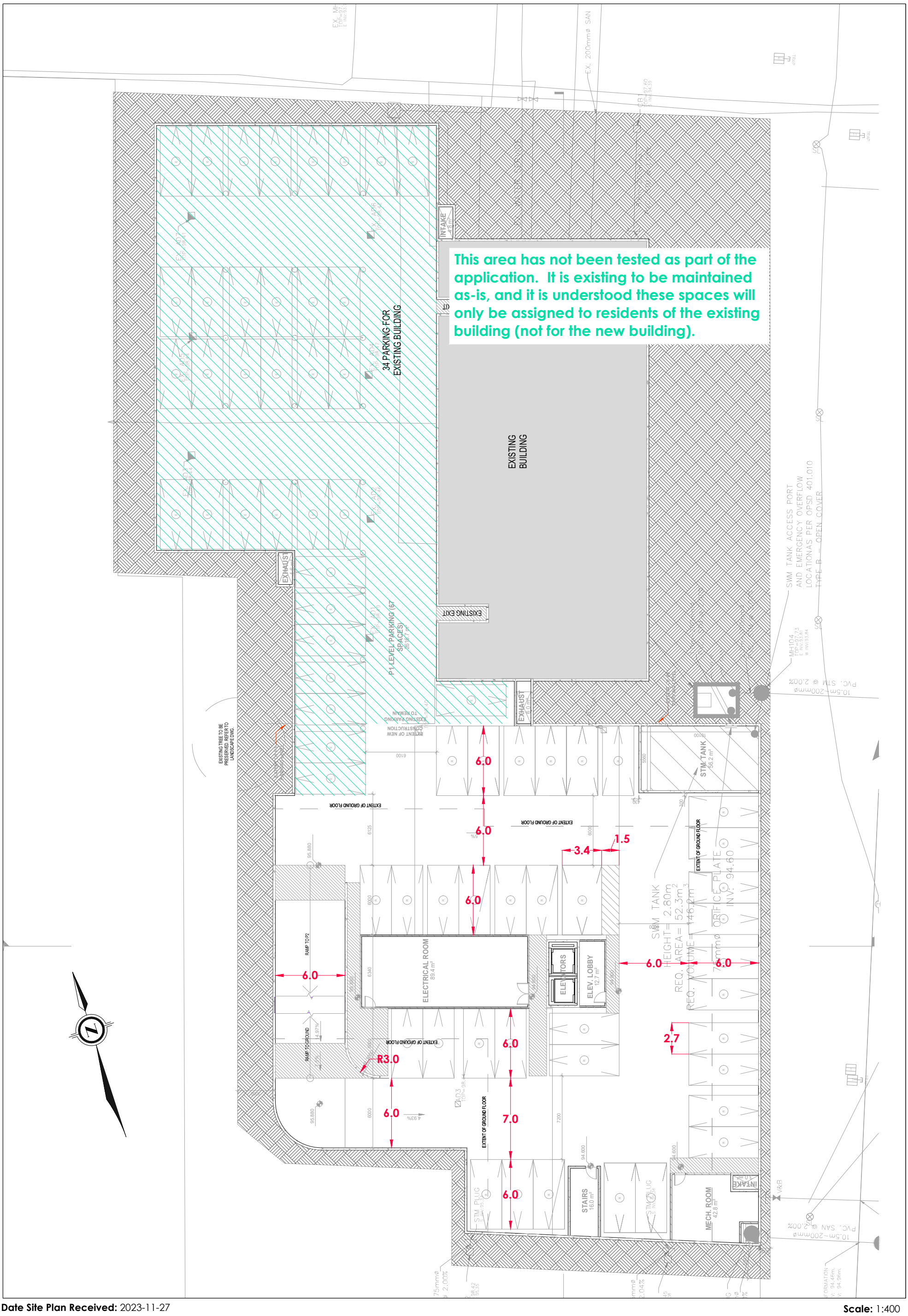

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Figure 3-2

Dimensions and Bylaw Compliance - P1 Level
100 Ferguson Ave S

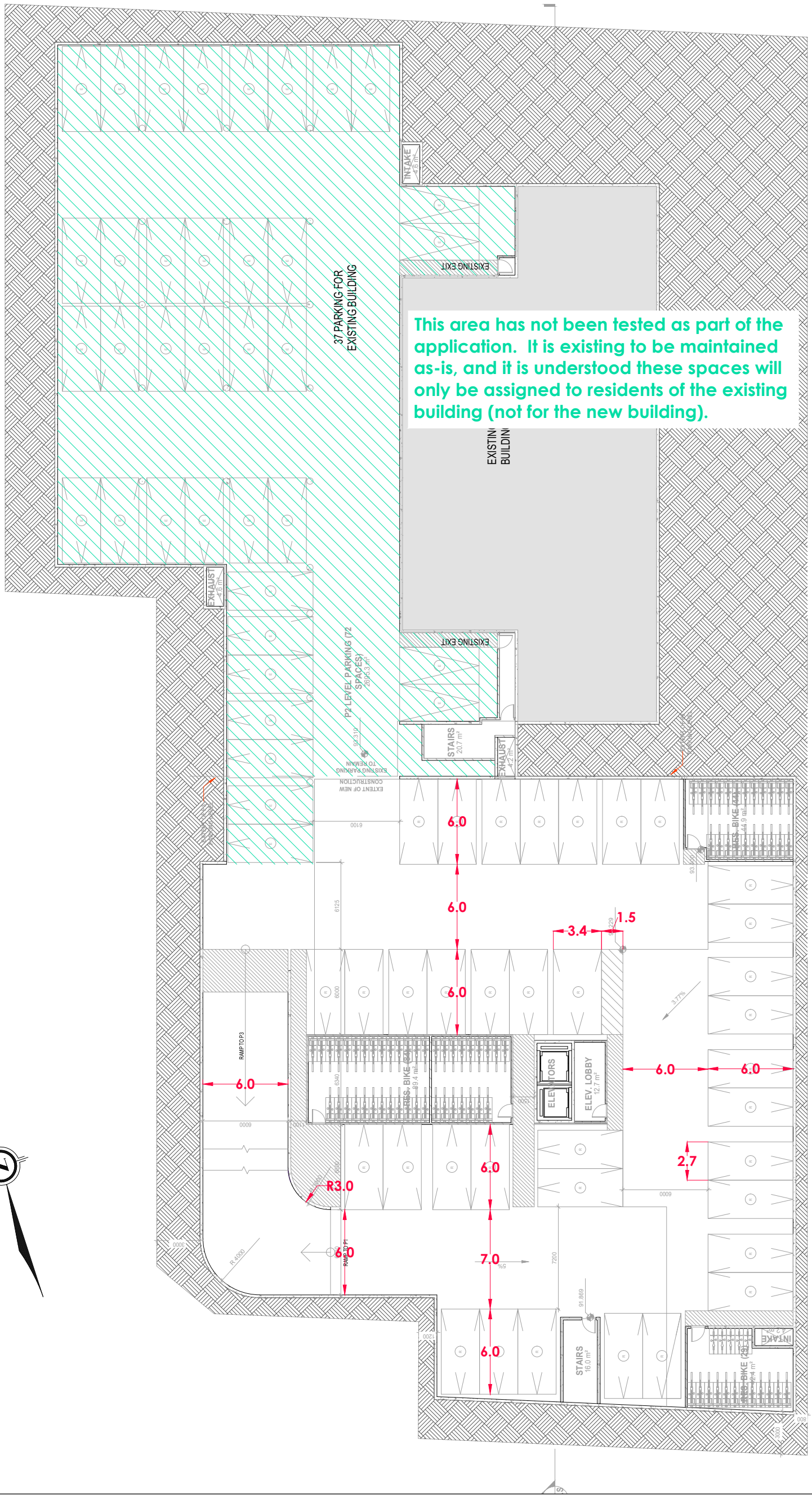

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Figure 3-3
Dimensions and Bylaw Compliance - P2 Level
100 Ferguson Ave S

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LOCKERS
MECHANICAL
PARKING

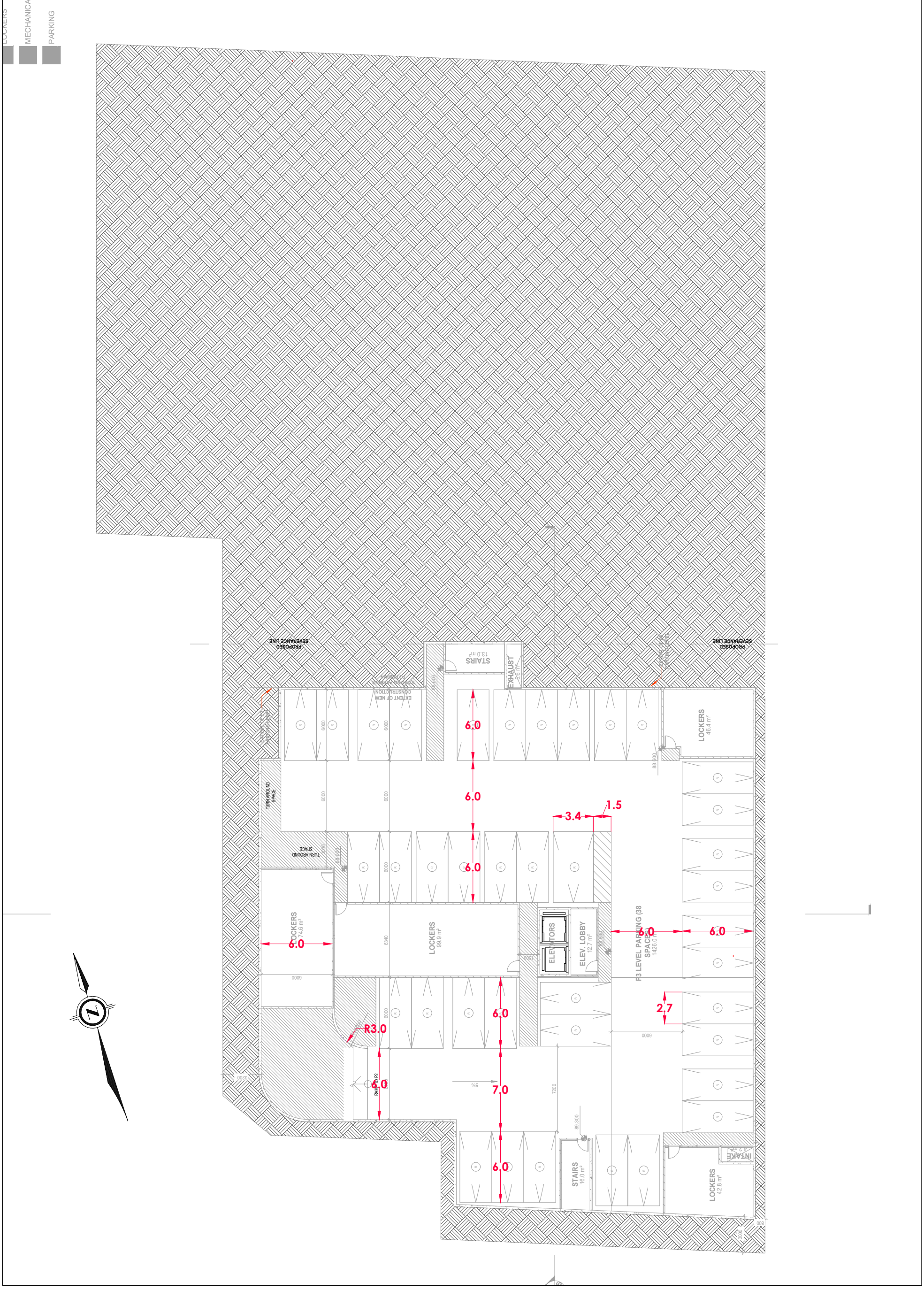

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Figure 3-4
Dimensions and Bylaw Compliance - P3 Level
100 Ferguson Ave S

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spaces. The proposed accessible parking spaces shown in the architectural plans have a 3.4 metre width, being the wider of the Type 'A' and Type 'B' criteria.

d. As shown, the fire route serving the proposed new building is a minimum of 6.0 metres wide.

3.7 VEHICLE MANEUVERABILITY AND TRAFFIC SIGNAGE

a. As illustrated in **Figures 3-5 through 3-9**, PTAC vehicles can circulate around the surface including at the site accesses, ramps and pick-up drop-off loop, as well as within the proposed underground parking.

b. A City front-end waste vehicle has been tested entering the site in a forward direction to front into the loading spaces then back out within the site to exit in forward manner. An MSU truck, the largest delivery/moving vehicle assumed to be accessing the site, has also been tested at the loading areas. As shown in **Figures 3-10 through 3-19,** the shown maneuvers are satisfactory.

c. **Figures 3-20 and 3-21** demonstrate the maneuvers of a City Fire Truck travelling along the designated route related to the new building. This assumes trucks would need to complete a turnaround within the site to the west to exit. It was originally attempted for the truck to undertake a reverse out maneuver, however as shown in **Figure 3-22** such alternate would encroach into the parking bay along the east side of Ferguson Avenue South hence the rationale for the on-site turnaround maneuver in Figure 3-21.

d. To enhance surrounding traffic awareness of loading activity at the ground floor, a flashing beacon system activated by trucks is recommended for the loading spaces which would include detection, warning lights and cautionary signage. Design of the flashing beacon system is beyond the scope of this study, but a general concept showing approximate locations is illustrated in **Figure 3-23**. Future detailed design of that system should also ensure placement does not violate the minimum horizontal/vertical clearance requirements for vehicles using the drive aisles.

e. Figure 3-23 also recommends additional traffic signage on the ground floor, including a stop-sign (Ra-1) at the driveway entrances along with 'No Parking' (Rb-51) signage along the main drive aisle. For the pick-up/drop-off area, custom 'No Parking' signage has been illustrated along with Rb-21 (one-way) and Rb-19/19t (Do Not Enter) signs for a one-way counter-clockwise circulation. As for the underground parking, **Figures 3-24 through 3-26** identify approximate convex mirror locations at critical points like corners to improve the view between motorists, as well as traffic signage of the barrier-free parking spaces.

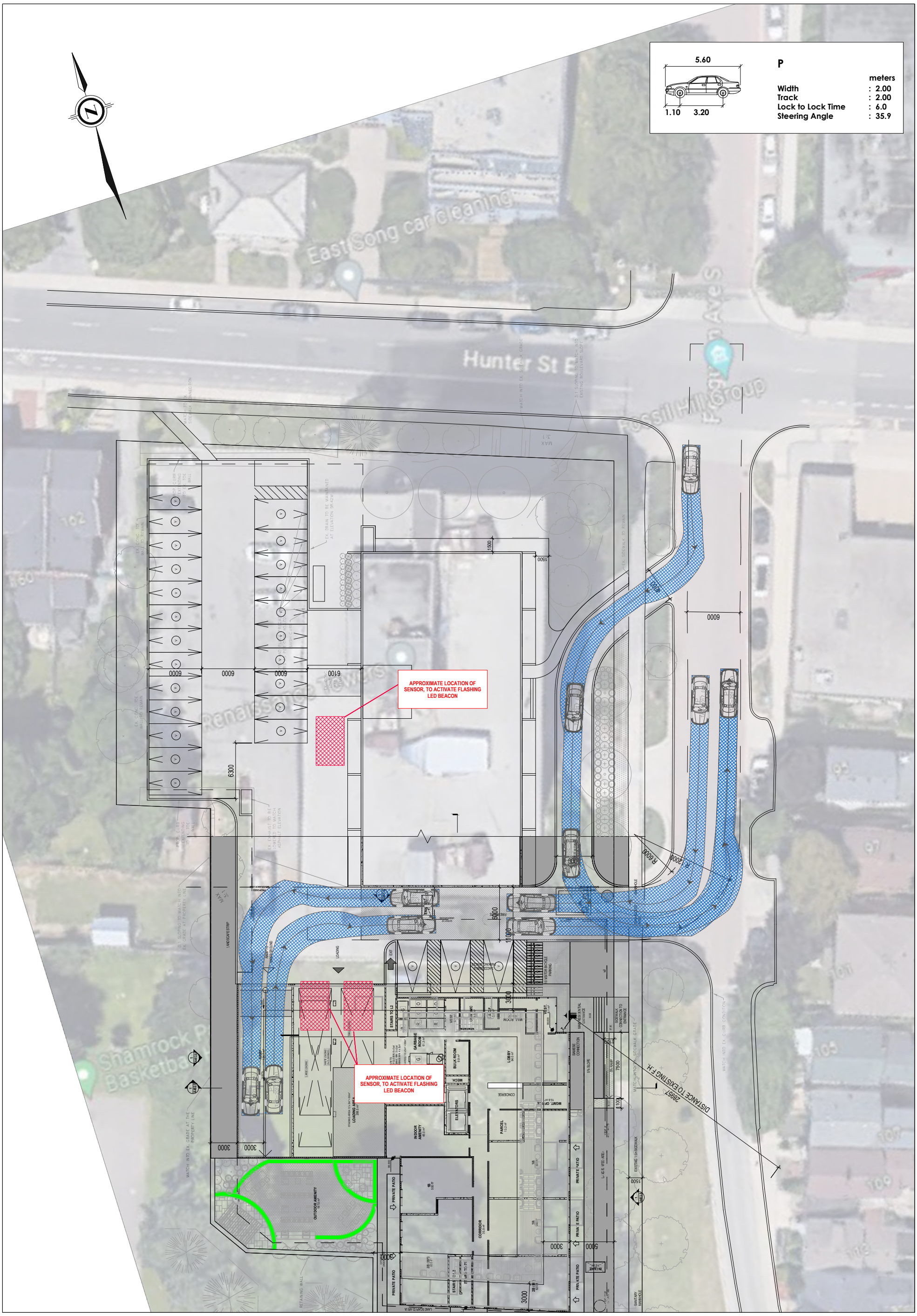

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Figure 3-5

Passenger Vehicle Circulation Autoturn Review - Ground Floor
100 Ferguson Ave S

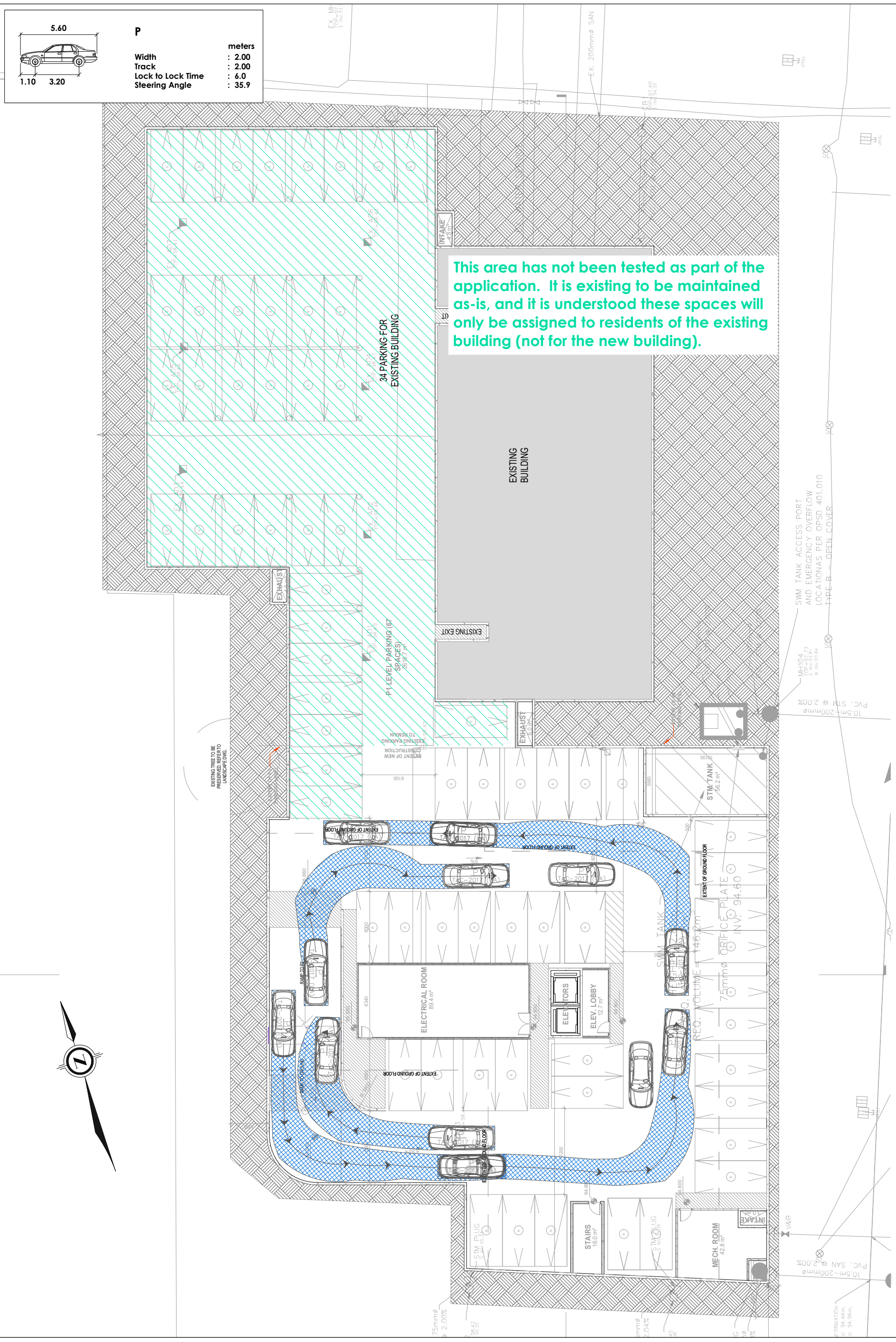

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Figure 3-6
Passenger Vehicle Circulation Autoturn Review - P1 Level
100 Ferguson Ave S

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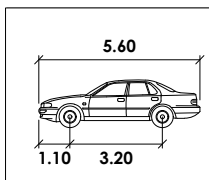

P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

This area has not been tested as part of the application. It is existing to be maintained as-is, and it is understood these spaces will only be assigned to residents of the existing building (not for the new building).

37 PARKING FOR EXISTING BUILDING

EXISTING BUILDING

EXISTING EXIT

INTAKE

EXHAUST

P2 LEVEL PARKING (72 SPACES)

STAIRS

ELEVATORS

ELEV. LOBBY

RAMP TO P2

RAMP TO P1

EXTENT OF NEW CONSTRUCTION

EXISTING PARKING TO REMAIN

BIKE (43)

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Figure 3-7
Passenger Vehicle Circulation Autoturn Review - P2 Level
100 Ferguson Ave S

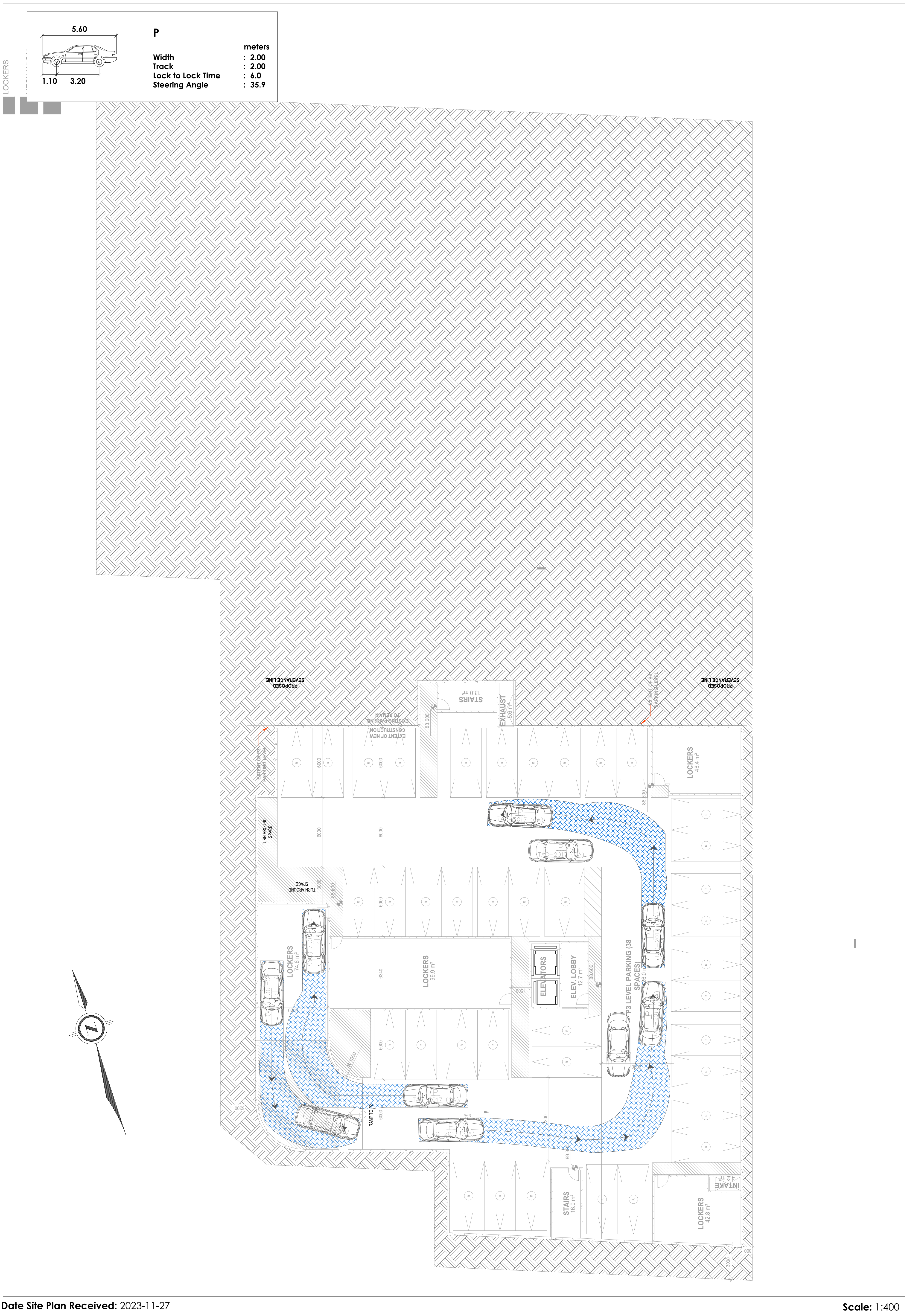

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Figure 3-8
Passenger Vehicle Circulation Autoturn Review - P3 Level
100 Ferguson Ave S

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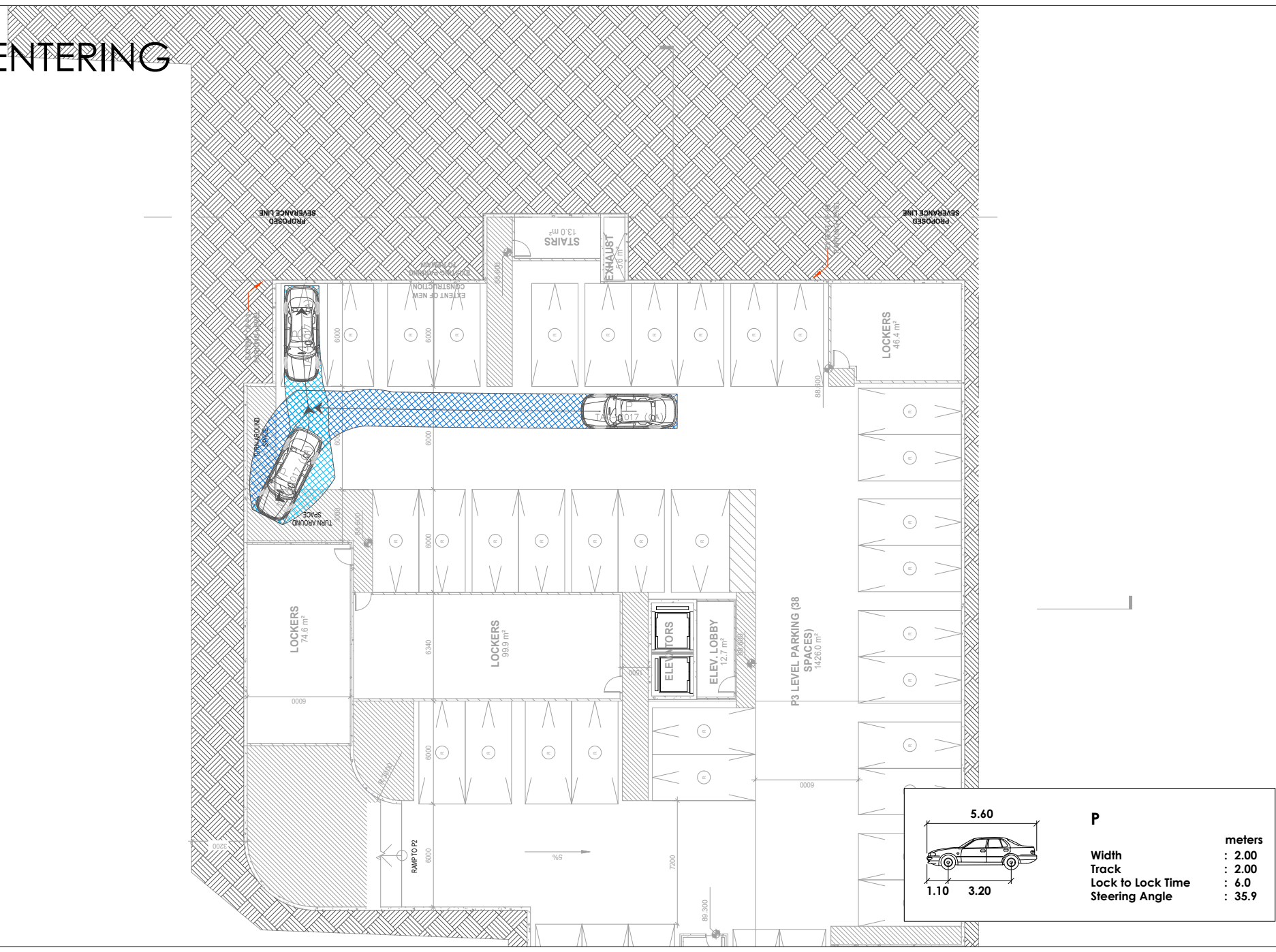
ENTERING



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

EXITING

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Figure 3-9
Critical Parking Space Maneuver Review - P3 Level
100 Ferguson Ave S

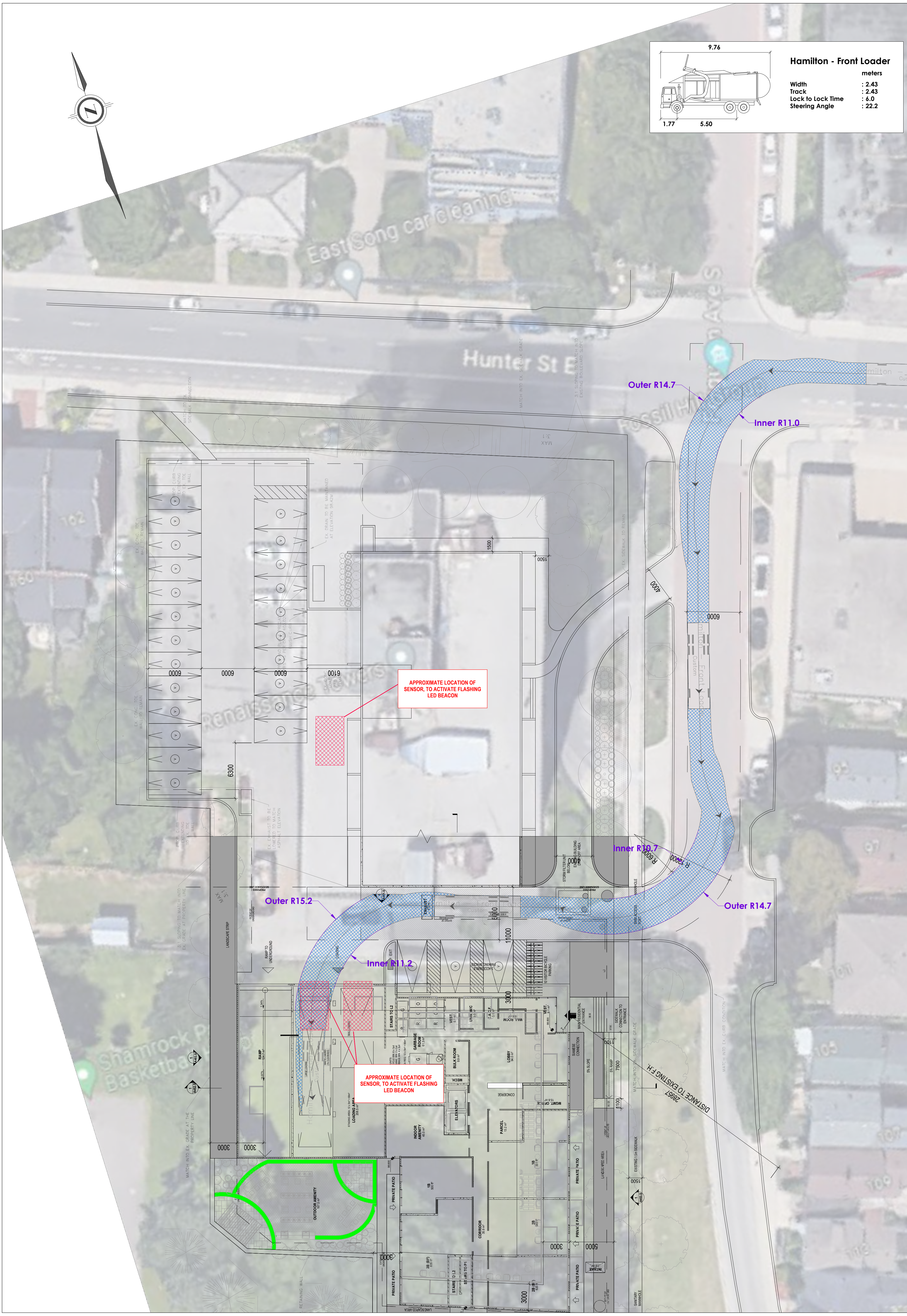

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Figure 3-10

Garbage Truck Access Maneuver - New Loading Bay - Inbound

100 Ferguson Ave S

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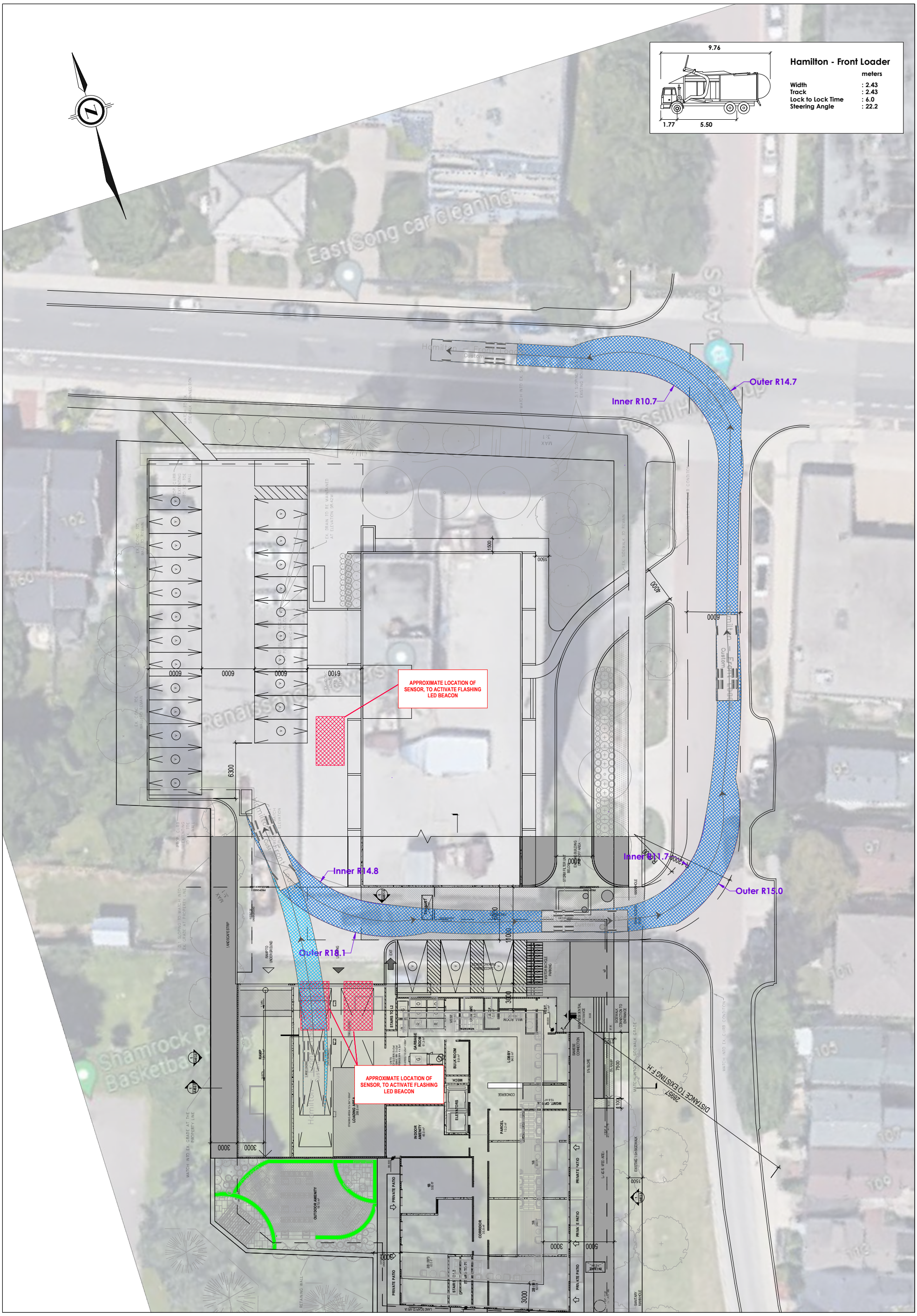

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Figure 3-11
Garbage Truck Access Maneuver - New Loading Bay - Outbound
100 Ferguson Ave S

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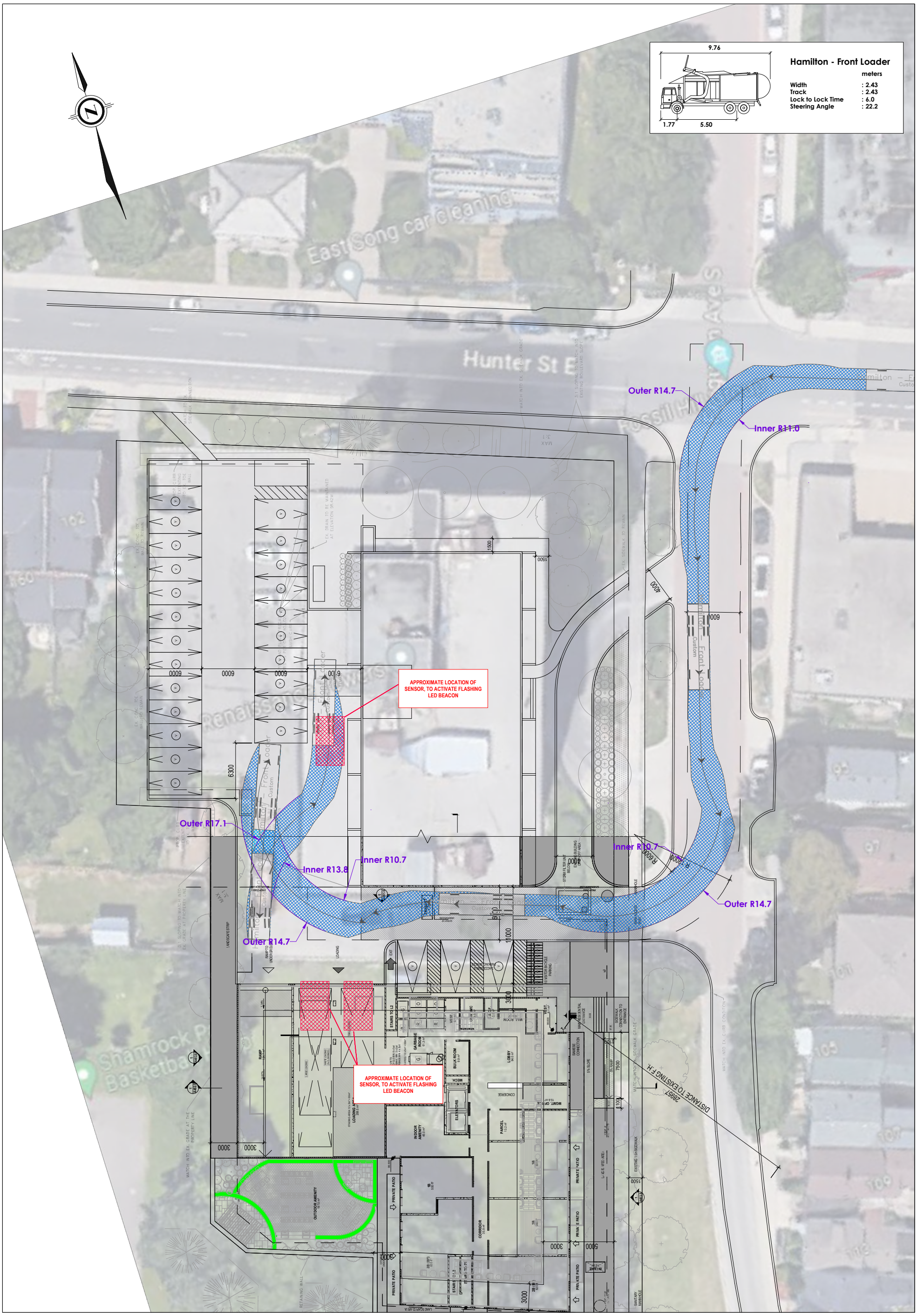

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Figure 3-12
Garbage Truck Access Maneuver - Existing Loading Bay - Inbound
100 Ferguson Ave S

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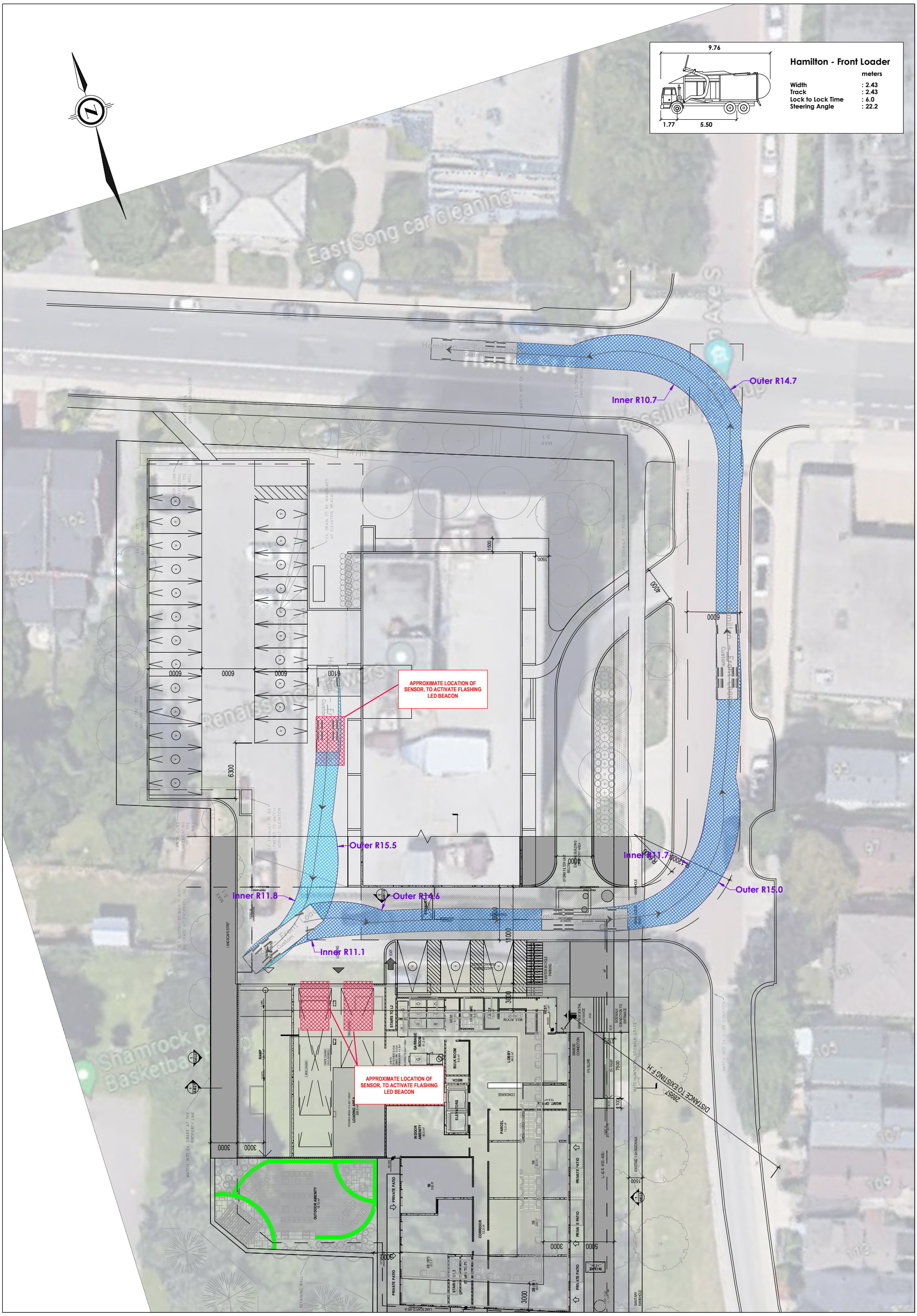

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Figure 3-13
Garbage Truck Access Maneuver - Existing Loading Bay - Outbound
100 Ferguson Ave S

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Figure 3-14
Loading Truck Review - New Loading Bay - Inbound
100 Ferguson Ave S

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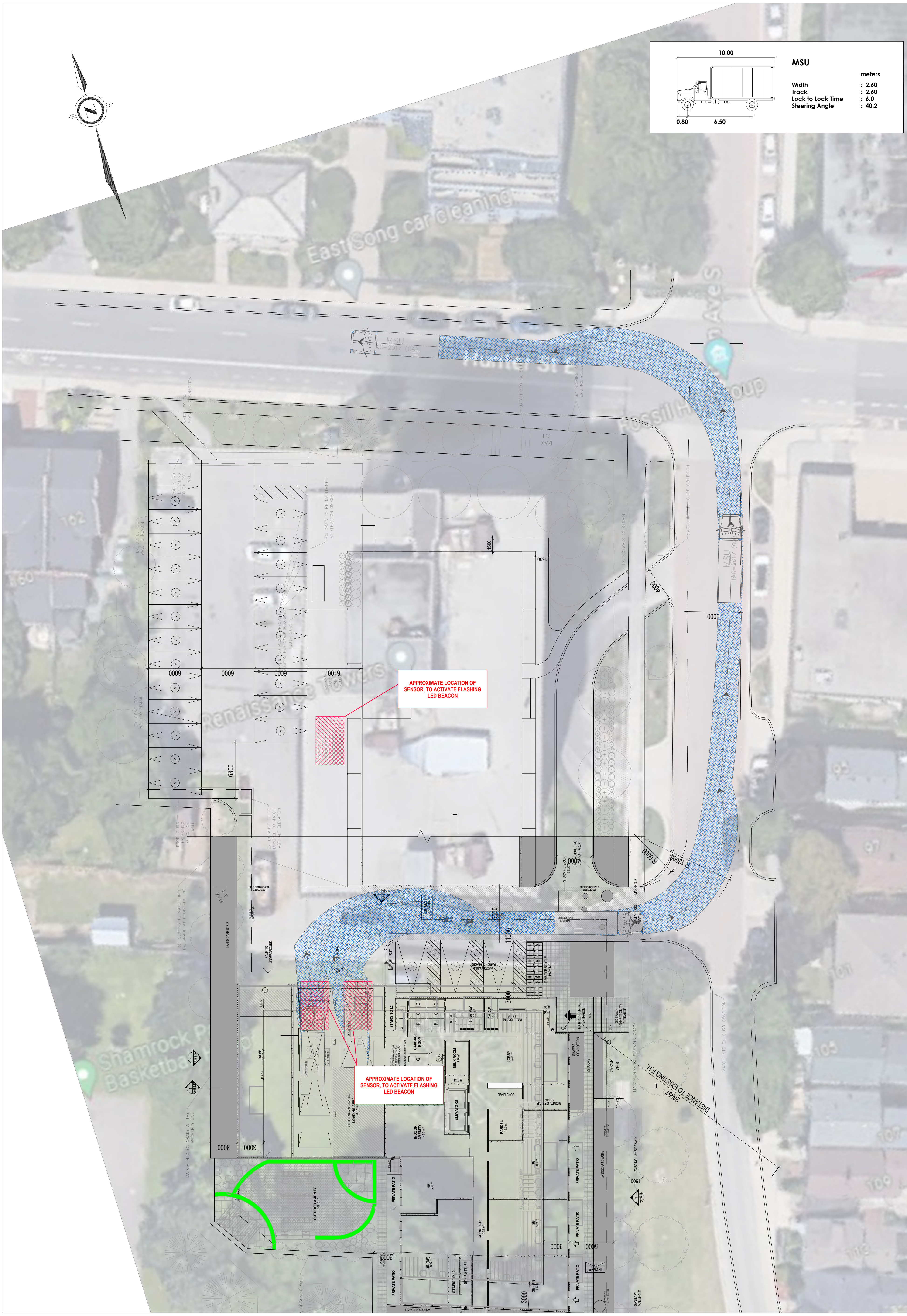

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Figure 3-15
Loading Truck Review - New Loading Bay - Inbound
100 Ferguson Ave S

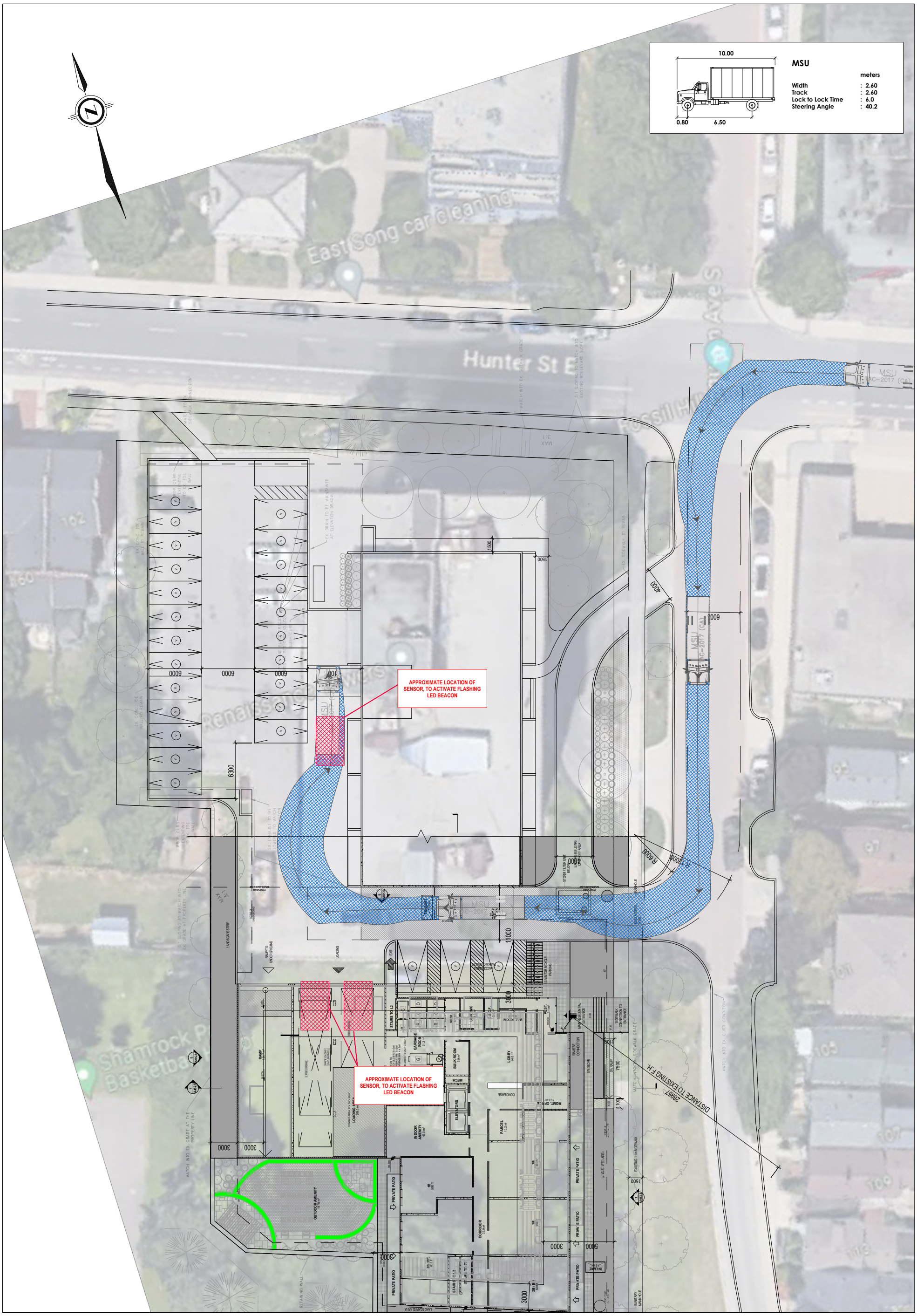

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Figure 3-16

Loading Truck Review - Existing Loading Bay - Inbound Front in 100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_14

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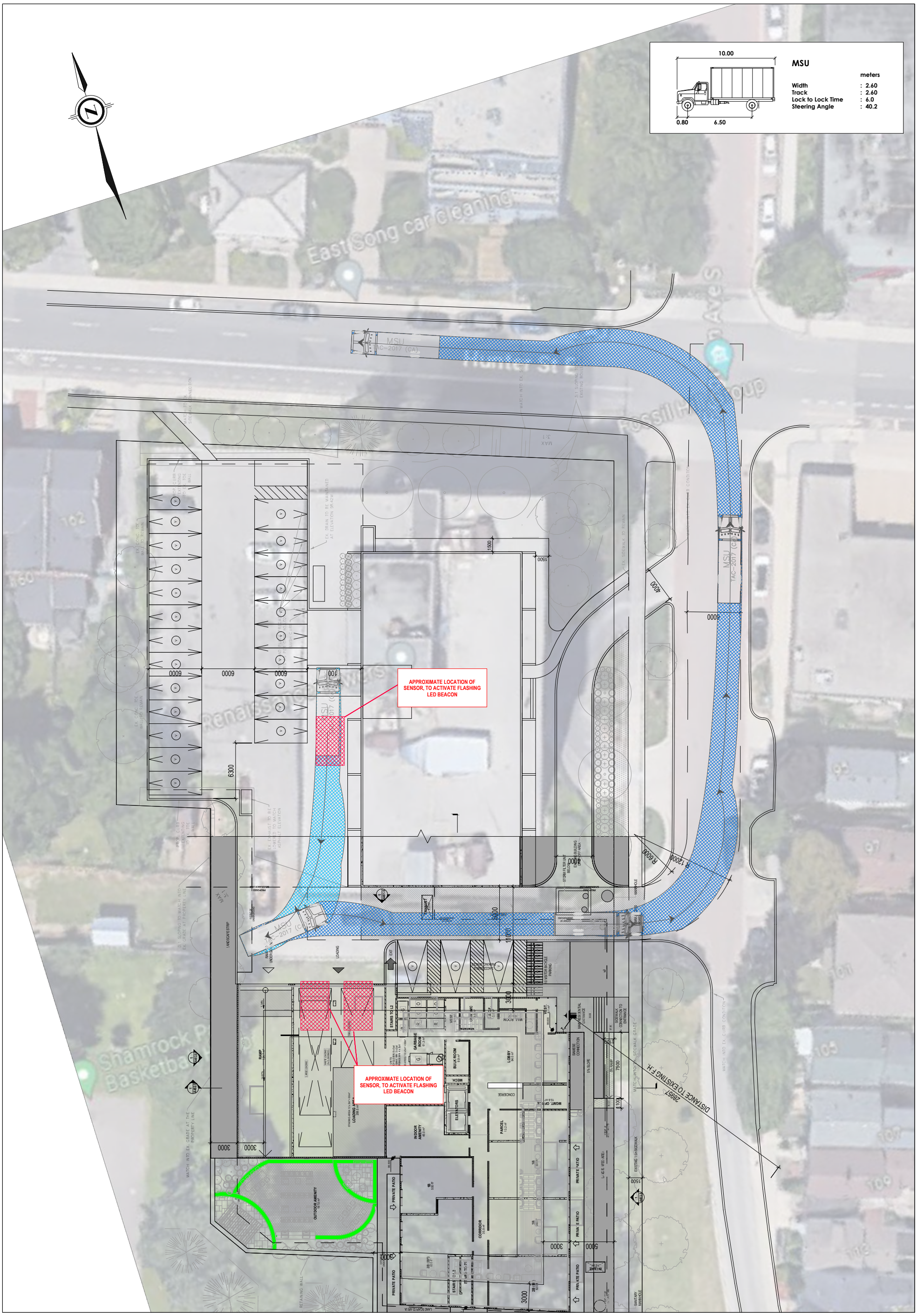

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Figure 3-17

Loading Truck Review - Existing Loading Bay - Outbound Reverse out
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_15

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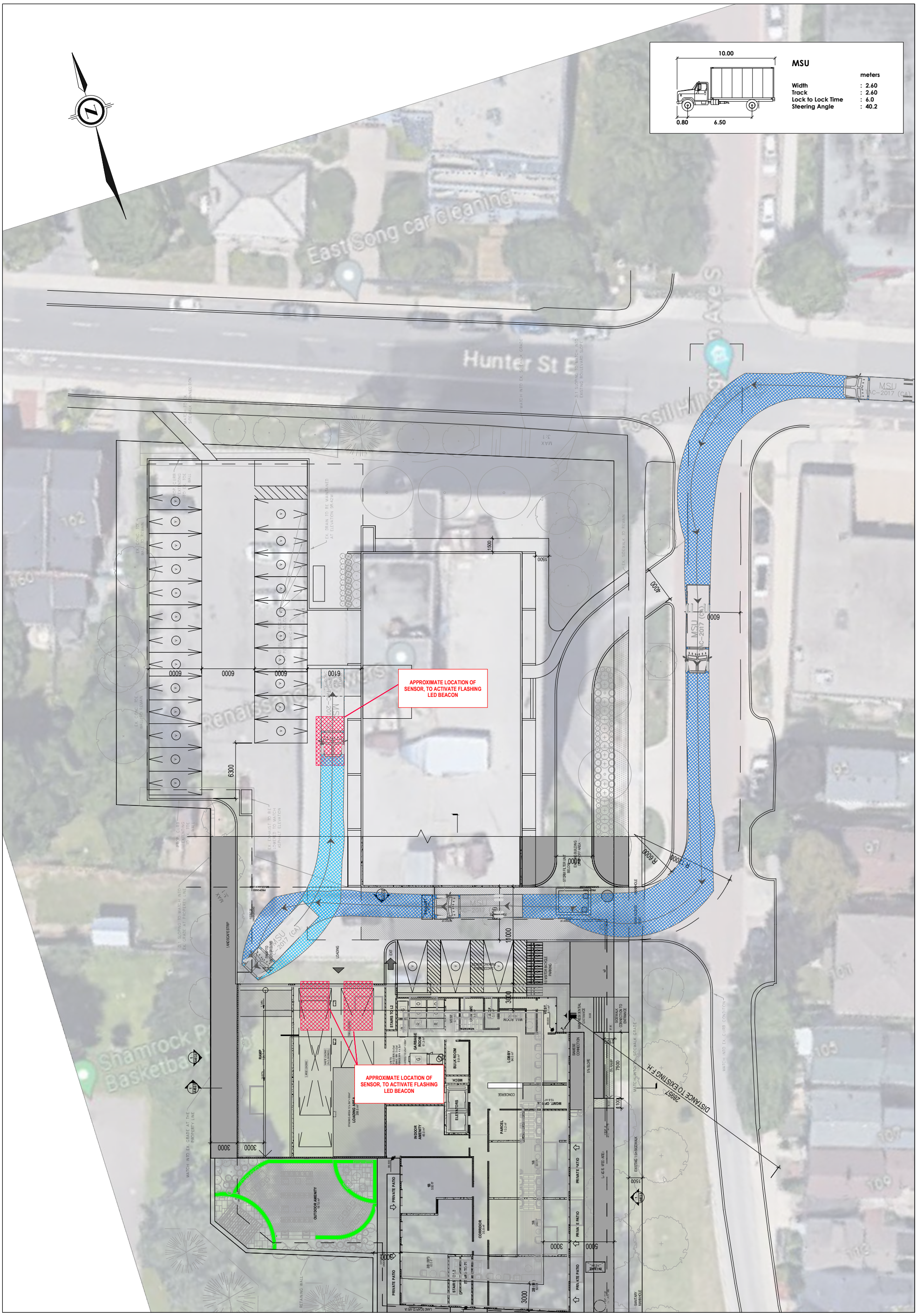

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Figure 3-18

Loading Truck Review - Existing Loading Bay - Inbound Reverse in 100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_16

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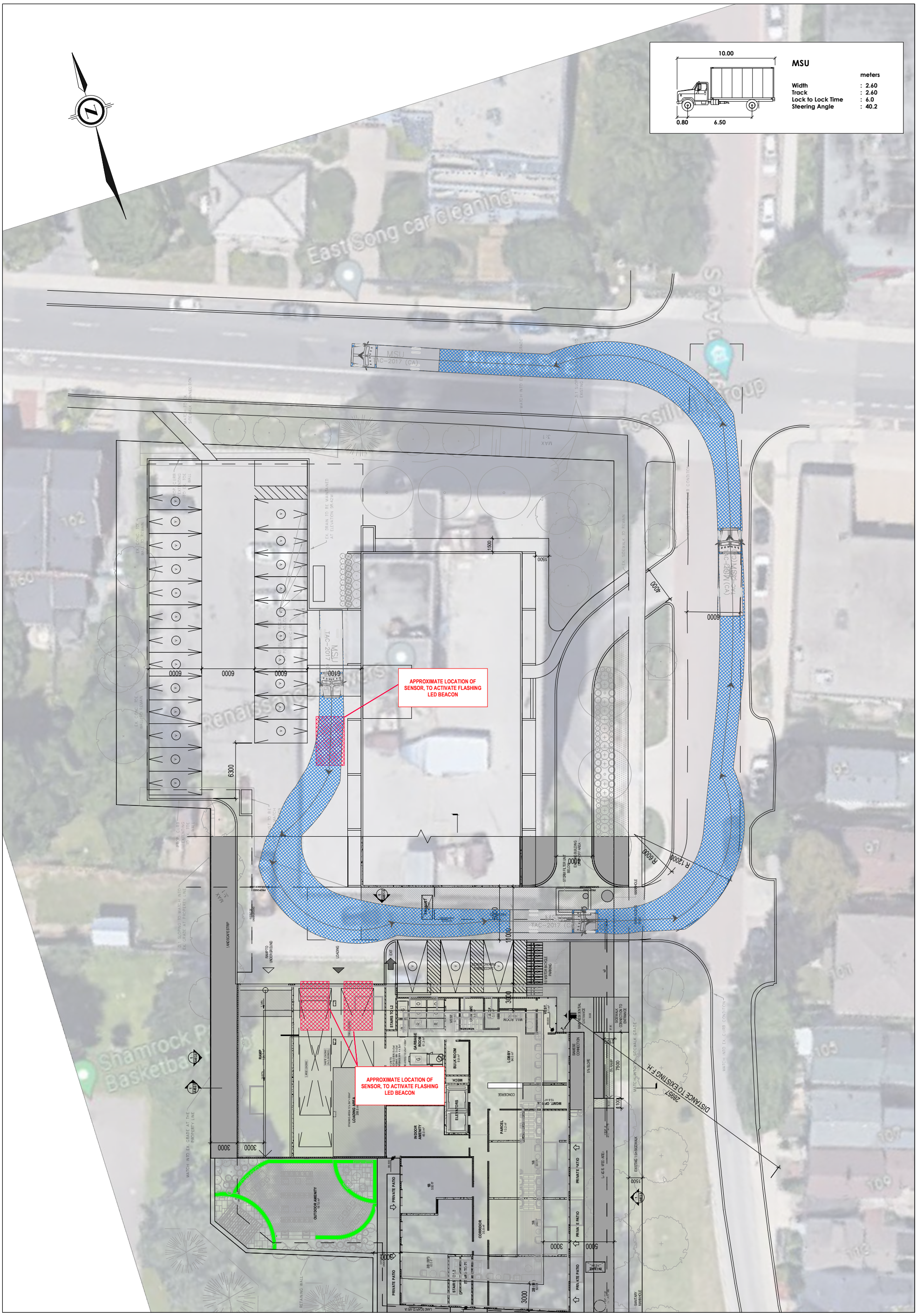

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Figure 3-19

Loading Truck Review - Existing Loading Bay - Outbound Front out
100 Ferguson Ave S

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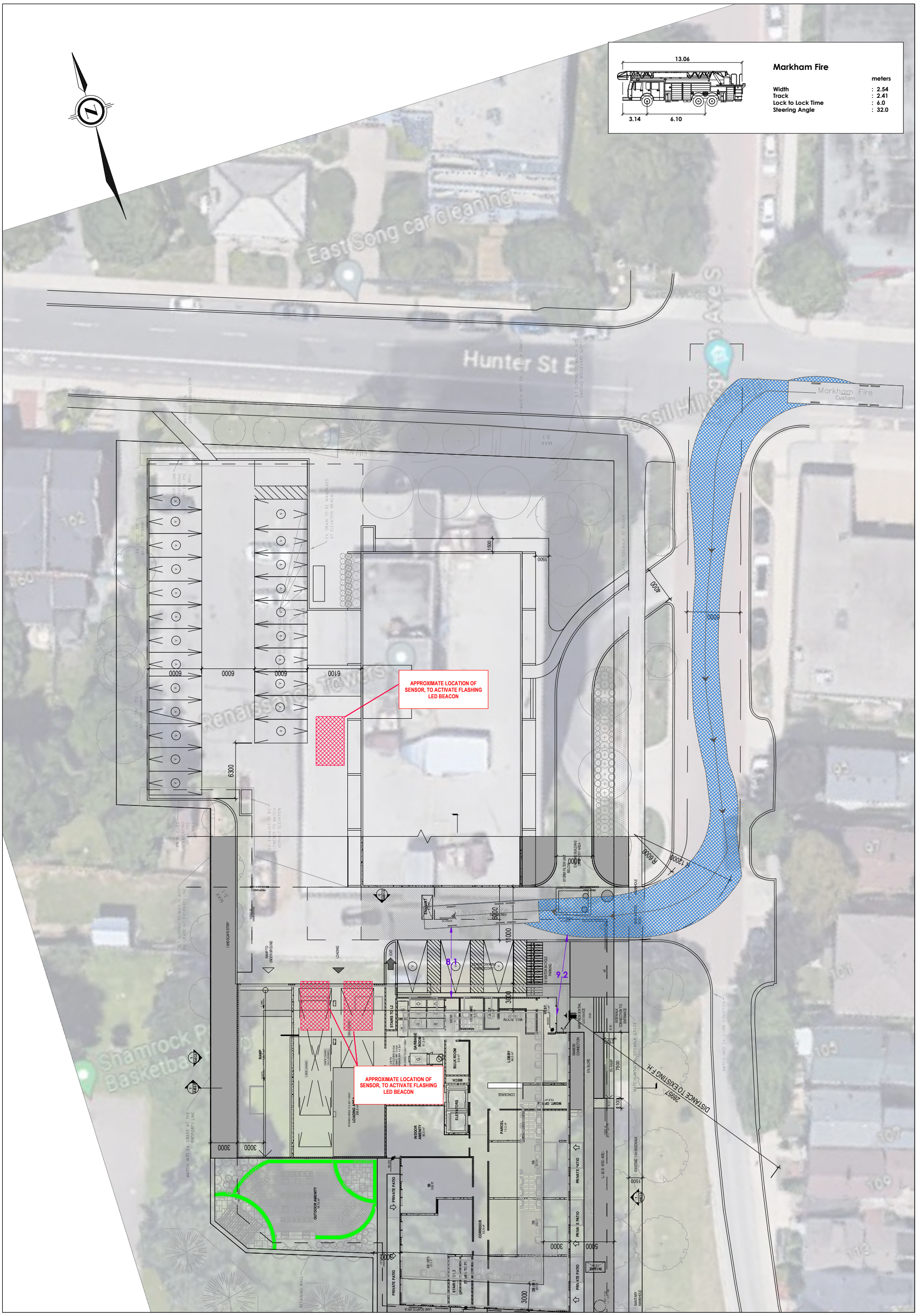

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Figure 3-20
Fire Truck Access Maneuver - Inbound
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_9

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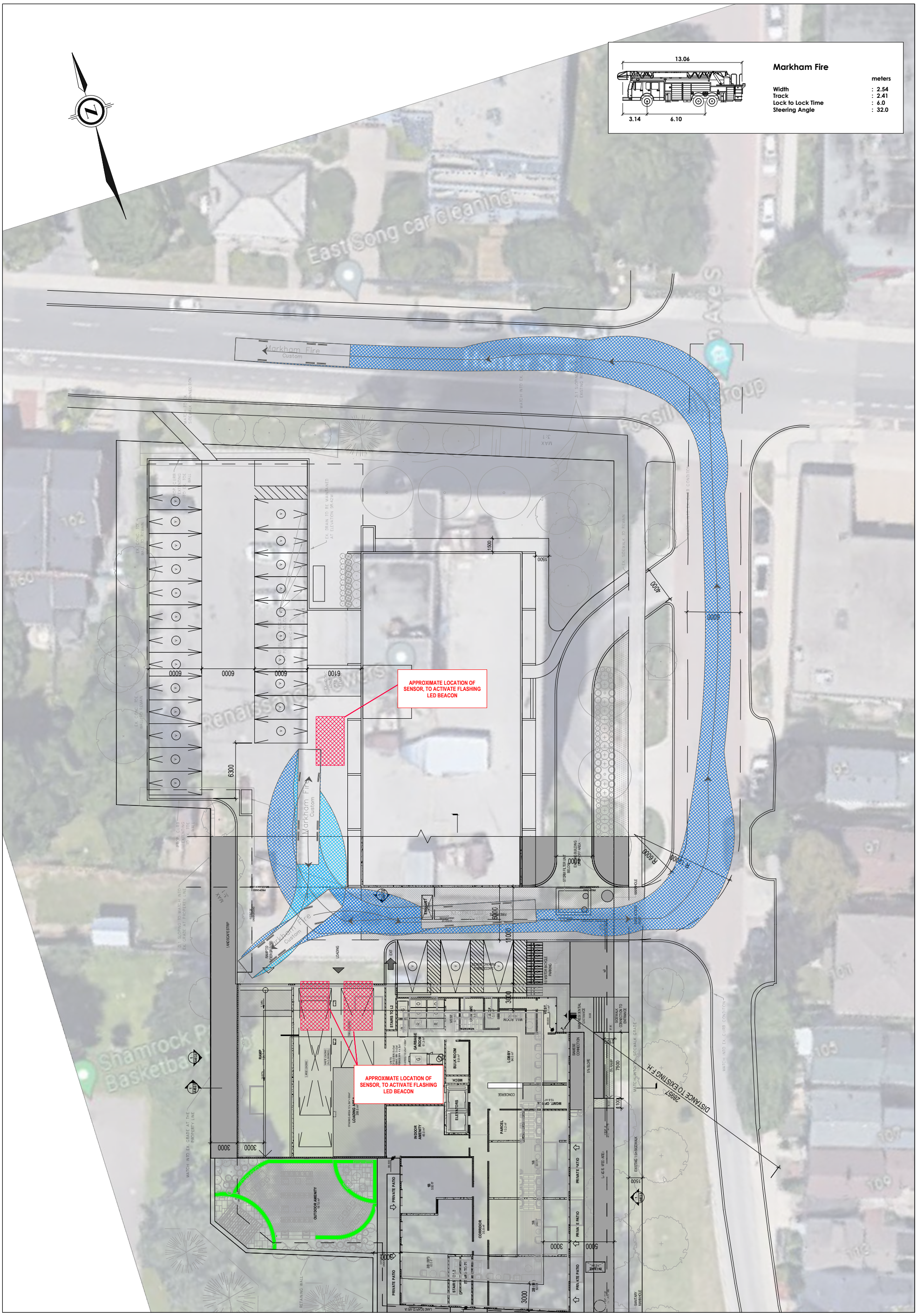

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Date Site Plan Received: 2023-11-27

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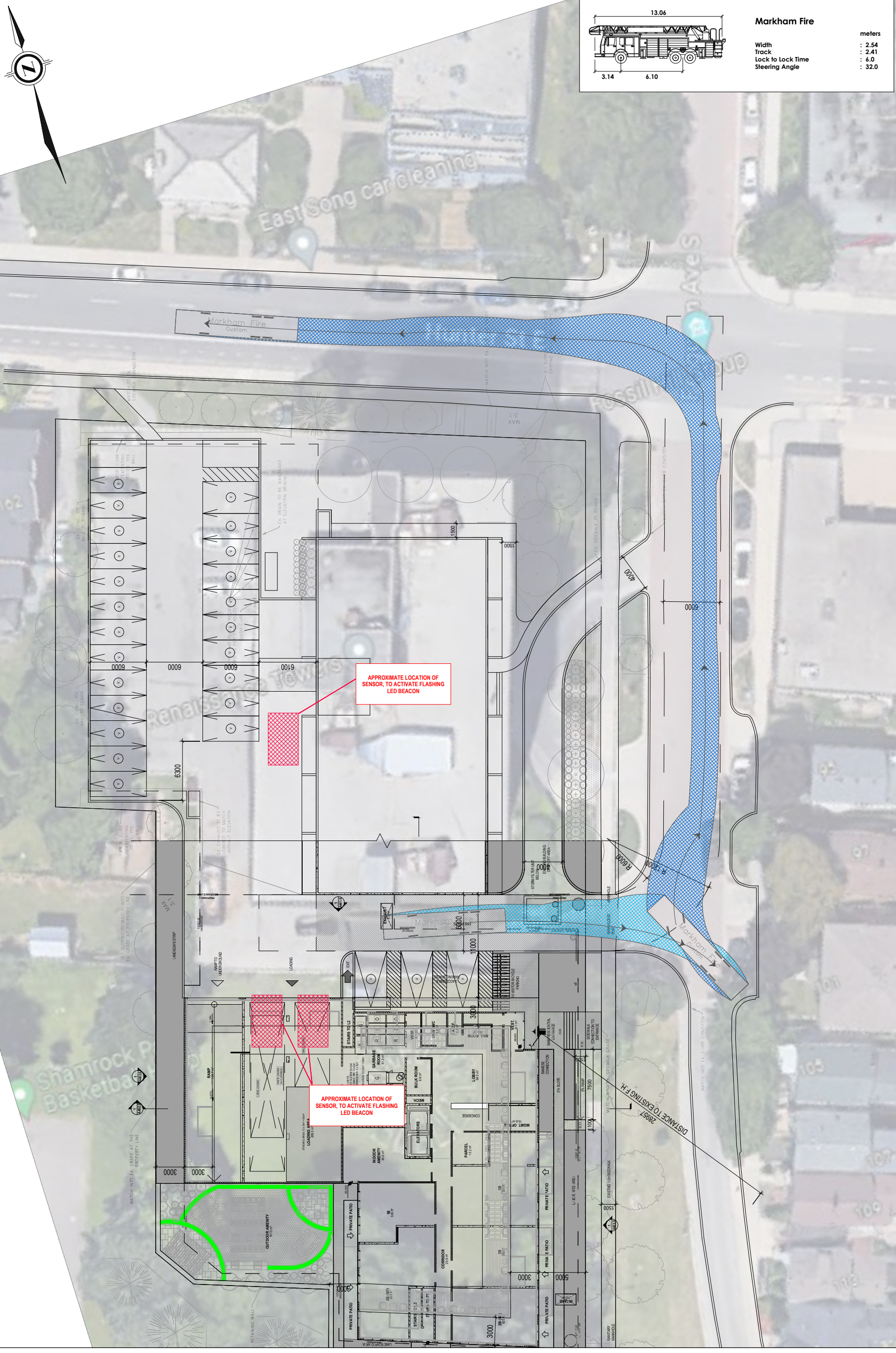
Figure 3-21
Fire Truck Access Maneuver - Outbound - Reverse Within Site
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_10

Modified: 11/30/2023 11:09 AM By: nima.farid Plot Date: 2023/12/01



C:\Users\nima.farid\Desktop\Projects\CA0006026.3023-CA-100 Ferguson Ave S\2023-11-27\CAD

Date Site Plan Received: 2023-11-27

Scale: 1:400

Figure 3-22

Fire Truck Access Maneuver - Outbound - Reverse on Ferguson
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_11

Modified: 11/30/2023 11:09 AM By: nima.farid Plot Date: 2023/12/01

SIGNAGE NOTES:

ALL SIGNAGE HAS BEEN PLACED IN THE OPTIMUM LOCATIONS. HOWEVER, MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT LOCAL CONDITIONS.

SIGNS ARE IN ACCORDANCE WITH OTM BOOKS 5 AND 6

PAVEMENT MARKING NOTES:

PAVEMENT MARKING HAS BEEN SHWON IN THE OPTIMUM LOCATIONS. HOWEVER, MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT LOCAL CONDITIONS.

STOP BARS WILL BE 0.6m WIDE, BE IN COLOUR WHITE, AND BE IN ACCORDANCE WITH OTM BOOKS 11

WSP recommends sensors to be placed at the loading areas. This will activate flashing beacons as shown in the figure to warn oncoming vehicles.

OTM Rb-51(No Arrow)
OTM Rb-51(No Arrow)
OTM Rb-93
Visitor - L
Visitor - R
Visitor - L/R
Visitor - L/R
Visitor - L
Visitor - L/R
Visitor - R
Loading
Loading
APPROXIMATE LOCATION OF SENSOR, TO ACTIVATE FLASHING LED BEACON
Stop When Flashing Truck Warning Beacons
PUDO - L
OTM Rb-21
PUDO - R
OTM Ra-1
Hamilton Fire Route
Hamilton Fire Route
OTM Rb-19
OTM Rb-19t
OTM Rb-51
CONVEX MIRRORS
OTM Rb-51
OTM Rb-19
OTM Rb-19t
Do Not Proceed When Lights Flashing Beacons (Overhead Sign)
Watch For Trucks (Wall-Mounted)
OTM Rb-93
OTM Rb-93
OTM Rb-93
Hamilton Fire Route
OTM Ra-1
APPROXIMATE LOCATION OF SENSOR, TO ACTIVATE FLASHING LED BEACON
DISTANCE TO EXISTING F.H.

C:\Users\nima.farid\Desktop\Projects\CA0006026.3023-CA-100 Ferguson Ave S\2023-11-27\CAD

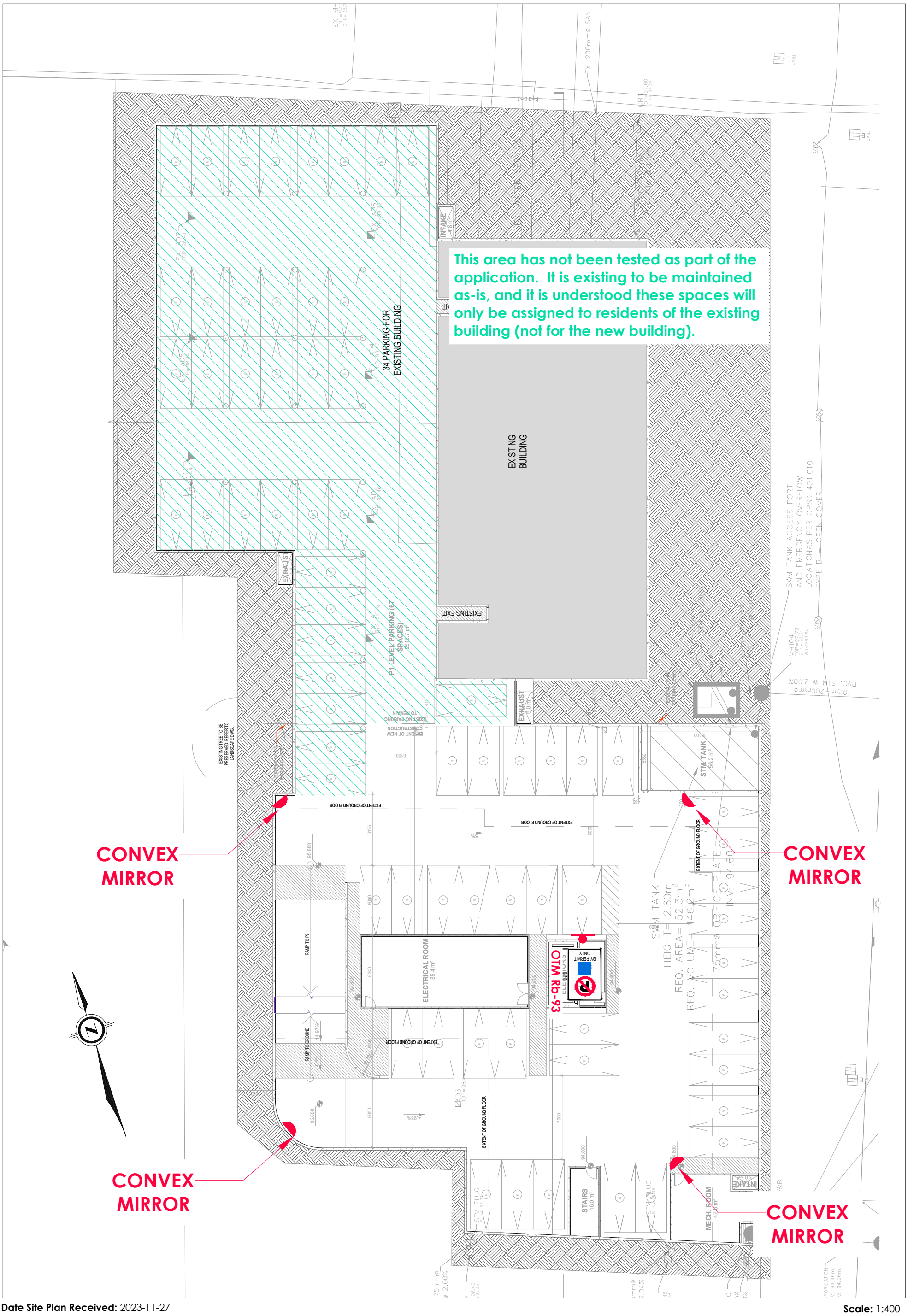
Date Site Plan Received: 2023-11-27

Scale: 1:400

Figure 3-23
Pavement Marking and Signage Plan - Ground Level
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - GF.dwg_23

Modified: 11/30/2023 11:09 AM By: nima.farid Plot Date: 2023/12/01



Date Site Plan Received: 2023-11-27

Scale: 1:400

Figure 3-24
Convex Mirror Plan - P1 Level
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - P1 Level.dwg_24

Modified: 11/30/2023 11:09 AM By: nima.farid Plot Date: 2023/12/01

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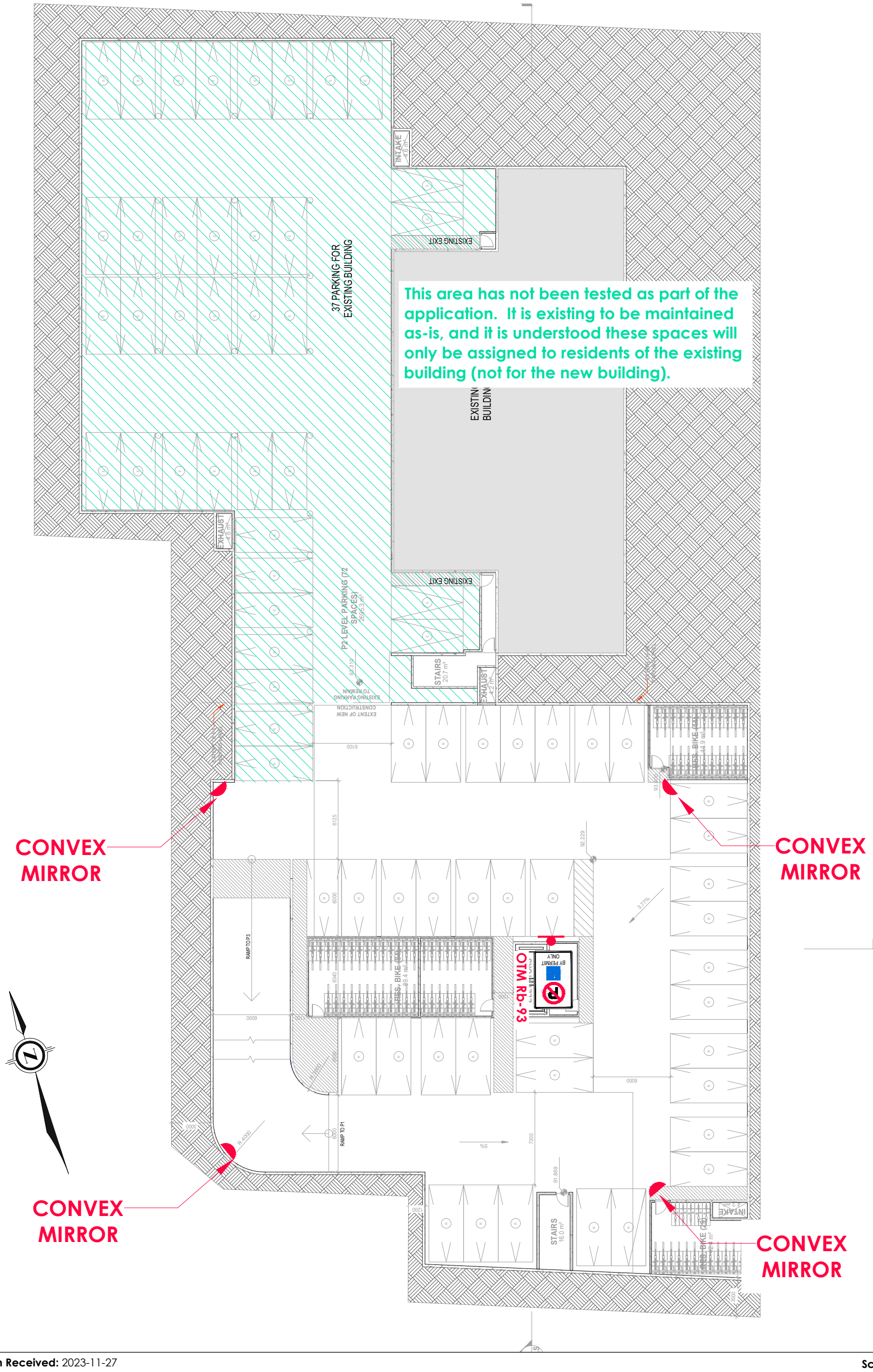

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Date Site Plan Received: 2023-11-27

Scale: 1:400

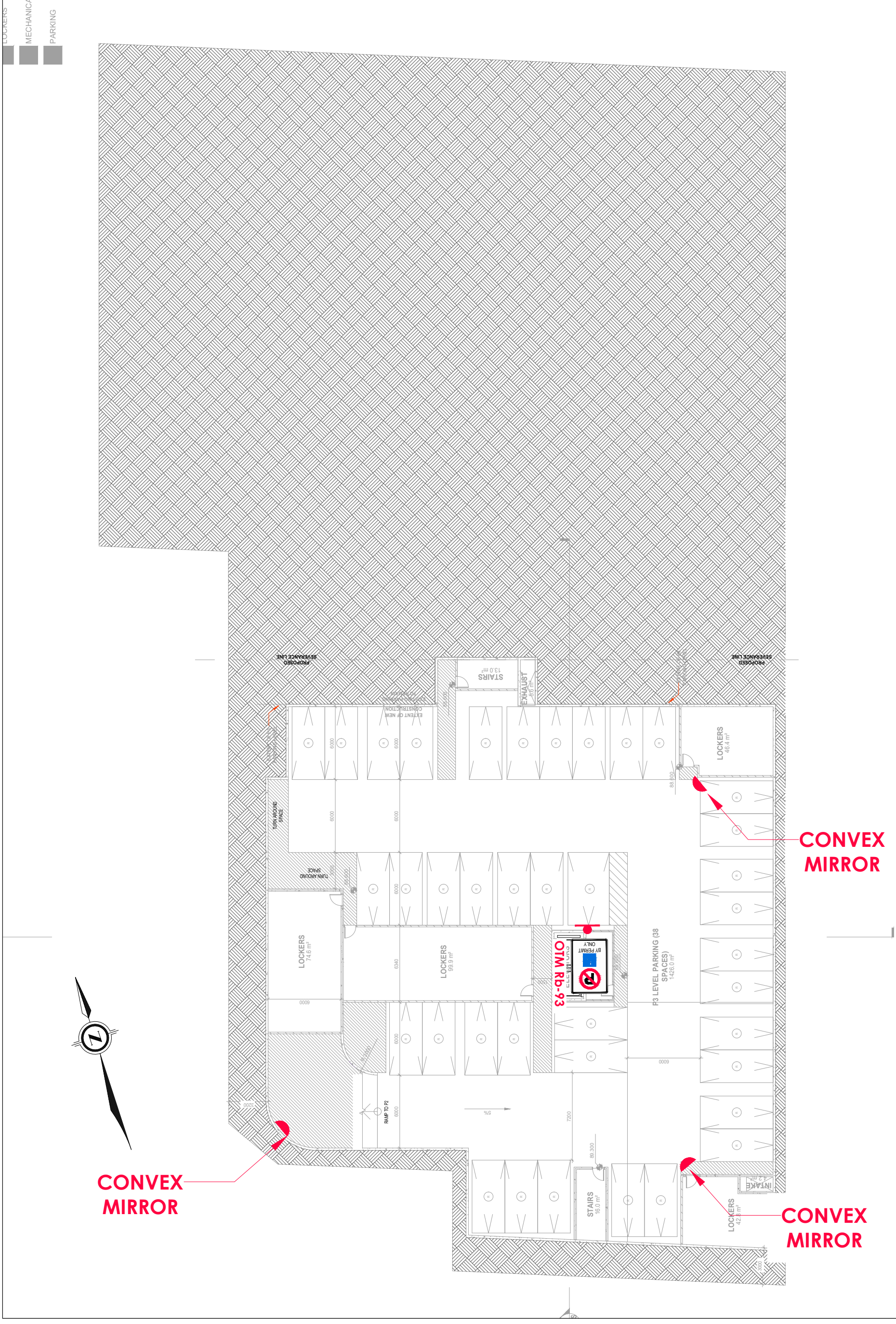
wsp

Figure 3-25
Convex Mirror Plan - P2 Level
100 Ferguson Ave S

wsp - 100 Ferguson Ave S - P2 Level.dwg_25

Modified: 11/30/2023 11:01 AM By: nima.farid Plot Date: 2023/12/01

LOCKERS
MECHANICAL
PARKING



C:\Users\nima.farid\Desktop\Projects\CA0006026.3023-CA-100 Ferguson Ave S\2023-11-27\CAD

Date Site Plan Received: 2023-11-27

Scale: 1:400

wsp

Figure 3-26
Convex Mirror Plan - P3 Level
100 Ferguson Ave S

4 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management or 'TDM' for short is a general concept that includes various strategies for increasing transportation system efficiency by managing the demand for travel. TDM treats mobility as a means to an end, rather than an end in itself. It emphasizes the movement of people and goods rather than motor vehicles. Generally speaking, TDM initiatives discourage SOV travel and encourage more efficient, sustainable modes such as walking, cycling, ridesharing, teleworking, and public transit, particularly under congested conditions. TDM is an essential part of a progressive transportation plan of a proposed development, and in achieving alignment with the objectives of the City's Official Plan and Transportation Master Plan which have TDM as a critical part in fostering a sustainable transportation network and community.

As demonstrated herein, WSP made best efforts to propose a robust TDM strategy expected to be well-tailored to the development and its surrounding context, and duly considering the City's TDM for Development Guideline. The narrative below highlights the existing context and TDM opportunities, along with the proposed site-specific TDM measures, trip reductions and site plan summary figure. Various initiatives and contributions related to transit, cycling, car share, strategic parking, enhanced pedestrian environments, and promotional/outreach measures are put forth.

4.1 EXISTING CONTEXT AND OPPORTUNITIES

- **Surrounding Densities and Built Form:** There is an attractive mix of retail, commercial and recreational uses within reach of residents, whereby they would not necessarily need to travel far to satisfy many of their day-to-day needs. The site is slightly south of the southern border of the November 2022 City Urban Hamilton Official Plan's Downtown Hamilton Secondary Plan Area. In the northwest is the Downtown Hamilton Business Improvement Area, further supporting this vibrant area at the heart of City. The south and southwest sides of the site are adjacent to Shamrock Park, offering a network of paths connecting with Young Street and Walnut Street, along with a playground, greenspace, and a basketball court. The Central Memorial Recreation Centre is also less than a half-kilometre to the southeast.
- **Active Transportation and Transit Network:** Multimodal travel is well-supported by prominent cycling and transit facilities. The north side of the site is adjacent to Hunter Street East which is a one-way westbound road having east-west bi-directional cycling facilities running along its south side. Hamilton Bike Share has a station on the northwest corner of the Ferguson Avenue South at Hunter Street East intersection. Ferguson Avenue South is also a signed on-street cycling route in the north, with the south portion connecting to a cycling path in the boulevard. Hamilton GO Centre Station is nearby at around a half-kilometre to the west along Hunter Street East. The nearest bus stop is located approximately 120 metres to the west. While the Urban Hamilton

Official Plan [Appendix B, Major Transportation Facilities and Routes] does not identify future new transportation infrastructure directly adjacent the site it does acknowledge a significant multimodal vision for the larger area including higher order transit facilities along the nearby James Street to the west and Main Street to the north alongside the priority transit corridor on King Street and future light rail transit stations at key intersections.

- **Various Parking Alternatives:** For visitors still wishing to utilize an automobile, there are various municipal car park facility located within a few hundred meters including at 75 Catherine Street South, 171 Main Street East, 140 King William Street, 11 Ferguson Avenue North and 297 King Street East. In addition, there are car share spaces in the general area via providers like Communauto and ZipCar, several of which are within about a half-kilometre north, southwest, and southeast of the site. Car share availability can help to reduce the need of residents to own their own vehicle or mitigate them having to purchase a second vehicle for their household needs. It can also serve to further shift some residents that might be on the decision-brink of automobile ownership, given it helps them to potentially take advantage of alternatives like bike, walking and transit modes while still having convenient shared access to an automobile should they occasionally require it.

4.2 PROPOSED TDM MEASURES

✓ CONVENIENT BICYCLE PARKING ON-SITE

175 New Bike Spaces

Based on correspondence with the City, as documented in Appendix E, bicycle parking is not a requirement for the site. Despite this, the Applicant has still taken the important initiative of proposing a substantial amount of new bike parking being 18 short-term/visitor and 157 long-term/tenant spaces, strongly contributing to flexibility of modal choice and to take advantage of synergistic opportunity with the existing cycle facilities of the surrounding roads.

✓ INCENTIVIZE TRANSIT AND BIKE SHARE

Up to $9,730 TDM Incentivization

To further promote a transit and a cycling culture amongst residents, a single one-time, non-recurring financial contribution is proposed to be offered to the first occupant per residential unit of the new building amounting to $50 toward a pre-loaded transit Presto card and $20 for the Hamilton Bike Share program. This would be equivalent to approximately the cost of a single month of complimentary base membership to Hamilton Bike Share which has a station across the street from the site, as well as for residents to try a few transit trips via

the bus network and/or Hamilton GO Centre Station to help them determine if it is a solution that works for their individual needs. For 139 units, this means a total, one-time monetary contribution toward TDM of up to $9,730.

✓ UNBUNDLING PARKING STRATEGIC PARKING

Auto Parking Not Mandatory

Parking spaces are proposed to be offered separately from residential units, so those units do not necessarily have to rent a parking space. This allows residents who do not need parking to reduce costs and potentially invest the savings in other modes of transportation.

Intuitively speaking, fewer parking spaces means the potential to have fewer vehicles driving into and out of the site to access said parking supply (i.e. trips generated at a site are in some ways constrained by the number of drivers that can actually be accommodated within it). A proviso of this reasoning is that the equivalent person trips still need to be accommodated elsewhere; fortunately, there is an abundance of alternative travel choices such as transit and cycling coupled with the proposed development being located near the City's downtown with variety of uses and facilities in close reach to meet day-to-day needs per Section 4.1.

Fewer Auto Spaces Fewer Auto Trips

✓ IMPROVEMENTS TO THE ADJACENT PEDESTRIAN/CYCLING ENVIRONMENT

Initiative to Address City's Existing Safety Concern

As detailed in Section 1.0, the Applicant took the laudable step of proposing closure of the existing Hunter Street East automobile site access, preferred by City staff due to concerns about its interface with the adjacent bi-directional cycling lanes. The existing underground ramp driveway on Ferguson Avenue South is also proposed to be reconfigured for a centralized driveway serving both the surface and underground area of the existing and proposed building, as well as to consolidate the outbound driveway of the counterclockwise pick-up/drop-off area fronting the existing building. Overall, the site access reconfiguration initiatives above are opined to appreciably improve the pedestrian and cycling fabric by reducing the number of points whereby vehicles and more vulnerable users would need to interact, going from four existing to two ultimate site driveways.

Centralized & Reduced Number of Driveways, Reducing Conflict Points

✓ PROMOTION AND OUTREACH

Set TDM Culture, Generate Excitement

Informational materials should be prepared, identifying TDM opportunities and incentives available for the development (highlighting the bike parking locations, transit route illustrations, etc.). This information should be kept up-to-date and made available in a highly visible location and via building newsletters/emails, as well as distributed to new residents through welcoming packages. This can help to promote an ongoing culture and awareness of the various alternative travel choices. An information session/event on active transportation and transit should be held when the building is at a substantial occupancy level (at the site or an alternative venue depending on the event spatial needs).

4.3 TDM SUMMARY

Table 4-1 summarizes the TDM measures proposed for the development, in the context of the City's TDM Guideline based on the site context. **Figure 4-1** highlights key TDM-contextual elements on the site plan.

Table 4-1: TDM Measures for the Site

Category	TDM Initiative
Cycling	Visible short-term bicycle parking which, traditionally, is more targeted to visitors (18) plus long-term bicycle parking for residents (157).
Walking	Attractive, direct walkways linking the building entrance. Optimized site driveways, reducing potential interaction points between vehicles and cyclists/pedestrians.
Transit	Incentivization of transit or bike share use through one-time monetary contribution for the new building.
	Provision of transit information on site, contributing to an active transportation culture in the building.
Parking	Reduced minimum parking proposed, considering alternative travel options like proximity to major transit.
	Shared parking with nearby developments (new and existing building).
	Unbundle parking from residential unit.
	Contribute to building a TDM 'brand' [and culture] for the site.

Category	TDM Initiative
Education, Promotion, and Incentives	One-time transit pass and bike share membership contribution, incentivising alternative mode choice.
	Provide residents with a transportation information package (transit service maps and schedules, map of surrounding active transportation amenities, etc.).

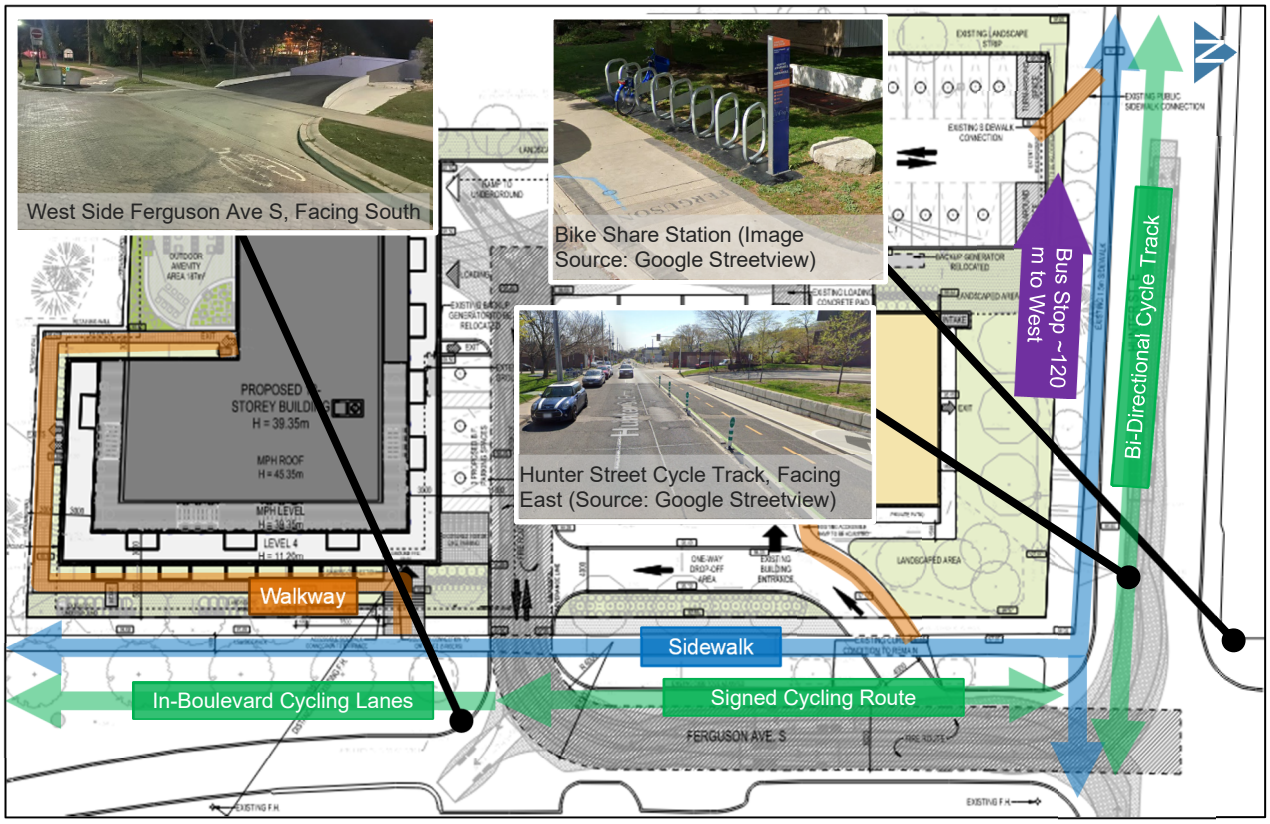


Figure 4-1: TDM Site Plan Summary (Using November 27, 2023 BDP Architectural Plan as Base Image)

4.4 PROJECTED TRIP REDUCTIONS

It should be kept in mind that quantifying TDM is a fairly new aspect of the transportation planning industry, as a whole and amongst different municipalities. As part of this exercise, WSP researched the following resources:

- *Housing Now Transportation Demand Management Framework for CreateTO report* from BA Group dated November 2021 (TDM-1);

- *Trip and Parking Generation at Transit-Oriented Developments: Five US Case Studies from Landscape and Urban Planning Journal Volume 160 of April 2017* (TDM-2);
- *Crediting Low-Traffic Developments Adjusting Site-Level Vehicle Trip Generation Using URBEMIC* by Nelson/Nygaard Consulting Associates of August 2005 (TDM-3);
- T*ransportation Demand Management Policy Guide for the City of Buffalo Adopted March 2017* (TDM-4); and
- City of Hamilton By-law 05-200 (TDM-5).

Highlights of the cited documents, as they related to the proposed TDM, are discussed below.

- **Automobile Parking Reduction:** TDM-2 and TDM-3 suggest a strong correlation between provided automobile parking supply and trip generation. Potentially, in urban locations with transit readily available, the correlation can be as much as a 1:1 relationship. Further, TDM-1 indicates that the provision of a reduced parking supply can, in-itself, be considered TDM because it forces drivers to look to alternatives (estimating an around six percent trip reduction in the event of a parking supply of at least half of the By-law minimum).
- **Unbundled Parking:** TDM-4 mentions that the unbundling of parking from residential unit can result in a reduction of up to 10 percent. For comparison, TDM-1 assumes a reduction of up to three percent due to unbundling of the sales of automobile parking spaces. It also notes that research on parking pricing found that generally price elasticity of vehicle trips as it relates to parking pricing is typically 0.1 to 0.2, meaning a 10 percent increase in parking fees can potentially reduce automobile trips by one to three percent.
- **Transit and Bike Share Incentivization:** TDM-1 suggests a one percent reduction for providing a pre-loaded PRESTO contribution with a value of at least $50. TDM-4 mentions a credit of one trip for each five bike-share memberships to existing facilities.
- **Bike Parking:** The provision of on-site bicycle parking can be a strong facilitator of modal choice. TDM-4 from the City of Buffalo suggests, generally, that every five extra bicycle parking space provided has the potential to result in one automobile trip reduction. Although understood as not in-effect for the subject site, it is also noteworthy that Section 5.7 (g) of TDM-5 identifies a reduction of one motor vehicle parking space for every five long-term bicycle spaces up to a maximum of ten percent of the original motor vehicle parking requirement.
- **Improvements to Adjacent Pedestrian/Cyclists Environment:** TDM-4 mentions an up to four percent reduction for enhanced amenities, like transportation initiatives in the right-of-way that help to foster improved safety, convenience, attractiveness, or accessibility for walking.
- **Information Package and Welcoming Event:** TDM-4 assumes that promotion and outreach can have an influence of up to two percent. TDM Source 1 indicates one percent.

5 CONCLUSIONS

As demonstrated in the sections above, this study thoroughly examined the ability of the network to accommodate the trips anticipated to be generated by the proposed developing along with transportation functionality within the associated layout. This was done in accordance with the Terms of Reference (TOR), as discussed with the City representative at the onset of the project.

Section 1.0 sets the stage with a detailed description of the proposed development and its surrounding area. As evident from that narrative, the area has a strong multimodal context with cycling lanes directly bordering the site and bike share facilities across the street, coupled with major transit options like Hamilton GO Centre Station to the west. It is also proximate to the City's downtown, adjacent its south border, and various mixed-uses—enhancing walkability and putting various day-to-day amenities within close reach.

Of particular emphasis, the Applicant is taking the laudable step of proposing to close the existing Hunter Street East automobile site access, understood as preferred by City staff due to ongoing concerns about its interface with the adjacent bi-directional cycling lanes. The existing underground ramp driveway on Ferguson Avenue South is also proposed to be reconfigured to allow for a centralized driveway serving both the surface and underground area of the existing and proposed building, as well as to consolidate the outbound driveway of the counterclockwise pick-up/drop-off area fronting the existing building. This is opined to appreciably improve the pedestrian and cycling fabric by reducing the number of points whereby vehicles and more vulnerable users would need to interact, going from four existing to two ultimate site access.

Section 2.0 provides a comprehensive, technical assessment of transportation operations. To highlight, this includes forecasting the peak hour trips of the proposed development, which for the sake of thoroughness duly weighs multiple trip generation methodology options including the identification of site-specific rates using recent in-field driveway counts of the comparable existing building and drawing upon information from the Institute of Transportation Engineers (ITE) and Data Management Group at the University of Toronto (Transportation Tomorrow Survey). Future background traffic projections (without the proposed development in place) were established, accounting for relevant nearby development and background corridor growth consistent with information discussed with the City through the TOR. Existing, future background and total future (with the proposed development in place) have been analyzed using the Synchro 11 traffic analysis software, reporting on volume-to-capacity ratios and level of service—demonstrating that all study area intersections for all scenarios are anticipated to operate well within roadway capacity and with acceptable level of services ranging between 'A' and 'B'.

The detailed site circulation assessment found in Section 3.0, using the AutoTurn 11 software package, demonstrates adequacy of the relevant vehicle maneuvers throughout the new facilities of the proposed development. That section also compares the newly proposed automobile parking, bicycle parking and loading space supplies with the applicable minimum requirements. This offers a strong, comprehensive five-pronged rationalization for the proposed automobile parking reduction drawing upon the recent proxy parking utilization survey, area-wide vehicle ownership data, rates of the ITE Parking Generation Manual, and various a robust set of Transportation Demand Management (TDM) initiatives. It is opined that a proposed overall parking supply of 203 spaces is adequate, and well supported through these five prongs.

Last but certainly not least, Section 4.0 shows appreciable efforts put forth toward a robust set of TDM strategies including the provision of ample bike parking (175 new stalls), as well as various proactive initiatives related to transit, cycling, pedestrians promotional/outreach.

APPENDIX A:

TERMS OF REFERENCE

Walker, Jeff

From: Brosseau, Bart <Bart.Brosseau@hamilton.ca>
Sent: July 20, 2023 9:40 AM
To: Walker, Jeff
Cc: Nazanin Nooshabadi; Emily Li; Ryan Guetter; Adam Santos; Transportation Planning; Radaelli, Matthew
Subject: FW: FCSP-23-060 (100 Ferguson Avenue South) - Transportation Study Terms of Reference
Attachments: Transportation TOR for 100 Ferguson S (WSP, July 12, 2023).pdf

Hi Jeff,

Data Collection

- Updated TMC must be conducted
- Parking Utilization survey should be conducted in the existing building between 7 p.m. and 12 a.m.

186 Hunter Street East

- 42 total two-way a.m. trips (10 inbound and 32 outbound) and 44 total two-way p.m. trips (27 inbound and 17 outbound).
- Trip distribution

Table 5 – Trip Distribution for Residential Component

Toronto	Peel Region	Halton Region	City of Hamilton	Glanbrook	Niagara Region	Waterloo Region	Flamborough	Dundas
3%	1%	15%	61%	3%	2%	3%	3%	2%

Table 6 – Site Trip Distribution for Residential Component

General Direction (To/From)	Inbound
South (Victoria Ave S, Walnut Street S)	25%
North (Walnut Street S, Ferguson Avenue S)	30%
East (Main Street E/Hwy 8)	25%
West (Hunter Street E, King Street E)	20%
Total	*100%*

Future Background Conditions

- Use an annual growth rate of 1%

Parking Supply Assessment

- Use existing building parking utilization, including the number of residential units and assigned parking spaces for those units. Do not use the City of Toronto to compare parking rates. Compare parking rates from the City of Burlington, the City of Brampton, the City of London, the City of Brantford.

Thanks

Bart Brosseau
Transportation Planning Technologist
Planning and Economic Development Department
Transportation Planning and Parking Division

100 King Street West, 9th Floor, L8P1A2
Phone: 905.546.2424 ex. 4583

Hamilton

The City of Hamilton encourages physical distancing, wearing a mask in an enclosed public space, and increased handwashing. Learn more about the City's response to COVID-19 www.hamilton.ca/coronavirus.

From: Walker, Jeff <Jeff.Walker@wsp.com>
Sent: Wednesday, July 19, 2023 9:38 AM
To: Transportation Planning <Transportation.Planning@hamilton.ca>; Transportation Planning <Transportation.Planning@hamilton.ca>; Brosseau, Bart <Bart.Brosseau@hamilton.ca>
Cc: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>; Emily Li <ELi@bdpquadrangle.com>; Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>
Subject: RE: FCSP-23-060 (100 Ferguson Avenue South) - Transportation Study Terms of Reference

Good morning,

This is a friendly follow-up on the email below. If you have any feedback on the attached transportation TOR, it would be appreciated if you could kindly let me know by sometime today.

Thank you and kind regards,

Jeff Walker, P.Eng.
Project Manager
Transportation Planning & Science
416-644-0419
WSP

From: Walker, Jeff
Sent: Wednesday, July 12, 2023 12:27 PM
To: Transportation.Planning@hamilton.ca; tplanning@hamilton.ca; Bart.Brosseau@Hamilton.ca
Cc: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>; Emily Li <ELi@bdpquadrangle.com>; Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>
Subject: FCSP-23-060 (100 Ferguson Avenue South) - Transportation Study Terms of Reference

Good afternoon,

I am working with Amelin Property Management on the transportation study for the upcoming development application FCSP-23-060 of 100 Ferguson Avenue South.

Attached, please see the proposed transportation terms of reference (TOR). For any comments or inputs on the TOR, it would be appreciated if you could kindly respond by **July 19, 2023**.

Thank you and kind regards,
Jeff Walker, P.Eng.
Project Manager
Transportation Planning & Science

FROM WSP Canada Inc. (WSP)
Jeff Walker, P.Eng., Project Manager, Transportation Planning and Science

SUBJECT: Proposed Residential Building Addition at 100 Ferguson Avenue South (**FCSP-23-060**)
Transportation Study Terms of Reference

DATE: July 12, 2023

WSP has been retained by Amelin Property Management to prepare the transportation study for the upcoming development application **FCSP-23-060 for 100 Ferguson Avenue South**, located at the southwest quadrant of the Ferguson Avenue South and Hunter Street East intersection.

This document outlines the detailed development context and transportation Terms of Reference (TOR), guided by initial feedback received in the May 23, 2023 memorandum from the City's Transportation Planning staff along with the City's Traffic Impact Study (TIS) Guidelines. Of particular emphasis, the applicant has taken the laudable initiative to revise their initial concept to now propose closure of the existing Hunter Street East access shown in **Figure 1** (such closure is understood to be preferred by the City due to concerns about its interface with the adjacent cycling lanes). For any comments or inputs on the TOR herein, it is respectfully requested those be provided by **July 19, 2023**.

Source: Google Streetview
Figure 1: Hunter St, Facing Southeast

DEVELOPMENT CONTEXT

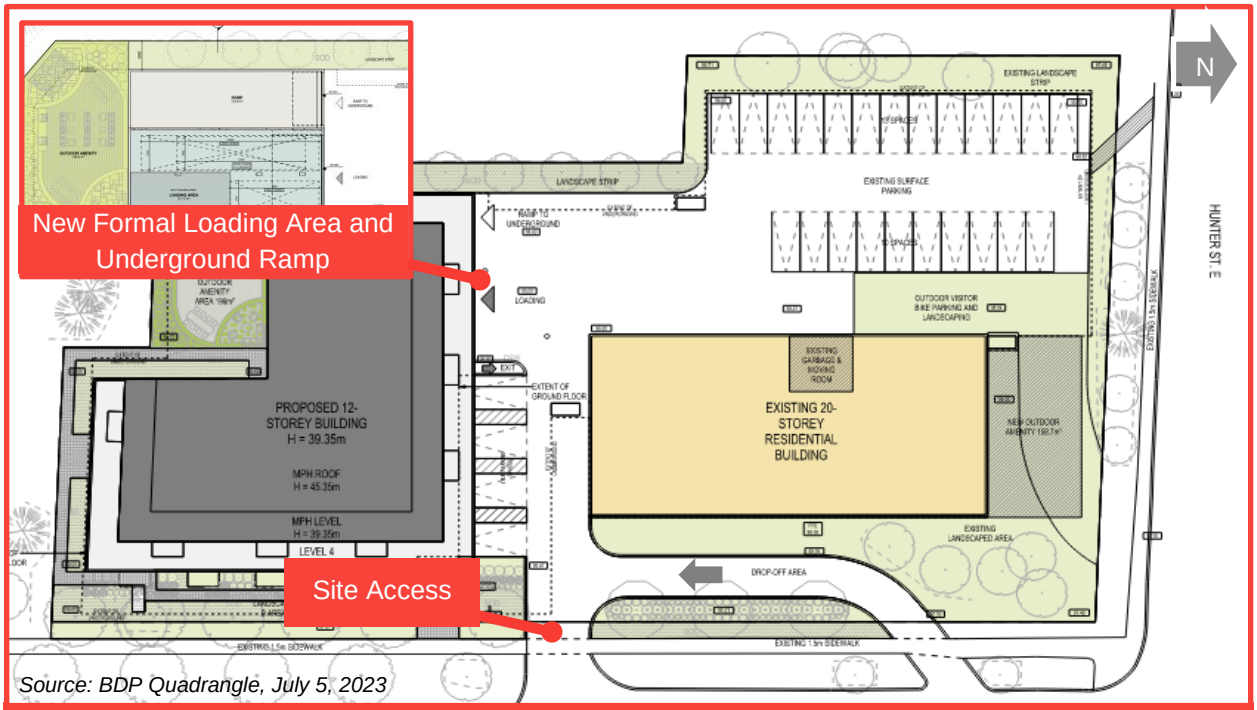
The applicant's proposal is for the addition of a 12-storey residential building of 130 dwelling units to the site, which would be adjacent to the south side of the existing 20-storey rental apartment building that has 210. There are currently 27 surface parking spaces and an underground parking garage of 142 parking stalls, for an existing total of 169. The underground parking is proposed to be partially demolished to facilitate the construction of the new building and expanding parking of around 173 parking spaces total.

The existing surface parking and loading arrangement is served only by the driveway at Hunter Street East. That surface area is not directly accessible via the driveways on Ferguson Avenue South, which presently connects with the underground ramp and pick-up/drop-off area (PUDO) at the east side.

The applicant is proposing that the existing underground ramp access at Ferguson Avenue South, shown in **Figure 2**, be removed and relocated in favour of an updated main site access to both the surface and underground area of the current and new building. The existing PUDO will be maintained, in principle, but its access arrangement will be adjusted

Source: Google Streetview
Figure 2: Ferguson Ave, Facing Northwest

slightly to connect with the Ferguson Avenue South main access aisle. As a result of the proposed closure of Hunter Street East, the existing open-air loading arrangement currently located along the west-face of the existing building will be reconfigured to be accessed from the south with some of the surplus asphalt area proactively converted into other uses like green space and bike parking. The proposed ground floor concept is illustrated in **Figure 3.**



Source: BDP Quadrangle, July 5, 2023

Figure 3: Ground Floor Concept

It should also be kept in mind that given the relatively small scale of the proposed 130 development addition to the site, the amount of new traffic likely to be generated is anticipated to be below the 100 vehicle/hour threshold noted in Section 2.1 of the City's TIS Guidelines which potentially limits the need for a full TIS. With that said, it is understood that the initial City feedback is requesting a Transportation Impact Study, Parking Assessment, Transportation Demand Management/Transit Oriented Design Measures and Roadway/Development Safety Audit, Cycling Route Analysis, Pedestrian Route and Sidewalk Analysis, and Parking Analysis—collectively referred to herein as the Transportation Study.

WORK PLAN

1. Study Area

Based on the scope and limited magnitude of the development proposal, we will analyze the following study area intersections:

a. Ferguson Avenue South at Hunter Street East; and
b. Site Access.

2. Data Collection

We will retain a third-party traffic counter specialized in data collection to gather the following information in the field:

a. Turning movement counts (TMC) at the study intersections during the weekday a.m. (7:00 to 9:00) and p.m. (4:00 to 6:30) peak periods.
b. Parking utilization survey within the surface and unground parking of the existing building.

Note that in communicating with trafficops@hamilton.ca, it is understood that the only available historic TMC in the study area is dated Monday, May 6, 2019. They also provided five year collision data for Hunter Street East between approximately east of Walnut Street and west of Liberty along with on Ferguson Avenue from the south side of the site to a bit north of Hunter Street. This collision data will be further discussed in our upcoming report.

3. Future Background Conditions

As outlined below, we will forecast future background traffic volumes by applying a general growth rate to the existing through volumes and adding potential traffic from relevant developments within vicinity of the site.

a. Anticipated buildout is assumed to be within the next three years so a five-year horizon beyond that of 2031 will be evaluated for future conditions. As mentioned in (2) above, there is limited historic traffic data readily available from which to derive a corridor growth rate. Based on Section 3.5.1 of the City's TIS Guidelines, given that sufficient historic information is not available an annual two percent growth rate is proposed to be applied to intersection approach through volumes.
b. Based on a review of the City's Development Application Mapping Portal, two background developments are identified in the vicinity of the site.
    - 141-143 Hunter Street East (FC-20-142): As this is only proposing 14 dwelling units, its trip generation will be very minimal hence there is no need to explicitly add its trip assignment to the background development forecasts.
    - 186 Hunter Street East (FC-16-089, FC-21-144, ZAC-22-014, UHOPA-22-006 and DA-22-151): It is understood that this background application consists of 19 freehold three storey townhouse units alongside a 12-storey residential building of 104 residential units. We will specifically add the trip assignment of this development to the background traffic forecasts. If you are able to share the traffic study completed for this site, then we will consider its documented trip assignment or if not, we will estimate it with guidance from *the Institute of Transportation Engineers Trip* (ITE) *Generation Manual 11th Edition, 2016 Transportation Tomorrow Survey (TTS)* and existing travel patterns. If a background study is not readily available, please kindly confirm our general understanding of its statistics above and to/from which street(s) it is contemplating to have automobile access.
c. We are not aware of any notable transportation infrastructure improvements of relevance planned by the City in the study area. This is based on an examination of the *City's Open Data*

Capital Projects Line Mapping Portal, and *City's 2018 Transportation Master Plan Review and Update Report*.

4. Site Traffic

Trip generation rates will primarily be derived for the proposed development by prorating the peak hour in and out traffic volumes collected at the site access intersections of the existing residential building of the site, given the travel characteristics of the existing building can offer a strong, context-specific indicator for that of the proposed building next to it. This will also be compared with rates available from the ITE Trip Generation Manual, 11th Edition. Trips will be distributed and assigned to the study area drawing upon existing travel patterns/TTS data, as well as professional judgement considering factors such as site access location, shortest distances, convenience of route choice, hierarchy of road classification and intersection configurations. Existing trips utilizing the Hunter Street East driveway will also be reassigned to the new Ferguson Avenue South access, recognizing the proposed reconfiguration. This approach is opined as in alignment with Section 3.6 of the City's TIS Guidelines.

5. Traffic Operations Analysis

We will analyze the operation of the study area intersections for the weekday a.m. and p.m. peak hours under existing, as well as horizon 2031 background and future total conditions. The analysis will be completed using Synchro 11, reporting on level of service (delay) and volume-to-capacity ratios.

6. Cycling Route and Pedestrian Route/Sidewalk Analysis

The upcoming report will highlight/summarize the proposed pedestrian access points, as well as bike parking facilities. It is important to keep in mind that the majority of the approximately 1.5 metre wide municipal sidewalks surrounding the site are adjacent to the existing building, and are not currently proposed to be changed as part of the proposed development addition. With that said, the proposed development is still anticipated to appreciably improve the pedestrian and cycling fabric by removing the existing Hunter Street East driveway, reducing the number of points whereby vehicles and those users would need to interact.

7. Parking Supply Assessment

In addition to documenting how the proposed quantity of parking compares with that of the By-law, we will plot/provide commentary on them in the context of the results of the parking utilization survey discussed in task (2). For further context, the proposed parking supply will also be compared with that of nearby jurisdictions, most notably the City of Toronto which has recently witnessed a paradigm shift in their approach to minimum parking supply. TDM initiatives of the proposed development will also be highlighted, as such can help to balance reductions in automobile parking supply with travel mode alternatives.

8. Site Access and Circulation Review

We will test the movements of relevant vehicles using the AutoTURN software package to determine if they can easily access, manoeuvre through and exit the proposed layout. Where applicable, minimum dimensions for newly proposed parking and driveways will also be considered based on City standards.

9. Collision/Safety Analysis

Section 3.10 of the City TIS Guidelines state that the 'safety analysis' objective is to assess the proposed development to determine if there are potential alternatives to enhance the level of safety of the site and adjacent roadway. In their initial comments, a prominent safety concern of the City appeared to be the existing access driveway at Hunter Street East which as mentioned earlier, the applicant appreciates and is proposing to address via the City-preferred option of closure. In addition, per task (2), the available five-year collision data will be documented and commented upon in the upcoming report.

10. Transportation Demand Management Plan

Transportation Demand Management or TDM for short is a general concept that includes various strategies such as the provision of bike parking, education/outreach, etc. toward increasing transportation system efficiency by managing the demand for travel. TDM treats mobility as a means to an end, rather than an end in itself. It emphasizes the movement of people and goods rather than motor vehicles. Generally speaking, TDM initiatives discourage single-occupant vehicle travel and encourage more efficient, sustainable modes such as walking, cycling, ridesharing, teleworking and public transit.

11. Report

We will prepare a detailed final report clearly narrating and documenting the findings of our study.

We appreciate you taking the time to review the TOR above, and please do not hesitate to let us know if any feedback or questions.

Sincerely,
Jeff Walker, P.Eng.
Project Manager, WSP Transportation Planning & Science

APPENDIX B:
DATA COLLECTION

Horizon Data Services Ltd

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"Your Traffic Count Specialist"

File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Ferguson Ave S From North					Hunter St E From East					Ferguson Ave S From South					Hunter St E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	0	0	2	3	2	3	1	1	7	0	4	7	5	16	0	0	1	1	2	28
07:15 AM	2	1	0	0	3	2	0	0	1	3	0	4	3	2	9	0	0	0	2	2	17
07:30 AM	4	1	0	0	5	2	4	0	1	7	0	3	4	2	9	0	0	2	1	3	24
07:45 AM	0	2	0	1	3	6	3	0	3	12	0	6	0	3	9	0	3	0	6	9	33
Total	7	4	0	3	14	12	10	1	6	29	0	17	14	12	43	0	3	3	10	16	102
08:00 AM	6	1	0	0	7	1	3	0	8	12	0	3	1	16	20	0	0	1	5	6	45
08:15 AM	3	0	0	3	6	5	4	1	2	12	0	3	3	2	8	0	1	0	8	9	35
08:30 AM	2	3	0	1	6	5	3	0	7	15	0	0	4	3	7	0	0	0	0	0	28
08:45 AM	2	0	0	1	3	10	5	0	1	16	0	9	2	7	18	0	0	1	8	9	46
Total	13	4	0	5	22	21	15	1	18	55	0	15	10	28	53	0	1	2	21	24	154
04:00 PM	5	5	0	3	13	1	1	0	2	4	0	5	1	7	13	0	1	0	9	10	40
04:15 PM	4	3	0	0	7	5	3	0	2	10	0	1	3	1	5	0	2	0	5	7	29
04:30 PM	4	2	0	4	10	2	5	0	6	13	0	4	2	6	12	0	1	1	4	6	41
04:45 PM	4	3	0	2	9	6	5	0	2	13	0	4	5	5	14	0	3	1	3	7	43
Total	17	13	0	9	39	14	14	0	12	40	0	14	11	19	44	0	7	2	21	30	153
05:00 PM	4	4	0	1	9	7	5	0	3	15	0	4	3	8	15	0	5	0	7	12	51
05:15 PM	5	7	0	6	18	5	4	0	3	12	0	5	1	8	14	0	3	0	9	12	56
05:30 PM	2	3	0	7	12	3	2	0	2	7	0	3	2	7	12	0	1	1	6	8	39
05:45 PM	2	3	0	2	7	2	4	0	2	8	0	3	1	5	9	0	1	0	5	6	30
Total	13	17	0	16	46	17	15	0	10	42	0	15	7	28	50	0	10	1	27	38	176
06:00 PM	2	3	0	1	6	4	4	0	1	9	0	2	3	2	7	2	2	1	5	10	32
06:15 PM	0	8	1	1	10	4	2	1	2	9	0	1	3	2	6	0	1	0	6	7	32
Grand Total	52	49	1	35	137	72	60	3	49	184	0	64	48	91	203	2	24	9	90	125	649
Apprch %	38	35.8	0.7	25.5		39.1	32.6	1.6	26.6		0	31.5	23.6	44.8		1.6	19.2	7.2	72		
Total %	8	7.6	0.2	5.4	21.1	11.1	9.2	0.5	7.6	28.4	0	9.9	7.4	14	31.3	0.3	3.7	1.4	13.9	19.3	
Cars	46	35	0	35	116	61	0	0	49	110	0	54	44	91	189	0	0	3	90	93	508
% Cars	88.5	71.4	0	100	84.7	84.7	0	0	100	59.8	0	84.4	91.7	100	93.1	0	0	33.3	100	74.4	78.3
Trucks	0	0	0	0	0	1	4	1	0	6	0	1	1	0	2	0	0	0	0	0	8
% Trucks	0	0	0	0	0	1.4	6.7	33.3	0	3.3	0	1.6	2.1	0	1	0	0	0	0	0	1.2
Heavys	1	0	0	0	1	0	36	0	0	36	0	0	0	0	0	0	0	0	0	0	37
% Heavys	1.9	0	0	0	0.7	0	60	0	0	19.6	0	0	0	0	0	0	0	0	0	0	5.7
Cyclists	5	14	1	0	20	10	20	2	0	32	0	9	3	0	12	2	24	6	0	32	96
% Cyclists	9.6	28.6	100	0	14.6	13.9	33.3	66.7	0	17.4	0	14.1	6.2	0	5.9	100	100	66.7	0	25.6	14.8

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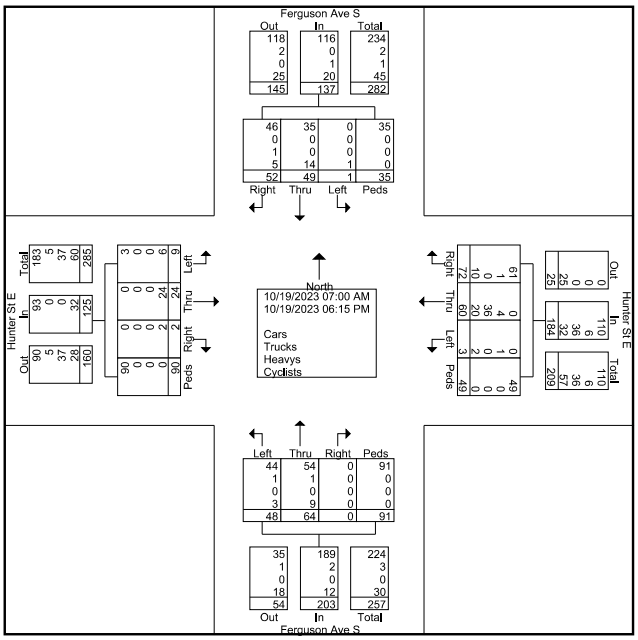

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File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 3

	Ferguson Ave S From North					Hunter St E From East					Ferguson Ave S From South					Hunter St E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**6**	1	0	0	**7**	1	3	0	**8**	12	0	3	1	**16**	**20**	0	0	**1**	5	6	45
08:15 AM	3	0	0	**3**	6	5	4	**1**	2	12	0	3	3	2	8	0	**1**	0	**8**	**9**	35
08:30 AM	2	**3**	0	1	6	5	3	0	7	15	0	0	**4**	3	7	0	0	0	0	0	28
08:45 AM	2	0	0	1	3	**10**	**5**	0	1	**16**	0	**9**	2	7	18	0	0	1	8	9	**46**
Total Volume	13	4	0	5	22	21	15	1	18	55	0	15	10	28	53	0	1	2	21	24	154
% App. Total	59.1	18.2	0	22.7		38.2	27.3	1.8	32.7		0	28.3	18.9	52.8		0	4.2	8.3	87.5		
PHF	.542	.333	.000	.417	.786	.525	.750	.250	.563	.859	.000	.417	.625	.438	.663	.000	.250	.500	.656	.667	.837
Cars	12	2	0	5	19	18	0	0	18	36	0	13	9	28	50	0	0	0	21	21	126
% Cars	92.3	50.0	0	100	86.4	85.7	0	0	100	65.5	0	86.7	90.0	100	94.3	0	0	0	100	87.5	81.8
Trucks	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	0	0	0	0	5
% Trucks	0	0	0	0	0	4.8	20.0	0	0	7.3	0	0	10.0	0	1.9	0	0	0	0	0	3.2
Heavys	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
% Heavys	0	0	0	0	0	0	46.7	0	0	12.7	0	0	0	0	0	0	0	0	0	0	4.5
Cyclists	1	2	0	0	3	2	5	1	0	8	0	2	0	0	2	0	1	2	0	3	16
% Cyclists	7.7	50.0	0	0	13.6	9.5	33.3	100	0	14.5	0	13.3	0	0	3.8	0	100	100	0	12.5	10.4

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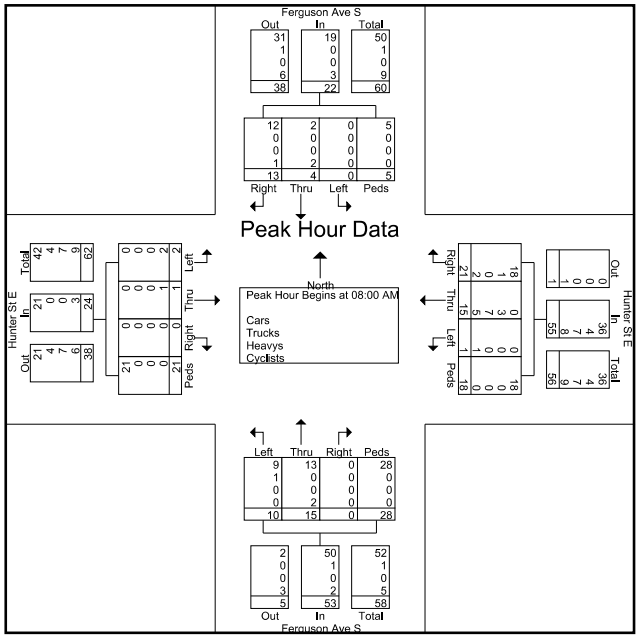
Start Date : 10/19/2023
Page No : 4



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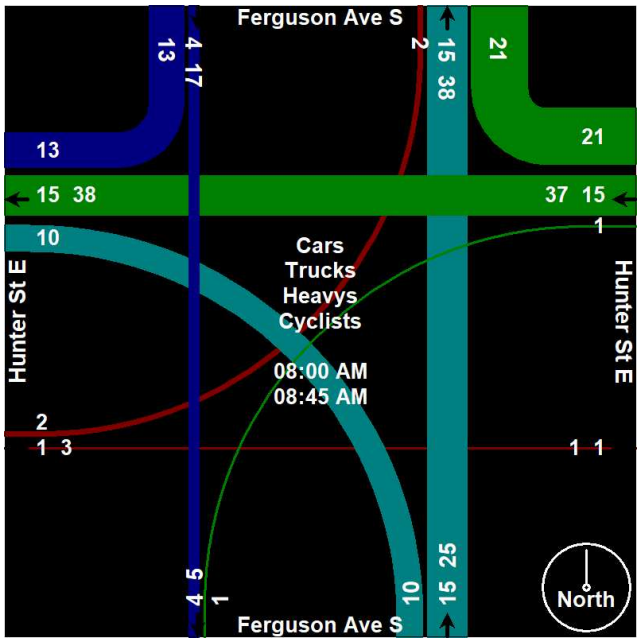

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File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 6

	Ferguson Ave S From North					Hunter St E From East					Ferguson Ave S From South					Hunter St E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:	07:45 AM					08:00 AM					08:00 AM					07:30 AM					
+0 mins.	0	2	0	1	3	1	3	0	**8**	12	0	3	1	**16**	**20**	0	0	**2**	1	3	
+15 mins.	**6**	1	0	0	**7**	5	4	**1**	2	12	0	3	3	2	8	0	**3**	0	6	**9**	
+30 mins.	3	0	0	**3**	6	5	3	0	7	15	0	0	**4**	3	7	0	0	1	5	6	
+45 mins.	2	**3**	0	1	6	**10**	**5**	0	1	**16**	0	**9**	2	7	18	0	1	0	**8**	9	
Total Volume	11	6	0	5	22	21	15	1	18	55	0	15	10	28	53	0	4	3	20	27	
% App. Total	50	27.3	0	22.7		38.2	27.3	1.8	32.7		0	28.3	18.9	52.8		0	14.8	11.1	74.1		
PHF	.458	.500	.000	.417	.786	.525	.750	.250	.563	.859	.000	.417	.625	.438	.663	.000	.333	.375	.625	.750	
Cars	10	2	0	5	17	18	0	0	18	36	0	13	9	28	50	0	0	0	20	20	
% Cars	90.9	33.3	0	100	77.3	85.7	0	0	100	65.5	0	86.7	90	100	94.3	0	0	0	100	74.1	
Trucks	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	0	0	0	0	
% Trucks	0	0	0	0	0	4.8	20	0	0	7.3	0	0	10	0	1.9	0	0	0	0	0	
Heavys	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	
% Heavys	0	0	0	0	0	0	46.7	0	0	12.7	0	0	0	0	0	0	0	0	0	0	
Cyclists	1	4	0	0	5	2	5	1	0	8	0	2	0	0	2	0	4	3	0	7	
% Cyclists	9.1	66.7	0	0	22.7	9.5	33.3	100	0	14.5	0	13.3	0	0	3.8	0	100	100	0	25.9	

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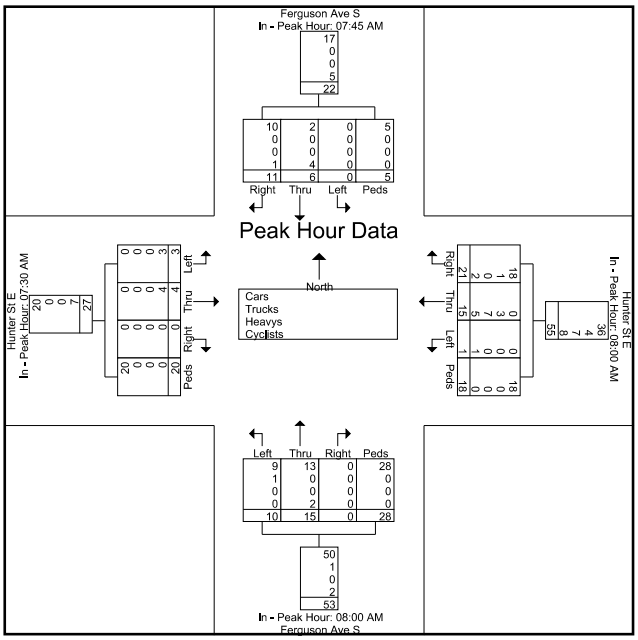
Start Date : 10/19/2023
Page No : 7



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Site Code : 00000000
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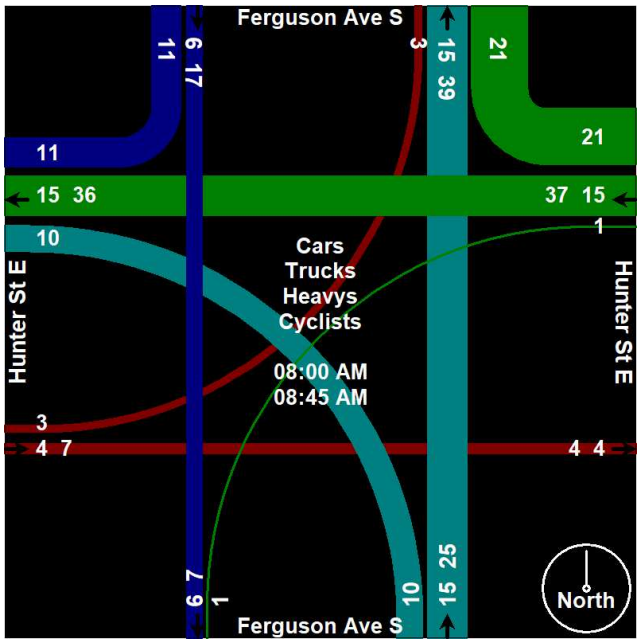
Page No : 8



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File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 9

	Ferguson Ave S From North					Hunter St E From East					Ferguson Ave S From South					Hunter St E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	2	0	4	10	2	**5**	0	**6**	13	0	4	2	6	12	0	1	**1**	4	6	41
04:45 PM	4	3	0	2	9	6	5	0	2	13	0	4	**5**	5	14	0	3	1	3	7	43
05:00 PM	4	4	0	1	9	**7**	5	0	3	**15**	0	4	3	**8**	**15**	0	**5**	0	7	**12**	51
05:15 PM	**5**	**7**	0	**6**	**18**	5	4	0	3	12	0	**5**	1	8	14	0	3	0	**9**	12	**56**
Total Volume	17	16	0	13	46	20	19	0	14	53	0	17	11	27	55	0	12	2	23	37	191
% App. Total	37	34.8	0	28.3		37.7	35.8	0	26.4		0	30.9	20	49.1		0	32.4	5.4	62.2		
PHF	.850	.571	.000	.542	.639	.714	.950	.000	.583	.883	.000	.850	.550	.844	.917	.000	.600	.500	.639	.771	.853
Cars	15	10	0	13	38	16	0	0	14	30	0	14	9	27	50	0	0	1	23	24	142
% Cars	88.2	62.5	0	100	82.6	80.0	0	0	100	56.6	0	82.4	81.8	100	90.9	0	0	50.0	100	64.9	74.3
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavys	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	10
% Heavys	0	0	0	0	0	0	52.6	0	0	18.9	0	0	0	0	0	0	0	0	0	0	5.2
Cyclists	2	6	0	0	8	4	9	0	0	13	0	3	2	0	5	0	12	1	0	13	39
% Cyclists	11.8	37.5	0	0	17.4	20.0	47.4	0	0	24.5	0	17.6	18.2	0	9.1	0	100	50.0	0	35.1	20.4

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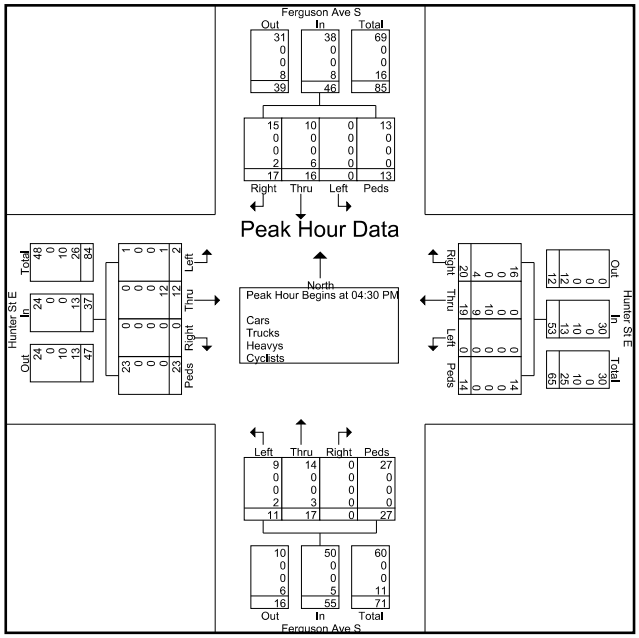
Start Date : 10/19/2023
Page No : 10



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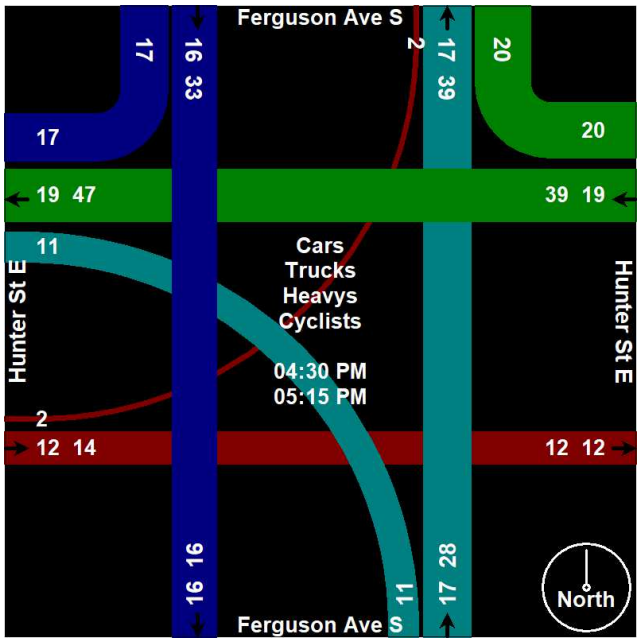
Site Code : 00000000
Start Date : 10/19/2023
Page No : 11



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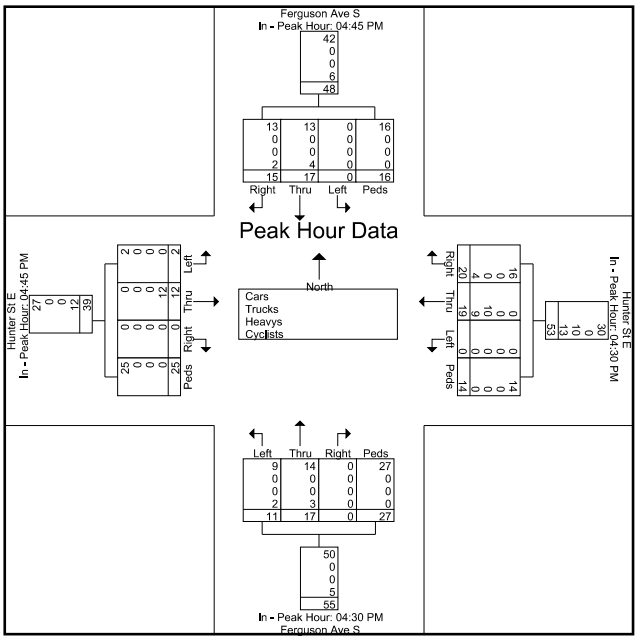
File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 12

	Ferguson Ave S From North					Hunter St E From East					Ferguson Ave S From South					Hunter St E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:45 PM					04:30 PM					04:30 PM					04:45 PM					
+0 mins.	4	3	0	2	9	2	**5**	0	**6**	13	0	4	2	6	12	0	3	**1**	3	7	
+15 mins.	4	4	0	1	9	6	5	0	2	13	0	4	**5**	5	14	0	**5**	0	7	**12**	
+30 mins.	**5**	**7**	0	6	**18**	**7**	5	0	3	**15**	0	4	3	**8**	**15**	0	3	0	**9**	12	
+45 mins.	2	3	0	**7**	12	5	4	0	3	12	0	**5**	1	8	14	0	1	1	6	8	
Total Volume	15	17	0	16	48	20	19	0	14	53	0	17	11	27	55	0	12	2	25	39	
% App. Total	31.2	35.4	0	33.3		37.7	35.8	0	26.4		0	30.9	20	49.1		0	30.8	5.1	64.1		
PHF	.750	.607	.000	.571	.667	.714	.950	.000	.583	.883	.000	.850	.550	.844	.917	.000	.600	.500	.694	.813	
Cars	13	13	0	16	42	16	0	0	14	30	0	14	9	27	50	0	0	2	25	27	
% Cars	86.7	76.5	0	100	87.5	80	0	0	100	56.6	0	82.4	81.8	100	90.9	0	0	100	100	69.2	
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heavys	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	
% Heavys	0	0	0	0	0	0	52.6	0	0	18.9	0	0	0	0	0	0	0	0	0	0	
Cyclists	2	4	0	0	6	4	9	0	0	13	0	3	2	0	5	0	12	0	0	12	
% Cyclists	13.3	23.5	0	0	12.5	20	47.4	0	0	24.5	0	17.6	18.2	0	9.1	0	100	0	0	30.8	

Horizon Data Services Ltd

Email: nhyree@gmail.com
Phone: (416) 840-6619 Fax: (416) 840-5297
"Your Traffic Count Specialist"

File Name : Hunter Street E at Ferguson Avenue S
Site Code : 00000000
Start Date : 10/19/2023
Page No : 13



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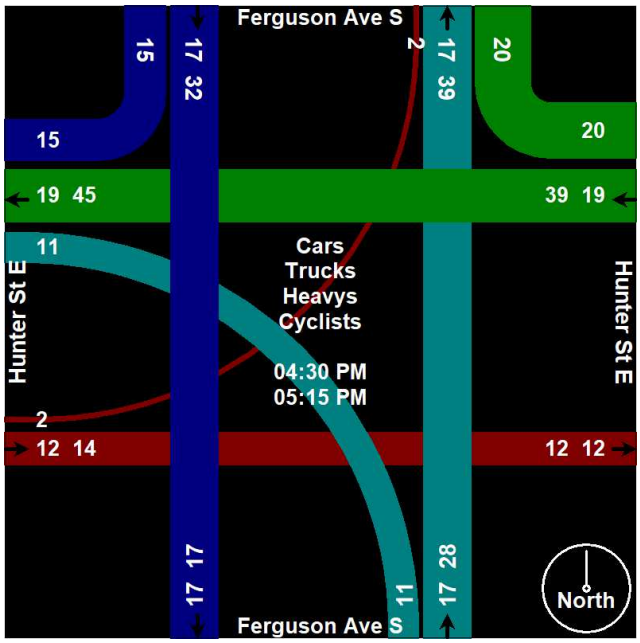

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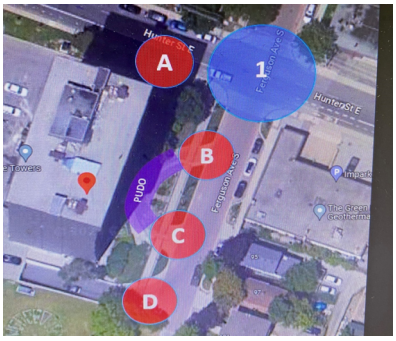

100 Ferguson Avenue S

Driveway Counts

Thursday, October 19th, 2023

AM Period: 0700 to 0900

Time			Driveway - A				Driveway - B				Driveway - C				Driveway - D			
			INs		OUTs		INs		OUTs		INs		OUTs		INs		OUTs	
			Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
7:00	-	7:15				1	1								1			7
7:15	-	7:30					1					2			1			1
7:30	-	7:45													1			1
7:45	-	8:00																3
8:00	-	8:15													1			3
8:15	-	8:30																2
8:30	-	8:45					1					1			1			1
8:45	-	9:00																3
Total			**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**5**	**0**	**0**	**21**

PM Period: 1600 to 1830

Time			Driveway - A				Driveway - B				Driveway - C				Driveway - D			
			INs		OUTs		INs		OUTs		INs		OUTs		INs		OUTs	
			Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
16:00	-	16:15		1		1	1							2	1			1
16:15	-	16:30													4			1
16:30	-	16:45													2			3
16:45	-	17:00	1			1	1							1	1			
17:00	-	17:15		1		1	1						1	1	3			1
17:15	-	17:30		2			1							2	2			1
17:30	-	17:45			1										4			4
17:45	-	18:00					1								2			
18:00	-	18:15			1		1							2	3			2
18:15	-	18:30				1	1								4			1
Total			**1**	**4**	**2**	**4**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**26**	**0**	**0**	**14**

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Parking Survey

Thursday, October 19th, 2023

Time	SURFACE PARKING					GARAGE PARKING					
						P1		P2		Combined Garage	
	Regular	Visitor	Reserved	Combined Surface Parking	% Demand	Regular	% Demand	Regular	% Demand	P1 and P2	% Demand
19:00 - 19:30	7	6	0	13	46%	39	57%	34	45%	73	51%
19:30 - 20:00	8	6	0	14	50%	41	60%	37	49%	78	55%
20:00 - 20:30	8	6	0	14	50%	41	60%	39	52%	80	56%
20:30 - 21:00	9	5	0	14	50%	41	60%	40	53%	81	57%
21:00 - 21:30	9	5	0	14	50%	41	60%	42	56%	83	58%
21:30 - 22:00	11	5	0	16	57%	44	65%	43	57%	87	61%
22:00 - 22:30	10	6	0	16	57%	45	66%	44	59%	89	62%
22:30 - 23:00	10	6	0	16	57%	46	68%	46	61%	92	64%
23:00 - 23:30	9	5	0	14	50%	46	68%	46	61%	92	64%
23:30 - 0:00	10	6	0	16	57%	47	69%	47	63%	94	66%
0:00 - 0:30	10	6	0	16	57%	48	71%	47	63%	95	66%
0:30	10	5	0	15	54%	48	71%	47	63%	95	66%
TOTAL				178		527		512		1039	
MAX				16	57%	48	71%	47	63%	95	66%
MIN				13	46%	39	57%	34	45%	73	51%

PARKING SUPPLY	
Surface	
Regular	14
Visitor	12
Reserved	2
Total	**28**
Garage	
P1	68
P2	75
Total	**143**
Total Parking	**171**

Horizon Data Services Ltd
(416) 840-6619
Your Traffic Count Specialist

100 Ferguson Avenue S

Parking Survey

Friday, October 20th, 2023

Time	SURFACE PARKING					GARAGE PARKING					
						P1		P2		Combined Garage	
	Regular	Visitor	Reserved	Combined Surface Parking	% Demand	Regular	% Demand	Regular	% Demand	P1 and P2	% Demand
19:00 - 19:30	6	6	0	12	43%	39	57%	30	40%	69	48%
19:30 - 20:00	7	4	1	12	43%	38	56%	30	40%	68	48%
20:00 - 20:30	8	4	1	13	46%	42	62%	33	44%	75	52%
20:30 - 21:00	7	4	1	12	43%	39	57%	40	53%	79	55%
21:00 - 21:30	8	5	1	14	50%	43	63%	33	44%	76	53%
21:30 - 22:00	7	6	1	14	50%	44	65%	35	47%	79	55%
22:00 - 22:30	8	6	1	15	54%	46	68%	37	49%	83	58%
22:30 - 23:00	8	6	0	14	50%	47	69%	37	49%	84	59%
23:00 - 23:30	9	5	0	14	50%	46	68%	39	52%	85	59%
23:30 - 0:00	9	5	0	14	50%	47	69%	40	53%	87	61%
0:00 - 0:30	9	5	0	14	50%	47	69%	41	55%	88	62%
0:30	9	4	0	13	46%	47	69%	41	55%	88	62%
			TOTAL	161		525		436		961	
			MAX	15	54%	47	69%	41	55%	88	62%
			MIN	12	43%	38	56%	30	40%	68	48%

PARKING SUPPLY	
Surface	
Regular	14
Visitor	12
Reserved	2
Total	**28**
Garage	
P1	68
P2	75
Total	**143**
Total Parking	**171**

Horizon Data Services Ltd
(416) 840-6619
Your Traffic Count Specialist

100 Ferguson Avenue S

Parking Survey

Saturday, October 21st, 2023

Time	SURFACE PARKING					GARAGE PARKING					
						P1		P2		Combined Garage	
	Regular	Visitor	Reserved	Combined Surface Parking	% Demand	Regular	% Demand	Regular	% Demand	P1 and P2	% Demand
19:00 - 19:30	9	5	0	14	50%	38	56%	31	41%	69	48%
19:30 - 20:00	9	5	0	14	50%	40	59%	34	45%	74	52%
20:00 - 20:30	9	6	0	15	54%	40	59%	34	45%	74	52%
20:30 - 21:00	9	7	0	16	57%	43	63%	34	45%	77	54%
21:00 - 21:30	9	8	0	17	61%	46	68%	36	48%	82	57%
21:30 - 22:00	9	8	0	17	61%	46	68%	36	48%	82	57%
22:00 - 22:30	9	8	0	17	61%	47	69%	34	45%	81	57%
22:30 - 23:00	9	7	0	16	57%	48	71%	35	47%	83	58%
23:00 - 23:30	9	6	0	15	54%	51	75%	36	48%	87	61%
23:30 - 0:00	9	6	0	15	54%	49	72%	36	48%	85	59%
0:00 - 0:30	10	6	0	16	57%	49	72%	37	49%	86	60%
0:30	9	6	0	15	54%	49	72%	37	49%	86	60%
			TOTAL	187		546		420		966	
			MAX	17	61%	51	75%	37	49%	87	61%
			MIN	14	50%	38	56%	31	41%	69	48%

PARKING SUPPLY	
Surface	
Regular	14
Visitor	12
Reserved	2
Total	**28**
Garage	
P1	68
P2	75
Total	**143**
Total Parking	**171**

Walker, Jeff

From: Perez Miller, Giancarlo <Giancarlo.PerezMiller@hamilton.ca>
Sent: June 13, 2023 9:49 AM
To: Walker, Jeff
Cc: Hawash, Khaled
Subject: RE: TMC Request - Hunter Street East at Ferguson Avenue South
Attachments: Hunter & Ferguson + Approaches - 5 yr Collision.xlsx

Hi Jeff,

Unfortunately the count I provide you below is the only count we have in our database at this intersection.

I have attached the 5-yr collision at the subject intersection and all approaches as requested

Regards,

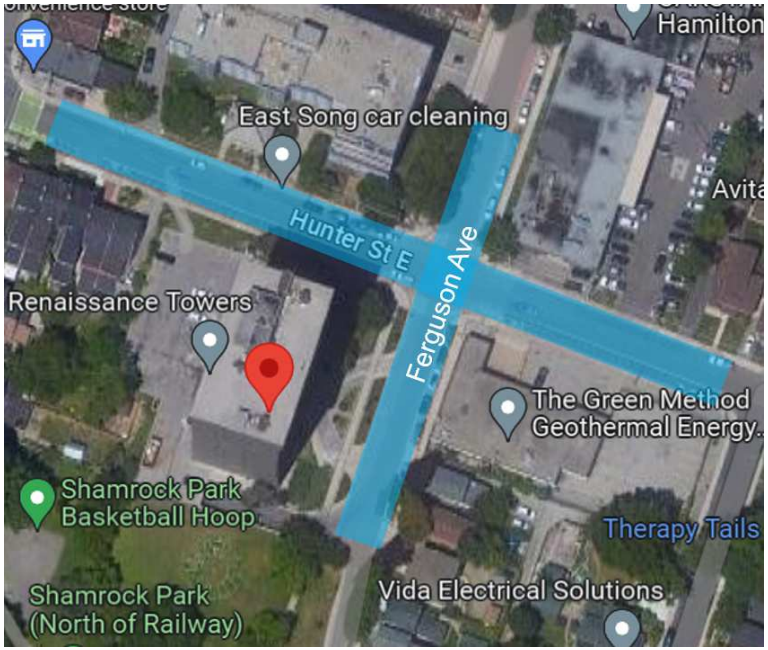
Giancarlo Perez Miller
Database Technologist
Roadway Safety
Transportation Division
Public Works
(905) 546-2424 Ext.2067
Hamilton

From: Walker, Jeff <Jeff.Walker@wsp.com>
Sent: Tuesday, June 13, 2023 8:39 AM
To: Perez Miller, Giancarlo <Giancarlo.PerezMiller@hamilton.ca>
Cc: Hawash, Khaled <Khaled.Hawash@hamilton.ca>
Subject: RE: TMC Request - Hunter Street East at Ferguson Avenue South

Good morning Giancarlo,

Thank you, I appreciate that prompt reply. Do you happen to have a couple other historic years available in addition to the 2019 one below?

Also, would you be the contact person for collision data too? I am wondering if there is any historic five year collision data available for approximately the blue area below.



Thank again and take care,

Jeff Walker, P.Eng.
Project Manager
Transportation Planning & Science
416-644-0419
wsp

From: Perez Miller, Giancarlo <Giancarlo.PerezMiller@hamilton.ca>
Sent: Tuesday, June 13, 2023 8:32 AM
To: Walker, Jeff <Jeff.Walker@wsp.com>
Cc: Hawash, Khaled <Khaled.Hawash@hamilton.ca>
Subject: RE: TMC Request - Hunter Street East at Ferguson Avenue South

Good Morning Jeff,

The following count is available at the subject location:

- TMC 2019 - Ferguson @ Hunter (May 06)

Screenshots of Collision History Data

	B	C	D	E	F	G
1	Location	Road Jurisdiction	Accident Year	Accident Time	Pedestrian Involved	Cyclist Involved
2	FERGUSON AV S @ HUNTER ST E (5124)	01 - Municipal (excl. Twp. Rd.)	2020	18:41	FALSE	FALSE
3	FERGUSON AV S @ HUNTER ST E (5124)	01 - Municipal (excl. Twp. Rd.)	2021	15:05	FALSE	FALSE
4	HUNTER ST E btwn FERGUSON & LIBERTY (8331)	01 - Municipal (excl. Twp. Rd.)	2022	15:10	FALSE	FALSE
5	HUNTER ST E btwn FERGUSON & WALNUT (7771	01 - Municipal (excl. Twp. Rd.)	2022	15:15	FALSE	FALSE
6	HUNTER ST E btwn FERGUSON & LIBERTY (8331)	01 - Municipal (excl. Twp. Rd.)	2022	11:15	FALSE	FALSE
7						
8						
9						

	H	I	J	K	L	M
	Accident Location	Impact Location	Environment Condition 1	Light	Traffic Control	Road 1 Surface Condition
	02 - Intersection related	01 - Within intersection	01 - Clear	08 - Dark, artificial	02 - Stop sign	01 - Dry
	03 - At intersection	01 - Within intersection	01 - Clear	01 - Daylight		05 - Packed snow
	04 - At/near private drive	12 - Off highway	01 - Clear	01 - Daylight	10 - No control	01 - Dry
	04 - At/near private drive	02 - Thru lane	01 - Clear	01 - Daylight	10 - No control	01 - Dry
	01 - Non intersection	02 - Thru lane	01 - Clear	01 - Daylight	10 - No control	01 - Dry

	N	O	P	Q	R
	Vehicle 1 Type	Vehicle 2 Type	Apparent Driver 1 Action	Apparent Driver 2 Action	Driver 1 Condition
	01 - Automobile, station wagon	01 - Automobile, station wagon	08 - Failed to yield right-of-way	01 - Driving properly	01 - Normal
	01 - Automobile, station wagon	01 - Automobile, station wagon			
	01 - Automobile, station wagon				
	01 - Automobile, station wagon	01 - Automobile, station wagon			
	01 - Automobile, station wagon				

	S	T	U	V	W	X
	Driver 2 Condition	Classification Of Accident	Vehicle 1 Initial Direction	Vehicle 2 Initial Direction	Initial Impact Type	Vehicle 1 Manoeuver
	01 - Normal	03 - P.D. only	04 - West	02 - South	02 - Angle	01 - Going ahead
		04 - Non-reportable	01 - North	04 - West	02 - Angle	02 - Slowing or stopping
		04 - Non-reportable	02 - South		06 - SMV unattended vehicle	11 - Parked
		04 - Non-reportable	04 - West	04 - West	04 - Sideswipe	01 - Going ahead
		04 - Non-reportable	04 - West	04 - West	04 - Sideswipe	01 - Going ahead

	Y	Z	AA
	Vehicle 2 Manoeuver	Vehicle 1 First Event	Vehicle 2 First Event
	01 - Going ahead	01 - Other motor vehicle	01 - Other motor vehicle
	01 - Going ahead	01 - Other motor vehicle	01 - Other motor vehicle
		01 - Other motor vehicle	
	13 - Pulling away from shoulder or curb	01 - Other motor vehicle	01 - Other motor vehicle
		01 - Other motor vehicle	

APPENDIX C:

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS AT SIGNALIZED INTERSECTIONS[1]

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. The criteria are given in the table below. Delay may be measured in the field or estimated using software such as Highway Capacity Software. Delay is a complex measure and is dependent upon a number of variables, including quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

Level of Service	Features	Control Delay per vehicle (sec)
A	LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favourable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10 and ≤ 20
C	LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	> 20 and ≤ 35
D	LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, of high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35 and ≤ 55
E	LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.	> 55 and ≤ 80
F	LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	> 80

(1) Highway Capacity Manual 2000

LEVEL OF SERVICE DEFINITIONS AT UNSIGNALIZED INTERSECTIONS[1]

The level of service criteria for unsignalized intersections are given in the table below. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position. The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation.

Level of Service	Features	Average Total Delay (sec/veh)
A	Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation.	≤ 10
B	Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.	> 10 and ≤ 15
C	Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement. This may occasionally impact on the stability of flow on the major street.	> 15 and ≤ 25
D	Long traffic delays occur. Motorists emerging from the minor street experience significant restriction and frustration. Drivers on the major street will experience congestion and delay as drivers emerging from the minor street interfere with the major through movements.	> 25 and ≤ 35
E	Very long traffic delays occur. Operations approach the capacity of the intersection.	> 35 and ≤ 50
F	Saturation occurs, with vehicle demand exceeding the available capacity. Very long traffic delays occur.	> 50

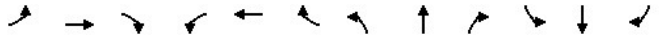
(1) Highway Capacity Manual 2000.

J:\Capacity Appendix\Unsignalized\hcs unsignalized_delay.doc

APPENDIX D:

DETAILED SYNCHRO ANALYSIS SHEETS

HCM Unsignalized Intersection Capacity Analysis <Existing>AM
1: Ferguson Avenue South & Hunter Street East 11-26-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	1	15	21	10	15	0	0	4	13
Future Volume (Veh/h)	2	1	0	1	15	21	10	15	0	0	4	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	1	0	1	18	25	12	18	0	0	5	15
Pedestrians		21			18			28			5	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			2			3			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	48			29			82	83	47	70	70	48
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			29			82	83	47	70	70	48
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	98	100	100	99	98
cM capacity (veh/h)	1565			1553			822	783	975	863	795	995

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	3	10	34	30	20
Volume Left	2	1	0	12	0
Volume Right	0	0	25	0	15
cSH	1565	1553	1700	798	936
Volume to Capacity	0.00	0.00	0.02	0.04	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.9	0.5
Control Delay (s)	4.9	0.7	0.0	9.7	8.9
Lane LOS	A	A		A	A
Approach Delay (s)	4.9	0.2		9.7	8.9
Approach LOS				A	A

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	26.5%	ICU Level of Service	A	
Analysis Period (min)	15			

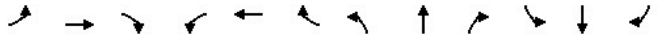
HCM Unsignalized Intersection Capacity Analysis <Existing>AM
2: Ferguson Avenue South & Site Access 11-26-2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	0	2	13	0	5
Future Volume (Veh/h)	12	0	2	13	0	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	14	0	2	15	0	6
Pedestrians	24					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	24	30			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	24	30			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	952	1037	1564			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	17	6
Volume Left	14	2	0
Volume Right	0	0	6
cSH	952	1564	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	8.8	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.9	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	18.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis <Existing>PM
1: Ferguson Avenue South & Hunter Street East 11-26-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	12	0	0	19	21	11	17	0	0	16	17
Future Volume (Veh/h)	1	12	0	0	19	21	11	17	0	0	16	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	14	0	0	22	25	13	20	0	0	19	20
Pedestrians		23			14			27			13	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	60			41			106	103	55	88	90	60
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	60			41			106	103	55	88	90	60
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	97	100	100	98	98
cM capacity (veh/h)	1537			1539			771	759	968	829	771	969

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	15	11	36	33	39
Volume Left	1	0	0	13	0
Volume Right	0	0	25	0	20
cSH	1537	1539	1700	764	861
Volume to Capacity	0.00	0.00	0.02	0.04	0.05
Queue Length 95th (m)	0.0	0.0	0.0	1.1	1.1
Control Delay (s)	0.5	0.0	0.0	9.9	9.4
Lane LOS	A			A	A
Approach Delay (s)	0.5	0.0		9.9	9.4
Approach LOS				A	A

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	26.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis <Existing>PM
2: Ferguson Avenue South & Site Access 11-26-2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	0	0	17	0	13
Future Volume (Veh/h)	11	0	0	17	0	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	13	0	0	20	0	15
Pedestrians	25					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	45	25	40			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	45	25	40			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	950	1035	1550			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	20	15
Volume Left	13	0	0
Volume Right	0	0	15
cSH	950	1550	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Ferguson Avenue South & Hunter Street East

<Future Background>AM
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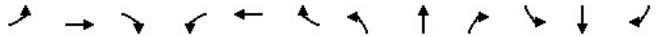

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	6	17	21	32	28	0	0	10	13
Future Volume (Veh/h)	2	1	0	6	17	21	32	28	0	0	10	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	1	0	7	20	25	38	33	0	0	12	15
Pedestrians		21			18			28			5	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			2			3			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	50			29			99	97	47	91	84	48
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	50			29			99	97	47	91	84	48
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			95	96	100	100	98	98
cM capacity (veh/h)	1562			1553			792	766	975	818	779	994

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	3	17	35	71	27
Volume Left	2	7	0	38	0
Volume Right	0	0	25	0	15
cSH	1562	1553	1700	780	885
Volume to Capacity	0.00	0.00	0.02	0.09	0.03
Queue Length 95th (m)	0.0	0.1	0.0	2.4	0.8
Control Delay (s)	4.9	3.0	0.0	10.1	9.2
Lane LOS	A	A		B	A
Approach Delay (s)	4.9	1.0		10.1	9.2
Approach LOS				B	A

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	27.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: Ferguson Avenue South & Site Access

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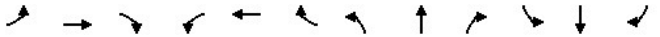
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	0	2	16	0	5
Future Volume (Veh/h)	12	0	2	16	0	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	14	0	2	19	0	6
Pedestrians	24					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	47	24	30			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47	24	30			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	947	1037	1564			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	21	6
Volume Left	14	2	0
Volume Right	0	0	6
cSH	947	1564	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	8.9	0.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	0.7	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	18.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	12	0	12	21	21	23	25	0	0	32	17
Future Volume (Veh/h)	1	12	0	12	21	21	23	25	0	0	32	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	14	0	14	25	25	27	29	0	0	38	20
Pedestrians		23			14			27			13	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	63			41			146	134	55	123	122	61
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	63			41			146	134	55	123	122	61
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	96	100	100	95	98
cM capacity (veh/h)	1533			1539			704	724	968	769	735	966

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	15	26	38	56	58
Volume Left	1	14	0	27	0
Volume Right	0	0	25	0	20
cSH	1533	1539	1700	714	801
Volume to Capacity	0.00	0.01	0.02	0.08	0.07
Queue Length 95th (m)	0.0	0.2	0.0	2.0	1.9
Control Delay (s)	0.5	3.9	0.0	10.5	9.8
Lane LOS	A	A		B	A
Approach Delay (s)	0.5	1.6		10.5	9.8
Approach LOS				B	A

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	26.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	0	0	22	0	13
Future Volume (Veh/h)	11	0	0	22	0	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	13	0	0	26	0	15
Pedestrians	25					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	25	40			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	25	40			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	943	1035	1550			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	26	15
Volume Left	13	0	0
Volume Right	0	0	15
cSH	943	1550	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	19.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Ferguson Avenue South & Hunter Street East

<Future Total>AM
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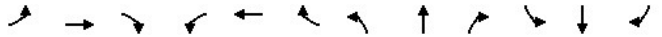

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	10	17	21	40	29	0	0	11	13
Future Volume (Veh/h)	2	1	0	10	17	21	40	29	0	0	11	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	1	0	12	20	25	48	35	0	0	13	15
Pedestrians		21			18			28			5	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			2			3			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	50			29			110	107	47	102	94	48
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	50			29			110	107	47	102	94	48
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	95	100	100	98	98
cM capacity (veh/h)	1562			1553			776	754	975	800	766	994

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	3	22	35	83	28
Volume Left	2	12	0	48	0
Volume Right	0	0	25	0	15
cSH	1562	1553	1700	767	873
Volume to Capacity	0.00	0.01	0.02	0.11	0.03
Queue Length 95th (m)	0.0	0.2	0.0	2.9	0.8
Control Delay (s)	4.9	4.0	0.0	10.3	9.3
Lane LOS	A	A		B	A
Approach Delay (s)	4.9	1.6		10.3	9.3
Approach LOS				B	A

Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	27.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: Ferguson Avenue South & Site Access

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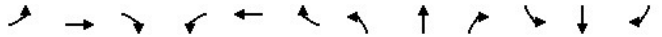
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	0	1	16	0	11
Future Volume (Veh/h)	22	0	1	16	0	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	26	0	1	19	0	13
Pedestrians	24					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	45	24	37			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	45	24	37			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	950	1037	1555			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	20	13
Volume Left	26	1	0
Volume Right	0	0	13
cSH	950	1555	1700
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.9	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	0.4	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	18.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Ferguson Avenue South & Hunter Street East

<Future Total>PM
11-26-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	12	0	20	21	21	36	24	0	0	37	17
Future Volume (Veh/h)	1	12	0	20	21	21	36	24	0	0	37	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	14	0	24	25	25	42	28	0	0	44	20
Pedestrians		23			14			27			13	
Lane Width (m)		3.6			3.7			4.3			4.2	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	63			41			168	154	55	142	142	61
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	63			41			168	154	55	142	142	61
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			94	96	100	100	94	98
cM capacity (veh/h)	1533			1539			670	701	968	742	712	966

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	15	36	38	70	64
Volume Left	1	24	0	42	0
Volume Right	0	0	25	0	20
cSH	1533	1539	1700	682	776
Volume to Capacity	0.00	0.02	0.02	0.10	0.08
Queue Length 95th (m)	0.0	0.4	0.0	2.7	2.2
Control Delay (s)	0.5	4.9	0.0	10.9	10.1
Lane LOS	A	A		B	B
Approach Delay (s)	0.5	2.4		10.9	10.1
Approach LOS				B	B

Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	27.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: Ferguson Avenue South & Site Access

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	0	2	21	0	27
Future Volume (Veh/h)	24	0	2	21	0	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	28	0	2	25	0	32
Pedestrians	25					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	25	57			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	25	57			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	938	1035	1528			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	28	27	32
Volume Left	28	2	0
Volume Right	0	0	32
cSH	938	1528	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	9.0	0.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	0.6	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	19.3%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX E:

ADDITIONAL CITY CORRESPONDENCE

Walker, Jeff

From: Tapp, Liam <Liam.Tapp@hamilton.ca>
Sent: August 22, 2023 9:24 AM
To: Morton, Devon; Nazanin Nooshabadi; Zoning Inquiry
Cc: Ryan Guetter; Adam Santos; Neil Robinson; Walker, Jeff
Subject: RE: FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Good morning Nazanin,

The property is currently within the E District/ S-267 Site Specific within Hamilton Zoning By-Law 6593. You are correct in that 6593 does not have a parking requirement for Barrier Free parking and as such would not be required for this developpment.

Regards,

Liam Tapp
Zoning Examiner
Planning and Economic Development
Planning Division, City of Hamilton
(905) 546-2424 Ext.6884

Hamilton

From: Morton, Devon <Devon.Morton@hamilton.ca>
Sent: Tuesday, August 22, 2023 8:56 AM
To: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>; Zoning Inquiry <zoninginquiry@hamilton.ca>
Cc: Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>; Neil Robinson <neilrrealestate@gmail.com>; Jeff.Walker@wsp.com; Tapp, Liam <Liam.Tapp@hamilton.ca>
Subject: RE: FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Nazanin,

I am lopping in our zoning staff to confirm. Please contact this group for any and all zoning related questions.

Thank you,

Devon M. Morton, MCIP, RPP (he/him/his)
Planner I – Site Plan
Heritage and Urban Design
Planning & Economic Development Department
City of Hamilton, 71 Main St. W., 4th Floor, L8P 4Y5
Ph: (905) 546 2424 ext. 1384
Email: Devon.Morton@hamilton.ca

Hamilton

ABSENCE ALERT: I will be out of office beginning August 25, 2023, returning on September 5, 2023.

From: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>
Sent: Monday, August 21, 2023 5:00 PM
To: Morton, Devon <Devon.Morton@hamilton.ca>
Cc: Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>; Neil Robinson <neilrrealestate@gmail.com>; Jeff.Walker@wsp.com
Subject: RE: FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Devon,

Thank you for your email.
The Zoning By-Law #6593 appears to not have explicit requirements for the supply or dimensions of barrier-free/accessible parking. I want to kindly confirm that By-law #05-200 is not the in-effect By-law for the above-noted site. Also, I would appreciate it if you can let us know if any accessible parking requirements applicable to the site.

Looking forward to hearing from you.

Thanks,

NAZANIN NOOSHABADI, B. ARCH, M. PLAN
PLANNER
PRONOUNS: SHE/HER

VAUGHAN 905.738.8080 x358
TORONTO 416.640.9917 x358
WESTONCONSULTING.COM

WESTON CONSULTING

PLEASE BE ADVISED THAT SUMMER HOURS (OFFICE CLOSURE AT 1PM ON FRIDAYS) ARE IN EFFECT JULY 7th - SEPTEMBER 1st.

From: Morton, Devon <Devon.Morton@hamilton.ca>
Sent: Friday, August 11, 2023 11:36 AM
To: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>
Cc: Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>; Neil Robinson <neilrrealestate@gmail.com>
Subject: RE: FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Nazanin,

The VIA is required whereas the Arch Assessment is not.

Thank you,

Devon M. Morton, MCIP, RPP (he/him/his)
Planner I – Site Plan
Heritage and Urban Design
Planning & Economic Development Department

Walker, Jeff

From: Zoning Inquiry <zoninginquiry@hamilton.ca>
Sent: July 10, 2023 4:07 PM
To: Nazanin Nooshabadi; Kelemen, Jana
Cc: Ryan Guetter; Adam Santos; Emily Li; Neil Robinson; Stefanie Siu Chong; Walker, Jeff
Subject: RE: FCSP Final Doc FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Nazanin,

Please refer to the following sections of Hamilton Zoning By-law 6593:

1. There are no required ratios for long-term and short-term bicycle parking
2. Section 11 for "E" districts, does not appear that an amenity area is required, but review this Section to ensure compliance with other regulations for the "E" district such as landscaped areas
3. Section 18A for parking and loading requirements
4. Also Section 18A for parking and loading requirements

Please use the ratios given in Section 18A and the tables listed below to determine how many parking spaces are required. This will be reviewed during the zoning compliance stage.

If you have any further questions, please reply to this email using zoninginquiry@hamilton.ca or call us at 905-546-2424 Ext.2719

Regards,

Planning Division – Zoning Section (EB)
Planning and Economic Development
City of Hamilton
(905) 546-2424 Ext.2719
zoninginquiry@hamilton.ca
Hamilton

The following provides further resources on general and specific Zoning By-law Information:

https://www.hamilton.ca/build-invest-grow/planning-development/zoning

Link to comprehensive Hamilton Zoning By-law No. 05-200:

https://www.hamilton.ca/build-invest-grow/planning-development/zoning/zoning-by-law-05-200

Link to Zoning By-laws for former municipalities:

- Ancaster Zoning By-law No. 87-57;
- Dundas Zoning By-law No. 3581-86;
- Flamborough Zoning By-law No. 90-145-Z;
- Glanbrook Zoning By-law No. 464;
- Hamilton Zoning By-law No. 6593; and,

- Stoney Creek Zoning By-law No. 3692-92:

https://www.hamilton.ca/build-invest-grow/planning-development/zoning/zoning-by-laws-former-communities

Link to Zoning Verification/Property Report application for purchasing or leasing a property, trying to determine the recognized use, and a written response respecting zoning on the specific property and other information including outstanding building permits, work orders, etc.:

https://www.hamilton.ca/build-invest-grow/starting-small-business/one-stop-business/zoning-verification-and-property-report

For a formal review of site details and other specific Zoning By-law compliance information including parking, setbacks etc., an application can be made for a **Zoning Compliance Review.** For further information on this service, please contact us at 905-546-2424, ext. 2719 or visit:

https://www.hamilton.ca/build-invest-grow/planning-development/zoning/zoning-compliance-review

From: Morton, Devon <Devon.Morton@hamilton.ca>
Sent: Friday, July 7, 2023 11:01 AM
To: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>; Kelemen, Jana <Jana.Kelemen@hamilton.ca>; Zoning Inquiry <zoninginquiry@hamilton.ca>
Cc: Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>; Emily Li <ELi@bdpquadrangle.com>; Neil Robinson <neilrrealestate@gmail.com>; Stefanie Siu Chong <ssiuchong@bdpquadrangle.com>; Jeff.Walker@wsp.com
Subject: RE: FCSP Final Doc FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Nazanin,

By way of this email I am referring you to our zoning staff (cc'd) for assistance.

Thank you,

Devon M. Morton, MCIP, RPP (he/him/his)
Planner I – Site Plan
Heritage and Urban Design
Planning & Economic Development Department
City of Hamilton, 71 Main St. W., 4th Floor, L8P 4Y5
Ph: (905) 546 2424 ext. 1384
Email: Devon.Morton@hamilton.ca
Hamilton

ABSENCE ALERT: I will be out of office beginning August 25, 2023, returning on September 5, 2023.

From: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>
Sent: Friday, July 7, 2023 10:25 AM

To: Morton, Devon <Devon.Morton@hamilton.ca>; Kelemen, Jana <Jana.Kelemen@hamilton.ca>
Cc: Ryan Guetter <rguetter@westonconsulting.com>; Adam Santos <asantos@westonconsulting.com>; Emily Li <ELi@bdpquadrangle.com>; Neil Robinson <neilrrealestate@gmail.com>; Stefanie Siu Chong <ssiuchong@bdpquadrangle.com>; Jeff.Walker@wsp.com
Subject: RE: FCSP Final Doc FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hi Devon and Jana,

Based on the zoning comments, we are updating the site plan to apply for the zoning compliance, and we need the following information:

1. Bicycle parking ratio for long-term and short-term
2. Indoor and outdoor amenity area requirements
3. Staging area requirements if we are to combine the existing and proposed loading spaces
4. 7m clearance is required for the garbage loading area, but does this height have to be continuous? As in can we have a door that is lower in height?

Also, I would appreciate it if you can please confirm for 340 units in total, we require 54 visitor parking spaces and 272 residential parking spaces, totaling to 326 spaces.

Looking forward to hearing from you.

Thanks,

NAZANIN NOOSHABADI, B. ARCH, M. PLAN
PLANNER
PRONOUNS: SHE/HER

VAUGHAN 905.738.8080 x358
TORONTO 416.640.9917 x358
WESTONCONSULTING.COM

WESTON CONSULTING

PLEASE BE ADVISED THAT SUMMER HOURS (OFFICE CLOSURE AT 1PM ON FRIDAYS) ARE IN EFFECT JULY 7th - SEPTEMBER 1st.

From: Morton, Devon <Devon.Morton@hamilton.ca>
Sent: Wednesday, July 5, 2023 2:56 PM
To: Nazanin Nooshabadi <nnooshabadi@westonconsulting.com>
Subject: FW: FCSP Final Doc FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02)

Hello,

Attached is the Formal Consultation Site Plan memo for FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02). Below is a link to the final FCSP Document and appendices for FCSP-23-060 at 100 Ferguson Avenue South, Hamilton (Ward 02).

HGC ENGINEERING

Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203
Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044

Noise and Vibration Feasibility Study
Proposed Residential Development
100 Ferguson Avenue South,
Hamilton, Ontario

Prepared for:

Amelin Property Management
1-155 Balliol Street
Toronto, Ontario
M4S 1C4

Prepared by

Yvonne Lo, MEng, PEng

Reviewed by

Sheeba Paul, MEng, PEng

December 14, 2023

Project Number: 02300666

VERSION CONTROL

Noise and Vibration Feasibility Study,

100 Ferguson Avenue South,

Hamilton, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	December 14, 2023	Noise and Vibration Feasibility Study prepared as part of the approvals process.	Y.Lo/S.Paul

Limitations

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Table of Contents

1 Introduction

HGC Engineering was retained by Amelin Property Management to conduct a noise and vibration feasibility study for a residential development to be located at 100 Ferguson Avenue South, in the City of Hamilton, Ontario. The proposed development is to include one 12-storey residential building and two levels of underground parking. This study has been prepared as part of the approvals process as required by the City of Hamilton.

The primary noise sources impacting the site are rail traffic on the rail line to the south and road traffic on Main Street West, Claremont Access, and Hunter Street. Road traffic data was obtained from City of Hamilton personnel. Rail traffic data was obtained from Metrolinx personnel and HGC Engineering project files originally obtained from Canadian Pacific Railway (CPR) personnel. The data was used to estimate future sound levels (L_{EQ}) at the façades of the proposed residential building. The estimated sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the City of Hamilton.

The results of this study indicate that with suitable noise control measures integrated into the design of the building, it is feasible to achieve the indoor MECP guideline sound levels from road and rail traffic sources. The recommended noise control measures include appropriate wall and window glazing assemblies and a central air conditioning system. Warning clauses will need to be included in the property, tenancy and rental agreements to warn occupants of potentially audible transportation noise levels and of the nearby commercial and religious uses.

An analysis was also conducted to determine the potential noise impact associated with GO train idling at the rail line to the south of the site on the proposed residential building. A computer model of the area was created, using acoustic modelling software, in order to predict the sound levels at locations around the proposed development. Modelling was undertaken based on data from other similar facilities, observations made during site visits and review of aerial photography.

The results indicate that the sound emissions associated with GO train idling at the rail line to the south of the site are expected to be within MECP minimum exclusionary limits without additional mitigation. The results are summarized in the report.

2 Site Description & Noise Sources

The site is located south of Hunter Street East, between Walnut Street and Ferguson Avenue South, specifically at 100 Ferguson Avenue South, in the City of Hamilton, Ontario. Figure 1 shows a key plan of the subject site. A site plan prepared by Quadrangle Architects Ltd. dated November 6, 2023 ("Issued for SPA Submission"), is shown in Figure 2. Figure 2 also indicates the sound level prediction locations. The proposed development will consist of one 12-storey residential building with two levels of underground parking. Appendix A includes the preliminary architectural drawings.

HGC Engineering visited the site in November 2023 to investigate the site and the surrounding land uses. The acoustical environment surrounding the site is urban. The site visit concluded that the significant noise sources impacting the study area are rail traffic on the rail lines to the immediate south and road traffic on Claremont Access, Main Street and Hunter Street. The subject site is currently vacant. There are residential uses to the north and east. There is a commercial building to the northeast and a church to the northwest. Shamrock Park is located to the south of the rail line. Further south are existing commercial/retail uses. Warning clauses will need to be included in the property and tenancy agreements to inform future residents of the traffic noise impacts and sound level excesses and to inform of the proximity to commercial and religious uses, as provided in Section 5.4

There are three rail tracks to the south of the subject site. In the site visit, a GO train was observed to be idling in the middle track and the noise impact from such activities have been assessed in Section 7.

3 Noise Level Criteria

3.1 Road and Rail Traffic

Guidelines for acceptable levels of road and rail traffic noise impacting residential developments are given in the MECP publication NPC-300 "Environment Noise Guideline Stationary and Transportation sources – Approval and Planning", release date October 21, 2013, and are listed in Table I below. The Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) "Guidelines for New Development in Proximity to Railway Operations", dated May 2013 (RAC/FCM guidelines were also reviewed dated November 2006). The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: Road and Rail Noise Criteria (dBA)

	Daytime $L_{EQ(16\ hour)}$ Road/Rail	**Nighttime $L_{EQ(8\ hour)}$ Road/Rail**
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA / 40 dBA	45 dBA / 40 dBA
Inside Bedrooms	45 dBA / 40 dBA	40 dBA / 35 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

Indoor guidelines are 5 dBA more stringent for rail noise than for road noise, to account for the low frequency (rumbling) character of locomotive sound, and its greater potential to transmit

through exterior wall/window assemblies.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom windows or living/dining room windows exceed 60 dBA or daytime sound levels outside living/dining room and bedroom windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at bedroom and living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at living/dining room and bedroom windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of bedroom window sound level is greater than 55 dBA due to nighttime and greater than 60 dBA during the daytime hours due to rail traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to rail traffic.

MECP and railway guidelines require brick veneer or a masonry equivalent exterior wall construction from foundation to rafters for any dwellings with a 24 hour L_{EQ} that is greater than 60 dBA, and which are within 100 m of the right of way of the railway.

The railways also provide minimum requirements for safety as well as sound and vibration for proposed residential developments located adjacent to their rights-of-way. These refer to minimum required setbacks, berms, fencing and warning clauses. The reader is referred to a copy of CP and Metrolinx requirements for a new development adjacent to a principal mainline, included in Appendix B.

4 Traffic Noise Assessment

4.1 Road Traffic Data

Projected traffic data for Main Street, Claremont Access and Hunter Street was obtained from the City of Hamilton. Data was provided in the form of current Annual Average Daily Traffic (AADT) volumes and are provided in Appendix C. The traffic volumes were grown to the year 2034 using a growth rate of 2.5% per year. A vehicle percentage of 2% medium trucks and 2% heavy trucks was applied for Main Street. A commercial vehicle percentage of 8% medium trucks and 9% heavy trucks was applied for Claremont Access. A commercial vehicle percentage of 2% medium trucks and 4% heavy trucks was applied for Hunter Street. A day/night split of 90%/10% was used for all roads. Table II summarizes the road traffic data used in the analysis.

Ferguson Avenue was observed to be a low traffic roadway and was confirmed through correspondence with City of Hamilton personnel. Noise from road traffic on Ferguson Avenue is therefore not considered further in the study.

Table II: Forecasted Road Traffic Data (2034)

Road Name		Cars	Medium Trucks	Heavy Trucks	Total	Speed Limit
Main Street	Daytime	26 950	561	561	28 073	50
	Nighttime	2 994	62	62	3 119	
	Total	**29 945**	**624**	**624**	**31 192**	
Claremont Access	Daytime	19 320	1 862	2 095	23 277	70
	Nighttime	2 147	207	233	2 586	
	Total	**21 467**	**2 069**	**2 328**	**25 864**	
Hunter Street	Daytime	3 545	75	151	3 772	40
	Nighttime	394	8	17	419	
	Total	**3 939**	**84**	**168**	**4 191**	

4.2 Rail Traffic Data

Rail traffic volumes were obtained from Metrolinx and HGC Engineering project files for recent projects along the same rail line and are attached in Appendix D. This rail line is used for passenger and freight trains and is classified as a principal main line. In conformance with Metrolinx and railway assessment requirements, maximum speeds, maximum number of cars

and locomotives per train were used in the traffic noise analysis to yield a worst case estimate of train noise. All GO Trains were modelled as diesel trains. Traffic data used in the analysis is shown in Table III.

Table III: Projected Rail Traffic Data to Year 2034

Rail Line	Type of Train	Number of locomotives	Number of cars	Max Speed (km/h)	Current Volume Day/Night	Projected Daytime (07:00-23:00) Trains	Projected Nighttime (23:00-07:00) train
CP	Freight	4	150	32	5 / 5	7.6	7.6
GO	Passenger	1	4	40	--	7	1

4.3 Traffic Noise Predictions

To assess the levels of road and rail traffic noise which will impact the subject site in the future, sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix E.

Predictions of the traffic sound levels were made at various façades with exposure to the traffic noise sources, as shown in Figure 2. The results of these predictions are summarized in Table IV. The acoustic recommendations will be subject to modifications if the building envelope or heights are changed significantly. The worst case prediction locations were chosen at the top floors of the proposed building, to investigate ventilation and building façade construction requirements and in the outdoor amenity area to investigate acoustic barrier requirements.

Table IV: Predicted Future Sound Levels, [dBA]

Prediction Location	Description	Daytime Road/Rail/Total $L_{EQ(16)}$	Nighttime – Road/Rail/Total $L_{EQ(8)}$
A	South Façade	59 / 65 / 66	52 / 67 / 68
B	East Façade	63 / 60 / 65	56 / 56 / 59
C	North Façade	61 / <55 / 61	55 / <50 / 55
D	West Façade	55 / 60 / 61	<50 / 56 / 57
E	G/F Amenity Space	<55 / 60 / 60	--

.

5 Discussion & Recommendations

The following discussion outlines preliminary recommendations for acoustic barriers, building façade constructions, ventilation requirements, and noise warning clauses to achieve the noise criteria stated in Table I.

5.1 Outdoor Living Areas

The predicted sound level in the outdoor amenity area on the south side at grade (Prediction Location [E]) will be 60 dBA, 5 dBA in excess of the MECP's limit of 55 dBA. Further physical mitigation will not be required. This 5 dBA excess is acceptable to the MECP and the City with the inclusion of a noise warning clause and is within the discretionary range.

The dwelling units within the proposed development may have balconies and patios that are less than 4 m in depth. These areas are not considered to be outdoor amenity areas under MECP guidelines, and are therefore exempt from traffic noise assessment.

5.2 Indoor Living Areas & Ventilation Requirements

The predicted nighttime sound levels exceed 60 dBA and the daytime levels exceed 65 dBA at some of the proposed building façades. To address these traffic noise excesses, MECP guidelines recommend that the residential suites be equipped with central air conditioning to allow windows to remain closed.

In general, window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those that are housed in their own closet with an access door for maintenance. Any outdoor air conditioning unit or rooftop mechanical units should be located, installed, and selected with an appropriate sound emission rating to comply with MECP guidelines NPC-300.

5.3 Building Façade Constructions

Predicted sound levels at the building facades were used to determine sound insulation requirements of the building envelope. Future daytime sound levels at the façades of the proposed building will exceed 65 dBA during the daytime and/or 60 dBA during the nighttime. MECP guidelines recommend that the windows, walls and doors be designed so that the indoor sound levels comply with MECP noise criteria.

Exterior Wall Construction

Brick veneer or a masonry equivalent construction is required for the proposed building façades with exposure to the rail line (i.e. south, east and west façades) such that noise entering the buildings through the exterior wall is negligible compared to the windows to allow for less stringent glazing requirements.

Exterior Doors

Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation as long as the exterior doors do not lead to living/dining rooms or bedrooms. If patio doors are to be used in the dwellings, they must be included in the window area.

Acoustical Requirements for Glazing

Assuming a typical window to floor area of 50% for the living/dining rooms (40% fixed and 10% operable) and 25% for the bedrooms (20% fixed and 5% operable), the minimum acoustical requirement for the glazing in fixed sections, sliding doors, and operable windows, is shown in Table V, for each façade. Note that these are minimums for the entire assembly (including patio doors, awning windows, and mullions) and that test data should be provided to verify. The

calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the area ratios of the facade components (windows and walls) and the floor area of the adjacent room.

Since the proposed development is located in an urban environment with high background sound levels from the adjacent roadways and railways, the minimum acoustical requirement for the glazing is recommended to be STC-33 to address spurious environmental noises that have not been specifically modelled.

Table V: Minimum STC Requirements for Glazing at Specific Façades

Façade	Space	Glazing STC[1, 2]
South	Living/Dining	STC-33
	Bedroom	STC-35
East	Living/Dining	STC-33
	Bedroom	STC-33
North	Living/Dining	STC-33
	Bedroom	STC-33
West	Living/Dining	STC-33
	Bedroom	STC-33

Note:

[1] Based on 50% window to floor area ratio for living/dining rooms and 25% window to floor area ratio for bedrooms, typical.
[2] STC requirement refers to installed performance, including sound transmitted through mullions in window-wall systems and seals on operable windows and doors. Test data should be provided where available.
OBC – any construction meeting the minimum requirements of the Ontario Building Code

Sample window assemblies which may achieve the STC requirements are summarized in Table VI below. Note that acoustic performance varies with manufacturer's construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required. Acoustical test data for the selected assemblies should be requested from the supplier, to ensure that the stated acoustic performance levels will be achieved by their assemblies.

Table VI: Window Constructions Satisfying STC Requirements

STC Requirement	Sample Glazing Configuration (STC)
28 – 29	Any double glazed unit
30 – 31	3(13)3
32 – 33	4(10)4
34	4(19)4

In Table VI, the numbers outside the parentheses indicate minimum pane thicknesses in millimetres and the number in parentheses indicates the minimum inter-pane gap in millimetres. "L" indicates a laminated pane. OBC indicates any glazing construction meeting the minimum requirements of the Ontario Building Code.

Operable sections include sliding glass doors and operable windows, and provided that they include a good seal, will not significantly affect overall performance. Operable windows and sliding glass doors must be well-fitted and weather-stripped.

Further Analysis

When detailed floor plans and building elevations showing the extent of sliding doors, windows and spandrel sections are available, the glazing requirements should be refined based on actual window to floor area ratios.

5.4 Warning Clauses

MECP guidelines recommend that appropriate warning clauses be used in the Development Agreements and in purchase, sale and lease agreements (typically by reference to the Development Agreements), to inform future owners and occupants about noise concerns from transportation sources in the area. The following clauses are recommended:

(a) Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and rail traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment, Conservation and Parks.

(b) This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Ministry of Environment, Conservation and Parks' noise criteria.

(c) Purchasers/tenants are advised that due to the proximity of the existing commercial and religious facilities, noise from these facilities may at times be audible.

(d) Warning: Metrolinx and its assigns and successors in interest operate commuter transit service within 300 metres from the subject land. In addition to the current use of these lands, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx or any railway assigns or successors as aforesaid may expand their operations, which expansion may affect the environment of the occupants in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual units. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under these lands.

(e) Warning: Canadian Pacific Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land subject hereof. There may be alteration to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. CPR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

6 Ground Borne Vibration Assessment

Metrolinx requires an assessment of ground-borne vibration through measurement if residential building foundations are to be located within 75 metres of the right-of-way. Measurements were performed 30 m away from the railway right of way to the south, representing the location of the closest future building façade. The vibration measurement location (V1) is shown on Figure 2.

The vibration measurements were conducted using a Svantek SV977 Sound and Vibration Metre outfitted with a Wilcoxon Research type 793V velocity transducer correctly field calibrated before and after the measurements between November 13, 2023 to November 16, 2023. The weather conditions were fair and the temperature ranged between 2 to 10°C.

The results are plotted as Figures 3 to 7. Table VII shows the maximum RMS vibration velocity measurements during each of the train pass-bys.

Table VII: Maximum RMS Vibration Velocity Measurements of Train Pass-bys

Train Pass-by	Measurement Location	Measured Level (mm/s)	Criteria (mm/s)
1	V1 (Property Line) – Freight	0.02	0.14
2	V1 (Property Line) – Freight	0.03	
3	V1 (Property Line) – Freight	0.02	
4	V1 (Property Line) – Freight	0.02	
5	V1 (Property Line) – Freight	0.03	

The results indicate that the vibration levels are below the criteria during the train pass-bys and vibration mitigation measures are not required.

7 Stationary Noise Assessment

7.1 Criteria for Stationary Sources of Sound

There are three tracks on the rail line to the south of the site and the two closest tracks are part of the Metrolinx rail line that services the Hamilton GO Centre Station approximately 400 m to the east. While on site, HGC personnel observed a GO Train idling on the middle track in the vicinity of the site. Train idling is considered a stationary noise source that requires assessment under MECP guidelines.

The Ministry of the Environment, Conservation and Parks (MECP) provides guidelines for the assessment of stationary noise sources. NPC-300 "Environment Noise Guideline Stationary and Transportation sources – Approval and Planning" referenced with regard to traffic noise is also intended for use in the planning of noise sensitive land uses adjacent to residential buildings.

The criteria is based on the background sound level at sensitive points of reception (which are typically residences) in the quietest hour that the source can be in operation. Background sound includes sound from road traffic and natural sounds, but excludes the sources under assessment. For relatively quiet areas where background sound may fall to low levels during some hours, NPC-300 stipulates various minimum limits. In Class 1 areas, these limits are 50 dBA for daytime periods (07:00 to 23:00) and 45 dBA at night (23:00 to 07:00).

Source sound levels for train idling and assumed operational information (outlined below) were used as input to a predictive computer model (*Cadna-A version 2023 MR1 (32 bit) : build 197.5343*), in order to estimate the sound levels from the rail line to the south at the proposed development. The computer model is based on the methods from ISO Standard 9613-2.2, "Acoustic – Attenuation of Sound During Propagation Outdoors", which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures. Although the train was observed to idle for 15 minutes in the vicinity of the site during the site visit, the train was conservatively assumed to idle for 60 minutes during the daytime and nighttime hours in the model.

7.2 Assessment of Existing Stationary Noise Sources and their Impact on Proposed Sensitive Receptors

A sound power level of 94 dBA was estimated for the idling of a GO train based on industry accepted sound levels. The results of this assessment indicate a maximum predicted sound level of 45 dBA during the daytime and nighttime at the proposed building. These predicted sound levels are at or less than the MECP minimum exclusionary limit of 50 dBA during the daytime hours and 45 dBA during the nighttime hours, based on a typical worst-case operating scenario.

It is concluded that sound from train idling at the rail line to the south of the site is anticipated to comply with the MECP guidelines at the proposed building and physical mitigation is not

required.

8 Impact of the Development on Itself

Section 5.9.1 of the Ontario Building Code (OBC) specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls should meet or exceed STC-50. Walls separating a suite from a noisy space such as a refuse chute, or elevator shaft, should meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

9 Summary of Recommendations

Sound levels due to road and rail traffic will exceed MECP guidelines at the facades of the proposed residential building. The following recommendations and Table VIII are provided with regard to noise mitigation.

For transportation noise sources

1. Central air conditioning systems are required for the proposed building. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300, as applicable.

2. Upgraded glazing and exterior façade constructions will be required at proposed building as specified in Section 5.3. When detailed floor plans and building elevations are available, an acoustical consultant should provide revised glazing constructions based on actual window to floor area ratios and to confirm the use of brick veneer or masonry equivalent construction for exterior walls.

3. Warning clauses should be used to inform future owners of the road and rail traffic noise issues and the presence of nearby commercial/religious facilities.

Table VIII: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Description	Acoustic Barrier	Ventilation Requirements*	Warning Clause	Brick Exterior Wall Construction	Upgraded Glazing Constructions
A	South Façade	--	Central Air Conditioning	A, B, C, D, E	✓	See Table V
B	East Façade	--			✓	
C	North Façade	--			OBC	
D	West Façade	--			✓	
E	G/F Amenity Space	--	--	--	--	--

Notes:
-- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
OBC – Ontario Building Code
✓ Brick veneer or a masonry equivalent exterior wall construction.

For stationary noise sources

1. The predicted sound levels from GO trains idling at the rail line to the south of the site will be below the MECP minimum exclusionary limits. Physical mitigation will not be required.

2. Tarion Builder's Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and

amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the City of Hamilton noise by-law.

10 Implementation

To ensure that the noise control recommendations outlined above are properly included in the building design and properly implemented in the final construction, it is recommended that:

1) When detailed floor plans and building elevations are available, the exterior wall and glazing construction should be verified and refined based on actual window to floor area ratios.

2) Prior to the issuance of occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to provide acoustical engineering services in the Province of Ontario to certify that the noise control measures for the buildings have been properly incorporated, installed and constructed.

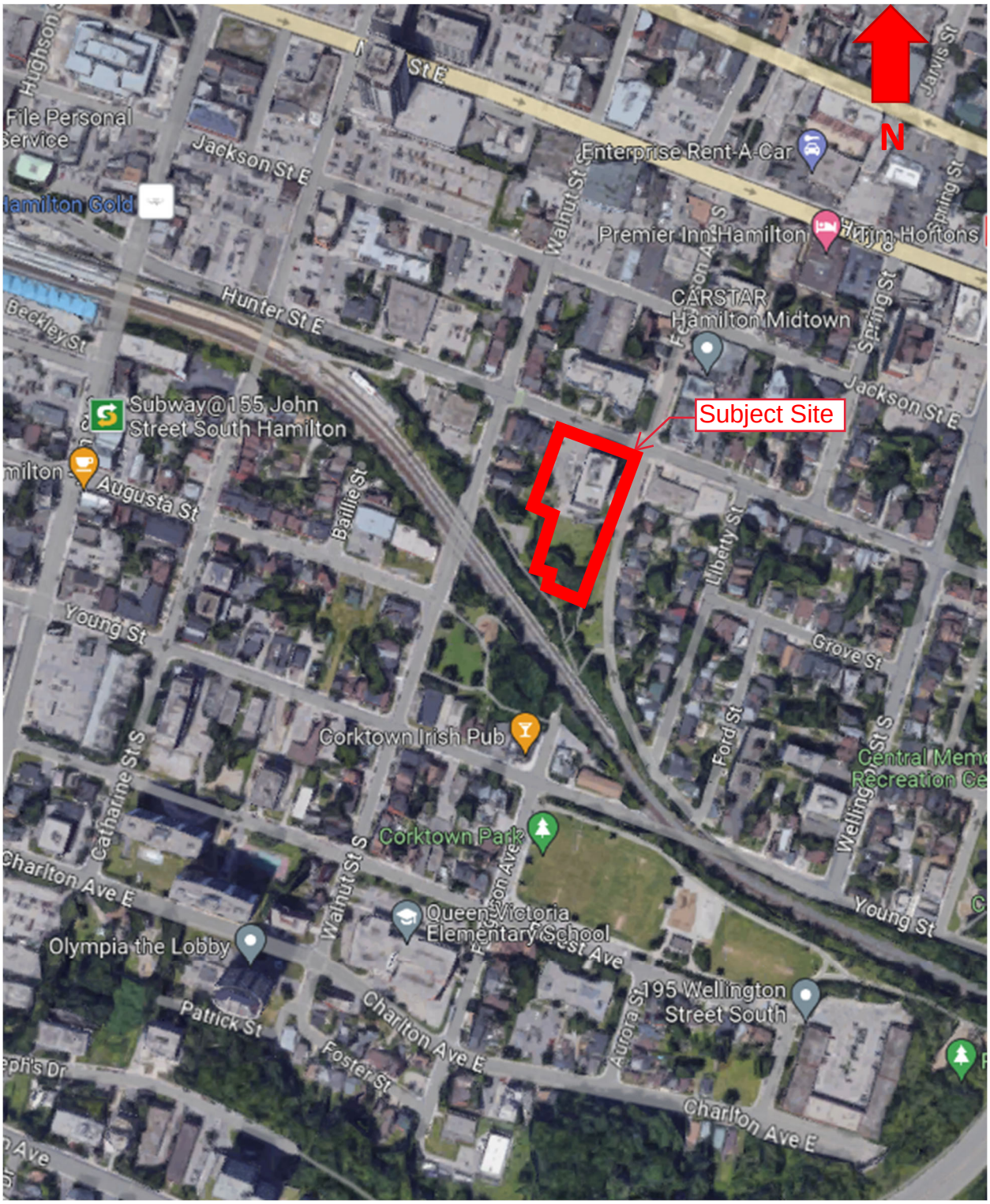
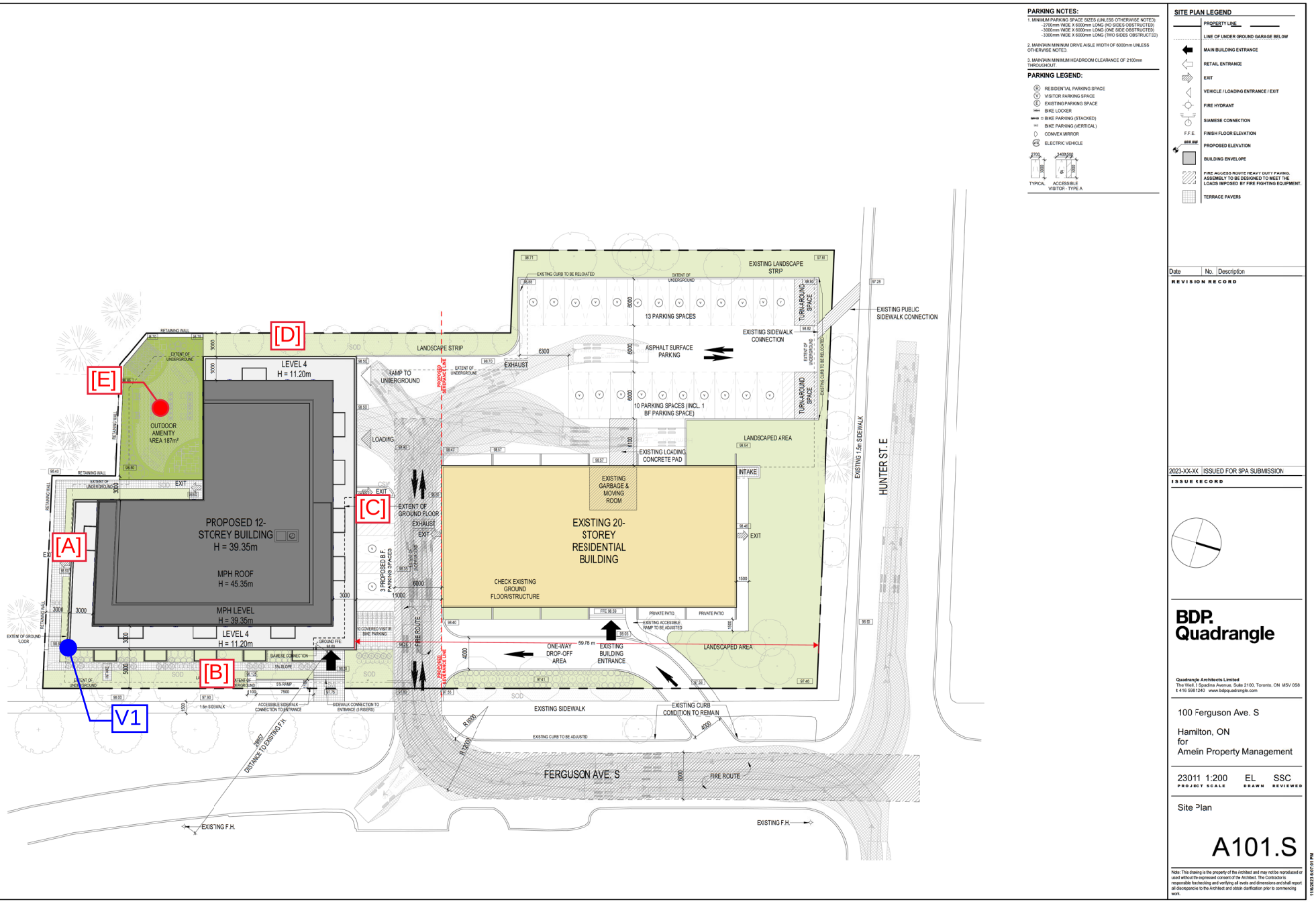


Figure 1: Key Plan



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   - 3000mm WIDE X 6000mm LONG (ONE SIDE OBSTRUCTED)
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2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6000mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

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- (V) VISITOR PARKING SPACE
- (E) EXISTING PARKING SPACE
- BIKE LOCKER
- = BIKE PARKING (STACKED)
- BIKE PARKING (VERTICAL)
- CONVEX MIRROR
- ELECTRIC VEHICLE

TYPICAL — ACCESSIBLE VISITOR - TYPE A

SITE PLAN LEGEND

- PROPERTY LINE
- LINE OF UNDER GROUND GARAGE BELOW
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION
- F.F.E. FINISH FLOOR ELEVATION
- PROPOSED ELEVATION
- BUILDING ENVELOPE
- FIRE ACCESS ROUTE HEAVY DUTY PAVING. ASSEMBLY TO BE DESIGNED TO MEET THE LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT.
- TERRACE PAVERS

Date	No.	Description

REVISION RECORD

2023-XX-XX | ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

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The Well, 1 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 5981240 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1:200	EL	SSC
PROJECT	SCALE	DRAWN	REVIEWED

Site Plan

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Figure 2: Proposed Site Plan Showing Prediction Locations

Figure 3a: Pass-by 1
Measured Vibratory Velocity Level

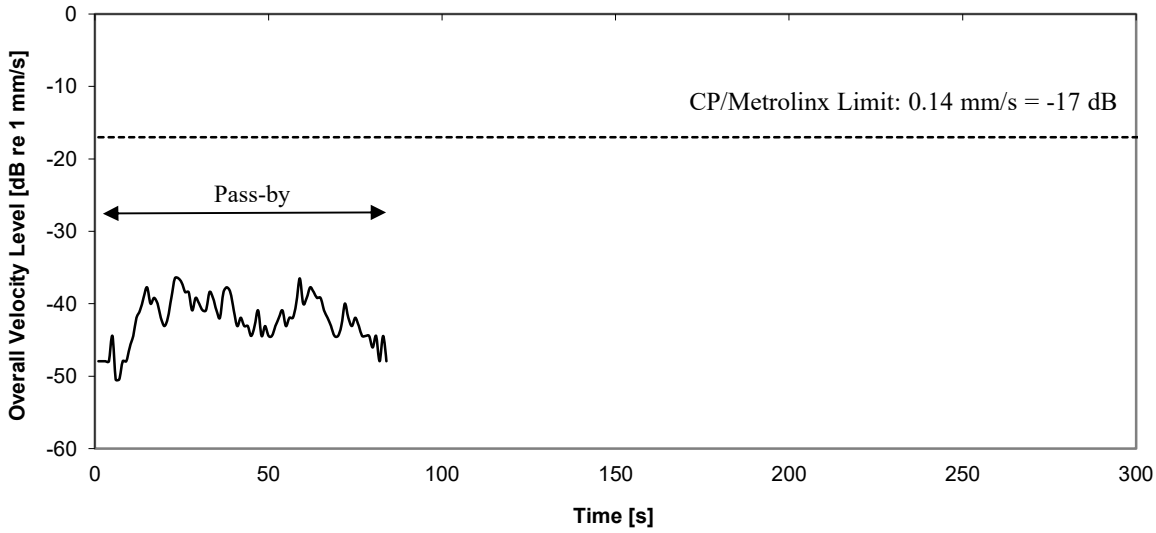


Figure 3b: Pass-by 1
Acceleration Spectrum @ Peak Level (1 sec. Duration)

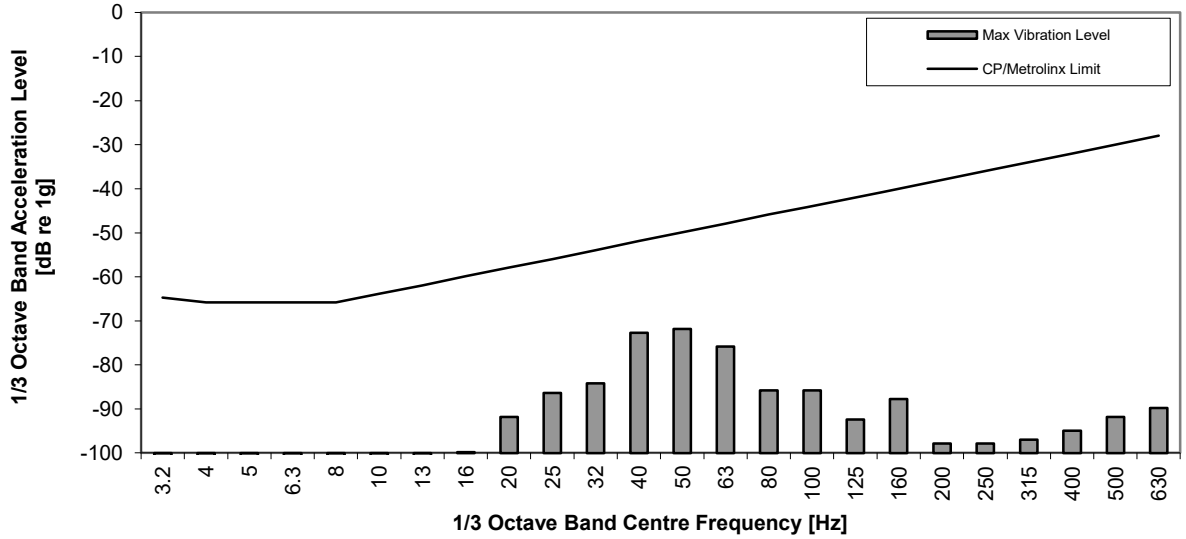


Figure 4a: Pass-by 2
Measured Vibratory Velocity Level

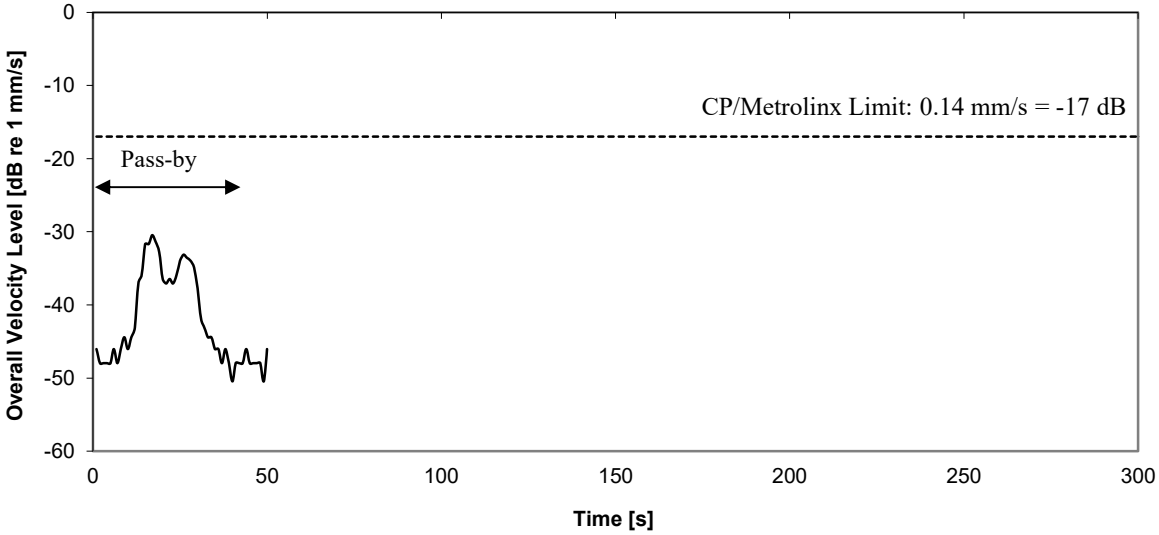


Figure 4b: Pass-by 2
Acceleration Spectrum @ Peak Level (1 sec. Duration)

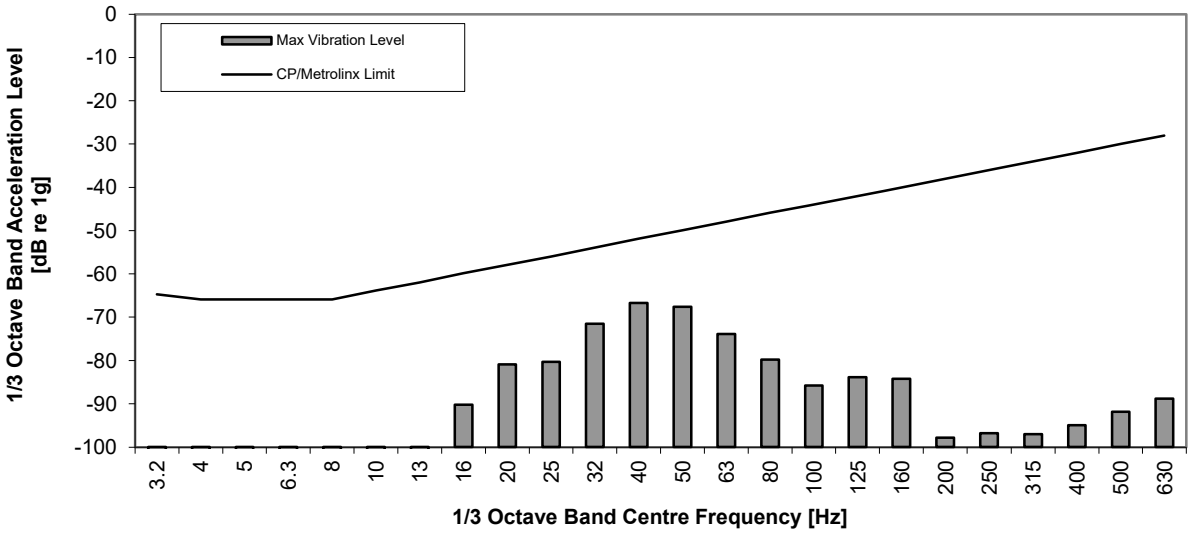


Figure 5a: Pass-by 3
Measured Vibratory Velocity Level

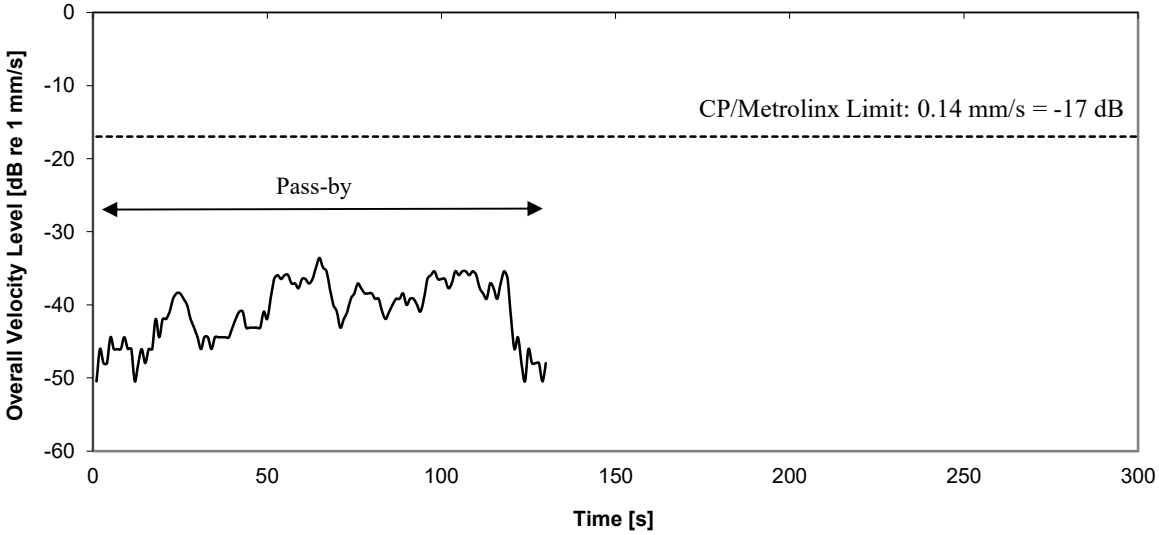


Figure 5b: Pass-by 3
Acceleration Spectrum @ Peak Level (1 sec. Duration)

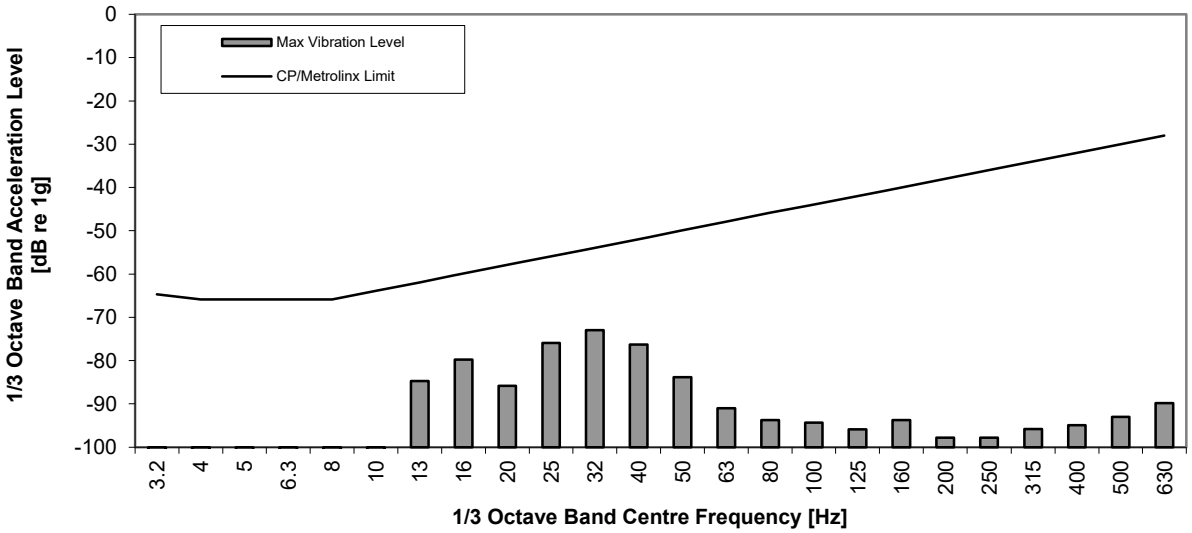


Figure 6a: Pass-by 4
Measured Vibratory Velocity Level

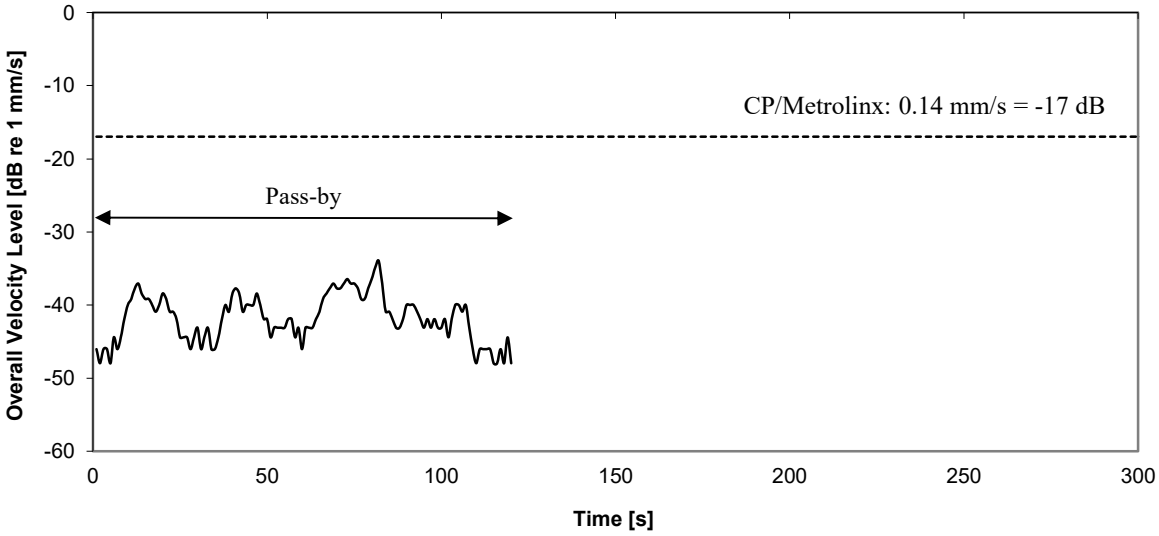


Figure 6b: Pass-by 4
Acceleration Spectrum @ Peak Level (1 sec. Duration)

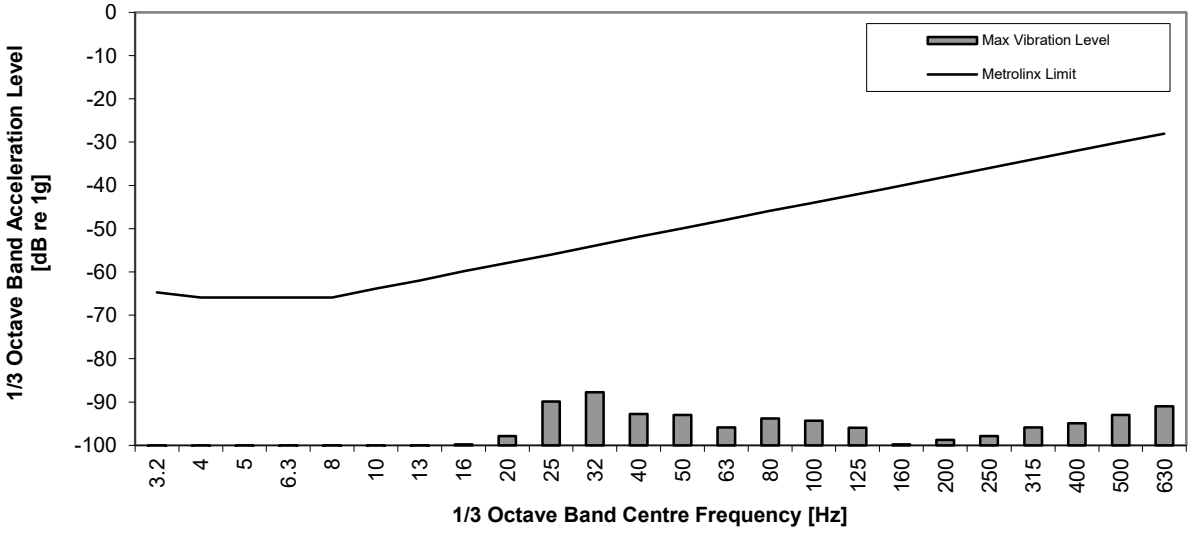


Figure 7a: Pass-by 5
Measured Vibratory Velocity Level

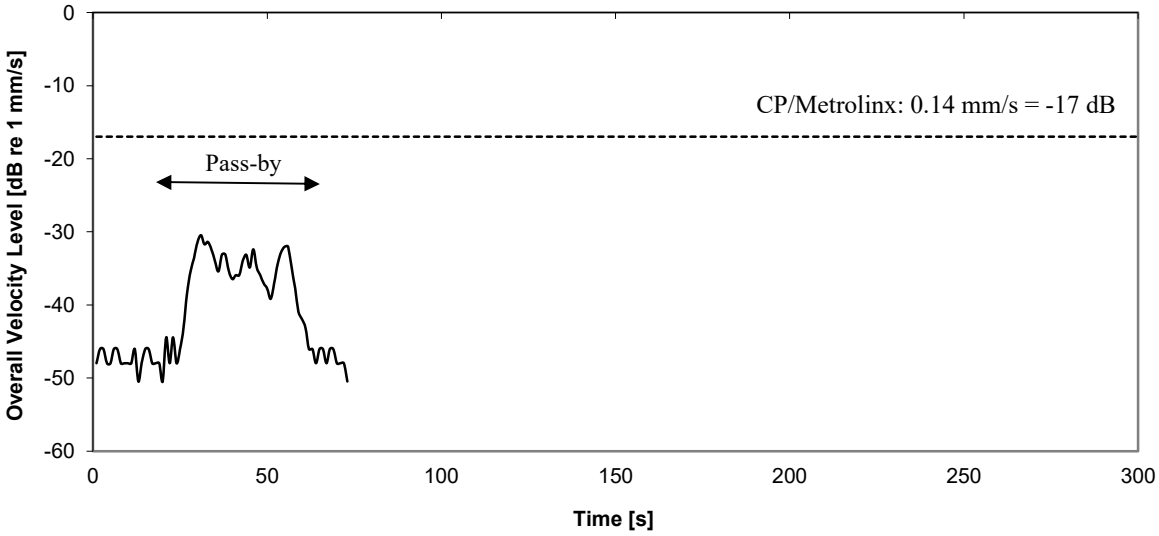
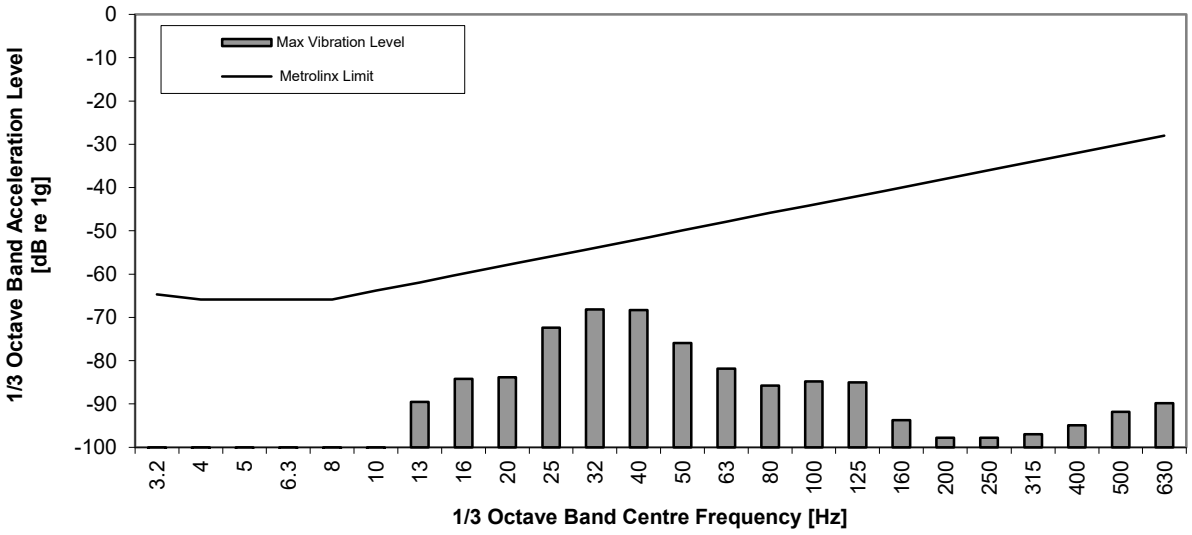


Figure 7b: Pass-by 5
Acceleration Spectrum @ Peak Level (1 sec. Duration)



APPENDIX A

Supporting Documents

BDP.
Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON

for
Amelin Property Management

Project No. 23011
Date 2023-XX-XX
Issued for SPA Submission

ARCHITECTURAL DRAWINGS

STRUCTURAL ENGINEER

Structural Engineer

MECHANICAL & ELECTRICAL ENGINEER

Acoustic Engineer

URBAN DESIGN & LANDSCAPE ARCHITECT

Landscape Architect

BDP Quadrangle

100 Ferguson Ave. S

STATISTICS

29 August 2023

	Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	Total GBA (sm)	Exemptions (sm)	By-Law 6593 GFA (Residential) sm	sf	B	1B	1B+D	2B	2B+D	3B	Total Suites	Amenity Area (sm) Residential Interior	Exterior
ABOVE GRADE																
	MPH Level	501	1	501	311	191	*2,052*								175	159
	Level 5-12	750	8	6003	975	5,028	*54,118*	24	8	8	56			96		
	Level 4	750	1	750	122	628	*6,765*		2	1	8			11		
	Level 3	1,035	1	1035	130	905	*9,738*		7	1	6		2	16		
	Level 2	980	1	980	131	850	*9,145*		3	1	5		2	11	170	24
	Ground Floor	1,042	1	1042	204	838	*9,023*		1		2		2	5	45	196
	TOTAL ABOVE GRADE			10,312		8,439	*90,841*	24	21	11	77		6	**139**	**390**	**379**
								17.3%	15.1%	7.9%	55.4%		4.3%			
								Barrier-Free Units (15% of each unit type)								
								4	4	2	12		1			
BELOW GRADE	P1 Level	2,872	1	2872	2,359	13	*138*									
	P2 Level	2,961	1	2961	2,749	211	*2,276*									
	TOTAL BELOW GRADE					224	*2,414*									

AREA TOTALS & FSI							
Lot Area*	**4,864**	*sm*					
	52,358	*sf*	**TOTAL Proposed Building GFA =**	**8,664**	**sm**	*93,255*	*sf*
Landscaped Area	**1,239**	sm	**Existing Building GFA=**	**12,849**	**sm**		
	25%	*of lot area*	**Res FSI=**	**4.4**			

Number of Units								Amenity Area (sm) Residential	
B	1B	1B+D	2B	2B+D	3B	Total Suites		Interior	Exterior
						EXISTING BUILDING UNIT COUNT	210		
						TOTAL UNIT COUNT	**349**	0	
								390	**379**
								TOTAL	
								769	

NOTE:
As per By-law 6593, Gross Floor Area is reduced by:
Parking, Equipment rooms, Elec, Utility, Mech and Ventilation rooms, Elevator shafts (incl. wall), Garbage shafts and pipe shafts, Mech. Penthouse, Corridors, and Exit stairwells. Deductions are measured to the centre of interior walls and to the outside of the exterior walls, unless otherwise noted.

VEHICULAR PARKING		Existing	Proposed	Visitor	Resident	Loading Spaces	
	Ground Floor	27	-1	26		Small (9m x 3.7m x 4.3m)	1
	P1 Level	68	1		69	Large (18m x 3.7m x 4.3m)	1
	P2 Level	74	1		75		
	Subtotal	169	1	26	144	Total	2
	Total	170					

BICYCLE PARKING		Visitor	Resident
	Ground Floor	18	N/A

Date No. Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
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100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

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PROJECT SCALE DRAWN REVIEWED

Statistics

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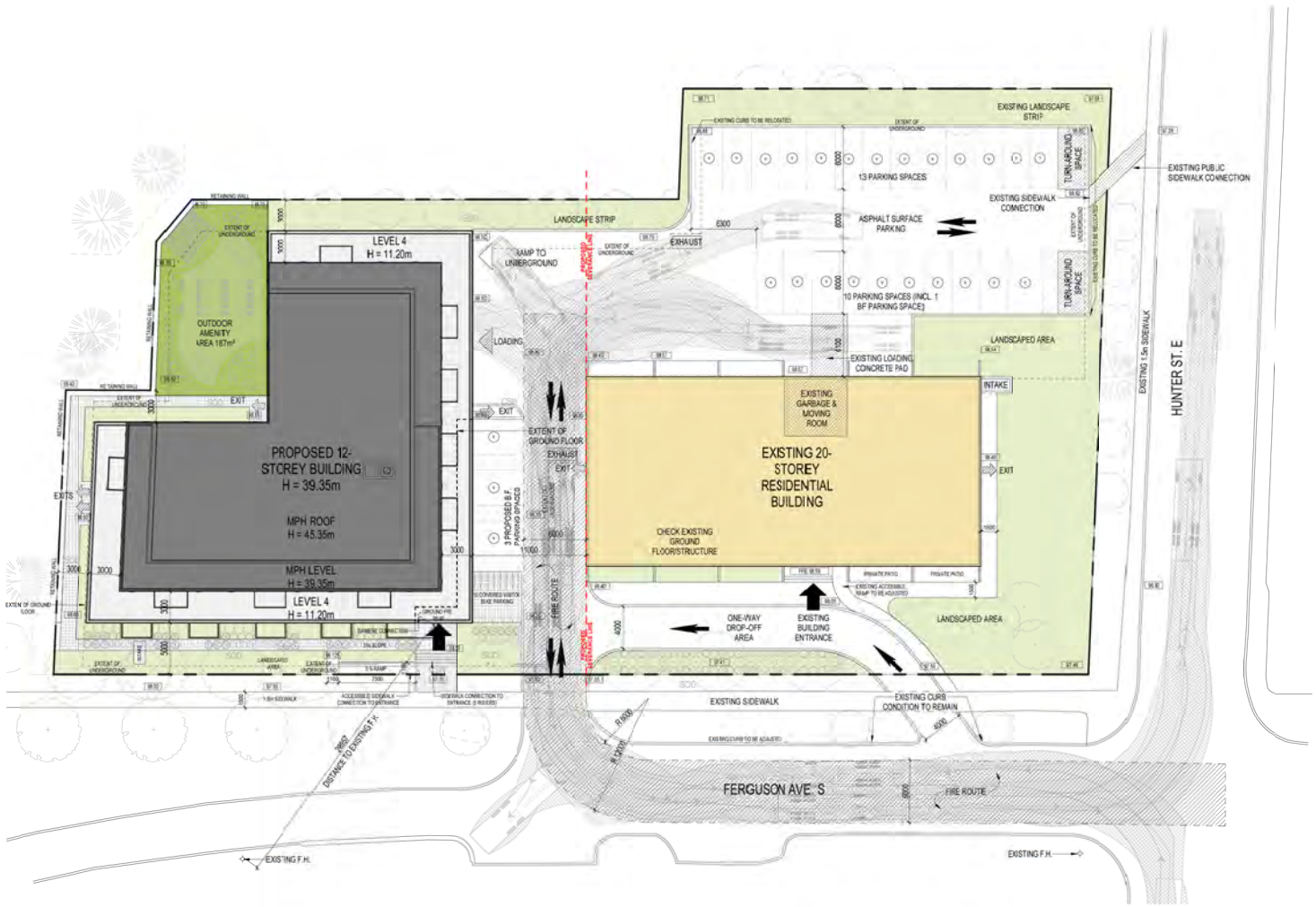

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- BIKE LOCKER
- BIKE PARKING (STACKED)
- BIKE PARKING (VERTICAL)
- CONVEX MIRROR
- ELECTRIC VEHICLE

TYPICAL | ACCESSIBLE VISITOR - TYPE A

SITE PLAN LEGEND

- PROPERTY LINE
- LINE OF UNDER GROUND GARAGE BELOW
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
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- FIRE ACCESS ROUTE HEAVY DUTY PAVING. ASSEMBLY TO BE DESIGNED TO MEET THE LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT.
- TERRACE PAVERS

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Tour Vieux | Boulevard Avenue, Suite 2100 Toronto ON M5V 0S8
T 416 598 7240 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1:200	EL	SSC
PROJECT	SCALE	DRAWN	REVIEWED

Site Plan

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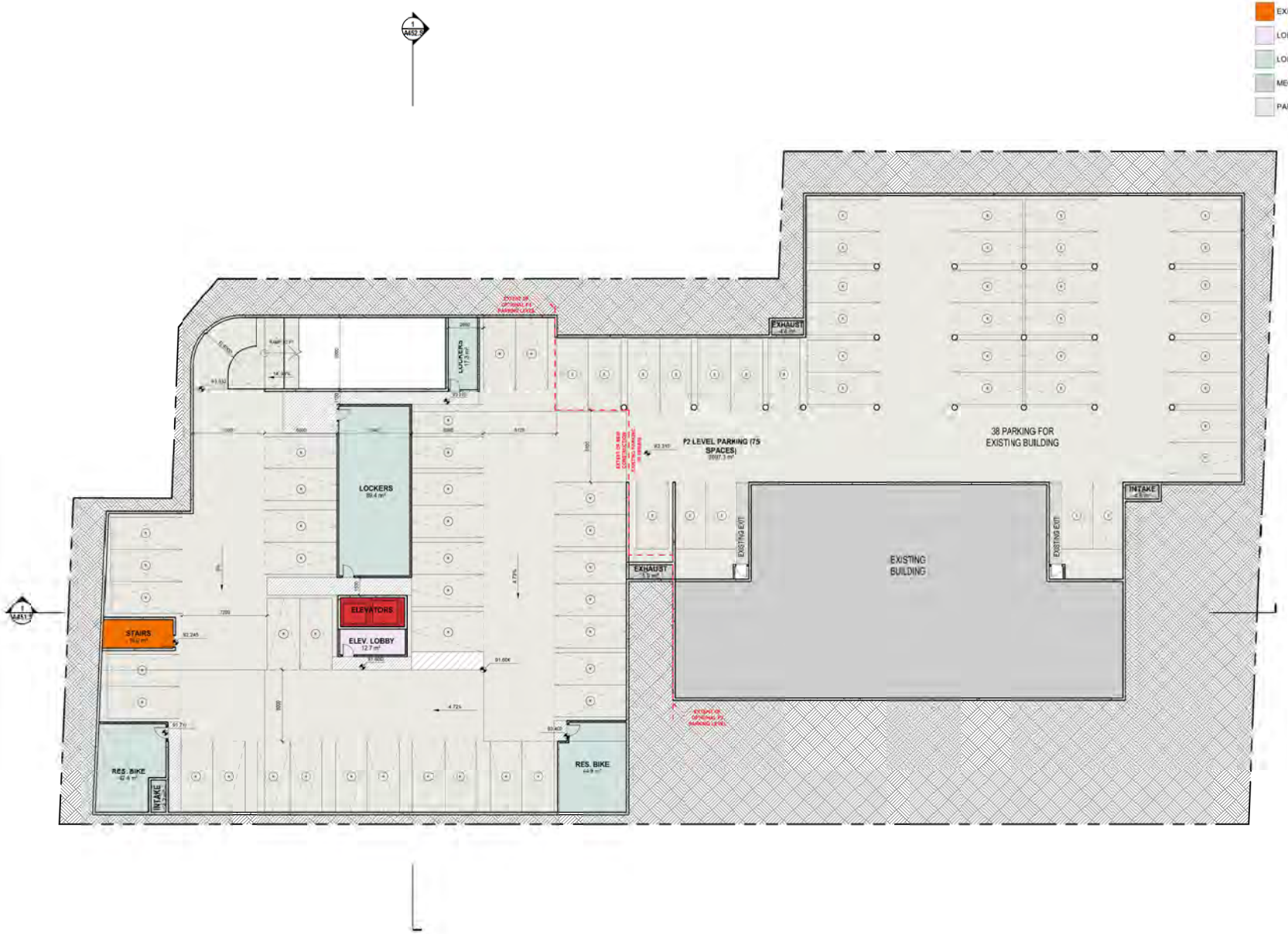

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- CONVEX MIRROR
- ELECTRIC VEHICLE

Date	No.	Description

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ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
Tour Viviti, 1 Rue(s) la Avenue, Dubai, 0100 Tel/Mob: 1W MSV 008
T 416 598 7240 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

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PROJECT SCALE	DRAWN	REVIEWED

P2 Underground

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- BIKE PARKING (VERTICAL)
- CONVEX MIRROR
- ELECTRIC VEHICLE

Date	No.	Description

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100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1:150	EL	SSC
PROJECT	SCALE	DRAWN	REVIEWED

P1 Underground

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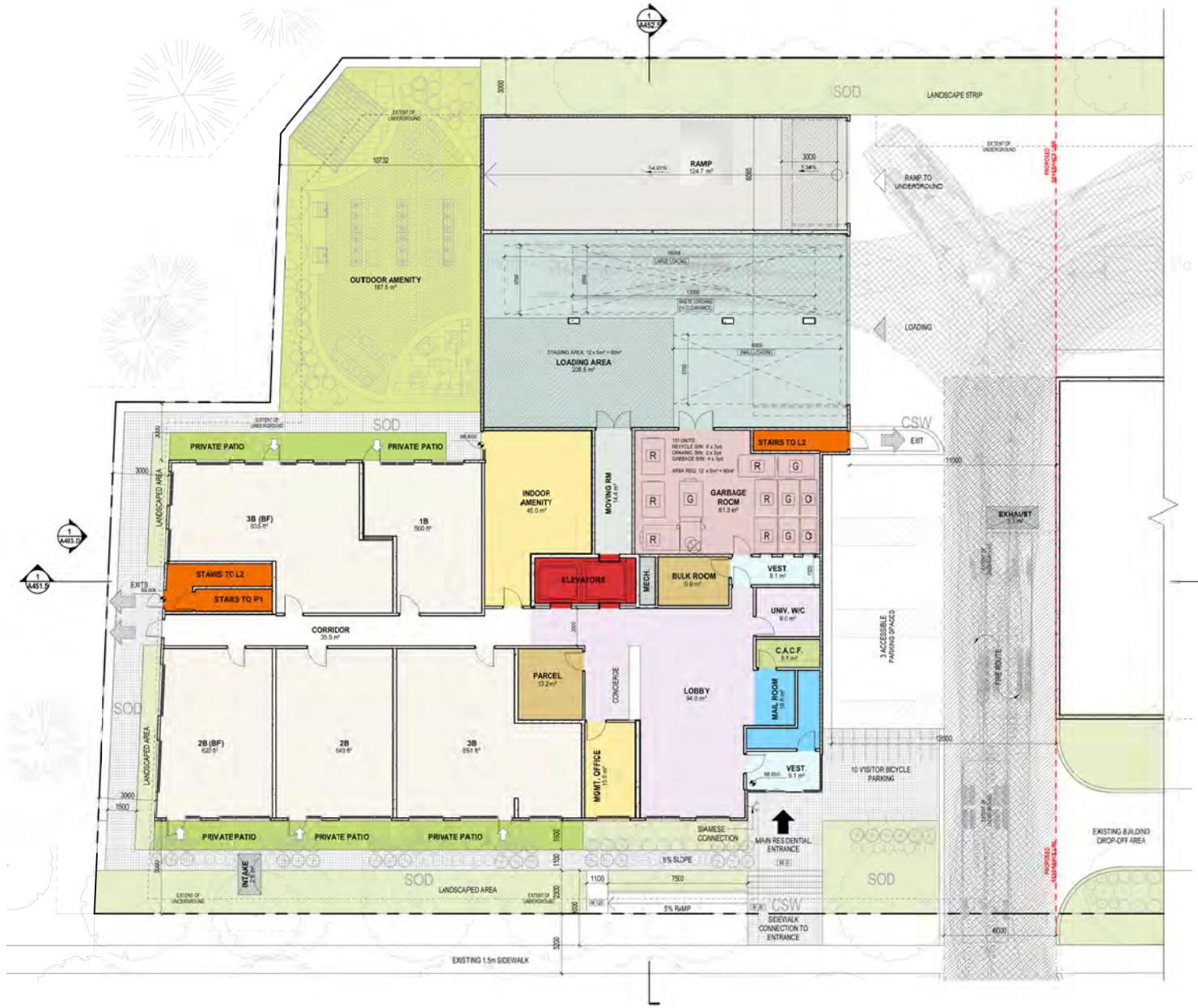

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   - 3000mm WIDE X 6000mm LONG (ONE SIDE OBSTRUCTED)
   - 3300mm WIDE X 6000mm LONG (TWO SIDES OBSTRUCTED)
2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6000mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- (V) VISITOR PARKING SPACE
- (E) EXISTING PARKING SPACE
- BIKE LOCKER
- BIKE PARKING (STACKED)
- BIKE PARKING (VERTICAL)
- CONVEX MIRROR
- ELECTRIC VEHICLE

TYPE A1 — ACCESSIBLE VISITOR - TYPE A

Date	No.	Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
Tel: (416) 1 Bloor St e Avenue, Suite 2100 Toronto ON M5V 0S8
F 4 16 598 7242 www.bdpquadrangle.com

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011 1:100 EL SSC
PROJECT SCALE DRAWN REVIEWED

Ground Floor Plan

A201.S

Area Legend

- AMENITY 1
- CORRIDOR
- ELEVATOR CORE
- EXITS
- EXTERIOR AMENITY 1
- GARBAGE
- MECHANICAL
- RESIDENTIAL

Date	No.	Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1 : 100	EL	SSC
PROJECT SCALE		DRAWN	REVIEWED

Level 2 Plan

A202.S

11/6/2023 8:57:07 PM

Date No. Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
[illegible]

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011 PROJECT SCALE 1 : 100 EL DRAWN SSC REVIEWED

Level 3 Plan

A203.S

11/6/2023 8:07:19 PM

Date No. Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
[illegible]

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011 PROJECT SCALE 1 : 100 DRAWN EL REVIEWED SSC

Level 4 Plan

A204.S

Date	No.	Description
REVISION RECORD		

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
[illegible]

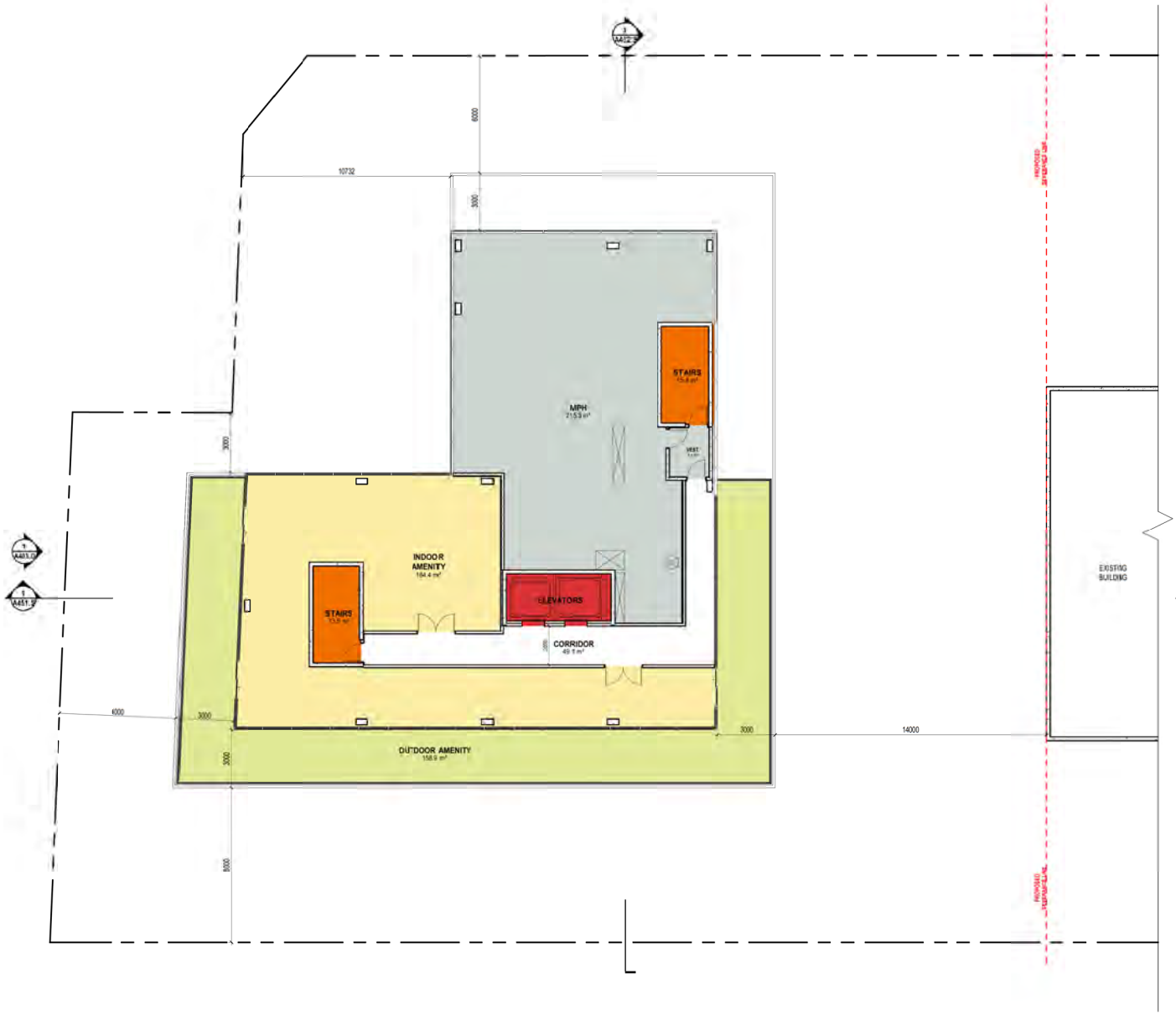
100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1 : 100	EL	SSC
PROJECT SCALE		DRAWN	REVIEWED

Level 5-12 Plan

A205.S



Date	No.	Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
[illegible]

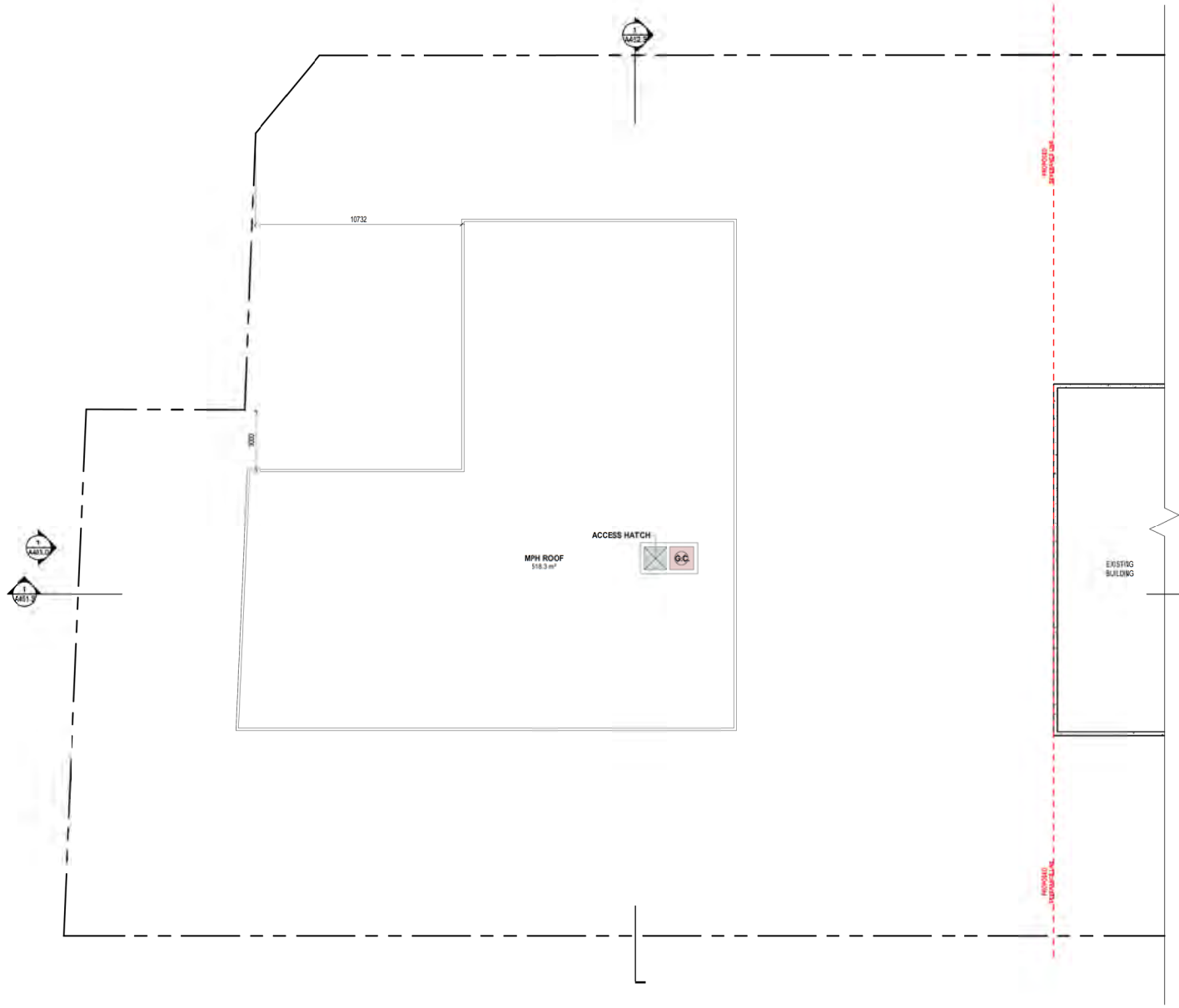
100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011	1 : 100	EL	SSC
PROJECT SCALE		DRAWN	REVIEWED

MPH Level Plan

A206.S



Date No. Description

REVISION RECORD

2023-XX-XX ISSUED FOR SPA SUBMISSION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
[illegible]

100 Ferguson Ave. S

Hamilton, ON
for
Amelin Property Management

23011 1 : 100 EL SSC
PROJECT SCALE DRAWN REVIEWED

Roof Plan

A207.S

11/6/2023 8:51:17 PM

APPENDIX B

Railway Guidelines

PRINCIPAL MAIN LINE REQUIREMENTS FOR NEW DEVELOPMENT

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. Noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, GO Transit may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$ 3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way.

> **Warning:** Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the right-of-way or their assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.

F. Any proposed alterations to the existing drainage pattern affecting the railway right-of-way must receive prior concurrence from GO Transit and be substantiated by a drainage report to the satisfaction of GO Transit.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of GO Transit.

H. The Owner enter into an Agreement stipulating how GO Transit's concerns will be resolved and will pay GO Transit's reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant GO Transit an environmental easement for operational emissions, registered on title against the subject property in favour of GO.

CANADIAN PACIFIC RAILWAY

PRINCIPAL MAIN LINE REQUIREMENTS

1. Berm, or combination berm and noise attenuation fence, having extensions or returns at the ends, to be erected on adjoining property, parallel to the railway right-of-way with construction according to the following:

   a) Minimum total height 5.5 metres above top-of-rail;
   b) Berm minimum height 2.5 metres and side slopes not steeper than 2.5 to 1.
   c) Fence, or wall, to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre (4 lb/sq.ft.) of surface area.

   No part of the berm/noise barrier is to be constructed on railway property.

   A clause should be inserted in all offers of purchase and sale or lease, and be registered on title or included in the lease for each dwelling affected by any noise and vibration attenuation measures, advising that any berm, fencing, or vibration isolation features implemented are not to be tampered with or altered, and further that the owner shall have the sole responsibility for and shall maintain these features.

   Dwellings must be constructed such that the interior noise levels meet the criteria of the appropriate Ministry. A noise study should be carried out by a professional noise consultant to determine what impact, if any, railway noise would have on residents of proposed subdivisions and to recommend mitigation measures, if required. The Railway may consider other measures recommended by the study.

2. Setback of dwellings from the railway right-of-way to be a minimum of 30 metres. While no dwelling should be closer to the right-of-way than the specified setback, an unoccupied building, such as a garage, may be built closer. The 2.5 metre high earth berm adjacent to the right-of-way must be provided in all instances.

3. Ground vibration transmission to be estimated through site tests. If in excess of the acceptable levels, all dwellings within 75 metres of the nearest track should be protected. The measures employed may be:

   a) Support the building on rubber pads between the foundation and the occupied structure so that the maximum vertical natural frequency of the structure on the pads is 12 Hz;
   b) Insulate the building from the vibration originating at the railway tracks by an intervening discontinuity or by installing adequate insulation outside the building, protected from the compaction that would reduce its effectiveness so that vibration in the building became unacceptable; or
   c) Other suitable measures that will retain their effectiveness over time.

4. A clause should be inserted in all offers of purchase and sale or lease and in the title deed or lease of each dwelling within 300m of the railway right-of-way, warning prospective purchasers or tenants of the existence of the Railway's operating right-of-way; the possibility of alterations including the possibility that the Railway may expand its operations, which expansion may affect the living environment of the residents notwithstanding the inclusion of noise and vibration attenuating measures in the design of the subdivision and individual units, and that the Railway will not be responsible for complaints or claims arising from the use of its facilities and/or operations.

5. Any proposed alterations to the existing drainage pattern affecting railway property must receive prior concurrence from the Railway, and be substantiated by a drainage report to be reviewed by the Railway.

6. A 1.83 metre high chain link security fence be constructed and maintained along the common property line of the Railway and the development by the developer at his expense, and the developer is made aware of the necessity of including a covenant running with the lands, in all deeds, obliging the purchasers of the land to maintain the fence in a satisfactory condition at their expense.

7. Any proposed utilities under or over railway property to serve the development must be approved prior to their installation and be covered by the Railway's standard agreement.

APPENDIX C

Road Traffic Data

MH Corbin Traffic Analyzer Study
Computer Generated Summary Report
City: City of Hamilton
Street: Claremont Access - SB
Location: 10

A study of vehicle traffic was conducted with the device having serial number 400175. The study was done in the SB lane at Claremont Access - SB in City of Hamilton, ON in btwn Hunter St & West 5th Ramp county. The study began on 2019-09-11 at 12:00 AM and concluded on 2019-09-14 at 12:00 AM, lasting a total of 72.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 53,575 vehicles passed through the location with a peak volume of 586 on 2019-09-11 at [04:45 PM-05:00 PM] and a minimum volume of 5 on 2019-09-13 at [03:30 AM-03:45 AM]. The AADT count for this study was 17,858.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 70 - 80 KM/H range or lower. The average speed for all classifed vehicles was 79 KM/H with 77.50% vehicles exceeding the posted speed of 70 KM/H. 46.82% percent of the total vehicles were traveling in excess of 89 KM/H. The mode speed for this traffic study was 70KM/H and the 85th percentile was 92.51 KM/H.

< to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	110 to 119	120 to 129	130 to 139	140 to >
75	77	124	104	497	2349	8380	15824	15023	5544	2164	836	343	239	0

CHART 1

CLASSIFICATION

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin.
Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 42762 which represents 83 percent of the total classified vehicles. The number of Small Trucks in the study was 1689 which represents 3 percent of the total classified vehicles. The number of Trucks/Buses in the study was 2418 which represents 5 percent of the total classified vehicles. The number of Tractor Trailers in the study was 4710 which represents 9 percent of the total classified vehicles.

< to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 to >							
11562	31200	1689	2418	2141	1210	450	909							

CHART 2

HEADWAY

During the peak traffic period, on 2019-09-11 at [04:45 PM-05:00 PM] the average headway between vehicles was 1.533 seconds. During the slowest traffic period, on 2019-09-13 at [03:30 AM-03:45 AM] the average headway between vehicles was 150 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 15.00 and 43.00 degrees C.

MH Corbin Traffic Analyzer Study
Computer Generated Summary Report
City: City of Hamilton
Street: Main St E - EB
Location: 27998

A study of vehicle traffic was conducted with the device having serial number 404747. The study was done in the EB lane at Main St E - EB in City of Hamilton, ON in btwn Catharine St S &Walnut St S county. The study began on 2023-06-06 at 12:00 AM and concluded on 2023-06-09 at 12:00 AM, lasting a total of 72.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 71,320 vehicles passed through the location with a peak volume of 446 on 2023-06-06 at [04:15 PM-04:30 PM] and a minimum volume of 14 on 2023-06-06 at [02:45 AM-03:00 AM]. The AADT count for this study was 23,773.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 45 - 50 KM/H range or lower. The average speed for all classifed vehicles was 44 KM/H with 21.83% vehicles exceeding the posted speed of 50 KM/H. 0.55% percent of the total vehicles were traveling in excess of 89 KM/H. The mode speed for this traffic study was 45KM/H and the 85th percentile was 53.05 KM/H.

< to 9	10 to 19	20 to 29	30 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 to >
113	840	4478	16679	15630	17624	7916	4012	1685	793	348	183	128	86	306

CHART 1

CLASSIFICATION

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin.
Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 67403 which represents 95 percent of the total classified vehicles. The number of Small Trucks in the study was 679 which represents 1 percent of the total classified vehicles. The number of Trucks/Buses in the study was 997 which represents 1 percent of the total classified vehicles. The number of Tractor Trailers in the study was 1742 which represents 2 percent of the total classified vehicles.

< to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 to >							
31106	36297	679	997	1042	198	439	63							

CHART 2

HEADWAY

During the peak traffic period, on 2023-06-06 at [04:15 PM-04:30 PM] the average headway between vehicles was 2.013 seconds. During the slowest traffic period, on 2023-06-06 at [02:45 AM-03:00 AM] the average headway between vehicles was 60 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 20.33 and 45.33 degrees C.

MH Corbin Traffic Analyzer Study
Computer Generated Summary Report
City: City of Hamilton
Street: Hunter St E - WB
Location: 7773 [COUNT CONDUCTED DURING COVID-19 PANDEMIC]

A study of vehicle traffic was conducted with the device having serial number 405063. The study was done in the WB lane at Hunter St E - WB in City of Hamilton, ON in btwn Spring St & Wellington St S county. The study began on 2021-04-07 at 12:00 AM and concluded on 2021-04-10 at 12:00 AM, lasting a total of 72.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 9,121 vehicles passed through the location with a peak volume of 71 on 2021-04-07 at [08:45 AM-09:00 AM] and a minimum volume of 1 on 2021-04-07 at [01:30 AM-01:45 AM]. The AADT count for this study was 3,040.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 30 - 40 KM/H range or lower. The average speed for all classifed vehicles was 37 KM/H with 33.61% vehicles exceeding the posted speed of 40 KM/H. 0.00% percent of the total vehicles were traveling in excess of 89 KM/H. The mode speed for this traffic study was 30KM/H and the 85th percentile was 46.14 KM/H.

< to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	110 to 119	120 to 129	130 to 139	140 to >
26	163	1145	4721	2764	284	14	3	0	0	0	0	0	0	0

CHART 1

CLASSIFICATION

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin.
Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 8553 which represents 94 percent of the total classified vehicles. The number of Small Trucks in the study was 36 which represents 0 percent of the total classified vehicles. The number of Trucks/Buses in the study was 200 which represents 2 percent of the total classified vehicles. The number of Tractor Trailers in the study was 331 which represents 4 percent of the total classified vehicles.

< to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 to >							
3197	5356	36	200	263	20	43	5							

CHART 2

HEADWAY

During the peak traffic period, on 2021-04-07 at [08:45 AM-09:00 AM] the average headway between vehicles was 12.5 seconds. During the slowest traffic period, on 2021-04-07 at [01:30 AM-01:45 AM] the average headway between vehicles was 450 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 9.00 and 35.00 degrees C.

APPENDIX D

Rail Traffic Data

Yvonne Lo

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: November 2, 2023 4:51 PM
To: Yvonne Lo
Subject: RE: Rail Traffic Data Request - 100 Ferguson Avenue South

Good afternoon Yvonne,

Thanks for your patience, further to your request dated October 16, 2023, the subject lands (100 Ferguson Avenue South, Hamilton) are located within 300 metres of the CP Hamilton Subdivision (which carries Lakeshore West GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel trains. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 4 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 8 trains. *This Rail-Data is forecast to 2032. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive		1 Diesel Locomotive
Day (0700-2300)	7	Night (2300-0700)	1

The current track design speed near the subject lands is 25 mph (40 km/h).

There are no *anti-whistling by-laws* in affect near the subject lands.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

*At this time we do not expect the frequency of trains to increase beyond 2032. It is expected the number of passenger cars may increase during peak periods to increase capacity as required. Exact numbers are unknown at this time.

Best Regards,
Farah Faroque (she/her)
Project Analyst, Third Party Projects Review
10 Bay Street | Toronto | Ontario | M5J 2N8
T: 437.900.2291

METROLINX

From: Yvonne Lo <ylo@hgcengineering.com>
Sent: October 16, 2023 12:03 PM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Subject: Rail Traffic Data Request - 100 Ferguson Avenue South

Hi,

HGC Engineering is currently conducting a noise feasibility study for a proposed development located at 100 Feguson Avenue South, as shown in the link below:

https://maps.app.goo.gl/MYo8WP9BhUDkWe1L8

We are requesting rail traffic data for the rail line to the south.

Thank you!

Best,

Yvonne Lo, MEng, PEng
Project Engineer

HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 ext.232 **e**: ylo@hgcengineering.com
Visit our website: www.hgcengineering.com **Follow Us** – LinkedIn | Twitter | YouTube

1290 Central Parkway West
Mississauga, Ontario
Canada L5C 4R3

T 905 803 3429
E josie_tomei@cpr.ca

April 21, 2017

Via email: spaul@hgcengineering.com

Sheeba Paul
HGC Engineering
2000 Argentia Road
Plaza One, Suite 203
Mississauga, Ontario L5N 1P7

Dear Sheeba:

Re: Rail Traffic Volumes, CP Mileage 57.47, Hamilton Subdivision, 64 Main Street East Rd., Hamilton

This is in reference to your request for rail traffic data in the area of 64 Main Street East, City of Hamilton. The study area is located at mile 57.47 of our Hamilton Subdivision, which is classified as a Prinicipal Main line.

The information requested is as follows:

1. Number of freight trains between 0700 & 2300: 5
   Number of freight trains between 2300 & 0700: 5

2. Average number of cars per train: 55 (maximum 150 cars)

3. Number of locomotives per train: 2 (4 Maximum)

4. Maximum permissible train speed is 20 miles per hour (freight)

5. There are no grade crossings in the study area. Bells are sounded by trains arriving, leaving or running through the area of the passenger platforms.

6. There are 3 tracks with welded rail at this location. The CP mainline is the most southerly track, with the other two used for passenger rail.

The information provided is based on recent rail traffic. Variations of the above may exist on a day-to-day basis. Specific measurements may also vary significantly depending on customer needs.

Please note, the above information only covers freight train data and passenger data should be requested directly from Metrolinx.

Yours truly,

Josie Tomei
Specialist Real Estate Sales & Acquisitions – Ontario

APPENDIX E

Sample STAMSON 5.04 Output

STAMSON 5.0 NORMAL REPORT Date: 07-12-2023 13:53:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te Time Period: Day/Night 16/8 hours
Description: **Future daytime and nighttime sound levels at the south façade of the proposed building, Prediction Location [A]**

Rail data, segment # 1: CP (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. CP	7.6/7.6	32.0	4.0	150.0	Diesel	Yes
2. Metrolinx	7.0/1.0	40.0	1.0	4.0	Diesel	Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No Name	Unadj. Trains	Annual % Increase	Years of Growth
1. CP	5.0/5.0	2.50	17.00

Data for Segment # 1: CP (day/night)

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	30.00 / 30.00	m
Receiver height	39.00 / 39.00	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Results segment # 1: CP (day)

LOCOMOTIVE (0.00 + 64.13 + 0.00) = 64.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.14	-3.01	0.00	0.00	0.00	0.00	64.13

WHEEL (0.00 + 56.35 + 0.00) = 56.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.36	-3.01	0.00	0.00	0.00	0.00	56.35

Segment Leq : 64.80 dBA

Total Leq All Segments: 64.80 dBA

```
Results segment # 1: CP (night)
------------------------------

LOCOMOTIVE (0.00 + 66.79 + 0.00) = 66.79 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.80  -3.01   0.00   0.00   0.00   0.00  66.79
-------------------------------------------------------------------------

WHEEL (0.00 + 59.20 + 0.00) = 59.20 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  62.21  -3.01   0.00   0.00   0.00   0.00  59.20
-------------------------------------------------------------------------

Segment Leq : 67.49 dBA

Total Leq All Segments: 67.49 dBA

Road data, segment # 1: Claremont (day/night)
---------------------------------------------
Car traffic volume  : 19320/2147  veh/TimePeriod  *
Medium truck volume :  1862/207   veh/TimePeriod  *
Heavy truck volume  :  2095/233   veh/TimePeriod  *
Posted speed limit  :    70 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17858
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  15.00
    Medium Truck % of Total Volume     :   8.00
    Heavy Truck  % of Total Volume     :   9.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Claremont (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 310.00 / 310.00 m
Receiver height           :  39.00 / 39.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Claremont (day)
------------------------------------

Source height = 1.73 m

ROAD (0.00 + 59.02 + 0.00) = 59.02 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  75.18   0.00 -13.15  -3.01   0.00   0.00   0.00
59.02
-------------------------------------------------------------------------
---

Segment Leq : 59.02 dBA

Total Leq All Segments: 59.02 dBA

Results segment # 1: Claremont (night)
--------------------------------------

Source height = 1.73 m

ROAD (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  68.65   0.00 -13.15  -3.01   0.00   0.00   0.00
52.49
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Segment Leq : 52.49 dBA

Total Leq All Segments: 52.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.82
                           (NIGHT): 67.63
```

Committee of Adjustment
City Hall, 5th Floor,
71 Main St. W.,
Hamilton, ON L8P4Y5

Phone: (905) 546-2424 ext. 4221
Email: cofa@hamilton.ca

Hamilton

APPLICATION FOR CONSENT TO SEVER LAND
and VALIDATION OF TITLE
UNDER SECTION 53 & 57 OF THE *PLANNING ACT*

Please see additional information regarding how to submit an application, requirements for the required sketch and general information in the Submission Requirements and Information.

1. APPLICANT INFORMATION

	NAME	MAILING ADDRESS	
Purchaser*	[redacted]		
Registered Owners(s)			
Applicant(s)**			
Agent or Solicitor			

*Purchaser must provide a copy of the portion of the agreement of purchase and sale that authorizes the purchaser to make the application in respect of the land that is the subject of the application.
** Owner's authorisation required if the applicant is not the owner or purchaser.

1.2 All correspondence should be sent to ☐ Purchaser ☑ Applicant ☑ Owner ☑ Agent/Solicitor

1.3 Sign should be sent to ☐ Purchaser ☑ Applicant ☑ Owner ☑ Agent/Solicitor

1.4 Request for digital copy of sign ☑ Yes* ☐ No
If YES, provide email address where sign is to be sent [redacted]

1.5 All correspondence may be sent by email ☑ Yes* ☐ No
If Yes, a valid email must be included for the registered owner(s) AND the Applicant/Agent (if applicable). Only one email address submitted will result in the voiding of this service. This request does not guarantee all correspondence will sent by email.

2. LOCATION OF SUBJECT LAND

2.1 Complete the applicable sections:

Municipal Address	100 Ferguson Ave S, Hamilton L8N3Y1		
Assessment Roll Number	251802014600010		
Former Municipality	N/A		
Lot		Concession	
Registered Plan Number	48	Lot(s)	6,7,10,11
Reference Plan Number (s)		Part(s)	5,9

2.2 Are there any easements or restrictive covenants affecting the subject land?
☑ Yes ☐ No
If YES, describe the easement or covenant and its effect:

Instrument-VM234678, Transfer easement, Transferee: Dainty Investments Limited

3 PURPOSE OF THE APPLICATION

3.1 Type and purpose of proposed transaction: (check appropriate box)

☑ creation of a new lot(s)
☐ addition to a lot
☐ an easement
☐ validation of title (must also complete section 8)
☐ cancellation (must also complete section 9
☐ creation of a new non-farm parcel (must also complete section 10)
(i.e. a lot containing a surplus farm dwelling
resulting from a farm consolidation)

☐ concurrent new lot(s)
☐ a lease
☐ a correction of title
☐ a charge

3.2 Name of person(s), if known, to whom land or interest in land is to be transferred, leased or charged:

N/A

3.3 If a lot addition, identify the lands to which the parcel will be added:
N/A

3.4 Certificate Request for Retained Lands: ☐ Yes*
* If yes, a statement from an Ontario solicitor in good standing that there is no land abutting the subject land that is owned by the owner of the subject land other than land that could be conveyed without contravening section 50 of the Act. (O. Reg. 786/21)

4 DESCRIPTION OF SUBJECT LAND AND SERVICING INFORMATION

4.1 Description of subject land:

All dimensions to be provided in metric (m, m² or ha), attach additional sheets as necessary.

	Retained (remainder)	Parcel 1	Parcel 2	Parcel 3*	Parcel 4*

Identified on Sketch as:	Retained	Severed			
Type of Transfer	N/A	N/A			
Frontage	51.50 m	48.41 m			
Depth	45.80 m	56.54 m			
Area	2,158.6 sqm	2,705.6 sqm			
Existing Use	Vacant	Residential			
Proposed Use	Residential	N/A			
Existing Buildings/ Structures	N/A	Residential			
Proposed Buildings/ Structures	Residential	N/A			
Buildings/ Structures to be Removed	N/A	N/A			

* Additional fees apply.

4.2 Subject Land Servicing

a) Type of access: (check appropriate box)

- ☐ provincial highway
- ☐ municipal road, seasonally maintained
- ☑ municipal road, maintained all year
- ☐ right of way
- ☐ other public road

_____

b) Type of water supply proposed: (check appropriate box)

- ☑ publicly owned and operated piped water system
- ☐ privately owned and operated individual well
- ☐ lake or other water body
- ☐ other means (specify)

_____

c) Type of sewage disposal proposed: (check appropriate box)

- ☑ publicly owned and operated sanitary sewage system
- ☐ privately owned and operated individual septic system
- ☐ other means (specify) _____

4.3 Other Services: (check if the service is available)

☑ electricity ☑ telephone ☑ school bussing ☑ garbage collection

5 CURRENT LAND USE

5.1 What is the existing official plan designation of the subject land?

Rural Hamilton Official Plan designation (if applicable): N/A

Rural Settlement Area: N/A

Urban Hamilton Official Plan designation (if applicable) Neighbourhoods

Please provide an explanation of how the application conforms with a City of Hamilton Official Plan.
Permits residential units See Planning Justification Letter

5.2 Is the subject land currently the subject of a proposed official plan amendment that has been submitted for approval?
☐ Yes ☑ No ☐ Unknown

If YES, and known, provide the appropriate file number and status of the application.
N/A

5.3 What is the existing zoning of the subject land? E/S-267

If the subject land is covered by a Minister's zoning order, what is the Ontario Regulation Number?
N/A

5.4 Is the subject land the subject of any other application for a Minister's zoning order, zoning by-law amendment, minor variance, consent or approval of a plan of subdivision?
☐ Yes ☑ No ☐ Unknown

If YES, and known, provide the appropriate file number and status of the application.
N/A

5.5 Are any of the following uses or features on the subject land or within 500 metres of the subject land, unless otherwise specified. Please check the appropriate boxes, if any apply.

Use or Feature	On the Subject Land	Within 500 Metres of Subject Land, unless otherwise specified (indicate approximate distance)
An agricultural operation, including livestock facility or stockyard * Submit Minimum Distance Separation Formulae (MDS) if applicable	☐	
A land fill	☐	
A sewage treatment plant or waste stabilization plant	☐	
A provincially significant wetland	☐	
A provincially significant wetland within 120 metres	☐	
A flood plain	☐	
An industrial or commercial use, and specify the use(s)	☑	
An active railway line	☑	
A municipal or federal airport	☐	

6 HISTORY OF THE SUBJECT LAND

6.1 Has the subject land ever been the subject of an application for approval of a plan of subdivision or a consent under sections 51 or 53 of the *Planning Act*?
☑ Yes ☐ No ☐ Unknown

If YES, and known, provide the appropriate application file number and the decision made on the application. Registered Plan No. 48

6.2 If this application is a re-submission of a previous consent application, describe how it has been changed from the original application.

N/A

6.3 Has any land been severed or subdivided from the parcel originally acquired by the owner of the subject land?
☐ Yes ☑ No

If YES, and if known, provide for each parcel severed, the date of transfer, the name of the transferee and the land use.
N/A

6.4 How long has the applicant owned the subject land?

Since Sep 30, 1996

6.5 Does the applicant own any other land in the City? ☐ Yes ☒ No
If YES, describe the lands below or attach a separate page.

7 PROVINCIAL POLICY

7.1 Is this application consistent with the Policy Statements issued under Section 3 of the *Planning Act*?
☑ Yes ☐ No (Provide explanation)

Please see enclosed cover letter with this submission.

7.2 Is this application consistent with the Provincial Policy Statement (PPS)?
☑ Yes ☐ No (Provide explanation)

Please see enclosed cover letter with this submission.

7.3 Does this application conform to the Growth Plan for the Greater Golden Horseshoe?
☑ Yes ☐ No (Provide explanation)

Please see enclosed cover letter with this submission.

7.4 Are the subject lands subject to the Niagara Escarpment Plan?
☐ Yes ☑ No (Provide explanation)

7.5 Are the subject lands subject to the Parkway Belt West Plan?
☐ Yes ☑ No (Provide explanation)

7.6 Are the subject lands subject to the Greenbelt Plan?
☐ Yes ☑ No (Provide explanation)

7.7 Are the subject lands within an area of land designated under any other provincial plan or plans?
☐ Yes ☑ No (Provide explanation)

8 ADDITIONAL INFORMATION - VALIDATION

8.1 Did the previous owner retain any interest in the subject land?

☐ Yes ☒ No (Provide explanation)

8.2 Does the current owner have any interest in any abutting land?

☐ Yes ☒ No (Provide explanation and details on plan)

8.3 Why do you consider your title may require validation? (attach additional sheets as necessary)
N/A

9 ADDITIONAL INFORMATION - CANCELLATION

9.1 Did the previous owner retain any interest in the subject land?

☐ Yes ☑ No (Provide explanation)

9.2 Does the current owner have any interest in any abutting land?

☐ Yes ☑ No (Provide explanation and details on plan)

9.3 Why do you require cancellation of a previous consent? (attach additional sheets as necessary)
N/A

10 ADDITIONAL INFORMATION - FARM CONSOLIDATION

10.1 Purpose of the Application (Farm Consolidation) N/A

If proposal is for the creation of a non-farm parcel resulting from a farm consolidation, indicate if the consolidation is for:

☐ Surplus Farm Dwelling Severance from an Abutting Farm Consolidation

☐ Surplus Farm Dwelling Severance from a Non-Abutting Farm Consolidation

10.2 Location of farm consolidation property:

Municipal Address			
Assessment Roll Number			
Former Municipality			
Lot		Concession	
Registered Plan Number		Lot(s)	
Reference Plan Number (s)		Part(s)	

10.3 Rural Hamilton Official Plan Designation(s)
If proposal is for the creation of a non-farm parcel resulting from a farm consolidation, indicate the existing land use designation of the abutting or non-abutting farm consolidation property.

10.4 Description of farm consolidation property:

Frontage (m):	Area (m² or ha):

Existing Land Use(s): _____ Proposed Land Use(s): _____

10.5 **Description of abutting consolidated farm (excluding lands intended to be severed for the surplus dwelling)**

Frontage (m):	Area (m² or ha):

10.6 Existing Land Use: _____ Proposed Land Use: _____

10.7 Description of surplus dwelling lands proposed to be severed:

Frontage (m): (from Section 4.1)	Area (m² or ha): (from Section 4.1)

Front yard set back: _____

a) Date of construction:
☐ Prior to December 16, 2004 ☐ After December 16, 2004

b) Condition:
☐ Habitable ☐ Non-Habitable

11 COMPLETE APPLICATION REQUIREMENTS

11.1 All Applications

- [x] Application Fee
- [x] Site Sketch
- [x] Complete Application Form
- [x] Signatures Sheet

11.2 Validation of Title

- [ ] All information documents in Section 11.1
- [ ] Detailed history of why a Validation of Title is required
- [ ] All supporting materials indicating the contravention of the Planning Act, including PIN documents and other items deemed necessary.

11.3 Cancellation

- [ ] All information documents in Section 11.1
- [ ] Detailed history of when the previous consent took place.
- [ ] All supporting materials indicating the cancellation subject lands and any neighbouring lands owned in the same name, including PIN documents and other items deemed necessary.

11.4 Other Information Deemed Necessary

- [x] Cover Letter/Planning Justification Report
- [ ] Minimum Distance Separation Formulae (data sheet available upon request)
- [x] Hydrogeological Assessment
- [ ] Septic Assessment
- [ ] Archeological Assessment
- [x] Noise Study
- [x] Parking Study

_____

_____