SERVICING AND STORMWATER MANAGEMENT REPORT

Prepared for:
3043 6th Line LP

12-Storey Residential Development

3043 Sixth Line
Oakville, ON L6M 4J9

February 24, 2026
Project No.: 25-034

SITEPLANTECH INC.
YOUR URBAN REDEVELOPMENT SOURCE

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Submission History

Submission	Date	Issued For	Issued To
1	Feb. 24, 2026	RZA	Town of Oakville

1.0 INTRODUCTION

1.1 Purpose

SITEPLANTECH was retained by 3043 6th Line LP to prepare a Functional Servicing Report, in support of a Rezoning application, to investigate water supply, sanitary sewerage and storm drainage for a proposed development located at 3043 Sixth Line, Oakville, Ontario.

The purpose of this report is to provide site specific information for the Town of Oakville ("Town"), Conservation Halton ("HRCA") and Halton Region's ("Region") review with respect to the adequacy of the existing infrastructure to support the proposed development.

1.2 Background Information

The following documents were requested and made available to SITEPLANTECH for our review and forms the basis of this report:

- JD Barnes Ltd. (2025, December 2), Plan of Survey Illustrating Topography of Part of Lot 15, Concession 1, North of Dundas Street, Town of Oakville (25-30-372-00-A). [Technical drawing].
- Sweeny & Co (2025, November 19), 3043 Sixth Line (AZS000, AZS001, AZS101, AZS202, AZS203). [Technical drawing].
- Development Engineering Procedures and Guidelines, Town of Oakville, Final Version 2.0 (2023, September).
- Water and Wastewater Linear Design Manual, Halton Region, Version 5 (2019, October).
- Zhenyong Li, P.Eng., DSEL, Timsin Phase 1 (2010, December 2), Plan and Profile of Kaitting Trail 40m West of Isaac Avenue to Sixth Line, (Plan 0-17669) [Technical drawing].
- T.D. McNair, P.Eng., DSEL, Timsin Phase 1 (2015, May 15), Plan and Profile of Sixth Line from Dundas Street to 220m North of Dundas Street, (Sheet 31 of 35) [Technical drawing].
- Author unknown, JF Sabourin and Associates Inc., Timsin Phase 1 of the Woodland Trails Community (2012, March), project number 909-10.
- Milan Makusa, P.Geo., S2S Environmental Inc., Hydrogeological Assessment 3043 Sixth Line (2020, November 13), project no. 9550.
- Collaborative work between Urbantech Consulting, GEO Morphix, Golder Associates and Genivar (2016, September) Lower West Morrison Creek EIR, pprepared for Sixth Line Corporation.

1.3 Site Description

The subject site is approximately 3,251.7m^2 (0.325 hectares) and is currently occupied by a single residential dwelling. The site is bounded by:

- Morrison Creek and Parsonage Pond to the north and east;
- An institutional development (religious establishment) to the south; and,
- Sixth Line to the west.

1.4 Proposed Development

The proposed development is a medium density building that has been designed to integrate with the surrounding built form and the natural landscape. It consists of a 12-storey residential use building fronting on Sixth Line, complete with a 2-level below grade parking for 114 vehicles and surface parking for 14 vehicles. A loading area will be provided at grade and will be accessed from Sixth Line. In total, the proposed development will yield 165 residential units.

The site, located in North Oakville, is adjacent to the Upper West Morrison Creek watershed.

Please refer to the site plan and site statistics in **Appendix A** for additional information.

1.5 Easement, Land Conveyances and Net Developable Area

There are no existing easements registered on title. And no new easements will be required in order develop this property.

The following land conveyances have been requested by the Region:

- A Sixth Line Road widening along the site's western boundary, the width of which varies across the site frontage, totalling approximately 343.8m^2.

Due to the lane widening, the resulting net developable area will be approximately 2,907m^2 (0.291 Ha) from which all calculations in this report are based.

2.0 SERVICING TERMS OF REFERENCE AND METHODOLOGY

2.1 Terms of Reference

This report was prepared in accordance with the Regional, the City and CLOCA's terms of reference outlined in **Section 1.2** above.

2.2 Methodology: Stormwater Management

The modified rational method will be used to calculate runoff rates and target release rates from the site based on Intensity-Duration-Frequency (IDF) rainfall curves from the Town of Oakville's design standards, Section 3.7.3.5 table 3.2.

The site is located immediately to the west of the Upper West Morrison Creek watershed and is intended to be serviced by stormwater management pond 22 within the assumed Timsin Phase 1 subdivision.

The existing infrastructure within the Timsin subdivision was design to convey the 100-year storm event, from the subject site to the receiving pond, assuming a total imperviousness of 70%, while directing overland flow from the Regional Storm Event to Sixth Line.

We will provide a detailed account of the pre- and post-development conditions and comment on opportunities to reduce peak flows if necessary. The stormwater management requirements are summarized below:

- TSS removal: On-site long-term average of 80% TSS removal is not required as they are accounted for by SWM Pond 22's sediment forebay. Due to exposed surface parking on-site spill control will be provided.
- Water quantity: Quantity controls are to meet the post-development 100-year storm event based on a 70% imperviousness from a drainage area of 0.32 hectare.
- Volume control: On site volume controls are not required as SWM Pond 22's extended detention storage was sized based on the 25mm 2-hour storm runoff volume; and,
- Erosion and sedimentation control: Shall be designed as per the Erosion and Sedimentation Control Guide for Urban Construction (2019).

Servicing, grading and erosion and sedimentation control plans will be prepared based on the recommendations of this report.

2.3 Methodology: Sanitary Drainage

The sanitary sewage discharge from the site will be determined using sanitary flow rates that consider the land use and building statistics as supplied by the design team. The calculated values provide peak sanitary flow discharge that considers infiltration.

The proposed sanitary discharge flows from the site will be calculated based on the Region's criteria and summarized in **Table 1** below.

Table 1: Sanitary Flow Criteria

Use	Population[1]	Flow
Studio / 1BR	2.018	275 L/c/d
1BR + D / 2BR	2.018	275 L/c/d
2 BR + D / 3BR	3.054	275 L/c/d

The proposed site generated flows will be calculated, and recommendations will be made to address identified capacity issues, if applicable.

2.4 Methodology: Water Supply

The proposed domestic water demands from the site will be determined in accordance with the Region's criteria and the MOECP, as applicable, as per **Table 2** below.

Table 2: Water Demand Criteria

Use	Flow
Multi-unit	275 L/c/d

The development will be fully sprinklered in accordance with OBC and NFPA 13 requirements.

Pressure and flow testing will be conducted at nearby hydrants when it will be permissible to do so, to obtain existing flows, residual and static pressure.

Fire suppression calculations, in accordance with the Fire Underwriters Survey (FUS) Guidelines, will be undertaken to determine the minimum flow required at 140 KPa for fire protection. This report will be amended upon reception of the aforementioned hydrant flow test to determine the adequacy of the existing infrastructure.

[1] Per Table A-4 of Halton's 2022 DC Background Study

3.0 STORMWATER MANAGEMENT

All calculations and figures pertaining to the information summarized in the following sections are found in **Appendix B**.

3.1 Existing Drainage System

The following storm sewer infrastructure is located within the vicinity of the subject site:

- A 600 mm diameter concrete storm sewer near the centreline of Kaitting Trail. This sewer drains west to the Timsin SWM Pond 22.

Surface drainage from the property is split. Approximately two thirds of the site drains north while the balance drains south and east. Both drainage areas discharge to Morrison Creek. The property does not receive surface drainage from external sources.

Refer to the pre-development drainage area **Plan 201** for the existing site drainage details.

According to the information reviewed, the site is to discharge flows up to the 100-year storm event to SWM Pond 22 while the regional storm is to be directed to the Sixth Line right of way.

3.2 Existing Runoff

The pre-development runoff conditions were calculated based on the Town's and HRCA's criteria and will be used to determine conformance to the approved Timsin SWM Pond 22 stormwater management requirements and if necessary, determine net flow reduction to the pond from the site. The pre-development runoff from each of the existing drainage areas is summarized in **Table 3 and 4** below:

Table 3: ID101 - Pre-Development Runoff

Return Period	Drainage Area (Ha)	Runoff C	Q (L/s)
2-Year	0.198	0.466	21.1
5-Year	0.198	0.466	29.3
10-Year	0.198	0.466	34.6
25-Year	0.198	0.466	41.6
50-Year	0.198	0.466	46.7
100-Year	0.198	0.466	51.5

Table 4: ID102 - Pre-Development Runoff

Return Period	Drainage Area (Ha)	Runoff C	Q (L/s)
2-Year	0.093	0.455	9.6
5-Year	0.093	0.455	13.4
10-Year	0.093	0.455	15.8
25-Year	0.093	0.455	19.0
50-Year	0.093	0.455	21.3
100-Year	0.093	0.455	23.5

3.3 Allowable Release Rate

The allowable release rate to the existing infrastructure was determined from the Storm Sewer Design Sheets for the Timsin Pond 22, an excerpt of which is included in the appendix. The calculated allowable release rate is summarized in **Table 5** below:

Table 5: Allowable Release Rate

Drainage ID	Area (Ha)	Runoff C	1-Yr Release Rate (L/s)
SITE	0.320	0.690	123.2

Note that according to the SWM pond drainage plan, any overland flow resulting from the Regional Storm event is to be directed to the Sixth Line right-of-way, which drains south to Dundas Street.

3.4 Quantity Control

As shown in **Table 6** below, the 100-year post-development discharge rate from the subject development will be controlled such that the total release rate does not exceed the allowable rate referenced above. Refer to **Figure 202**.

Table 6: Post-Development Release Rates

ID	ID 210 Controlled Rate (L/s)	ID 220 Uncontrolled Rate (L/s)	ID 221 Uncontrolled Rate (L/s)	Storage Req. (m^3)	Total Site Release Rate (L/s)
2-Year	38.7	2.3	0.9	6.0	41.8
5-Year	54.1	3.1	1.2	8.1	58.5
10-Year	63.0	3.7	1.4	10.0	68.1
25-Year	80.3	4.9	1.9	15.1	87.1
50-Year	95.1	5.6	2.3	20.4	103.0
100-Year	106.7	6.1	2.7	24.9	115.5

Stormwater from the roof will be capture by roof drains (refer to mechanical plans for details) and while surface parking will drain to area drains. All will discharge uncontrolled, through internal storm piping, to the SWM infrastructure such that no roof or surface ponding will be required. As such approximately 27.4m^3 of active storage is required to achieve the allowable release rate. Quantity controls will be provided by a cast-in-place stormwater management (SWM) chamber located below the at grade parking lot.

The 100-year storm event from ID 210 will be over-controlled to account for minor uncontrolled flows around the perimeter of the site with a 225mm tamper-proof orifice plate located at the outlet of the SWM chamber. Uncontrolled flows from ID 220 will be directed to the Sixth line right-of-way while those from ID 221 will drain to the Lower West Morrison Creek. Details of the underground storage and orifice controls are provided on **Plan 101** found in **Appendix E.**

In the case of an emergency (orifice becomes blocked, etc.), positive overland flow relief will be provided by a perforated manhole top (STM MH1) that also provides inspection and maintenance access to the SWM chamber. The site will be graded in such a way that overland flow relief will be directed to Sixth Line to the west. Refer to **Plan 401** for grading details.

3.5 Quality Control

As per HRCA's requirements quality controls must achieve a minimum of 80% total suspended solids (TSS) removal. Since the Timsin SWM pond was designed to achieve 80% TSS removal from the design drainage area, it is proposed to provide on-site spill control due to exposed parking surfaces. As such it is proposed to provide an oil-grit separator with a 5mm trash screen. Based on the release rate required for treatment, an FD-6Optimum (or equivalent unit) will be installed downstream of the orifice plate as part of the on-site stormwater management facility.

3.6 Volume Control

On site volume controls are not required as SWM Pond 22's extended detention storage was sized based on the 25mm 2-hour storm runoff volume for the contributing drainage area.

3.7 Dewatering

A hydrogeological report for the proposed development was prepared by S2S Environmental, to assess short and long-term dewatering requirements. Groundwater quality meets the Halton Region Wastewater By-Law 02-03, Section 5 – Storm Sewer Requirements and Table 1 Limits for Sanitary Sewers and Combined Sewer Discharge with the exception of total suspended solids. Any construction dewatering should be treated for TSS prior to discharging to the local infrastructure. A summary of short and long-term groundwater flow follows.

3.7.1. Short Term

The borehole data have indicated that no unusual groundwater seepage problems should be expected during excavation and 'perched water' can be controlled by conventional sump pumping. Short-term dewatering will consist of both groundwater and precipitation totalling a maximum discharge of 11,683 L/day (0.13 L/s).

A construction dewatering and treatment plan will be submitted under separate cover by others prior to site plan approval. Due to the low daily discharge volume (<50,000 L/d), water taking during the construction activities will not require an EASR.

3.7.2. Long Term

Long-term dewatering will only consist of groundwater totalling a maximum discharge of 12,223 L/day (0.14 L/s). A portion of this discharge (0.08 L/s) is already accounted for in the sanitary calculation in the form of I/I, leaving roughly 0.06 L/s as long term discharge. It is the development team's opinion that treating the foundation (i.e. bathtubbing) for such a small volume of water is not necessary.

According the hydrogeological report, the total seepage volume is expected to be significantly lower. As the only by-law exceedance is related to total suspended solid, it is recommended to discharge groundwater to the SWM chamber where it will be treated by the OGS prior to being released from the site as part of stormwater management controls and ultimately to the Timsin Pond 22. Due to the low daily discharge volume (<50,000 L/d), approval of a Permit to Take Water will not be required by the MECP

3.8 100-Year Capture

To ensure the 100-year flows are captured from areas susceptible to overland flow, all catchbasins/area drains were modelled as horizontal orifice plates assuming a 50% blockage.

The total maximum flow contributing to an area drain is equivalent to 17.6 L/s, based on the maximum individual AD catchment area of 350m^2. A summary of the design flows and inlet capacity is summarized in **Table 7** below:

Table 7: 100-Year Capture Points

Drainage ID	Area (m^2)	100-Year Flow (L/s)	Max Head (m)	½ Inlet Capacity (L/s)
AD	350	17.6	0.15	35.4

Considering a 50% blockage of the 100-year capture points, single area drains such as Zurn Z662 (or approved equivalent) at all AD locations are sufficient to ensure total capture from the designed drainage areas

3.9 Proposed Drainage System

The site will connect to an existing manhole at Kaitting Trail and Sixth Line via a 450 mm diameter storm sewer service lateral with a grade of 0.2% which has a full flow capacity of 133 L/s, suitable to receive the maximum discharge from the SWM tank of 106.7 L/s. Refer to **Plan 101** found in **Appendix E** for the details related to the service connection.

4.0 SANITARY DRAINAGE

All calculations pertaining to the information summarized in the following sections are found in **Appendix C**.

4.1 Existing Sanitary Drainage System

The following sanitary sewer infrastructure is located within the vicinity of the subject site:

- An existing 200 mm diameter sanitary sewer located near the Centreline of Kaitting Trail. This sewer drains west to into the Timsin subdivision.
- There is a future 200mm diameter sanitary sewer planned near the west curb line of Sixth Line. This sewer would connect to the above-referenced existing infrastructure.

4.2 Existing Sanitary Flows

The existing sanitary discharge flows from the site were calculated based on the criteria outlined in **Section 2.3**, and the current land-use. A total peak design flow of 0.13 L/s was calculated for the subject property.

4.3 Proposed Sanitary Flows

The proposed sanitary discharge flows from the site were calculated based on the criteria outlined in **Section 2.3**, the proposed building and site information. A total peak design flow of 4.7 L/s was calculated for the subject property.

4.4 Proposed Sanitary Connection

All sanitary flow from the proposed development will outlet into the existing 200mm sanitary sewer on Kaitting Trail. A 200 mm sanitary sewer service connection with a grade of 2.0% will be adequate to convey the calculated design flow of 4.7 L/s. Connection at the municipal main will be made at an existing 1,200mm diameter manhole with an external drop structure.

A control manhole will be constructed within the site and will consist of a cast-in place structure forming part of the building foundation.

Refer to **Drawing 101** found in **Appendix E** for the details related to the service connection.

5.0 WATER SUPPLY

All calculations pertaining to the information summarized in the following sections are found in **Appendix D**.

5.1 Existing System

The following water infrastructure is located within the vicinity of the subject site:

- An existing 600 mm diameter CPP watermain located approximately 2.5m west of the Sixth Line centreline.
- An existing 200 mm diameter PVC watermain located approximately 8.0m west of the Sixth Line centreline.

A hydrant flow test will be conducted when it is permissible to do so, the results of which will be included in this report once available.

The site is located within the existing pressure zone O4 (TWL=236m).

5.2 Existing Water Demands

The existing water consumption was calculated as per the criteria outlined in **Section 2.4** above. The average day domestic water consumption rate is estimated to be 0.01 L/s (maximum day demand of approximately 2,167 L/day).

5.3 Proposed Water Supply Requirements

The estimated water consumption was calculated as per the criteria outlined in **Section 2.4** above. The proposed average day domestic water consumption rate is estimated to be 1.12 L/s (maximum day demand of approximately 218,176 L/day).

Water Supply for Public Fire Protection calculations, as provided by the Fire Underwriters Survey (FUS), were undertaken to determine the minimum requirement to provide adequate fire suppression. Assuming non-combustible construction and limited occupant combustible contents, our calculations suggest that a minimum fire suppression flow of approximately 10,000 L/min (2,642 USGPM) at a pressure of 140 KPa (20 PSI), will be required for the subject development.

The adequacy of the local water infrastructure will be confirmed once the hydrant flow test is completed.

5.4 Proposed Water Connection

As the height of the proposed building will not exceed 84.0m, the development may be serviced by single fire/domestic supply lines. Therefore, the proposed building will be serviced with a 150mm service connection for fire supply, from which a 100mm domestic water supply will branch off, the layout of which will be in accordance with the Region's standard RH 409.010.

The proposed 150mm diameter water service will connect to the existing 200 mm diameter watermain on Sixth Line with a tapping sleeve and valves.

The development will have a combined meter and backflow prevention room as per the Region's standard RH 504.010 and RH 504.011 which will be incorporated on the P1 mechanical room of the development.

Refer to **Drawing 101** found in **Appendix E** for additional details.

6.0 SITE GRADING

6.1 Existing Grades

The site is mostly covered by landscaped and asphalt surfaces and roof from an existing structure. Generally speaking, drainage flows overland and is split and is directed to the northeast and south towards the adjacent creeks and developed areas as shown on **Figure 201** found in **Appendix B**. The topography of the surrounding areas suggests that the site does not receive drainage from external sources. The site has an approximate 2.0m grade difference from high to low point.

6.2 Proposed Grades

Based on the development concept and the review of the perimeter site grades, the finished floor elevation of the proposed building and townhouses fronting Sixth Line will be set to 172.05.

In order to achieve the proposed grades and to met existing grades at the perimeter of the parking areas, retaining walls will be needed to make up the grade difference between the north, east and south property line grades.

The proposed finished floor elevations and grading of the site perimeter will be compatible with the existing developments. Perimeter grades will be designed to produce grades in the range of 2.0% to 5.0% throughout the site towards the adjacent municipal rights-of-way where existing grades will be met at the sidewalk.

The development of this site and will not adversely impact adjacent lands. Please refer to **Drawing 401** found in **Appendix E** for additional information.

7.0 EROSION AND SEDIMENT CONTROL

To ensure stormwater runoff during the construction phase does not transport sediment to the existing local infrastructure, the following measures will be implemented throughout the construction period:

- Temporary catch basin sediment control devices are proposed on Sixth Line.
- Temporary sediment control fencing will be erected around the site perimeter and shall be removed upon completion of the external construction activities.
- Temporary construction access (mud mat) will be built at the construction entrance currently proposed from Sixth Line.
- All proposed erosion and sedimentation control measures shall be inspected promptly after every storm event and shall be repaired or replaced if/where damaged.

As a measure of best management practice, the following shall be implemented as part of the construction activities:

- All precipitation accumulated within the site excavation during the duration of construction shall be dealt with as part of the on-site short-term groundwater dewatering program.
- All waste material, including any hazardous contaminated excess soils, shall be removed and disposed of off-site by the owner in accordance with the Ministry of the Environment, Conservation and Parks (MECP) regulations and all other applicable statutory requirements.

The above measures will be designed and constructed in accordance with the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2019). These measures, as well as any additional information pertaining to ESC Controls, are detailed on **Drawing 601** found in **Appendix E**. All reasonable measures will be taken to ensure sediment loading to the adjacent properties and municipal right-of-way is minimized both during and following construction.

8.0 CONCLUSIONS AND RECOMMENDATIONS

This report is to be read in conjunction with the application submission material for the project proposal known as 3043 6th Line LP development. We conclude and recommend the following:

8.1 STORMWATER MANAGEMENT

Peak runoff rates for the proposed development were designed to be less than or equal to the approved condition by implementing onsite SWM controls. Stormwater storage will be implemented to achieve this and will be provided by on-site below grade storage. Stormwater flows will be reduced to the allowable with a 230mm orifice plate located upstream of the oil-grit separator. A total storage volume of 24.9m^3 is required to meet quantity controls and will be achieved with an underground stormwater tank.

Quality controls are not required as the downstream pond addresses all quality controls. The site will include an OGS for spill control.

8.2 SANITARY DRAINAGE

The sanitary discharge from the proposed development will be directed to the existing infrastructure on Kaitting Trail.

8.3 WATER SUPPLY

It is anticipated that the infrastructure will be adequate to service the proposed development, however this will be confirmed once a hydrant flow test can be completed in the spring of 2026.

8.4 SITE GRADING

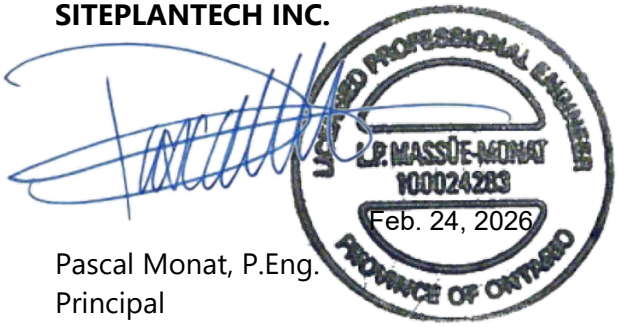
The proposed grading is compatible with existing elevations at the property limits, the proposed road widening and will not adversely affect adjacent properties.

8.5 EROSION AND SEDIMENT CONTROL

ESC measures were designed as per the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2019). Provided that these measures are well maintained during construction, these will be adequate to keep sediments from entering the municipal infrastructure during construction.

Respectfully submitted,

SITEPLANTECH INC.



Pascal Monat, P.Eng.
Principal

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Appendix A

Background Information

3043 SIXTH LINE
OAKVILLE, ONTARIO

ISSUED FOR ZBA/OPA

ISSUED / REVISED yy-mm-dd

26-02-20	ISSUED FOR ZBA

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PROJ. NAME
3043 SIXTH LINE
3043 SIXTH LINE

OWNER
Mutual Developments

DWG TITLE
Cover Page

DATE: 2025-11-19
SCALE :
DRAWN : RM
CHECKED : MS/AG
PROJ. No. : 2503 DWG No.
AZS000

PROJECT & ZONING INFORMATION

ZONING REQUIREMENTS		
SITE		
TYPE	**NOTES**	**PROVIDED**
GROSS SITE AREA		**3,250.85 m²**
ROW CONVEYANCE		**343.40 m²**
NET SITE AREA		**2,907.45 m²**

COVERAGE

*"Building coverage is only area of ground floor currently. Coverage definition to be confirmed by planner. **Paved Area is paved area after ROW conveyance. ***Outdoor amenity is currently counted towards landscaping, to be confirmed.*

TYPE	NOTES	PROVIDED	
BUILDING COVERAGE*		**956.62 m²**	32.90%
PAVED AREA		**944.42 m²**	32.48%
LANDSCAPING**		**1,006.41 m²**	34.61%
NET SITE AREA		**2,907.45 m²**	**100.00%**

FLOOR AREA/FSI

Floor Area: *means the total area of all floors of a building within the outside walls or outside finished furred partitions of the walls, but does not include a porch, non-walk-in bay window, attic, basement, enclosed or roofed walkways or loading dock*

Floor Space Index (FSI): *means the floor area of all buildings on a lot divided by the lot area.*

TYPE	NOTES	PROVIDED	
TOTAL RES FA		**12,819.73 m²**	100.00%
TOTAL FA		**12,819.73 m²**	**100.00%**
FLOOR SPACE INDEX (GROSS)		**3.94**	
FLOOR SPACE INDEX (NET)		**4.41**	

AFFORDABLE		
1 BEDROOM	1,599.71 m²	17,219 SF
2 BEDROOM	2,185.26 m²	23,522 SF
3 BEDROOM	387.50 m²	4,171 SF
TOTAL AFFORDABLE	***4,172.46 m²***	***44,912 SF***

UNITS	**PROVIDED**
AFFORDABLE	
1 BEDROOM	35 units
2 BEDROOM	35 units
3 BEDROOM	5 units
TOTAL AFFORDABLE	***75 units***
MARKET	
1 BEDROOM	30 units
2 BEDROOM	43 units
3 BEDROOM	17 units
TOTAL MARKET	***90 units***
PROJECT TOTAL	
1 BEDROOM	65 units
2 BEDROOM	78 units
3 BEDROOM	22 units
PROJECT TOTAL	***165 units***

RESIDENTIAL AMENITY

TYPE			PROVIDED (m²/unit)	PROVIDED (m²)
INDOOR	165 units		2.00 m²	**329.95 m²**
OUTDOOR	165 units		2.00 m²	**329.76 m²**
TOTAL RES. AMENITY			**4.00 m²**	**659.71 m²**

VEHICULAR PARKING

LEVEL	LVL TOTAL
P2	**54**
P1	**60**
L1	**14**
TOTAL PARKING	***128***

BICYCLE PARKING

TYPE			REQUIRED		PROVIDED
Res LONG TERM	165 units	0.75	spaces/unit	124	**166**
Res SHORT TERM	165 units	0.25	spaces/unit	42	**42**
TOTAL BICYCLES				166	**208**

LEVEL BREAKDOWN	RES. LT.	RES. ST.	LVL TOTAL
P2	0	0	**0**
P1	166	0	**166**
L1	0	42	**42**
TOTAL BICYCLES	*166*	*42*	***208***

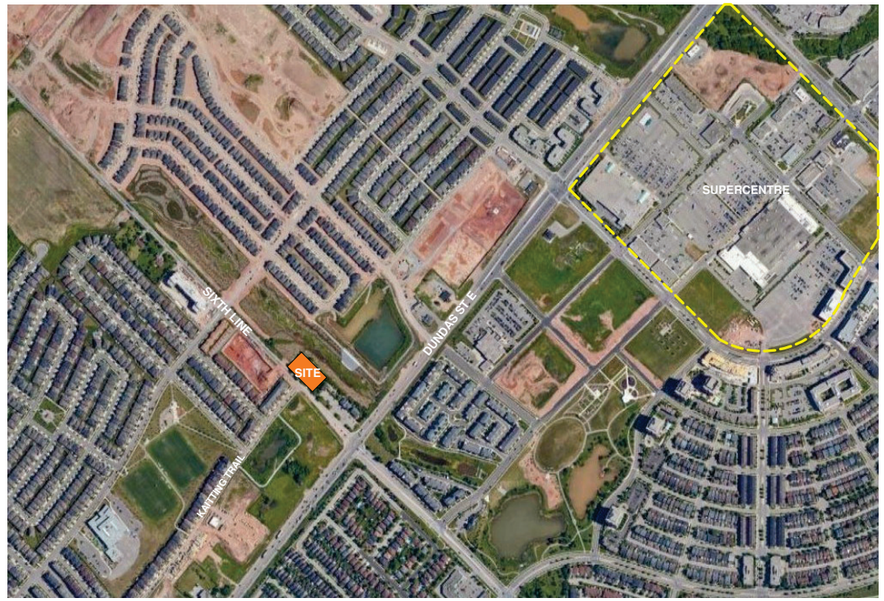
LOADING & STAGING

TYPE	REQUIRED	PROVIDED
3.5mx12m		**1**
STAGING		**26.95 m²**

GARBAGE ROOM

TYPE	REQUIRED	PROVIDED
Garbage Room		**73.90 m²**
TOTAL GARBAGE	--	**73.90 m²**

CONTEXT PLAN - NTS



PROJECT STATISTICS

	TFA		FLOOR AREA								AFFORDABLE UNITS FLOOR AREA					
			RESIDENTIAL		FLOOR AREA TOTAL		INDOOR AMENITY		OUTDOOR AMENITY		1BD-AFF		2BD-AFF		3BD-AFF	
UNDERGROUND	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF
PARKING																
Level -2	1,888.73 m²	20,330 SF	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Level -1	2,716.52 m²	29,240 SF	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PARKING TOTAL	*4,605.25 m²*	*49,571 SF*	--	--	--	--	--	--	--	--	--	--	--	--	--	--
UNDERGROUND TOTAL	***4,605.25 m²***	***49,571 SF***	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

	TFA		FLOOR AREA								AFFORDABLE UNITS FLOOR AREA					
			RESIDENTIAL		FLOOR AREA TOTAL		INDOOR AMENITY		OUTDOOR AMENITY		1BD-AFF		2BD-AFF		3BD-AFF	
ABOVE GRADE	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF	Area m²	Area SF
PODIUM (Affordable)																
Level 01	956.62 m²	10,297 SF	956.62 m²	10,297 SF	956.62 m²	10,297 SF	150.98 m²	1,625 SF	221.48 m²	2,384 SF	--	--	--	--	--	--
Mezzanine Level	368.47 m²	3,966 SF	368.47 m²	3,966 SF	368.47 m²	3,966 SF	--	--	--	--	--	--	--	--	--	--
Level 02	1,243.56 m²	13,386 SF	1,243.56 m²	13,386 SF	1,243.56 m²	13,386 SF	--	--	--	--	137.81 m²	1,483 SF	313.47 m²	3,374 SF	77.50 m²	834 SF
Level 03- Typical	1,243.56 m²	13,386 SF	1,243.56 m²	13,386 SF	1,243.56 m²	13,386 SF	--	--	--	--	137.81 m²	1,483 SF	313.47 m²	3,374 SF	77.50 m²	834 SF
Level 4 to 6	*3,730.69 m²*	*40,157 SF*	*3,730.69 m²*	*40,157 SF*	*3,730.69 m²*	*40,157 SF*	--	--	--	--	*413.44 m²*	*4,450 SF*	*940.40 m²*	*10,122 SF*	*232.50 m²*	*2,503 SF*
SUBTOTAL	*7,542.90 m²*	*81,191 SF*	*7,542.90 m²*	*81,191 SF*	*7,542.90 m²*	*81,191 SF*	*150.98 m²*	*1,625 SF*	*221.48 m²*	*2,384 SF*	*689.06 m²*	*7,417 SF*	*1,567.33 m²*	*16,871 SF*	*387.50 m²*	*4,171 SF*
MID-RISE (Market)																
Level 07 - Amenity	845.80 m²	9,104 SF	845.80 m²	9,104 SF	845.80 m²	9,104 SF	178.97 m²	1,926 SF	108.27 m²	1,165 SF	--	--	--	--	--	--
Level 08 - Typical	812.47 m²	8,745 SF	812.47 m²	8,745 SF	812.47 m²	8,745 SF	--	--	--	--	182.13 m²	1,960 SF	123.59 m²	1,330 SF	--	--
Level 9 to 12	*3,249.90 m²*	*34,982 SF*	*3,249.90 m²*	*34,982 SF*	*3,249.90 m²*	*34,982 SF*	--	--	--	--	728.52 m²	*7,842 SF*	494.34 m²	*5,321 SF*	--	--
Mech. Penthouse	368.65 m²	3,968 SF	368.65 m²	3,968 SF	368.65 m²	3,968 SF	--	--	--	--	--	--	--	--	--	--
SUBTOTAL	*5,276.82 m²*	*56,799 SF*	*5,276.82 m²*	*56,799 SF*	*5,276.82 m²*	*56,799 SF*	*178.97 m²*	*1,926 SF*	*108.27 m²*	*1,165 SF*	*910.65 m²*	*9,802 SF*	*617.93 m²*	*6,651 SF*	--	--
ABOVEGRADE TOTAL	***12,819.73 m²***	***137,990 SF***	***12,819.73 m²***	***137,990 SF***	***12,819.73 m²***	***137,990 SF***	***329.95 m²***	***3,552 SF***	***329.76 m²***	***3,549 SF***	***1,599.71 m²***	***17,219 SF***	***2,185.26 m²***	***23,522 SF***	***387.50 m²***	***4,171 SF***
GRAND TOTAL	**17,424.98 m²**	**187,561 SF**	**12,819.73 m²**	**137,990 SF**	**12,819.73 m²**	**137,990 SF**	**329.95 m²**	**3,552 SF**	**329.76 m²**	**3,549 SF**	**1,599.71 m²**	**17,219 SF**	**2,185.26 m²**	**23,522 SF**	**387.50 m²**	**4,171 SF**
	TFA		**RESIDENTIAL**		**FA TOTAL**		**INDOOR AMENITY**		**OUTDOOR AMENITY**		1BD-AFF		2BD-AFF		3BD-AFF	

TOTAL RESIDENTIAL UNIT COUNT

	BACH	1BD-AFF	1BD	2BD	2BD-AFF	3BD	3BD-AFF	TOTAL
	-	-	-	-	-	6	-	6
	-	-	-	-	-	-	-	-
	-	3	4	4	5	1	1	18
	-	3	4	4	5	1	1	18
	-	*9*	*12*	*12*	*15*	*3*	*3*	*54*
	-	*15*	*20*	*20*	*25*	*11*	*5*	*96*
	--	15.6%	20.8%	20.8%	26.0%	11.5%	5.2%	
	-	-	5	3	-	1	-	9
	-	4	1	4	2	1	-	12
	-	*16*	*4*	*16*	*8*	*4*	-	*46*
	-	-	-	-	-	-	-	-
	-	*20*	*10*	*23*	*10*	*6*	-	*69*
	--	29.0%	14.5%	33.3%	14.5%	8.7%	-	
	-	**35**	**30**	**43**	**35**	**17**	**5**	***165***
	0	**65**		**78**		**22**		
	0.0%	39.4%		47.3%		13.3%		
AVG. UNIT SIZE PER TYPE	--	45.71 m²	51.72 m²	66.45 m²	62.44 m²	85.39 m²	77.50 m²	
	--	492 SF	557 SF	715 SF	672 SF	919 SF	834 SF	

*** Areas in square feet are for reference only.

DRAWING NOT TO BE SCALED

Contractor must check and verify all dimensions on the job and report any discrepancies to the architect before proceeding with the work.

ISSUED / REVISED yy-mm-dd

26-02-20	ISSUED FOR ZBA

Sweeny&Co Architects

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E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
3043 SIXTH LINE
3043 SIXTH LINE

OWNER
Mutual Developments

DWG TITLE
Context Plan & Project Statistics

DATE: 2025-11-19
SCALE : 1 : 20
DRAWN : RM/AJ
CHECKED : MS/AG
PROJ. No. : 2503 DWG No.
AZS001

CAR PARKING SPACE:

NOTES:

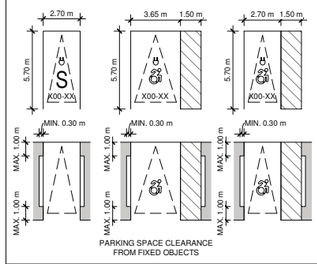
- DRIVE AISLE MINIMUM 6.0m UNLESS OTHERWISE NOTED.
- MINIMUM 2.1m VERTICAL CLEARANCE UNLESS OTHERWISE NOTED.
- ALL PARKING SPACES ARE TYPICAL UNLESS OTHERWISE NOTED.

MINIMUM PARKING SPACE DIMENSIONS:

REGULAR:
WIDTH: 2.70m
LENGTH: 5.70m

ACCESSIBLE A:
WIDTH: 3.65m
LENGTH: 5.70m

ACCESSIBLE B:
WIDTH: 2.70m
LENGTH: 5.70m



PARKING SPACE CLEARANCE FROM FIXED OBJECTS

LEGEND:

- ACCESIBLE PARKING SPACE
- ELECTRIC VEHICLE PARKING SPACE
- S — PARKING SPACE NOT MEETING THE MINIMUM DIMENSIONS REQUIREMENTS OR HAVING OBSTRUCTIONS

USES:
R = RESIDENTIAL
V = VISITOR
CS = CAR SHARE

X00-XX — USE / NUMBER / SUB-USE

BICYCLE PARKING SPACE:

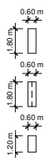
MINIMUM BICYCLE PARKING SPACE DIMENSIONS:

NOTE: 2.4m VERTICAL CLEARANCE IN ALL ROOMS UNLESS OTHERWISE NOTED.

HORIZONTAL:
WIDTH: 0.60m
LENGTH: 1.80m

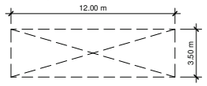
HORIZONTAL STACKED:
WIDTH: 0.60m
LENGTH: 1.80m

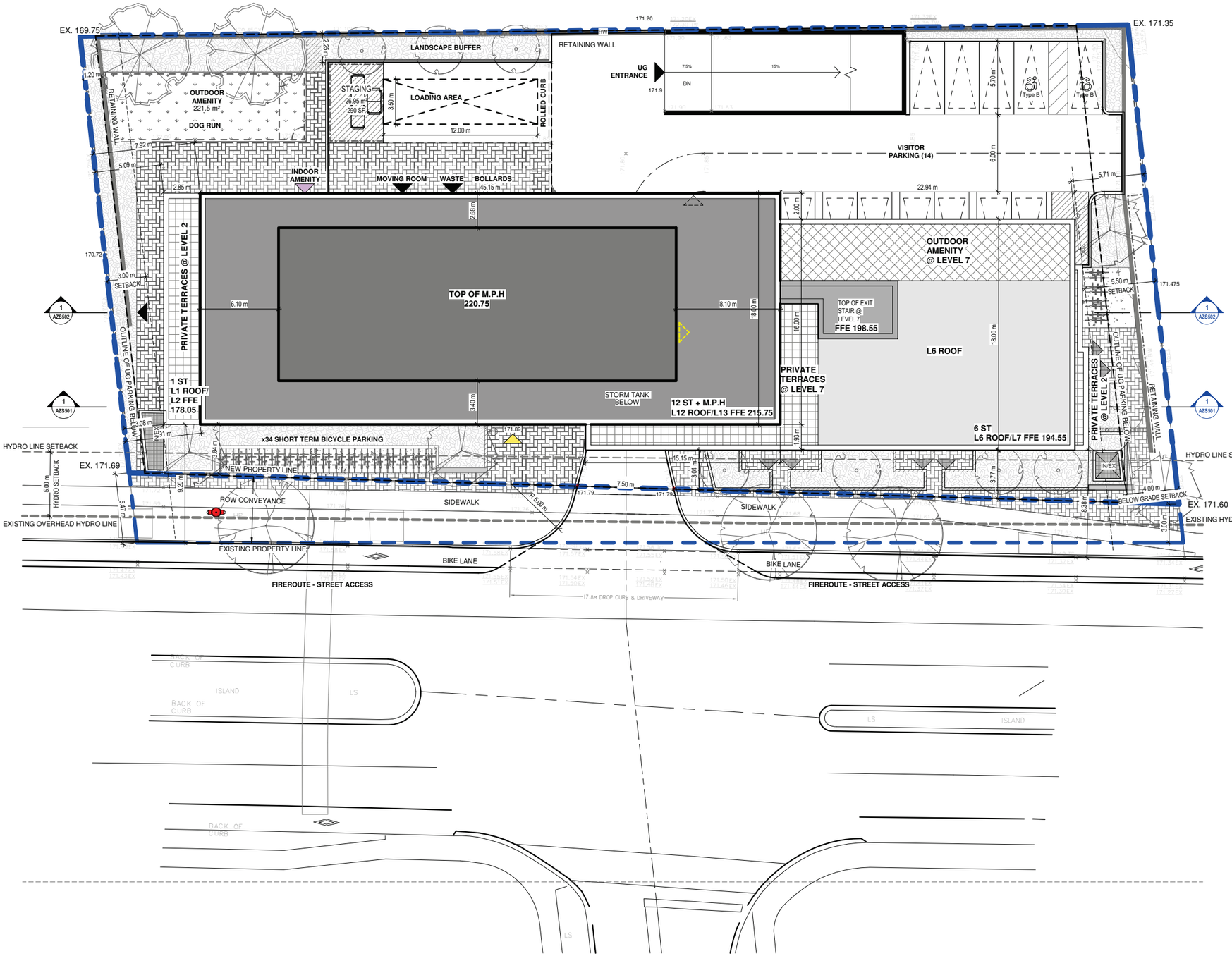
VERTICAL:
WIDTH: 0.60m
HORIZONTAL CLEARANCE: 1.20 m



TYPICAL LOADING SPACE:

RESIDENTIAL / RETAIL
LENGTH: 12.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.25m





ZBA_Site Plan — 1 : 150 — 1 AZS101

DRAWING NOT TO BE SCALED

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ISSUED / REVISED yy-mm-dd

26-02-20	ISSUED FOR ZBA

SITE SYMBOL LEGEND:

- RESIDENTIAL ENTRANCE - BARRIER FREE ACCESS
- RESIDENTIAL ENTRANCE UNDER OVERHANG
- SERVICE ENTRANCE
- SERVICE ENTRANCE UNDER OVERHANG
- TOWNHOUSE UNITS SECONDARY ENTRANCES
- INDOOR AMENITY ENTRANCE
- PRIVATE TERRACE
- OUTDOOR AMENITY
- PROPERTY LINE
- FIRE HYDRANT
- LANDSCAPE - WOOD FENCE
- LANDSCAPE - CHAIN LINK FENCE

Sweeny&Co Architects

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E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
3043 SIXTH LINE
3043 SIXTH LINE

OWNER
Mutual Developments

DWG TITLE
Site Plan & Zoning Information

DATE:	2025-11-19
SCALE :	As indicated
DRAWN :	RM/AJ
CHECKED :	MS/AG
PROJ. No. :	2503

DWG No. **AZS101**

CAR PARKING SPACE:

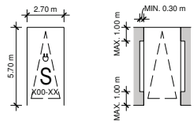
NOTES:

- DRIVE AISLE MINIMUM 6.0m UNLESS OTHERWISE NOTED.
- MINIMUM 2.1m VERTICAL CLEARANCE UNLESS OTHERWISE NOTED.
- ALL PARKING SPACES ARE TYPICAL UNLESS OTHERWISE NOTED.

MINIMUM PARKING SPACE DIMENSIONS:

REGULAR:
WIDTH: 2.70m
LENGTH: 5.70m

PARKING SPACE CLEARANCE FROM FIXED OBJECTS



LEGEND:

ACCESIBLE PARKING SPACE

ELECTRIC VEHICLE PARKING SPACE

S — PARKING SPACE NOT MEETING THE MINIMUM DIMENSIONS REQUIREMENTS OR HAVING OBSTRUCTIONS

USES:

R = RESIDENTIAL
V = VISITOR
CS = CAR SHARE

X00-XX — USE / NUMBER / SUB-USE

BICYCLE PARKING SPACE:

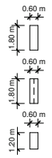
MINIMUM BICYCLE PARKING SPACE DIMENSIONS:

NOTE: 2.4m VERTICAL CLEARANCE IN ALL ROOMS UNLESS OTHERWISE NOTED.

HORIZONTAL:
WIDTH: 0.60m
LENGTH: 1.80m

HORIZONTAL STACKED:
WIDTH: 0.60m
LENGTH: 1.80m

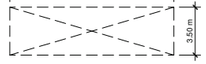
VERTICAL:
WIDTH: 0.60m
HORIZONTAL CLEARANCE: 1.20 m

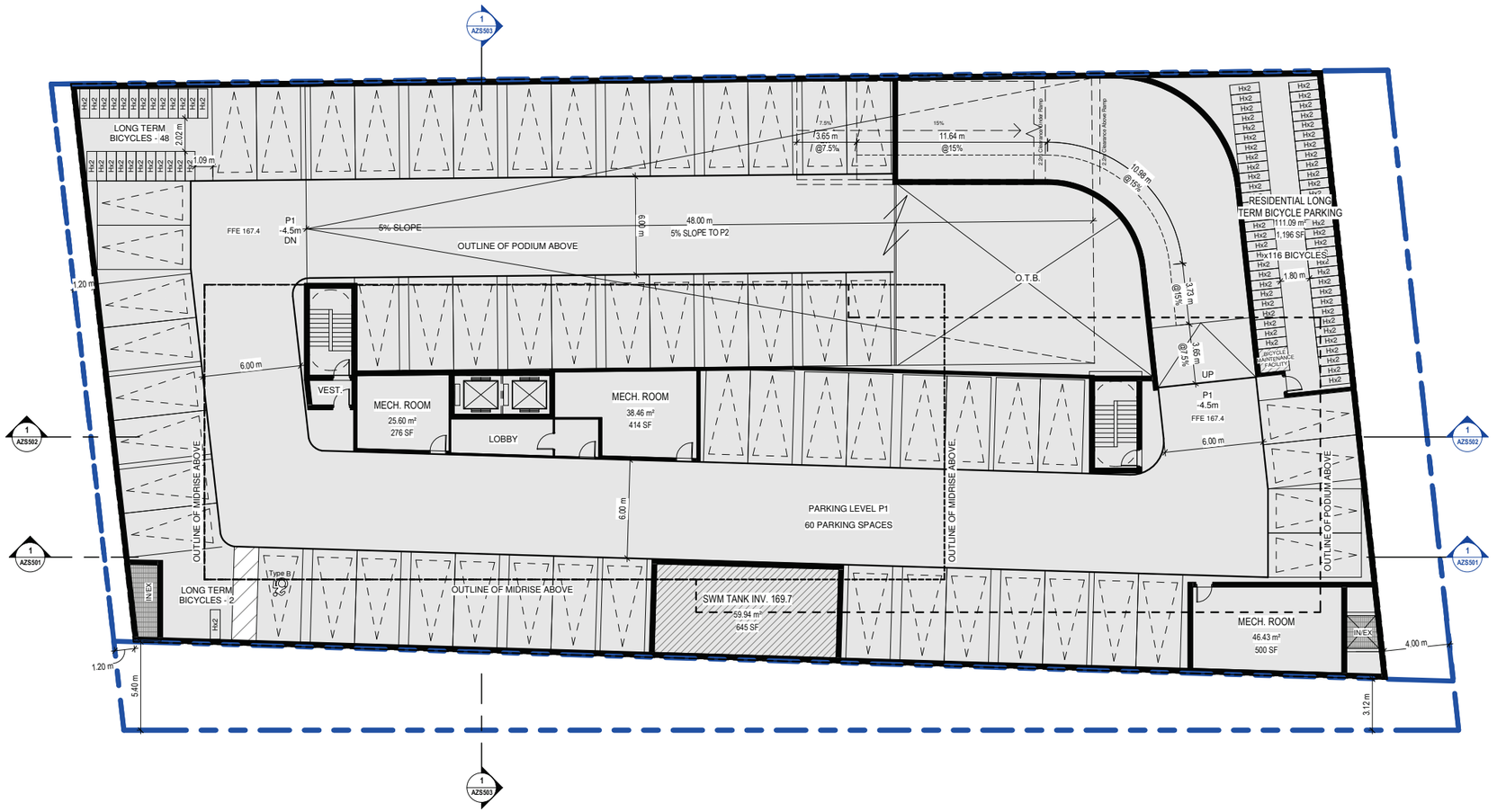


TYPICAL LOADING SPACE:

MINIMUM LOADING SPACE DIMENSIONS:

RESIDENTIAL / RETAIL
LENGTH: 12.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.25m





ZBA_Level P1
1 : 150

1
AZS202

DRAWING NOT TO BE SCALED

Contractor must check and verify all dimensions on the job and report any discrepancies to the architect before proceeding with the work.

ISSUED / REVISED yy-mm-dd

26-02-20	ISSUED FOR ZBA

ROOM LEGEND

- RETAIL
- INDOOR AMENITY
- OUTDOOR AMENITY
- RESIDENTIAL (1BD)
- RESIDENTIAL (2BD)
- RESIDENTIAL (3BD)

SITE SYMBOL LEGEND:

- RESIDENTIAL ENTRANCE - BARRIER FREE ACCESS
- RESIDENTIAL ENTRANCE UNDER OVERHANG
- SERVICE ENTRANCE
- SERVICE ENTRANCE UNDER OVERHANG
- TOWNHOUSE UNITS SECONDARY ENTRANCES
- INDOOR AMENITY ENTRANCE
- PRIVATE TERRACE
- OUTDOOR AMENITY
- PROPERTY LINE
- FIRE HYDRANT
- LANDSCAPE - WOOD FENCE
- LANDSCAPE - CHAIN LINK FENCE

Sweeny&Co Architects

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E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
3043 SIXTH LINE
3043 SIXTH LINE

OWNER
Mutual Developments

DWG TITLE
Level P1 Undeground

DATE:	2025-11-19
SCALE :	As indicated
DRAWN :	RM/MS/AJ
CHECKED :	MS/AG
PROJ. No. :	2503

DWG No.
AZS202

CAR PARKING SPACE:

NOTES:

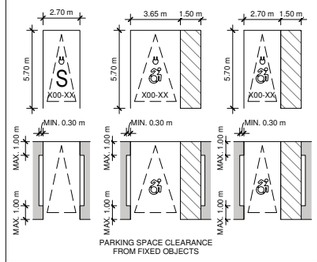
- DRIVE AISLE MINIMUM 6.0m UNLESS OTHERWISE NOTED.
- MINIMUM 2.1m VERTICAL CLEARANCE UNLESS OTHERWISE NOTED.
- ALL PARKING SPACES ARE TYPICAL UNLESS OTHERWISE NOTED.

MINIMUM PARKING SPACE DIMENSIONS:

REGULAR:
WIDTH: 2.70m
LENGTH: 5.70m

ACCESSIBLE A:
WIDTH: 3.65m
LENGTH: 5.70m

ACCESSIBLE B:
WIDTH: 2.70m
LENGTH: 5.70m



LEGEND:

- ACCESIBLE PARKING SPACE
- ELECTRIC VEHICLE PARKING SPACE
- S — PARKING SPACE NOT MEETING THE MINIMUM DIMENSIONS REQUIREMENTS OR HAVING OBSTRUCTIONS

USES:
R = RESIDENTIAL
V = VISITOR
CS = CAR SHARE

X00-XX
USE
NUMBER
SUB-USE

BICYCLE PARKING SPACE:

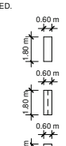
MINIMUM BICYCLE PARKING SPACE DIMENSIONS:

NOTE: 2.4m VERTICAL CLEARANCE IN ALL ROOMS UNLESS OTHERWISE NOTED.

HORIZONTAL:
WIDTH: 0.60m
LENGTH: 1.80m

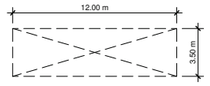
HORIZONTAL STACKED:
WIDTH: 0.60m
LENGTH: 1.80m

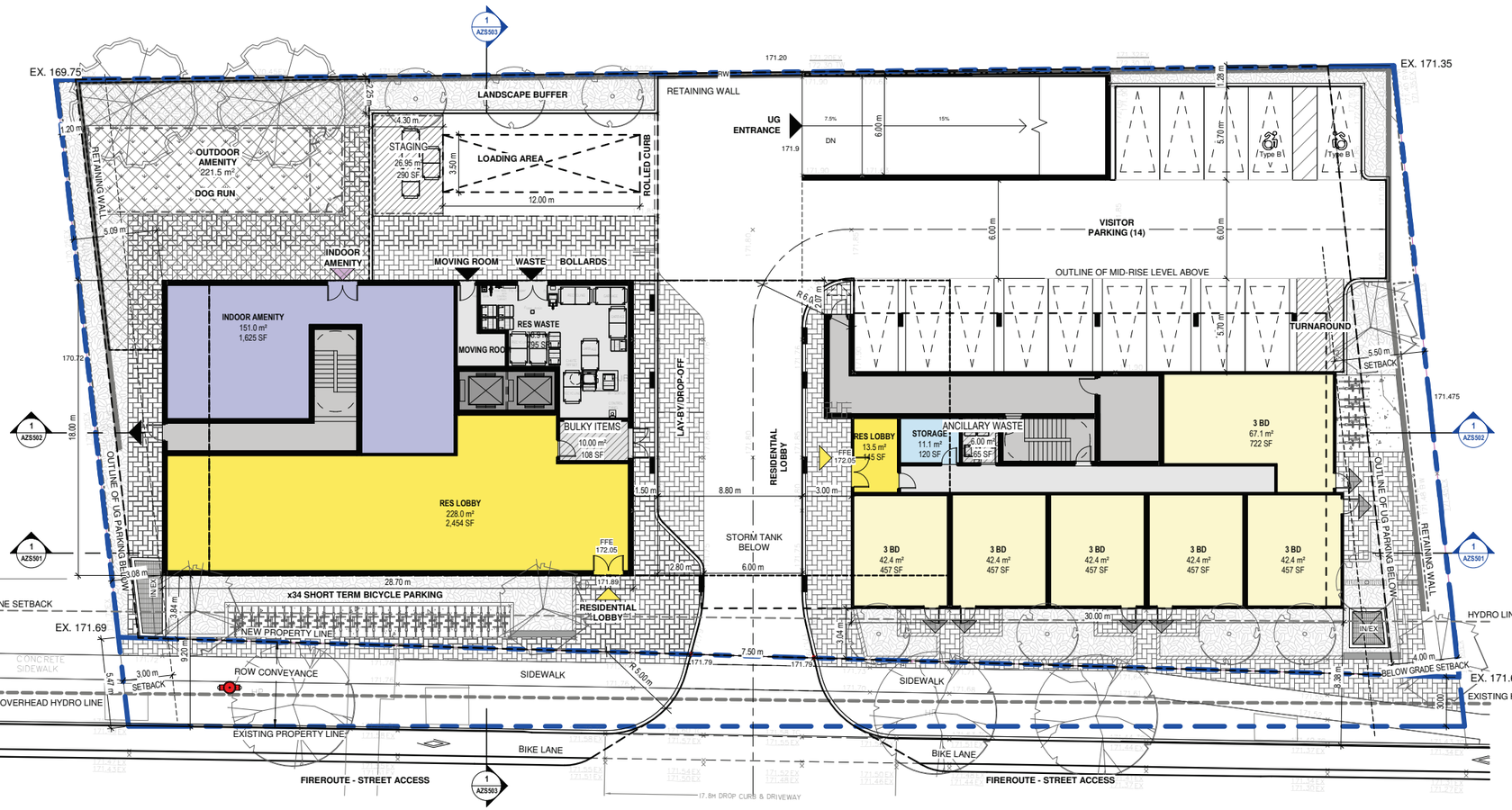
VERTICAL:
WIDTH: 0.60m
HORIZONTAL CLEARANCE: 1.20 m



TYPICAL LOADING SPACE:

RESIDENTIAL / RETAIL
LENGTH: 12.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.25m





ZBA_Level 1
1 : 150

1 AZS203

DRAWING NOT TO BE SCALED

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This drawing shall not be used for construction purposes until signed by the consultant responsible. This drawing, as an instrument of service, is provided by and is the property of Sweeny & Co. Architects.

ISSUED / REVISED yy-mm-dd

26-02-20	ISSUED FOR ZBA

ROOM LEGEND
- RETAIL
- INDOOR AMENITY
- OUTDOOR AMENITY
- RESIDENTIAL (1BD)
- RESIDENTIAL (2BD)
- RESIDENTIAL (3BD)

SITE SYMBOL LEGEND:
- RESIDENTIAL ENTRANCE - BARRIER FREE ACCESS
- RESIDENTIAL ENTRANCE UNDER OVERHANG
- SERVICE ENTRANCE
- SERVICE ENTRANCE UNDER OVERHANG
- TOWNHOUSE UNITS SECONDARY ENTRANCES
- INDOOR AMENITY ENTRANCE
- PRIVATE TERRACE
- OUTDOOR AMENITY
- PROPERTY LINE
- FIRE HYDRANT
- LANDSCAPE - WOOD FENCE
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Sweeny&Co Architects

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E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
3043 SIXTH LINE
3043 SIXTH LINE

OWNER
Mutual Developments

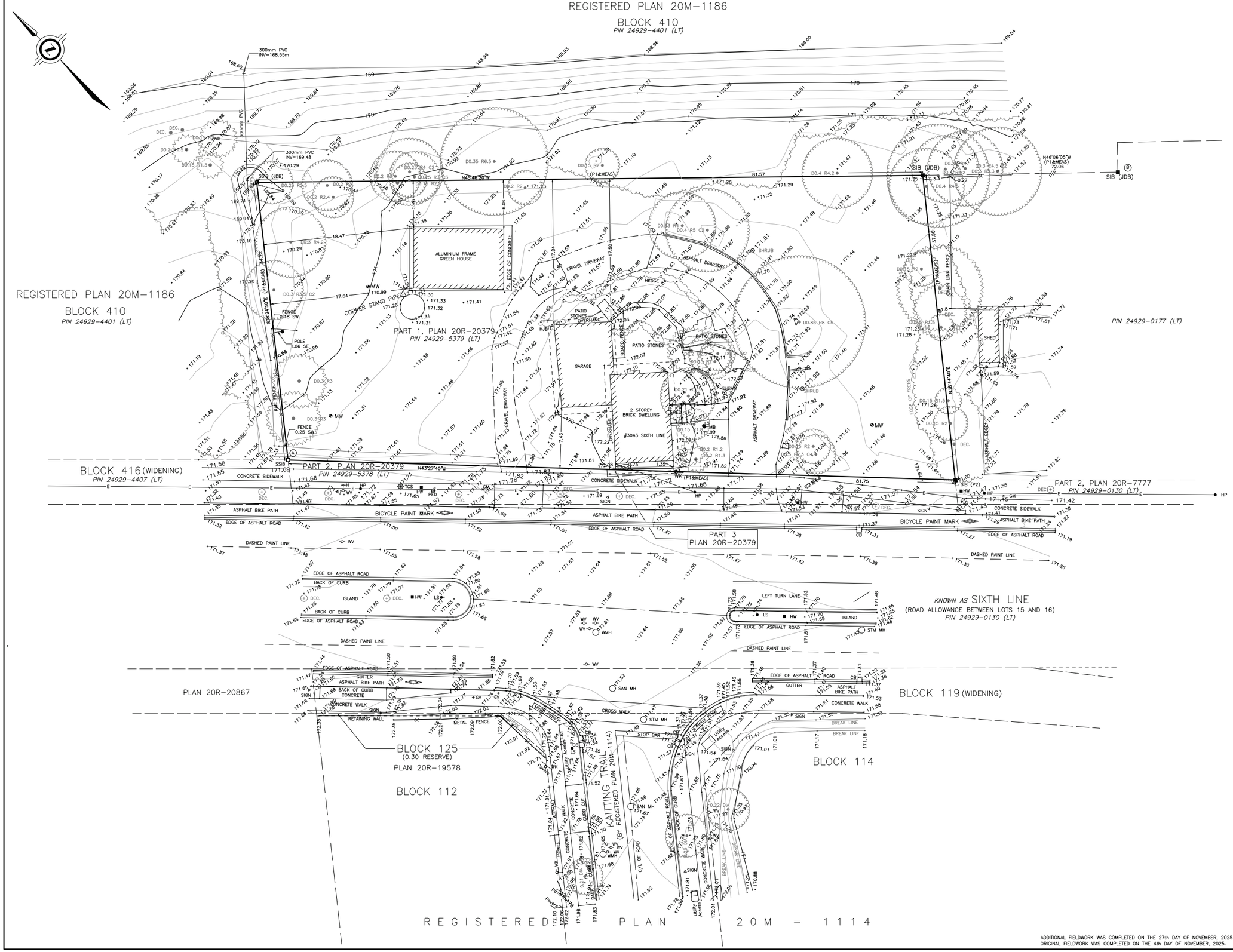
DWG TITLE
Ground Level

DATE: 2025-11-19
SCALE : As indicated
DRAWN : RM/MS/AJ
CHECKED : AG/MS
PROJ. No. : 2503
DWG No. AZS203

REGISTERED PLAN 20M–1186

BLOCK 410

PIN 24929–4401 (LT)



PLAN OF SURVEY ILLUSTRATING TOPOGRAPHY OF

PART OF LOT 15
CONCESSION 1
NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 200

5 0 5 10 metres

THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 610mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:200

J.D. BARNES LIMITED

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

NOTES

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

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999705.

FOR BEARING COMPARISONS, A ROTATION OF 0°00'00" COUNTER–CLOCKWISE WAS APPLIED TO BEARINGS ON PLAN 20R–20379.

INTEGRATION DATA

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

POINT ID	EASTING	NORTHING
ORP (A)	602 634.63	4 814 978.83
ORP (B)	602 766.23	4 814 898.82

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

THE RESULTANT TIE BETWEEN ORP (A) AND ORP (B) IS 154.06m N 58°41'45" W

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED
P1	DENOTES	PLAN 20R–20379
P2	DENOTES	PLAN 20R–7777

SET SSIB WAS USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

TOPOGRAPHIC LEGEND

□ BM	DENOTES	BENCH MARK
CB	DENOTES	CATCHBASIN
CSP	DENOTES	CORRUGATED STEEL PIPE
+ GM	DENOTES	GAS MARKER
GV	DENOTES	GAS VALVE
H	DENOTES	FIRE HYDRANT
HJB	DENOTES	HYDRO JUNCTION BOX
HW	DENOTES	HANDWELL
LS	DENOTES	LIGHT STANDARD
MB	DENOTES	MAIL BOX
MW	DENOTES	MONITORING WELL
PED	DENOTES	TELEPHONE PEDESTAL
SAN MH	DENOTES	SANITARY MANHOLE
STM MH	DENOTES	STORM MANHOLE
PVC	DENOTES	POLYVINYL CHLORIDE PIPE
WMH	DENOTES	WATER MANHOLE
WK	DENOTES	WATER KEY
E	DENOTES	OVERHEAD HYDRO CABLE
	DENOTES	SHRUB
DEC	DENOTES	DECIDUOUS TREE UNDER 0.10m IN DIAMETER
	DENOTES	DECIDUOUS TREE DIA=DIAMETER OF TRUNK IN METRES
	DENOTES	CONIFEROUS TREE DIA=DIAMETER OF TRUNK IN METRES

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON NOVEMBER 04, 2025

DECEMBER 2, 2025
DATE

R. S. QUERUBIN
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V–

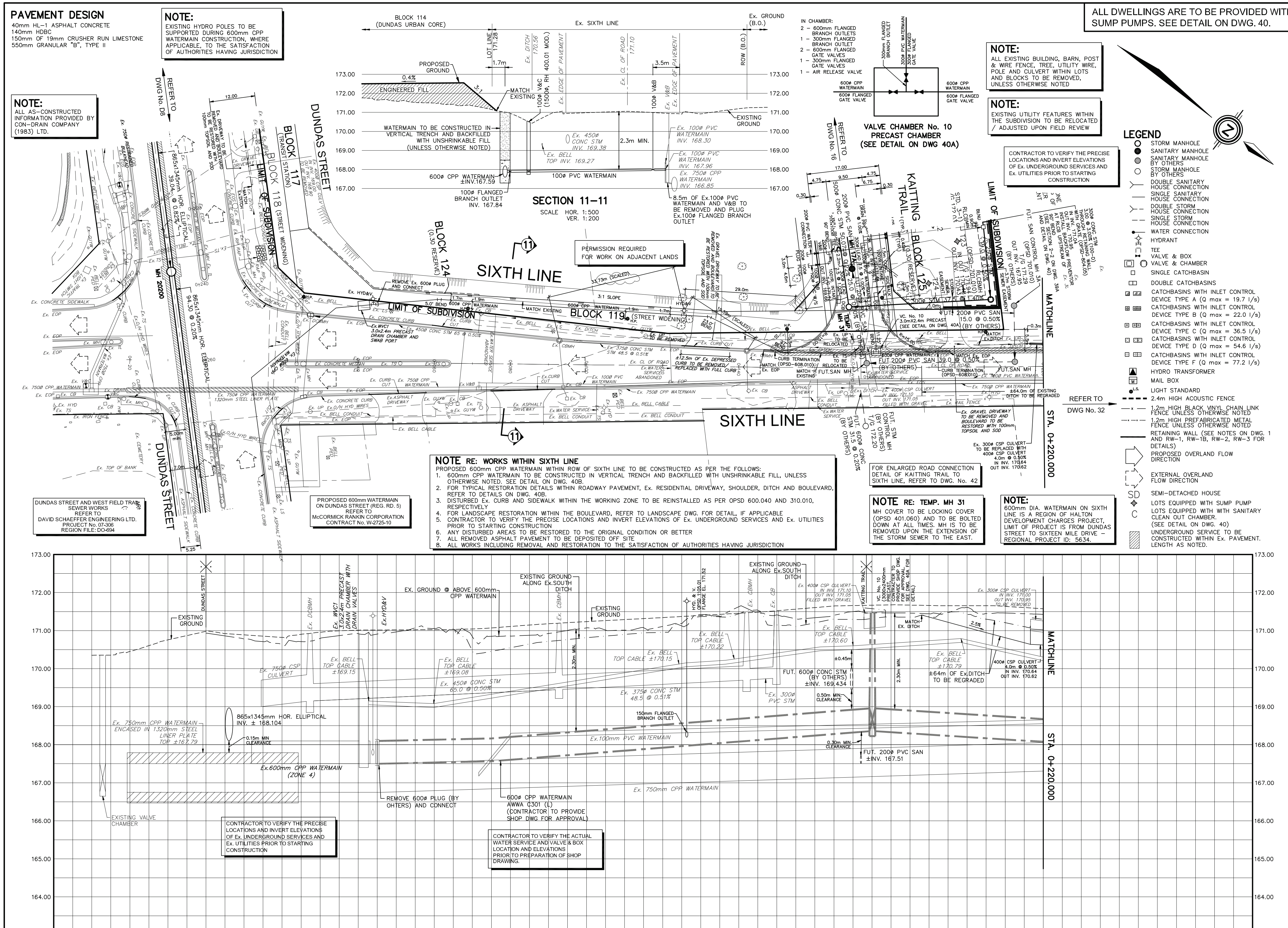
ADDITIONAL FIELDWORK WAS COMPLETED ON THE 27th DAY OF NOVEMBER, 2025.
ORIGINAL FIELDWORK WAS COMPLETED ON THE 4th DAY OF NOVEMBER, 2025.

J.D. BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
491 WHEELABRATOR WAY, SUITE A, MILTON, ON L9T 3C1
T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

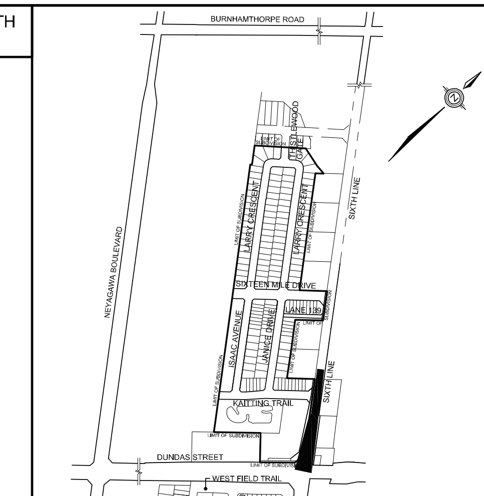
DRAWN BY:	CHECKED BY:	REFERENCE NO.:
TH/RPA	RSQ	25–30–372–00–A
		DATED: 2025–12–02

PLOT DATE: 12/2/2025 8:47 AM

FILE: G:\JOB Mitch\25-30-372\DGN\Drawing\25-30-372-00-B.dwg



SANITARY INVERT																
WATERMAIN INVERT						167.500								168.385			
EXISTING CENTERLINE ELEVATIONS			170.981	170.822	171.013		171.145	171.108	171.237	171.343	171.457	171.605		171.677	171.653	171.574
CENTERLINE CHAINAGE	-0+030.000	-0+020.000	0+000.000	0+020.000	0+040.000	0+045.459	0+060.000	0+080.000	0+100.000	0+120.000	0+140.000	0+160.000	0+175.240	0+180.000	0+200.000	0+220.000



KEY PLAN
N.T.S

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY RADY–PENTEK & EDWARD SURVEYING LTD., JOB No. 05–344, TOPOGRAPHIC SURVEY DATED ON DEC 08, 2010 & JUNE 10, 2011.

LEGAL INFORMATION
CALCULATED M–PLAN PROVIDED BY RADY–PENTEK & EDWARD SURVEYING LTD., PROJECT No. 10–214, SURVEY DATED DECEMBER 23, 2011.

AS-CONSTRUCTED

BENCHMARK No. 00819818116 ELEVATION = 175.722m
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO BENCHMARK No. 00819818116 HAVING AN ELEVATION OF 175.722m. CONCRETE CULVERT UNDER BURNHAMTHORPE RD, 1.6km EAST OF THE JCT OF BURNHAMTHORPE RD AND TRAFALGAR RD IN OAKVILLE, 1.4km WEST OF THE JCT OF BURHAMTHORPE RD AND NINTH LINE RD, AND 8.8m NORTH OF THE CENTRELINE OF BURNHAMTHORPE RD. TABLET IS SET VERTICALLY IN TOP OF NORTH END OF CULVERT, 1.25m SOUTH OF NORTH END OF CULVERT AND 73cm EAST OF WEST FACE OF CULVERT.

No.	DATE	BY	REVISIONS	APPROVED
4.	15–05–15	K.A.	AS–CONSTRUCTED SUBMISSION. SAN, STM, WM & ROAD CENTRELINE	
3.	12–09–28	A.S.	AS–CONSTRUCTED WATERMAIN INFORMATION.	
2.	12–07–17	Z.L.	ADDITIONAL DRAIN PIPE ADDED FOR BLOCK 112	
1.	12–04–25	Z.L.	SIXTH LINE/KAITING TRAIL INTERSECTION 100 YEAR INTAKE GRADES REVISED BASED ON 2% CROSS FALL	

DESIGNED BY:	K.M./P.P.	CHECKED BY:	Z.L.	DATE JANUARY 2011
DRAWN BY:	P.P./M.Z.	CHECKED BY:	Z.L.	

SCALE HORIZ. 1:500 (0 5 10 15 20) VERT. 1:50 (0 0.5 1.0 1.5 2.0)

REFERENCES

APPROVALS

MUNICIPAL
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFIATIONS
PHILIP KELLY (ORIGINALLY SIGNED) — MAR. 9, 2012
MANAGER OF DEVELOPMENT ENGINEERING — DATE

FIELD NOTES

BELL	☐	HYDRO	☐
GAS	☐	CABLE	☐
TRAFFIC	☐	WATER	☐

REGIONAL
APPROVAL DESIGN OF SANITARY, WATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATIONAL APPROVAL FROM AREA MUNICIPALITY
RON MACKENZIE (ORIGINALLY SIGNED) — APR. 27, 2012
LEGISLATIVE AND PLANNING SERVICES — DATE

STAMP
ORIGINALLY SEALED BY ZHENYONG LI, P.ENG DATED DEC. 2, 2010

THIS DRAWING HAS BEEN UPDATED BY DSEL TO REPRESENT THE 'AS-BUILT' CONDITION OF THE INFRASTRUCTURE CONSTRUCTED. THE INFORMATION CONTAINED HEREIN HAS BEEN PROVIDED BY THIRD PARTIES. IN OUR OPINION ALL AS–CONSTRUCTED INFORMATION PROVIDE IS IN GENERAL CONFORMANCE TO THE ORIGINAL DESIGN AND TOWN STANDARDS. ALTHOUGH THE INFORMATION IS BELIEVED TO CORRECTLY REFLECT CONDITIONS AT THE TIME OF CERTIFICATION, DSEL PROVIDES NO WARRANTY AS TO THE CURRENCY, ACCURACY, OR COMPLETENESS OF THE INFORMATION SHOWN. THERE MAY HAVE BEEN CHANGES TO THE INFRASTRUCTURE REPRESENTED SINCE THE COMPLETION OF THE SUBJECT DEVELOPMENT AND OTHERS INTENDING TO REFERENCE THIS INFORMATION ARE ADVISED TO OBTAIN INDEPENDENT THIRD PARTY CONFIRMATION OF ITS ACCURACY PRIOR TO ITS USE.

STAMP
LICENSED PROFESSIONAL ENGINEER
T.D.MCNAIR
100151569
15–05–15
PROVINCE OF ONTARIO

DSEL
david schaeffer engineering ltd
600 Alden Road, Suite 500
Markham, Ontario, L3R 0E7
Tel. (905) 475-3080
Fax. (905) 475-3081
www.DSEL.ca

MUNICIPALITY
OAKVILLE
DEVELOPMENT ENGINEERING

REGION
Halton
The Regional Municipality of Halton

DEVELOPER
TIMSIN HOLDING CORP.

PROJECT
WOODLAND TRAILS
TIMSIN
PHASE 1
20M–1114 24T–05025

TITLE
PLAN AND PROFILE OF
SIXTH LINE
(FROM DUNDAS STREET TO 220m NORTH OF DUNDAS STREET) © DSEL

MUNICIPAL FILE NO. SD–581
REGIONAL FILE NO. DO–683
PROJECT NO. 07–306
SHEET 31 OF 55

PAVEMENT DESIGN

FROM STA. 0+000.000 TO STA. 0+100.000
40mm HL–3 ASPHALT CONCRETE
50mm HL–8 ASPHALT CONCRETE
150mm GRANULAR "A"
350mm GRANULAR "B"

FROM STA. 0+100.000 TO STA. 0+214.016
40mm HL–3 ASPHALT CONCRETE
80mm HL–8 ASPHALT CONCRETE
150mm GRANULAR "A"
350mm GRANULAR "B"

NOTE:
ALL AS–CONSTRUCTED INFORMATION PROVIDED BY CON–DRAIN COMPANY (1983) LTD.

ANY DISTURBED AREA DURING CONSTRUCTION TO BE RESTORED TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES

CONTRACTOR TO VERIFY THE PRECISE LOCATIONS AND INVERT ELEVATIONS OF Ex. UNDERGROUND SERVICES AND Ex. UTILITIES PRIOR TO STARTING CONSTRUCTION

NOTE:
FOR RLCB LAYOUT
REFER TO DRAWING No. 40

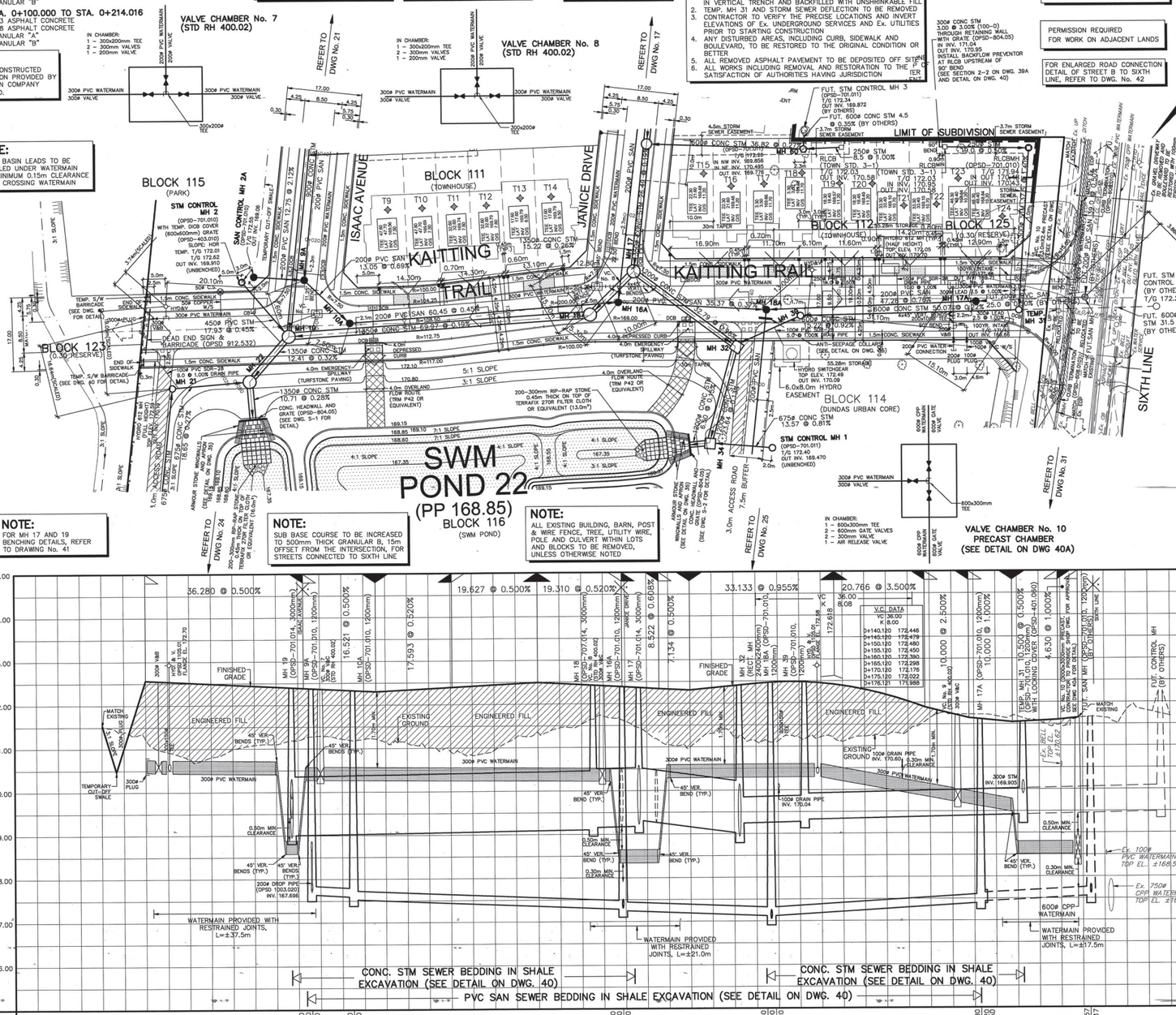
NOTE RE: KAITTING TRAIL AT SIXTH LINE
UPON FUTURE DEVELOPMENT OF Ex. RESIDENTIAL AREAS, THE FOLLOWING WORKS TO BE COMPLETED TO THE SATISFACTION OF TOWN OF OAKVILLE, UNLESS OTHERWISE NOTED:
1. FUTURE STORM SEWER FROM THE BEND TO FUTURE STORM CONTROL MH AND FUTURE SANITARY SEWER TO BE INSTALLED IN VERTICAL TRENCH AND BACKFILLED WITH UNSHRINKABLE FILL
2. TEMP. MH 31 AND STORM SEWER DEFLECTION TO BE REMOVED
3. CONTRACTOR TO VERIFY THE PRECISE LOCATIONS AND INVERT ELEVATIONS OF Ex. UNDERGROUND SERVICES AND Ex. UTILITIES PRIOR TO STARTING CONSTRUCTION
4. ANY DISTURBED AREAS, INCLUDING CURB, SIDEWALK AND BOULEVARD, TO BE RESTORED TO THE ORIGINAL CONDITION OR BETTER
5. ALL REMOVED ASPHALT PAVEMENT TO BE DEPOSITED OFF SITE
6. ALL WORKS INCLUDING REMOVAL AND RESTORATION TO THE SATISFACTION OF AUTHORITIES HAVING JURISDICTION

NOTE:
EXISTING UTILITY FEATURES WITHIN THE SUBDIVISION TO BE RELOCATED / ADJUSTED UPON FIELD REVIEW

PERMISSION REQUIRED FOR WORK ON ADJACENT LANDS

FOR ENLARGED ROAD CONNECTION DETAIL OF STREET B TO SIXTH LINE, REFER TO DWG. No. 42

ALL DWELLINGS ARE TO BE PROVIDED WITH SUMP PUMPS. SEE DETAIL ON DWG. 40.



NOTE:
CATCH BASIN LEADS TO BE INSTALLED UNDER WATERMAIN WITH MINIMUM 0.15m CLEARANCE WHERE CROSSING WATERMAIN

NOTE:
FOR MH 17 AND 19 BENCHING DETAILS, REFER TO DRAWING No. 41

NOTE:
SUB BASE COURSE TO BE INCREASED TO 500mm THICK GRANULAR B, 15m OFFSET FROM THE INTERSECTION, FOR STREETS CONNECTED TO SIXTH LINE

NOTE:
ALL EXISTING BUILDING, BARN, POST & WIRE FENCE, TREE, UTILITY WIRE, POLE AND CULVERT WITHIN LOTS AND BLOCKS TO BE REMOVED, UNLESS OTHERWISE NOTED

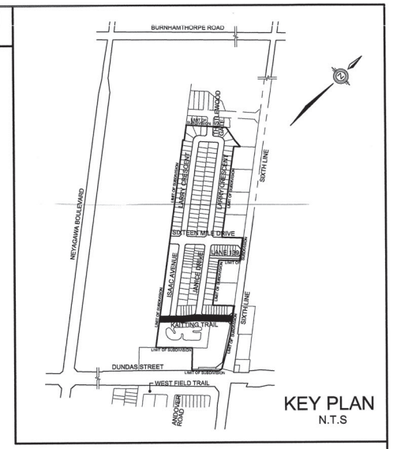
NOTE RE: TEMP. MH 31
MH COVER TO BE LOCKING COVER (OPSD 401.060) AND TO BE BOLTED DOWN AT ALL TIMES. MH IS TO BE REMOVED UPON THE EXTENSION OF THE STORM SEWER TO THE EAST.

NOTE RE: BEDDING DESIGN
BEDDING DESIGN TO BE VERIFIED ON SITE BY GEOTECHNICAL ENGINEER PRIOR TO UNDERGROUND SERVICE INSTALLATION

REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES, OFFICERS AND AGENTS ARE NOT RESPONSIBLE FOR ANY ERRORS, OMISSIONS OR INACCURACIES, WHETHER DUE TO THEIR NEGLIGENCE OR OTHERWISE. ALL INFORMATION SHOULD BE VERIFIED.

LEGEND

- STORM MANHOLE
- SANITARY MANHOLE
- SANITARY MANHOLE BY OTHERS
- STORM MANHOLE BY OTHERS
- DOUBLE SANITARY HOUSE CONNECTION
- SINGLE SANITARY HOUSE CONNECTION
- DOUBLE STORM HOUSE CONNECTION
- SINGLE STORM HOUSE CONNECTION
- WATER CONNECTION
- HYDRANT
- TEE
- VALVE & BOX
- VALVE & CHAMBER
- SINGLE CATCHBASIN
- DOUBLE CATCHBASINS
- CATCHBASINS WITH INLET CONTROL DEVICE TYPE A (Q max = 19.7 l/s)
- CATCHBASINS WITH INLET CONTROL DEVICE TYPE B (Q max = 22.0 l/s)
- CATCHBASINS WITH INLET CONTROL DEVICE TYPE C (Q max = 36.5 l/s)
- CATCHBASINS WITH INLET CONTROL DEVICE TYPE D (Q max = 54.6 l/s)
- CATCHBASINS WITH INLET CONTROL DEVICE TYPE F (Q max = 77.2 l/s)
- HYDRO TRANSFORMER
- MAIL BOX
- LIGHT STANDARD
- 2.4m HIGH ACOUSTIC FENCE
- 1.2m HIGH BLACK VINYL CHAIN LINK FENCE UNLESS OTHERWISE NOTED
- 1.2m HIGH PREFABBRICATED METAL FENCE UNLESS OTHERWISE NOTED
- RETAINING WALL (SEE NOTES ON DWG. 1 AND RW–1, RW–1B, RW–2, RW–3 FOR DETAILS)
- PROPOSED OVERLAND FLOW DIRECTION
- EXTERNAL OVERLAND FLOW DIRECTION
- SD SEMI–DETACHED HOUSE
- LOTS EQUIPPED WITH SUMP PUMP
- C LOTS EQUIPPED WITH WITH SANITARY CLEAN OUT CHAMBER. (SEE DETAIL ON DWG. 40)
- UNDERGROUND SERVICE TO BE CONSTRUCTED WITHIN Ex. PAVEMENT. LENGTH AS NOTED.



TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY RADY–PENTEK & EDWARD SURVEYING LTD., JOB No. 05–344, TOPOGRAPHIC SURVEY DATED ON DEC 08, 2010 & JUNE 10, 2011.

LEGAL INFORMATION

CALCULATED M–PLAN PROVIDED BY RADY–PENTEK & EDWARD SURVEYING LTD., PROJECT No. 10–214, SURVEY DATED DECEMBER 23, 2011.

AS-CONSTRUCTED

BENCHMARK No. 00819818116 ELEVATION = 175.722m

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO BENCHMARK No. 00819818116 HAVING AN ELEVATION OF 175.722m, CONCRETE CULVERT UNDER BURNHAMTHORPE RD, 1.6km EAST OF THE JCT OF BURNHAMTHORPE RD AND TRAFALGAR RD IN OAKVILLE, 1.4km WEST OF THE JCT OF BURHAMTHORPE RD AND NINTH LINE RD, AND 8.8m NORTH OF THE CENTRELINE OF BURNHAMTHORPE RD. TABLET IS SET VERTICALLY IN TOP OF NORTH END OF CULVERT, 1.25m SOUTH OF NORTH END OF CULVERT AND 73cm EAST OF WEST FACE OF CULVERT.

No.	DATE	BY	REVISIONS
4.	12–09–28	A.S.	AS–CONSTRUCTED SANITARY, STORM AND WATERMAIN.
3.	12–07–17	Z.L.	ADDITIONAL DRAIN PIPE ADDED FOR BLOCK 112
2.	12–05–07	Z.L.	SIXTH LINE/KAITING TRAIL INTERSECTION 100 YEAR INTAKE GRADES REVISED BASED ON 2% CROSS FALL
1.	12–04–27	Z.L.	HYDRO 612 MANHOLES AND STORM CONNECTIONS ADDED ON KAITTING TRAIL, STORM CONNECTION FOR SWMTHGEAR ADDED ON KAITTING TRAIL

DESIGNED BY: K.M./P.P. CHECKED BY: Z.L. DATE JANUARY 2011
DRAWN BY: P.P./M.Z. CHECKED BY: Z.L.
SCALE HORIZ. 1:500 (0 5 10 15 20) VERT. 1:50 (0 0.5 1.0 1.5 2.0)

REFERENCES

FIELD NOTES

APPROVALS

MUNICIPAL

APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFIATIONS

PHILIP KELLY (ORIGINALLY SIGNED) MANAGER OF DEVELOPMENT ENGINEERING — MAR. 9, 2012 DATE

BELL ☐ HYDRO ☐ GAS ☐ CABLE ☐ TRAFFIC ☐ WATER ☐

REGIONAL

APPROVAL DESIGN OF SANITARY, WATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATIONAL APPROVAL FROM AREA MUNICIPALITY

RON MACKENZIE (ORIGINALLY SIGNED) LEGISLATIVE AND PLANNING SERVICES — MAR. 5, 2012 DATE

STAMP: ORIGINALLY SEALED BY ZHENYONG LI, DATED DEC. 2, 2010

david schaeffer engineering ltd
600 Alden Road, Suite 500
Markham, Ontario, L3R 0E7
Tel. (905) 475-3080
Fax. (905) 475-3081
www.DSEL.ca

MUNICIPALITY: OAKVILLE DEVELOPMENT ENGINEERING

REGION: Halton — The Regional Municipality of Halton

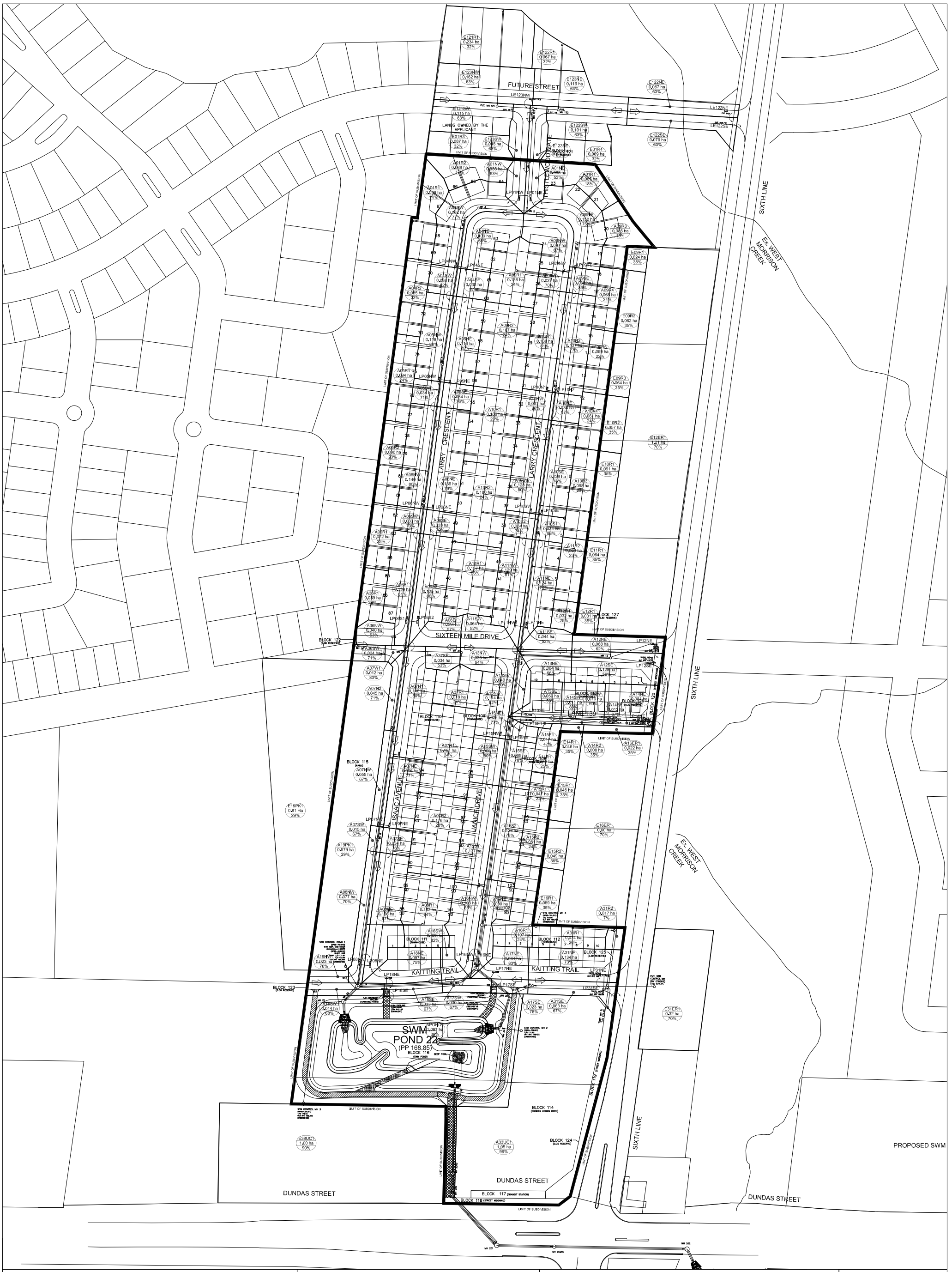
DEVELOPER: TIMSIN HOLDING CORP.

PROJECT: TIMSIN PHASE 1 — 20M–1114 24T–05025

TITLE: PLAN AND PROFILE OF **O-17669**
KAITTING TRAIL
(40m WEST OF ISAAC AVENUE TO SIXTH LINE) © DSEL

MUNICIPAL FILE NO. SD–581 | REGIONAL FILE NO. DO–683
PROJECT NO. 07–306 | SHEET 16 OF 55

\\dsel\data$\2007\07306\As-Constructed\Underground\Region\Profiles\AB_16_KAITTING TRAIL_306pp.dwg, 17/07/2013 5:14:40 PM, kavery



J.F. Sabourin and Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
GATINEAU (819) 243-6858
OTTAWA (613) 836-3884

CLIENT :

DSEL
david schaeffer engineering ltd
600 ALDEN ROAD., SUITE 500
MARKHAM, ONTARIO., L3R 0E7
(905) 475-3080

PROJECT :

TIMSIN PHASE 1 OF THE
WOODLAND TRAILS COMMUNITY

SCALE:

0 25 50 75 100 125 150m

TITLE :

PROPOSED DRAINAGE AREA
TO SWM POND

FIGURE 2

No.	BY	DATE	DESCRIPTION	BY

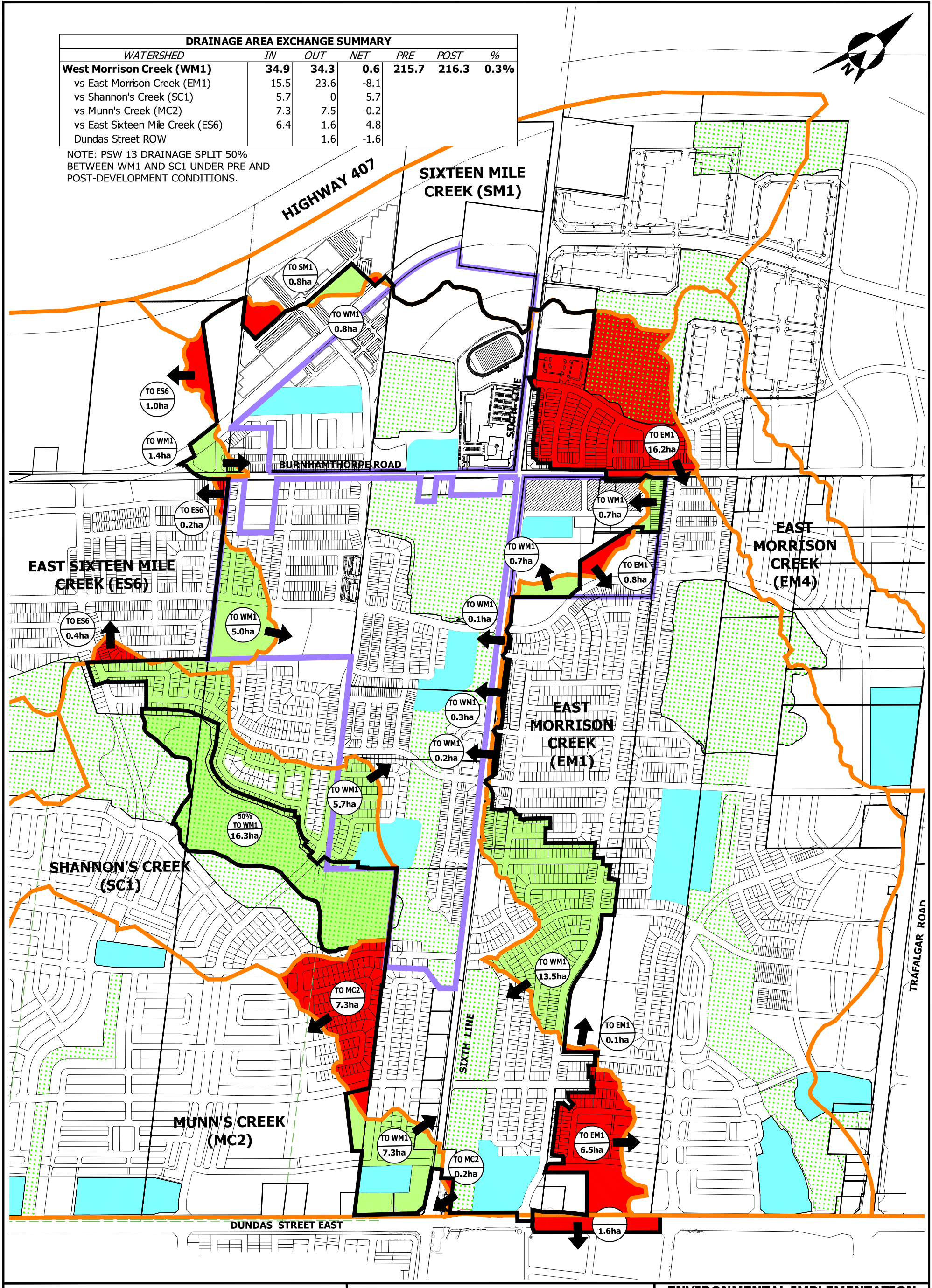
LEGEND:

- LIMITS OF SUBDIVISION
- MAJOR SYSTEM SUBCATCHMENT BOUNDARY TO LOW POINTS AND OTHER AREAS
- MAJOR SYSTEM FLOW DIRECTION
- FIRST DIRECTION OF EXCESS MAJOR SYSTEM FLOW AT LOW POINT
- LP31NE — LOW POINT
- A31NE / 0.134 ha / 73% — SUB-CATCHMENT ID; SUB-CATCHMENT AREA; TOTAL IMPERVIOUSNESS

DESIGNED :	
DRAWN :	LP
VERIFIED :	JFS
APPROVED :	JFS
DATE	PROJECT No.
Mar/12	909-10

DRAINAGE AREA EXCHANGE SUMMARY						
WATERSHED	*IN*	*OUT*	*NET*	*PRE*	*POST*	*%*
West Morrison Creek (WM1)	**34.9**	**34.3**	**0.6**	**215.7**	**216.3**	**0.3%**
vs East Morrison Creek (EM1)	15.5	23.6	-8.1			
vs Shannon's Creek (SC1)	5.7	0	5.7			
vs Munn's Creek (MC2)	7.3	7.5	-0.2			
vs East Sixteen Mile Creek (ES6)	6.4	1.6	4.8			
Dundas Street ROW		1.6	-1.6			

NOTE: PSW 13 DRAINAGE SPLIT 50% BETWEEN WM1 AND SC1 UNDER PRE AND POST-DEVELOPMENT CONDITIONS.



KORSIAK Urban Planning | GEO MORPHIX | BURNSIDE (The Difference is Our People) | SAVANTA

Urbantech® Consulting
A Division of Leighton-Zec Ltd.
3760 14th Avenue, Suite 301,
Markham, ON. L3R 3T7
TEL 905.946.9461 • urbantech.com

JENNIFER LAWRENCE & ASSOCIATES
ENVIRONMENTAL PLANNING PROJECT MANAGEMENT

- FSS STUDY AREA
- NHS
- SWM POND
- EXISTING SUBCATCHMENT BOUNDARY
- POST-DEVELOPMENT DRAINAGE BOUNDARY TO UWMC
- DRAINAGE AREA ADDED TO UWMC
- DRAINAGE AREA REMOVED FROM UWMC
- TO WM1 4.6ha — DRAINAGE EXCHANGE RECEIVING SUBCATCHMENT / DRAINAGE EXCHANGE AREA (HECTARES)
- DRAINAGE EXCHANGE DIRECTION

ENVIRONMENTAL IMPLEMENTATION REPORT AND FUNCTIONAL SERVICING STUDY ADDENDUM
UPPER WEST MORRISON CREEK UWM1
NORTH OAKVILLE

FIGURE 8.7

WEST MORRISON CREEK (WM1) DRAINAGE AREA EXCHANGE

PROJECT 17-528	SCALE: 1:10,000	APRIL 2022

File: P:\Projects\17-528\EIR-FSS (UWMC ADDENDUM)\Drawings and Figures\8_0 - GRADING DRAINAGE AND STORMWATER MANAGEMENT\FIGURE 8.7_WM1 Drainage Area Exchange.dwg - Revised by <DFAN> : Mon, Jul 13 2020 - 3:21pm

Appendix B

Storm Data

LOCATION PLAN
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY
- TREE PROTECTION FENCE
- AREA (ha) / AREA ID: 101 | 0.046 | 0.900 | C
- OVERLAND FLOW ROUTE

SURVEY INFO.	BENCHMARK
JD BARNES 401 WHEELABRATOR WAY SUITE A MILTON, ON L9T 3C1 PHONE: (905) 875-9955	
SITE PLAN INFO.	**LIST OF DRAWINGS**
SWEENY & CO 134 PETER STREET SUITE 1601 TORONTO, ON M5V 2H2 PHONE: (416) 971-6252	101 - SERVICING PLAN 401 - GRADING PLAN 601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
1	ISSUED FOR REZONING APPLICATION	02/17/26	LPM

SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
PHONE: (416) 270-7515

LICENSED PROFESSIONAL ENGINEER
L.P. MASSÉ-MONAT
100024283
Feb. 17, 2026
PROVINCE OF ONTARIO

3043 6TH LINE LP
3043 SIXTH LINE
OAKVILLE, ON

PRE-DEVELOPMENT
DRAINAGE AREA PLAN

PROJECT No.:	DRAWING:
25-034	201

Feb. 16, 2026 - 12:34pm By: pmonat
P:\25-034 - 3043 Sixth Line - Oakville\Reports and Drawings\Drawings\Production Drawings\25-034 - BASE.dwg (201)

PRE-DEVELOPMENT
RUNOFF COEFFICIENT

Drainage Area 101 (To North)

Surface Type	C	A (Ha)	A*C
Roof/Hardscape	0.90	0.055	0.049
Grass	0.30	0.143	0.043
Composite C		0.198	0.466

Drainage Area 102 (to East)

Surface Type	C	A (Ha)	A*C
Roof/Hardscape	0.90	0.024	0.022
Grass	0.30	0.069	0.021
Composite C		0.093	0.455

Summary

Drainage Area	C	A (Ha)	A*C
101	0.47	0.198	0.092
102	0.45	0.093	0.042
TOTAL		0.291	0.463

ALLOWABLE RELEASE
RATE CALCULATION

IDF set: Oakville

Return Period	*a*	T_c	*b*	*c*
2-year	725.0	10	4.8	0.808
5-year	1170.0	10	5.8	0.843
10-year	1400.0	10	5.8	0.848
25-year	1680.0	10	5.6	0.851
50-year	1960.0	10	5.8	0.861
100-year	2150.0	10	5.7	0.861

Where: $$I = \frac{a}{(t_c + b)^c}$$

Pre-Development ID 101

Return Period	Area (Ha)	Composite C	I (mm/hr)*	Q (L/s)
2-year	0.198	0.466	82.18	21.1
5-year	0.198	0.466	114.21	29.3
10-year	0.198	0.466	134.79	34.6
25-year	0.198	0.466	162.17	41.6
50-year	0.198	0.466	182.06	46.7
100-year	0.198	0.466	200.80	51.5

Pre-Development ID 102

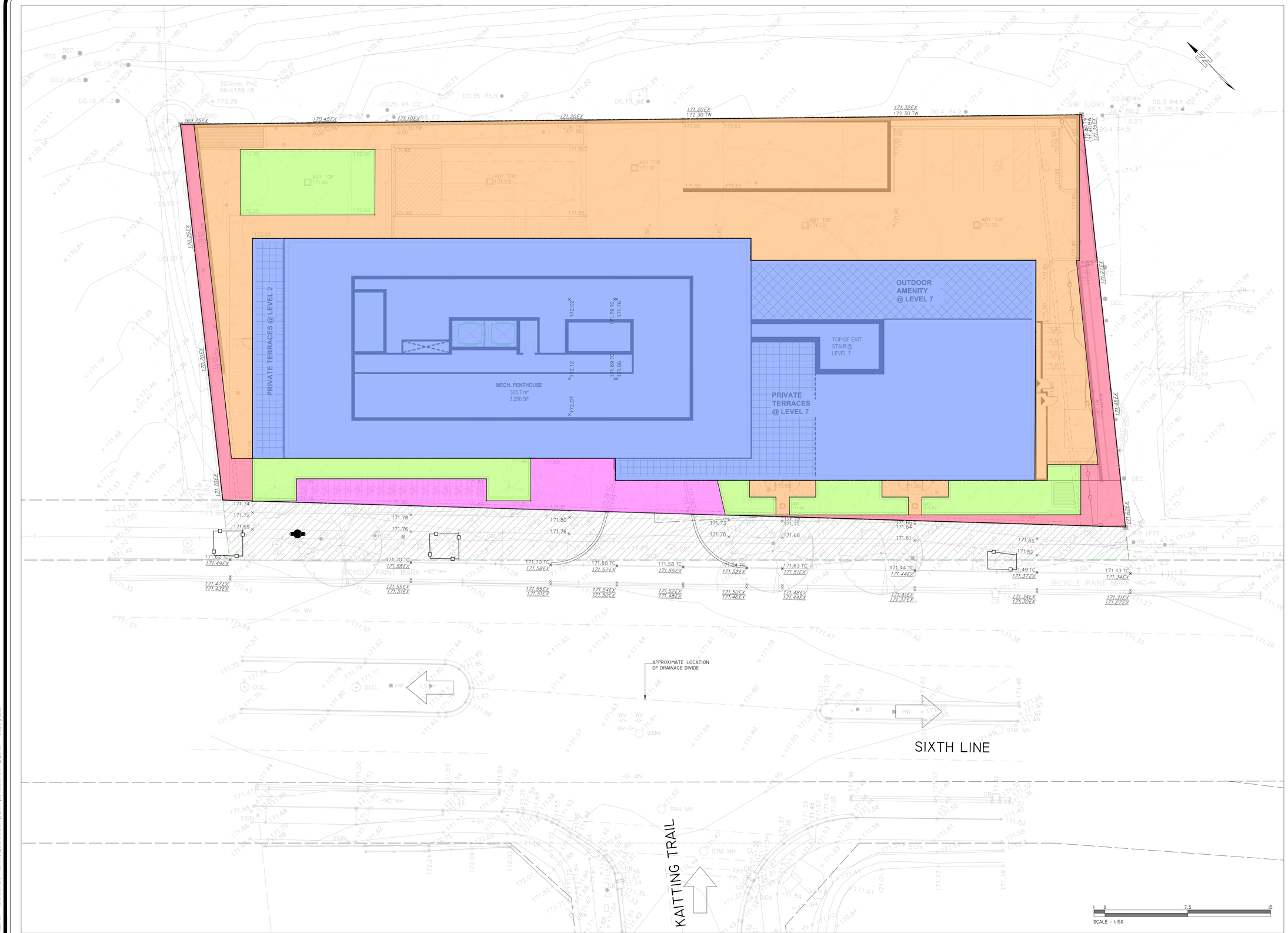
Return Period	Area (Ha)	Composite C	I (mm/hr)*	Q (L/s)
2-year	0.093	0.455	82.18	9.6
5-year	0.093	0.455	114.21	13.4
10-year	0.093	0.455	134.79	15.8
25-year	0.093	0.455	162.17	19.0
50-year	0.093	0.455	182.06	21.3
100-year	0.093	0.455	200.80	23.5

Allowable Release Rate Calculation*

Drainage Area	Area (Ha)	Composite C	I (mm/hr)*	Q (L/s)
SITE	0.320	0.690	200.80	123.2

Where: $$Q = \frac{CIA}{360}$$

*Per Storm Sewer Design Sheet for Timsin Pond 22



LOCATION PLAN
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY
- ROOF (CONTROLLED)
- HARDSCAPE (CONTROLLED)
- HARDSCAPE (CONTROLLED)
- UNCONTROLLED
- UNCONTROLLED
- OVERLAND FLOW ROUTE

ID 210 | AREA (HA) 0.267 | C 0.794

ID 220 | AREA (HA) 0.011 | C 0.90

ID 221 | AREA (HA) 0.013 | C 0.30

SURVEY INFO.

JD BARNES
401 WHEELABRATOR WAY
SUITE A
MILTON, ON L9T 3C1
PHONE: (905) 875-9955

BENCHMARK

SITE PLAN INFO.

SWEENY & CO
134 PETER STREET
SUITE 1601
TORONTO, ON M5V 2H2
PHONE: (416) 971-6252

LIST OF DRAWINGS

101 - SERVICING PLAN
401 - GRADING PLAN
601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
1	ISSUED FOR REZONING APPLICATION	02/17/26	LPM

SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
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LICENSED PROFESSIONAL ENGINEER
L.P. MASSÉ-MONAT
100024283
Feb. 17, 2026
PROVINCE OF ONTARIO

3043 6TH LINE LP
3043 SIXTH LINE
OAKVILLE, ON

PROJECT No.: 25-034

DRAWING:

Feb 16, 2026 - 12:40pm By: pmorot
P:\25-034 - 3043 Sixth Line - Oakville\Reports and Drawings\Drawings\Production Drawings\25-034 - BASE.dwg (202)

APPENDIX

A

Rational Method Design Sheets

(as per DSEL)

JFSA Water Resources and Environmental Consultants

LOCATION			CONTRIBUTING AREA				FLOW		SEWER DESIGN										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
STREET	FROM MANHOLE	TO MANHOLE	AREA "A" (ha)	STORM CO-EFFICIENT "C"	SECTION AxC	ACCUMULATED AxC	5 YR RATIONAL INTENSITY "I" (mm/hr)	FLOW Q (L/s)	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	FULL FLOW CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCENTRATION (min)	FALL IN PIPE SECTION (m)	MANHOLE INLET INVERT (m)	MANHOLE LOSSES (m)	MANHOLE OUTLET INVERT (m)
KAITTING TRAIL							Q_{100}-Q_5 =	53											
							Q_{100}-Q_5 =	33											
			0.32	0.69	0.22	0.22									10.00				
			0.09	0.69	0.06	0.28													
	Fut.CONT.MH	39	0.19	0.69	0.13	0.41	114.21	217	65.0	0.20	600	275	0.97	1.12	11.12				
	39	32	0.05	0.69	0.03	0.45	107.83	220	16.5	0.20	600	275	0.97	0.28	11.40				
To STORM INLET 2 , Pipe 32 - 34						0.45		86							11.40				
Contribution From JANICE DRIVE, Pipe 16 - 17						4.34									16.41				
	17	32	0.06	0.69	0.04	4.38	85.71	1043	29.0	1.10	1200	4089	3.62	0.13	16.54				
To STORM INLET 2 , Pipe 32 - 34						4.38									16.54				
STORM CONNECTION															10.00				
	CONT.MH2	34	1.05	0.90	0.95	0.95	114.21	300	14.5	0.30	675	460	1.29	0.19	10.19				
To STORM INLET 2 , Pipe 34 - HW						0.95									10.19				
POND INLET 2																			
Contribution From KAITTING TRAIL, Pipe 17-32						4.38									16.54				
Contribution From KAITTING TRAIL, Pipe 39-32						0.45		86							11.40				
	32	34			0.00	4.83	85.28	1230	23.0	0.25	1200	1949	1.72	0.22	16.77				
Contribution From STORM CONNECTION, Pipe CONT.MH2 - 34						0.95									10.19				
	34	HW			0.00	5.77	84.57	1442	5.0	0.25	1200	1949	1.72	0.05	16.82				
TO SWM POND 22						5.77									16.82				

NOTES:

Q = 2.78ACI L/s

C = Runoff Co-efficient:

I = Intensity (mm/hr)

A = Area (hectares)

n = 0.013

Minimum 10 min time of concentration.

Park 0.25

Single & Semi-detached 0.50

Multiple, Institutional,

Industrial 0.75 & Commercial

0.90 or Detailed Design

PROJECT: TIMSIN PHASE 1

PROJECT NO: 07-306

CONSULTANT: DAVID SCHAEFFER ENGINEERING LTD.

DESIGNED BY: K.M.

CHECKED BY: Z.L.

DATE: February, 2011

TOWN OF OAKVILLE

STORM SEWER DESIGN

SHEET 4 OF 4

POST-DEVELOPMENT
RUNOFF COEFFICIENT

Drainage Area 210

Surface Type	C	A (Ha)	A*C
Hardscape	0.75	0.102	0.076
Roof	0.90	0.144	0.129
Grass	0.30	0.022	0.006
Composite C		0.267	0.794

Drainage Area 220 (Sixth Line)

Surface Type	C	A (Ha)	A*C
Harscape	0.90	0.011	0.010
Composite C		0.011	0.900

Drainage Area 221 (Morrison Creek)

Surface Type	C	A (Ha)	A*C
Grass	0.30	0.013	0.004
Composite C		0.013	0.300

Summary

Drainage Area	C	A (Ha)	A*C
210	0.79	0.267	0.212
220 (Sixth Line)	0.90	0.011	0.010
221 (Morrison Creek)	0.30	0.013	0.004
TOTAL		0.291	0.777

STORMWATER MANAGEMENT
QUANTITY CONTROL SUMMARY

2-year Summary Matrix

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_2	0.79	0.90	0.30	-
A (Ha)	0.267	0.011	0.013	0.291
$Q_{Release\ (L/s)}$	38.7	2.3	0.9	41.8
Storage (m^3)	6.0	0.0	0.0	6.0
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice (mm)	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	38.7	-	-	-
Unctrled Q (L/s)	-	2.3	0.9	-
Orifice type	PLATE	-	-	-

5-year Summary Matrix

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_5	0.79	0.90	0.30	-
A (Ha)	0.267	0.011	0.013	0.291
$Q_{Release\ (L/s)}$	54.1	3.1	1.2	58.5
Storage (m^3)	8.1	0.0	0.0	8.1
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice (mm)	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	54.1	-	-	-
Unctrled Q (L/s)	-	3.1	1.2	-
Orifice type	PLATE	-	-	-

10-Year Summary Matrix

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_{10}	0.79	0.90	0.30	-
A (Ha)	0.27	0.011	0.013	0.29
$Q_{Release\ (L/s)}$	63.0	3.7	1.4	68.1
Storage (m^3)	10.0	0.0	0.0	10.0
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	63.0	-	-	-
Unctrled Q (L/s)	-	3.7	1.4	-
Orifice type	PLATE	-	-	-

STORMWATER MANAGEMENT
QUANTITY CONTROL SUMMARY

25-Year Summary Matrix

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_{25}	0.87	0.99	0.33	-
A (Ha)	0.27	0.011	0.013	0.29
$Q_{Release\ (L/s)}$	80.3	4.9	1.9	87.1
Storage (m^3)	15.1	0.0	0.0	15.1
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	80.3	-	-	-
Unctrled Q (L/s)	-	4.9	1.9	-
Orifice type	PLATE	-	-	-

50-Year Summary

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_{50}	0.95	1.00	0.360	-
A (Ha)	0.27	0.011	0.013	0.29
$Q_{Release\ (L/s)}$	95.1	5.6	2.3	103.0
Storage (m^3)	20.4	0.0	0.0	20.4
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	95.1	-	-	-
Unctrled Q (L/s)	-	5.6	2.3	-
Orifice type	PLATE	-	-	-

100-Year Summary

Drainage Area	210	220 (Sixth Line)	221 (Morrison	Total
Bldg ID				
C_{100}	0.99	1.00	0.38	
A (Ha)	0.267	0.011	0.013	0.291
$Q_{Release\ (L/s)}$	106.7	6.1	2.7	115.5
Storage (m^3)	24.9	0.0	0.0	24.9
Vol. Avail. (m^3)	25.2	-	-	25.2
Orifice (mm)	230	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	106.7	-	-	-
Unctrled Q (L/s)	-	6.1	2.7	-
Orifice type	PLATE	-	-	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.267
C_2	0.79
AC	0.21
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	38.7
Req. vol. (m^3)	6.0

Oakville	2-year
a=	725
b=	4.8
c=	0.808

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**82.2**	**48.5**	**29.1**	**0.14**	**23.2**	**6.0**
15	65.0	38.3	34.5	0.14	34.8	-
20	54.2	31.9	38.3	0.14	46.4	-
25	46.7	27.5	41.3	0.14	58.0	-
30	41.2	24.3	43.7	0.14	69.6	-
35	37.0	21.8	45.8	0.14	81.3	-
40	33.6	19.8	47.5	0.14	92.9	-
45	30.8	18.2	49.1	0.14	104.5	-
50	28.5	16.8	50.5	0.14	116.1	-
55	26.6	15.7	51.7	0.14	127.7	-
60	24.9	14.7	52.9	0.14	139.3	-
65	23.5	13.8	54.0	0.14	150.9	-
70	22.2	13.1	55.0	0.14	162.5	-
75	21.1	12.4	55.9	0.14	174.1	-
80	20.1	11.8	56.8	0.14	185.7	-
85	19.1	11.3	57.6	0.14	197.3	-
90	18.3	10.8	58.3	0.14	208.9	-
95	17.6	10.4	59.1	0.14	220.6	-
100	16.9	10.0	59.8	0.14	232.2	-
105	16.3	9.6	60.5	0.14	243.8	-
110	15.7	9.3	61.1	0.14	255.4	-
115	15.2	8.9	61.7	0.14	267.0	-
120	14.7	8.7	62.3	0.14	278.6	-
125	14.2	8.4	62.9	0.14	290.2	-
130	13.8	8.1	63.4	0.14	301.8	-
135	13.4	7.9	63.9	0.14	313.4	-
140	13.0	7.7	64.5	0.14	325.0	-
145	12.7	7.5	65.0	0.14	336.6	-
150	12.3	7.3	65.4	0.14	348.2	-
155	12.0	7.1	65.9	0.14	359.8	-
160	11.7	6.9	66.4	0.14	371.5	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.267
C_5	0.79
AC	0.21
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	54.1
Req. vol. (m^3)	8.1

Oakville	5-year
a=	1170
b=	5.8
c=	0.843

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**114.2**	**67.3**	**40.4**	**0.14**	**32.5**	**8.1**
15	90.6	53.4	48.1	0.14	48.7	-
20	75.5	44.5	53.4	0.14	64.9	-
25	65.1	38.4	57.5	0.14	81.2	-
30	57.3	33.8	60.8	0.14	97.4	-
35	51.3	30.3	63.6	0.14	113.7	-
40	46.6	27.5	65.9	0.14	129.9	-
45	42.7	25.2	67.9	0.14	146.1	-
50	39.4	23.2	69.7	0.14	162.4	-
55	36.7	21.6	71.4	0.14	178.6	-
60	34.3	20.2	72.8	0.14	194.8	-
65	32.3	19.0	74.2	0.14	211.1	-
70	30.5	18.0	75.4	0.14	227.3	-
75	28.9	17.0	76.6	0.14	243.6	-
80	27.4	16.2	77.6	0.14	259.8	-
85	26.2	15.4	78.6	0.14	276.0	-
90	25.0	14.7	79.6	0.14	292.3	-
95	23.9	14.1	80.5	0.14	308.5	-
100	23.0	13.6	81.3	0.14	324.7	-
105	22.1	13.0	82.1	0.14	341.0	-
110	21.3	12.6	82.9	0.14	357.2	-
115	20.6	12.1	83.6	0.14	373.4	-
120	19.9	11.7	84.3	0.14	389.7	-
125	19.2	11.3	85.0	0.14	405.9	-
130	18.6	11.0	85.7	0.14	422.2	-
135	18.1	10.7	86.3	0.14	438.4	-
140	17.5	10.3	86.9	0.14	454.6	-
145	17.1	10.1	87.5	0.14	470.9	-
150	16.6	9.8	88.0	0.14	487.1	-
155	16.2	9.5	88.6	0.14	503.3	-
160	15.7	9.3	89.1	0.14	519.6	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.27
C_{10}	0.79
AC	0.21
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	63.0
Req. vol. (m^3)	10.0

Oakville	10-year
a=	1400
b=	5.8
c=	0.848

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**134.8**	**79.5**	**47.7**	**0.14**	**37.8**	**10.0**
15	106.8	62.9	56.7	0.14	56.7	0.1
20	88.9	52.4	62.9	0.14	75.6	-
25	76.5	45.1	67.7	0.14	94.5	-
30	67.4	39.7	71.5	0.14	113.4	-
35	60.3	35.6	74.7	0.14	132.3	-
40	54.7	32.2	77.4	0.14	151.2	-
45	50.1	29.5	79.7	0.14	170.1	-
50	46.2	27.3	81.8	0.14	189.0	-
55	43.0	25.3	83.6	0.14	207.9	-
60	40.2	23.7	85.3	0.14	226.9	-
65	37.8	22.3	86.9	0.14	245.8	-
70	35.7	21.0	88.3	0.14	264.7	-
75	33.8	19.9	89.6	0.14	283.6	-
80	32.1	18.9	90.9	0.14	302.5	-
85	30.6	18.0	92.0	0.14	321.4	-
90	29.2	17.2	93.1	0.14	340.3	-
95	28.0	16.5	94.1	0.14	359.2	-
100	26.9	15.8	95.1	0.14	378.1	-
105	25.8	15.2	96.0	0.14	397.0	-
110	24.9	14.7	96.9	0.14	415.9	-
115	24.0	14.2	97.7	0.14	434.8	-
120	23.2	13.7	98.5	0.14	453.7	-
125	22.5	13.2	99.3	0.14	472.6	-
130	21.7	12.8	100.0	0.14	491.5	-
135	21.1	12.4	100.7	0.14	510.4	-
140	20.5	12.1	101.4	0.14	529.3	-
145	19.9	11.7	102.1	0.14	548.2	-
150	19.4	11.4	102.7	0.14	567.1	-
155	18.8	11.1	103.3	0.14	586.0	-
160	18.4	10.8	103.9	0.14	604.9	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area	
Area (Ha)	0.27
C_{25}	0.87
AC	0.23
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	80.3
Req. vol. (m^3)	15.1

Oakville	25-year
a=	1680
b=	5.6
c=	0.851

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**162.2**	**105.2**	**63.1**	**0.14**	**48.2**	**15.1**
15	128.0	83.0	74.7	0.14	72.2	2.6
20	106.4	69.0	82.8	0.14	96.3	-
25	91.4	59.3	88.9	0.14	120.4	-
30	80.4	52.1	93.8	0.14	144.5	-
35	71.9	46.6	97.9	0.14	168.6	-
40	65.1	42.2	101.3	0.14	192.7	-
45	59.6	38.6	104.3	0.14	216.7	-
50	55.0	35.7	107.0	0.14	240.8	-
55	51.1	33.1	109.4	0.14	264.9	-
60	47.8	31.0	111.5	0.14	289.0	-
65	44.9	29.1	113.5	0.14	313.1	-
70	42.3	27.5	115.3	0.14	337.2	-
75	40.1	26.0	117.0	0.14	361.2	-
80	38.1	24.7	118.6	0.14	385.3	-
85	36.3	23.5	120.0	0.14	409.4	-
90	34.7	22.5	121.4	0.14	433.5	-
95	33.2	21.5	122.7	0.14	457.6	-
100	31.9	20.7	124.0	0.14	481.7	-
105	30.6	19.9	125.1	0.14	505.7	-
110	29.5	19.1	126.2	0.14	529.8	-
115	28.5	18.5	127.3	0.14	553.9	-
120	27.5	17.8	128.3	0.14	578.0	-
125	26.6	17.2	129.3	0.14	602.1	-
130	25.7	16.7	130.3	0.14	626.2	-
135	25.0	16.2	131.2	0.14	650.2	-
140	24.2	15.7	132.0	0.14	674.3	-
145	23.5	15.3	132.9	0.14	698.4	-
150	22.9	14.9	133.7	0.14	722.5	-
155	22.3	14.5	134.5	0.14	746.6	-
160	21.7	14.1	135.2	0.14	770.7	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area	
Area (Ha)	0.27
C_{50}	0.95
AC	0.25
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	95.1
Req. vol. (m^3)	20.4

Oakville	50-year
a=	1960
b=	5.8
c=	0.861

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**182.1**	**128.8**	**77.3**	**0.14**	**57.1**	**20.4**
15	143.7	101.7	91.5	0.14	85.6	6.0
20	119.4	84.4	101.3	0.14	114.1	-
25	102.5	72.5	108.8	0.14	142.7	-
30	90.0	63.7	114.6	0.14	171.2	-
35	80.4	56.9	119.5	0.14	199.8	-
40	72.8	51.5	123.7	0.14	228.3	-
45	66.6	47.1	127.2	0.14	256.8	-
50	61.4	43.5	130.4	0.14	285.4	-
55	57.1	40.4	133.2	0.14	313.9	-
60	53.3	37.7	135.8	0.14	342.4	-
65	50.0	35.4	138.1	0.14	371.0	-
70	47.2	33.4	140.2	0.14	399.5	-
75	44.7	31.6	142.2	0.14	428.0	-
80	42.4	30.0	144.0	0.14	456.6	-
85	40.4	28.6	145.8	0.14	485.1	-
90	38.6	27.3	147.4	0.14	513.7	-
95	36.9	26.1	148.9	0.14	542.2	-
100	35.4	25.1	150.3	0.14	570.7	-
105	34.0	24.1	151.7	0.14	599.3	-
110	32.8	23.2	153.0	0.14	627.8	-
115	31.6	22.4	154.2	0.14	656.3	-
120	30.5	21.6	155.4	0.14	684.9	-
125	29.5	20.9	156.6	0.14	713.4	-
130	28.6	20.2	157.6	0.14	741.9	-
135	27.7	19.6	158.7	0.14	770.5	-
140	26.9	19.0	159.7	0.14	799.0	-
145	26.1	18.5	160.7	0.14	827.6	-
150	25.4	18.0	161.6	0.14	856.1	-
155	24.7	17.5	162.5	0.14	884.6	-
160	24.1	17.0	163.4	0.14	913.2	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area	
Area (Ha)	0.267
C_{100}	0.99
AC	0.27
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	106.7
Req. vol. (m^3)	24.9

Oakville	100-year
a=	2150
b=	5.7
c=	0.861

Notes:
Ext. Vol. represents long-term dewatering discharge

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**200.8**	**148.0**	**88.8**	**0.14**	**64.0**	**24.9**
15	158.3	116.6	105.0	0.14	96.1	9.1
20	131.4	96.8	116.2	0.14	128.1	-
25	112.7	83.1	124.6	0.14	160.1	-
30	99.0	73.0	131.3	0.14	192.1	-
35	88.4	65.2	136.9	0.14	224.1	-
40	80.0	59.0	141.6	0.14	256.2	-
45	73.2	53.9	145.6	0.14	288.2	-
50	67.5	49.7	149.2	0.14	320.2	-
55	62.7	46.2	152.4	0.14	352.2	-
60	58.5	43.1	155.3	0.14	384.2	-
65	55.0	40.5	158.0	0.14	416.3	-
70	51.8	38.2	160.4	0.14	448.3	-
75	49.0	36.1	162.7	0.14	480.3	-
80	46.6	34.3	164.8	0.14	512.3	-
85	44.4	32.7	166.7	0.14	544.3	-
90	42.4	31.2	168.6	0.14	576.3	-
95	40.5	29.9	170.3	0.14	608.4	-
100	38.9	28.7	171.9	0.14	640.4	-
105	37.4	27.5	173.5	0.14	672.4	-
110	36.0	26.5	175.0	0.14	704.4	-
115	34.7	25.6	176.4	0.14	736.4	-
120	33.5	24.7	177.7	0.14	768.5	-
125	32.4	23.9	179.0	0.14	800.5	-
130	31.4	23.1	180.2	0.14	832.5	-
135	30.4	22.4	181.4	0.14	864.5	-
140	29.5	21.7	182.6	0.14	896.5	-
145	28.6	21.1	183.7	0.14	928.6	-
150	27.9	20.5	184.8	0.14	960.6	-
155	27.1	20.0	185.8	0.14	992.6	-
160	26.4	19.5	186.8	0.14	1024.6	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_2	0.90
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	2.3
Req. vol. (m^3)	0.0

Oakville	2-year
a=	725
b=	4.8
c=	0.808

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**82.2**	**2.3**	**1.4**	**0.0**	**1.4**	**0.0**
15	65.0	1.8	1.6	0.0	2.0	-
20	54.2	1.5	1.8	0.0	2.7	-
25	46.7	1.3	1.9	0.0	3.4	-
30	41.2	1.1	2.0	0.0	4.1	-
35	37.0	1.0	2.1	0.0	4.7	-
40	33.6	0.9	2.2	0.0	5.4	-
45	30.8	0.8	2.3	0.0	6.1	-
50	28.5	0.8	2.4	0.0	6.8	-
55	26.6	0.7	2.4	0.0	7.5	-
60	24.9	0.7	2.5	0.0	8.1	-
65	23.5	0.6	2.5	0.0	8.8	-
70	22.2	0.6	2.6	0.0	9.5	-
75	21.1	0.6	2.6	0.0	10.2	-
80	20.1	0.6	2.6	0.0	10.8	-
85	19.1	0.5	2.7	0.0	11.5	-
90	18.3	0.5	2.7	0.0	12.2	-
95	17.6	0.5	2.8	0.0	12.9	-
100	16.9	0.5	2.8	0.0	13.6	-
105	16.3	0.4	2.8	0.0	14.2	-
110	15.7	0.4	2.9	0.0	14.9	-
115	15.2	0.4	2.9	0.0	15.6	-
120	14.7	0.4	2.9	0.0	16.3	-
125	14.2	0.4	2.9	0.0	17.0	-
130	13.8	0.4	3.0	0.0	17.6	-
135	13.4	0.4	3.0	0.0	18.3	-
140	13.0	0.4	3.0	0.0	19.0	-
145	12.7	0.3	3.0	0.0	19.7	-
150	12.3	0.3	3.1	0.0	20.3	-
155	12.0	0.3	3.1	0.0	21.0	-
160	11.7	0.3	3.1	0.0	21.7	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_5	0.90
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	3.1
Req. vol. (m^3)	0.0

Oakville	5-year
a=	1170
b=	5.8
c=	0.843

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**114.2**	**3.1**	**1.9**	**0.0**	**1.9**	**0.0**
15	90.6	2.5	2.2	0.0	2.8	-
20	75.5	2.1	2.5	0.0	3.8	-
25	65.1	1.8	2.7	0.0	4.7	-
30	57.3	1.6	2.8	0.0	5.7	-
35	51.3	1.4	3.0	0.0	6.6	-
40	46.6	1.3	3.1	0.0	7.5	-
45	42.7	1.2	3.2	0.0	8.5	-
50	39.4	1.1	3.3	0.0	9.4	-
55	36.7	1.0	3.3	0.0	10.4	-
60	34.3	0.9	3.4	0.0	11.3	-
65	32.3	0.9	3.5	0.0	12.2	-
70	30.5	0.8	3.5	0.0	13.2	-
75	28.9	0.8	3.6	0.0	14.1	-
80	27.4	0.8	3.6	0.0	15.1	-
85	26.2	0.7	3.7	0.0	16.0	-
90	25.0	0.7	3.7	0.0	17.0	-
95	23.9	0.7	3.8	0.0	17.9	-
100	23.0	0.6	3.8	0.0	18.8	-
105	22.1	0.6	3.8	0.0	19.8	-
110	21.3	0.6	3.9	0.0	20.7	-
115	20.6	0.6	3.9	0.0	21.7	-
120	19.9	0.5	3.9	0.0	22.6	-
125	19.2	0.5	4.0	0.0	23.6	-
130	18.6	0.5	4.0	0.0	24.5	-
135	18.1	0.5	4.0	0.0	25.4	-
140	17.5	0.5	4.1	0.0	26.4	-
145	17.1	0.5	4.1	0.0	27.3	-
150	16.6	0.5	4.1	0.0	28.3	-
155	16.2	0.4	4.1	0.0	29.2	-
160	15.7	0.4	4.2	0.0	30.1	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_{10}	0.90
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	3.7
Req. vol. (m^3)	0.0

Oakville	10-year
a=	1400
b=	5.8
c=	0.848

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**134.8**	**3.7**	**2.2**	**0.0**	**2.2**	**0.0**
15	106.8	2.9	2.6	0.0	3.3	-
20	88.9	2.4	2.9	1.0	4.4	-
25	76.5	2.1	3.2	2.0	5.6	-
30	67.4	1.9	3.3	3.0	6.7	-
35	60.3	1.7	3.5	4.0	7.8	-
40	54.7	1.5	3.6	5.0	8.9	-
45	50.1	1.4	3.7	6.0	10.0	-
50	46.2	1.3	3.8	7.0	11.1	-
55	43.0	1.2	3.9	8.0	12.2	-
60	40.2	1.1	4.0	9.0	13.3	-
65	37.8	1.0	4.1	10.0	14.4	-
70	35.7	1.0	4.1	11.0	15.5	-
75	33.8	0.9	4.2	12.0	16.7	-
80	32.1	0.9	4.2	13.0	17.8	-
85	30.6	0.8	4.3	14.0	18.9	-
90	29.2	0.8	4.3	15.0	20.0	-
95	28.0	0.8	4.4	16.0	21.1	-
100	26.9	0.7	4.4	17.0	22.2	-
105	25.8	0.7	4.5	18.0	23.3	-
110	24.9	0.7	4.5	19.0	24.4	-
115	24.0	0.7	4.6	20.0	25.5	-
120	23.2	0.6	4.6	21.0	26.6	-
125	22.5	0.6	4.6	22.0	27.8	-
130	21.7	0.6	4.7	23.0	28.9	-
135	21.1	0.6	4.7	24.0	30.0	-
140	20.5	0.6	4.7	25.0	31.1	-
145	19.9	0.5	4.8	26.0	32.2	-
150	19.4	0.5	4.8	27.0	33.3	-
155	18.8	0.5	4.8	28.0	34.4	-
160	18.4	0.5	4.9	29.0	35.5	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_{25}	0.99
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	4.9
Req. vol. (m^3)	0.0

Oakville	25-year
a=	1680
b=	5.6
c=	0.851

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**162.2**	**4.9**	**2.9**	**0.0**	**2.9**	**0.0**
15	128.0	3.9	3.5	0.0	4.4	-
20	106.4	3.2	3.9	1.0	5.9	-
25	91.4	2.8	4.2	2.0	7.4	-
30	80.4	2.4	4.4	3.0	8.8	-
35	71.9	2.2	4.6	4.0	10.3	-
40	65.1	2.0	4.7	5.0	11.8	-
45	59.6	1.8	4.9	6.0	13.2	-
50	55.0	1.7	5.0	7.0	14.7	-
55	51.1	1.5	5.1	8.0	16.2	-
60	47.8	1.4	5.2	9.0	17.6	-
65	44.9	1.4	5.3	10.0	19.1	-
70	42.3	1.3	5.4	11.0	20.6	-
75	40.1	1.2	5.5	12.0	22.1	-
80	38.1	1.2	5.5	13.0	23.5	-
85	36.3	1.1	5.6	14.0	25.0	-
90	34.7	1.0	5.7	15.0	26.5	-
95	33.2	1.0	5.7	16.0	27.9	-
100	31.9	1.0	5.8	17.0	29.4	-
105	30.6	0.9	5.8	18.0	30.9	-
110	29.5	0.9	5.9	19.0	32.3	-
115	28.5	0.9	5.9	20.0	33.8	-
120	27.5	0.8	6.0	21.0	35.3	-
125	26.6	0.8	6.0	22.0	36.8	-
130	25.7	0.8	6.1	23.0	38.2	-
135	25.0	0.8	6.1	24.0	39.7	-
140	24.2	0.7	6.2	25.0	41.2	-
145	23.5	0.7	6.2	26.0	42.6	-
150	22.9	0.7	6.2	27.0	44.1	-
155	22.3	0.7	6.3	28.0	45.6	-
160	21.7	0.7	6.3	29.0	47.0	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_{50}	1.00
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	5.6
Req. vol. (m^3)	0.0

Oakville	50-year
a=	1960
b=	5.8
c=	0.861

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**182.1**	**5.6**	**3.3**	**0.0**	**3.3**	**0.0**
15	143.7	4.4	4.0	0.0	5.0	-
20	119.4	3.6	4.4	1.0	6.7	-
25	102.5	3.1	4.7	2.0	8.3	-
30	90.0	2.8	5.0	3.0	10.0	-
35	80.4	2.5	5.2	4.0	11.7	-
40	72.8	2.2	5.3	5.0	13.3	-
45	66.6	2.0	5.5	6.0	15.0	-
50	61.4	1.9	5.6	7.0	16.7	-
55	57.1	1.7	5.8	8.0	18.3	-
60	53.3	1.6	5.9	9.0	20.0	-
65	50.0	1.5	6.0	10.0	21.7	-
70	47.2	1.4	6.1	11.0	23.4	-
75	44.7	1.4	6.1	12.0	25.0	-
80	42.4	1.3	6.2	13.0	26.7	-
85	40.4	1.2	6.3	14.0	28.4	-
90	38.6	1.2	6.4	15.0	30.0	-
95	36.9	1.1	6.4	16.0	31.7	-
100	35.4	1.1	6.5	17.0	33.4	-
105	34.0	1.0	6.6	18.0	35.0	-
110	32.8	1.0	6.6	19.0	36.7	-
115	31.6	1.0	6.7	20.0	38.4	-
120	30.5	0.9	6.7	21.0	40.0	-
125	29.5	0.9	6.8	22.0	41.7	-
130	28.6	0.9	6.8	23.0	43.4	-
135	27.7	0.8	6.9	24.0	45.0	-
140	26.9	0.8	6.9	25.0	46.7	-
145	26.1	0.8	6.9	26.0	48.4	-
150	25.4	0.8	7.0	27.0	50.0	-
155	24.7	0.8	7.0	28.0	51.7	-
160	24.1	0.7	7.1	29.0	53.4	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220 (Sixth Line)	
Area (Ha)	0.01
C_{100}	1.00
AC	0.01
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	6.1
Req. vol. (m^3)	0.0

	Oakville	100-year
	a=	2150
	b=	5.7
	c=	0.861

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**200.8**	**6.1**	**3.7**	**0.0**	**3.7**	**0.0**
15	158.3	4.8	4.4	0.0	5.5	-
20	131.4	4.0	4.8	0.0	7.4	-
25	112.7	3.4	5.2	0.0	9.2	-
30	99.0	3.0	5.4	0.0	11.1	-
35	88.4	2.7	5.7	0.0	12.9	-
40	80.0	2.4	5.9	0.0	14.7	-
45	73.2	2.2	6.0	0.0	16.6	-
50	67.5	2.1	6.2	0.0	18.4	-
55	62.7	1.9	6.3	0.0	20.3	-
60	58.5	1.8	6.4	0.0	22.1	-
65	55.0	1.7	6.6	0.0	23.9	-
70	51.8	1.6	6.7	0.0	25.8	-
75	49.0	1.5	6.7	0.0	27.6	-
80	46.6	1.4	6.8	0.0	29.5	-
85	44.4	1.4	6.9	0.0	31.3	-
90	42.4	1.3	7.0	0.0	33.2	-
95	40.5	1.2	7.1	0.0	35.0	-
100	38.9	1.2	7.1	0.0	36.8	-
105	37.4	1.1	7.2	0.0	38.7	-
110	36.0	1.1	7.3	0.0	40.5	-
115	34.7	1.1	7.3	0.0	42.4	-
120	33.5	1.0	7.4	0.0	44.2	-
125	32.4	1.0	7.4	0.0	46.1	-
130	31.4	1.0	7.5	0.0	47.9	-
135	30.4	0.9	7.5	0.0	49.7	-
140	29.5	0.9	7.6	0.0	51.6	-
145	28.6	0.9	7.6	0.0	53.4	-
150	27.9	0.9	7.7	0.0	55.3	-
155	27.1	0.8	7.7	0.0	57.1	-
160	26.4	0.8	7.8	0.0	58.9	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.013
C_2	0.30
AC	0.004
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	0.9
Req. vol. (m^3)	0.0

Oakville	2-year
a=	725
b=	4.8
c=	0.808

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**82.2**	**0.9**	**0.5**	**0.0**	**0.5**	**0.0**
15	65.0	0.7	0.6	0.0	0.8	-
20	54.2	0.6	0.7	0.0	1.0	-
25	46.7	0.5	0.7	0.0	1.3	-
30	41.2	0.4	0.8	0.0	1.6	-
35	37.0	0.4	0.8	0.0	1.8	-
40	33.6	0.4	0.9	0.0	2.1	-
45	30.8	0.3	0.9	0.0	2.3	-
50	28.5	0.3	0.9	0.0	2.6	-
55	26.6	0.3	0.9	0.0	2.9	-
60	24.9	0.3	1.0	0.0	3.1	-
65	23.5	0.2	1.0	0.0	3.4	-
70	22.2	0.2	1.0	0.0	3.7	-
75	21.1	0.2	1.0	0.0	3.9	-
80	20.1	0.2	1.0	0.0	4.2	-
85	19.1	0.2	1.0	0.0	4.4	-
90	18.3	0.2	1.0	0.0	4.7	-
95	17.6	0.2	1.1	0.0	5.0	-
100	16.9	0.2	1.1	0.0	5.2	-
105	16.3	0.2	1.1	0.0	5.5	-
110	15.7	0.2	1.1	0.0	5.7	-
115	15.2	0.2	1.1	0.0	6.0	-
120	14.7	0.2	1.1	0.0	6.3	-
125	14.2	0.2	1.1	0.0	6.5	-
130	13.8	0.1	1.1	0.0	6.8	-
135	13.4	0.1	1.1	0.0	7.0	-
140	13.0	0.1	1.2	0.0	7.3	-
145	12.7	0.1	1.2	0.0	7.6	-
150	12.3	0.1	1.2	0.0	7.8	-
155	12.0	0.1	1.2	0.0	8.1	-
160	11.7	0.1	1.2	0.0	8.4	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.013
C_5	0.30
AC	0.004
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	1.2
Req. vol. (m^3)	0.0

Oakville	5-year
a=	1170
b=	5.8
c=	0.843

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**114.2**	**1.2**	**0.7**	**0.0**	**0.7**	**0.0**
15	90.6	1.0	0.9	0.0	1.1	-
20	75.5	0.8	1.0	0.0	1.4	-
25	65.1	0.7	1.0	0.0	1.8	-
30	57.3	0.6	1.1	0.0	2.2	-
35	51.3	0.5	1.1	0.0	2.5	-
40	46.6	0.5	1.2	0.0	2.9	-
45	42.7	0.5	1.2	0.0	3.2	-
50	39.4	0.4	1.3	0.0	3.6	-
55	36.7	0.4	1.3	0.0	4.0	-
60	34.3	0.4	1.3	0.0	4.3	-
65	32.3	0.3	1.3	0.0	4.7	-
70	30.5	0.3	1.4	0.0	5.0	-
75	28.9	0.3	1.4	0.0	5.4	-
80	27.4	0.3	1.4	0.0	5.8	-
85	26.2	0.3	1.4	0.0	6.1	-
90	25.0	0.3	1.4	0.0	6.5	-
95	23.9	0.3	1.4	0.0	6.8	-
100	23.0	0.2	1.5	0.0	7.2	-
105	22.1	0.2	1.5	0.0	7.6	-
110	21.3	0.2	1.5	0.0	7.9	-
115	20.6	0.2	1.5	0.0	8.3	-
120	19.9	0.2	1.5	0.0	8.6	-
125	19.2	0.2	1.5	0.0	9.0	-
130	18.6	0.2	1.5	0.0	9.4	-
135	18.1	0.2	1.6	0.0	9.7	-
140	17.5	0.2	1.6	0.0	10.1	-
145	17.1	0.2	1.6	0.0	10.4	-
150	16.6	0.2	1.6	0.0	10.8	-
155	16.2	0.2	1.6	0.0	11.2	-
160	15.7	0.2	1.6	0.0	11.5	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.013
C_{10}	0.30
AC	0.004
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	1.4
Req. vol. (m^3)	0.0

Oakville	10-year
a=	1400
b=	5.8
c=	0.848

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**134.8**	**1.4**	**0.9**	**0.0**	**0.9**	**0.0**
15	106.8	1.1	1.0	0.0	1.3	-
20	88.9	0.9	1.1	0.0	1.7	-
25	76.5	0.8	1.2	0.0	2.1	-
30	67.4	0.7	1.3	0.0	2.6	-
35	60.3	0.6	1.3	0.0	3.0	-
40	54.7	0.6	1.4	0.0	3.4	-
45	50.1	0.5	1.4	0.0	3.8	-
50	46.2	0.5	1.5	0.0	4.3	-
55	43.0	0.5	1.5	0.0	4.7	-
60	40.2	0.4	1.5	0.0	5.1	-
65	37.8	0.4	1.6	0.0	5.5	-
70	35.7	0.4	1.6	0.0	6.0	-
75	33.8	0.4	1.6	0.0	6.4	-
80	32.1	0.3	1.6	0.0	6.8	-
85	30.6	0.3	1.7	0.0	7.2	-
90	29.2	0.3	1.7	0.0	7.7	-
95	28.0	0.3	1.7	0.0	8.1	-
100	26.9	0.3	1.7	0.0	8.5	-
105	25.8	0.3	1.7	0.0	8.9	-
110	24.9	0.3	1.7	0.0	9.4	-
115	24.0	0.3	1.8	0.0	9.8	-
120	23.2	0.2	1.8	0.0	10.2	-
125	22.5	0.2	1.8	0.0	10.7	-
130	21.7	0.2	1.8	0.0	11.1	-
135	21.1	0.2	1.8	0.0	11.5	-
140	20.5	0.2	1.8	0.0	11.9	-
145	19.9	0.2	1.8	0.0	12.4	-
150	19.4	0.2	1.8	0.0	12.8	-
155	18.8	0.2	1.9	0.0	13.2	-
160	18.4	0.2	1.9	0.0	13.6	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.01
C_{25}	0.33
AC	0.00
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	1.9
Req. vol. (m^3)	0.0

Oakville	25-year
a=	1680
b=	5.6
c=	0.851

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**162.2**	**1.9**	**1.1**	**0.0**	**1.1**	**0.0**
15	128.0	1.5	1.3	0.0	1.7	-
20	106.4	1.2	1.5	0.0	2.3	-
25	91.4	1.1	1.6	0.0	2.8	-
30	80.4	0.9	1.7	0.0	3.4	-
35	71.9	0.8	1.8	0.0	3.9	-
40	65.1	0.8	1.8	0.0	4.5	-
45	59.6	0.7	1.9	0.0	5.1	-
50	55.0	0.6	1.9	0.0	5.6	-
55	51.1	0.6	2.0	0.0	6.2	-
60	47.8	0.6	2.0	0.0	6.8	-
65	44.9	0.5	2.0	0.0	7.3	-
70	42.3	0.5	2.1	0.0	7.9	-
75	40.1	0.5	2.1	0.0	8.5	-
80	38.1	0.4	2.1	0.0	9.0	-
85	36.3	0.4	2.2	0.0	9.6	-
90	34.7	0.4	2.2	0.0	10.2	-
95	33.2	0.4	2.2	0.0	10.7	-
100	31.9	0.4	2.2	0.0	11.3	-
105	30.6	0.4	2.2	0.0	11.8	-
110	29.5	0.3	2.3	0.0	12.4	-
115	28.5	0.3	2.3	0.0	13.0	-
120	27.5	0.3	2.3	0.0	13.5	-
125	26.6	0.3	2.3	0.0	14.1	-
130	25.7	0.3	2.3	0.0	14.7	-
135	25.0	0.3	2.4	0.0	15.2	-
140	24.2	0.3	2.4	0.0	15.8	-
145	23.5	0.3	2.4	0.0	16.4	-
150	22.9	0.3	2.4	0.0	16.9	-
155	22.3	0.3	2.4	0.0	17.5	-
160	21.7	0.3	2.4	0.0	18.0	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.01
C_{50}	0.36
AC	0.00
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	2.3
Req. vol. (m^3)	0.0

Oakville	50-year
a=	1960
b=	5.8
c=	0.861

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**182.1**	**2.3**	**1.4**	**0.0**	**1.4**	**0.0**
15	143.7	1.8	1.6	0.0	2.1	-
20	119.4	1.5	1.8	0.0	2.8	-
25	102.5	1.3	2.0	0.0	3.5	-
30	90.0	1.1	2.1	0.0	4.2	-
35	80.4	1.0	2.1	0.0	4.9	-
40	72.8	0.9	2.2	0.0	5.5	-
45	66.6	0.8	2.3	0.0	6.2	-
50	61.4	0.8	2.3	0.0	6.9	-
55	57.1	0.7	2.4	0.0	7.6	-
60	53.3	0.7	2.4	0.0	8.3	-
65	50.0	0.6	2.5	0.0	9.0	-
70	47.2	0.6	2.5	0.0	9.7	-
75	44.7	0.6	2.6	0.0	10.4	-
80	42.4	0.5	2.6	0.0	11.1	-
85	40.4	0.5	2.6	0.0	11.8	-
90	38.6	0.5	2.6	0.0	12.5	-
95	36.9	0.5	2.7	0.0	13.2	-
100	35.4	0.5	2.7	0.0	13.9	-
105	34.0	0.4	2.7	0.0	14.6	-
110	32.8	0.4	2.7	0.0	15.2	-
115	31.6	0.4	2.8	0.0	15.9	-
120	30.5	0.4	2.8	0.0	16.6	-
125	29.5	0.4	2.8	0.0	17.3	-
130	28.6	0.4	2.8	0.0	18.0	-
135	27.7	0.4	2.9	0.0	18.7	-
140	26.9	0.3	2.9	0.0	19.4	-
145	26.1	0.3	2.9	0.0	20.1	-
150	25.4	0.3	2.9	0.0	20.8	-
155	24.7	0.3	2.9	0.0	21.5	-
160	24.1	0.3	2.9	0.0	22.2	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 221 (Morrison Creek)	
Area (Ha)	0.013
C_{100}	0.38
AC	0.005
T_c (min)	10.0
T incr. (min)	5
Q_1 (l/s)	2.7
Req. vol. (m^3)	0.0

Oakville	100-year
a=	2150
b=	5.7
c=	0.861

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
10	**200.8**	**2.7**	**1.6**	**0.0**	**1.6**	**0.0**
15	158.3	2.1	1.9	0.0	2.4	-
20	131.4	1.7	2.1	0.0	3.2	-
25	112.7	1.5	2.2	0.0	4.0	-
30	99.0	1.3	2.4	0.0	4.8	-
35	88.4	1.2	2.5	0.0	5.6	-
40	80.0	1.1	2.5	0.0	6.4	-
45	73.2	1.0	2.6	0.0	7.2	-
50	67.5	0.9	2.7	0.0	8.0	-
55	62.7	0.8	2.7	0.0	8.7	-
60	58.5	0.8	2.8	0.0	9.5	-
65	55.0	0.7	2.8	0.0	10.3	-
70	51.8	0.7	2.9	0.0	11.1	-
75	49.0	0.6	2.9	0.0	11.9	-
80	46.6	0.6	3.0	0.0	12.7	-
85	44.4	0.6	3.0	0.0	13.5	-
90	42.4	0.6	3.0	0.0	14.3	-
95	40.5	0.5	3.1	0.0	15.1	-
100	38.9	0.5	3.1	0.0	15.9	-
105	37.4	0.5	3.1	0.0	16.7	-
110	36.0	0.5	3.1	0.0	17.5	-
115	34.7	0.5	3.2	0.0	18.3	-
120	33.5	0.4	3.2	0.0	19.1	-
125	32.4	0.4	3.2	0.0	19.9	-
130	31.4	0.4	3.2	0.0	20.7	-
135	30.4	0.4	3.3	0.0	21.5	-
140	29.5	0.4	3.3	0.0	22.3	-
145	28.6	0.4	3.3	0.0	23.1	-
150	27.9	0.4	3.3	0.0	23.9	-
155	27.1	0.4	3.3	0.0	24.6	-
160	26.4	0.3	3.4	0.0	25.4	-

ORIFICE AND AVAILABLE
STORAGE CALCULATIONS

$$Q_{Orifice} = C_d A (2gh)^{1/2}$$

Type	PLATE	
Location	MH1	
Size	230	mm
Area	0.042	m^2
C_d	0.62	

Drainage Area 210 Orifice Calcs

	Elev. (m)	h (m)	Q (m^3/s)
Inv.	169.90	0.00	-
MH TOP	171.80	1.90	-
2-Yr W.L.	170.13	0.11	0.039
5-yr W.L.	170.24	0.23	0.054
10-yr W.L.	170.32	0.30	0.063
25-yr W.L.	170.51	0.49	0.080
50-yr W.L.	170.71	0.70	0.095
100-yr W.L.	170.89	0.87	0.107

STAGE STORAGE
CALCULATIONS

SWM Tank Specs	
WB Area	9.95
WB Invert	169.90
WB Weir Elev.	
Area Above WB	25.00
Weir Area	-
Area Below Weir	-
Elev. Incr. (m)	0.01

SWM Tank Specs	
Tank Invert	169.90
MH Top	171.80
U/S Slab	0.90
Max W.L.	170.90
WB Vol. (m^3)	0.00

Notes:

Total Volume Calculation

Water Elev. (m)	WB Vol. (m^3)	Active Vol. (m^3)	Inc. Vol. (m^3)	Tot. Vol. (m^3)
169.90	0.00	0.00	-	0.00
169.91	0.00	0.25	0.25	0.25
169.92	0.00	0.50	0.25	0.50
169.93	0.00	0.75	0.25	0.75
169.94	0.00	1.00	0.25	1.00
169.95	0.00	1.25	0.25	1.25
169.96	0.00	1.50	0.25	1.50
169.97	0.00	1.75	0.25	1.75
169.98	0.00	2.00	0.25	2.00
169.99	0.00	2.25	0.25	2.25
170.00	0.00	2.50	0.25	2.50
170.01	0.00	2.75	0.25	2.75
170.02	0.00	3.00	0.25	3.00
170.03	0.00	3.25	0.25	3.25
170.04	0.00	3.50	0.25	3.50
170.05	0.00	3.75	0.25	3.75
170.06	0.00	4.00	0.25	4.00
170.07	0.00	4.25	0.25	4.25
170.08	0.00	4.50	0.25	4.50
170.09	0.00	4.75	0.25	4.75
170.10	0.00	5.00	0.25	5.00
170.11	0.00	5.25	0.25	5.25
170.12	0.00	5.50	0.25	5.50
170.13	0.00	5.75	0.25	5.75
170.14	0.00	6.00	0.25	6.00
170.15	0.00	6.25	0.25	6.25
170.16	0.00	6.50	0.25	6.50
170.17	0.00	6.75	0.25	6.75
170.18	0.00	7.00	0.25	7.00
170.19	0.00	7.25	0.25	7.25
170.20	0.00	7.50	0.25	7.50
170.21	0.00	7.75	0.25	7.75

STAGE STORAGE
CALCULATIONS

Total Volume Calculation

Water Elev. (m)	WB Vol. (m^3)	Active Vol. (m^3)	Inc. Vol. (m^3)	Tot. Vol. (m^3)
170.22	0.00	8.00	0.25	8.00
170.23	0.00	8.25	0.25	8.25
170.24	0.00	8.50	0.25	8.50
170.25	0.00	8.75	0.25	8.75
170.26	0.00	9.00	0.25	9.00
170.27	0.00	9.25	0.25	9.25
170.28	0.00	9.50	0.25	9.50
170.29	0.00	9.75	0.25	9.75
170.30	0.00	10.00	0.25	10.00
170.31	0.00	10.25	0.25	10.25
170.32	0.00	10.50	0.25	10.50
170.33	0.00	10.75	0.25	10.75
170.34	0.00	11.00	0.25	11.00
170.35	0.00	11.25	0.25	11.25
170.36	0.00	11.50	0.25	11.50
170.37	0.00	11.75	0.25	11.75
170.38	0.00	12.00	0.25	12.00
170.39	0.00	12.25	0.25	12.25
170.40	0.00	12.50	0.25	12.50
170.41	0.00	12.75	0.25	12.75
170.42	0.00	13.00	0.25	13.00
170.43	0.00	13.25	0.25	13.25
170.44	0.00	13.50	0.25	13.50
170.45	0.00	13.75	0.25	13.75
170.46	0.00	14.00	0.25	14.00
170.47	0.00	14.25	0.25	14.25
170.48	0.00	14.50	0.25	14.50
170.49	0.00	14.75	0.25	14.75
170.50	0.00	15.00	0.25	15.00
170.51	0.00	15.25	0.25	15.25
170.52	0.00	15.50	0.25	15.50
170.53	0.00	15.75	0.25	15.75
170.54	0.00	16.00	0.25	16.00
170.55	0.00	16.25	0.25	16.25
170.56	0.00	16.50	0.25	16.50
170.57	0.00	16.75	0.25	16.75
170.58	0.00	17.00	0.25	17.00
170.59	0.00	17.25	0.25	17.25
170.60	0.00	17.50	0.25	17.50
170.61	0.00	17.75	0.25	17.75
170.62	0.00	18.00	0.25	18.00
170.63	0.00	18.25	0.25	18.25
170.64	0.00	18.50	0.25	18.50

STAGE STORAGE
CALCULATIONS

Total Volume Calculation

Water Elev. (m)	WB Vol. (m^3)	Active Vol. (m^3)	Inc. Vol. (m^3)	Tot. Vol. (m^3)
170.65	0.00	18.75	0.25	18.75
170.66	0.00	19.00	0.25	19.00
170.67	0.00	19.25	0.25	19.25
170.68	0.00	19.50	0.25	19.50
170.69	0.00	19.75	0.25	19.75
170.70	0.00	20.00	0.25	20.00
170.71	0.00	20.25	0.25	20.25
170.72	0.00	20.50	0.25	20.50
170.73	0.00	20.75	0.25	20.75
170.74	0.00	21.00	0.25	21.00
170.75	0.00	21.25	0.25	21.25
170.76	0.00	21.50	0.25	21.50
170.77	0.00	21.75	0.25	21.75
170.78	0.00	22.00	0.25	22.00
170.79	0.00	22.25	0.25	22.25
170.80	0.00	22.50	0.25	22.50
170.81	0.00	22.75	0.25	22.75
170.82	0.00	23.00	0.25	23.00
170.83	0.00	23.25	0.25	23.25
170.84	0.00	23.50	0.25	23.50
170.85	0.00	23.75	0.25	23.75
170.86	0.00	24.00	0.25	24.00
170.87	0.00	24.25	0.25	24.25
170.88	0.00	24.50	0.25	24.50
170.89	0.00	24.75	0.25	24.75
170.90	0.00	25.00	0.25	25.00
170.91	0.00	25.25	0.25	25.25

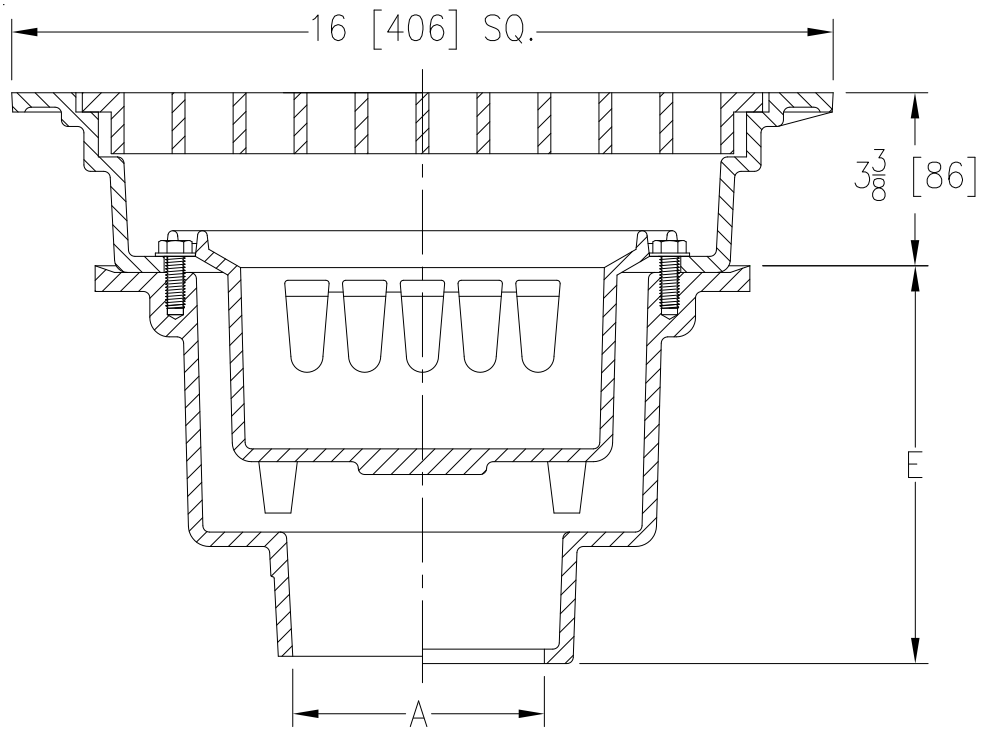
Z662-HF

16 [406] SQUARE TOP HEAVY-DUTY DRAIN W/ HIGH FLOW DUCTILE IRON GRATE

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



A - Pipe Size in. [mm]	Approx. Wt. Lbs. [kg]	Grate Open Area Sq. In. [cm²]
3, 4 [76, 102]	86 [30]	103 [665]
6 [152]	89 [40]	

ENGINEERING SPECIFICATION: ZURN Z662-HF
16" [406mm] Square top drain, Dura-Coated cast iron body with bottom outlet, seepage pan and combination membrane flashing clamp and frame for heavy-duty high flow ductile iron grate with suspended sediment bucket.

OPTIONS (Check/specify appropriate options)

PIPE SIZE	(Specify size/type) **OUTLET**		**'E' BODY HT. DIM.**
4, 6 [102, 152]	____ IC	Inside Caulk	7-3/4 [197]
4, 6 [102, 152]	____ IG	Inside Gasket	7-3/4 [197]
4, 6 [102, 152]	____ IP	Threaded	6-5/16 [160]
3, 4, 6 [76, 102, 152]	____ NH	No-Hub	7-13/16 [198]
3, 4 [76, 102]	____ NL	Neo-Loc	7-3/16 [183]

PREFIXES

____ Z D.C.C.I. Body and Top*
____ ZB D.C.C.I Body w/ Polished Bronze Top (Add 3/16 [5] to 3-3/8 [86] and 11/16 [17] to 16 [406] Dim.)
____ ZN D.C.C.I Body w/ Polished Nickel Bronze Top (Add 3/16 [5] to 3-3/8 [86] and 11/16 [17] to 16 [406] Dim.)

SUFFIXES

____ -LY (Less) Sediment Bucket
____ -SS Stainless Mesh Liner for Bucket
____ -TC Neo-Loc Test Cap Gasket (3 [76] - 4 [102] NL Bottom Outlet Only)
____ -TS Top Secured with Slotted Screws
____ -VP Vandal-Proof Secured Top
____ -YA Aluminum Sediment Bucket

* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | **Specification Drainage Operation**
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | **Zurn Industries Limited**
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. E
Date: 10/09/2017
C.N. No. 138550
Prod. | Dwg. No. Z662-HF

100-YEAR CAPTURE
CALCULATIONS

IDF set: Hamilton

Return Period	*a*	T_c	*b*	*c*
100-Year	2150.0	10	5.70	0.861

Where: $$I = \frac{a}{(t_c + b)^c}$$

Area 210 100-year flow

Drainage ID	Area (m^2)	Composite C	I (mm/hr)*	Q (L/s)
AD (Z676)	350	0.90	200.80	17.6

Where: $$Q = \frac{CIA}{360}$$

$$Q_{Orifice} = C_d A (2gh)^{1/2}$$

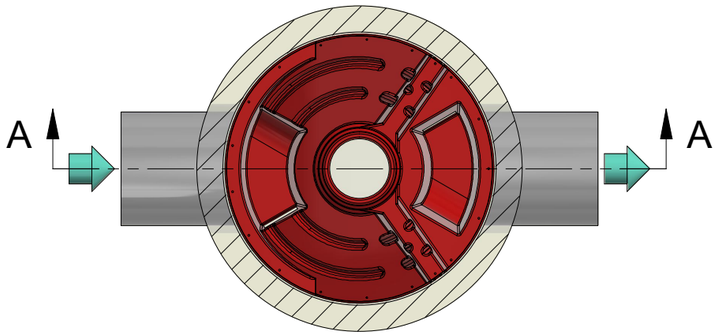
Type	PLATE
Model	Zurn Z662-HF
Grate Open Area (cm^2)	665
1/2 Area* (m^2)	0.033
C_d	0.62

Drainage ID	AD Elev. (m)	Max W.L.	h (m)	Q_{in} (L/s)
AD1 (Zurn Z662)	171.70	171.85	0.15	35.4

* Assumes 50% blockage

NOT FOR CONSTRUCTION

CONTACT HYDRO FOR A SITE SPECIFIC DRAWING

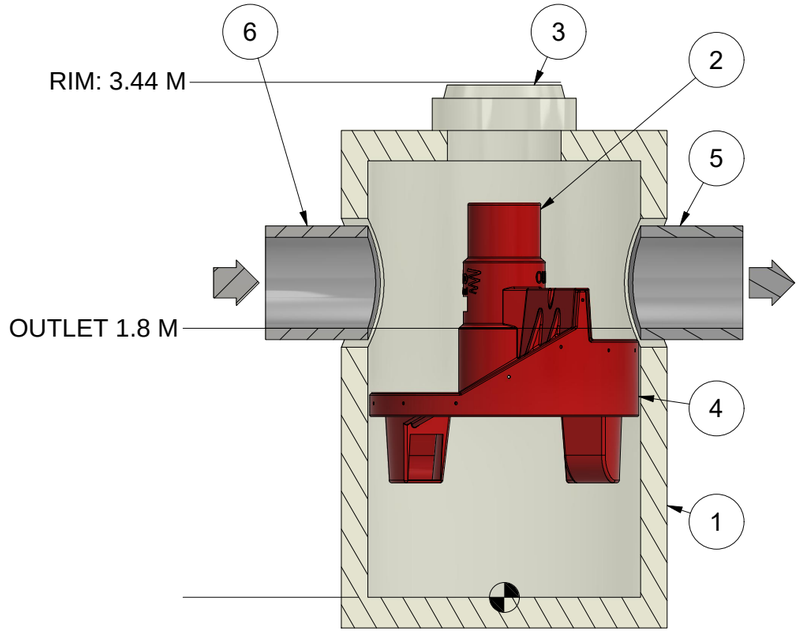


PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS
AS REQUIRED

SUMP: 0 M



SECTION A-A

CONTRACTOR NOTES:

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.

3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE Ø AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.

5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.

PRODUCT NOTES:

1. GENERAL ARRANGEMENT DRAWING ONLY. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC DRAWINGS.
2. PEAK HYDRAULIC FLOW: 906.139 l/s
3. MIN SEDIMENT STORAGE CAPACITY: 1.6 cu. yd. (1.2 cu. m.)
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 30 in. (750 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
6. MULTIPLE INLET PIPES POSSIBLE.
7. INLET/OUTLET PIPE ANGLE CAN VARY TO ALIGN WITH DRAINAGE NETWORK.
8. PEAK FLOW RATE AND MINIMUM HEIGHT LIMITED BY AVAILABLE COVER AND PIPE DIAMETER.
9. LARGER SEDIMENT STORAGE CAPACITY CAN BE PROVIDED WITH A DEEPER SUMP DEPTH.
10. UNIT SHALL CONFORM TO HS20-44 LOAD RATINGS.
11. FOR MORE PRODUCT INFORMATION INCLUDING REGULATORY ACCEPTANCES, PLEASE VISIT: https://hydro-int.com/en/products/first-defense

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	72	1800	I.D. PRECAST MANHOLE
2	1			SEPARATION MODULE
3	1	30	750	FRAME AND COVER (ROUND)
4	1			LEDGER SUPPORT
5	1	762		OUTLET PIPE (BY OTHERS)
6	1			INLET PIPE (BY OTHERS)

PROJECTION

IF IN DOUBT ASK

DATE:	SCALE:
2/16/2026	1:40

DRAWN BY:	CHECKED BY:	APPROVED BY
AA	MJ	PT

Title
6-ft DIAMETER
FIRST DEFENSE
GENERAL ARRANGEMENT

Site:
3043 Sixth Line

Structure Number:
CTRL MH1

Patent: www.hydro-int.com/patents

Hydro International
A CRH COMPANY
hydro-int.com
HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:

REFERENCE NUMBER:

DRAWING NO.:
6ft FD GA

SHEET SIZE:	SHEET:	Rev:
B	1 OF 1	-

DESIGN SUMMARY

PROJECT INFORMATION

Reference	CTRL MH1
Site	3043 Sixth Line
Designer	Pascal Monat
Date	2/16/2026 3:15 PM

DESIGN INPUTS

Regulatory Agency	First Defense with 5 mm Trash Screen
Water Quality Flow Rate (l/s)	110

DESIGN OUTPUTS

Product	
Unit Reference	FD-6Optimum

* Approved for use in First Defense with 5 mm Trash Screen

UNIT WEIGHTS AND DIMENSIONS

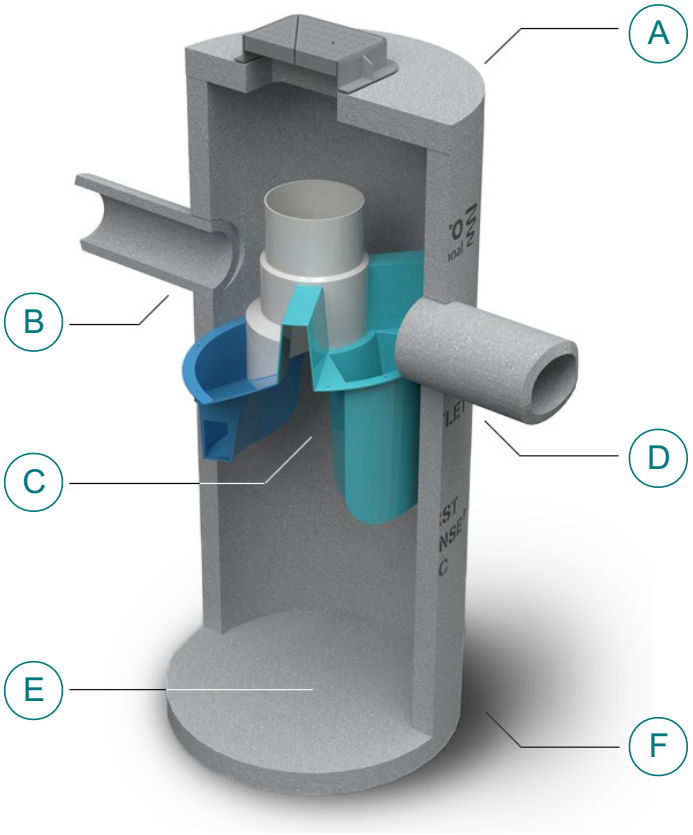
(A) Unit Size (m)	1.83
(B) Inlet Pipe Size (mm)	762
(D) Outlet Pipe Size (mm)	762
(F) Unit Depth (m)	3.44
Inlet Invert Elevation (m)	1.80
Outlet Invert Elevation (m)	1.80

PERFORMANCE AND HYDRAULICS

Max. Treatment Flow Rate (l/s)	115.25
Hydraulic Capacity Flow Rate (l/s)	906.139
Typical Operating Headloss (mm)	
Maximum Headloss (mm)	

STORAGE

(C) Min. Oil Storage Capacity (l)	1878
(E) Min.Sediment Storage Capacity (m^3)	1.22



PROJECT NO. 9550

REPORT TO

3043 SIXTH LINE INC.

ON

HYDROGEOLOGICAL ASSESSMENT

3043 SIXTH LINE, OAKVILLE, ONTARIO

CONDUCTED BY:

S2S Environmental Inc.

1099 KINGSTON ROAD, SUITE 260
PICKERING, ONTARIO
L1V 1B5

Tel: (416) 410-4333
Fax: (416) 410-4088
www.s2se.com

NOVEMBER 13, 2020

5.0 GROUNDWATER CONTROL REQUIREMENTS

5.1 Dewatering Estimates

5.1.1 Construction Dewatering

It is assumed that the spread or strip foundation will be constructed at depth of 6.0 m bgs (164.86 m asl) for the construction of two underground levels based upon architectural drawings provided by the Client (Gren Weis Architect and Associates, September 2019). It is recommended that groundwater levels be lowered during the construction period to approximately 1.0 m below the proposed depth of the foundation level (163.86 m asl). Lowering water levels to this elevation is intended to provide a stable working base for construction. This would entail lowering the water level to 7.0 m bgs. On October 20, 2020, groundwater at the site was found at approximately 4.2 m bgs (166.2 m asl) in the central portion of the property (BH2), at 4.5 m bgs (166.16) in the northwestern portion of the property (BH1) and at a depth of 4.4 m bgs (166.7 m asl) in southeastern portion of the property (BH5). It is estimated that high seasonal water table could be approximately 0.5 m higher at an elevation of 3.9 m bgs (167.15 m asl) in BH2.

The anticipated daily average construction dewatering estimate for the development is 7,789 L/day (5.41 L/min). The worst-case input data (high seasonal water table, high hydraulic conductivity value) were used for calculations (refer to Appendix F for Dewatering Calculations). By applying a safety factor of 1.5, the total daily groundwater seepage into excavation will be approximately 11,683 L/day (8.11 L/min).

This daily volume does not consider precipitation into the excavation. Considering 10 mm rain into the excavation for the total area of 2,500 m^2 the volume of precipitation will be 25,000 L/day. Then the total daily discharge volume during construction (groundwater seepage and accumulated precipitation) will be in the range from an average daily flow rate of 7,789 L/day to a peak flow rate of 36,683 L/day (25.47 L/min).

The short-term dewatering system must be designed to conform to the requirements laid out in the Halton Region Sewer By-Law. Groundwater chemistry results are in Appendix E.

5.1.2 Long Term Dewatering

It is assumed that the spread or strip foundation will be constructed at a depth of 6.0 m bgs (164.86 m asl) for the construction of two underground levels based upon architectural drawings provided by the Client (Gren Weis Architect and Associates, September 2019).

For long term dewatering estimate, it is assumed that water table will be maintained below 6.5 m bgs. The anticipated long-term dewatering estimate for the development is a daily average flow rate of 8,149 L/day (5.66 L/min) (refer to Appendix F for Dewatering Calculations). The worst-case input data were used for the calculation. By applying safety factor of 1.5, the peak daily flow of groundwater seepage volume will be approximately 12,223 L/day (8.49 L/min).

For most of the year the daily seepage volume will be likely lower, as the seasonal high groundwater table elevation was used for the calculations.

The long-term dewatering system must be designed to conform to the requirements laid out in the Halton Region Sewer By-Law. Groundwater chemistry results are in Appendix E.

5.2 Potential Impacts

5.2.1 Short Term Discharge of Groundwater

The anticipated construction dewatering daily average estimate for the Subject Property is 7,789 L/day (5.41 L/min) for the foundation excavation. This volume does not included precipitation into the excavation.

Calculated radius of influence was approximately 3.0 m from the edge of the excavation. Considering the volume of pumped groundwater, short period of dewatering, and the radius of influence, the impact of construction dewatering on the groundwater conditions in the area is considered negligible. Due to low discharge rate (5.41 L/min) and presumed good water quality, discharged water will have minor impact on the Town's sewage works.

5.2.2 Long Term Discharge of Groundwater

A groundwater dewatering system or footing waterproofing is required for the proposed development. The estimated average daily flow of groundwater seepage into the drainage system will be approximately 8,149 L/day (5.66 L/min). The long-term dewatering combined with decrease of infiltration due to increase of impermeable area will have impact on the groundwater conditions in the area. Therefore, implementation of Low Impact Development (LID) measures are recommended.

Due to a low discharge rate (5.66 L/min) and good water quality, discharging will have minor impact on the Town's sewage works (assumed storm sewer). As the seasonal high water table was used for the calculation, it is likely that for most of the year groundwater seepage volume into drainage system will be lower.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this report are summarized below:

- The primary hydro-stratigraphic unit on the Subject Property is a fractured shale bedrock extending from approximately 2.4 to greater than 9.8 m bgs (maximum extent of boreholes). Borehole Logs completed by S2S are presented in Appendix C;
- Shallow groundwater was encountered at Subject Property in the three of the five monitoring wells (BH1, BH2 and BH5) during the monitoring event held on October 20, 2020. Based on the completed groundwater observations, the groundwater table at

Appendix C

Sanitary Data

SANITARY FLOW
CALCULATIONS

Existing Flows					
Residential Flow Determination					
	Unit type	No. Unit	Pop. / Unit*	Population	
	Single Family	1	3.750	4	
	Total	1		4	persons
Harmon Peaking Factor				4.0	
Average flow				275	L/c/d
Existing Residential Peak Flow				0.0	L/s
I/I Flow Determination					
Site Area				0.30	ha
Infiltration (22,500 L/day/ha or 0.26 L/s/ha)				0.08	L/s
Total Existing Peak Flow				**0.13**	**L/s**

Proposed Development					
ICI Flow Determination					
Retail/Commercial GFA				229	m^2
Average Retail Wastewater Flow				180,000	L/GFA Ha/d
Proposed ICI Flow				0.05	L/s
Residential Flow Determination					
	Unit type	No. Unit	Pop. / Unit*	Population	
	1 Bdrm	70	2.018	141	
	2 Bdrm	79	2.018	159	
	3 Bdrm	17	3.054	52	
	Total	166		353	persons
Harmon Peaking Factor				4.0	
Average flow				275	L/c/d
Proposed Residential Peak Flow				4.5	L/s
I/I Flow Determination					
Site Area				0.30	ha
Infiltration (22,500 L/day/ha or 0.26 L/s/ha)				0.08	L/s
Total Proposed Peak Flow				**4.7**	**L/s**

* PPU rates per Table A-4 - Housing Occupancy Rates by Dwelling Type (multiples)

Service Connection Pipe Info						
LENGTH (m)	**PIPE DIA. (mm)**	**SLOPE (%)**	**FULL FLOW CAP. (L/s)**	**FULL FLOW VEL. (m/s)**	**ACTUAL VEL. (m/s)**	**% Full**
28.8	200	2.0%	48.4	1.5	0.9	10%

Table A-4
Halton Region 2022 Development Charge Study
Housing occupancy Rates by Dwelling Type in New Units (PPU)[1]

	Region Wide	Area Specific	
Residential Unit Category	**2022-2031**	**2022-2031 (Built Boundary)**	**2022-2031 (Greenfield)**
Single Family and Semi-Detached	3.772	3.750	3.777
Total Multiples [2]			
Multiples- Less Than 3 Bedrooms	*2.018*	*2.012*	*2.022*
Multiples - 3 or More Bedrooms	*3.054*	*3.044*	*3.059*
Total Apartments			
Apartments - Less than 2 Bedrooms	*1.356*	*1.355*	*1.359*
Apartments - 2 or More Bedrooms	*1.831*	*1.831*	*1.835*
Special Care or Special Need	1.100	1.100	1.100

[1] Forecast occupancy rates (Persons Per Unit) by unit category and number of bedrooms are based on 2016 Statistics Canada custom tabulation provided by dwelling type and dwelling age.

[2] Multiples are defined as townhomes and apartments in duplexes.

Appendix D

Water Data

EXISTING DOMESTIC DEMAND
CALCULATIONS

Residential Use

Unit Type	No. of Units	PPU*	Pop.	L/c/d	Avg. Day (L/d)
Detached homes	1	3.500	4	275	963
Residential Use Avg. Day (L/d)					963

* PPU rates per Table A-4 - Housing Occupancy Rates by Dwelling Type (multiples)

Peak Flows (Per City Standards)

Criteria	Peaking Factor	Flow
Avg. day (L/s)	1.00	0.01
Max Hr (L/hr)	4.00	161
Max Day (L/d)	2.25	2,167

PROPOSED DOMESTIC DEMAND
CALCULATIONS

Residential Use

Unit Type	No. of Units	PPU*	POP	L/c/d	Avg. Day (L/d)
1B/1B+D	70	2.018	141	275	38,847
2B/2B+D	79	2.018	159	275	43,842
3B/3B+D	17	3.054	52	275	14,278
Total	166		353		
Residential Use Avg. Day (L/d)					96,967

* PPU rates per Table A-4 - Housing Occupancy Rates by Dwelling Type (multiples)

Peak Flows (Per City Standards)

Criteria	Peaking Factor	Flow
Avg. day (L/s)	1.00	1.12
Max Hr (L/hr)	4.00	16,161
Max Day (L/d)	2.25	218,176

FUS CALCULATIONS

(Per 2020 Edition)

PROJECT INFORMATION			
Address	3043 Sixth Line	Notes:	Calculations assume vertical
	Oakville, ON		opening properly treated
	Region of Halton		A = See note below
NBC Occupancy			
Building Footprint			
No. of Storeys	12 Storeys plus mechanical		

BASE FLOW CALCULATION				CREDITS	CHARGES	Q (L/min)
A=	Effective area		6,550 m^2			
C=	Non-combustible		0.8			
F=	Required fire flow	$F=220C\sqrt{A}$	14,244 L/min.			
"F" Rounded to nearest 1,000			14,000 L/min.			14,000

FLOW 'F' ADJUSTMENTS				CREDITS	CHARGES	Q (L/min)
Occupancy Adjustments (F')		%				
Limited combustible		-15%	-2,100	-2100		11,900
Exposure Adjustments (E)						
Exposure	Sep. (m)	Charge				
N	>45.0	0%				
E	>45.0	0%				
S	11.0	15%				
W	40.0	5%				
E = Total Exposure Charge		20%	2,380		2,380	14,280
Sprinkler Adjusments (S)						
Sprinklered as per NFPA 13		Yes	-3,570	-3570		10,710
Standard Water Supply		Yes	-1,190	-1190		9,520
Fully supervised watersupply		No	0			9,520
RFF (F"=F'+E+S)			(L/min)			9,520
RFF Rounded up to nearest 1,000			**(L/min)**			**10,000**
			(USGPM)			**2,642**

Effective area "A"= Two largest floors + 50% of all floors immediately above up to a maximum of 8 floors

Appendix E

Engineering Drawings

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PLEASE REFER TO ENGINEERING DRAWINGS SUBMITTED UNDER SEPARATE COVER.