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UD23-058

Functional Servicing and Stormwater Management Report



Project: 900 Lakeshore Road West
1000570027 Ontario Inc.

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Executive Summary

Lithos Group Inc. (Lithos) was retained by 1000570027 Ontario Inc. (the “Owner”) to prepare a Functional Servicing and Stormwater Management (FSR-SWM) Report in support of an Official Plan Amendment and a Zoning By-Law Amendment (ZBA) for a proposed residential-use development at 900 Lakeshore Road West Dr (L5H 1H9), in the City of Mississauga (the “City”). The following summarizes our conclusions:

Storm Drainage

A detailed Stormwater Management (SWM) report will be prepared at the Site Plan Application stage. The site stormwater discharge will be controlled to the pre-development flow and will be directed towards the wetland feature. In order to attain the target flows and meet the City’s Storm Water Quantity Control requirements, quantity controls will be utilized and up to approximately 84.3 m³ of storage will be required for the proposed development. The stormwater management (SWM) system will be designed to provide enhanced level (Level 1) protection, as specified by the Ministry of the Environment, Conservation and Parks (MECP). Quality control will be provided for the subject site for a minimum total suspended solids (TSS) removal of 80%.

Sanitary Sewers

The proposed residential-use development will connect to the existing 750 mm diameter sanitary sewer, finally being discharge into the pumping station, at 804 Lakeshore Road west, via a 250 mm diameter sanitary sewer lateral connection. The additional net discharge flow from the proposed residential-use development, is anticipated at approximately 5.77 L/s.

Water Supply

Water supply for the site will be from the existing 400 mm diameter watermain along the north side of Lakeshore Road West. It is anticipated that a total design flow of 68.67 L/s will be required to support the proposed development. The results of the hydrant flow test, prepared by Lithos Group Inc., dated April 08, 2024 reveal that the existing water infrastructure can support the proposed development.

Site Grading

The proposed grades will match current drainage patterns and will improve the existing drainage conditions to meet the City’s/Regional requirements. Grades will be maintained along the property line wherever feasible and overland flow will be directed towards the adjacent right of ways (ROW).

Table of Contents

1.0	Introduction	1
2.0	Site Description	1
3.0	Site Proposal	2
4.0	Terms of Reference and Methodology	2
4.1.	Terms of Reference	2
4.2.	Methodology: Stormwater Drainage and Management	2
4.3.	Methodology: Sanitary Discharge.....	2
4.4.	Methodology: Water Usage	3
5.0	Stormwater Management and Drainage	3
5.1.	Existing Conditions	3
5.2.	Stormwater Management	4
5.2.1.	Water Balance.....	5
5.2.2.	Quantity Controls.....	6
5.2.3.	Quality Controls	7
5.3.	Proposed Storm Connection.....	7
6.0	Sanitary Drainage System.....	7
6.1.	Existing Sanitary Drainage System.....	7
6.2.	Existing Flows.....	7
6.3.	Proposed Flows	8
6.4.	Proposed Sanitary Connection	8
7.0	Groundwater	8
7.1.	Long Term Dewatering	8
7.2.	Short- Term Groundwater Dewatering	8
8.0	Water Supply System	9
8.1.	Existing System	9
8.2.	Proposed Water Supply Requirements.....	9
8.3.	Proposed Watermain Connections	10
9.0	Site Grading	10
9.1.	Existing Grades.....	10
9.2.	Proposed Grades	10
10.0	Conclusions and Recommendations	10

List of Figures

Figure 1 - Location Plan

Figure 2 - Aerial Plan

List of Tables

Table 4-1 – Sanitary Flows	3
Table 4-2 – Water Usage.....	3
Table 5-1 – Pre-development Input Parameters	4
Table 5-2 – Target Peak Flows	4
Table 5-3 - Post-development Input Parameters	4
Table 5-4 - Post-development Input Parameters	5
Table 5-5 - Water Balance Summary for Pre- and Post-Development Scenarios.....	6
Table 5-6 - Post-development Quantity Control as per City Requirements	6
Table 5-7 - Site TSS Removal.....	7
Table 8-1 – Fire Flow Input Parameters.....	9

Appendices

Appendix A – Site Photographs

Appendix B – Background Information

Appendix C – Storm Analysis

Appendix D – Sanitary Data Analysis

Appendix E – Water Data Analysis

1.0 Introduction

Lithos Group Inc. (Lithos) was retained by 1000570027 Ontario Inc. (the “Owner”) to prepare a Functional Servicing and Stormwater Management Report in support of an Official Plan Amendment and a Zoning By-Law Amendment (ZBA) for a proposed residential-use development at Lakeshore Road West (L5H 1H9), in the City of Mississauga (the “City”).

The purpose of this report is to provide site-specific information for the City’s review with respect to infrastructure required to support the proposed development. More specifically, the report will present details on sanitary discharge, water supply and an outline of the storm drainage pattern.

We contacted the City’s engineering department to obtain existing information in preparation of this report. The following documents were available for our review:

- Plan and Profile drawing of Lakeshore Road West, drawing No 24206-D, dated June, 1997;
- Plan and Profile drawing of LAKESHORE TRNK SEWER AND SUBTRANSMISSION MAIN, Plan No PIP-RMP001 and PIP-RMP002, dated November 2024;
- Plan and Profile drawing of LAKESHORE TRUNK SEWER AND SUBTRANSMISSION, Plan No 81364, dated, April 2025;
- Plan and Profile drawing of LAKESHORE ROAD, drawing 20641-D and 20642-D, dated October, 1974;
- Plan and Profile drawing of LYNNROD SANITARY SEWER, drawing G02, dated October, 1994;
- Plan and Profile drawing of LYNNROD SANITARY SEWER, drawing G03, dated August, 1994;
- Plan and Profile drawing of LAKESHORE ROAD WEST FROM S’WLY. LIMIT TOWN OF PORT CREDIT TO TENNYSON AVENUE, drawing C-9917, dated July 29, 1969;
- Plan and Profile drawing of LAKESHORE ROAD WEST NORTH SIDE FROM LORNE PARK RD. TO PORT CREDIT, drawing C-10633 and C-10634, dated May 17, 1971;
- Plan and Profile drawing of EASEMENT FROM LAKESHORE ROAD. WEST TO WOODDEDEN ROAD, Plan No. C-10695, dated May 17, 1971;
- Plan and Profile drawing SITE PLAN STONEY BAY OARK. SEWAGE PUMPING STATION, Plan No. C-10707, dated May 17, 1971;
- Site Plan and Site Statistics prepared by KFA architects + planners Inc., dated March 20, 2026;
- Water Balance Analysis prepared by Fisher Engineering, dated October 09, 2025;
- Hydrogeological Investigation prepared by Fisher Engineering, dated September 20, 2024; and,
- Topographical Survey prepared by Tarasick McMillan Kubicki Limited, dated November 08, 2023.

2.0 Site Description

The existing site is approximately 0.47 hectares. It is currently occupied by a one 1-storey building and one 1.5-storey dwelling. The site area is bound by Lakeshore Road West to the northeast, undeveloped green area to the south-west and south. Refer to **Figures 1** and **2** following this report and site photographs in **Appendix A** as well as to the topographic survey in **Appendix B**.

3.0 Site Proposal

The proposed development will consist of a 9-storey tower with an additional Mechanical Penthouse. The proposed development will consist of 161 residential units and will be supported by three (3) level of underground parking space. In addition, under post development conditions 1,342.8 m² will be conveyed to the City. Therefore, the proposed site will be approximately 0.336 hectares. The total development will approximately include 14,841 m² of Gross Floor Area (GFA). Please refer to **Appendix B** for the proposed site plan and building site statistic.

4.0 Terms of Reference and Methodology

4.1. Terms of Reference

The Terms of Reference used for the scope of this report were based on:

- City of Mississauga Development Requirements Manual, revised November 2020;
- Region of Peel Watermain Design Criteria, revised June 2010;
- Region of Peel Sanitary Sewer Design Criteria, revised March 2017;
- Region of Peel Development Charges Background Study, revised December 2020;
- Region of Peel Stormwater Design Criteria and Procedural Manual (Version 2.1) June 2019;
- Ministry of Environment: Guidelines for the Design of Sanitary Sewage Works – 2008;
- Ministry of Environment: Design Guidelines for Drinking Water Systems – 2008;
- Ministry of Environment: Stormwater Management Planning and Design Manual – 2003;
- Ontario Building Code 2012 (O.B.C.); and,
- Credit Valley Conservation: Stormwater Management Guideline, revised July 2022.

4.2. Methodology: Stormwater Drainage and Management

This report provides an overview of the pre and post-development conditions and comments on opportunities to reduce peak flows. A detailed Stormwater Management report will be prepared at the Site Plan Application stage.

The proposed development will be designed to comply with the City of Mississauga storm drainage design requirements, the Stormwater Management Guideline, by Credit Valley Conservation, revised July 2022, as well as the standards of the Region and the Province of Ontario, as outlined in the Ministry of the Environment, Conservation and Park (MECP) 2003 Stormwater Management Planning and Design Manual (SWMPD). The following design criteria will be reviewed:

- Post-development peak flow for all events, up to the 100-year storm flow from the site will be controlled to the pre development peak flows, as the discharge flow is directed to the wetland feature;
- A safe overland flow route will be provided for all flows in excess of the 100-year storm event; and,
- A specified rainfall depth of 5mm is to be retained on-site as required by the City's Guidelines.

4.3. Methodology: Sanitary Discharge

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

The estimated sanitary discharge flows from the proposed site will be calculated based on the criteria shown in **Table 4-1**.

Table 4-1 – Sanitary Flows

Usage	Design Flow	Units	Population Equivalent
Residential	290	Litres / capita / day	1 Bedroom Unit = 1.7 ppu 2 Bedroom Unit = 3.1 ppu 3 Bedroom Unit = 3.1 ppu
Townhouses	-		2.7 persons/unit

Based on the calculated peak flows, the adequacy of the existing infrastructure to support the proposed development will be discussed.

4.4. Methodology: Water Usage

The fire flow requirements were estimated using the method prescribed by the Fire Underwriters Survey (FUS). This method is based on the fire protected building floors, the type and combustibility of the structural frame and the separation distances with adjoining building units. The domestic water usage was calculated based on the City’s design criteria outlined in **Table 4.2**.

Table 4-2 – Water Usage

Usage	Water Demand	Units
Residential	270	Litres / capita / day

Pressure and flow treating have been conducted on the existing hydrants located near the site to obtain existing flows residual and static pressure.

5.0 Stormwater Management and Drainage

The existing site is approximately 0.470 hectares and is currently occupied by one 1-storey building and one 1.5-storey dwelling. According to available records, there is one (1) existing storm sewer abutting the subject property. More specifically there is:

- A 300 mm diameter storm sewer along Lakeshore Road West flowing east.

5.1. Existing Conditions

According to the Site Investigation and Dye Test Report conducted by our inspection team, dated March 8, 2024, found in **Appendix B**, the subject property is divided into two (2) drainage areas as shown on **Figure DAP-1**. More specifically, under existing conditions the site consists of the following drainage areas:

1. A1 Pre – Storm runoff from the landscaped area at the north-west portion of the site, collected by the existing 300 mm diameter storm sewer along Lakeshore Road West; and,
2. A2 Pre – Storm runoff from the largest portion of the site, flows overland towards the existing wetland feature.

The existing site is primarily covered by buildings and landscaped areas, thus, there is some infiltration onsite. The input parameters are summarized in **Table 5.1** below, are illustrated in the pre-development drainage area plan in **Figure DAP-1** in **Appendix C**.

Table 5-1 – Pre-development Input Parameters

Catchment	Drainage Area (ha)	Actual “C”	Design “C”	Tc (min.)
A1 Pre (Towards Lakeshore Road West)	0.050	0.25	0.25	15
A2 Pre (Towards wetland feature)	0.286	0.49	0.49	15

Peak flows calculated for the existing conditions are shown in **Table 5-2** below. Detailed calculations are in **Appendix C**.

Table 5-2 – Target Peak Flows

Catchment	Peak Flow Rational Method (L/s)					
	2-year	5-year	10-year	25-year	50-year	100-year
A1 Pre (Towards Lakeshore Road West)	2.1	2.8	3.4	3.9	4.4	4.8
A2 Pre (Towards Creek wetland feature)	23.5	31.6	38.9	44.7	49.9	55.3

As shown in **Table 5.2**, post-development flows from the property, up to the 100-year storm event will need to be controlled to the pre development target flows, as the discharge flow is directed to the wetland feature.

5.2. Stormwater Management

In order to meet the City’s Storm Design requirements, the post development flow rate is to be controlled to the pre development flow established in **Section 5.1**. Overland flow from the site will be directed towards the adjacent rights-of-way. The site consists of two (2) internal drainage areas:

1. A1 Post – Storm runoff from the green roof areas, conveyed into the underground storage tank, located at P1 level;
2. A2 Post – Storm runoff from the rooftops, Terraces, landscaped and hardscaped areas, controlled into the underground storage tank, located at P1 level;
3. A3 Post – Storm runoff from the driveway area, controlled into the underground storage tank, located at P1 level; and,
4. A4 Post – Uncontrolled storm runoff draining towards the wetland feature.

The post-development drainage areas and runoff coefficients are indicated on **Figure DAP-2**, located in **Appendix C** and summarized in **Table 5-3** below.

Table 5-3 - Post-development Input Parameters

Drainage Area	Drainage Area (ha)	“C ₁₀₀ ”	Tc (min.)
A1 Post Green Roof - Controlled in Underground Storage Tank	0.060	0.56	15
A2 Post Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank	0.227	0.52	15
A3 Post Driveway Area Controlled in Underground Storage Tank	0.019	1.00	15
A4 Post Uncontrolled Area Towards wetland feature	0.030	0.31	15

5.2.1. Water Balance

For the water balance retention requirement, two (2) scenarios were evaluated:

- Pre- to post-development annual infiltration deficit, as per Hydrogeological Assessment prepared by Fisher Engineering, and;
- Retention of the first 5 mm of onsite runoff from any rainfall event over the entirety of the site.

Pre to post infiltration deficit

The water balance should meet pre-development infiltration volumes. The objective of water balance control is to maintain the pre-development distribution of water among infiltration, evapotranspiration, and runoff. A pre- and post-development water balance assessment is required to demonstrate that post-development conditions meet the pre-development infiltration requirements.

According to the water balance calculations in the Hydrogeological Assessment prepared by Fisher Engineering, dated October 09, 2025, pre-development infiltration is calculated at 1164 m³, while post-development infiltration decreases to 615 m³. This results in an annual post-development infiltration deficit of 549 m³. Please refer to Hydrogeological Assessment, including the water balance calculations, found in [Appendix B](#).

Infiltration is assumed to occur on approximately 245 days per year, as it is considered negligible during the 4-month frozen period. Given a site area of 0.336 hectares (3,360.8 m²) and an annual infiltration deficit of 549 m³, this corresponds to approximately 154 mm of infiltration required per year (549m³ / 3,360 m²= 0.163m= 163mm) and approximately 1mm per storm event (163mm/245day= 0.66 mm or 1 mm including safety factor).

5 mm Water Balance Retention

The City’s Guidelines require a 5mm of onsite runoff from any rainfall event to be retained over the entirety of the site. A 5mm of rainfall over the entire site equates to a required water balance volume of 16.80 m³. Based on the “Water Balance Calculations” found in [Appendix C](#), the site will provide 13.78 m³ of initial abstraction in post-development conditions. The remaining 3.02 m³ will be provided within the proposed infiltration trench.

Taking this into account, the proposed infiltration trench will be able to infiltrate approximately 3.08 m³ within 72 hours which is more than the volume required. Detailed calculations can be found in [Appendix C](#). The results of the water balance analysis are summarized in [Table 5-4](#) below.

Table 5-4 - Post-development Input Parameters

Total Site Area (m ²)	Depth of Rainfall (mm)	Water Balance Requirement (m ³)	Water Balance Provided through Initial Abstraction (m ³)	Water Balance Provided in Infiltration trench (m ³)	Total Water Balance Volume Provided (m ³)
3360.1	5.0	16.80	13.78	3.08	16.86

Infiltration Trench:

A Low Impact Development (LID) feature has been proposed with respect to promoting infiltration so that groundwater levels are not altered to the extent that wetlands, woodlands or watercourses are adversely affected.

The proposed infiltration trench receives runoff from the building rooftops, which are considered clean, as well as flow from the site, which is treated through a treatment device and is therefore considered clean.

The infiltration trench has been sized based on the 5 mm onsite runoff retention requirement, which represents the worst-case scenario under post-development conditions.

The proposed infiltration trench will be designed with a footprint area of 11.00 m², a height of 0.70m and its bottom will be at 84.10 masl. Refer to engineering drawing “Site Servicing Plan C201” submitted separately for infiltration trench location.

Summarizing the overall site water balance, the results for three scenarios are presented:

- 1) Pre-development conditions;
- 2) Post-development conditions without mitigation, and;
- 3) Post-development conditions with mitigation.

The results of the water balance for each above scenario analysis are summarized in **Table 5-5-** below.

Table 5-5 - Water Balance Summary for Pre- and Post-Development Scenarios

Scenarios	Total Site Area (m ²)	Depth of Rainfall (mm)	Water Balance Requirement (m ³)	Water Balance Provided through Initial Abstraction (m ³)	Water Balance Provided in Infiltration Trench (m ³)	Total Water Balance Volume Provided (m ³)
1.	3360.10	5.0	16.80	11.40	0	11.40
2.	3360.10	5.0	16.80	13.78	0	13.78
3.	3360.10	5.0	16.80	13.78	3.08	16.86

5.2.2. Quantity Controls

Using the City’s intensity-duration-frequency (IDF) data, modified rational method calculations were undertaken to determine the maximum storage required during each storm event. Results for the 2, 5, 10, 25, 50 and 100-year storm events are provided in **Table 5-6** below. The detailed post-development quantity control calculations are provided in **Appendix C**.

Table 5-6 - Post-development Quantity Control as per City Requirements

Storm Event	Target Flow (L/s)	Uncontrolled Release rate (L/s)	Allowable Release Rate (L/s)	Required Storage Volume (m ³)	Total Site Release Rate (L/s)
2-year	23.5	1.6	9.7	19.5	11.3
5-year	31.6	1.7	12.2	31.6	13.9
10-year	38.9	2.1	22.5	37.4	24.6
25-year	44.7	2.6	27.1	53.6	29.7
50-year	49.9	3.2	30.7	69.0	33.9
100-year	55.3	3.7	34.0	84.3	37.7

As shown in **Table 5-6**, the post-development peak flows from the site will be controlled to the pre-development conditions. The quantity released from the green roof, rooftops, terraces and the driveway area, will be captured by the private catchbasins and area drains and controlled by a 130mm diameter orifice plate, with a maximum release rate of 34.0 L/s achieved and will be directed through gravity towards the proposed headwall ultimately being discharged into the wetland feature.

5.2.3. Quality Controls

Stormwater treatment must meet Enhanced Protection criteria as defined by the MECP 2003 SWMPD Manual, including a minimum 80% of total suspended solids removal (TSS). In order to meet the quality control requirements a Stormwater Quality Control Device will be provided for the driveway areas that are exposed to oil and grit, in order to achieve the minimum total suspended solids (TSS) removal of 80% as per MECP requirements. Further details and specifications regarding the proposed OGS units will be provided at SPA stage. A summary of the quality control is included in **Table 5-7** below.

Table 5-7 - Site TSS Removal

Drainage Area	Drainage Area (ha)	Overall TSS Removal	Additional Quality Control Required
Rooftop/Terraces/Landscaped/ Hardscaped Areas	0.287	76%	Inherent
Driveway Area	0.019	4%	Stormwater Quality Control Device
Total	0.296	80%	-

5.3. Proposed Storm Connection

The proposed development will discharge into the wetland feature, via a proposed headwall. The post-development peak flows have been designed to match the existing pre-development storm flows. Therefore, the proposed development will not negatively affect the existing conditions of the wetland feature. Refer to engineering drawing **Site Servicing Plan “C201”** (submitted separately) for details.

6.0 Sanitary Drainage System

6.1. Existing Sanitary Drainage System

The existing site contains one 1-storey building and one 1.5-storey dwelling. According to available records, there are two (2) sanitary sewers abutting the subject property. More specifically there is:

- A 400 mm (forcemain) diameter sanitary sewer along Lakeshore Road West flowing east, and;
- A 750mm diameter sewer at the intersection between Lakeshore Road West and Ibar Way, following south-east towards the existing pumping station, located within Richard’s Memorial Park.

6.2. Existing Flows

The sanitary flow generated by the proposed development at Lakeshore Road West was compared to the existing flow, in order to quantify the net increase in the sanitary sewer network.

According to the Site Investigation and Dye Test Report conducted by our inspection team, dated March 8, 2024, found in **Appendix B**, the sanitary discharge from the subject property is discharging at a Septic Tank located on the East side of the property.

Using the design criteria outlined in **Section 4.3** and existing site information, the sanitary discharge flow from the existing buildings is estimated at 0.86 L/s. Detailed calculations can be found in **Appendix D**.

6.3. Proposed Flows

According to the proposed developments site statistics as well as the design criteria outlined in **Section 4.3**, the total post-development sanitary discharge flow is anticipated at approximately 5.77 L/s towards the City's infrastructure.

The additional flow, which includes infiltration and sanitary flow, will be considered within the sanitary discharge rate. Detailed calculations can be found in **Appendix D**.

6.4. Proposed Sanitary Connection

The proposed development will connect to the intersection between Lakeshore Road West and Ibar Way, following south-east towards the existing pumping station, located within Richard's Memorial Park. Refer to engineering drawing **Site Servicing Plan "C201"**, (submitted separately) for details.

7.0 Groundwater

As per the "Hydrogeological Investigation" prepared by 'Fisher Engineering', dated September 20, 2024, found in **Appendix B**, deep groundwater levels range from 2.07 to 5.79 meters below ground surface (mbgs) to approximately 78.79 to 84.99 meters above sea level (masl).

The results of groundwater sampling on site, reveal that groundwater quality limits according to the City's by-law are met for discharging into the sanitary/combined, but are not in compliance with the storm sewer's network criteria. The results of the Hydrogeological Investigation Report can be found in **Appendix B**.

7.1. Long Term Dewatering

The proposed development will have three (3) underground levels and the lowest basement's elevation will extend approximately at 74.60 meters above sea level (masl). Given that the construction will be partially submerged into the existing groundwater table, long-term discharge will be required along the installation of a permanent dewatering system. Groundwater will be discharged into the existing 750mm diameter sanitary sewer finally being discharged into the pumping station, at 804 Lakeshore Road West. According to the "Hydrogeological Investigation" prepared by 'Fisher Engineering', dated September 20, 2024, found in **Appendix B**, long term groundwater dewatering is anticipated at 31,750 L/day which translates to 0.55 L/s, assuming the pump will run for approximately 16 hours.

7.2. Short- Term Groundwater Dewatering

Site dewatering during construction is anticipated at 40,220 L/day which translates to approximately 0.47 L/s as per the "Hydrogeological Investigation" prepared by 'Fisher Engineering', dated September 20, 2024, found in **Appendix B**. Assuming an additional conservative accumulated volume of 15,000 L/day, the total maximum short-term discharge rate is estimated at 55,220 L/day. Assuming that a temporary groundwater pump will run for approximately 12 hours per day, the peak groundwater discharge rate is estimated at approximately 1.28 L/s. Groundwater will be discharged into the intersection between Lakeshore Road West and Ibar Way, following south-east towards the existing pumping station, located within Richard's Memorial Park without treatment.

8.0 Water Supply System

8.1. Existing System

Based on plans provided by the City, the existing watermain system consists of the following waterlines:

- a 400 mm diameter watermain on the north side of Lakeshore Road West;
- a 200 mm diameter abandoned watermain on the south side of Lakeshore Road West.

Fire hydrant test was carried out by Lithos Group, dated April 08, 2024 along Lakeshore Road West, to determine the flow and pressure in the existing 400mm watermain.

The results of the test conducted along Lakeshore Road West indicate the existing static pressure is 620 KPa (90 psi) and 112.05 L/sec (1775 USGPM) of water is available with a residual pressure of 593 KPa (86 psi). The full detailed report is included in [Appendix E](#).

8.2. Proposed Water Supply Requirements

The estimated water consumption was calculated based on the occupancy rates shown on [Table 4.2](#), based on the City’s design criteria. Calculation was conducted to confirm that the proposed site can be supported by the existing water infrastructure.

It is anticipated that an average consumption of approximately 1.21 L/s (104,544 L/day), a maximum daily consumption of 2.17 L/s (187,488 L/day) and a peak hourly demand of 3.62 L/s (13,032 L/hr) will be required to service this development with domestic water. Detailed calculations are found in [Appendix E](#).

The fire flow requirements were estimated using the method prescribed by the Fire Underwriters Survey (FUS 2020) to be undertaken to assess the minimum requirement for fire suppression. The proposed building is considered a Non-Combustible construction, with properly protected vertical openings, therefore, the fire flow calculations conducted for the largest storey, by area, and for the two immediately adjacent storeys. As a result to the above-mentioned method, we have selected levels 2, 3 and 4 which results in the maximum fire flow requirement for this development (worst case scenario). Refer to detailed calculations found in [Appendix E](#).

[Table 8-1](#) illustrates the input parameters used for the FUS calculations. According to our calculations, a minimum fire suppression flow of approximately 66.50 L/s (1054 USGPM) will be required. Refer to detailed calculations found in [Appendix E](#).

Table 8-1 – Fire Flow Input Parameters

Parameter	Frame used for Building	Combustibility of Contents	Presence of Sprinklers	Separation Distance			
				West	North	South	East
Value according to FUS options	Fire-Resistive Construction	Non-Combustible	Yes	>45m	>45m	>45m	3>45m
Surcharge/reduction from base flow	0.6	25%	30%	0%	0%	0%	0%

In summary, the required design flow is the sum of ‘the minimum fire suppression flow’ and ‘maximum daily demand’ (66.50 + 2.17 = 68.67 L/s, 1089 USGPM). The results of the hydrant flow test, prepared by Lithos Group, dated April 08, 2024 at Lakeshore Road West, indicate that 525.60 L/s (8329 USGPM) of water is available with a pressure of 138KPa (20.0 psi). Therefore, the existing water infrastructure will support the proposed development. The hydrant flow test and detailed calculations can be found in [Appendix E](#).

8.3. Proposed Watermain Connections

The proposed residential-use development will be serviced by a 150 mm diameter fire and a 100 mm domestic water service. The proposed water service will be connected to the existing 400 mm diameter watermain on the north side of Lakeshore Road West. Please refer to engineering drawing **Site Servicing Plan "C201"**, (submitted separately) for details.

9.0 Site Grading

9.1. Existing Grades

The existing site is approximately 0.47 hectares. It is currently occupied by a one 1-storey building and one 1.5-storey dwelling. Under pre-development conditions, the site drains uncontrolled towards the adjacent right of way (ROW).

9.2. Proposed Grades

The proposed grades will match current drainage patterns and will improve the existing drainage conditions to meet the City's/Regional requirements. Grades will be maintained along the property line wherever feasible and emergency overland flow will be directed towards Lakeshore Road West and the existing wetland feature. Refer to engineering drawing **Site Grading Plan "C101"** (submitted separately) for details.

10.0 Conclusions and Recommendations

Based on our investigations, we conclude the following:

Storm Drainage

A detailed Stormwater Management (SWM) report will be prepared at the Site Plan Application stage. The site stormwater discharge will be controlled to the pre-development flow and will be directed towards the wetland feature. In order to attain the target flows and meet the City's Storm Water Quantity Control requirements, quantity controls will be utilized and up to approximately 84.3 m³ of storage will be required for the proposed development. The stormwater management (SWM) system will be designed to provide enhanced level (Level 1) protection, as specified by the Ministry of the Environment, Conservation and Parks (MECP). Quality control will be provided for the subject site for a minimum total suspended solids (TSS) removal of 80%.

Sanitary Sewers

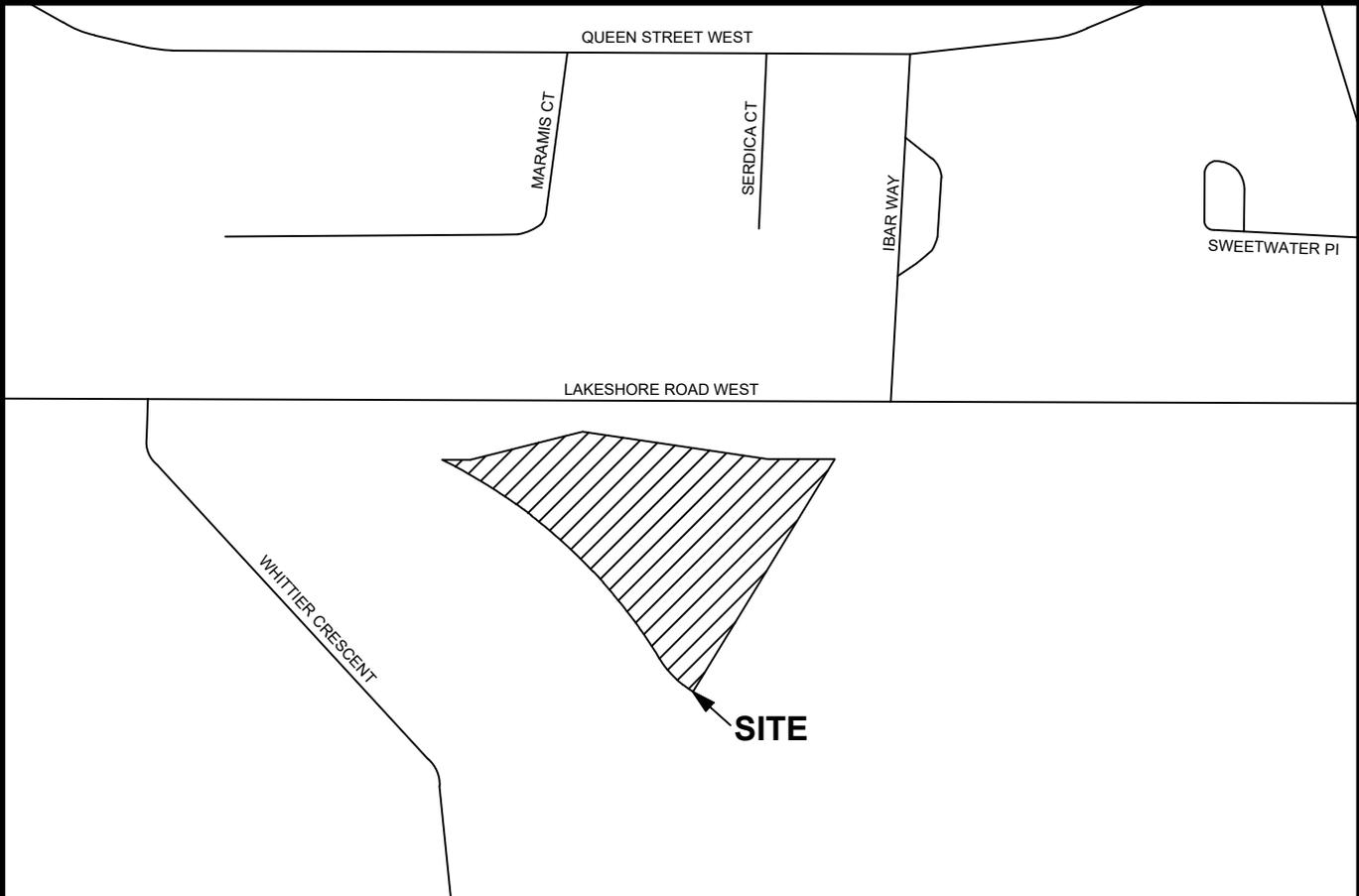
The proposed residential-use development will connect to the existing 750 mm diameter sanitary sewer, finally being discharge into the pumping station, at 804 Lakeshore Road west, via a 250 mm diameter sanitary sewer lateral connection. The additional net discharge flow from the proposed residential-use development, is anticipated at approximately 5.77 L/s.

Water Supply

Water supply for the site will be from the existing 400 mm diameter watermain along the north side of Lakeshore Road West. It is anticipated that a total design flow of 68.67 L/s will be required to support the proposed development. The results of the hydrant flow test, prepared by Lithos Group Inc., dated April 08, 2024 reveal that the existing water infrastructure can support the proposed development.

Site Grading

The proposed grades will match current drainage patterns and will improve the existing drainage conditions to meet the City's/Regional requirements. Grades will be maintained along the property line wherever feasible and overland flow will be directed towards the adjacent right of ways (ROW).



150 Bermonsdey Road, North York, Ontario M4A 1Y1

LOCATION PLAN
RESIDENTIAL-USE DEVELOPMENT
900 LAKESHORE ROAD WEST
MISSISSAUGA, ONTARIO

DATE: MARCH 2026

SCALE: N.T.S.

PROJECT No: UD23-058

FIGURE No: FIG 1



AERIAL PLAN
RESIDENTIAL-USE DEVELOPMENT
900 LAKESHORE ROAD WEST
MISSISSAUGA, ONTARIO

150 Bermonsdey Road, North York, Ontario M4A 1Y1

DATE: MARCH 2026

PROJECT No: UD23-058

SCALE: N.T.S.

FIGURE No: FIG 2

Appendix A

Site Photographs



North – West corner of the property along Lakeshore Road West facing North – East.



North – East corner of the property along Lakeshore Road West facing South – East.

Appendix B

Background Information

LAKESHORE ROAD WEST

(ROAD ALLOWANCE BETWEEN CONCESSIONS 2 AND 3 SOUTH OF DUNDAS STREET)

PIN 1,3448 - 1,319

PLAN OF TOPOGRAPHY OF PART OF LOT 1 REGISTERED PLAN C-89 AND PART OF LOT 22 CONCESSION 3 SOUTH OF DUNDAS STREET

(ORIGINALLY IN TOWNSHIP OF TORONTO)
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

SCALE 1 : 200



TARASICK McMILLAN KUBICKI LIMITED
ONTARIO LAND SURVEYORS

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METRIC

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

ELEVATION NOTE

ELEVATIONS ARE REFERRED TO CANADIAN GEODETIC VERTICAL DATUM-1928, AND WERE DERIVED FROM CITY OF MISSISSAUGA BENCHMARK No. 132, HAVING A PUBLISHED ELEVATION OF 93.630 metres.

BEARING NOTE

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHEASTERLY LIMIT OF LAKESHORE ROAD WEST AS SHOWN ON UES/HEU PLAN 4/4/0, HAVING A BEARING OF N38°05'30"E.

LEGEND

- DENOTES SURVEY MONUMENT FOUND
- IS DENOTES IRON BAR
- SIB DENOTES STANDARD IRON BAR
- CP DENOTES CONCRETE PIN
- TC DENOTES TOP OF CURB
- BC DENOTES BOTTOM OF CURB
- CCT DENOTES CURB CUT
- MH DENOTES MANNHOLE
- CB DENOTES CATCH BASIN
- TB DENOTES TOP OF BANK
- WUP DENOTES WOOD UTILITY POLE
- WV DENOTES WATER VALVE
- P1 DENOTES PLAN BY DEPARTMENT OF HIGHWAYS, ONTARIO (P-1354-20)
- P2 DENOTES TARASICK McMILLAN KUBICKI LTD., O.L.S., DATED MAY 22, 2019

- 0.20# DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
- 0.20#C DENOTES CONIFEROUS TREE WITH TRUNK DIAMETER

TREE CANOPIES ARE DRAWN TO SCALE.

PLAN UPDATED TO SHOW TOP OF BANK, BOTTOM OF BANK, WETLAND AND DRIFLINE, ON JANUARY 18, 2024.
CONTOUR LINES ADDED JANUARY 26, 2024

I CERTIFY THAT THE SURVEY WAS COMPLETED ON OCTOBER 13, 2023.

NOVEMBER 8, 2023
DATE

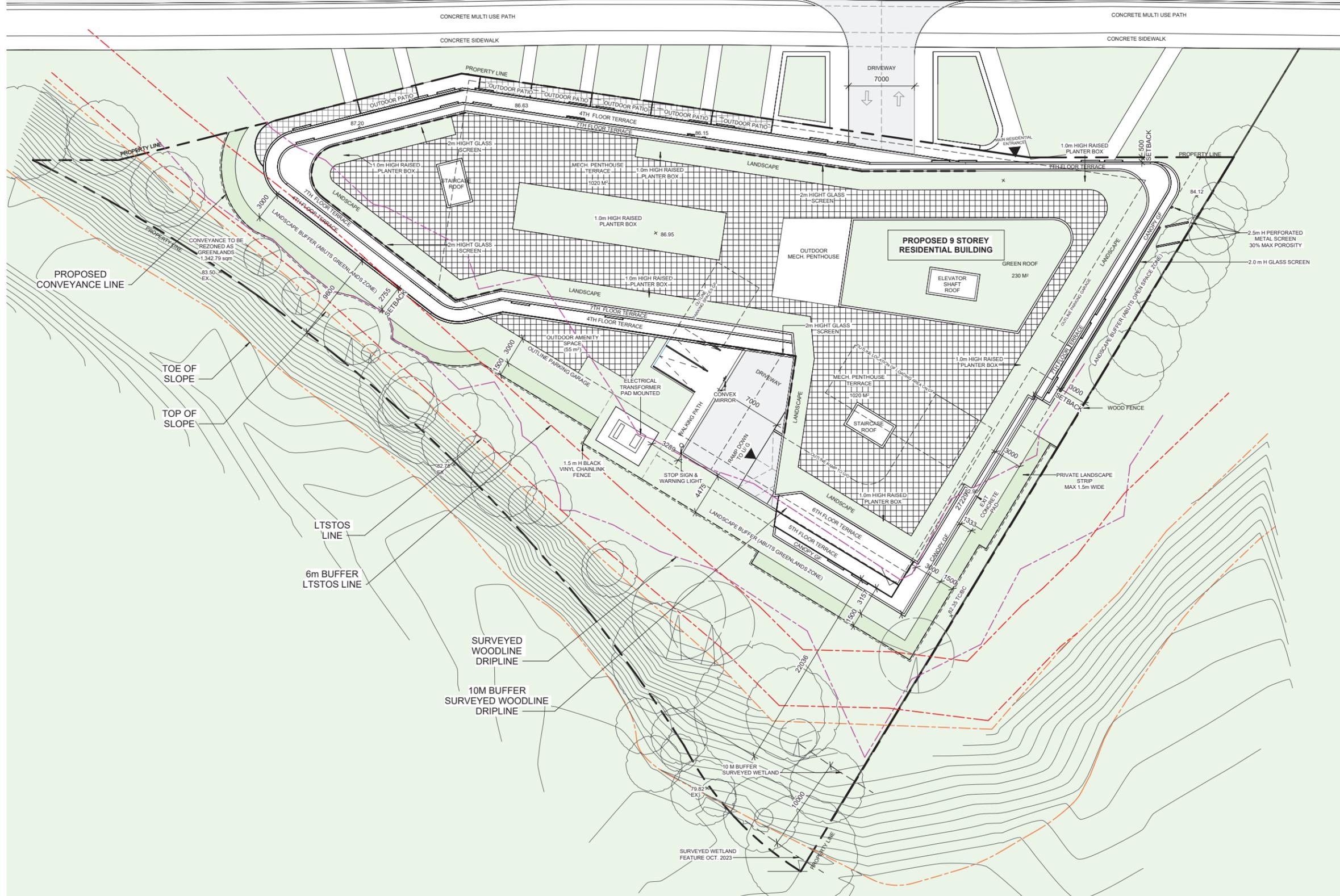


TARASICK McMILLAN KUBICKI LIMITED
ONTARIO LAND SURVEYORS
4181 SLADEVIEW CRESCENT, UNIT 42, MISSISSAUGA, ONTARIO L5L 5R2
TEL: (905) 569-8849 FAX: (905) 569-3160
E-MAIL: office@tmksurveyors.com

DRAWN BY: R.E. FILE No. 8139-TOPO



LAKESHORE ROAD WEST



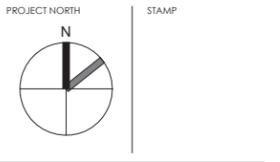
900 LAKESHORE

900 LAKESHORE ROAD WEST
MISSISSAUGA, ON

APPL. NUMBER: QZ / CPZ 25-8 W2

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No.	Description	Date
1	Issued for MUDAP	29.01.2024
2	Issued for OPAZBA	26.11.2024
3	Issued for OZ/OPA 25-8 W2	04.09.2025
4	Issued for OPAZBA 25-8 W2	20.03.2026



CLIENT



PROJECT NO: 23016
SCALE: 1 : 200
DATE: 09.01.2024
DRAWN BY: FC
DRAWING TITLE

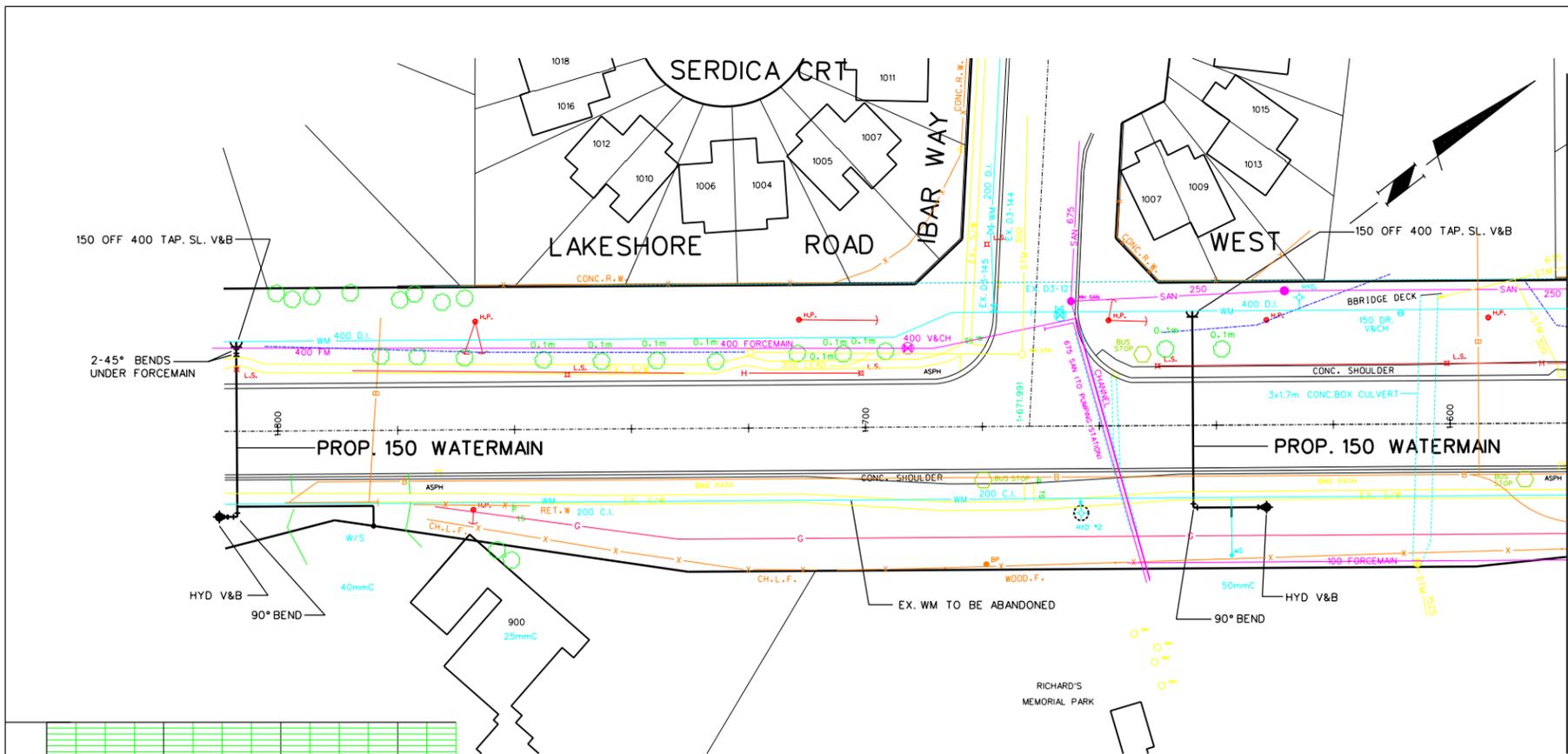
SITE PLAN

DRAWING NO

A002

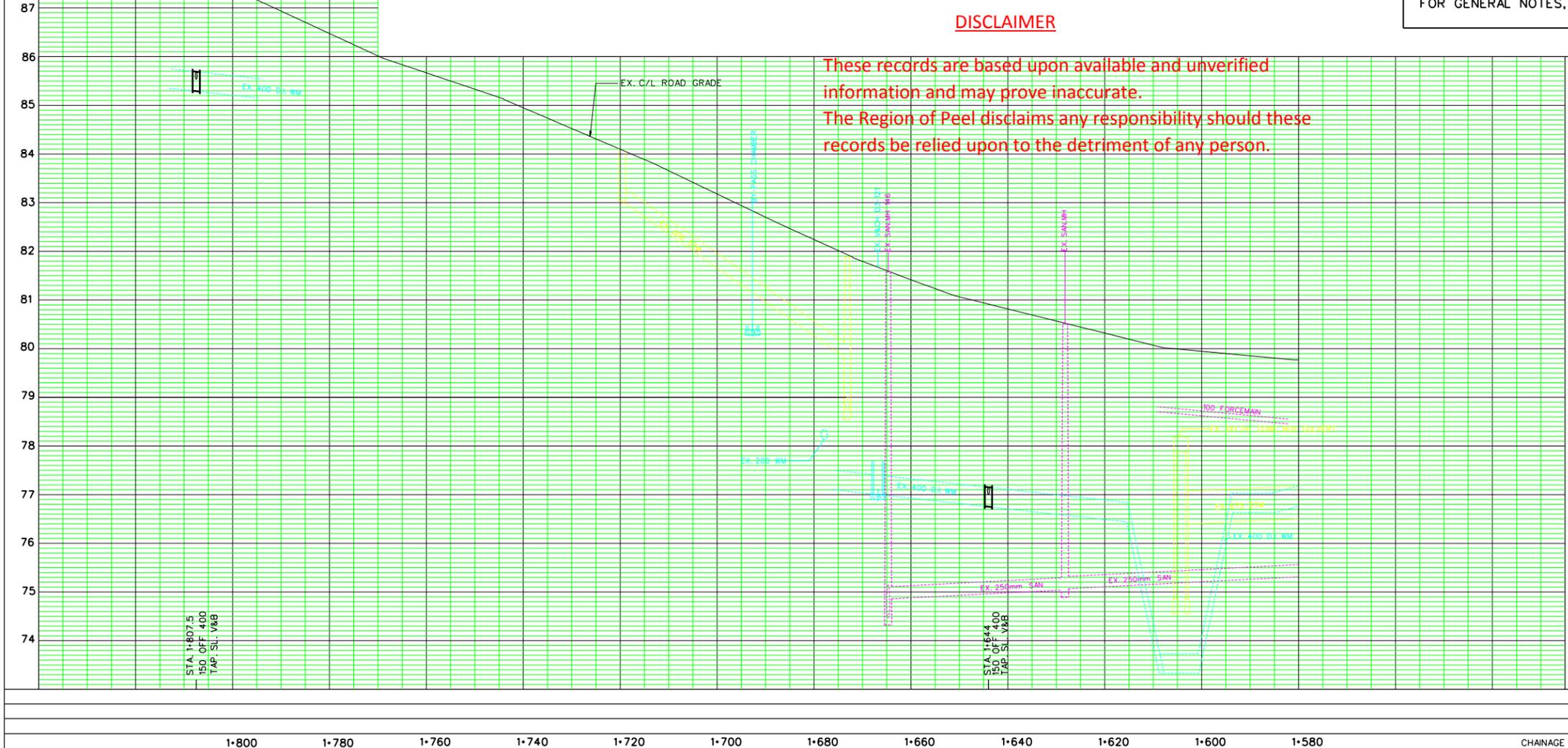
SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS	MAY 21/97	J.P.
STORM SEWERS			BELL U/G CABLE	MAY 20/97	J.P.
WATERMANS			HYDRO U/G CABLE	MAY 20/97	J.P.
TRANSIT	MAY 21/97	J.P.	ONT. HYDRO	MAY 20/97	J.P.
PARKS & REC.	MAY 28/97	J.P.	CTV	MAY 23/97	J.P.
ONT. CLEAN WATER	MAY 29/97	J.P.			

REVISIONS		
DATE	DETAILS	INIT.
OCT. 1997	AS CONSTRUCTED	J.P.



REFER TO DWG. No. 24205-D
M.L. STA. 1-580

FOR GENERAL NOTES, LEGEND AND DETAILS SEE DWG. No. 24205-D



DISCLAIMER

These records are based upon available and unverified information and may prove inaccurate. The Region of Peel disclaims any responsibility should these records be relied upon to the detriment of any person.

General Notes

- ALL DRIVEWAYS ASPHALT UNLESS OTHERWISE NOTED.
- ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.
- ⊙ DENOTES BUILDING - NOT LOCATED
- ⊙ DENOTES BUILDING LOCATED
- TYPE 'B' BEDDING UNLESS OTHERWISE NOTED (SAN)

B.M. NO. ELEV.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO AND DURING CONSTRUCTION LOCATION OF EXISTING UTILITIES APPROXIMATE ONLY. TO BE VERIFIED IN FIELD BY CONTRACTOR.

DESIGNED BY: _____ CHKD: _____ APPROVED BY: _____

NOTICE TO CONTRACTOR
48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING:

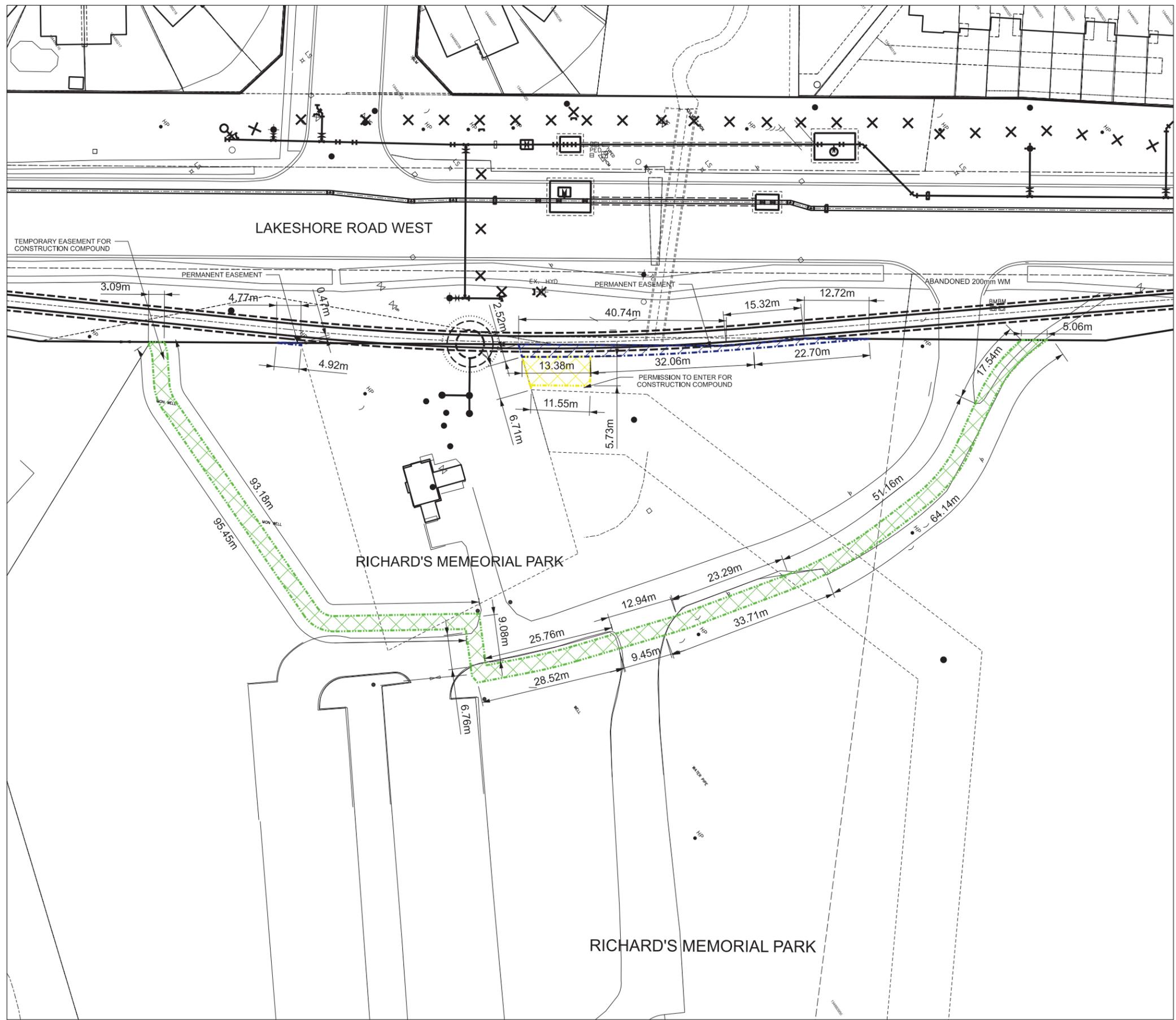
- THE REGIONAL MUNICIPALITY OF PEEL
- CITY OF MISSISSAUGA WORKS DEPT.
- CITY OF BRAMPTON WORKS DEPT.
- TOWN OF CALEDON WORKS DEPT.
- BELL TELEPHONE COMPANY
- CONSUMERS GAS COMPANY
- MINISTRY OF TRANSPORTATION
- ONTARIO CLEAN WATER AGENCY
- HYDRO ELECTRIC POWER COMM. OF ONTARIO
- HYDRO ELECTRIC COMM. CITY OF MISSISSAUGA
- HYDRO ELECTRIC COMM. CITY OF BRAMPTON
- CABLE TELEVISION

10m 0 10 20 30m HORIZONTAL SCALE
1m 0 1 2 3m VERTICAL SCALE

Region of Peel Public Works

LAKESHORE RD. WEST
FROM IBAR WAY TO SHAWNARR RD.
PROP. 300mm WATERMAIN
Sta. 1-580 To Sta. 1-780

LOTS	AREA Z-2, Z-9	PROJECT NO. 97-1500
CHECKED BY	DRAWN BY J.P.	PLAN NO.
DATE JUNE, 1997	SHEET 3 OF 3	24206-D



REVISIONS		
DATE	DETAILS	INIT.

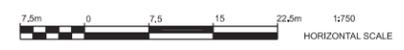


NOTE:
REGION TO CONFIRM THE OWNERSHIP OF THE VARIOUS PROPERTY PARCELS IMPACTED AT THIS LOCATION. THIS PROPERTY IMPACT PLAN HAS BEEN PREPARED TO SUPPORT ANY AGREEMENTS REQUIRED BETWEEN THE LAND OWNERS IF NECESSARY.

LEGEND

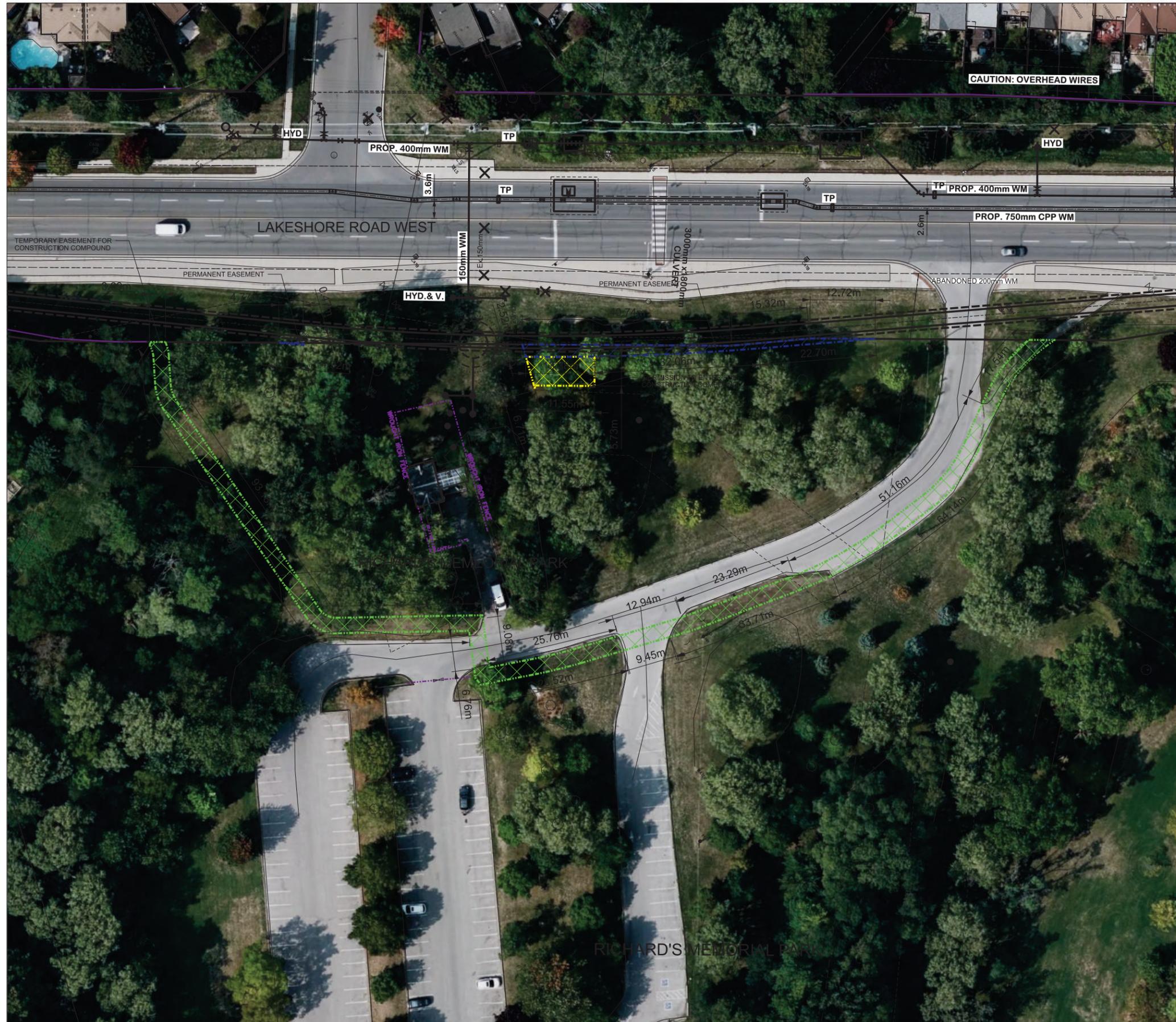
-  EXISTING R.O.W.
 -  PERMANENT EASEMENT (± 102 sq.m.)
 -  PERMISSION TO ENTER (± 71 sq.m.)
 -  PERMISSION TO ENTER (± 713 sq.m.)
- FOR PERMANENT EASEMENTS, STATE USE FOR EACH SPECIFIC PART

AFFECTED AMOUNT		
DESCRIPTION	UNIT	QUANTITY
LIGHT STANDARD	ea.	
DRIVEWAYS	sq.m.	
SOD	sq.m.	
TREES	ea.	
SHRUBS	LS.	
SIGNS	ea.	



LAKESHORE TRUNK SEWER AND SUBTRANSMISSION MAIN
PROPERTY IMPACT PLAN
RICHARD'S MEMORIAL PARK
(134880950, 804 Lakeshore Road West)

CAD Area	X-XX	Area	Z-08	Project No.	19-2215
Checked by	D.V.	Drawn by	C.N.	Plan No.	
Date	NOVEMBER 2024	Sheet	1 of 1	PIP-RMP001	



REVISIONS		
DATE	DETAILS	INIT.



NOTE:
REGION TO CONFIRM THE OWNERSHIP OF THE VARIOUS PROPERTY PARCELS IMPACTED AT THIS LOCATION. THIS PROPERTY IMPACT PLAN HAS BEEN PREPARED TO SUPPORT ANY AGREEMENTS REQUIRED BETWEEN THE LAND OWNERS IF NECESSARY.

LEGEND

-  EXISTING R.O.W.
-  PERMANENT EASEMENT (± 102 sq.m.)
- FOR PERMANENT EASEMENTS, STATE USE FOR EACH SPECIFIC PART
-  PERMISSION TO ENTER (± 71 sq.m.)
-  PERMISSION TO ENTER (± 713 sq.m.)

AFFECTED AMOUNT		
DESCRIPTION	UNIT	QUANTITY
LIGHT STANDARD	ea.	
DRIVEWAYS	sq.m.	
SOD	sq.m.	
TREES	ea.	
SHRUBS	LS.	
SIGNS	ea.	



LAKESHORE TRUNK SEWER AND SUBTRANSMISSION MAIN
PROPERTY IMPACT PLAN
RICHARD'S MEMORIAL PARK
(134880950, 804 Lakeshore Road West)

CAD Area	X-XX	Area	Z-08	Project No.	19-2215
Checked by	D.V.	Drawn by	C.N.	Plan No.	PIP-RMP002
Date	NOVEMBER 2024	Sheet	1 of 1		

REVISIONS		
DATE	DETAILS	INIT.
12/01/2020	ISSUED FOR PERMITS	N.J.
02/03/2021	ISSUED FOR PERMITS	N.J.
02/03/2021	ISSUED FOR PERMITS	N.J.
04/17/2021	ISSUED FOR TENDER	N.J.

- NOT TO SCALE
- GENERAL
- CONTRACTOR TO COORDINATE WITH CITY OF WHITBY TO OBTAIN NECESSARY PERMITS AND APPROVALS FROM THE CITY OF WHITBY AND NEIGHBORING PROPERTIES.
 - CONTRACTOR TO PROVIDE ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF WHITBY AND NEIGHBORING PROPERTIES.
 - CONTRACTOR TO PROVIDE ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF WHITBY AND NEIGHBORING PROPERTIES.
 - CONTRACTOR TO PROVIDE ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF WHITBY AND NEIGHBORING PROPERTIES.
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LEGEND

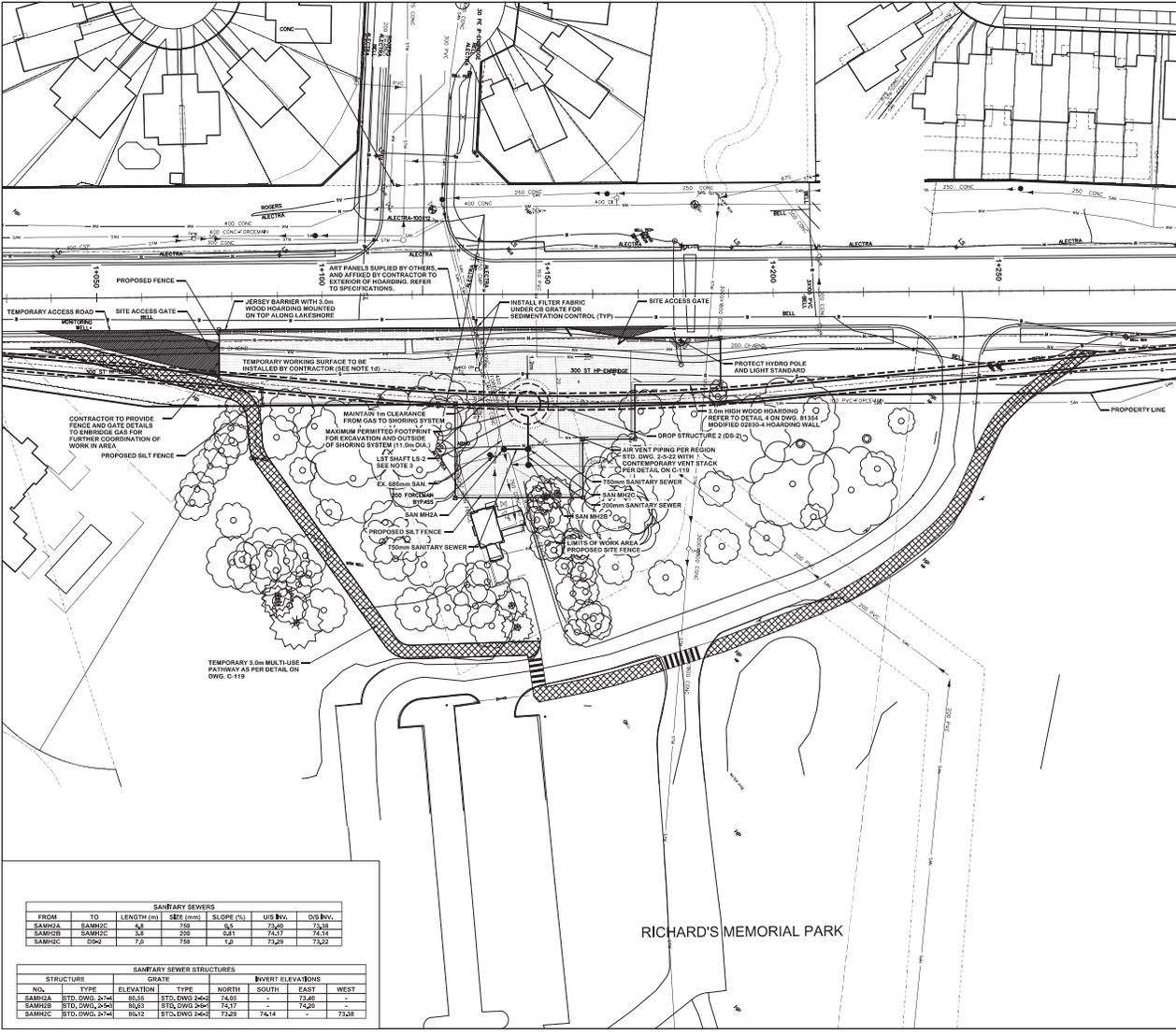
- TEMPORARY WORKING COMPOUND
- TEMPORARY ACCESS ROAD
- MULTIUSE PATHWAY
- JERSEY BARRIER
- CONTOUR LINES

HORIZONTAL SCALE
SCALE 1:400



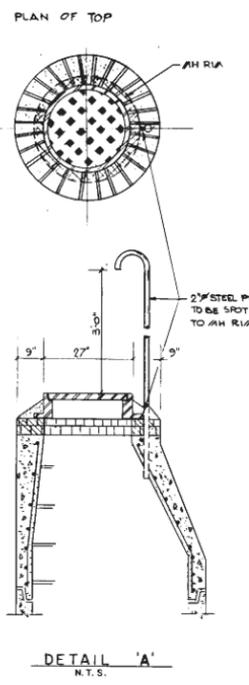
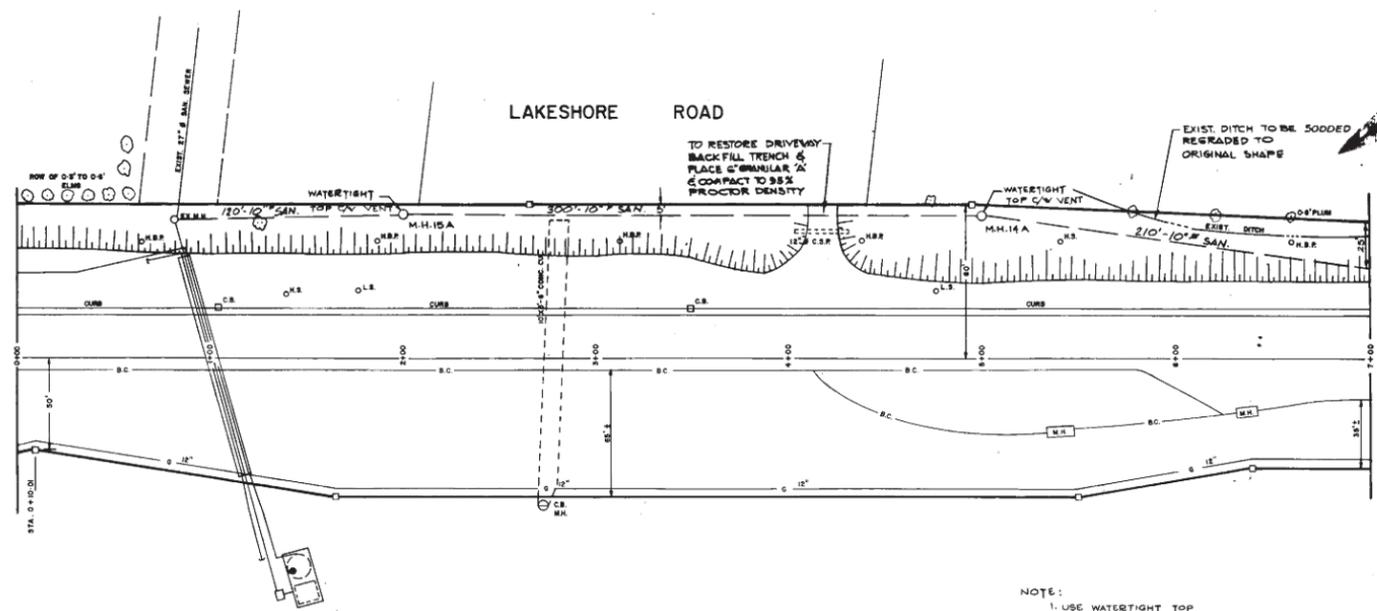
LAKESHORE TRUNK SEWER AND SUBTRANSMISSION MAIN
SITE 2: RICHARD'S MEMORIAL PARK
SITE PREPARATION PLAN

Client	W&A	Area	Z&S	Project No.	19-2215
Checked by	N.J.	Drawn by	C.N.	Sheet No.	81364
Date	APRIL 2021	Scale	33 OF 247		



SANITARY SEWERS					
FROM	TO	LENGTH (m)	SIZE (mm)	SLOPE (%)	US B.M. / O.S. B.M.
SAMH2A	SAMH2C	4.8	300	0.5	73.69 / 73.69
SAMH2B	SAMH2C	3.8	300	0.81	74.71 / 74.71
SAMH2C	2104	7.2	300	1.2	73.29 / 73.29

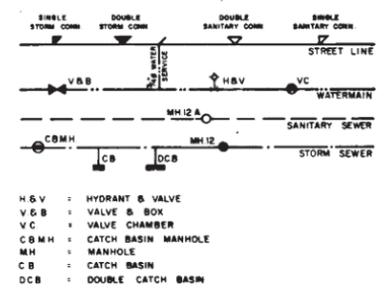
SANITARY SEWER STRUCTURES					
NO.	TYPE	ELEVATION	INVERT ELEVATIONS		
			NORTH	SOUTH	EAST / WEST
SAMH2A	STD. DWS. 2400	86.85	STD. DWS. 2400	74.95	- / 73.60
SAMH2B	STD. DWS. 2400	85.85	STD. DWS. 2400	74.71	- / 74.20
SAMH2C	STD. DWS. 2400	86.12	STD. DWS. 2400	73.29	74.14 / 73.28



NOTES

- GENERAL**
- 000.0 DENOTES EXISTING LOT ELEVATIONS.
 - 0000.0 DENOTES FINISHED LOT ELEVATIONS - FINISHED LOT ELEVATIONS REFER TO A POINT 25' BACK OF STREET LINE ON E LOT
 - UNDERLINED LOT NUMBERS DENOTE SEMI-DETACHED LOTS.
 - CURVE RADI AT INTERSECTIONS SHALL BE 25' UNLESS OTHERWISE SHOWN.
 - ALL EXISTING SERVICE LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.
- STORM & SANITARY SEWERS**
- CONCRETE PIPES UP TO AND INCLUDING 18\"/>
 - CONCRETE PIPES 24\"/>
 - VITRIFIED CLAY PIPES SHALL CONFORM TO CURRENT CSA AND SPECIFICATIONS
 - ASBESTOS CEMENT PIPES SHALL CONFORM TO CURRENT A.S.T.M. C488 SPECIFICATIONS
 - STORM SEWERS TO HAVE APPROVED MECHANICAL JOINTS AND STRENGTH RUBBER GASKETS
 - SANITARY SEWERS TO HAVE APPROVED MECHANICAL JOINTS AND PREMIUM RUBBER GASKETS
 - ALL SEWERS AND CONNECTIONS TO HAVE STANDARD TYPE 'B' BEDDING UNLESS OTHERWISE SHOWN.
 - SPRINGLINES OF CONNECTIONS INTO MANHOLES ARE TO MATCH THE SPRINGLINE OF THE MAIN SEWER.
 - THE CONTRACTOR SHALL SUPPLY AT HIS EXPENSE ADDITIONAL BEDDING AND/OR STRONGER PIPE WHERE THE ACTUAL TRENCH WIDTH AT THE TOP OF THE PIPE EXCEEDS THE WIDTH SPECIFIED RESULTING IN OVERLOADING OF THE PIPE AND/OR REDUCTION OF THE BEDDING FACTOR.
- WATERMAINS**
- WATER SERVICES SHALL BE INSTALLED AT THE MIDPOINT OF A SINGLE FAMILY LOT, AND AT THE QUARTER POINTS OF A SEMI-DETACHED LOT, UNLESS OTHERWISE SHOWN.
 - THE MINIMUM LATERAL DISTANCE BETWEEN WATER SERVICES AND OTHER UNDERGROUND UTILITIES SHALL BE 4 FEET

LEGEND

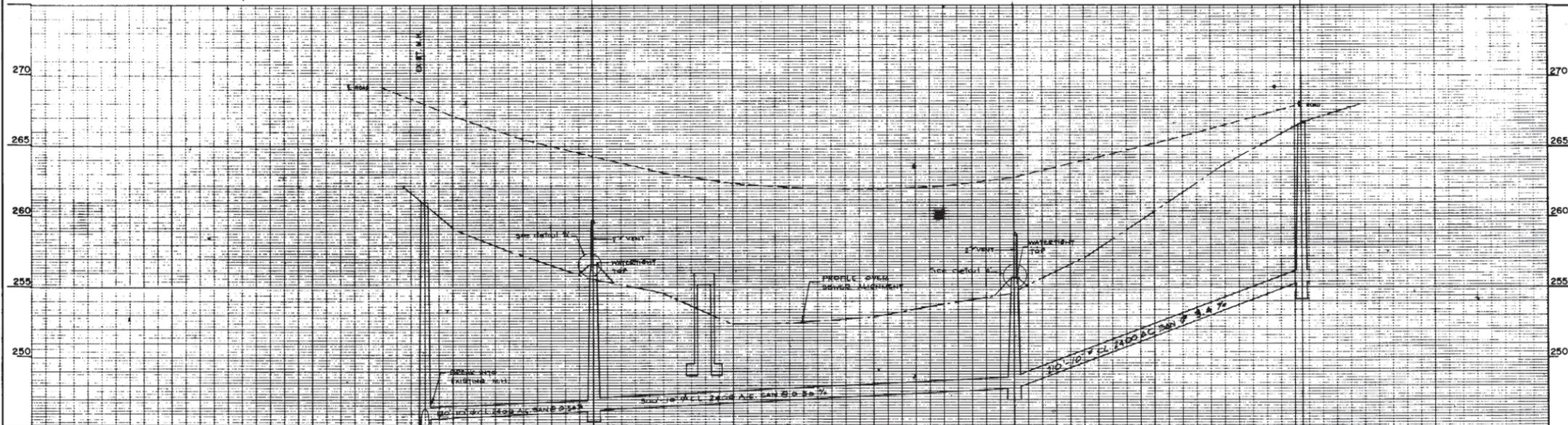


- NOTES:**
1. USE WATERTIGHT TOP FOR M.H. 14 A & 15 A. (BOROUGH OF KITCHICORE 910 4-15)
 2. TOPS TO BE 1' ABOVE O.G. AND 1:10 BERING
 3. VENTS TO BE 2\"/>

PLEASE NOTE:
THIS DRAWING IS NOT MARKED 'AS CONSTRUCTED'

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B.M. No. T.T.B.M. 450 ELEV. 263.80
TEMP. BENCH MARK ELEV.
DESCRIPTION ON THE SOUTH FACE AT THE WEST CORNER OF A SOUTH END OF A CONCRETE BOX CULVERT ACROSS LAKESHORE ROAD WEST (No. 2 HWY) 450 FT. EAST OF CROZIER COURT.



STORM SEWER INVERT ELEV.							
SAN SEWER INVERT ELEV.							
FINISHED GRADE & OF ROAD							
EXIST. GRADE							
STATION	0+00	1+00	2+00	3+00	4+00	5+00	6+00

NO.	REVISION	DATE	BY	APP'D.



the kleinfeldt group limited
CONSULTING ENGINEERS • URBAN AND REGIONAL PLANNERS

CARLTON HOLDINGS
CITY OF MISSISSAUGA
REGION OF PEEL
ENGINEERING DEPARTMENT

LAKESHORE ROAD
PLAN AND PROFILE
STN. 0+00 TO STN. 7+00

LOT/S 12, 13, 14	/ RANGE 1 C.I.R.	PROJECT NO. 1-113
SCALE HORIZONTAL 1" = 40'	DRAWN BY H.A.	CHECKED BY R.P.
DATE OCT, 1974	SHEET 3 OF 14	DRAWING 20641-D

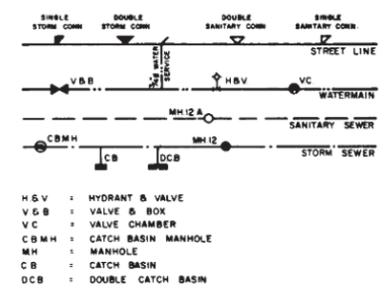
20641-D



NOTES

- GENERAL**
- 000.0 DENOTES EXISTING LOT ELEVATIONS.
 - [000.0] DENOTES FINISHED LOT ELEVATIONS - FINISHED LOT ELEVATIONS REFER TO A POINT 25' BACK OF STREET LINE ON A LOT.
 - UNDERLINED LOT NUMBERS DENOTE SEMI-DETACHED LOTS.
 - CURB RADI AT INTERSECTIONS SHALL BE 25' UNLESS OTHERWISE SHOWN.
 - ALL EXISTING SERVICE LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.
- STORM & SANITARY SEWERS**
- CONCRETE PIPES UP TO AND INCLUDING 18" SHALL CONFORM TO CURRENT A.S.T.M. C-40 SPECIFICATIONS.
 - CONCRETE PIPES 21" AND OVER SHALL CONFORM TO CURRENT A.S.T.M. C-78 SPECIFICATIONS.
 - VITRIFIED CLAY PIPES SHALL CONFORM TO CURRENT CSA A80 SPECIFICATIONS.
 - ASBESTOS CEMENT PIPES SHALL CONFORM TO CURRENT A.S.T.M. C-488 SPECIFICATIONS.
 - STORM SEWERS TO HAVE APPROVED MECHANICAL JOINTS AND STRONG RUBBER GASKETS.
 - SANITARY SEWERS TO HAVE APPROVED MECHANICAL JOINTS AND PREMIUM RUBBER GASKETS.
 - ALL SEWERS AND CONNECTIONS TO HAVE STANDARD TYPE 'B' BEDDING UNLESS OTHERWISE SHOWN.
 - SPRINGLINES OF CONNECTIONS INTO MANHOLES ARE TO MATCH THE SPRINGLINE OF THE MAIN SEWER.
 - THE CONTRACTOR SHALL SUPPLY AT HIS EXPENSE ADDITIONAL BEDDING AND/OR STRONGER PIPE WHERE THE ACTUAL TRENCH WIDTH AT THE TOP OF THE PIPE EXCEEDS THE WIDTH SPECIFIED RESULTING IN OVERLOADING OF THE PIPE AND/OR REDUCTION OF THE BEDDING FACTOR.
- WATERMANS**
- WATER SERVICES SHALL BE INSTALLED AT THE MIDPOINT OF A SINGLE FAMILY LOT, AND AT THE QUARTER POINTS OF A SEMI-DETACHED LOT, UNLESS OTHERWISE SHOWN.
 - THE MINIMUM LATERAL DISTANCE BETWEEN WATER SERVICES AND OTHER UNDERGROUND UTILITIES SHALL BE 4 FEET.

LEGEND



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PLEASE NOTE:
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B.M. No. T.T.B.M. 430 ELEV. 265.89
TEMP. BENCH MARK ELEV.
DESCRIPTION ON THE SOUTH FACE AT THE WEST CORNER OF A SOUTH END OF A CONCRETE BOX CULVERT ACROSS LAKESHORE ROAD WEST (No. 2 HWY) 450 FT. EAST OF CROZIER COURT.

NO.	REVISION	DATE	BY	APP'D.



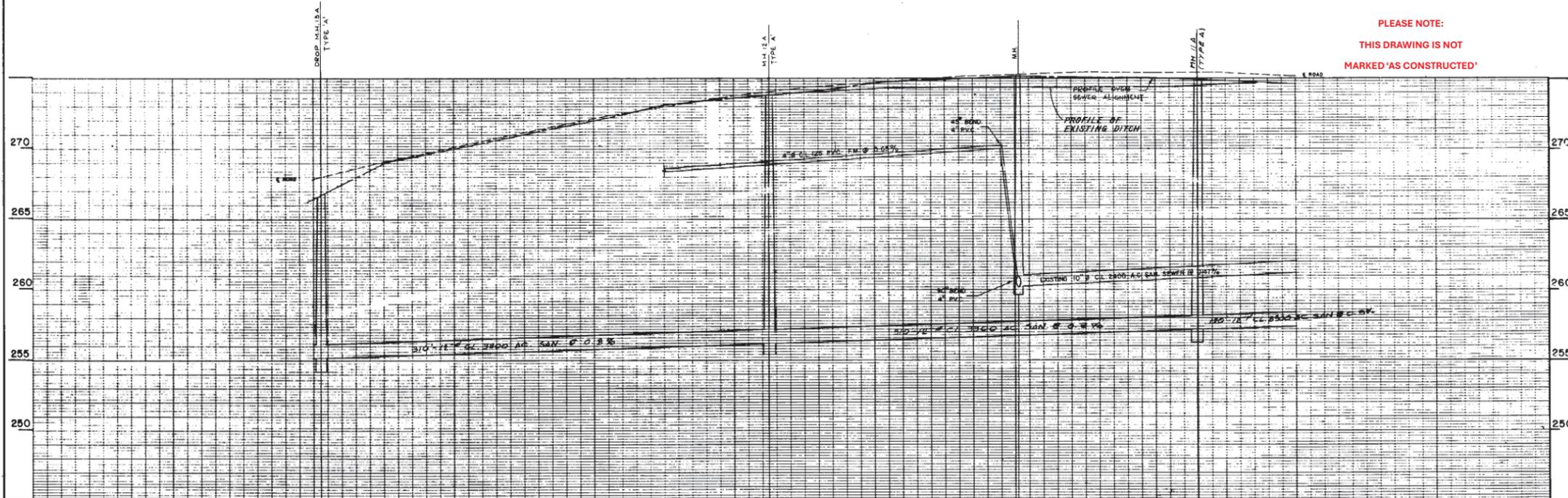
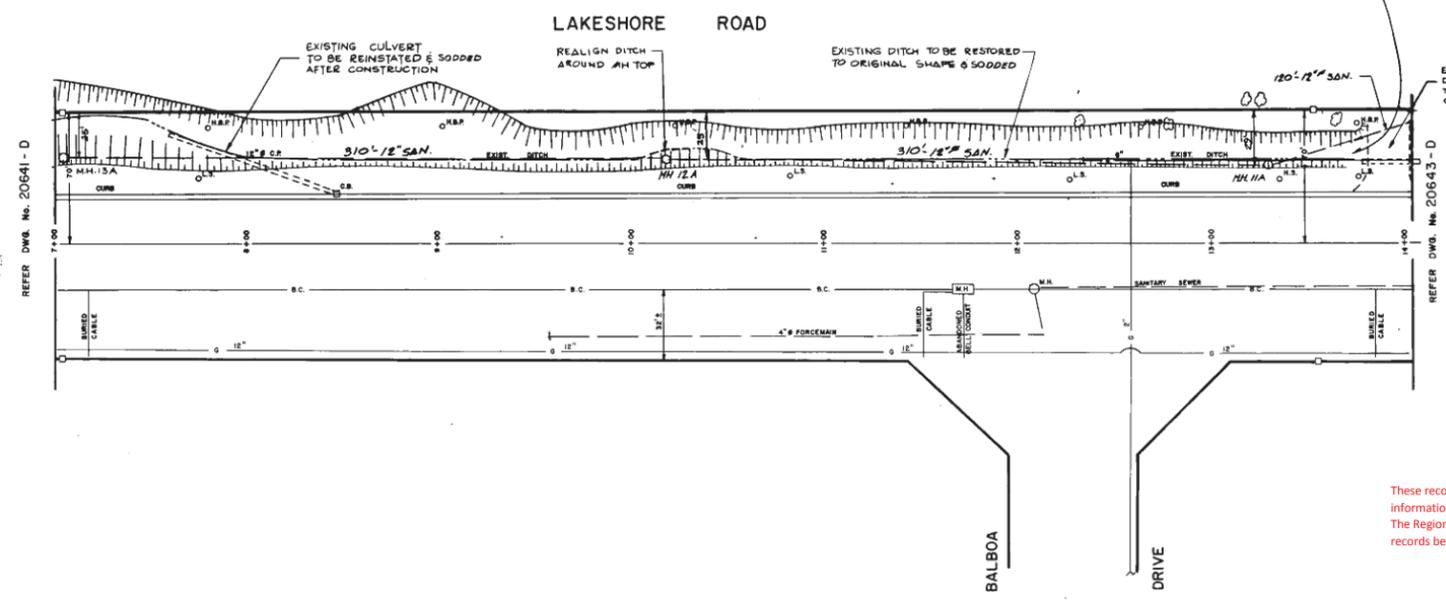
the kleinfeldt group limited
CONSULTING ENGINEERS • URBAN AND REGIONAL PLANNERS

CARLTON HOLDINGS
CITY OF MISSISSAUGA
REGION OF PEEL
ENGINEERING DEPARTMENT

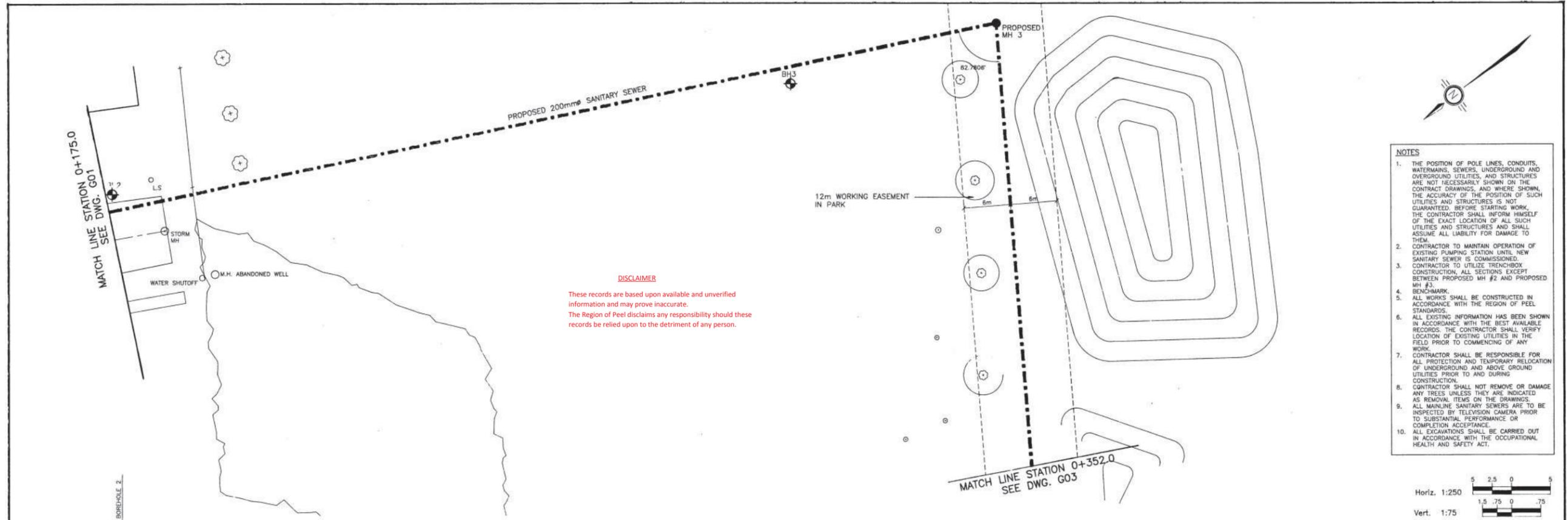
LAKESHORE ROAD
PLAN AND PROFILE
STN. 7+00 TO STN. 14+00

LOT/S	CON/RANGE	PROJECT NO. 1-1113
SCALE HORIZONTAL 1" = 40'	DRAWN BY H.A.	CHECKED BY R.P.
DATE OCT., 1974	SHEET 4 OF 14	DRAWING 20642-D

20642-D

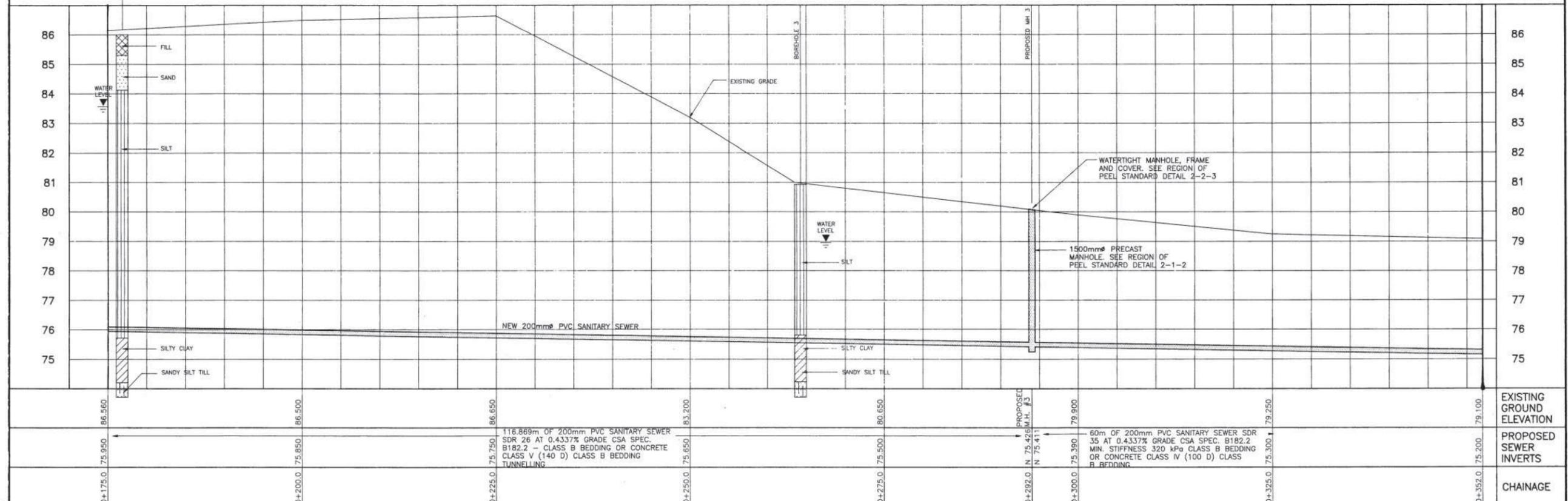
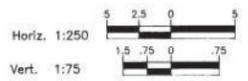


STATION	STORM SEWER INVERT ELEV.	SAN SEWER INVERT ELEV.	FINISHED GRADE & OF ROAD	EXIST. GRADE
7+00	263.2	258.0	263.2	263.2
8+00	269.2	264.0	269.2	269.2
9+00	275.5	270.0	275.5	275.5
10+00	276.6	271.0	276.6	276.6
11+00	278.8	273.0	278.8	278.8
12+00	278.6	273.0	278.6	278.6
13+00	278.4	273.0	278.4	278.4
14+00	276.0	271.0	276.0	276.0



DISCLAIMER
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- NOTES**
1. THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS, UNDERGROUND AND OVERGROUND UTILITIES, AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
 2. CONTRACTOR TO MAINTAIN OPERATION OF EXISTING PUMPING STATION UNTIL NEW SANITARY SEWER IS COMMISSIONED.
 3. CONTRACTOR TO UTILIZE TRENCHBOX CONSTRUCTION, ALL SECTIONS EXCEPT BETWEEN PROPOSED M.H. #2 AND PROPOSED M.H. #3.
 4. BENCHMARK.
 5. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGION OF PEEL STANDARDS.
 6. ALL EXISTING INFORMATION HAS BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES IN THE FIELD PRIOR TO COMMENCING OF ANY WORK.
 7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROTECTION AND TEMPORARY RELOCATION OF UNDERGROUND AND ABOVE GROUND UTILITIES PRIOR TO AND DURING CONSTRUCTION.
 8. CONTRACTOR SHALL NOT REMOVE OR DAMAGE ANY TREES UNLESS THEY ARE INDICATED AS REMOVAL ITEMS ON THE DRAWINGS.
 9. ALL MAINLINE SANITARY SEWERS ARE TO BE INSPECTED BY TELEVISION CAMERA PRIOR TO SUBSTANTIAL PERFORMANCE OR COMPLETION ACCEPTANCE.
 10. ALL EXCAVATIONS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT.

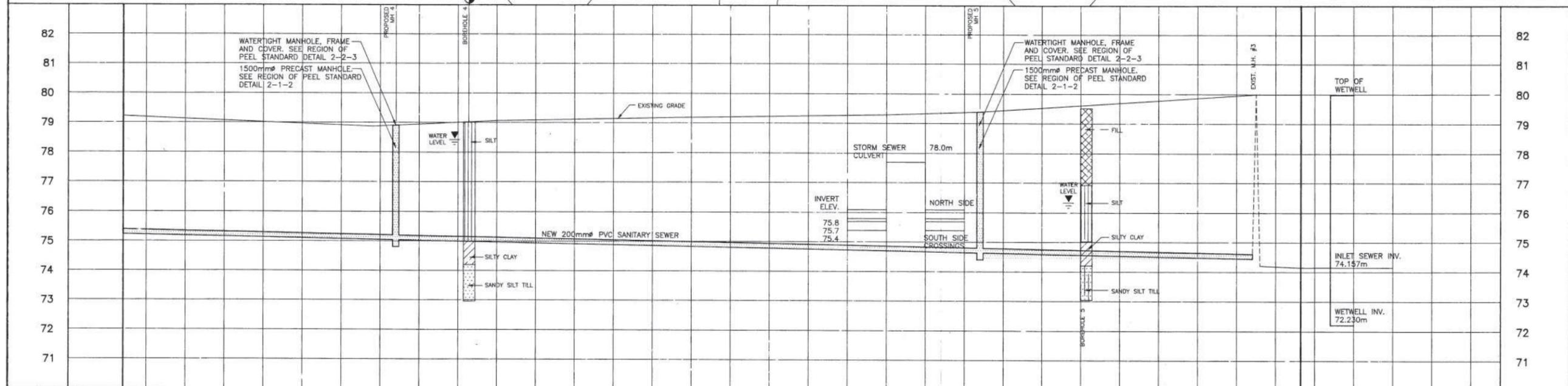
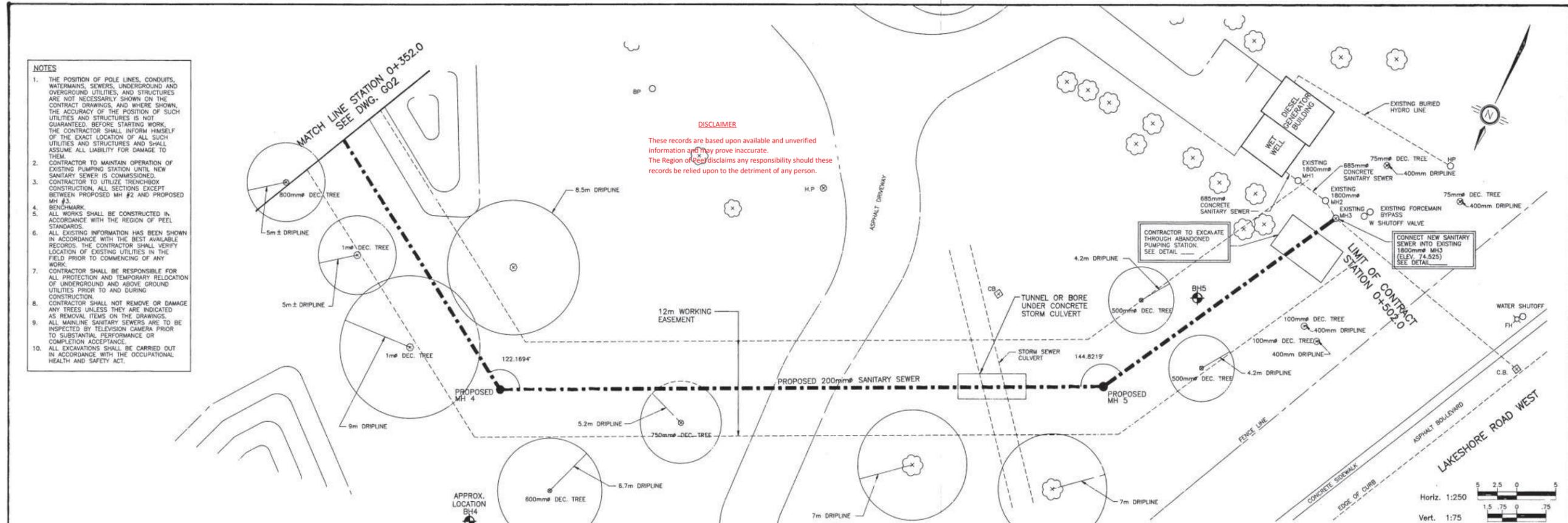


NOTES: No. DATE REVISION BY	 THORBURN PENNY Consulting Engineers Milton, Ontario	 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO	 The Regional Municipality of Peel Department of Public Works	TITLE: LYNNROD SANITARY SEWER PLAN AND PROFILE
DRAWN BY: A.F. C'D BY: D.A.O.		SCALE: AS NOTED DRAWING No. G02		DATE: APRIL 1994 REV: CONTRACT

30863D

- NOTES**
1. THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS, UNDERGROUND UTILITIES, AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
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 4. BENCHMARK.
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Station	Description	Existing Ground Elevation	Proposed Watermain Sewer	Chainage
0+352.0	Start of 37.0m of 200mm PVC sanitary sewer	79.100	74.150	
0+375.0	Proposed Manhole #4	78.950	75.000	
0+400.0	Start of 75.0m of 200mm PVC sanitary sewer	79.075	74.800	
0+425.0	Proposed Manhole #5	79.200	74.667	
0+450.0	Start of 37.0m of 200mm PVC sanitary sewer	79.300	74.525	
0+475.0	Proposed Manhole #5	79.855	74.190	
0+500.0	Wetwell	80.000	74.157	
0+502.0	End of sanitary sewer	80.000		

NOTES:

No.	DATE	REVISION	BY

THORBURN PENNY
Consulting Engineers
Milton, Ontario

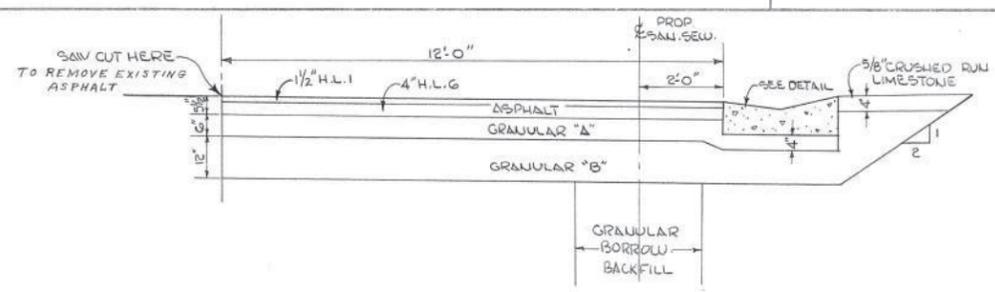
LICENSÉ PROFESSIONNEL EN INGÉNIEUR
D. OHANIAN
PROVINCE OF ONTARIO

The Regional Municipality of Peel
Department of Public Works

TITLE: **LYNNROD SANITARY SEWER
PLAN AND PROFILE**

DRAWN BY: A.F.	SCALE: AS NOTED	DATE: AUGUST 1994	REV:
C'D BY: D.A.O.	DRAWING No. G03	CONTRACT	

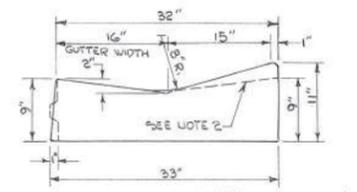
30864D



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS	MAY 11/71	Z.S.	GAS MAINS	MAY 13/71	T.J.
STORM SEWERS	MAY 11/71	Z.S.	BELL U/G CABLE	MAY 13/71	T.J.
WATER MAINS	MAY 13/71	T.J.	HYDRO U/G CABLE	MAY 14/71	T.J.

REVISIONS		
DATE	DETAILS	INIT.
SEPT 25/69	PROP. 5" CONC. WALK	Z.S.
DEC. 1969	SIDEWALK AS CONST.	J.H.
MAY 15/71	COVERED LOCATION	Z.S.
MAY 12/71	PROP. SAN. SEW.	J.C.M.
SEPT 16/71	GENERAL	J.M.
MAY 29/72	AL CONC. SAN. F.M.	Z.S.

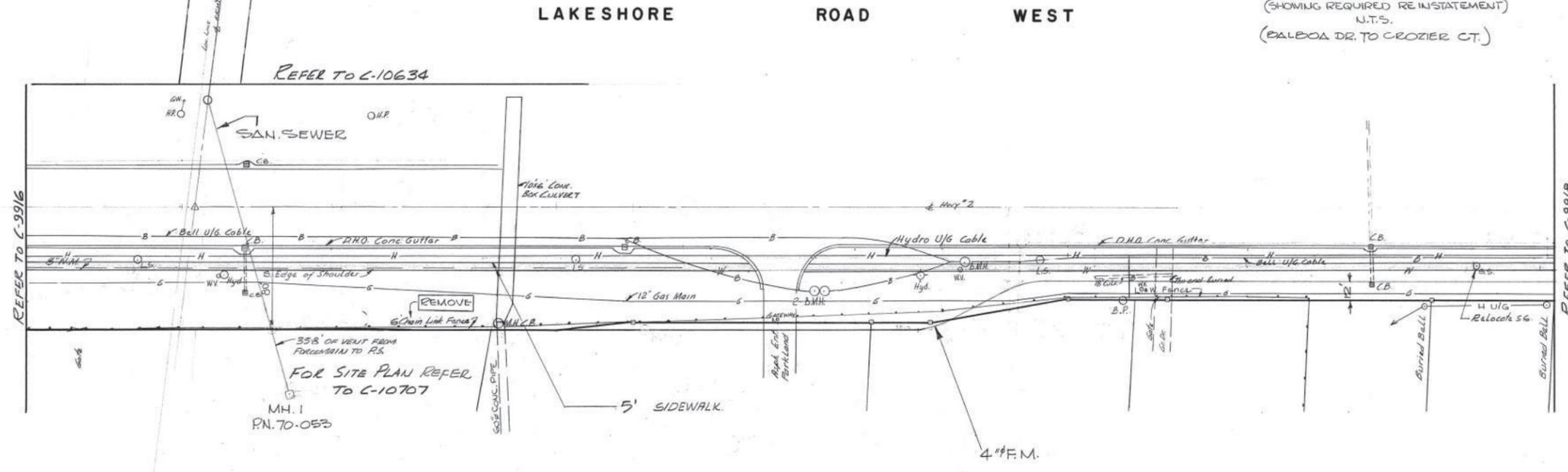
CROSS SECTION THROUGH CURB LANE
(SHOWING REQUIRED REINSTATEMENT)
N.T.S.
(BALBOA DR. TO CROZIER CT.)



- 0.072 cu. yds. concrete per. lineal ft.
- NOTES:
1. TOP EDGES OF FRONT AND BACK OF CURBS (GUTTER) TO BE ROUNDED WITH A 1/4" RADIUS EDGING TOOL, EXCEPT WHERE FRONT EDGE ABUTS CONCRETE PAVEMENT WITH LONGITUDINAL JOINT.
 2. DROPPED CURB AT ENTRANCES: LENGTH AS SHOWN ON THE PLANS OR DETERMINED BY THE ENGINEER.
 3. ALL CONCRETE WORK TO CONFORM TO SECTION 9.04 OF D.H.O. FORM 9. CLASS OF CONCRETE: 3000 P.S.I.

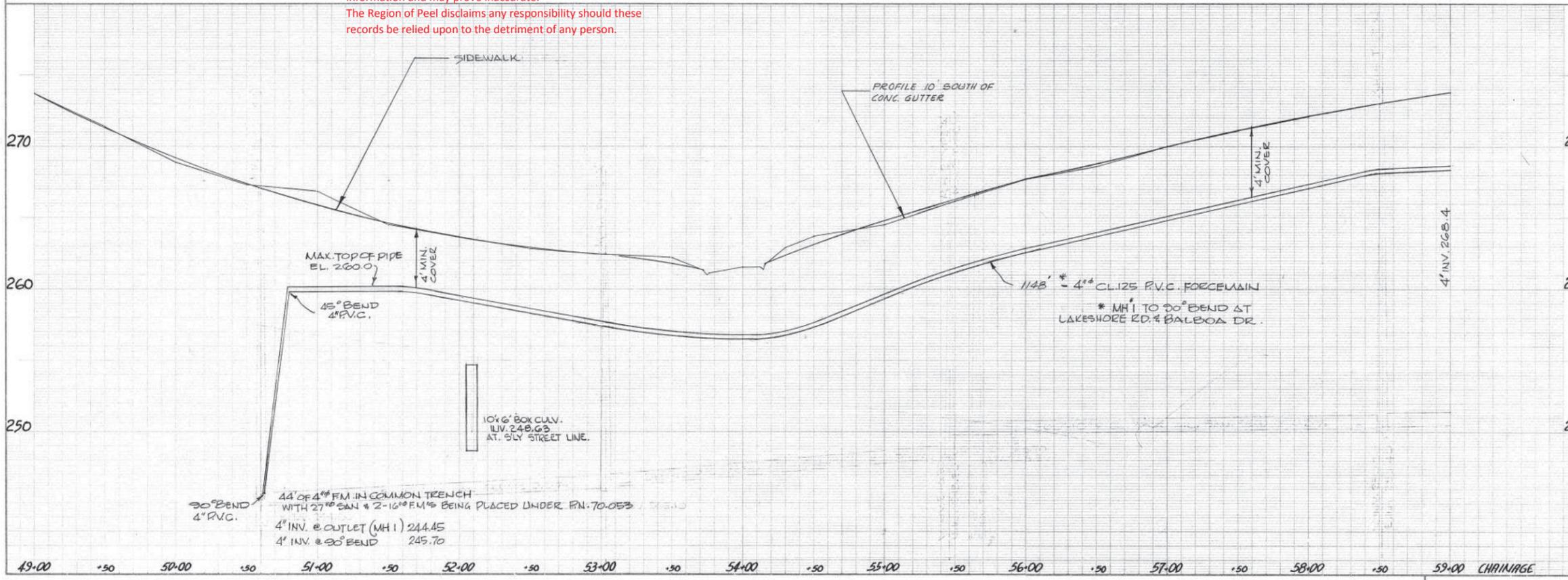
D.H.O. TYPE "D" CURB
N.T.S.

- NOTE:
- * TOTAL LENGTH OF F.M. FROM P.S. TO BALBOA DR. - 1148'
 - * TOTAL LENGTH OF F.M. FROM P.S. TO LAKESHORE RD. W. - 672.5'



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- GENERAL NOTES**
- ALL DRIVEWAYS GRAVEL UNLESS OTHERWISE NOTED.
 - ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN FIELD.
 - DENOTES BUILDING - NOT LOCATED.
 - DENOTES BUILDING LOCATED.
 - T.T.B.M. No. 132 ELEV. 307.19
 - TEMP BENCH MARK ELEV. 270.42
 - DESCRIPTION: NW COR. C.B. FRAME 157180 S. CURB.

270 SANI SEW TO HAVE TYPE "B" BEDDING.

 DESIGNED BY L. Jenite CHKD.	 APPROVED BY W. Anderson
---	---------------------------------------

TOWN OF MISSISSAUGA
ENGINEERING DEPARTMENT

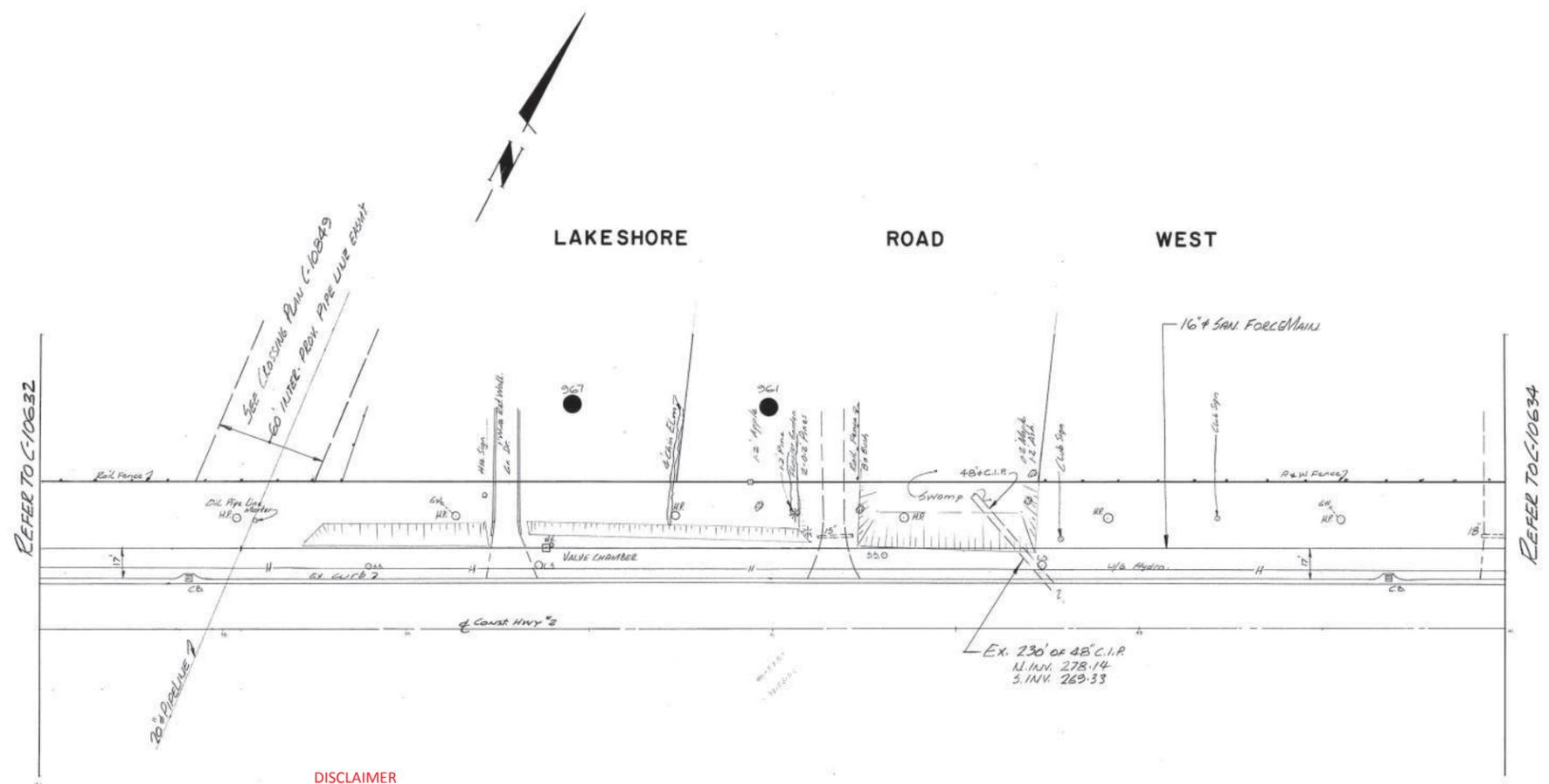
LAKESHORE ROAD WEST
FROM S'WLY. LIMIT TOWN OF PORT CREDIT TO TENNYSON AVE.
STN. 49+00 TO STN. 59+00

SCALE: HOR. 1" = 40'	AREA: Z-2	PROJECT NO. 71-046
DRAWN BY: Z.S.	CHECKED BY:	PLAN NO.
DATE: JULY 29, 1969	SHEET 1 OF 7	C-9917

C-09917

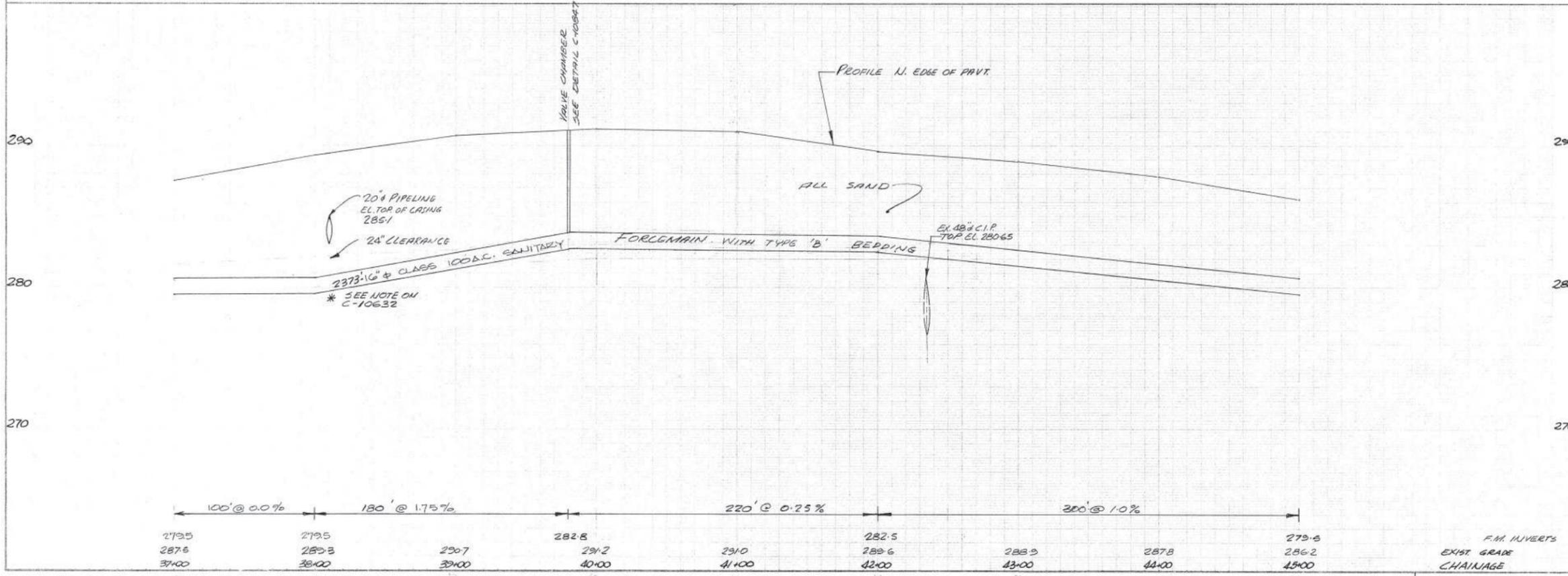
SERVICE DATA					
SERVICE	DATE	INT.	SERVICE	DATE	INT.
SAN SEWERS	JUNE 1971	Z.S.	GAS MAINS	JUNE 1971	Z.S.
STORM SEWERS	JUNE 1971	Z.S.	BELL U/S CABLE	JUNE 1971	Z.S.
WATERMANS	JUNE 1971	Z.S.	HYDRO U/S CABLE	JUNE 1971	Z.S.

REVISIONS		
DATE	DETAILS	INT.
JUNE 1971	PROP SAN. F.M. IN 70-053	Z.S.
APR. 1971	F.M. GRADE OF PIPELINE CLEARANCE	T.I.
APR. 1971	AS CONSTRUCTED	Z.S.



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 - ⊙ DENOTES BUILDING - NOT LOCATED.
 - ⊞ DENOTES BUILDING LOCATED.
 - T.T.S.M. No. 132 ELEV. 307.15
 - TEMP BENCH MARK ELEV. DESCRIPTION.

SAN. SEW. TO HAVE TYPE 'B' BEDDING

APPROVED BY
C. D. Leavers
CHRO.

APPROVED BY
W. A. Jones

TOWN OF MISSISSAUGA
ENGINEERING DEPARTMENT

LAKESHORE ROAD WEST
NORTH SIDE FROM LORNE PARK RD. TO PORT CREDIT
STN. 37+00 TO STN. 45+00

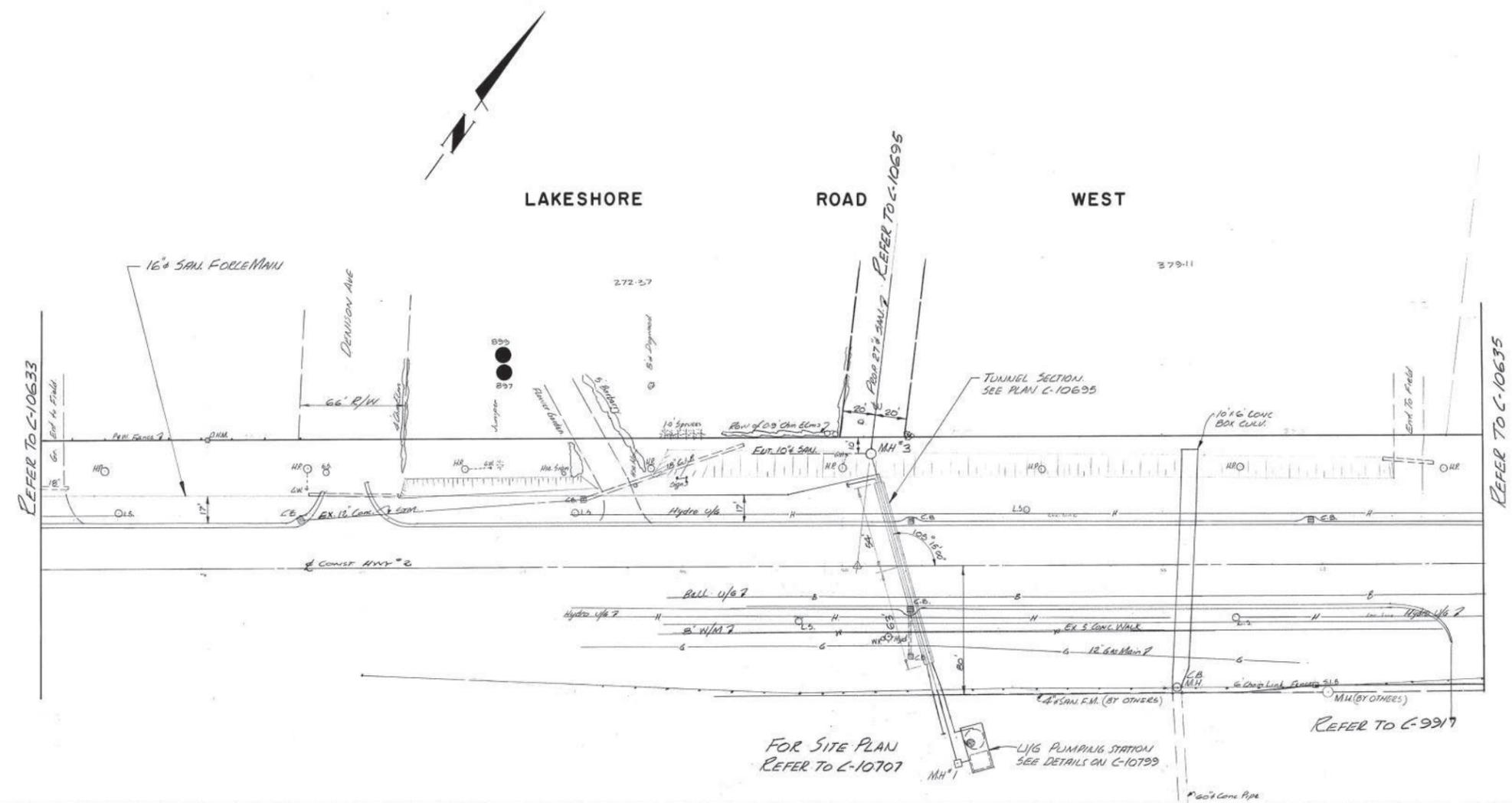
SCALE: HOR. 1"=40'	AREA: Z-9	PROJECT NO. 70-053
VERT. 1"=4'	DRAWN BY: Z. SKIRA	PLAN NO.
DATE: MAY 17, 1971	CHECKED BY: [Signature]	SHEET 4 OF 16

C-10633

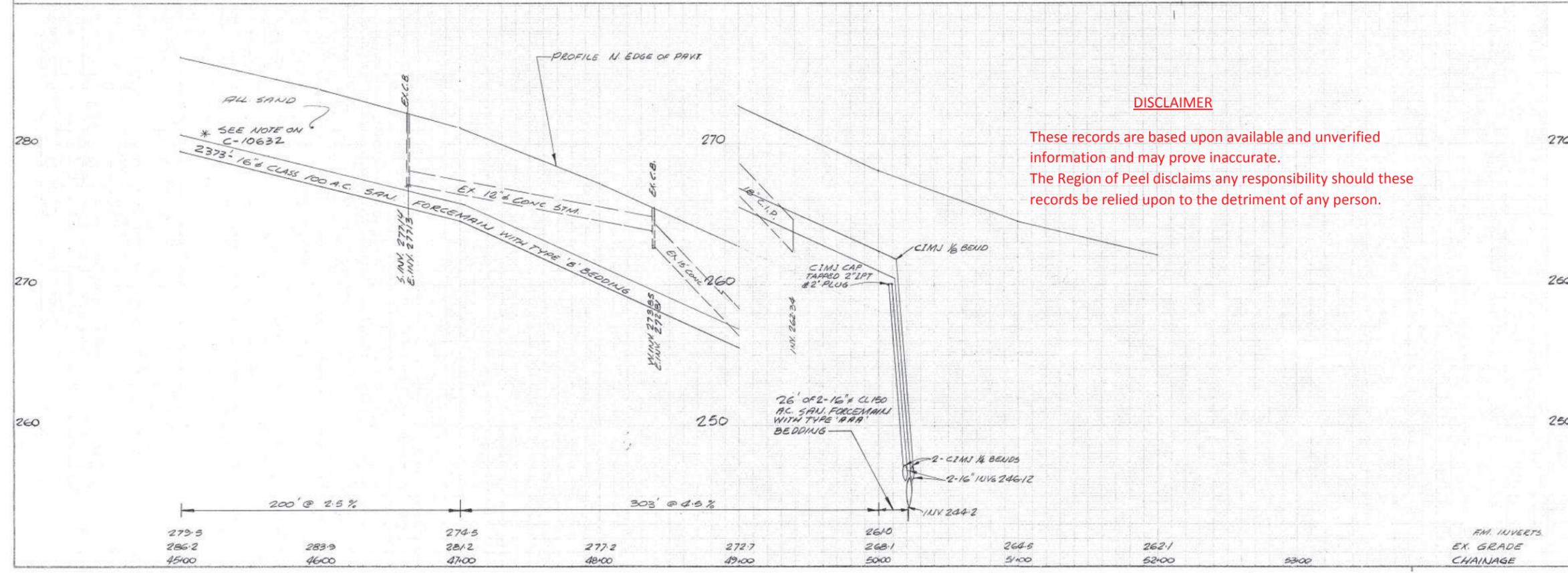
C-10633

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS	JUNE 10/71	Z.S.	GAS MAINS	JUNE 10/71	Z.S.
STORM SEWERS	JUNE 10/71	Z.S.	BELL U/G CABLE	JUNE 10/71	Z.S.
WATERMANS	JUNE 10/71	Z.S.	HYDRO U/G CABLE	JUNE 10/71	Z.S.

REVISIONS		
DATE	DETAILS	INIT.
June 16/71	PROP SAN. F.M.	P.V. 70-058
April 5/72	AS CONSTRUCTED	Z.S.



FOR SITE PLAN REFER TO C-10707
 L/G PUMPING STATION SEE DETAILS ON C-10799



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 - DENOTES BUILDING - NOT LOCATED.
 - DENOTES BUILDING LOCATED.
 - T.T.B.M. No. 310 ELEV. 255.63
 - TEMP BENCH MARK ELEV. DESCRIPTION.

270 SAN SEW. TO HAVE TYPE 'B' BEDDING

APPROVED BY

APPROVED BY

TOWN OF MISSISSAUGA
 ENGINEERING DEPARTMENT

LAKESHORE ROAD WEST
 NORTH SIDE FROM LORNE PARK RD. TO PORT CREDIT
 STN. 45 + 00 TO STN. 53 + 00

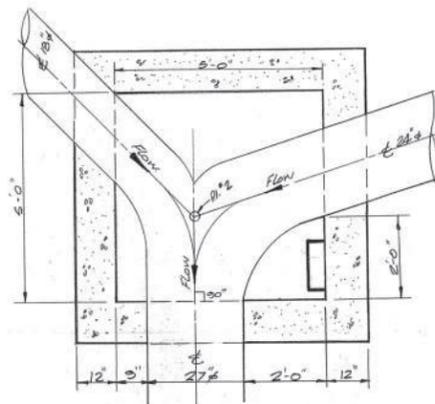
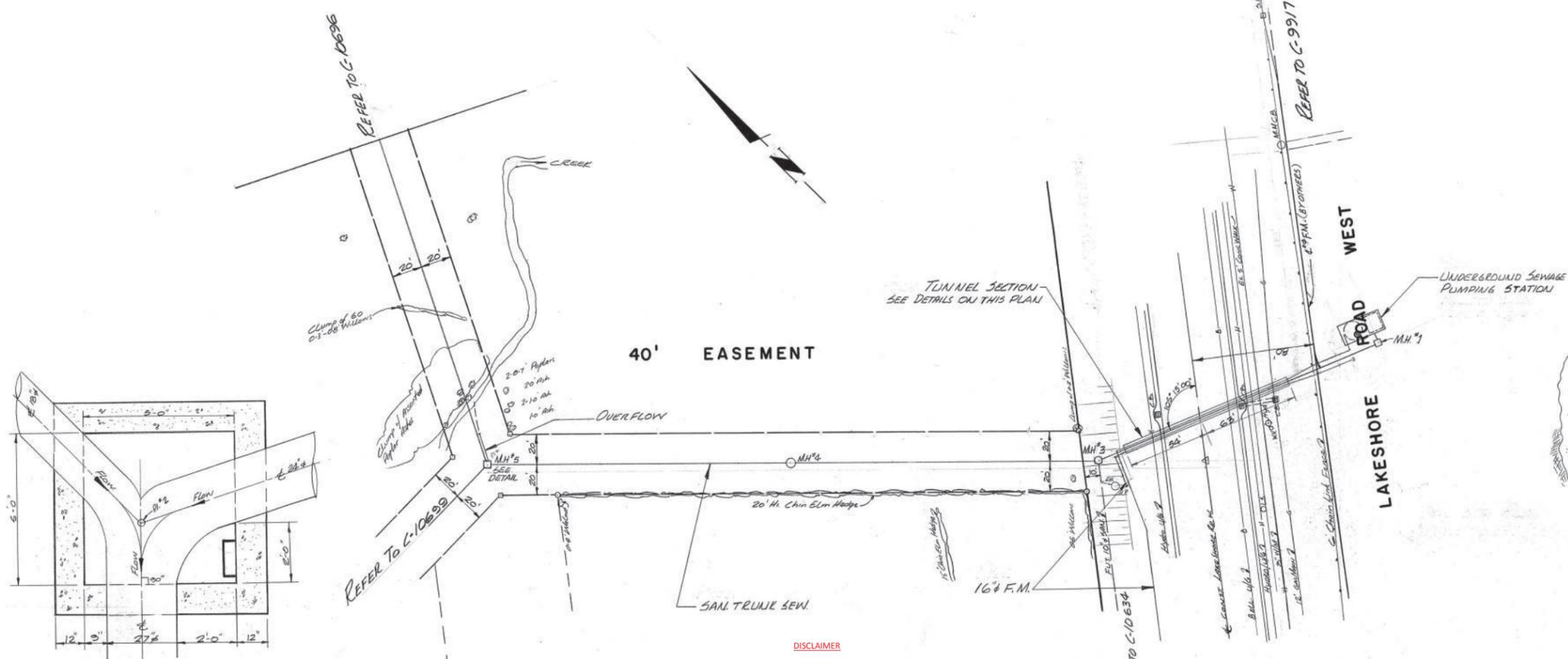
SCALE	HOR. 1" = 40'	AREA Z-9	PROJECT NO. 70-053
DRAWN BY Z. SKIRA	VERT. 1" = 4'	CHECKED BY K	PLAN NO.
DATE MAY 17, 1971	SHEET 5 OF 16		C-10634

C-10634

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS	JUNE 1971	Z.S.	GAS MAINS	JUNE 1971	Z.S.
STORM SEWERS	JUNE 1971	Z.S.	BELL W/G CABLE	JUNE 1971	Z.S.
WATERMAINS	JUNE 1971	Z.S.	HYDRO W/G CABLE	JUNE 1971	Z.S.

REVISIONS		
DATE	DETAILS	INIT.
JUNE 1971	PROP SAN TRUNK SEWER	Z.S.
APRIL 1971	28' STN. M.H. 1	Z.S.
APRIL 1971	22' RECONSTRUCTED	Z.S.

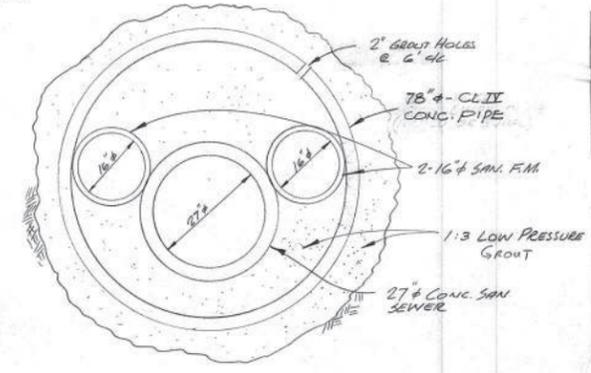
ASSOCIATED PLANS
 SITE PLAN C-10707
 P.S. CONST. DETAILS C-10799
 LAND PLAN N. of HWY 2 C-10541



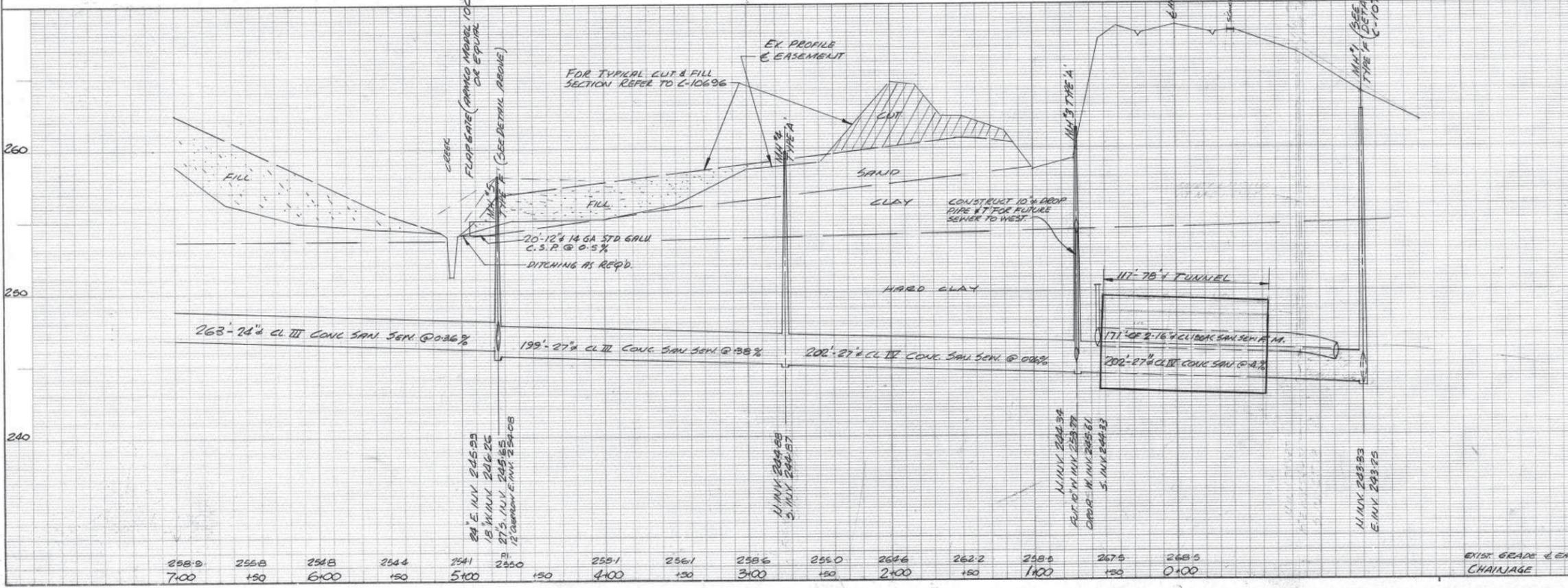
DETAIL OF M.H.#5
 SCALE: 1/2" = 1'-0"

CONST. NOTES:
 - 7'-6" CEILING TO 27" DIA
 - 18" TOP SLAB WITH 3 BARS @ 6" x 6" LG. BOTH WAYS

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TUNNEL SECTION DETAIL
 U.T.S.



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 - DENOTES BUILDING LOCATED.
 - T.T.B.M No. 310 ELEV. 255.65
 - TEMP BENCH MARK ELEV. DESCRIPTION.

260 SAN. SEW. TO HAVE TYPE 'B' BEDDING

REGISTERED PROFESSIONAL ENGINEER
 G. D. LEAVENS
 PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER
 W. J. ANDERSON
 PROVINCE OF ONTARIO

APPROVED BY
 [Signature]

TOWN OF MISSISSAUGA
 ENGINEERING DEPARTMENT

EASEMENT
 FROM LAKESHORE RD. W. TO WOODIEDEN DR.
 STN. 0+00 TO STN. 7+00

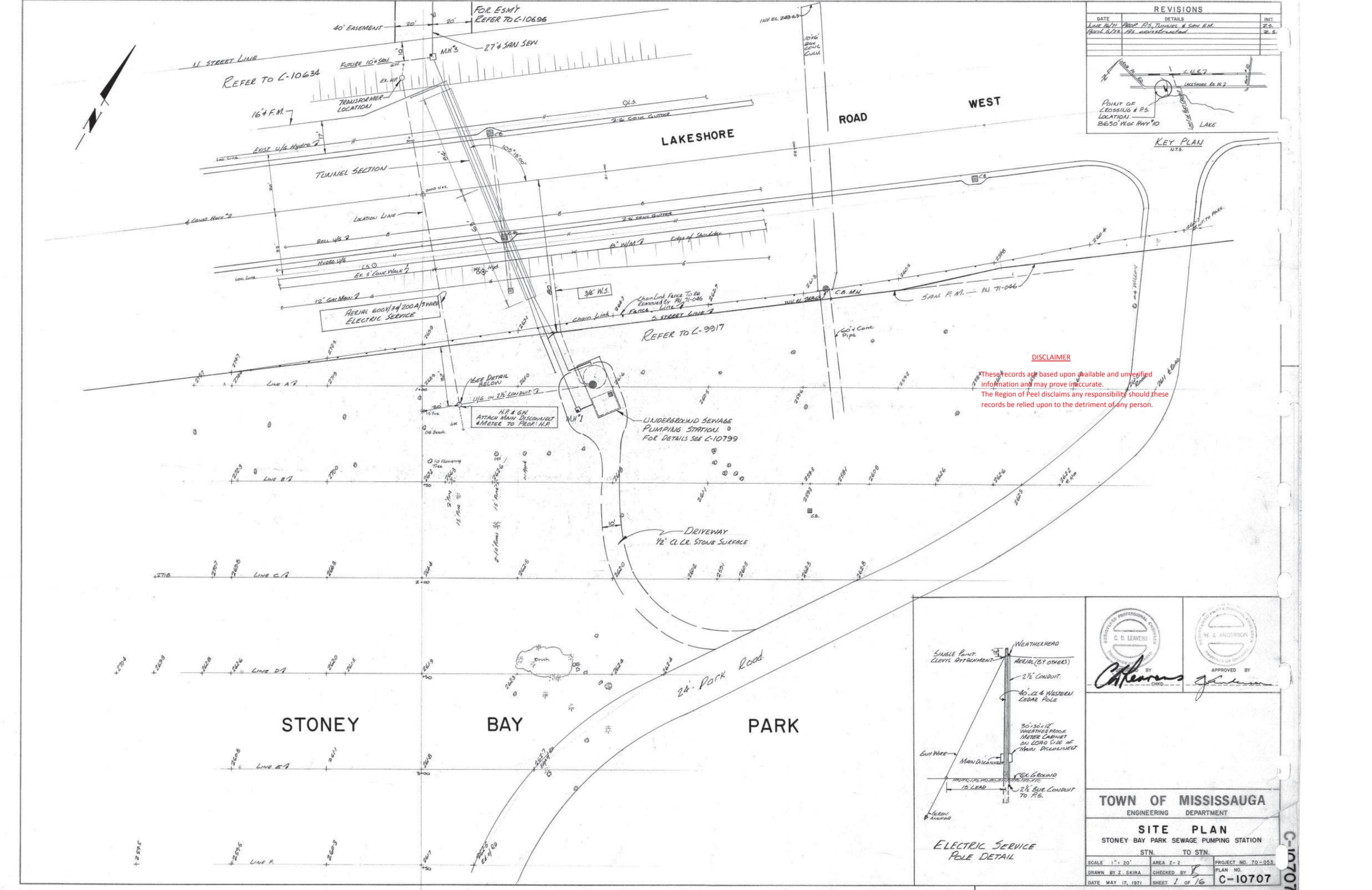
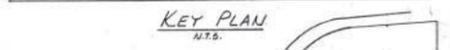
SCALE: HOR. 1" = 40' VERT. 1" = 4'
 AREA: Z-9
 PROJECT NO. 70-053

DRAWN BY Z. SKIRA
 CHECKED BY [Signature]
 DATE MAY 17, 1971

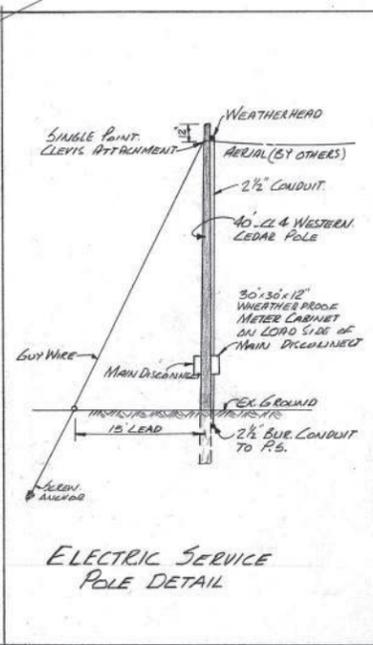
SHEET 6 OF 16
C-10695

C-10695

REVISIONS		
DATE	DETAILS	INIT
JUNE 16/71	PROP. P.S., TUNNEL & SAN EM.	Z.S.
APRIL 8/72	ALL CONSTRUCTED	Z.S.



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 REGISTERED PROFESSIONAL ENGINEER C. D. LEAVENS ENGINEER OF ONTARIO	 REGISTERED PROFESSIONAL ENGINEER W. J. ANDERSON ENGINEER OF ONTARIO
APPROVED BY CHKD	
TOWN OF MISSISSAUGA ENGINEERING DEPARTMENT	
SITE PLAN STONEY BAY PARK SEWAGE PUMPING STATION STN. TO STN.	
SCALE 1" = 20'	AREA Z-2
DRAWN BY Z. SKIRA	CHECKED BY [Signature]
DATE MAY 17, 1971	SHEET 1 of 16
PROJECT NO. 70-053 PLAN NO. C-10707	

C-10707



September 30, 2024

Re: 900 Lakeshore Road West, Mississauga, Ontario

To whom it may concern,

Kindly be advised that the Construction Type of the 10-Storey building proposed at 900 Lakeshore Road West will be **Type I - Fire Resistive**, in accordance with the Fire Underwriters Survey definition.

As such, all structural Elements, walls, arches, floors and roofs will be constructed with a minimum 2-hour fire resistance rating, and all materials used in the construction of the structural elements, walls, arches, floors and roofs are constructed with noncombustible materials.

In addition, please note that the entire building will be provided with a fully supervised automatic sprinkler system. The central Fire Alarm Panel will be located in the CACF (Central Alarm Control Facility) situated in proximity to the main entrance on the Ground Floor in order to be readily accessible to the firefighters entering the building in accordance with OBC 3.2.6.7.

Sincerely,

Kregg Fordyce
President, BES, March, OAA, NSAA, MRAIC, RPP, MCIP
KFA Architects and Planners Inc,





ENGINEERING



LABORATORY



HYDROGEOLOGICAL INVESTIGATION



**900 LAKESHORE ROAD WEST,
MISSISSAUGA, ONTARIO, L5H 1H9**

400 Esna Park Drive, Unit 15
Markham, ON
L3R 3K2

Tel: (905) 475-7755
Fax: (905) 475-7718
www.fishereng.com

Prepared for:
1000570027 Ontario Inc.
Project No. FH24-14065_V2
January 23, 2024
Updated September 20, 2024



Issued to: 1000570027 Ontario Inc.
17b Cosmo Rd,
Etobicoke, Ontario M8X 1Z3

Contact: Ryan Atkinson
ryan@atkinsonlaw.ca

Project Name: Hydrogeological Investigation for Proposed Development

Project Address: 900 Lakeshore Road West, Mississauga, ON., L5H 1H9

Project Number: FH24-14065_V2

Issued on: January 23, 2024; Updated September 20, 2024

A handwritten signature in black ink, appearing to read 'Clive Wiggan', with a horizontal line drawn through it.

Report Prepared by:

Clive Wiggan, PhD., PMP.,
Project Manager
clive@fishereng.com

A handwritten signature in blue ink, appearing to read 'Frank Fan', next to a circular professional seal. The seal contains the text 'LICENSED PROFESSIONAL ENGINEER', 'M. FAN', '100154673', and 'PROVINCE OF ONTARIO'.

Report Reviewed by:

Frank Fan, PEng.,
Geotechnical Engineer
frank@fishereng.com

with trace of roots/topsoil. Fill extended to approximate depths below prevailing grades/elevations as shown in Table 1.

Table 1: Fill Depths and Elevations

Borehole No.	BH1	BH2	BH3	BH4	BH5	TH1	TH2	BH101	BH102	BH103
Surface Elevation (m asl)	86.63	85.68	86.60	83.20	82.63	85.98	86.81	89.10	85.39	82.55
Depth of Borehole (m)	17.53	12.29	13.72	10.97	10.74	1.98	1.98	13.82	12.19	17.45
Elevation at Bottom of Borehole (m asl)	69.10	73.39	72.88	72.23	71.89	84.00	84.83	75.28	73.20	65.10
Depth of Fill (m)	1.37	1.37	1.37	1.52	1.17	1.52	1.52	1.91	3.66	1.67
Elevation at Bottom of Fill (m asl)	85.26	84.31	85.23	81.68	81.46	84.46	85.29	87.19	81.73	80.88
Depth to bedrock surface(m)	12.19	12.19	13.72	9.30	10.67	n/a	n/a	12.04	10.36	10.52
Elevation at surface of Bedrock (m asl)	74.44	73.49	72.88	73.90	71.96			77.06	75.03	72.03

Brown Sand/ Silty Sand – Layers of native, brown to grey, moist, compact to very dense sand/silty sand were found underlying the fill soils of BH1 to BH5 and BH101 extending to approximate depths of 2.59m (BH5) to 5.18m (BH101).

Grey Silt/Sandy Silt – The brown to grey silty sand layers were underlain by grey, moist, dense to very dense silt to sandy silt extending to depths of 5.18m in BH101 to 9.76m in BH3.

Grey Clayey Silt/Clayey Silt Till – Layers of grey clayey silt to clayey silt till, of variable thickness/depth (less than 1.12m thick in BH103 to 2.6m thick in BH4), and consistency (firm to very stiff), were encountered below the grey to brown silt to sandy silt. Moisture content of the clayey silt varied from 11.5% to 23.1% in the samples tested.

Grey Sandy Silt Till – Deposits of grey, moist, dense to very dense sandy silt till were encountered beneath the grey clayey silt of BH2, BH3, BH5, BH102 and BH103 extending to approximate depths of 8.84m (BH103) to 13.72m (BH3).



Grey Shale/Weathered Shale – Weathered shale bedrock was found underlying the grey clayey silt/clayey silt till of BH1, BH4 & BH101 and grey sandy silt till/silty sand of BH2, BH5, BH102 & BH103. Shale was found to be hard in consistency and dry within the depths explored. Rock coring carried out in BH1 and BH103 indicated that the upper 1.3m of shale is severely weathered.

RQD values of 85% to 100% below depth of 14.48m in BH1 and 12.79m in BH103 indicate very good to excellent quality of bedrock. Core samples retrieved from BH1 yielded compressive strength of 13 MPa & 21.2MPa at depths of 14m and 16.5m. One core sample from BH103 yielded compressive strength of 24.8MPa at depths of 15.85m below prevailing grade. Inferred bedrock surface elevation are shown in Table 1.

6. HYDROGEOLOGICAL STUDY

A hydrogeological study for the subject site was conducted based on the boreholes/wells' exploration, observation and site/laboratory tests. Groundwater details from the five (5) monitoring wells were used in the Hydrogeological Study. The monitoring wells were constructed with 3.05m (10') long, 51mm diameter PVC slotted screen pipes, with the bases at approximate depths below existing grade as shown in Appendix B. Clean silica sand packs were placed around each well screen which was isolated with bentonite extending to slightly below existing grade.

Standing water was observed in the open boreholes BH1, BH3 and BH5 at depths of 9.14m to 10.67m below prevailing grades (elevations of 72.12m to 77.49m asl) on completion of drilling while the other boreholes were observed to be dry. No caving in of soils was observed during drilling.

6.1 Hydrogeological Conditions

Review of the available surficial geological and hydrogeological information for the area shows that the site is underlain generally with Glacial Lake Deposits consisting predominantly of Lake Iroquois, shallow water deposits of sand and silty sand (Quaternary Geology, Toronto and Surrounding Area, Ontario Geological Survey Map 2204, 1998). Underlying bedrock is represented by shale interbedded siltstone, and minor limestone of the Georgian Bay Formation. Depth to bedrock in the area is generally less than 5m.

The subsoils and hydrogeological conditions were observed and recorded during both the Geotechnical and Hydrogeological Investigations. Based on the boreholes/wells' exploration, the saturated soil layers



on the site, below the fill material, are dominated by grey, sandy silt to clayey silt, with occasional layers of sand in some areas, underlain by shale at further depths.

All monitoring wells were purged/developed and allowed to fully recover prior to carrying out groundwater level measurements and sampling. Groundwater levels were monitored bi-weekly for three months to determine seasonal highwater levels. Measured groundwater depths and elevations are summarized in Table 2.

Table 2: Groundwater Depths and Elevations

Monitoring Wells		MW1	MW2	MW3	MW4	MW5	MW101	MW102	MW103
Surface Elevation, m asl		86.63	85.68	86.60	83.20	82.63	89.10	85.39	82.55
Depth of Well, m bgs		7.62	7.62	7.62	6.10	4.57	10.18	10.49	14.41
Elevation at well base, m asl		79.01	78.06	78.98	77.10	78.06	78.92	74.90	68.14
In open BH on completion	GW level, m bgs	9.14	dry	10.67	dry	10.51	dry	dry	dry
	GW Ele, m asl	77.49		75.93		72.12			
28-Nov-23	GW level, m bgs	3.17	3.96	4.41	2.42	3.21	n/a		
	GW Ele, m asl	83.46	81.72	82.19	80.78	79.42			
6-Dec-23	GW level, m bgs	2.96	3.89	4.18	2.16	3.11			
	GW Ele, m asl	83.67	81.79	82.42	81.04	79.52			
10-Dec-23	GW level, m bgs	3.36	4.53	4.70	2.66	3.79			
	GW Ele, m asl	83.27	81.15	81.90	80.54	78.84			
15-Jan-24	GW level, m bgs	3.39	4.58	4.79	2.61	3.84			
	GW Ele, m asl	83.24	81.10	81.81	80.59	78.79			
3-Apr-24	GW level, m bgs	3.37	4.05	4.10	2.35	3.65			
	GW Ele, m asl	83.26	81.63	82.50	80.85	78.98			
17-Apr-24	GW level, m bgs	3.35	3.86	3.91	2.31	3.54			
	GW Ele, m asl	83.28	81.82	82.69	80.89	79.09			



Monitoring Wells		MW1	MW2	MW3	MW4	MW5	MW101	MW102	MW103
Surface Elevation, m asl		86.63	85.68	86.60	83.20	82.63	89.10	85.39	82.55
Depth of Well, m bgs		7.62	7.62	7.62	6.10	4.57	10.18	10.49	14.41
8-May-24	GW level, m bgs	3.32	3.74	3.77	2.26	3.01			
	GW Ele, m asl	83.31	81.94	82.83	80.94	79.62			
22-May-24	GW level, m bgs	3.30	3.52	3.56	2.11	2.65			
	GW Ele, m asl	83.33	82.16	83.04	81.09	79.98			
5-Jun-24	GW level, m bgs	3.31	3.51	3.53	2.07	2.31			
	GW Ele, m asl	83.32	82.17	83.07	81.13	80.32			
19-Jun-24	GW level, m bgs	3.30	3.50	3.51	2.10	2.30			
	GW Ele, m asl	83.33	82.18	83.09	81.10	80.33			
29-Aug-24	GW level, m bgs	3.37	3.54	3.90	2.09	2.39			
	GW Ele, m asl	83.26	82.14	82.70	81.11	80.24			
9-Sep-24	GW level, m bgs	3.31	4.85	5.11	3.86	3.67	4.11	2.86	2.43
	GW Ele, m asl	83.32	80.83	81.49	79.34	78.96	84.99	82.53	80.12

Comments on Table 2:

The following general comments regarding groundwater conditions at the site are based on the groundwater level data and the Geotechnical Investigation:

- Static groundwater levels were measured at depths of 2.07m to 5.11m bgs (elevations vary from 78.79m to 84.99m asl).
- Groundwater flow is towards southeast with a gradient of approximately 4.5%.
- The nearest body of surface water is Lake Ontario located approximately 300m southeast of the site.
- The site is located in a developed residential/commercial neighbourhood, with water supply via municipal water system, and with no active domestic water wells in the area.
- Groundwater levels on the site are being monitored biweekly to determine seasonal highwater levels.



6.2 Hydraulic Conductivity K Modeling Results

Single Well Response Tests

Single well response tests (SWRT) were conducted in MW1, MW3 and MW4 on November 28, 2023 and in MW101, MW102 and MW103 on September 5, 2024. The upper water bearing soils consist mainly of layers of grey silt/sandy silt in some areas and were assumed to be unconfined, homogenous, isotropic and of uniform thickness. Monitoring well MW103 was screened in the upper region of shale. It was also assumed that the wells fully penetrated the water bearing layers. Data from the single well response tests were used to calculate the hydraulic conductivity values using Luthin's method.

Details of the hydraulic conductivity analyses are presented in Appendix C and summarized in Table 3.

Table 3: Summary of Single Well Response Tests and Hydraulic Conductivity Results

Test Wells	Well Surface Elevation (m asl)	Groundwater Depth (m)	Screen Elevation (m asl)	Variance of water head created (m)	30 Minutes/	Hydraulic Conductivity, K (Luthin's Method)	
					Recovery Percentage	m/s	m/day
MW1	86.63	3.17	79.01 – 82.10	3.16	31 mins / 42%	1.06E-06	0.092
MW3	86.60	5.31	78.98 – 86.60	2.51	31 mins / 10%	6.05E-07	0.052
MW4	83.20	3.20	77.10 – 80.15	3.27	31 mins / 15%	3.03E-07	0.026
MW101	89.10	4.09	78.92 – 81.97	5.96	31 mins / 3%	9.08E-08	0.008
MW102	85.39	2.85	74.90 – 77.95	7.545	31 mins / 6%	6.05E-08	0.005
MW103	82.55	2.40	68.14 – 71.19	14.155	31 mins / 92%	1.36E-07	0.012

6.3 Grain Size Analysis for Hydraulic Conductivity K

Representative samples from BH1, BH11, BH13, BH101 and BH103 were selected from depths associated with the footing/slab on grade locations for the underground levels or change in soil stratigraphy and submitted to Fisher Engineering laboratory for grain size distribution and hydrometer analyses. The results for the grain size distribution and hydrometer analyses are presented in Appendix C.

The effective D_{10} sizes obtained from the Grain Size Distribution Graph were used to estimate the hydraulic conductivity (K) of the overburden soils using Hazen's expression, Equation 1:

$$K=10^{-2} D_{10}^2 \text{ (m/s)}$$

Equation 1

The hydraulic conductivity values at various depths, based on grain size, are summarized in Table 4. The estimated k values are consistent with those obtained during the single well response tests.



Table 4: Hydraulic Conductivity Estimated from Grain Size Analyses

Location	Depth of soil sample (m)	Soil Classification	Estimated Hydraulic Conductivity (Hazen Number)	
			m/s	m/day
BH1	9.15 – 9.61	Silt, trace Clay, trace Sand	6.25×10^{-8}	0.0054
	10.68 – 11.13	Sandy Silt, some Clay, some Gravel	4.76×10^{-9}	0.00041
BH2	10.68 – 10.82	Clayey Silt and Sand, trace Gravel	4.23×10^{-9}	0.000365
BH3	10.68 – 11.13	Clayey Silt, trace Sand, trace Gravel	2.03×10^{-9}	0.000175
BH5	4.58 – 5.03	Silt, some Clay, trace Sand	3.24×10^{-8}	0.0028
BH101	4.58 – 5.03	Silt, some Sand, trace Clay	2.30×10^{-7}	0.02
BH101	7.63 – 8.08	Silt, some Sand, trace Clay	4.62×10^{-7}	0.04
BH101	9.15 – 9.46	Sandy Clayey Silt, trace Gravel	4.23×10^{-9}	0.00037
BH101	9.46 – 9.91	Sand and Silt, some Clay, trace Gravel	8.10×10^{-9}	0.0007
BH101	9.91 – 10.37	Sandy Silt, some Clay, some Gravel	8.10×10^{-9}	0.0007
BH101	10.68 – 11.13	Sandy Silt, some Clay, trace Gravel	7.23×10^{-9}	0.00062
BH103	4.58 – 5.03	Silt, trace Clay, trace Sand	1.60×10^{-7}	0.0138
BH103	7.63 – 8.08	Silt, some Sand, trace Clay, trace Gravel	3.97×10^{-7}	0.0343
BH103	9.15 – 9.61	Clayey Silt, some Sand, some Gravel	1.23×10^{-9}	0.00011
BH103	10.68 – 11.13	Silt & Sand, some Clay, trace Gravel	3.03×10^{-9}	0.000261
TH1	1.53 – 1.98	Silt and Sand, trace Clay, trace Gravel	5.93×10^{-7}	0.051
TH2	1.53 – 1.98	Clayey, Sandy Silt, some Gravel	1.23×10^{-7}	0.00011



7. CONSTRUCTION DEWATERING & PERMANENT DRAINAGE

7.1 Construction Dewatering

It was understood that the proposed development will have three underground levels. Based on the geotechnical engineering report and latest site drawings, conventional shallow footings would typically be located at depths of 9.8m (P3) to 12.4m (extended P3) below ground floor. It is expected however that footings will be socketed into the shale bedrock at various elevations. The following assumptions were made in estimating construction dewatering rates:

- a. Average grade: 85.22m asl.
- b. Lowest P3 basement floor elevation of 74.60m asl.
- c. Average footing elevation at 73.60m asl.
- d. Average groundwater level of 81.93m asl.
- e. Gross floor /excavation area of 2,300m².
- f. Average hydraulic conductivity 3.76 x 10⁻⁷m/s based on single well response tests.

Construction groundwater dewatering flowrate of **26.81m³/day (26,810 L/day)** was calculated for excavation of three underground levels as shown in Appendix F. Factored construction groundwater dewatering flowrate is **40.22 m³/day (40,220 L/day)** with FS=1.5.

Seasonal High Groundwater Levels

Groundwater levels were monitored over the period November 2023 to January 2024 and April to June 2024 with additional measurements taken in August and September 2024. The average groundwater level (81.93m asl) was used to calculate construction groundwater dewatering and permanent drainage rate.

Accounting for Accumulated Precipitation

Provisions should be made to pump accumulated water from the excavation areas during construction, particularly following a period of heavy rainfall. For example, 25mm rainfall in 24 hrs may result in accumulation of up to 53m³ in the excavated area dominated by silt/sandy silt/clayey silt with shale at greater depths. Some of this water is expected to pond based on the types of soils in the excavation area although some will be lost otherwise. A conservative accumulated volume of **15 m³/day** may be assumed. Accumulated precipitation may be stored on site for subsequent disposal to an MECP-licensed facility. If the water is to be discharged into the public sewer system, then an application for the discharge of private water will have to be made to the Region of Peel/City of Mississauga. The water quality, at the time of



the application, will need to be ascertained to ensure compliance with the Ontario Reg. Mun of Peel Sanitary Bylaw #53-2010 and Peel Storm Sewer By-law #53-201 (Apr 2011).

The maximum construction discharge rates, taking into consideration accumulated precipitation volumes, are:

Unfactored: **41.81 m³/day (41,810 L/day).**

Factored: **55.22 m³/day (55,220 L/day).**

7.2 Permanent Drainage

Total permanent groundwater discharge rate of **21.17 m³/day (21,170 L/day)** was estimated for the building with three underground parking levels. Factored discharge rates of **31.75 m³/day (31,750 L/day)** using a FS of 1.5 are applicable.

An application for permission to discharge to the municipal/regional sewer will be required unless the subsurface structure of the building is designed as watertight.

7.3 Permit to Take Water (PTTW) and EASR

As the calculated construction dewatering flowrate (including accumulated precipitation), for the building with three underground levels, is more than 50 m³/day, registration on the MECP Environmental Activity and Sector Registry (EASR) for Water Taking will be required. An application for permission to take water (PTTW) is not required for neither construction dewatering nor permanent drainage as the daily discharge rates are less than 400,000 and 50,000 litres respectively.

7.4 Groundwater Quality

The results of analyses for groundwater quality under the Ontario Reg. Mun of Peel Sanitary Bylaw #53-2010 and Peel Storm Sewer By-law #53-201 (Apr 2011) show compliance with all parameters except as listed in Table 5.

Table 5: Results from Sewer Use Bylaw tests

Parameters	Guide Limits		Results
	Table 1 (Sanitary Sewer)	Table 2 (Storm Sewer)	MW3
Total Suspended Solids, mg/L	350	15	21.4
Manganese, mg/L	5	0.05	0.111



Based on the results, presented in Table 5, *pre-treatment of the groundwater will be required prior to discharging to the storm sewer system*. The groundwater, in its present form, may be discharged to the public sanitary sewer system without treatment.

It should be noted however that testing of groundwater at the depths observed during the investigation would not be representative of the water that might accumulate during a high rainfall event. Any accumulation of precipitation occurring in the excavation during construction, that may require offsite discharge, will have to be tested at the time of the event to determine the quality of water for discharge.

7.5 Dewatering Influence Zone

The estimated construction dewatering quantities are based on the worst-case groundwater conditions that might occur during the construction period. Calculated dewatering influence zones are expected to be up to 11.44m from the edge of the dewatering point for the building with three underground levels.

Based on the field investigation, the soils to the proposed excavation depths are dominated by silt/sandy silt to clayey silt with shale at further depths. Based on the amount of groundwater for construction dewatering and the flowrates encountered during the field work, an active dewatering system will not be required. Consequently, dewatering influence zones will be less than calculated.

Notwithstanding the preceding, it is recommended that a pre-construction survey of adjacent structures/roads be carried out prior to dewatering/shoring construction stage. Potential adverse impact on adjacent structures, due to dewatering/shoring construction, must be assessed, quantified and reviewed during construction.

7.6 Hydrogeological Impact

The calculated dewatering influence zone will not extend beyond the property boundaries. Review of the soils show that the saturated soils for dewatering are dominated by compact to very dense silt to sandy silt till and stiff to very stiff clayey silt, with shale at further depths, in which significant groundwater induced settlement is not expected. A shoring system may be required if sufficient space is not available for safe slopes to be constructed. Dewatering, where required, will take place within the shoring enclosure. It is therefore determined that there will not be any negative impact to the natural environment, City of Mississauga/ Peel Region Sewer works nor surrounding properties due to construction dewatering, assuming the same soil profile in the vicinity of the subject site.



8. DISCUSSION

- Hydraulic conductivity values (k) calculated from onsite single well response tests are 6.05×10^{-8} to 1.05×10^{-6} m/s (0.005 and 0.092 m/day) in the monitoring wells covering three underground levels. These are representative of the water bearing soils consisting of silt/sandy silt/clayey silt/sand and shale at the expected excavation depths.
- Total construction groundwater dewatering and permanent drainage flowrates of 26.81 m³/day and 21.17 m³/day were estimated for the proposed building with three underground levels. An additional discharge volume of 15m³/day of accumulated precipitation should be accounted for during construction dewatering.
- Factors of safety of 1.5 should be applied to both construction groundwater dewatering and permanent drainage rates.
- Registration on the MECP's EASR Website for water taking will be required for construction dewatering. An application for PTTW is not required.
- An active construction dewatering system may not be required for the construction of the three underground levels.
- The groundwater quality determined by laboratory analyses revealed exceedance of storm limits for suspended solids and manganese and consequently pre-treatment of the water will be required before it can be discharged in the public storm sewer. The groundwater, in its present form, may be discharged to the sanitary sewer without treatment.
- It should be noted that if it is intended that any accumulated water, following periods of heavy rainfall, be discharged into the public sewer, then a permit to discharge would be required along with laboratory analyses to ensure compliance with City of Mississauga/Peel Region Sewer Use Bylaws.
- Construction groundwater dewatering and permanent drainage rates, given in the preceding, are based on the current site /foundation plans provided to Fisher during the investigation and common practice and our reasonable assumption for the underground level grades. The calculations may be subject to further modification when final building details and, or footing/foundation depth/elevations become available.



9. LIMITATIONS

This report is limited in scope to those items specifically referenced in the text. The discussions and recommendations presented in this report are intended only as guidance for the named client, design engineers and those directly associated with the implementation and monitoring of the project. The information on which these recommendations are based is subject to confirmation by engineering personnel at the time of construction. Localized variations in the subsoil conditions may be present between and beyond the boreholes and should be verified during construction.

As more specific subsurface information becomes available during excavations on the Site, this report should be updated. Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soil and the potential reuse of these soils on/off Site. Contractors should draw their own conclusions as to how the near surface and subsurface conditions may affect them.





ENGINEERING



LABORATORIES



WATER BALANCE ANALYSIS



**PROPOSED DEVELOPMENT,
900 LAKESHORE ROAD WEST,
MISSISSAUGA, ONTARIO, L5H 1H9**

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Prepared for:

1000570027 Ontario Inc.

Project No. FH 23-13331

October 9, 2025

1.0 INTRODUCTION

Fisher Engineering (Fisher) was commissioned by 1000570027 to conduct a Water Balance Analysis in support of the proposed re-development of the property located at 900 Lakeshore Road West, Ontario, herein referred to as the “Site”.

1.1 Objective

The purpose of the Water Balance Analysis was to assess the impact of the proposed development on the hydrologic characteristics of the Site by evaluating the changes in runoff and infiltration volumes that may be associated with the proposed development.

1.2 Scope of Work

The water balance analysis comprised:

- A review of the Site geology, surface water and groundwater conditions from previous investigations,
- Review of historical data relating to precipitation and temperature from the Water Balance Tool provided by the TRCA,
- Assessment of runoff, infiltration and evapotranspiration from assumed pre-development and post-development conditions, and
- Preparation of a summary report with recommendations.

2.0 SITE AND PROJECT DESCRIPTIONS

2.1 Site Location

The Site is located at the south side of Lakeshore Road West, approximately 45m west of Ibar Way in Mississauga, Ontario. The property has an approximate area of 4,883m² and is bounded by Lakeshore Road West to the north beyond which are houses; houses to the west and south, and undeveloped land to the east, beyond which are dwellings. Site and Location Plans are presented in Appendix A. At the time of the investigation the property was occupied by a house and was mostly covered by grass/landscaped areas with occasional trees along the boundary.

2.2 Hydrological Conditions

According to the approved Source Protection Plan (June 16, 2025), the Site is not located in a Wellhead Protection Area for Quantity but is in an area of Intake Protection Zone 2 (IPZ-2) and highly vulnerable



aquifer – indicating that this is a ‘Moderate Risk Level area’. IPZ-2 are areas where it includes the on and offshore areas where flowing water and any pollution would reach the intake pipe within 2 hours. Highly Vulnerable aquifers are areas in which subsurface, geologic formations that are sources of drinking water would relatively easily be impacted by the release of pollutants on the ground surface.

The Site appears is within the CVC boundary, as shown on the map of regulated areas in Appendix A. The area has not been identified as a significant groundwater recharge area. However, the Site is adjacent to an area identified as a significant groundwater recharge area.

2.4 Other Investigations

Concurrent to the Water Balance Analysis, Fisher Engineering Limited conducted a Geotechnical and Hydrogeological Investigation and submitted reports under Project No. FG 23-13330 and FH23-13329 dated December 19, 2023. Five (5) boreholes were initially advanced to depths from 10.74m to 17.53m bgs. The subsurface investigations showed that the subsurface soils comprise primarily of fill to depth of up to 1.52m underlain by brown sand/silty sand to depths of generally 2.59m to 4.57m bgs. Grey silt/sandy silt was observed beneath the brown sand/silty sand layer to depths from 5.49m to 9.76m. Grey clayey silt was identified in some boreholes beneath the grey silt/sandy silt with a thickness of 1.2m to 2.6m. Grey sandy silt till was observed beneath the grey clayey silt to depths from 10.67m to 13.72m. Grey shale/weathered shale was encountered beneath the grey sandy silt till and grey clayey silt to termination depth of 13.72m in one borehole. Further investigation including coring of rock was carried out subsequent to this report. The soils were reportedly moist to dry during drilling and static groundwater measured at depths between 2.16m to 4.85m bgs.

3.0 WATER BALANCE ANALYSIS

3.1 Proposed Development

The proposed development consists of the demolition of the existing building and construction of a nine (9) storey residential building with three underground parking levels. Site and location plan along with Pre- and Post-development Site Plans are presented in Appendix A.

3.2 Climate and Precipitation

Site-specific climatic data from the Credit Valley Conservation Authority (CVC) - CVSPA Water Balance Tool, covering the period 2009 to 2013, were used to determine the impact of the proposed development on the hydrological regime at the Site. The CVC Water Balance Tool averages Precipitation, Evapotranspiration, Runoff and Recharge (Infiltration) for a specific location based on outputs from the



numerical models developed under the Drinking Water Source Protection Program. Average annual CVSPA data for 2009 to 2013 are presented in Table 1.

Table 1. Annual climate data from CVSPA Water Balance Tool

Location			Period Covered	Precipitation (P) mm/yr	Evapotranspiration (ET)	Runoff (R) mm/yr	Recharge (I) mm/yr
Longitude	Latitude	Elevation, m asl					
-79.602543	43.535221	89.2	2009 to 2013	778	376	98	304

3.3 Site-Level Water Balance

A Site scale water balance analysis was conducted following the Thornthwaite and Mather (1957) water balance method as outlined in Chapter 3 of the MOECC's SWM Planning and Design Manual (MOECC, 2003). The method accounts for water in the hydrological cycle. Specifically, precipitation (**P**) occurs as rain and snow and can run off towards lakes and streams (**R**), infiltrate to the groundwater table (**I**) or evaporate from surface water and vegetation (**ET**). When long-term average values of **P**, **R**, **I** and **ET** are evaluated, there is negligible change to groundwater storage (**ΔS**).

The annual water budget can therefore be stated as:

$$P = ET + R + I + \Delta S \quad \text{Equation 1}$$

Where:

- P = precipitation in mm/year
- ET = evapotranspiration in mm/year
- R = runoff in mm/year
- I = infiltration in mm/year and
- ΔS = change in groundwater storage in mm/year (taken as zero)

3.4 Precipitation, Evapotranspiration, Infiltration and Runoff

The average annual precipitation for the Site area using the CVSPA data is 778 mm/year with evapotranspiration of 376 mm/year giving a water surplus of $778 - 376 = 402$ mm/year. This surplus makes up the infiltration and runoff components of the water budget and is consistent with the sum of the runoff and recharge ($304 + 98 = 402$ mm/year) from the water balance tool.



The infiltration rate (which can be broadly referred to as the groundwater recharge) at the Site is however expected to vary based on several factors as considered in the infiltration model. The calculated infiltration and runoff volumetric rates in the pre-development and post-development stages are presented in the water balance calculations at Appendix C and are discussed below.

3.4.1 Pre-development

Based on the water balance analysis of the pre-development conditions, infiltration and runoff comprised approximately **30.6%** and **27.1%** respectively of the total precipitation.

3.4.2 Post-development without Mitigation Methods

The proposed re-development, without the implementation of mitigation methods, is expected to cause a reduction in infiltration as a percentage of total precipitation to **16.2%**. Total runoff is expected to increase to **52.1%** of total precipitation before any mitigation measures are applied.

Attempts should therefore be made to implement suitable mitigation measures, and or enhance stormwater management plans, to reduce the post-development impact on the water recharge. These measures should be aimed at reducing the worse case of **549 m³/yr** development induced infiltration deficit.

3.4.3 Post-development with Mitigation Methods

Measures are proposed to mitigate against development-induced impact on the wetland. These measures include, but are not limited to:

- Post development surface water flow will be directed to the wetland via a stormwater management tank resulting in a net surplus in drainage to the wetland relative to pre-development conditions.
- Some rainwater, to be collected from approximately 1,020m² rooftop, will be conveyed to infiltration galleries proposed at the rear of the property.
- The proposed infiltration galleries will be used to mitigate against the development-induced infiltration deficit of approximately 549 m³/year.

4.0 DISCUSSION AND RECOMMENDATIONS

The proposed construction of nine storey building, without mitigation methods, will impact the hydrologic conditions of the Site mainly in the form of **increased runoff and reduced infiltration** and



evapotranspiration. The Site is in a Moderate Risk Level area. It is proposed that post development surface water flow be directed to the wetland via storm water management tanks resulting in net surplus in drainage. Rainwater collected from the roof tops will be conveyed to infiltration galleries in order to mitigate against the development induced infiltration deficiency of 549 m³/year. Comparison of LID SWM practices are summarized in Appendix D.

5.0 CLOSURE

We trust that the information contained in this report is complete within our terms of reference. If you have any questions or require further information, please do not hesitate to contact our office.

Sincerely,

Fisher Engineering Ltd.



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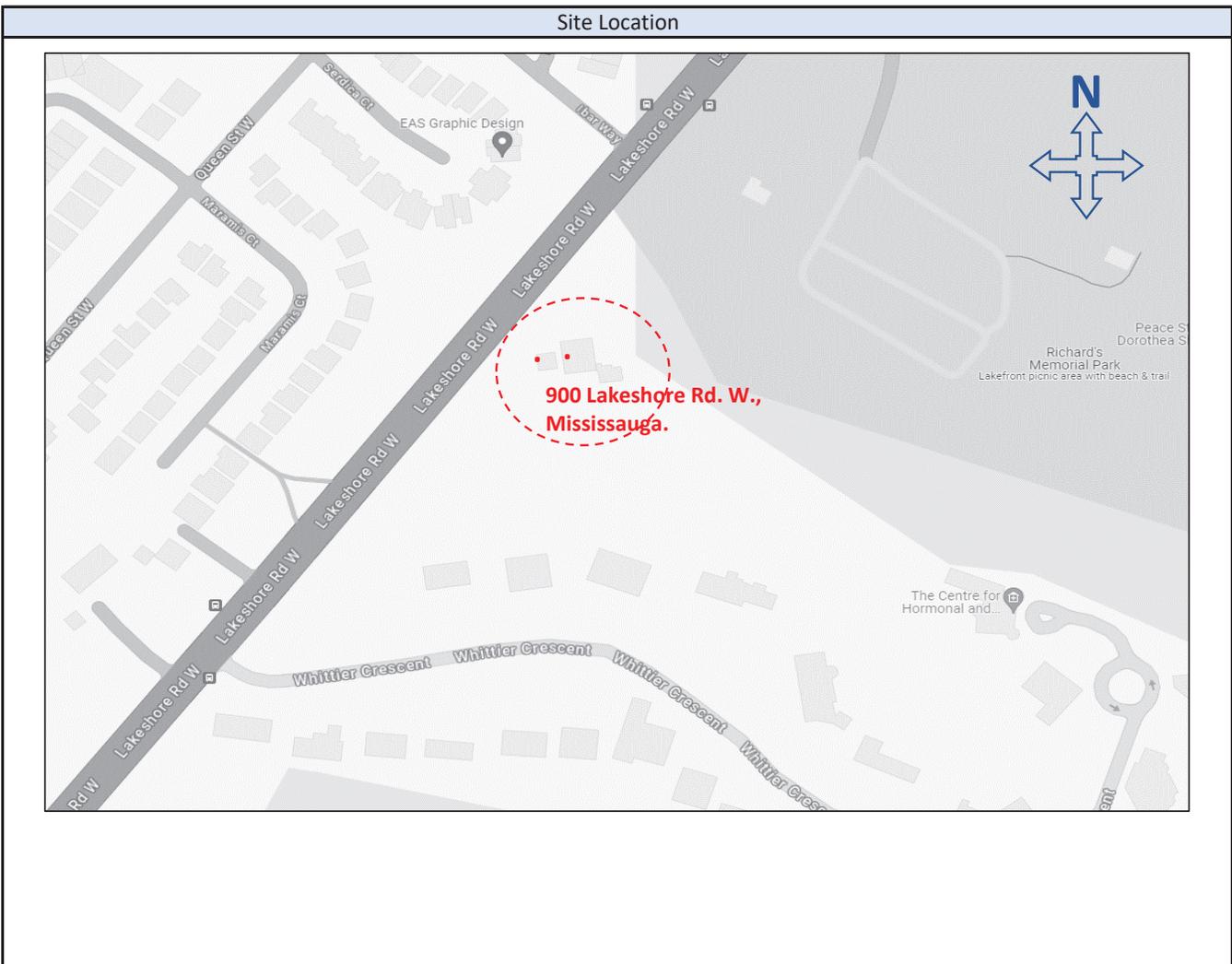
General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Attendants			
	Name	Title	Contact Info.
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Lithos Inspector	Surabhi Suresh	Project Coordinator	647-394-1527
Lithos Inspector	Pradeep Oletti	Construction Inspector	905-609-3435
Lithos Inspector	Arfa Ahmad	Project Coordinator	613-290-2923

Weather Condition			
<input checked="" type="checkbox"/> Sunny	<input type="checkbox"/> Cold	<input type="checkbox"/> Light Rain	<input type="checkbox"/> Windy
<input type="checkbox"/> Partly Cloudy	<input checked="" type="checkbox"/> Cool	<input type="checkbox"/> Heavy Rain	<input type="checkbox"/> Foggy
<input type="checkbox"/> Overcast	<input type="checkbox"/> Warm	<input type="checkbox"/> Light Snow	
Temperature : 3°C	<input type="checkbox"/> Hot	<input type="checkbox"/> Heavy Snow	

Existing Facilities at Project/Site

The subject property is currently occupied by one 1-storey building, one 1.5-story dwelling, one barn and a pool.



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Summary of Findings

1. Two water valves are located on the North side of the buildings.
2. Storm runoff from Areas A, B, C, D, and F at 900 Lakeshore Road West is collected by the creek along North Crescent.
3. Storm runoff from Area E at 900 Lakeshore Road West is directed towards the catch basins along Lakeshore Road West.
4. Sanitary Discharge from Area A (Existing building) at 900 Lakeshore Road West, is discharging at the Septic Tank located on the East side of the property.
5. There is no existing Storm and Sanitary Sewer along Lakeshore Road West from Ibar Way to Whittier Crescent.



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Existing Infrastructure at the area of investigation



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Area A

This area is occupied by one of the existing buildings at 900 Lakeshore Road West.

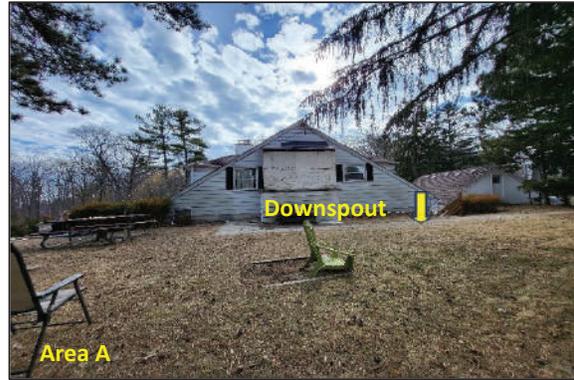
The existing building has a flat and pitched roofs with different elevations, and the storm runoff within this area is captured by the existing roof scuppers, where one part flows free overland and the other part is directed to the ground via an existing network of storm drains within the building.

There is no existing Storm Sewer along Lakeshore Road West from Ibar Way to Whittier Crescent on both sides of Lakeshore Road West.

All the Storm runoff from Area A at 900 Lakeshore Road West flows towards Area F and is collected by the creek along North Crescent.



Area A



Area A



Area A



Area A

General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

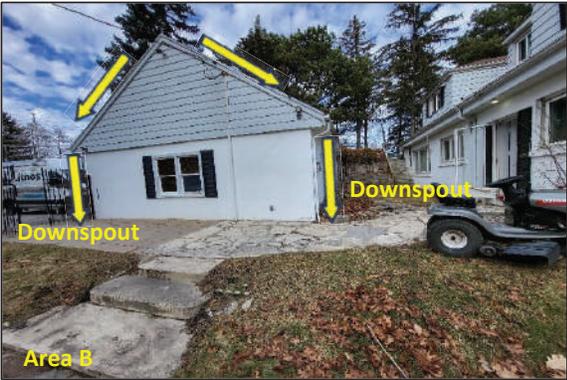
Area B

This area is occupied by one of the existing buildings at 900 Lakeshore Road West.

The existing building has a sloped roof, and the storm runoff within this area is captured by the existing roof scuppers and is directed to the ground via the existing network of storm drains within the building.

There is no existing Storm Sewer along Lakeshore Road West from Ibar Way to Whittier Crescent on both sides of Lakeshore Road West.

All the Storm runoff from Area A at 900 Lakeshore Road West flows towards Area F and is collected by the creek along North Crescent.



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Area C

This area is occupied by the existing barn at 900 Lakeshore Road West.

The existing building has a sloped roof, and the storm runoff within this area is captured by the existing roof scuppers and is directed to the ground via the existing network of storm drains within the building.

There is no existing Storm Sewer along Lakeshore Road West from Ibar Way to Whittier Crescent on both sides of Lakeshore Road West.

All the Storm runoff from Area A at 900 Lakeshore Road West flows towards Area F and is collected by the creek along North Crescent.



Area C



Area C



Area C



Area C

General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Area D

This area consists of a concrete pool.

Storm runoff within Area D flows overland and any excess runoff is directed towards the South of Dundas West, and is collected by by the creek along North Crescent.



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Area E

This area consists of stone steps, trees, and an unpaved grass-filled area along Lakeshore Road West, with an overall slope towards Lakeshore Road West.

Storm runoff within the Area flows overland and any excess runoff is directed toward the catch basins along Lakeshore Road West.



General Information	
Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Area F

This area consists of concrete steps, stone pavement, trees, and an unpaved grass-filled area. Storm runoff within Area F flows overland and any excess runoff is directed towards the South of Dundas West and North Crescent, and is collected by the creek along North Crescent.



Area F



Area F



Area F



Area F



Area F



Area F

General Information

Date: March 8, 2024	Report No. : R24-03-08-01
Project No. : PUD23-058	Address: 900 Lakeshore Road West
Owner : 1000570027 Ontario Inc.	Region/Municipality: City of Mississauga

Investigation Details

Dye Test #1

In order to identify the sanitary discharge pattern within area A, a Dye test was conducted on the existing sanitary network within the property at 900 Lakeshore Road West.

The dye was discharged into one of the sanitary sinks and the dye was observed at Septic Tank.

The result of this Dye Test confirmed that the sanitary discharge in the existing building at 900 Lakeshore Road West is discharging at the Septic Tank.



Sanitary sink before dye test



Sanitary sink after dye test



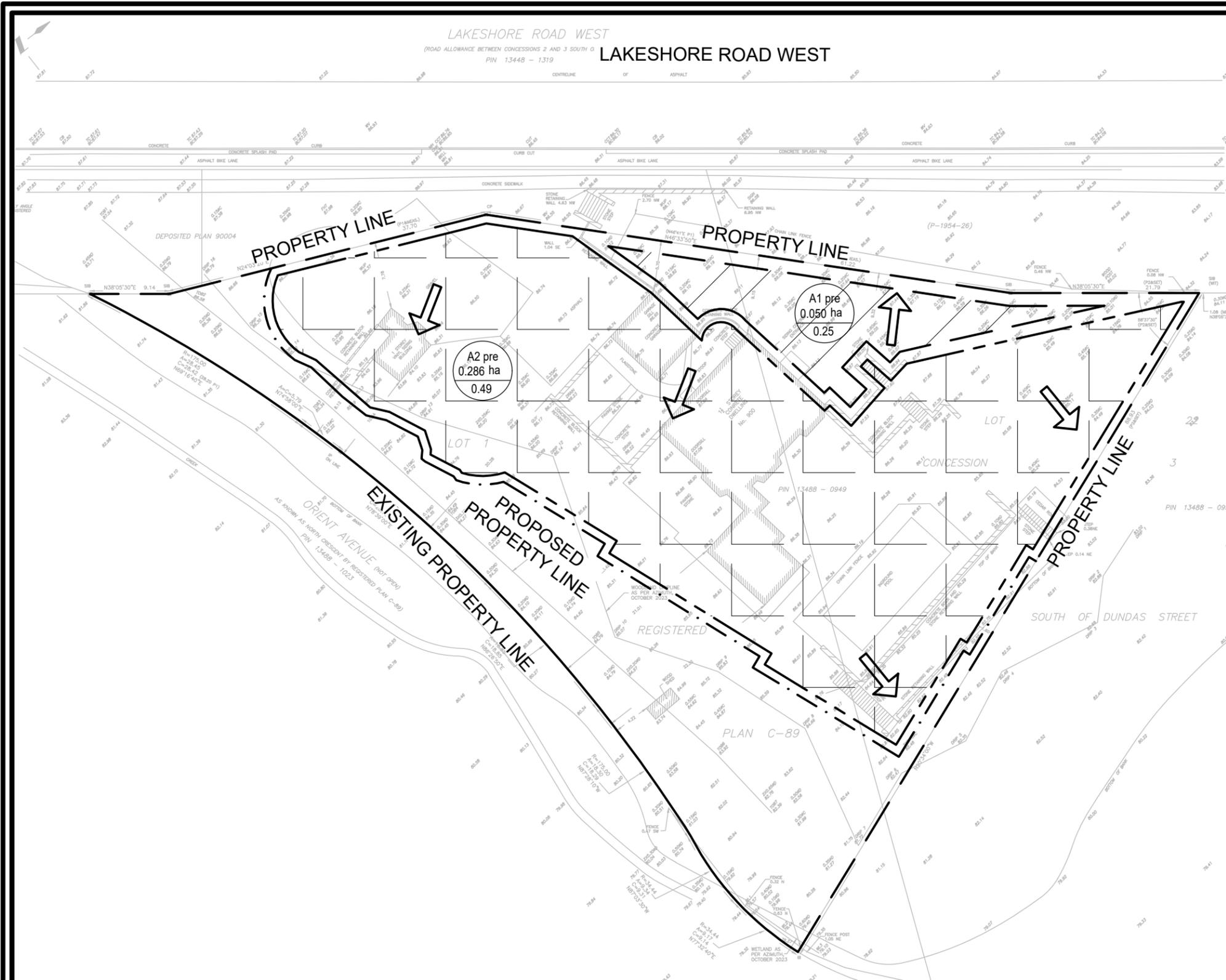
Septic Tank before dye test



Septic Tank after dye test

Appendix C

Storm Analysis



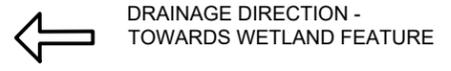
DRAINAGE AREA	LEGEND	AREA (ha)
A1 PRE		0.050
A2 PRE		0.286

RUN-OFF COEFFICIENTS					
DRAINAGE AREA	LAND USE	AREA (ha)	INITIAL COEFFICIENT	ACTUAL COEFFICIENT	DESIGN COEFFICIENT
A1 PRE (TOWARDS LAKESHORE ROAD WEST)	LANDSCAPE	0.050	0.25	0.25	0.25
	HARDSCAPE	0.000	0.90		
A2 PRE (TOWARDS WETLAND FEATURE)	LANDSCAPE	0.178	0.25	0.49	0.49
	HARDSCAPE	0.108	0.90		



LEGEND

- STORM DRAINAGE AREA NUMBER
- DRAINAGE AREA (ha)
- COMPOSITE RUNOFF COEFFICIENT
- PRE-DEVELOPMENT STORM DRAINAGE AREA
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE



PRE-DEVELOPMENT
STORM DRAINAGE AREA PLAN
RESIDENTIAL-USE DEVELOPMENT
900 LAKESHORE ROAD WEST
MISSISSAUGA, ONTARIO

150 Bermondsy Road, North York, Ontario M4A 1Y1

DATE: MARCH 2026 PROJECT No: UD23-058
SCALE: N.T.S. FIGURE No: DAP1



Prepared By: George Karagiannidis P.E., M.A.Sc.
 Reviewed by: Dimitra Savaoglou, P.Eng., M.A.Sc.

Rational Method
Pre-Development Flow Calculation

900 Lakeshore Road West
 File No. UD23-058
 City of Mississauga
 Date: March 2026

Input Parameters

Area Number	Area (ha)	Actual "C"	Design "C"	Tc (min.)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.25	15
A2 pre (Towards Wetland Feature)	0.286	0.49	0.49	15

$$Q = 0.0028 C I A$$

$$I = \frac{a}{(t + c)^b}$$

Rational Method Calculation for the City of Mississauga

Event 2 yr
 IDF Data Set Region of Peel
 a = 610
 b = 0.7800
 c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15	59.9	0.002	2.1
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15	59.9	0.024	23.5

Event 5 yr
 IDF Data Set Region of Peel
 a = 820
 b = 0.7800
 c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15.0	80.5	0.003	2.8
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15.0	80.5	0.032	31.6

Event 10 yr
 IDF Data Set Region of Peel
 a = 1010
 b = 0.7800
 c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15	99.2	0.003	3.4
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15	99.2	0.039	38.9

Event 25 yr
 IDF Data Set Region of Peel
 a = 1160
 b = 0.7800
 c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15	113.9	0.004	4.0
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15	113.9	0.045	44.7

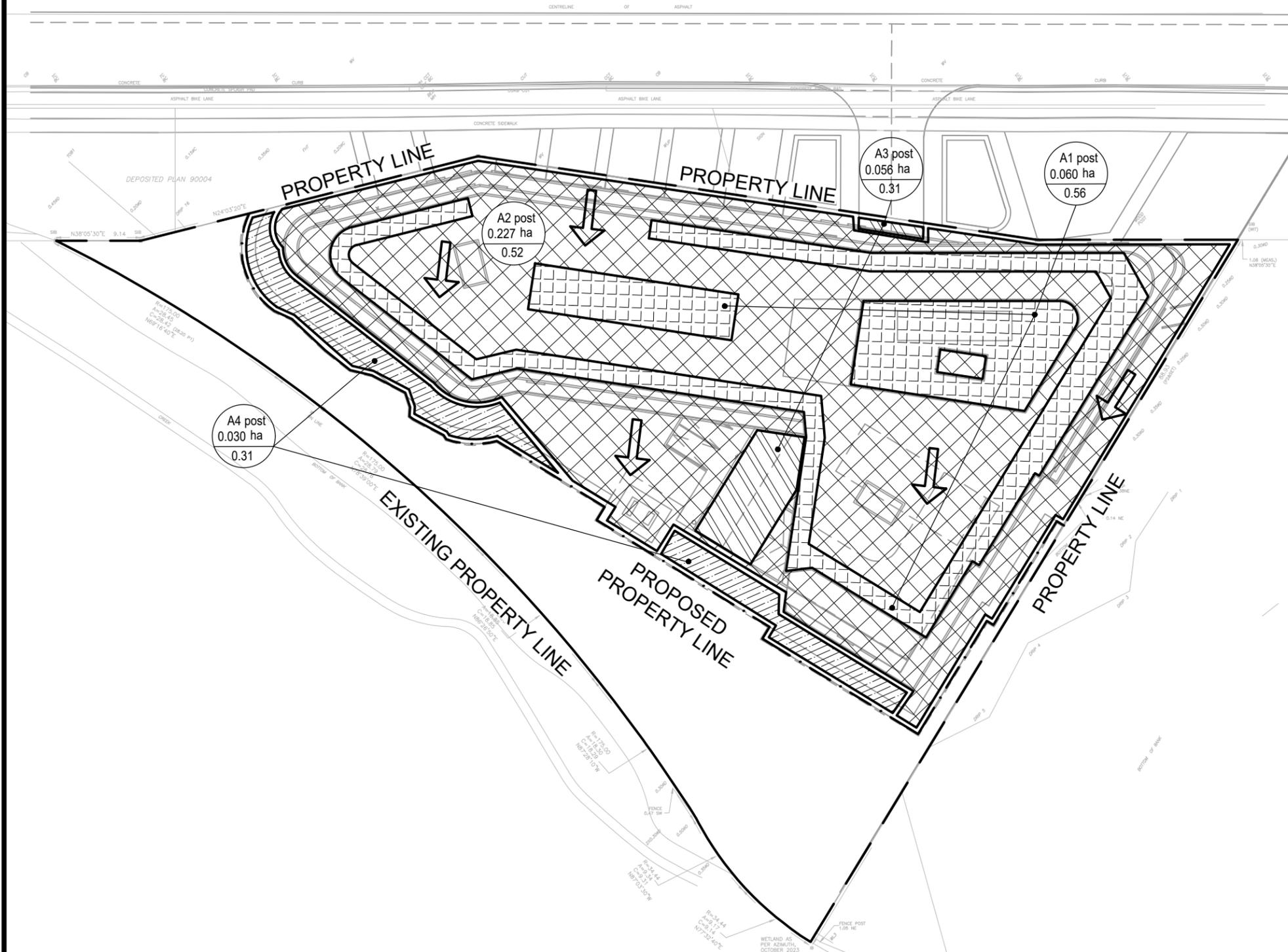
Event 50 yr
 IDF Data Set Region of Peel
 a = 1300
 b = 0.7800
 c = 4.70

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15	127.1	0.004	4.4
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15	127.1	0.050	49.9

Event 100 yr
 IDF Data Set Region of Peel
 a = 1450
 b = 0.7800
 c = 4.90

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Towards Lakeshore Road West)	0.050	0.25	0.01	15	140.7	0.005	4.9
A2 pre (Towards Wetland Feature)	0.286	0.49	0.14	15	140.7	0.055	55.3

LAKE SHORE ROAD WEST
(R/OA)



RUN-OFF COEFFICIENTS					
DRAINAGE AREA	LEGEND	LAND USE	AREA (ha)	INITIAL COEFFICIENT	COMPOSITE COEFFICIENT
A1 POST (GREEN ROOF CONTROLLED IN UNDERGROUND STORAGE TANK)		LANDSCAPE	0.060	0.25	0.56
		HARDSCAPE	0.000	0.90	
A2 POST (ROOFTOP/TERRACES/ LANDSCAPE HARDSCAPE CONTROLLED IN UNDERGROUND STORAGE TANK)		LANDSCAPE	0.168	0.25	0.52
		HARDSCAPE	0.059	0.90	
A3 POST (DRIVEWAY AREA CONTROLLED IN UNDERGROUND STORAGE TANK)		LANDSCAPE	0.000	0.25	1.00
		HARDSCAPE	0.056	0.90	
A4 POST (UNCONTROLLED AREA TOWARDS WETLAND FEATURE)		LANDSCAPE	0.030	0.25	0.31
		HARDSCAPE	0.000	0.90	



LEGEND

- STORM DRAINAGE AREA NUMBER
- DRAINAGE AREA (ha)
- COMPOSITE RUNOFF COEFFICIENT
- POST-DEVELOPMENT STORM DRAINAGE AREA
- PROPERTY LINE
- PROPOSED PROPERTY LINE
- DRAINAGE DIRECTION - TOWARDS WETLAND FEATURE

POST-DEVELOPMENT
STORM DRAINAGE AREA PLAN
RESIDENTIAL-USE DEVELOPMENT
900 LAKESHORE ROAD WEST
MISSISSAUGA, ONTARIO



Modified Rational Method - Two Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

2-Year Design Storm		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank			
a = 610		Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces / Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3			
b = 0.78		Area (A1) = 0.060 ha C = 0.45 AC1 = 0.03 Tc = 15.0 min Time Increment = 5.0 min Max Release Rate = 4.5 L/s		Area (A2) = 0.227 ha C = 0.42 AC2 = 0.09 Tc = 15.0 min Time Increment = 5.0 min Max Release Rate = 15.8 L/s		Area (A3) = 0.019 ha C = 0.90 AC3 = 0.02 Tc = 15.0 min Time Increment = 5.0 min Max Release Rate = 2.8 L/s		Area (A4) = 0.030 ha C = 0.31 AC4 = 0.01 Tc = 15.0 min Time Increment = 5.0 min Max Release Rate = 1.6 L/s		Design Controlled Release Rate (130mm Orifice Plate) = 9.7 L/s Max. Storage Tank Size = 19.5 m ³ Storage Tank footprint Area = 100.6 m ²			
c = 4.60				Land Use Area (ha) Coefficient		Land Use Area (ha) Coefficient		Land Use Area (ha) Coefficient		Total Site Area			
l = a / (c + t) ^{0.5}				Landscape 0.168 0.25 Hardscape 0.059 0.90 Total 0.227 0.42		Landscape 0.000 0.25 Hardscape 0.019 0.90 Total 0.019 0.90		Landscape 0.030 0.25 Hardscape 0.000 0.90 Total 0.030 0.25		2-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 23.5 L/s Uncontrolled Flow towards Wetland Feature (A4 Post) = 1.6 L/s Controlled Site Release Rate = 9.7 L/s Total Site Release Rate towards Wetland Feature = 11.3 L/s			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)
15.0	59.9	0.004	4.04	0.016	14.20	0.003	10.01	0.002	1.42	28.26	8.71	19.55	0.19
20.0	50.2	0.004	4.51	0.013	15.86	0.002	7.02	0.001	1.58	27.40	11.61	15.79	0.16
25.0	43.4	0.003	4.89	0.011	17.16	0.002	5.26	0.001	1.71	27.31	14.52	12.79	0.13
30.0	38.4	0.003	5.19	0.010	18.24	0.002	4.12	0.001	1.82	27.55	17.42	10.13	0.10
35.0	34.6	0.003	5.45	0.009	19.15	0.002	3.34	0.001	1.91	27.94	20.32	7.62	0.08
40.0	31.5	0.002	5.68	0.008	19.95	0.001	2.78	0.001	1.99	28.40	23.23	5.17	0.05
45.0	29.0	0.002	5.88	0.008	20.65	0.001	2.35	0.001	2.06	28.89	26.13	2.75	0.03
50.0	26.9	0.002	6.06	0.007	21.29	0.001	2.02	0.001	2.13	29.38	29.03	0.34	0.00
55.0	25.2	0.002	6.23	0.007	21.88	0.001	1.77	0.001	2.18	29.87	31.94	0.00	0.00
60.0	23.6	0.002	6.38	0.006	22.41	0.001	1.56	0.001	2.24	30.35	34.84	0.00	0.00
65.0	22.3	0.002	6.52	0.006	22.91	0.001	1.39	0.001	2.29	30.81	37.75	0.00	0.00
70.0	21.1	0.002	6.65	0.006	23.37	0.001	1.24	0.001	2.33	31.26	40.65	0.00	0.00
75.0	20.1	0.002	6.77	0.005	23.80	0.001	1.12	0.001	2.38	31.70	43.55	0.00	0.00
80.0	19.1	0.001	6.89	0.005	24.21	0.001	1.02	0.001	2.42	32.13	46.46	0.00	0.00
85.0	18.3	0.001	7.00	0.005	24.60	0.001	0.93	0.000	2.46	32.53	49.36	0.00	0.00
90.0	17.5	0.001	7.11	0.005	24.96	0.001	0.86	0.000	2.49	32.93	52.26	0.00	0.00
95.0	16.9	0.001	7.20	0.004	25.31	0.001	0.79	0.000	2.53	33.31	55.17	0.00	0.00
100.0	16.2	0.001	7.30	0.004	25.65	0.001	0.73	0.000	2.56	33.68	58.07	0.00	0.00
105.0	15.6	0.001	7.39	0.004	25.97	0.001	0.68	0.000	2.59	34.04	60.97	0.00	0.00
110.0	15.1	0.001	7.48	0.004	26.27	0.001	0.64	0.000	2.62	34.39	63.88	0.00	0.00
115.0	14.6	0.001	7.56	0.004	26.57	0.001	0.60	0.000	2.65	34.72	66.78	0.00	0.00
120.0	14.2	0.001	7.64	0.004	26.85	0.001	0.56	0.000	2.68	35.05	69.68	0.00	0.00
125.0	13.7	0.001	7.72	0.004	27.12	0.001	0.53	0.000	2.71	35.37	72.59	0.00	0.00
130.0	13.3	0.001	7.80	0.004	27.39	0.001	0.50	0.000	2.74	35.68	75.49	0.00	0.00
135.0	13.0	0.001	7.87	0.003	27.64	0.001	0.47	0.000	2.76	35.98	78.39	0.00	0.00
140.0	12.6	0.001	7.94	0.003	27.89	0.001	0.44	0.000	2.79	36.27	81.30	0.00	0.00
145.0	12.3	0.001	8.01	0.003	28.13	0.001	0.42	0.000	2.81	36.56	84.20	0.00	0.00
150.0	12.0	0.001	8.07	0.003	28.37	0.001	0.40	0.000	2.83	36.84	87.10	0.00	0.00
155.0	11.7	0.001	8.14	0.003	28.59	0.001	0.38	0.000	2.86	37.11	90.01	0.00	0.00
160.0	11.4	0.001	8.20	0.003	28.81	0.001	0.36	0.000	2.88	37.38	92.91	0.00	0.00
165.0	11.1	0.001	8.26	0.003	29.03	0.001	0.35	0.000	2.90	37.64	95.81	0.00	0.00
170.0	10.9	0.001	8.32	0.003	29.24	0.001	0.33	0.000	2.92	37.89	98.72	0.00	0.00
175.0	10.6	0.001	8.38	0.003	29.44	0.000	0.32	0.000	2.94	38.14	101.62	0.00	0.00
180.0	10.4	0.001	8.44	0.003	29.64	0.000	0.30	0.000	2.96	38.38	104.53	0.00	0.00
185.0	10.2	0.001	8.49	0.003	29.84	0.000	0.29	0.000	2.98	38.62	107.43	0.00	0.00
190.0	10.0	0.001	8.55	0.003	30.03	0.000	0.28	0.000	3.00	38.85	110.33	0.00	0.00
195.0	9.8	0.001	8.60	0.003	30.21	0.000	0.27	0.000	3.02	39.08	113.24	0.00	0.00
200.0	9.6	0.001	8.65	0.003	30.40	0.000	0.26	0.000	3.04	39.30	116.14	0.00	0.00
205.0	9.4	0.001	8.70	0.002	30.57	0.000	0.25	0.000	3.05	39.52	119.04	0.00	0.00
210.0	9.3	0.001	8.75	0.002	30.75	0.000	0.24	0.000	3.07	39.74	121.95	0.00	0.00
215.0	9.1	0.001	8.80	0.002	30.92	0.000	0.23	0.000	3.09	39.95	124.85	0.00	0.00
220.0	8.9	0.001	8.85	0.002	31.09	0.000	0.22	0.000	3.11	40.16	127.75	0.00	0.00
225.0	8.8	0.001	8.90	0.002	31.25	0.000	0.22	0.000	3.12	40.36	130.66	0.00	0.00
230.0	8.6	0.001	8.94	0.002	31.42	0.000	0.21	0.000	3.14	40.57	133.56	0.00	0.00
235.0	8.5	0.001	8.99	0.002	31.58	0.000	0.20	0.000	3.15	40.76	136.46	0.00	0.00
240.0	8.4	0.001	9.03	0.002	31.73	0.000	0.20	0.000	3.17	40.96	139.37	0.00	0.00
245.0	8.2	0.001	9.08	0.002	31.89	0.000	0.19	0.000	3.18	41.15	142.27	0.00	0.00



Modified Rational Method - Five Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

5-Year Design Storm		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank			
a=	820	Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3			
b=	0.78	Area (A1) = 0.060 ha		Area (A2) = 0.227 ha		Area (A3) = 0.019 ha		Area (A4) = 0.030 ha		Design Controlled Release Rate (130mm Orifice Plate) = 12.2 L/s			
c=	4.60	C= 0.45		C= 0.42		C= 0.90		C= 0.25		Max. Storage Tank Size = 31.6 m ³			
l=	a / (c + t) ^b	AC1= 0.03		AC2= 0.09		AC3= 0.02		AC4= 0.01		Storage Tank footprint Area = 100.6 m ²			
		Tc = 15.0 min		Tc = 15.0 min		Tc = 15.0 min		Tc = 15.0 min		Total Site Area			
		Time Increment = 5.0 min		Time Increment = 5.0 min		Time Increment = 5.0 min		Time Increment = 5.0 min		5-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 31.6 L/s			
		Max Release Rate = 6.0 L/s		Max Release Rate = 21.2 L/s		Max Release Rate = 3.7 L/s		Max Release Rate = 1.7 L/s		Uncontrolled Flow towards Wetland Feature (A4 Post) = 1.7 L/s			
										Controlled Site Release Rate = 12.2 L/s			
										Total Site Release Rate towards Wetland Feature = 13.9 L/s			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)
15.0	80.5	0.006	5.43	0.021	19.09	0.004	18.09	0.002	1.53	42.62	10.98	31.64	0.31
20.0	67.4	0.005	6.07	0.018	21.32	0.003	12.69	0.001	1.70	40.08	14.64	25.44	0.25
25.0	58.4	0.004	6.57	0.015	23.07	0.003	9.51	0.001	1.84	39.15	18.30	20.84	0.21
30.0	51.7	0.004	6.98	0.014	24.51	0.002	7.45	0.001	1.96	38.94	21.97	16.98	0.17
35.0	46.5	0.003	7.33	0.012	25.74	0.002	6.04	0.001	2.06	39.11	25.63	13.48	0.13
40.0	42.4	0.003	7.63	0.011	26.81	0.002	5.02	0.001	2.14	39.46	29.29	10.17	0.10
45.0	39.0	0.003	7.90	0.010	27.77	0.002	4.25	0.001	2.22	39.92	32.95	6.97	0.07
50.0	36.2	0.003	8.15	0.010	28.62	0.002	3.66	0.001	2.29	40.43	36.61	3.82	0.04
55.0	33.8	0.003	8.37	0.009	29.41	0.002	3.19	0.001	2.35	40.97	40.27	0.70	0.01
60.0	31.8	0.002	8.57	0.008	30.13	0.001	2.81	0.001	2.41	41.51	43.93	0.00	0.00
65.0	30.0	0.002	8.76	0.008	30.79	0.001	2.51	0.001	2.46	42.06	47.59	0.00	0.00
70.0	28.4	0.002	8.94	0.007	31.41	0.001	2.25	0.001	2.51	42.60	51.25	0.00	0.00
75.0	27.0	0.002	9.11	0.007	32.00	0.001	2.03	0.001	2.56	43.14	54.91	0.00	0.00
80.0	25.7	0.002	9.26	0.007	32.55	0.001	1.85	0.001	2.60	43.66	58.57	0.00	0.00
85.0	24.6	0.002	9.41	0.006	33.07	0.001	1.69	0.001	2.64	44.17	62.23	0.00	0.00
90.0	23.6	0.002	9.55	0.006	33.56	0.001	1.55	0.000	2.68	44.66	65.90	0.00	0.00
95.0	22.7	0.002	9.69	0.006	34.03	0.001	1.43	0.000	2.72	45.15	69.56	0.00	0.00
100.0	21.8	0.002	9.81	0.006	34.48	0.001	1.33	0.000	2.75	45.62	73.22	0.00	0.00
105.0	21.0	0.002	9.93	0.006	34.91	0.001	1.23	0.000	2.79	46.07	76.88	0.00	0.00
110.0	20.3	0.002	10.05	0.005	35.32	0.001	1.15	0.000	2.82	46.52	80.54	0.00	0.00
115.0	19.6	0.001	10.16	0.005	35.71	0.001	1.08	0.000	2.85	46.95	84.20	0.00	0.00
120.0	19.0	0.001	10.27	0.005	36.09	0.001	1.01	0.000	2.88	47.38	87.86	0.00	0.00
125.0	18.4	0.001	10.38	0.005	36.46	0.001	0.95	0.000	2.91	47.79	91.52	0.00	0.00
130.0	17.9	0.001	10.48	0.005	36.82	0.001	0.90	0.000	2.94	48.19	95.18	0.00	0.00
135.0	17.4	0.001	10.58	0.005	37.16	0.001	0.85	0.000	2.97	48.58	98.84	0.00	0.00
140.0	16.9	0.001	10.67	0.004	37.49	0.001	0.80	0.000	3.00	48.97	102.50	0.00	0.00
145.0	16.5	0.001	10.76	0.004	37.82	0.001	0.76	0.000	3.02	49.34	106.16	0.00	0.00
150.0	16.1	0.001	10.85	0.004	38.13	0.001	0.72	0.000	3.05	49.70	109.83	0.00	0.00
155.0	15.7	0.001	10.94	0.004	38.44	0.001	0.69	0.000	3.07	50.06	113.49	0.00	0.00
160.0	15.3	0.001	11.02	0.004	38.73	0.001	0.65	0.000	3.09	50.41	117.15	0.00	0.00
165.0	15.0	0.001	11.11	0.004	39.02	0.001	0.62	0.000	3.12	50.75	120.81	0.00	0.00
170.0	14.6	0.001	11.19	0.004	39.30	0.001	0.60	0.000	3.14	51.09	124.47	0.00	0.00
175.0	14.3	0.001	11.26	0.004	39.58	0.001	0.57	0.000	3.16	51.41	128.13	0.00	0.00
180.0	14.0	0.001	11.34	0.004	39.85	0.001	0.55	0.000	3.18	51.73	131.79	0.00	0.00
185.0	13.7	0.001	11.42	0.004	40.11	0.001	0.52	0.000	3.20	52.05	135.45	0.00	0.00
190.0	13.4	0.001	11.49	0.004	40.36	0.001	0.50	0.000	3.23	52.36	139.11	0.00	0.00
195.0	13.2	0.001	11.56	0.003	40.61	0.001	0.48	0.000	3.25	52.66	142.77	0.00	0.00
200.0	12.9	0.001	11.63	0.003	40.86	0.001	0.47	0.000	3.26	52.95	146.43	0.00	0.00
205.0	12.7	0.001	11.70	0.003	41.10	0.001	0.45	0.000	3.28	53.25	150.09	0.00	0.00
210.0	12.4	0.001	11.76	0.003	41.33	0.001	0.43	0.000	3.30	53.53	153.76	0.00	0.00
215.0	12.2	0.001	11.83	0.003	41.57	0.001	0.42	0.000	3.32	53.81	157.42	0.00	0.00
220.0	12.0	0.001	11.89	0.003	41.79	0.001	0.40	0.000	3.34	54.09	161.08	0.00	0.00
225.0	11.8	0.001	11.96	0.003	42.01	0.001	0.39	0.000	3.36	54.36	164.74	0.00	0.00
230.0	11.6	0.001	12.02	0.003	42.23	0.001	0.38	0.000	3.37	54.63	168.40	0.00	0.00
235.0	11.4	0.001	12.08	0.003	42.45	0.001	0.36	0.000	3.39	54.89	172.06	0.00	0.00
240.0	11.2	0.001	12.14	0.003	42.66	0.001	0.35	0.000	3.41	55.15	175.72	0.00	0.00
245.0	11.1	0.001	12.20	0.003	42.86	0.001	0.34	0.000	3.42	55.40	179.38	0.00	0.00



Modified Rational Method - Ten Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank			
		Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3			
Adjustment Factor		Area (A1) =	0.060 ha	Area (A2) =	0.227 ha	Area (A3) =	0.019 ha	Area (A4) =	0.030 ha	Design Controlled Release Rate (130mm Orifice Plate) = 22.5 L/s			
C(10) = 1.0 °C		"C ₁₀ " =	0.45	"C ₁₀ " =	0.42	"C ₁₀ " =	0.90	"C ₁₀ " =	0.25	Max. Storage Tank Size = 37.4 m ³			
		AC1 =	0.03	AC2 =	0.09	AC3 =	0.02	AC4 =	0.01	Storage Tank footprint Area = 100.6 m ²			
		Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Total Site Area			
		Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	10-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 38.9 L/s			
		Max Release Rate =	7.4 L/s	Max Release Rate =	26.1 L/s	Max Release Rate =	4.6 L/s	Max Release Rate =	2.1 L/s	Uncontrolled Flow towards Wetland Feature (A4 Post) = 2.1 L/s			
10-Year Design Storm				Land Use		Land Use		Land Use					
a =		1010		Area (ha)		Area (ha)		Area (ha)					
b =		0.78		Coefficient		Coefficient		Coefficient					
c =		4.60		Landscape		Landscape		Landscape					
l =		a / (c + t) ^{0.5}		Hardscape		Hardscape		Hardscape					
		Total		Total		Total		Total					
		0.227 0.42		0.019 0.90		0.030 0.25		0.000 0.90					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)
15.0	99.2	0.007	6.69	0.026	23.52	0.005	27.44	0.002	1.88	57.66	20.28	37.38	0.37
20.0	83.1	0.006	7.48	0.022	26.26	0.004	19.25	0.002	2.10	52.99	27.04	25.96	0.26
25.0	71.9	0.005	8.09	0.019	28.42	0.003	14.43	0.002	2.27	50.93	33.80	17.14	0.17
30.0	63.7	0.005	8.59	0.017	30.19	0.003	11.31	0.001	2.41	50.10	40.55	9.54	0.09
35.0	57.3	0.004	9.02	0.015	31.71	0.003	9.16	0.001	2.53	49.89	47.31	2.58	0.03
40.0	52.2	0.004	9.40	0.014	33.03	0.002	7.61	0.001	2.64	50.04	54.07	0.00	0.00
45.0	48.1	0.004	9.73	0.013	34.20	0.002	6.45	0.001	2.73	50.38	60.83	0.00	0.00
50.0	44.6	0.003	10.03	0.012	35.26	0.002	5.55	0.001	2.82	50.84	67.59	0.00	0.00
55.0	41.7	0.003	10.31	0.011	36.22	0.002	4.84	0.001	2.89	51.37	74.35	0.00	0.00
60.0	39.1	0.003	10.56	0.010	37.11	0.002	4.27	0.001	2.96	51.94	81.11	0.00	0.00
65.0	36.9	0.003	10.79	0.010	37.93	0.002	3.80	0.001	3.03	52.52	87.87	0.00	0.00
70.0	35.0	0.003	11.01	0.009	38.69	0.002	3.41	0.001	3.09	53.12	94.63	0.00	0.00
75.0	33.2	0.002	11.22	0.009	39.41	0.002	3.08	0.001	3.15	53.71	101.39	0.00	0.00
80.0	31.7	0.002	11.41	0.008	40.09	0.001	2.80	0.001	3.20	54.30	108.15	0.00	0.00
85.0	30.3	0.002	11.59	0.008	40.73	0.001	2.56	0.001	3.25	54.88	114.90	0.00	0.00
90.0	29.0	0.002	11.76	0.008	41.34	0.001	2.35	0.001	3.30	55.45	121.66	0.00	0.00
95.0	27.9	0.002	11.93	0.007	41.91	0.001	2.17	0.001	3.35	56.02	128.42	0.00	0.00
100.0	26.9	0.002	12.09	0.007	42.47	0.001	2.01	0.001	3.39	56.57	135.18	0.00	0.00
105.0	25.9	0.002	12.24	0.007	42.99	0.001	1.87	0.001	3.44	57.10	141.94	0.00	0.00
110.0	25.0	0.002	12.38	0.007	43.50	0.001	1.75	0.001	3.48	57.63	148.70	0.00	0.00
115.0	24.2	0.002	12.52	0.006	43.99	0.001	1.63	0.001	3.51	58.14	155.46	0.00	0.00
120.0	23.4	0.002	12.65	0.006	44.46	0.001	1.53	0.000	3.55	58.64	162.22	0.00	0.00
125.0	22.7	0.002	12.78	0.006	44.91	0.001	1.44	0.000	3.59	59.13	168.98	0.00	0.00
130.0	22.1	0.002	12.91	0.006	45.35	0.001	1.36	0.000	3.62	59.61	175.74	0.00	0.00
135.0	21.4	0.002	13.03	0.006	45.77	0.001	1.28	0.000	3.66	60.08	182.50	0.00	0.00
140.0	20.9	0.002	13.14	0.005	46.18	0.001	1.21	0.000	3.69	60.54	189.25	0.00	0.00
145.0	20.3	0.002	13.26	0.005	46.58	0.001	1.15	0.000	3.72	60.99	196.01	0.00	0.00
150.0	19.8	0.001	13.37	0.005	46.97	0.001	1.09	0.000	3.75	61.43	202.77	0.00	0.00
155.0	19.3	0.001	13.47	0.005	47.34	0.001	1.04	0.000	3.78	61.86	209.53	0.00	0.00
160.0	18.9	0.001	13.58	0.005	47.71	0.001	0.99	0.000	3.81	62.28	216.29	0.00	0.00
165.0	18.4	0.001	13.68	0.005	48.06	0.001	0.95	0.000	3.84	62.69	223.05	0.00	0.00
170.0	18.0	0.001	13.78	0.005	48.41	0.001	0.91	0.000	3.87	63.09	229.81	0.00	0.00
175.0	17.6	0.001	13.87	0.005	48.75	0.001	0.87	0.000	3.90	63.49	236.57	0.00	0.00
180.0	17.2	0.001	13.97	0.005	49.08	0.001	0.83	0.000	3.92	63.88	243.33	0.00	0.00
185.0	16.9	0.001	14.06	0.004	49.40	0.001	0.80	0.000	3.95	64.26	250.09	0.00	0.00
190.0	16.5	0.001	14.15	0.004	49.72	0.001	0.76	0.000	3.97	64.63	256.85	0.00	0.00
195.0	16.2	0.001	14.24	0.004	50.02	0.001	0.73	0.000	4.00	65.00	263.60	0.00	0.00
200.0	15.9	0.001	14.32	0.004	50.33	0.001	0.71	0.000	4.02	65.36	270.36	0.00	0.00
205.0	15.6	0.001	14.41	0.004	50.62	0.001	0.68	0.000	4.04	65.71	277.12	0.00	0.00
210.0	15.3	0.001	14.49	0.004	50.91	0.001	0.66	0.000	4.07	66.06	283.88	0.00	0.00
215.0	15.1	0.001	14.57	0.004	51.20	0.001	0.63	0.000	4.09	66.40	290.64	0.00	0.00
220.0	14.8	0.001	14.65	0.004	51.48	0.001	0.61	0.000	4.11	66.74	297.40	0.00	0.00
225.0	14.5	0.001	14.73	0.004	51.75	0.001	0.59	0.000	4.13	67.07	304.16	0.00	0.00
230.0	14.3	0.001	14.80	0.004	52.02	0.001	0.57	0.000	4.16	67.39	310.92	0.00	0.00
235.0	14.1	0.001	14.88	0.004	52.28	0.001	0.55	0.000	4.18	67.71	317.68	0.00	0.00
240.0	13.8	0.001	14.95	0.004	52.54	0.001	0.54	0.000	4.20	68.03	324.44	0.00	0.00
245.0	13.6	0.001	15.03	0.004	52.79	0.001	0.52	0.000	4.22	68.34	331.20	0.00	0.00



Modified Rational Method - Twenty Five Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank			
		Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3			
		Area (A1) =	0.060 ha	Area (A2) =	0.227 ha	Area (A3) =	0.019 ha	Area (A4) =	0.030 ha	Design Controlled Release Rate (130mm Orifice Plate) = 27.1 L/s			
Adjustment Factor		"C ₂₅ " =	0.50	"C ₂₅ " =	0.46	"C ₂₅ " =	0.99	"C ₂₅ " =	0.28	Max. Storage Tank Size = 53.6 m ³			
C(100) = 1.1 °C		AC1 =	0.03	AC2 =	0.10	AC3 =	0.02	AC4 =	0.01	Storage Tank footprint Area = 100.6 m ²			
		Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Total Site Area			
		Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	25-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 44.7 L/s			
		Max Release Rate =	9.4 L/s	Max Release Rate =	33.0 L/s	Max Release Rate =	5.8 L/s	Max Release Rate =	2.6 L/s	Uncontrolled Flow towards Wetland Feature (A4 Post) = 2.6 L/s			
25-Year Design Storm				Land Use		Land Use		Land Use					
a =		1160		Area (ha)		Area (ha)		Area (ha)					
b =		0.78		Coefficient		Coefficient		Coefficient					
c =		4.60		Landscape		Landscape		Landscape					
l =		a / (c + t) ^b		Hardscape		Hardscape		Hardscape					
		Total		Total		Total		Total					
		0.227 0.42		0.019 0.90		0.030 0.25		0.000 0.90					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)
15.0	113.9	0.009	8.46	0.033	29.71	0.006	39.82	0.003	2.37	77.99	24.36	53.63	0.53
20.0	95.4	0.008	9.44	0.028	33.18	0.005	27.94	0.002	2.65	70.56	32.48	38.08	0.38
25.0	82.6	0.007	10.22	0.024	35.90	0.004	20.93	0.002	2.87	67.05	40.60	26.45	0.26
30.0	73.1	0.006	10.86	0.021	38.15	0.004	16.41	0.002	3.05	65.41	48.72	16.69	0.17
35.0	65.8	0.005	11.40	0.019	40.06	0.003	13.29	0.002	3.20	64.75	56.84	7.91	0.08
40.0	60.0	0.005	11.88	0.017	41.72	0.003	11.04	0.001	3.33	64.64	64.96	0.00	0.00
45.0	55.2	0.005	12.30	0.016	43.21	0.003	9.36	0.001	3.45	64.86	73.08	0.00	0.00
50.0	51.2	0.004	12.68	0.015	44.54	0.003	8.05	0.001	3.56	65.27	81.20	0.00	0.00
55.0	47.8	0.004	13.02	0.014	45.76	0.002	7.02	0.001	3.66	65.81	89.32	0.00	0.00
60.0	44.9	0.004	13.34	0.013	46.88	0.002	6.20	0.001	3.75	66.42	97.44	0.00	0.00
65.0	42.4	0.003	13.64	0.012	47.92	0.002	5.52	0.001	3.83	67.07	105.56	0.00	0.00
70.0	40.2	0.003	13.91	0.012	48.88	0.002	4.95	0.001	3.91	67.75	113.68	0.00	0.00
75.0	38.2	0.003	14.17	0.011	49.79	0.002	4.47	0.001	3.98	68.44	121.80	0.00	0.00
80.0	36.4	0.003	14.41	0.011	50.65	0.002	4.07	0.001	4.05	69.13	129.92	0.00	0.00
85.0	34.8	0.003	14.64	0.010	51.45	0.002	3.72	0.001	4.11	69.82	138.04	0.00	0.00
90.0	33.4	0.003	14.86	0.010	52.22	0.002	3.42	0.001	4.17	70.50	146.16	0.00	0.00
95.0	32.0	0.003	15.07	0.009	52.95	0.002	3.15	0.001	4.23	71.18	154.28	0.00	0.00
100.0	30.8	0.003	15.27	0.009	53.65	0.002	2.92	0.001	4.29	71.84	162.40	0.00	0.00
105.0	29.7	0.002	15.46	0.009	54.32	0.002	2.72	0.001	4.34	72.49	170.52	0.00	0.00
110.0	28.7	0.002	15.64	0.008	54.96	0.001	2.53	0.001	4.39	73.13	178.64	0.00	0.00
115.0	27.8	0.002	15.82	0.008	55.57	0.001	2.37	0.001	4.44	73.76	186.76	0.00	0.00
120.0	26.9	0.002	15.99	0.008	56.17	0.001	2.22	0.001	4.49	74.38	194.88	0.00	0.00
125.0	26.1	0.002	16.15	0.008	56.74	0.001	2.09	0.001	4.53	74.98	203.00	0.00	0.00
130.0	25.3	0.002	16.31	0.007	57.29	0.001	1.97	0.001	4.58	75.57	211.12	0.00	0.00
135.0	24.6	0.002	16.46	0.007	57.83	0.001	1.86	0.001	4.62	76.15	219.24	0.00	0.00
140.0	24.0	0.002	16.61	0.007	58.34	0.001	1.76	0.001	4.66	76.71	227.36	0.00	0.00
145.0	23.3	0.002	16.75	0.007	58.85	0.001	1.67	0.001	4.70	77.27	235.48	0.00	0.00
150.0	22.7	0.002	16.89	0.007	59.34	0.001	1.59	0.001	4.74	77.81	243.60	0.00	0.00
155.0	22.2	0.002	17.02	0.006	59.81	0.001	1.51	0.001	4.78	78.34	251.72	0.00	0.00
160.0	21.7	0.002	17.15	0.006	60.27	0.001	1.44	0.001	4.82	78.87	259.84	0.00	0.00
165.0	21.2	0.002	17.28	0.006	60.72	0.001	1.37	0.000	4.85	79.38	267.96	0.00	0.00
170.0	20.7	0.002	17.41	0.006	61.16	0.001	1.31	0.000	4.89	79.88	276.08	0.00	0.00
175.0	20.2	0.002	17.53	0.006	61.59	0.001	1.26	0.000	4.92	80.37	284.20	0.00	0.00
180.0	19.8	0.002	17.65	0.006	62.00	0.001	1.20	0.000	4.95	80.85	292.32	0.00	0.00
185.0	19.4	0.002	17.76	0.006	62.41	0.001	1.16	0.000	4.99	81.33	300.44	0.00	0.00
190.0	19.0	0.002	17.88	0.006	62.81	0.001	1.11	0.000	5.02	81.80	308.56	0.00	0.00
195.0	18.6	0.002	17.99	0.005	63.20	0.001	1.07	0.000	5.05	82.25	316.68	0.00	0.00
200.0	18.3	0.002	18.10	0.005	63.58	0.001	1.03	0.000	5.08	82.70	324.80	0.00	0.00
205.0	17.9	0.001	18.20	0.005	63.95	0.001	0.99	0.000	5.11	83.14	332.92	0.00	0.00
210.0	17.6	0.001	18.31	0.005	64.32	0.001	0.95	0.000	5.14	83.58	341.04	0.00	0.00
215.0	17.3	0.001	18.41	0.005	64.68	0.001	0.92	0.000	5.17	84.01	349.16	0.00	0.00
220.0	17.0	0.001	18.51	0.005	65.03	0.001	0.89	0.000	5.20	84.43	357.28	0.00	0.00
225.0	16.7	0.001	18.61	0.005	65.38	0.001	0.86	0.000	5.22	84.84	365.40	0.00	0.00
230.0	16.4	0.001	18.70	0.005	65.72	0.001	0.83	0.000	5.25	85.25	373.52	0.00	0.00
235.0	16.2	0.001	18.80	0.005	66.05	0.001	0.80	0.000	5.28	85.65	381.64	0.00	0.00
240.0	15.9	0.001	18.89	0.005	66.38	0.001	0.78	0.000	5.30	86.05	389.76	0.00	0.00
245.0	15.7	0.001	18.98	0.005	66.70	0.001	0.75	0.000	5.33	86.43	397.88	0.00	0.00



Modified Rational Method - Fifty Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank			
		Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3			
Adjustment Factor		Area (A1) = 0.060 ha	"C ₅₀ " = 0.54	Area (A2) = 0.227 ha	"C ₅₀ " = 0.50	Area (A3) = 0.019 ha	"C ₅₀ " = 1.00	Area (A4) = 0.030 ha	"C ₅₀ " = 0.30	Design Controlled Release Rate (130mm Orifice Plate) = 30.7 L/s			
C(100) = 1.2 °C		AC1 = 0.03		AC2 = 0.11		AC3 = 0.02		AC4 = 0.01		Max. Storage Tank Size = 69.0 m ³			
		Tc = 15.0 min		Tc = 15.0 min		Tc = 15.0 min		Tc = 15.0 min		Storage Tank footprint Area = 100.6 m ²			
		Time Increment = 5.0 min		Time Increment = 5.0 min		Time Increment = 5.0 min		Time Increment = 5.0 min		Total Site Area			
		Max Release Rate = 11.4 L/s		Max Release Rate = 40.2 L/s		Max Release Rate = 6.6 L/s		Max Release Rate = 3.2 L/s		50-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 49.9 L/s			
50-Year Design Storm				Land Use Area (ha) Coefficient		Land Use Area (ha) Coefficient		Land Use Area (ha) Coefficient		Uncontrolled Flow towards Wetland Feature (A4 Post) = 3.2 L/s			
a =	1300			Landscape	0.168	0.25	Landscape	0.000	0.25	Controlled Site Release Rate = 30.7 L/s			
b =	0.78			Hardscape	0.059	0.90	Hardscape	0.019	0.90	Total Site Release Rate towards Wetland Feature = 33.9 L/s			
c =	4.70			Total	0.227	0.42	Total	0.019	0.90				
l =	a / (c + t) ^b												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)
15.0	127.1	0.011	10.30	0.040	36.18	0.007	50.12	0.003	2.89	96.60	27.59	69.01	0.69
20.0	106.6	0.010	11.51	0.034	40.44	0.006	35.22	0.003	3.23	87.17	36.79	50.38	0.50
25.0	92.3	0.008	12.46	0.029	43.78	0.005	26.42	0.002	3.50	82.66	45.98	36.67	0.36
30.0	81.7	0.007	13.24	0.026	46.53	0.004	20.72	0.002	3.72	80.50	55.18	25.32	0.25
35.0	73.6	0.007	13.91	0.023	48.88	0.004	16.80	0.002	3.91	79.58	64.38	15.21	0.15
40.0	67.1	0.006	14.49	0.021	50.92	0.003	13.96	0.002	4.07	79.37	73.57	5.80	0.06
45.0	61.8	0.006	15.01	0.020	52.74	0.003	11.83	0.002	4.21	79.58	82.77	0.00	0.00
50.0	57.3	0.005	15.48	0.018	54.38	0.003	10.19	0.001	4.34	80.04	91.97	0.00	0.00
55.0	53.5	0.005	15.90	0.017	55.87	0.003	8.89	0.001	4.46	80.66	101.16	0.00	0.00
60.0	50.3	0.005	16.29	0.016	57.24	0.003	7.84	0.001	4.57	81.38	110.36	0.00	0.00
65.0	47.4	0.004	16.65	0.015	58.52	0.002	6.98	0.001	4.68	82.15	119.56	0.00	0.00
70.0	45.0	0.004	16.99	0.014	59.70	0.002	6.27	0.001	4.77	82.96	128.75	0.00	0.00
75.0	42.7	0.004	17.31	0.014	60.81	0.002	5.66	0.001	4.86	83.79	137.95	0.00	0.00
80.0	40.8	0.004	17.61	0.013	61.86	0.002	5.15	0.001	4.94	84.62	147.15	0.00	0.00
85.0	39.0	0.004	17.89	0.012	62.85	0.002	4.71	0.001	5.02	85.45	156.34	0.00	0.00
90.0	37.4	0.003	18.16	0.012	63.79	0.002	4.33	0.001	5.10	86.28	165.54	0.00	0.00
95.0	35.9	0.003	18.41	0.011	64.69	0.002	3.99	0.001	5.17	87.09	174.74	0.00	0.00
100.0	34.5	0.003	18.65	0.011	65.54	0.002	3.70	0.001	5.24	87.90	183.93	0.00	0.00
105.0	33.3	0.003	18.89	0.011	66.36	0.002	3.44	0.001	5.30	88.69	193.13	0.00	0.00
110.0	32.2	0.003	19.11	0.010	67.14	0.002	3.21	0.001	5.37	89.46	202.33	0.00	0.00
115.0	31.1	0.003	19.33	0.010	67.90	0.002	3.00	0.001	5.43	90.23	211.52	0.00	0.00
120.0	30.1	0.003	19.53	0.010	68.63	0.002	2.82	0.001	5.48	90.97	220.72	0.00	0.00
125.0	29.2	0.003	19.73	0.009	69.33	0.002	2.65	0.001	5.54	91.71	229.92	0.00	0.00
130.0	28.4	0.003	19.92	0.009	70.00	0.001	2.50	0.001	5.59	92.42	239.11	0.00	0.00
135.0	27.6	0.002	20.11	0.009	70.66	0.001	2.36	0.001	5.65	93.13	248.31	0.00	0.00
140.0	26.8	0.002	20.29	0.008	71.29	0.001	2.23	0.001	5.70	93.82	257.51	0.00	0.00
145.0	26.1	0.002	20.47	0.008	71.91	0.001	2.12	0.001	5.75	94.49	266.71	0.00	0.00
150.0	25.5	0.002	20.64	0.008	72.50	0.001	2.01	0.001	5.79	95.15	275.90	0.00	0.00
155.0	24.9	0.002	20.80	0.008	73.09	0.001	1.92	0.001	5.84	95.80	285.10	0.00	0.00
160.0	24.3	0.002	20.96	0.008	73.65	0.001	1.83	0.001	5.88	96.44	294.30	0.00	0.00
165.0	23.7	0.002	21.12	0.007	74.20	0.001	1.74	0.001	5.93	97.06	303.49	0.00	0.00
170.0	23.2	0.002	21.27	0.007	74.74	0.001	1.66	0.001	5.97	97.67	312.69	0.00	0.00
175.0	22.7	0.002	21.42	0.007	75.26	0.001	1.59	0.001	6.01	98.27	321.89	0.00	0.00
180.0	22.2	0.002	21.57	0.007	75.77	0.001	1.53	0.001	6.05	98.86	331.08	0.00	0.00
185.0	21.7	0.002	21.71	0.007	76.27	0.001	1.46	0.001	6.09	99.44	340.28	0.00	0.00
190.0	21.3	0.002	21.85	0.007	76.76	0.001	1.41	0.001	6.13	100.01	349.48	0.00	0.00
195.0	20.9	0.002	21.98	0.007	77.24	0.001	1.35	0.001	6.17	100.57	358.67	0.00	0.00
200.0	20.5	0.002	22.12	0.006	77.70	0.001	1.30	0.001	6.21	101.12	367.87	0.00	0.00
205.0	20.1	0.002	22.25	0.006	78.16	0.001	1.25	0.001	6.25	101.66	377.07	0.00	0.00
210.0	19.7	0.002	22.37	0.006	78.61	0.001	1.21	0.000	6.28	102.19	386.26	0.00	0.00
215.0	19.4	0.002	22.50	0.006	79.05	0.001	1.16	0.000	6.32	102.71	395.46	0.00	0.00
220.0	19.0	0.002	22.62	0.006	79.48	0.001	1.12	0.000	6.35	103.22	404.66	0.00	0.00
225.0	18.7	0.002	22.74	0.006	79.90	0.001	1.09	0.000	6.38	103.73	413.85	0.00	0.00
230.0	18.4	0.002	22.86	0.006	80.32	0.001	1.05	0.000	6.42	104.23	423.05	0.00	0.00
235.0	18.1	0.002	22.98	0.006	80.72	0.001	1.02	0.000	6.45	104.72	432.25	0.00	0.00
240.0	17.8	0.002	23.09	0.006	81.12	0.001	0.98	0.000	6.48	105.20	441.44	0.00	0.00
245.0	17.5	0.002	23.20	0.006	81.52	0.001	0.95	0.000	6.51	105.67	450.64	0.00	0.00



Modified Rational Method - Hundred Year Storm

Site Flow and Storage Summary

900 Lakeshore Road West

File No. UD23-058

City of Mississauga

Date: March 2026

		Drainage Area A1 Post		Drainage Area A2 Post		Drainage Area A3 Post		Drainage Area A4 Post		Storage Tank																	
		Green Roof - Controlled in Underground Storage Tank		Rooftop / Terraces/ Landscape / Hardscape Controlled in Underground Storage Tank		Driveway Area Controlled in Underground Storage Tank		Uncontrolled Area Towards Wetland Feature		Areas A1 + A2 + A3																	
		Area (A1) =	0.060 ha	Area (A2) =	0.227 ha	Area (A3) =	0.019 ha	Area (A4) =	0.030 ha	Design Controlled Release Rate (130mm Orifice Plate) = 34.0 L/s																	
Adjustment Factor		"C ₁₀₀ " =	0.56	"C ₁₀₀ " =	0.52	"C ₁₀₀ " =	1.00	"C ₁₀₀ " =	0.31	Max. Storage Tank Size = 84.3 m ³																	
C(100) = 1.25 °C		AC1 =	0.03	AC2 =	0.12	AC3 =	0.02	AC4 =	0.01	Storage Tank footprint Area = 100.6 m ²																	
		Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Tc =	15.0 min	Total Site Area																	
		Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	Time Increment =	5.0 min	100-yr storm pre-development site release rate (A2 Pre Towards Wetland Feature) = 55.3 L/s																	
		Max Release Rate =	13.2 L/s	Max Release Rate =	46.3 L/s	Max Release Rate =	7.3 L/s	Max Release Rate =	3.7 L/s	Uncontrolled Flow towards Wetland Feature (A4 Post) = 3.7 L/s																	
100-Year Design Storm				Land Use		Area (ha)		Coefficient		Land Use		Area (ha)		Coefficient		Land Use		Area (ha)		Coefficient		Land Use		Area (ha)		Coefficient	
a =		1450		Landscape		0.168		0.25		Landscape		0.000		0.25		Landscape		0.030		0.25		Controlled Site Release Rate =		34.0		L/s	
b =		0.78		Hardscape		0.059		0.90		Hardscape		0.019		0.90		Hardscape		0.000		0.90		Total Site Release Rate towards Wetland Feature =		37.7		L/s	
c =		4.90		Total		0.227		0.42		Total		0.019		0.90		Total		0.030		0.25							
I =		a / (c + t) ^b																									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)														
Time	Rainfall Intensity	Rainfall Rate (A1 Post)	Total Storm Volume (A1 Post)	Rainfall Rate (A2 Post)	Total Storm Volume (A2 Post)	Rainfall Rate (A3 Post)	Total Storm Volume (A3 Post)	Rainfall Rate (A4 Post)	Total Storm Volume (A4 Post)	Total Storm Runoff Volume	Target Volume	Storage Tank Volume	Storage Depth of Tank														
(min)	(mm/hr)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³ /s)	(m ³)	(m ³)	(m ³)	(m ³)	(m)														
15.0	140.7	0.013	11.87	0.046	41.71	0.007	61.38	0.004	3.33	114.96	30.63	84.33	0.84														
20.0	118.1	0.011	13.29	0.039	46.69	0.006	43.27	0.003	3.73	103.24	40.83	62.41	0.62														
25.0	102.4	0.010	14.40	0.034	50.60	0.005	32.52	0.003	4.04	97.52	51.04	46.48	0.46														
30.0	90.8	0.009	15.32	0.030	53.82	0.005	25.55	0.002	4.30	94.69	61.25	33.44	0.33														
35.0	81.8	0.008	16.10	0.027	56.56	0.004	20.73	0.002	4.52	93.40	71.46	21.94	0.22														
40.0	74.6	0.007	16.78	0.025	58.96	0.004	17.25	0.002	4.71	92.98	81.67	11.32	0.11														
45.0	68.7	0.006	17.39	0.023	61.08	0.004	14.63	0.002	4.88	93.10	91.88	1.22	0.01														
50.0	63.8	0.006	17.93	0.021	63.00	0.003	12.60	0.002	5.03	93.53	102.08	0.00	0.00														
55.0	59.6	0.006	18.43	0.020	64.74	0.003	11.00	0.002	5.17	94.17	112.29	0.00	0.00														
60.0	56.0	0.005	18.88	0.018	66.35	0.003	9.71	0.001	5.30	94.94	122.50	0.00	0.00														
65.0	52.8	0.005	19.31	0.017	67.83	0.003	8.65	0.001	5.42	95.79	132.71	0.00	0.00														
70.0	50.0	0.005	19.70	0.016	69.22	0.003	7.76	0.001	5.53	96.68	142.92	0.00	0.00														
75.0	47.6	0.004	20.07	0.016	70.52	0.002	7.02	0.001	5.63	97.61	153.13	0.00	0.00														
80.0	45.4	0.004	20.42	0.015	71.74	0.002	6.38	0.001	5.73	98.55	163.33	0.00	0.00														
85.0	43.4	0.004	20.75	0.014	72.90	0.002	5.84	0.001	5.82	99.49	173.54	0.00	0.00														
90.0	41.6	0.004	21.06	0.014	74.00	0.002	5.37	0.001	5.91	100.42	183.75	0.00	0.00														
95.0	40.0	0.004	21.36	0.013	75.04	0.002	4.95	0.001	6.00	101.35	193.96	0.00	0.00														
100.0	38.5	0.004	21.64	0.013	76.04	0.002	4.59	0.001	6.08	102.27	204.17	0.00	0.00														
105.0	37.1	0.003	21.91	0.012	76.99	0.002	4.27	0.001	6.15	103.17	214.38	0.00	0.00														
110.0	35.8	0.003	22.17	0.012	77.91	0.002	3.98	0.001	6.22	104.06	224.59	0.00	0.00														
115.0	34.7	0.003	22.42	0.011	78.79	0.002	3.73	0.001	6.30	104.94	234.79	0.00	0.00														
120.0	33.6	0.003	22.66	0.011	79.63	0.002	3.50	0.001	6.36	105.79	245.00	0.00	0.00														
125.0	32.6	0.003	22.90	0.011	80.45	0.002	3.29	0.001	6.43	106.64	255.21	0.00	0.00														
130.0	31.6	0.003	23.12	0.010	81.24	0.002	3.10	0.001	6.49	107.46	265.42	0.00	0.00														
135.0	30.7	0.003	23.34	0.010	82.00	0.002	2.93	0.001	6.55	108.27	275.63	0.00	0.00														
140.0	29.9	0.003	23.55	0.010	82.74	0.002	2.77	0.001	6.61	109.06	285.84	0.00	0.00														
145.0	29.1	0.003	23.75	0.010	83.46	0.002	2.63	0.001	6.67	109.84	296.04	0.00	0.00														
150.0	28.4	0.003	23.95	0.009	84.16	0.001	2.50	0.001	6.72	110.61	306.25	0.00	0.00														
155.0	27.7	0.003	24.14	0.009	84.83	0.001	2.38	0.001	6.78	111.35	316.46	0.00	0.00														
160.0	27.0	0.003	24.33	0.009	85.49	0.001	2.27	0.001	6.83	112.09	326.67	0.00	0.00														
165.0	26.4	0.002	24.51	0.009	86.13	0.001	2.16	0.001	6.88	112.81	336.88	0.00	0.00														
170.0	25.8	0.002	24.69	0.009	86.76	0.001	2.07	0.001	6.93	113.52	347.09	0.00	0.00														
175.0	25.3	0.002	24.87	0.008	87.37	0.001	1.98	0.001	6.98	114.21	357.30	0.00	0.00														
180.0	24.7	0.002	25.04	0.008	87.96	0.001	1.90	0.001	7.03	114.89	367.50	0.00	0.00														
185.0	24.2	0.002	25.20	0.008	88.54	0.001	1.82	0.001	7.07	115.56	377.71	0.00	0.00														
190.0	23.7	0.002	25.36	0.008	89.11	0.001	1.75	0.001	7.12	116.22	387.92	0.00	0.00														
195.0	23.3	0.002	25.52	0.008	89.67	0.001	1.68	0.001	7.16	116.87	398.13	0.00	0.00														
200.0	22.8	0.002	25.68	0.008	90.21	0.001	1.62	0.001	7.21	117.50	408.34	0.00	0.00														
205.0	22.4	0.002	25.83	0.007	90.74	0.001	1.56	0.001	7.25	118.13	418.55	0.00	0.00														
210.0	22.0	0.002	25.98	0.007	91.27	0.001	1.50	0.001	7.29	118.74	428.75	0.00	0.00														
215.0	21.6	0.002	26.12	0.007	91.78	0.001	1.45	0.001	7.33	119.34	438.96	0.00	0.00														
220.0	21.2	0.002	26.26	0.007	92.28	0.001	1.40	0.001	7.37	119.94	449.17	0.00	0.00														
225.0	20.9	0.002	26.40	0.007	92.77	0.001	1.35	0.001	7.41	120.52	459.38	0.00	0.00														
230.0	20.5	0.002	26.54	0.007	93.25	0.001	1.31	0.001	7.45	121.10	469.59	0.00	0.00														
235.0	20.2	0.002	26.68	0.007	93.73	0.001	1.26	0.001	7.49	121.67	479.80	0.00	0.00														
240.0	19.9	0.002	26.81	0.007	94.20	0.001	1.22	0.001	7.53	122.23	490.00	0.00	0.00														
245.0	19.5	0.002	26.94	0.006	94.65	0.001	1.18	0.001	7.56	122.78	500.21	0.00	0.00														

	Water Balance Calculation
	900 Lakeshore Road West File No. UD23-058 Date: March 2026 Prepared By: George Karagiannidis P.E., M.A.Sc. Reviewed by: Dimitra Savvaoglou, P.Eng., M.A.Sc.

Contributing Drainage Area	3360.10	m ²
Rainfall depth to be retained	5.0	mm
Total rainfall volume at 5mm	16.80	m ³

Initial Abstraction Calculations

Surface	Area (m ²)	IA (mm)	Volume (m ³)
Landscape Area	2004.80	5.0	10.02 m ³
Green Roof	600.00	5.0	3.00 m ³
Roof/Terraces/Hardscape	755.30	1.0	0.76 m ³
Total	3360.10		13.78 m³

Water Volume provided by initial abstraction is	13.78	m ³
Water Balance Required	3.02	m ³

Drawdown Time Calculations

Infiltration Provided from the Infiltration Trench ==>

$$A = \frac{1000 \times V}{PnT}$$

$$V = \frac{APnT}{1000}$$

- A = Bottom area of the infiltration gallery (m²) = 11.0
- V = Runoff Volume to be infiltrated (m³) = ?
- P = Percolation Rate of the surrounding Soil (mm/hr) = 15
- T = Drawdown Time (72 h) = 72

The volume that can be infiltrated within the infiltration trench to support the water balance requirements is calculated below.

$$V = A_{(m^2)} * T_{(hr)} * P(mm/hr) / 1000 = 11.88 \text{ m}^3$$

The volume that can be stored within the 0.7 m of the infiltration trench (40% stone void) of the infiltration chambers is

$$V = A_{(m^2)} * \text{Stone Base} * \text{Porosity} = 3.08 \text{ m}^3$$

Consequently, the total water balance volume provided from the infiltration trench and the initial abstraction provided is 16.86m³ (13.78 m³ + 3.08 m³).



Orifice Design
900 Lakeshore Road West

File No. UD23-058

Date: March 2026

Prepared By: George Karagiannidis P.E., M.A.Sc.

Reviewed by: Dimitra Savvaoglou, P.Eng., M.A.Sc

Orifice Equation for 130 mm Plate

$$Q = C \times A \times \sqrt{2 \times g \times h}$$

<u>100 yr event</u>			<u>50 yr event</u>			<u>25 yr event</u>			<u>10 yr event</u>			<u>5 yr event</u>			<u>2 yr event</u>		
d=	130	mm	d=	130	mm	d=	130	mm	d=	130	mm	d=	100	mm	d=	100	mm
C=	0.63		C=	0.63		C=	0.63		C=	0.63		C=	0.63		C=	0.63	
A=	0.013	m ²	A=	0.013	m ²	A=	0.013	m ²	A=	0.013	m ²	A=	0.008	m ²	A=	0.008	m ²
g=	9.81	m/s ²	g=	9.81	m/s ²	g=	9.81	m/s ²	g=	9.81	m/s ²	g=	9.81	m/s ²	g=	9.81	m/s ²
h=	0.84	m	h=	0.69	m	h=	0.53	m	h=	0.37	m	h=	0.31	m	h=	0.20	m
Q=	34.0	L/s	Q=	30.7	L/s	Q=	27.1	L/s	Q=	22.5	L/s	Q=	12.2	L/s	Q=	9.7	L/s



Water Quality Calculations

900 Lakeshore Road West
City of Mississauga
Date: March 2026
Prepared By: George Karagiannidis P.E., M.A.Sc.
Reviewed by: John Pasalidis, P.Eng., M.A.Sc

Surface	Method	Effective TSS Removal	Area (ha)	% Area of Controlled Site	Overall TSS Removal
Rooftop/ Landscaped / Hardscaped Areas	Inherent	80%	0.287	94%	76%
Driveway Area	Stormwater Treatment Device	80%	0.019	6%	4%
Total			0.306	100%	80%

Note: Uncontrolled water does not account in the above calculation

Appendix D

Sanitary Data Analysis



SANITARY SEWER DESIGN SHEET

900 Lakeshore Road West
CITY OF MISSISSAUGA

LOCATION	RESIDENTIAL							FLOW									SEWER DESIGN									
	SECTION AREA	Townhouses	Dwelling	1 Bed Apts.	2 Bed Apts.	3 Bed Apts.	SECTION POP.	TOTAL ACCUM. POP.	AVERAGE RESIDENTIAL FLOW @ 290 L/c/d	HARMON PEAKING FACTOR	RES. PEAK FLOW	AVERAGE COMMERCIAL FLOW @ 270 L/c/d	TOTAL ACCUM. AREA	INFILT. @ 0.26 L/s/ha.	PEAK GROUNDWATER FLOW	TOTAL DESIGN FLOW Towards Septic Tank	TOTAL DESIGN FLOW Towards Road West	PIPE LENGTH	PIPE DIA.	SLOPE	FULL FLOW CAPACITY	% of DESIGN CAPACITY				
	(ha.)	(ha.)	(ha.)	@ 1.7 ppu	@ 3.1 ppu	@ 3.1 ppu	(persons)	(persons)	(L/s)		(L/s)	(L/s)	(ha.)	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(L/sec)	(%)				
column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
Existing Condition																										
Residential-Use Development	0.333	0	0.026	0	0	0	5	16	0.18	4.39	0.774	0.00	0.333	0.087	0.00	0.86	0.00									
Proposed Condition																										
Residential-Use Development	0.333	7	0.000	96	34	24	386	386	1.30	4.03	5.22	0.00	0.333	0.000	0.55	0.00	5.77									
Residential Flow Rate - 290 litres/capita/day The population equivalent for the townhouses was assumed at 2.7 people/townhouse. The population equivalent for the 1.5 storey dwelling was assumed at 175 persons/ hectare. Infiltration - 0.26 L/ha Peaking Factor = $1 + [14 / (4 + P^{0.5})]$, P=Population in thousands Site Area: 0.333 ha																										
Prepared by: George Karagiannidis P.E., M.A.Sc. Reviewed by: Dimitra Savvaoglou P.Eng., M.A.Sc. Date: March 2026								Project: 900 Lakeshore Road West Project No: UD23-058 City of Mississauga																		

Appendix E

Water Data Analysis



WATER DEMAND

900 Lakeshore Road West, Mississauga

File No: PUD23-058

Date: March 2026

Prepared by: George Karagiannidis, P.E., M.A.Sc.

Reviewed By: Dimitra Savvaoglou, P.Eng., M.A.Sc.

Fire Flow Calculation

1 $F = 220 C (A)^{1/2}$

Where F= Fire flow in Lpm

C= construction type coefficient

= 0.6 Fire Resistive Construction

A = total floor area in sq.m. excluding basements, includes garage*

		Area Applied
Level 2 =	1931 m ²	25%
Level 3 =	2095 m ²	100%
Level 4 =	1998 m ²	25%
=	3,077 sq.m.	

Note: The levels indicated, reference the worst case scenario for townhouse fire separation according to the OBC

F = 7,322.43 L/min

F = 7,300 L/min Round to nearest 100 l/min

2 Occupancy Reduction

25% non-combustible occupancy

F = 5475 L/min

3 Sprinkler Reduction

30% Reduction for NFPA Sprinkler System

F = 3833 l/min

4 Separation Charge

0% North >45m

0% East >45m

0% West >45m

0% South >45m

0% Total Separation Charge 0 L/min

F = 3,833.00 L/min

63.88 L/s

F = 1013 US GPM

Domestic Flow Calculations

Population = 386 Persons (from sanitary design sheet for Residential)

Retail Area = 0 m² (from sanitary design sheet for Commercial)

Average Day Demand (Residential Use)= 270 L/cap/day From Peel's 2020

Development Charges

1 US Gallon=3.785 L

Average Day Demand (Retail Use)= 250 L/emp/day Background Study

= 1.21 L/s

= 19 US GPM

1 US GPM=15.852L/s

Max. Daily Demand Peaking Factor = 1.8 (For residential)

Max. Daily Demand = 2.17 L/s = 34 US GPM

or

Max. Hourly Demand Peaking Factor = 3.0 (For residential and commercial)

Max. Hourly Demand = 3.62 L/s = 57 US GPM

Max Daily Demand = 2.17 L/s

Fire Flow = 63.88 L/s

Required 'Design' Flow = 66.05 L/s

1047 US GPM

Note: Required 'Design' Flow is the maximum of either:

1) Fire Flow + Maximum Daily Demand

2) Maximum Hourly Demand



WATER DEMAND

900 Lakeshore Road West, Mississauga

File No: PUD23-058

Date: March 2026

Prepared by: George Karagiannidis, P.E., M.A.Sc.

Reviewed By: Dimitra Savvaoglou, P.Eng., M.A.Sc.

Pressure Losses

Hazen-Williams Formula

$$V = kCR_h^{0.63} \times S^{0.54}$$

k= 0.85 - conversion factor (0.849 for SI units and 1.318 for US customary units)

C= 140 - roughness coefficient (PVC : 140-150)

S= h_f/L

Rh= D/4 - hydraulic radius (D/4 for full flow, A/P_w for partially flow)

Fire Fighting and Domestic Head Loss

Flow Requirements= 66.1 L/s
Diameter= 150 mm
Area= 1.77E-02 m²
L= 31.8 m
V= 3.74 m/s
S= 7.61E-02
R_h= 0.04
H_f= 2.42 m
= 3.44 psi

Flow Test (dated: April 08, 2024)

when: Static Pressure =	90 psi	Flow =	0	GPM =	0.00 L/s
Residual Pressure =	86 psi	Flow =	1775.76	GPM =	112.05 L/s

Pressure (psi)	Flow (L/s)
90	0.00
86	112.05

Based on the Pressure/Flow relationship, we have to confirm that the flow requirement of 66.05 L/s can be provided at minimum pressure (20.3 psi + Losses) as set out by the FUS guidelines

88.5 66.05 Fire Flow is above minimum of 23.74 psi (20.3+Hf)

Since the flow of 66.05 L/s required for the proposed development is provided in the existing watermain at 88.5 psi (which is more than the minimum of 23.74 psi), we anticipate that the existing watermain infrastructure can support the proposed development.

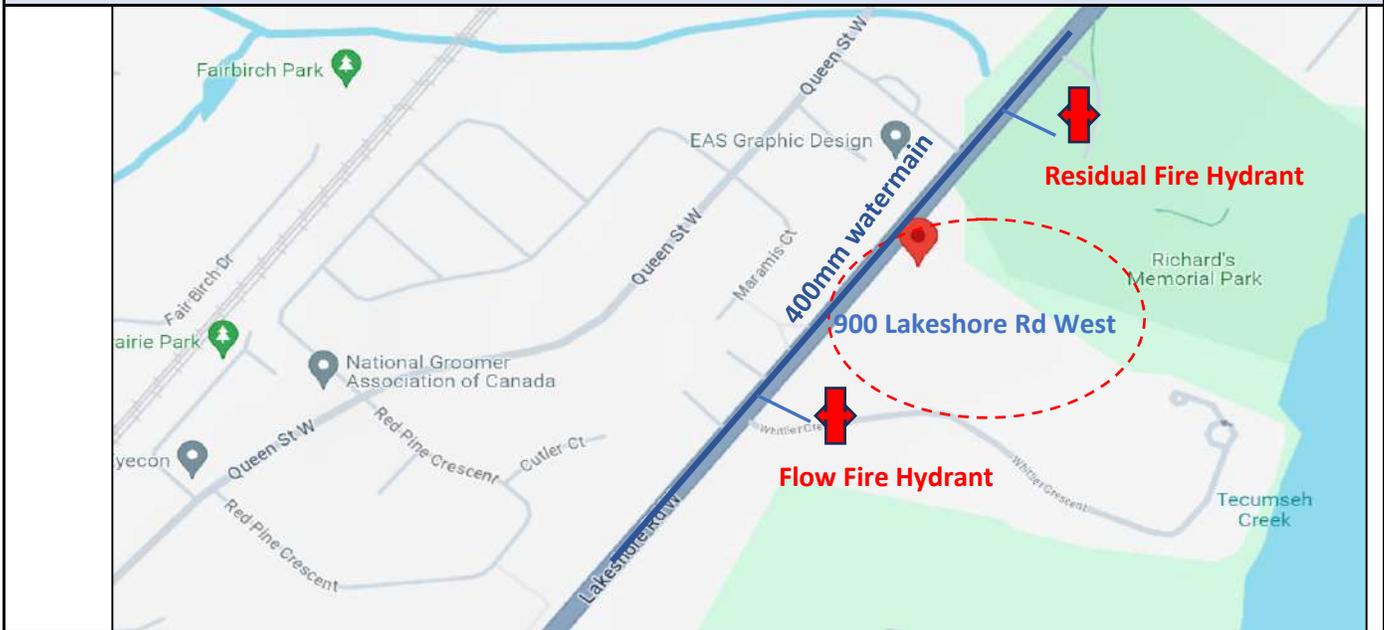
General Information

Report No. : **FHR-24-04-08-01** Date : **8-Apr-24**
 Project No. : **PUD23-058**
 Site Address/Location: **900 Lakeshore West, Mississauga.**
 Region/Municipality: **City of Mississauga**
 Residual Fire Hydrant Location/description : **43.536459, -79.602013**
 Flow Fire Hydrant Location/description : **43.535333, -79.603242**
 Watermain Pipe Size (mm) : **400mm**
 Test Equipment Orifice Size (in) : **2.5**
 Test Equipment Orifice coefficient : **0.9**
 Date of test: **28-03-2024**
 Time of test: **10:45AM**
 Temperature: **7°C**
 Testing Method : **NFPA 291 (Recommended Practice for Fire Flow Testing and Marking of Hydrants)**

Attendants

	Name	Title	Contact Info.
Lithos Inspector	Peter	Project inspector	437-215-1144
Lithos Inspector	Pradeep	Construction inspector	(905)-609-3435
Peel region Rep.	Scott	Technician	(647)-821-3983

Site Plan/Sketch



Pressure Readings (PSIG)

Flow Hydrant's Outlet Condition	C-0 { Outlet #1 : Close Outlet #2 : Close	C-1 { Outlet #1 : Open Outlet #2 : Close	C-2 { Outlet #1 : Open Outlet #2 : Open
Residual Fire Hydrant	90	88	86
Flow Fire Hydrant		52	28

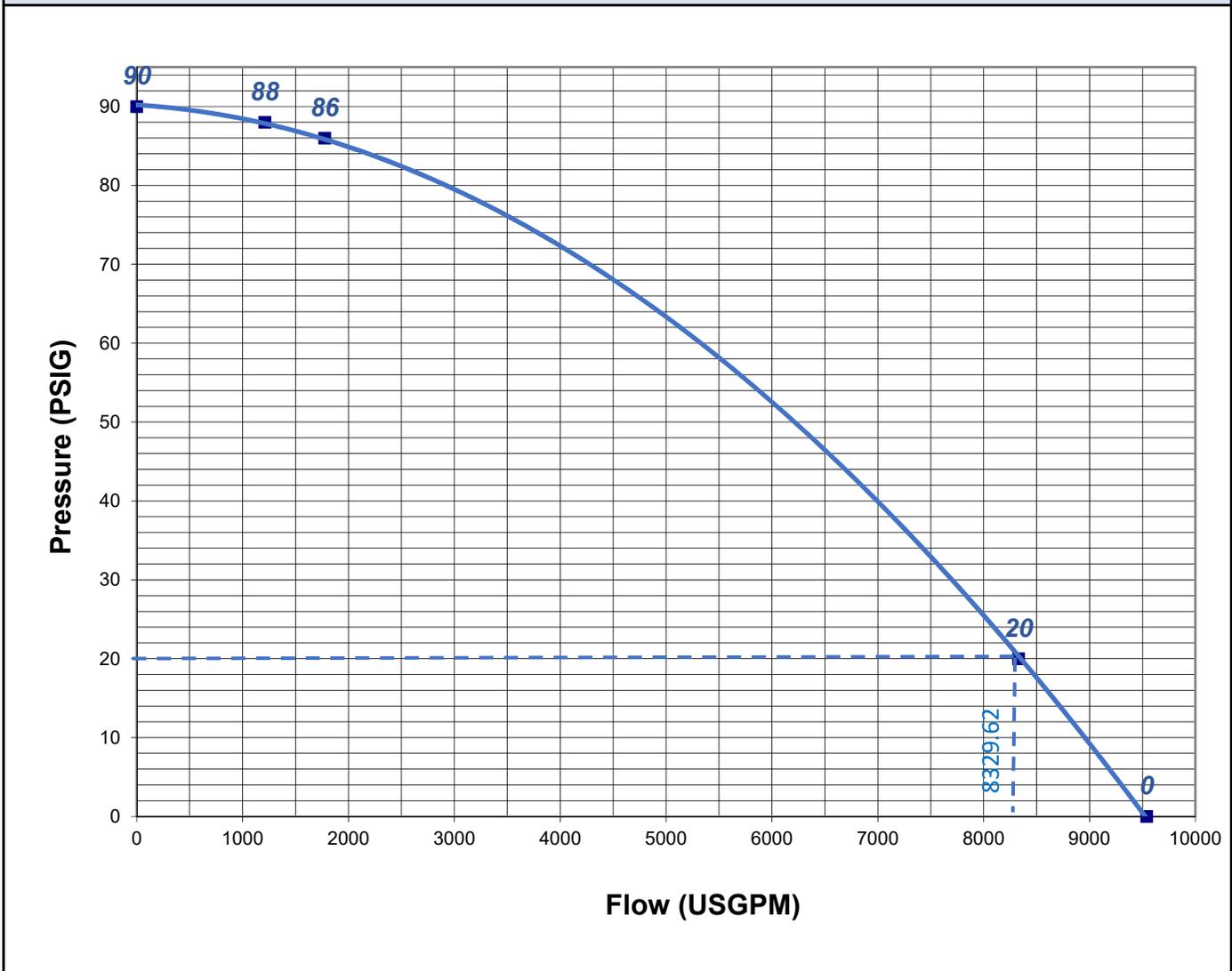
General Information

Report No. : **FHR-24-04-08-01** Date : **8-Apr-24**
 Project No. : **PUD23-058**
 Site Address/Location: **900 Lakeshore West, Mississauga.**
 Region/Municipality: **City of Mississauga**

Pressure-Flow Table

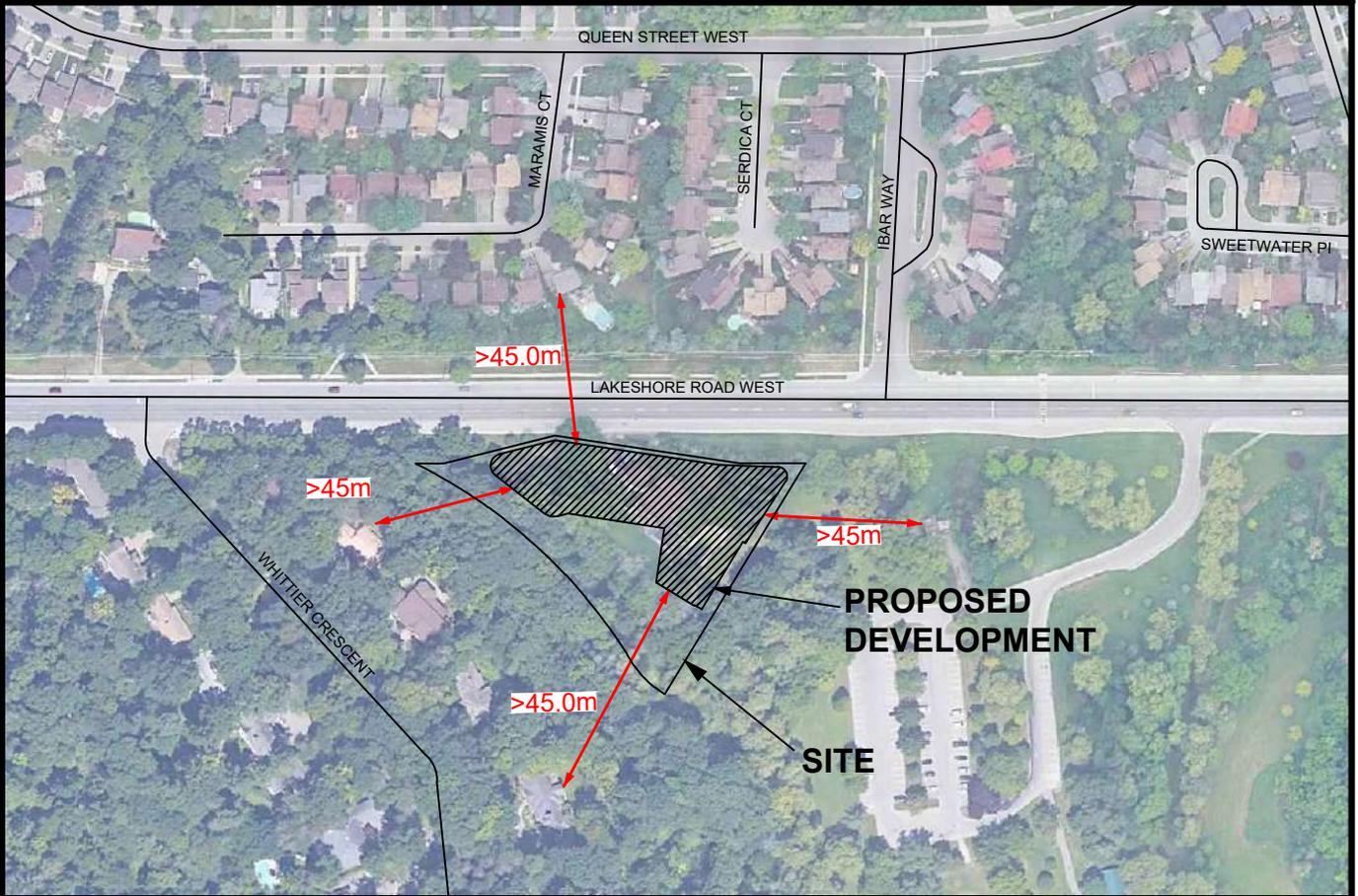
Condition	C-0	C-1	C-2	C(20)	C(0)	
Pressure (PSIG)	90	88	86	20	0	
Flow	(USGPM)	0	1209.98	1775.76	8329.62	9540.33
	(L/S)	0.00	76.35	112.05	525.60	601.99

Pressure-Flow Graph



Result

Maximum available flow at 20PSI = 8329.62 USGPM or 525.60 L/s



SEPERATION CHARGE DISTANCES

RESIDENTIAL-USE DEVELOPMENT
900 LAKESHORE ROAD WEST
MISSISSAUGA, ONTARIO

DATE: MARCH 2026

PROJECT No: UD23-058

150 Bermonsdey Road, North York, Ontario M4A 1Y1

SCALE: N.T.S.

FIGURE No: FIG 4