COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

2735842 Ontario Inc.;, 2060188 Ontario Inc.;

2735841 Ontario Inc.; and 2059977 Ontario Inc.

FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

1056 & 1060 Brant Street

Rezoning Application

June 09, 2025 (1st Submission)

December 22, 2025 (2nd Submission)

EXECUTIVE SUMMARY

This Functional Servicing and Stormwater Management Report ("FSSR") has been prepared for Almadev for a Rezoning application to provide site specific regulations for the site. This report presents a site servicing strategy for the proposed development that addresses the requirements of the applicable regulatory agencies and provides the basis for detailed servicing design. The site servicing strategy for the proposed development is summarized as follows:

Water Servicing:

The proposed development will be serviced through a proposed 200 mm connection to the existing 300 mm diameter watermain on Brant Street. The combined fire flow and maximum day demand is 8,139 L/min. A hydrant flow test was completed October 27, 2025 to confirm that the Brant Street watermain has an ultimate capacity of 12,796 L/min at a minimum pressure of 20 psi.

Foundation Drainage:

The short-term groundwater discharge rate is expected to be 141,000 L/day (1.63 L/s). Short term groundwater discharge will be directed to the storm sewer that is situated within Brant Street.

Long term permanent groundwater flux will be 25,000 L/day and will be discharged to the SWM tank and to Brant Street storm sewer.

Groundwater discharge from the subject site meets the permissible limits for Halton Sanitary and Combined Sewer By-Law (02-03) and the Burlington Storm Sewer By-Law (59-2022) for Total Suspended Solids (TSS). As such, groundwater treatment is not required prior to discharge for short-term dewatering and for the foundation drains (long term discharge).

Sanitary Servicing:

A new 150 mm diameter sanitary connection is proposed to connect to the existing 200mm diameter municipal sewer along Brant Street. A single sanitary connection is proposed for the subject site. The sanitary design flow for the subject property will increase from 0.24 L/s under existing conditions to 4.17 L/s under proposed conditions.

A downstream sanitary sewer analysis has been prepared and there are no downstream sanitary sewer capacity concerns under pre and post development conditions. No sanitary sewer infrastructure improvements are necessary to service the proposed development.

Stormwater Servicing:

A new 300mm diameter storm connection is proposed to connect to the existing 300 mm diameter municipal sewer on Brant Street.

Quantity Control

The proposed release rate for the site for all storm events up to and including the 100-year storm event will be controlled to less than the allowable release rate of 20.7 L/s and will require 27 m^3 of storage within the proposed SWM tank in the underground parking structure of the building.

Quality Control

An 'Enhanced' level of quality control (80% TSS Removal) is required for the development and is proposed to be achieved through initial TSS removal from landscape and roof areas and a Jellyfish Storm filter unit, resulting in an overall TSS removal rate that exceeds 80%.

Water Balance Control

The site water balance target of 5 mm retention 8.1 m^3 shall be met through the use of landscape areas and a water re-use cistern for onsite irrigation.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Almadev Ltd. has retained Counterpoint Engineering Inc. to prepare this Functional Servicing and Stormwater Management Report (FSSR) in support of a rezoning application to permit the development of an eleven-story residential building at the subject site.

The purpose of this report is to conceptually address the provision of site grading, storm and sanitary sewers, stormwater management, and water distribution for the proposed residential-use development. The report will provide details on stormwater management in conformance with the City of Burlington's Storm Drainage and Stormwater Management Policies and Design Guidelines, as well as the Conservation Halton's Technical Guidelines for Stormwater Management Submissions.

1.2 BACKGROUND

The existing properties are municipally known as 1056 and 1060 Brant Street, in the City of Burlington, Region of Halton. The properties are currently legally described as, Part of Lot 15, Registered Plan 99, City of Burlington.

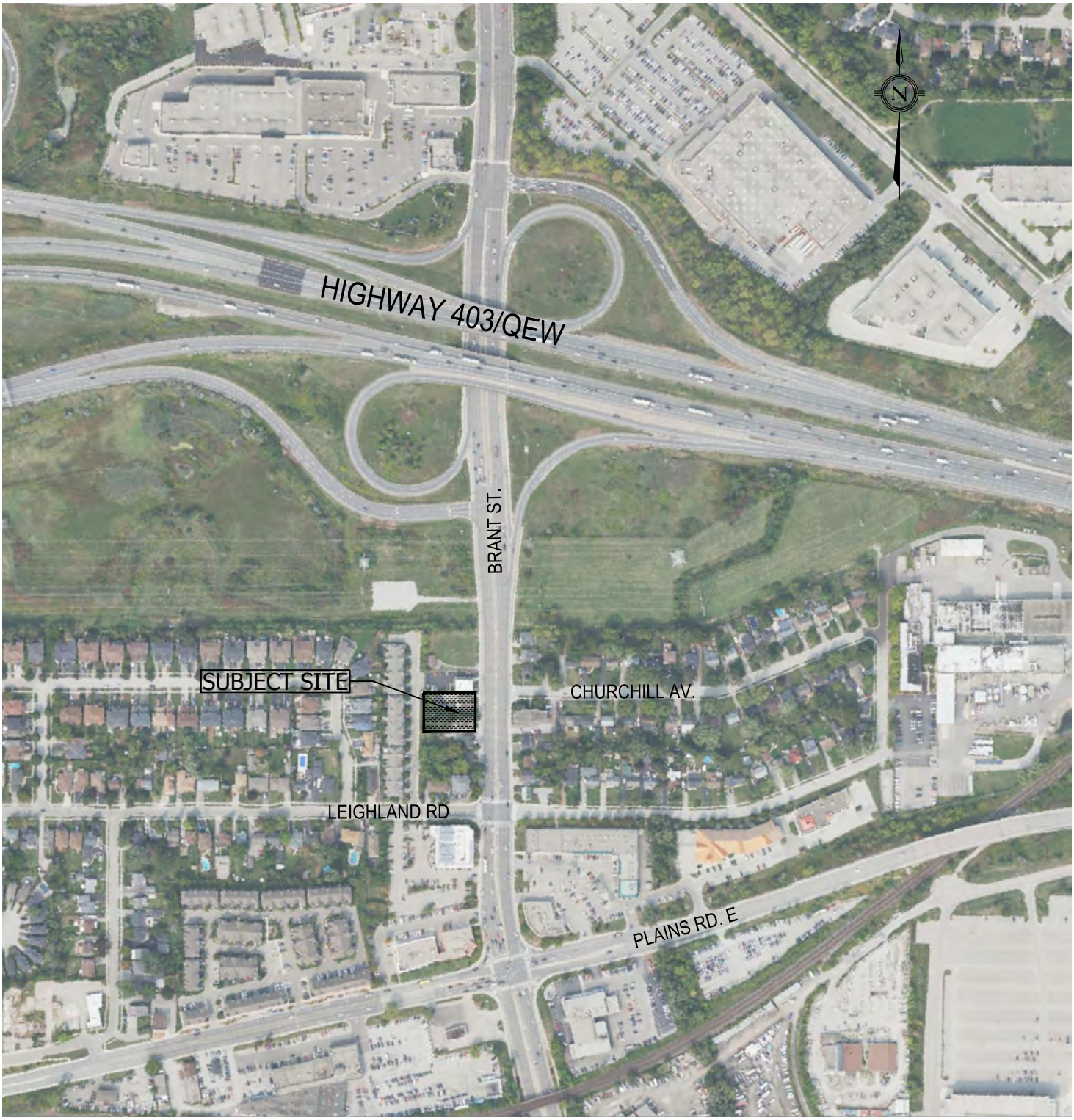
The subject site measures a total of 1,675 m^2 (0.168 ha) and is located on the south side of Brant Street between Churchill Ave and Leighland Road. The property has approximately 36 m of frontage on Brant Street. The subject property was previously occupied by two-storey residential dwellings which have since been demolished. Refer to **Figure 1 — Site Location Plan** for the location of the subject site within the City of Burlington.

The proposed development will consist of the 11-storey residential building with surface and underground parking, landscaping and driveway areas. A 43 m^2 road widening of Brant Street is proposed and the resulting development area is 1,632 m^2 (0.163 ha).

A summary of the proposed development is as follows:

Table 1: Site Statistics

Overall Property Development	
Building Area	0.071 ha
Impervious Surface	0.082 ha
Landscaped Area	0.010 ha
Total Property	0.163 ha



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1056-1060 BRANT STREET

SITE LOCATION PLAN

DESIGNED BY: PM	DATE: MAR 08, 2025
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CHECKED BY: AD	FIGURE No. 1
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1.3 STUDY PARAMETERS

This servicing assessment is based on the review of the following documents and drawings:

- Topographic Survey, prepared by MacKay, MacKay & Peters Limited
- Architectural Plans, prepared by WZMH Architects Limited
- As-constructed Plan & Profile Plans, provided by Halton Region
- Fire Underwriters Survey (FUS), 2020
- City of Burlington Engineering Department Design Criteria
- City of Burlington Stormwater Management Guidelines, May 2020
- Halton Region Water and Wastewater Linear Design Manual, November 2024 (Version 6)
- Conservation Halton Guidelines for Stormwater Management Engineering Submissions, November 2021

2.0 WATER SUPPLY

2.1 EXISTING WATER SUPPLY

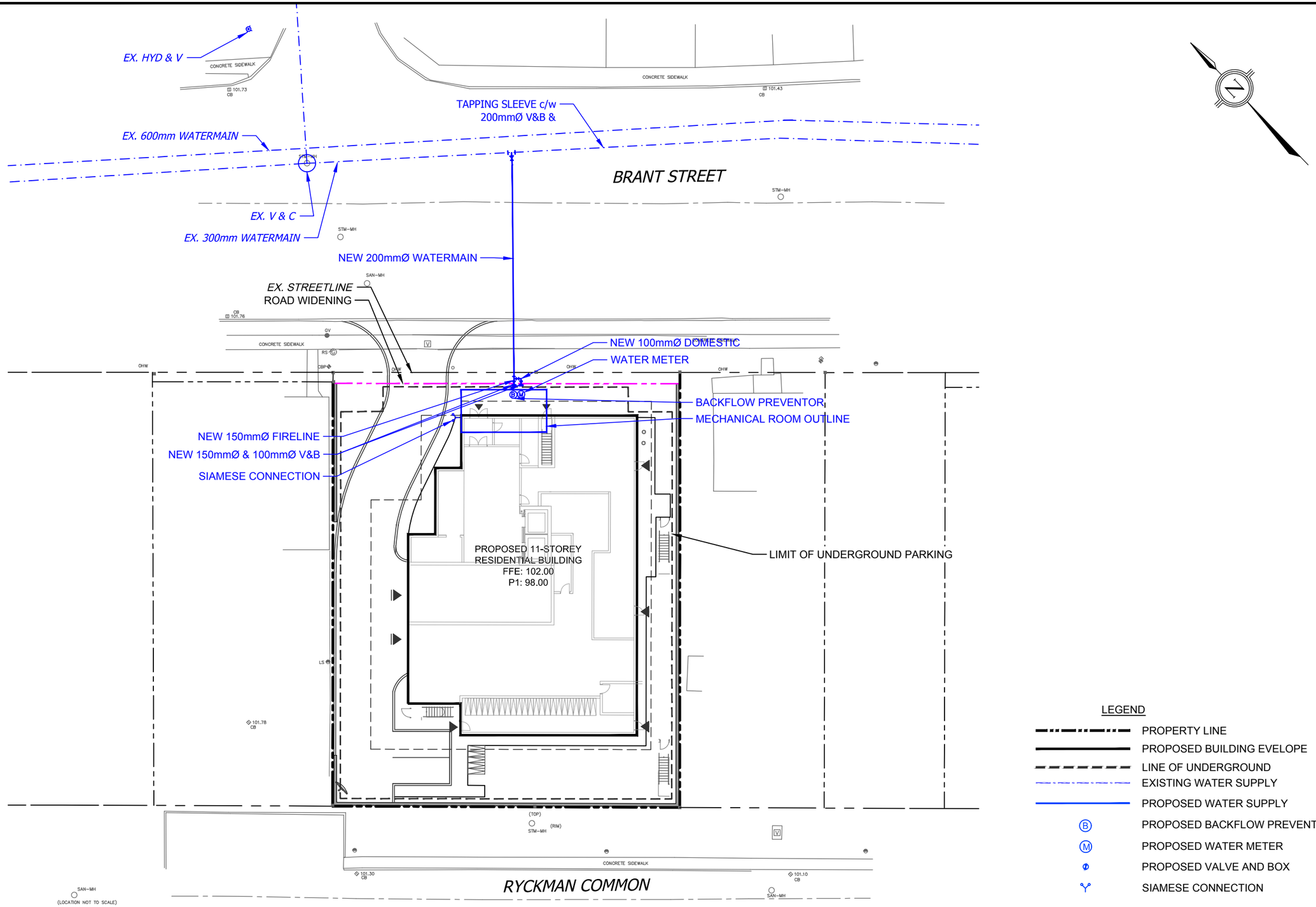
The existing water services surrounding the site include a 300 mm and a 600 mm diameter watermain on Brant Street. The existing 150 mm diameter watermain along Churchill Avenue connects to the existing 300 mm diameter watermain on Brant Street. The closest and most accessible fire hydrant to the subject site at the northwest corner of Brant Street and Churchill Avenue. This hydrant is located approximately 37 m north of the site's boundary.

Refer to **Figure 2 – Water Servicing Plan** for the existing watermain network.

2.2 PROPOSED WATER SUPPLY

The proposed development will be serviced through a 200 mm connection to the existing 300 mm watermain on Brant Street. This proposed connection will split into a 200 mm fire line and a 100 mm domestic line, which will terminate at the streetline in accordance with Halton Region standards. Per Halton Region standards, a water meter chamber and backflow preventer will be installed within the property near the property line. Refer to **Figure 2 – Water Servicing Plan** for the proposed watermain layout.

A Siamese connection is proposed outside the building above the mechanical room (the same mechanical room where the domestic and fire services are proposed to enter the building).



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WATER SERVICING PLAN

1056 & 1060 BRANT STREET
PROPOSED 11-STOREY
RESIDENTIAL BUILDING
BURLINGTON, ONTARIO

DESIGNED BY:	PM	DATE:	APRIL 11, 2025
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DRAWING BY:	PM		
CHECKED BY:	AD	DWG No:	FIG.2
SCALE:	NTS		

All existing water services within the subject site are to be removed or abandoned in accordance with Region of Halton standards.

The Halton Region Water and Wastewater Linear Design Manual states that governing flows shall be the greater of a) a maximum day demand plus fire flow, or b) a maximum hour demand. An average design flow of 265 L/cap/day and peaking factors of 4.0 and 2.25, were used to calculate the residential maximum hour and maximum day demand as per Halton Region's Water and Wastewater Linear Design Manual. The residential daily demands are as follows:

- Maximum Day Demand = 139 L/min
- Maximum Hour Demand = 248 L/min

The Fire Underwriter's Survey (FUS) guidelines were used to estimate the required fire flow for the proposed building located within the subject site. The governing fire flow was found to be 8,000 L/min, resulting in a maximum day demand plus fire flow of 8,139 L/min. Therefore, the governing flow is 8,139 L/min.

A hydrant flow test was conducted by Lozzi Aqua Check on October 27th, 2025, to confirm that residual system pressures are adequate at the governing flow rate. Based on the hydrant flow test conducted on Brant Street, the following system pressures and flows were calculated:

- Measured static pressure = 47 psi
- Theoretical pressure during maximum hour demand (248 L/min) = 47 psi
- Maximum flow at a minimum pressure of 20 psi = 12,796 L/min

The results of the hydrant flow test show that Brant Street has an ultimate capacity of 12,796 L/min at a minimum pressure of 20 psi. As this is greater than the combined maximum day plus fire flow demand of 8,139 L/min, there is sufficient capacity in the Brant Street watermain to support the proposed development.

Refer to **Appendix B** for the supporting calculations of the proposed water demand and fire flow calculations.

3.0 GROUNDWATER MANAGEMENT

Discharge of foundation drains to municipal sewers will be in accordance with the Halton Sanitary and Combined Sewer By-Law 02-03 and City of Burlington By-law 59-2022. A Permit To Take Water (PTTW) from the Ontario Ministry of the Environment, Conservation and Parks (MECP) through an online process is required for Short Term water taking between 50 m^3/day and 400 m^3/day.

A Hydrogeological Investigation Report was prepared by EXP Services Inc. dated March 13, 2025 for the proposed development.

3.1 SHORT TERM (CONSTRUCTION)

Quantity

The groundwater rates are expected to be 141,000 L/day (1.63 L/s). This rate includes the removal of a 25mm design rainfall event. The short-term discharge will be to the 675mmø storm sewer located on Brant Street.

The maximum pump rate for short-term discharge is to be designed by the contractor/ dewatering contractor and approved by the City of Burlington.

Quality

It is understood the groundwater samples from the subject site meets the permissible limits for Halton Sanitary and Combined Sewer By-Law (02-03) and Burlington Storm Sewer By-Law (59-2022) for Total Suspended Solids (TSS). As such, no groundwater treatment will be required prior to discharge for short-term dewatering.

3.2 LONG TERM DISCHARGE

Quantity

The Hydrogeological Investigation Report notes that the permanent groundwater flux will be 25,000 L/day. If the below grade structure is to be provided with conventional foundation drains, a private water drainage system (PWDS) will be required. If the below grade structure is designed to be waterproof, a PWDS may not be required, but in either case, foundation drainage will be collected in a sump pit and pumped to the stormwater management tank and discharged to the existing municipal storm sewer on Brant Street.

Quality

Long term groundwater discharge will be pumped into the stormwater management tank and outletted into the municipal storm sewer via a stormwater treatment unit that is discussed in **Section 5.5**. Details of the pump rate, sub slab foundation system, and sump pit sizing are to be confirmed and finalized by the mechanical engineer.

4.0 SANITARY SERVICING

4.1 EXISTING SANITARY SERVICING

Per the record drawings provided by Halton Region, existing sanitary sewers are situated in the vicinity of the subject site. The existing sanitary sewer on Brant Street is 200 mm in diameter. The existing manhole on Brant Street connects the 200 mm diameter sanitary sewer to a 150 mm diameter sewer that runs along Churchill Avenue.

Refer to **Figure 3 – Sanitary Servicing Plan** for the existing sanitary network.

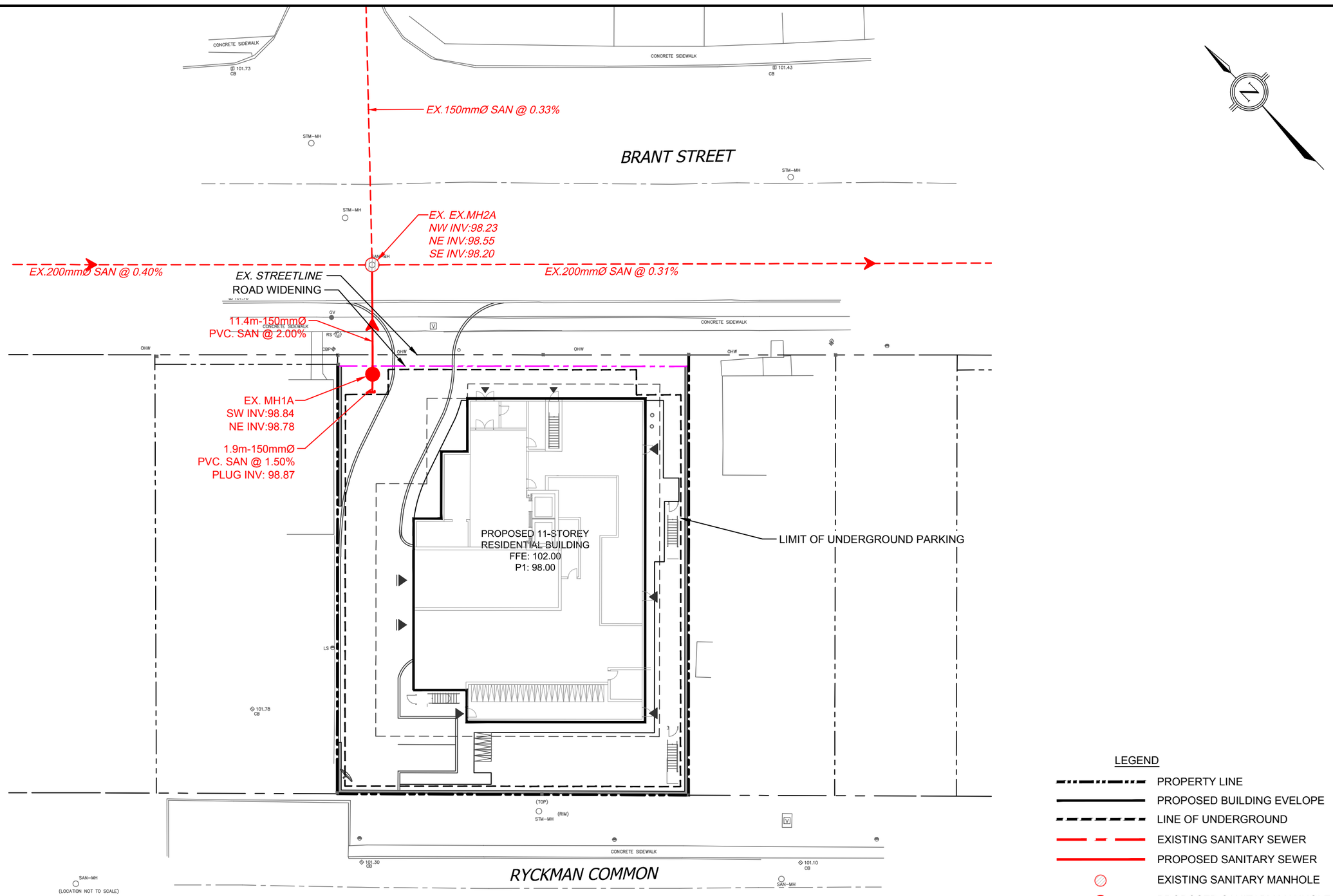
As per Halton Region's standards for sanitary demand, the existing residential development produces a sanitary flow of 275 L/person/day, resulting in an existing sanitary flow of 0.24 L/s. Refer to **Appendix C** for pre-development sanitary calculations. All internal sanitary service connections within the existing site are to be removed or abandoned in accordance with the City of Burlington standards.

4.2 PROPOSED SANITARY SERVICING

The proposed development includes a common underground which occupies most of the site area. Therefore, a single sanitary service connected to the existing system will provide sanitary servicing for the entirety of the proposed development. Ultimately, all sanitary flows from the proposed development will be discharged to a proposed 150 mm diameter sanitary pipe to the existing manhole on Brant Street.

The sanitary connection is proposed along the east side of the development and will connect to the existing sewer. Refer to **Figure 3 – Sanitary Servicing Plan** for the layout of the proposed sanitary service connection.

As per Halton Region's equivalent population density, the equivalent proposed population of the proposed development is 1,417 persons. This number was calculated using Halton's Water and Wastewater Linear Design Manual. The proposed development is in the MTSA, an urban growth area so the equivalent population density was taken to be 2000 person/hectare. As per Halton Region's design criteria, the average daily flow is 275 L/c/day. With a peaking factor of 4.00 and an infiltration rate of 0.286 L/s/Ha, the resultant sanitary design flow is 4.17 L/s. Refer to **Appendix C** for sanitary demand calculations.



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SANITARY SERVICING PLAN

1056 & 1060 BRANT STREET
PROPOSED 11-STOREY
RESIDENTIAL BUILDING
BURLINGTON, ONTARIO

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4.3 DOWNSTREAM SANITARY SEWER ANALYSIS

A downstream sanitary sewer analysis has been prepared to demonstrate that the receiving sanitary sewers have capacity for the proposed development and that no offsite infrastructure improvements are necessary to accommodate sanitary flows from the proposed development. The analysis included sewer segments starting from Highway 407 to the north, Mountain Grove Avenue to the east, Brant Street to the west and terminating at the trunk sewer on Glendor Avenue. Refer to **Appendix C** for the sanitary drainage plans upstream and downstream of the subject site (Drawings C301 and C302) . The pre-development sanitary tributary flows have been estimated by accounting for each property use within individual drainage areas including all current development applications, if any, in the tributary area. This information was then used to calculate the contributing populations.

4.3.1 PRE DEVELOPMENT CONDITIONS

Under pre-development conditions, the subject site drains to the existing 300mm sanitary sewer on Brant Street, which then connects a 525mm sanitary sewer on Leighland Road and ultimately discharges to the 900mm sanitary trunk on Glendor Avenue. Refer to **Appendix C** for the pre development design sheet. As indicated on the sanitary design sheet and under pre development conditions, the maximum actual flow to design capacity ratio (Q_a/Q_f) on any existing sanitary sewer leg from subject site to the sanitary trunk is 53.4%. There are no downstream sanitary sewer capacity concerns under pre development conditions.

4.3.2 POST DEVELOPMENT CONDITIONS

The sanitary design flow that is described in Section 4.2 is added to the sanitary design sheet. . Refer to **Appendix C** for the post development design sheet. Under post development conditions, the downstream sewer analysis concludes the following:

- the last leg of the 525mm sanitary sewer before sanitary trunk on Glendor Avenue (MH8828-MH8822) will flow at 21.7% full.
- The 525mm sanitary sewer legs from Glendor Avenue to Brant Street will flow at a maximum 55.6% full while the 300mm sanitary sewer on Brant Street will flow at 12.6% full.
- As such, there are no downstream sanitary sewer capacity concerns under post development conditions and no sanitary sewer infrastructure improvements are necessary to service the proposed development.

5.0 STORMWATER SERVICING

5.1 EXISTING STORMWATER DRAINAGE

Per the record drawings provided by Halton Region, there is an existing 675 mm storm sewer on Brant Street that drains towards the south. There exists another 300 mm storm sewer that drains southwards on Brant Street and terminates at a manhole approximately 12 meters from the subject site.

The subject site drains uncontrolled onto the adjacent residential property located south of the site. This drainage likely enters the private storm sewer system through a catchbasin located within that property and is conveyed towards Leighland Road. Refer to **Figure 4 – Pre-Development Storm Drainage Plan** for existing drainage patterns, areas, and runoff coefficients. **Table 2** summarizes the pre-development drainage conditions based on runoff coefficients and the IDF curves per City of Burlington stormwater management design guidelines. Refer to **Appendix D** for existing release rate calculations.

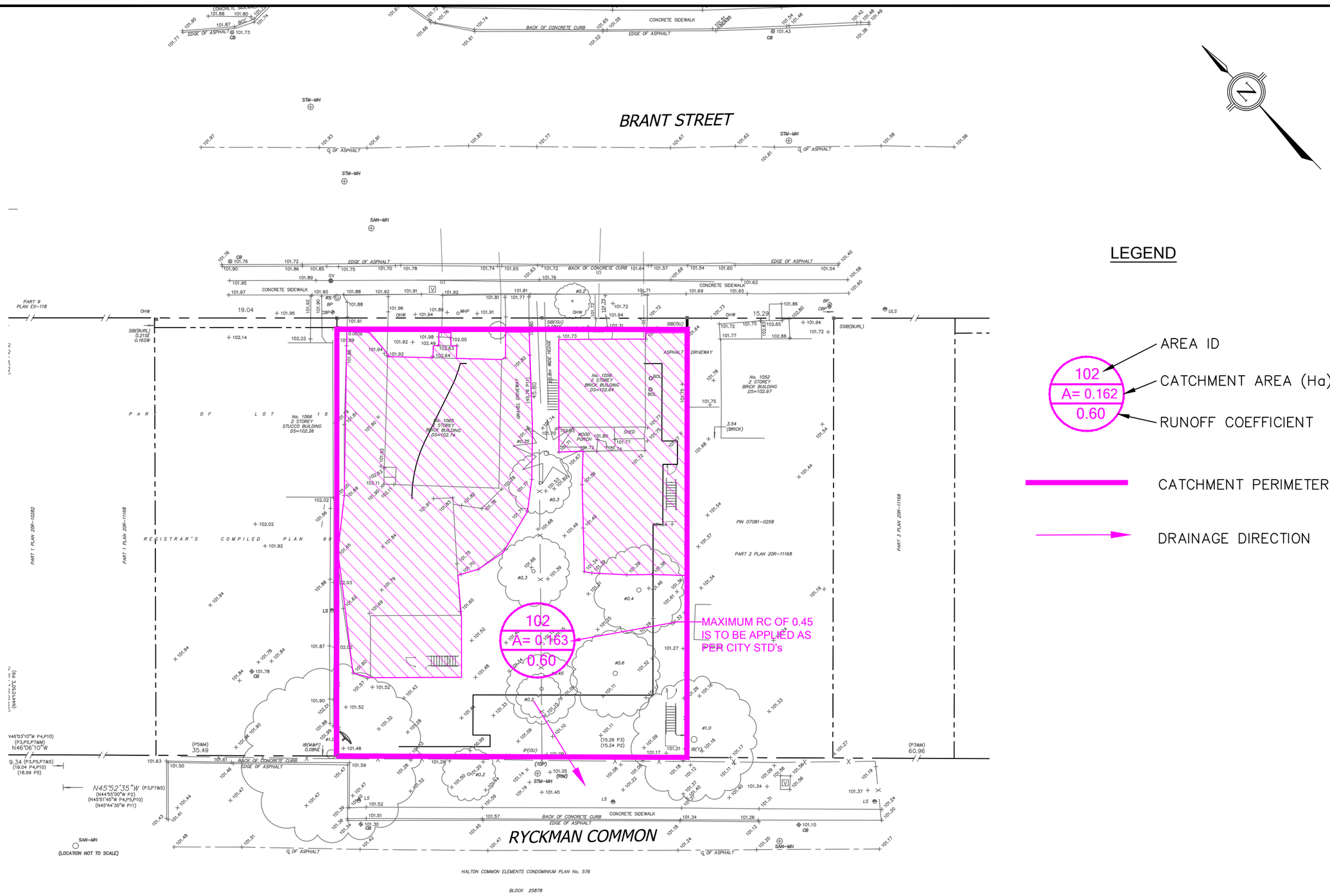
Table 2: Pre-Development Drainage Areas

ID	Area (ha)	Runoff Coefficient	5-Yr Peak Flow (L/s)	100-Yr Peak Flow (L/s)	Description
101	0.163	0.45*	20.7	41.6	Drains uncontrolled onto adjacent residential property
TOTAL	**0.163**	**0.45**	**20.7**	**41.6**	
***Actual RC = 0.60**					

5.2 ALLOWABLE RELEASE RATE

City of Burlington stormwater management design guidelines require flood control to development sites to be accordance with the specified level of control outlined within a governing Subwatershed Study (SWS), Master Drainage Plan (MDP), or Master Environmental Servicing Plan (MESP) that encompasses the subject site. In cases where a SWS, MDP, or MESP does not exist, the following flood control is required as a minimum:

- Where a site discharges to a watercourse system: post-development to pre-development peak flow control for the 2 through 100-year return periods.
- Where a site discharges to a storm sewer: 100-year return period post-development to the allotted capacity of storm sewer.



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PRE DEVELOPMENT DRAINAGE PLAN

1056 & 1060 BRANT STREET
PROPOSED 11-STOREY RESIDENTIAL BUILDING
BURLINGTON, ONTARIO

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It is not known whether SWS or MESP exists for the area encompassing the subject site. The allotted capacity of the receiving storm sewer on Brant Street is also not known and as such the 100-year return period post development to the 5-year return period pre-development peak flow control to the municipal storm sewer (Area 201 + UNC) shall be considered as the required flood control and the allowable release rate. The allowable release rate is 20.5 L/s (5-year peak flow for Areas 101/ municipal storm sewer). Refer to **Appendix D** for the allowable release rate calculation.

5.3 PROPOSED QUANTITY CONTROLS

The proposed release rate for **Area 201** (post-development drainage area – Refer to **Figure 5**) for all storms up to and including the 100-year storm event will be controlled to the 5-year pre-development peak run-off rate for **Area 101** (pre-development drainage area). Approximately **27 m³** of SWM detention storage will be required to attenuate the peak flows within **Area 201** to just below the allowable discharge rate (orifice controlled flow of 16.7 L/s).**Table 3** below provides a preliminary allocation of the allowable release rate and associated storage requirements for the site.

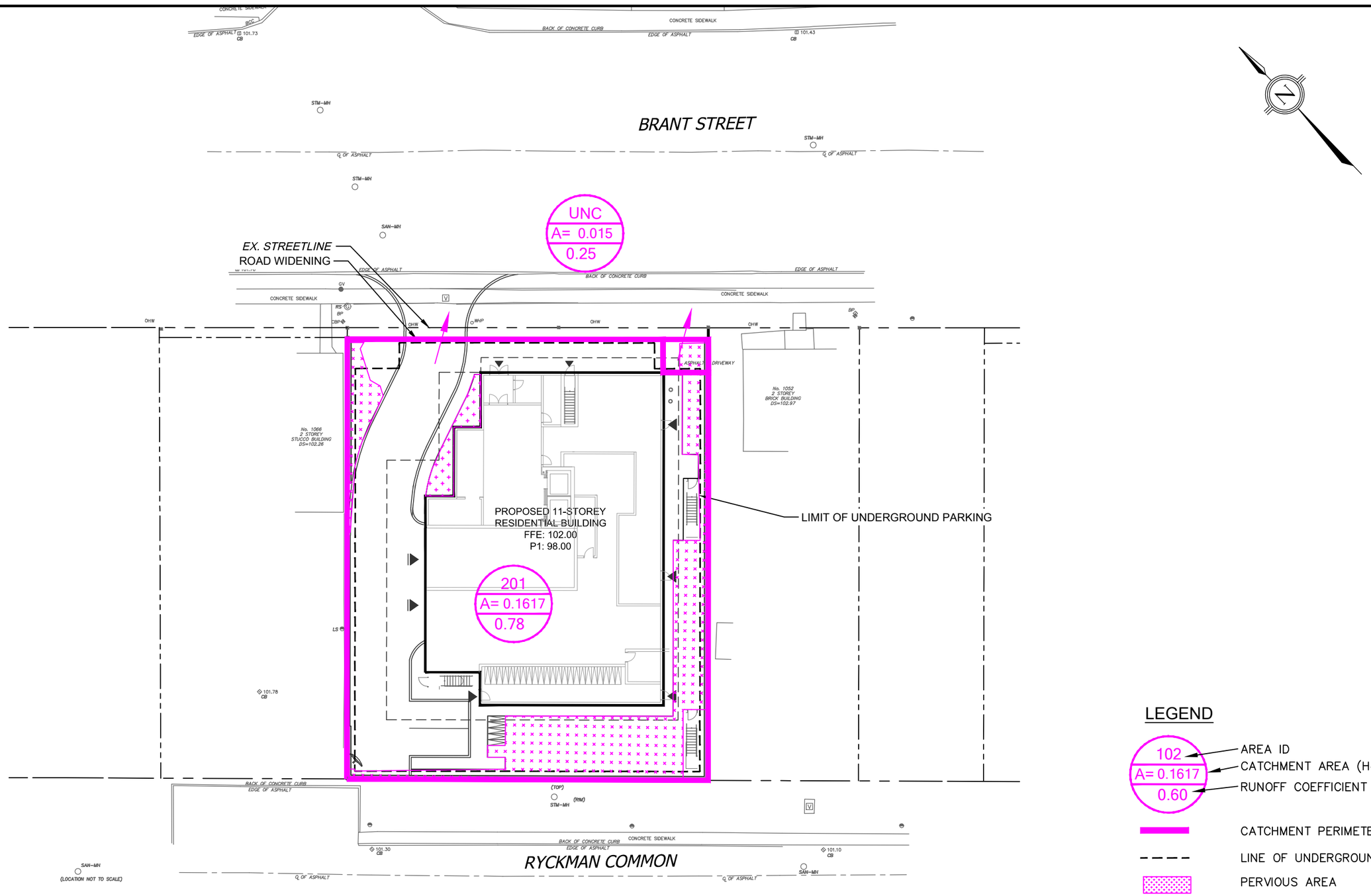
Table 3: Peak Flow and Storage Summary –100-Year Storm Event

Area ID	Area (ha)	Runoff Coefficient	Storage Available (m^3)	Storage Required (m^3)	100-Year Release Rate (L/s)	Description
A201	0.1617	0.78	38.5	27	16.7	Orifice
UNC	0.0015	0.25	N/A	N/A	0.2	Uncontrolled
Total Site	0.1632				16.9	
NOTES: On-site storage will be provided via a tank located on the P1 level. Refer to Figure 5 for the Post Development Drainage Plan						

Refer to **Appendix D** for proposed release rate and storage calculations.

5.4 QUALITY CONTROLS

Per the City of Burlington stormwater management guidelines, Level 1 Protection (80% TSS removal) is required for the proposed development. The subject development will include landscape areas and a relatively large building canopy that will produce relatively clean runoff (i.e. equivalent to



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POST DEVELOPMENT DRAINAGE PLAN

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PROPOSED 11-STOREY
RESIDENTIAL BUILDING
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100% TSS removal) and driveways, walkways and other impervious surfaces that will produce TSS laden stormwater runoff.

Based on the site statistics included in **Table 1**, the unmitigated TSS removal rate is only 48.5%. A Jellyfish filter unit is proposed downstream of the SWM tank to provide TSS removal (80% TSS removal credit in accordance with City accreditation of ETV certified devices) for the remaining TSS (51.5%) and as such the subject site will achieve 89.7% TSS removal. Refer to **Figure 6 – Storm Servicing Plan** for the location of the Jellyfish filter unit.

5.5 PROPOSED STORM SERVICING

The proposed development will be serviced through a new 300 mm storm sewer connection to the existing 300mm storm sewer on Brant Street. The existing 300 mm storm sewer will be extended approximately 40 m to the north to allow for the connection to the proposed development.

Stormwater runoff will be captured by area drains and directed to a SWM tank located within the underground parking structure. Orifice controlled stormwater runoff will then flow from the SWM tank to a Jellyfish filter unit system and then conveyed to the existing 300mm diameter storm sewer on Brant Street.

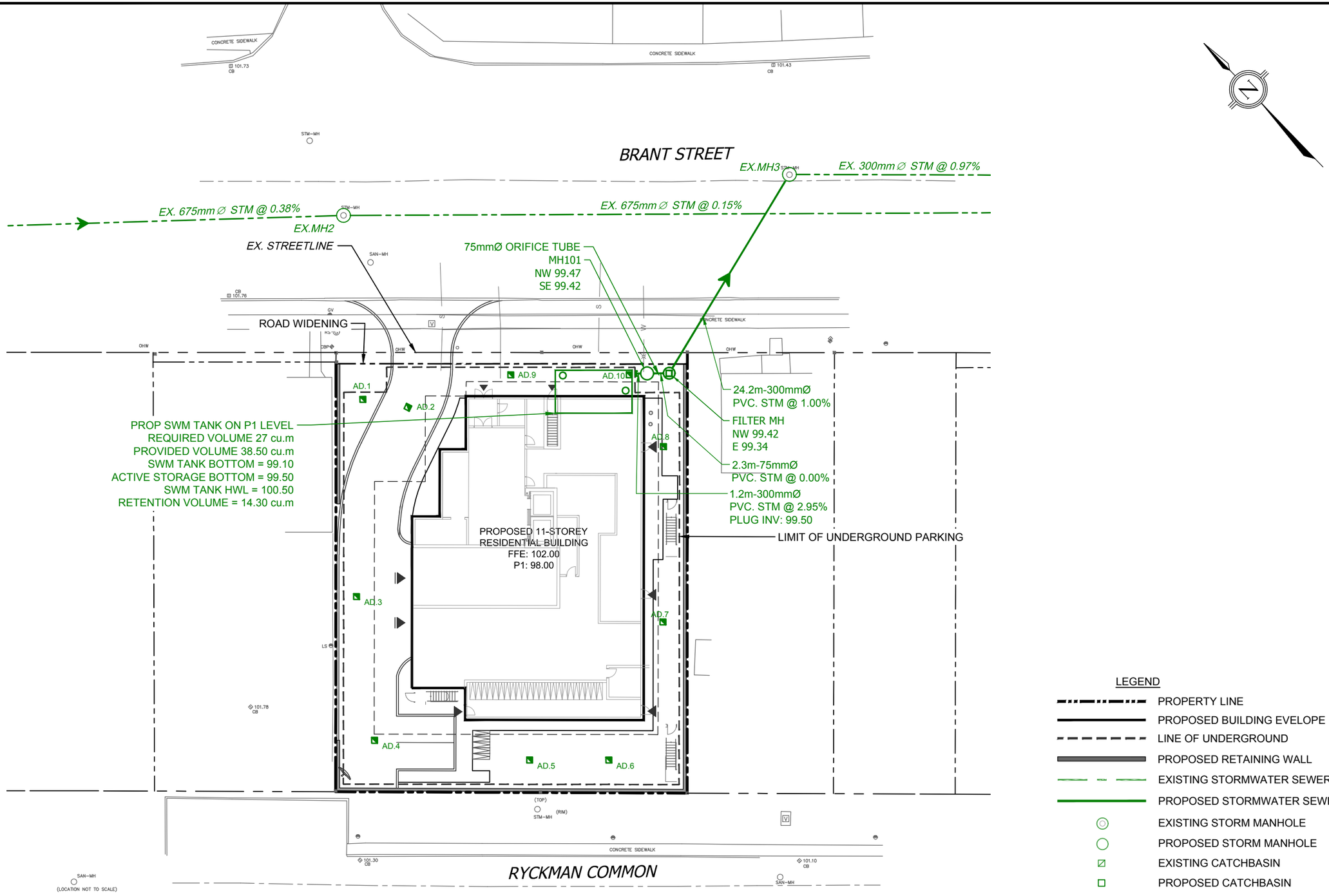
5.6 WATER BALANCE

City of Burlington stormwater management guidelines recommend that the first 5mm of rainfall which land lands on the site be retained and infiltrated on site. For a 0.1632 ha site, the 5mm rainfall depth equates to 8.2 m^3. The required retention volume will be achieved using landscape areas and a water re-use cistern for onsite irrigation. Landscape areas will provide 0.5 m^3 of water balance storage. The remaining 7.7 m^3 will be stored within a water re-use cistern within the proposed building. Calculations to demonstrate onsite water demand and utilization within 48 hours in accordance with the City of Burlington and Conservation Halton policies will be provided by the irrigation consultant. Refer to water quality and water balance volume calculations included in **Appendix D.**

6.0 SITE GRADING

An emergency overland flow route will be provided for rainfall events in excess of the 100-year storm. This route will direct major system flows to Brant Street. The grading plan will ensure that adequate cover is maintained over underground servicing, site grading is self-contained with no adverse impacts on adjacent properties and meets the requirements for pedestrian and vehicular access and the Ontario Building Code.

Refer to **Drawing C101- Servicing Plan** and **Drawing C201- Grading Plan** included in **Appendix A** for the proposed servicing and grading plans.



LEGEND

- PROPERTY LINE
- PROPOSED BUILDING EVELOPE
- LINE OF UNDERGROUND
- PROPOSED RETAINING WALL
- EXISTING STORMWATER SEWER
- PROPOSED STORMWATER SEWER
- EXISTING STORM MANHOLE
- PROPOSED STORM MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN
- PROPOSED AREA DRAIN

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STORM SERVICING PLAN

1056 & 1060 BRANT STREET
PROPOSED 11-STOREY
RESIDENTIAL BUILDING
BURLINGTON, ONTARIO

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7.0 EROSION AND SEDIMENT CONTROL

Construction activity, especially operations involving the handling of earthen material, dramatically increases the availability of particulate matter for erosion and transport by surface drainage. In order to mitigate the adverse environmental impacts caused by the release of silt-laden stormwater runoff into receiving watercourses, measures for erosion and sediment control (ESC) are required for construction sites.

The impact of construction on the environment is recognized by the Greater Golden Horseshoe Area Conservation Authorities. In December 2006 they released their document titled "Erosion & Sediment Control Guidelines for Urban Construction". This document guides the preparation of effective erosion and sediment control plans.

Control measures must be selected that are appropriate for the erosion potential of the site and they must be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore inspection and maintenance are required.

7.1 CONTROL MEASURES

The following is a description of the sediment controls to be implemented on the subject site:

- Silt fences are to be installed adjacent to all property limits subject to drainage from the development area prior to topsoil stripping and in other locations, such as at the bases of topsoil stockpiles.
- A mud mat is to be installed at the construction entrance prior to commencing garage excavation to minimize the tracking of mud onto municipal roads.
- Sediment traps are to be installed at all onsite and adjacent municipal roadway catchbasins; and at area drain locations to prevent silt-laden runoff from entering the municipal storm sewer system
- Temporary storm sewer bulkheads are proposed to be installed in the storm sewer manholes at key locations to provide additional sediment control of storm runoff prior to being conveyed to the infiltration trench and SWM facilities. The temporary bulkhead will be installed to the springline elevation of the storm sewer and will remain in place until all surfaces are stabilized. All accumulated sediment is to be removed from the manhole/catchbasin prior to removing the bulkhead.
- All landscaped areas are to be stabilized as quickly as possible with hydroseed to prevent erosion. If the landscaping works are undertaken outside the growing season, an erosion blanket will be required to be installed over the surface.

7.2 ESC INSPECTION & MAINTENANCE

To ensure that the erosion and sediment control measures operate effectively, they are to be regularly monitored, and they will require periodic cleaning (e.g., removal of accumulated silt), maintenance and/or re-construction. Inspections of all of the ESC measures on the construction site should be undertaken with the following frequency:

- On a weekly basis
- After every rainfall event
- After significant snow melt events
- Prior to forecasted rainfall events

If damaged control measures are found, they should be repaired and/or replaced within 48 hours. Site inspection staff and construction managers should refer to the Erosion and Sediment Control Inspection Guide (2008) prepared by the Greater Golden Horseshoe Area Conservation Authorities. This document provides information related to inspection reporting, problem response and proper installation techniques. Records are to be kept for each inspection and maintenance operation during construction.

8.0 CONCLUSIONS

This Functional Servicing and Stormwater Management Report presents a site servicing strategy for the proposed development that addresses the requirements of the applicable design guidelines and provides the basis for detailed servicing design.

We trust this report sufficiently addresses the site servicing requirements and allows for approval of the proposed Rezoning Application for the subject site for the proposed use described herein. Should there be any questions or comments, please feel free to contact the undersigned.

Sincerely,

Counterpoint Land Development by Dillon Consulting Limited



Pula Mathumo, P.Eng
Project Engineer/Manager
Email: pmathumo@counterpointeng.com

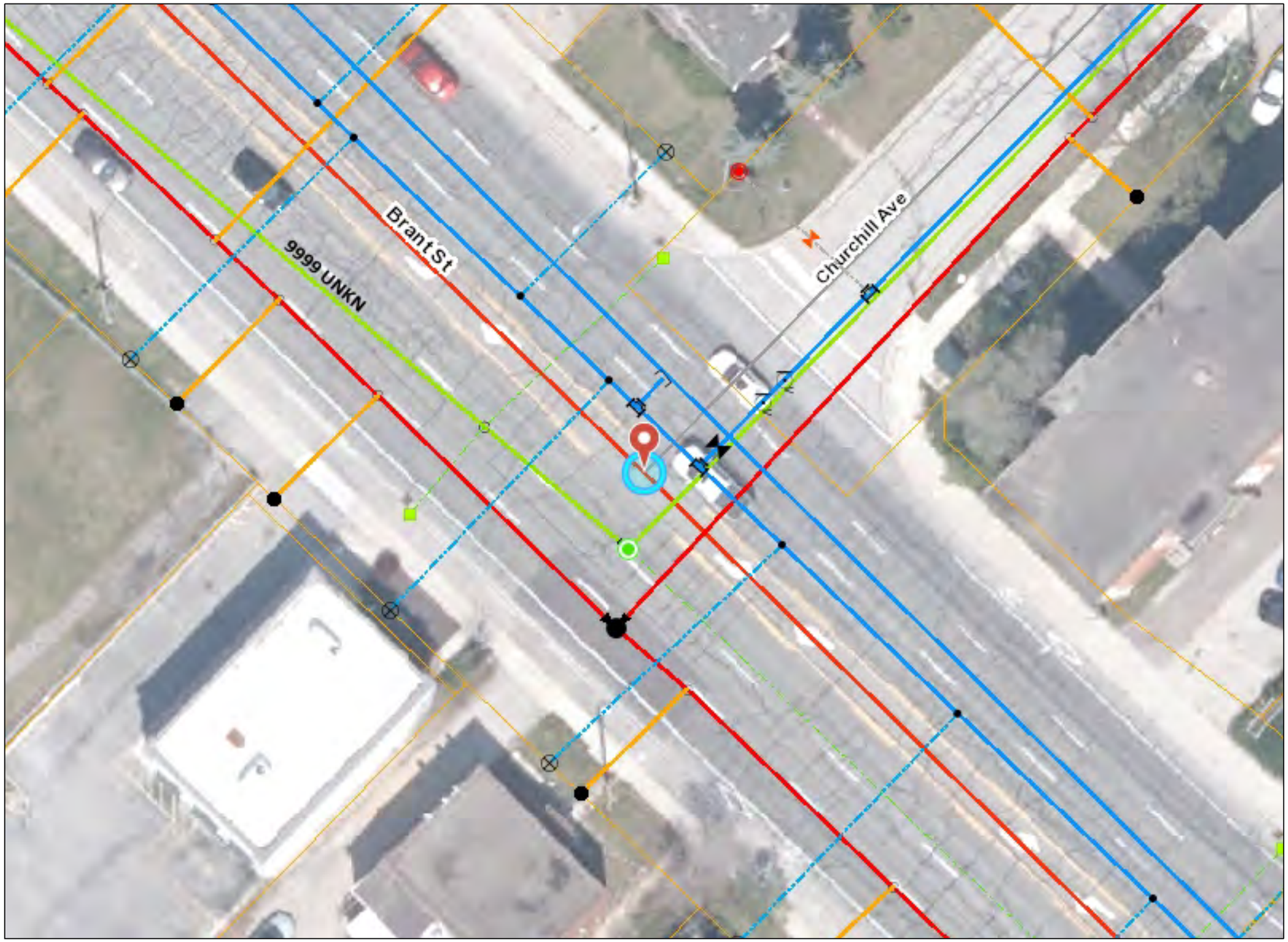
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Appendix A

- Background Plans
- Engineering Drawings prepared by Counterpoint Engineering Inc.
- Topographic Survey prepared by MacKay, MacKay & Peters Limited
- Site Plan prepared by WZMH Architects

Brant Street @ Churchill Ave, Burlington



Legend

Water Control Valve

- System
- SystemDP
- Zone
- ZoneDP

Water Service Valve

- CurbStop
- PropertyLine
- Secondary
- TappingValve

Water Hydrant

Water Fitting

- Cap
- Cross
- HBend
- MainStop
- Reducer
- Sleeve
- TappingSleeve
- Tee
- VBend

Water Chamber

- Chamber

Notes:

THIS MAP IS NOT TO BE USED FOR NAVIGATION

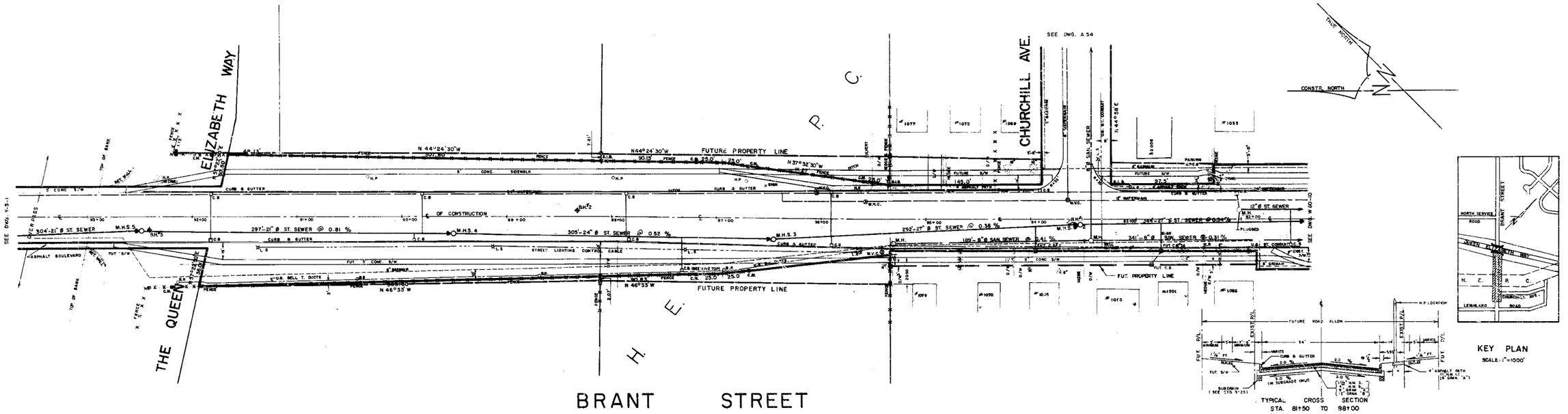
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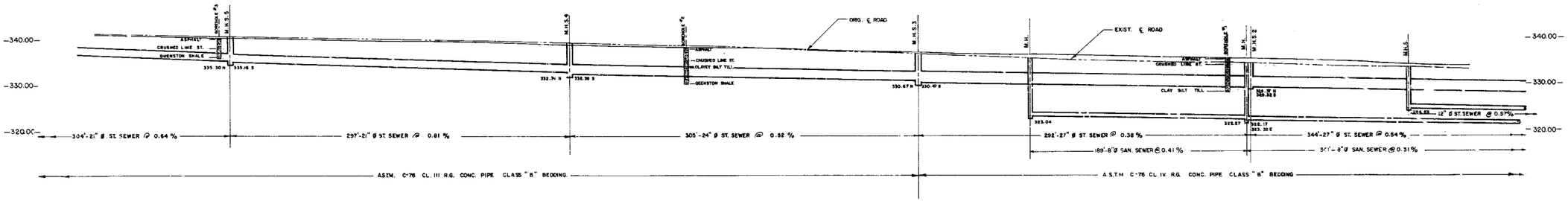
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1: 396

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

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G.E.O.D. B.M. 65-U-117
TABLET IN S/W FACE OF ABUTMENT OF E.W. BRIDGE OVER BRANT STREET ON N/E SIDE OF ROAD 12' FROM N/W END, 12' ABOVE SIDEWALK. ELEV. 342.468.

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EXCAVATION ON WIDENING ONLY — FULL DEPTH EXCAVATION

400' @ 0.50 % — 200' @ 0.60% — 350' @ 0.94% — 300' @ 0.54%

CURB GRADES ARE CONSTRUCTED AT A TRANSITION GRADE TO MEET EXIST. CURBS.

341.25	341.00	340.75	340.50	340.25	340.00	339.75	339.50	339.20	338.90	338.60	338.20	337.83	337.38	336.89	336.42	335.95	335.48	335.01	334.79	334.51	334.22	333.93	333.66	333.38	EXIST. ℄ ROAD
341.08	340.75	340.48	340.22	339.97	339.77	339.56	339.23	338.80	338.51	338.20	338.02	337.87	337.41	337.10	336.78	336.52	336.22	335.94	335.95	335.54		334.78	334.58	333.78	353.38	ORIG. ℄ ROAD
93+50	93+00	92+50	92+00	91+50	91+00	90+50	90+00	89+50	89+00	88+50	88+00	87+50	87+00	86+50	86+00	85+50	85+00	84+50	84+25	84+00	83+57.6	83+50	83+00	82+50	82+00	81+50	CHAINAGE

REVISION NR.	DESCRIPTION	DATE	BY
1	"AS CONSTRUCTED" NOTE B-186	MAY / 75	M.A

CITY OF BURLINGTON
ENGINEERING DEPARTMENT

BRANT ST.
(CHURCHILL AVE. —— Q. E. W.)

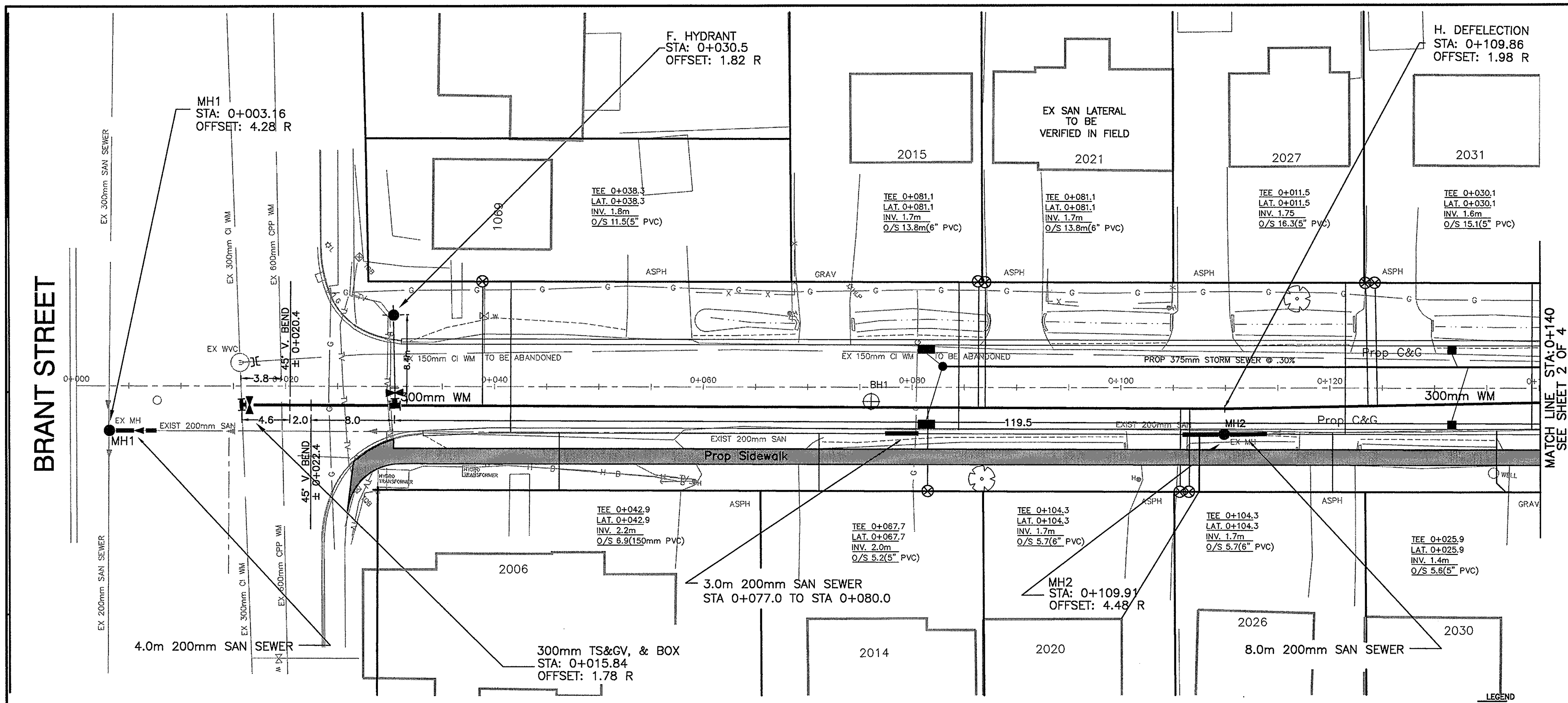
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SCALE.	HORIZ. 1" = 40' VERT. 1" = 10'	DATE:	APRIL/73	REFERENCES	Y-5
APPROVED	DIRECTOR OF PUBLIC WORKS DATE			REG. PL. 733 REG. PL. 346	

B-178

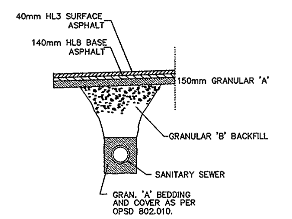
B-178

B- 8759

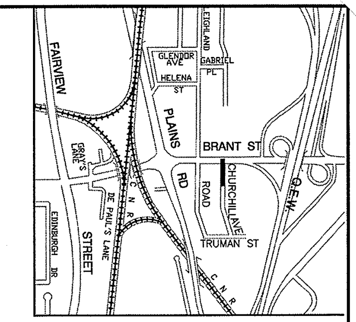
PR-2117-02 1 of 4



CHURCHILL AVENUE



ROAD RESTORATION DETAIL
BRANT STREET
N.T.S.



KEY PLAN

RESTRAINED LENGTHS FOR HORIZONTAL BENDS FOR 200mm & 300mm DIA. WM					
90 DEG. H. BEND	45 DEG. H. BEND	22.5 DEG. H. BEND	11.25 DEG. H. BEND	TEE & REDUCER	GATE VALVE & HYDRANT
8.2M	3.4M	1.8M	0.9M	16.3M	20.0M

RESTRAINED LENGTHS FOR HORIZONTAL BENDS FOR 150mm WM				
45 DEG. H. BEND	22.5 DEG. H. BEND	11.25 DEG. H. BEND	TEE & REDUCER	GATE VALVE & HYDRANT
2.0M	1.0M	0.5M	12.1M	15.0M

LEGEND

BH1 BOREHOLES – REFER TO GEOTECHNICAL INVESTIGATION REPORTS PROJECT No. SM 021057-G PREPARED BY TERRAPROBE CONSULTING GEOTECHNICAL & ENVIRONMENTAL ENGINEERING

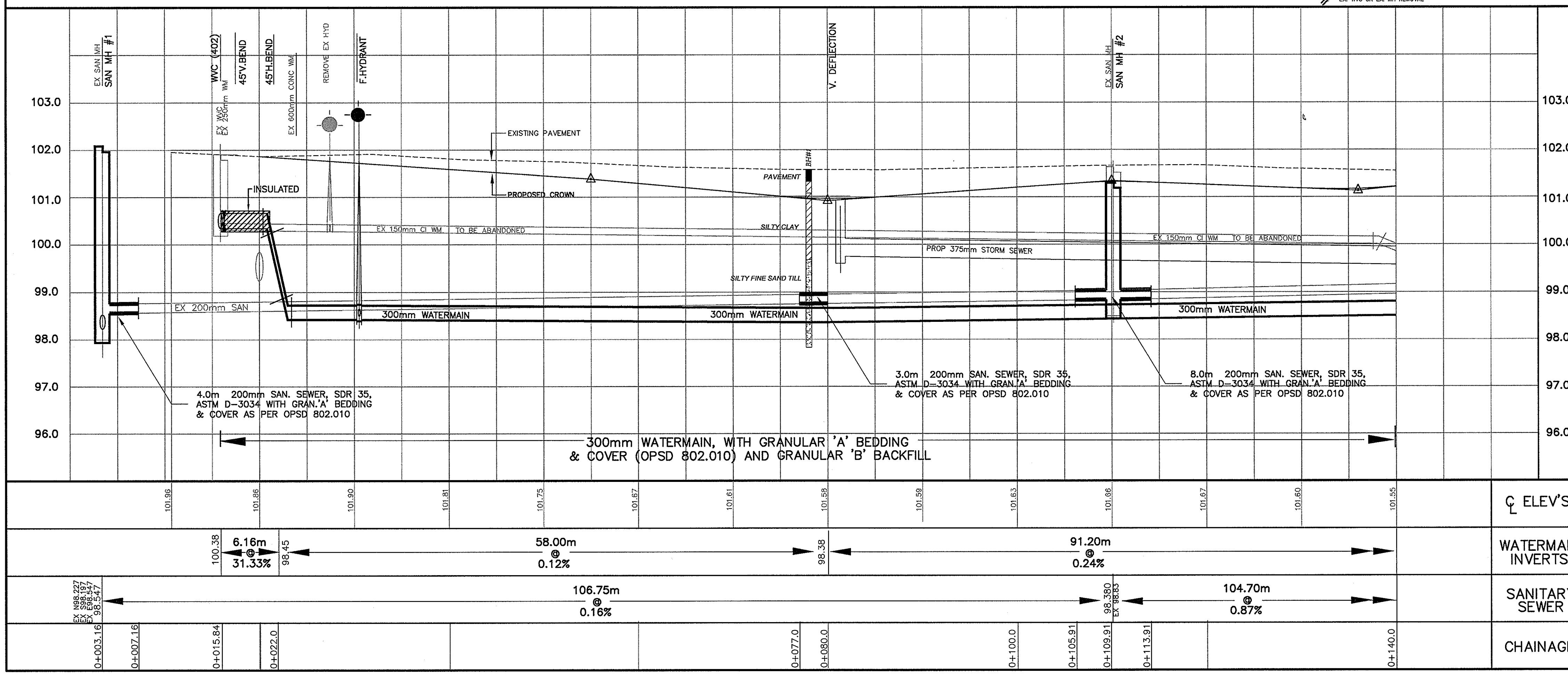
EX. HYDRANT REMOVAL

EX. G.V. & BOX REMOVAL

EX. WVC OR EX. MH REMOVAL

GENERAL NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. ALL WATERMAIN AND SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS) AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
3. THE LOCATION OF ALL EXISTING WATERMAIN, SANITARY SEWER, UTILITIES AND SERVICES ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY THE LOCATION, VERIFY SIZE AND ELEVATION IN THE FIELD PRIOR TO CONSTRUCTION.
4. DRIVEWAY MATERIAL IS ASPHALT UNLESS OTHERWISE SPECIFIED.
5. UNLESS OTHERWISE NOTED, ALL NEW SANITARY SEWERS ARE TO BE SDR 35 ASTM D3034 WITH GRANULAR 'A' BEDDING AND COVER AS PER OPSD 802.010 WITH GRANULAR 'B' BACKFILL.
6. UNLESS OTHERWISE NOTED, ALL EXISTING SANITARY LATERALS ARE TO BE REPLACED WITH PVC SDR28, 125mm DIA. CONNECTIONS FOR SINGLE FAMILY AND SEMI-DETACHED DWELLINGS AND 150mm DIA. CONNECTIONS FOR ALL OTHERS, AND ARE TO BE REPLACED FROM THE SEWER MAIN TO EXISTING LATERALS AT THE PROPERTY LINE.
7. UNLESS OTHERWISE NOTED, ALL THE EXISTING SANITARY MANHOLES ARE TO BE EITHER REMOVED OR BROKEN DOWN 1.0m BELOW ROAD GRADE AND BACKFILLED WITH GRANULAR 'B' WITH COMPLETE RESTORATION. FRAMES AND COVERS ARE TO BE SALVAGED AND RETURNED TO THE REGIONAL STORES, 1179 BRONTE RD., OAKVILLE.
8. WATERMAIN MATERIAL IS TO BE EITHER DUCTILE IRON PRESSURE CLASS 350 AS PER AWWA C-150 OR PVC SDR-18 CL-150 AS PER AWWA C-900.
9. UNLESS OTHERWISE NOTED, ALL EXISTING WATER SERVICES ARE TO BE REPLACED WITH A MIN. 19mm DIA. COPPER FOR RESIDENTIAL DWELLINGS AND 25mm DIA. COPPER FOR INDUSTRIAL AND COMMERCIAL PREMISES AS PER OPSD 1104.010. UNLESS OTHERWISE NOTED, SERVICES ARE TO BE REPLACED FROM THE MAIN TO THE PROPERTY LINE WITH A NEW CURB STOP AND SERVICE BOX AT THE PROPERTY LINE.
10. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW OFFS REQUIRED FOR TESTING THE NEW WATERMAIN.
11. MAXIMUM ALLOWABLE PIPE JOINT DEFLECTION OF THE WATERMAIN SHALL BE 70% OF THE MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS STRICTLY PROHIBITED.
12. CORROSION PROTECTION IS REQUIRED FOR ALL METALLIC PIPE, VALVES, FITTINGS SERVICES AND HYDRANTS. CATHODIC PROTECTION (ZINC ANODE) AS PER THE DETAILS IN THE REGIONAL DESIGN SPECIFICATIONS OR 8 MIL MEDIUM DENSITY POLYETHYLENE ENCASEMENT AS PER AWWA C-105 SHALL BE USED.
13. AFTER REMOVING VALVE BOXES AND HYDRANTS, BACKFILL WITH COMPACTED GRANULAR 'A'. WHERE EXISTING VALVE CHAMBERS ARE TO BE ABANDONED, ALL VALVES WITHIN THE CHAMBER ARE TO BE LEFT IN PLACE AND THE CHAMBER IS TO BE BROKEN DOWN TO 1.0m BELOW FINAL GRADE AND BACKFILLED WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. ALL HYDRANTS SHOWN FOR REMOVAL SHALL BE RETURNED TO REGIONAL STORES AT 1179 BRONTE RD., OAKVILLE. UNLESS OTHERWISE NOTED, ALL VALVES WHICH ARE SHOWN FOR REMOVAL SHALL BE DISPOSED OF BY CONTRACTOR.
14. EXISTING WATERMAIN IS TO BE EITHER REMOVED OR PLUGGED AND ABANDONED AS REQUIRED.
15. HYDRANTS ARE TO BE INSTALLED SUCH THAT THE LOWER ROD/STEM LENGTH SHALL NOT EXCEED 1.7m MEASURED FROM THE BREAK-OFF FLANGE.
16. REGIONAL MUNICIPALITY OF HALTON APPROVED MECHANICAL RESTRAINTS ARE TO BE USED ON ALL STANDARD BENDS, VALVES, FITTINGS AND HYDRANTS. REFER TO TABLE.



NՉ	Date	By	REVISIONS	MANU	CAD
	Mar/03	LC	AS CONSTRUCTED		X

Design JP Ch'kd
Drawn WGN Ch'kd
Date MAY, 2002
Scale 1:250 Horiz. / 1:50 Vert.
References
Field Notes

APPROVALS
Municipal
Regional
Director, Engineering Services
Manager, Design Services
Stamp

REGIONAL MUNICIPALITY OF Halton — JOINT CONTRACT — CITY OF BURLINGTON

TITLE PROPOSED 300mm WATERMAIN & 250mm SANITARY SEWER ON

CHURCHILL AVENUE

IN THE
CITY OF BURLINGTON

Consultant File NՉ MC-40
Regional Drawing NՉ B- 8759
CONTRACT NՉ WS-2117-02 02-08
SHEET 1 OF 4

POSITION EDGE OF PRINT ON THIS LINE
MB-4-Z
B-6259

PETTIT JOHN IRVING 1049
MC CONACHIE JAMES EARL & MC CONACHIE ELIZABETH ANNA 1045
RUSSELL WILLIAM 1041
MORGAN JEREMY 1048
KURUZOVIC WANDA 1040
HOLLAND JOHN IN TRUST 1030

LIMIT OF CONTR.
LEIGHLAND RD.
PROP. 5m X 5m PROPERTY EASEMENT
PROP. 40m TAPER
PROP. 45.4m TAPER
PROP. MEDIAN
EXIST. MEDIAN TO BE REMOVED
PROP. 75mm TIC
PROP. BELL BOX
PROP. C.L.G
REMOVE EX. C.L.G
EX. CONC. S/W TO BE REMOVED
FRAME TO BE REPLACED
TO BE REMOVED
PROP. CURB RETURNS TO BE FLUSH WITH ASPHALT
NOTE: HYDRANT REMOVED & PLUGGED AT MAIN.
NOTE: FOR TRAFFIC INSTALLATION SEE DWG. TC-3-4-H
BUS SHELTER (STRUCTURE) TO BE RELOCATED BY THE CITY. CONTRACTOR TO REMOVE CONC. PAD
CONSTRUCT CONC. PAD 13.30m x 2.134m, 75mm THICK)
SEE DWG. MB-4-Z CONST. SHEET 3 OF 3
SEE DWG. MB-4-Z CONST. SHEET 1 OF 3
SEE DRAWING ML-2Z CONST.
TRUE N.
CONST. N.
ONTARIO HYDRO
LEIGHLAND RD.
BRANT ST.
PLAINS RD. EAST
DE PAULS LANE

BRANT STREET

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

ELEVATIONS REFERRED TO "1978 GEODETIC ADJUSTMENT"

EXIST. ℄ ROAD
102.00
101.00
100.00
99.00
102.000
101.000
100.000
99.000

No	DATE	BY	REVISIONS
6	FEB 91	G.L.	LATERALS & HYDRANT AS PER FIELD NOTES
5	AUG.90	D.G.M.	SOUTHERN MEDIAN SHORTENED TO CLEAR CROSSWALK
4	AUG.90	D.G.M.	TIC'S & THH'S ADDED (EAST & WEST SIDE OF BRANT)
3	AUG.90	D.G.M.	PROP. 5m X 5m PROPERTY EASEMENT ADDED
2	AUG.90	D.G.M.	LIMIT OF CONTRACT EXTENDED WEST ON LEIGHLAND
1	AUG.90	D.G.M.	MEDIAN CHANGE – LARGER STORAGE LANE

DESIGN D.K. | CHECKED | DATE MAR./89
DRAWN L.S. | CHECKED
SCALE HOR. 1:200, VERT. 1:50
REFERENCES S-58-8903-E

APPROVALS
Municipal
DIRECTOR OF ENGINEERING
DATE
Regional
FIELD NOTES
STAMP

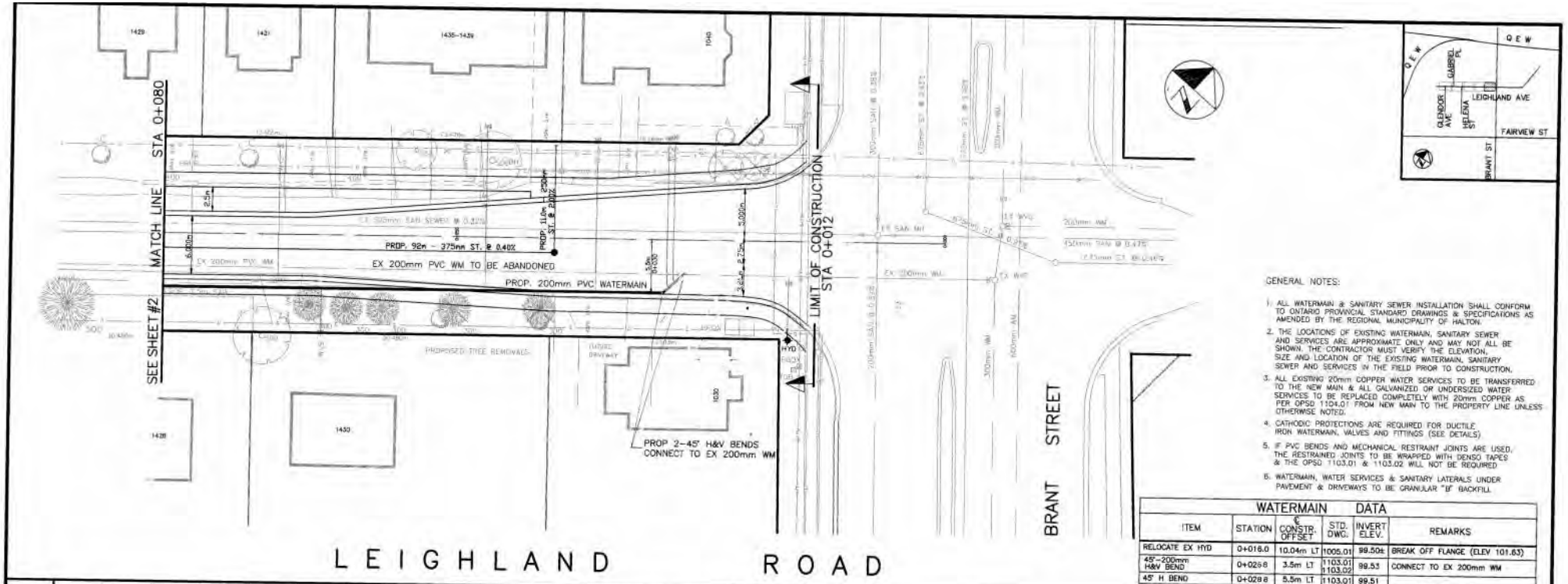
CONSULTANT

CITY OF BURLINGTON
ENGINEERING DEPARTMENT

BRANT STREET
60 m SOUTH OF LEIGHLAND RD. TO 60 m NORTH OF LEIGHLAND RD.

MUNICIPAL DRAWING No. MB-4-Z CONST.
REGIONAL DRAWING No. B-6259
CONTRACT No. PR-1063
CONSULTANT DRAWING No.
SHEET 2 OF 3

ROAD GRADE
STORM SEWER
SANITARY SEWER
CHAINAGE
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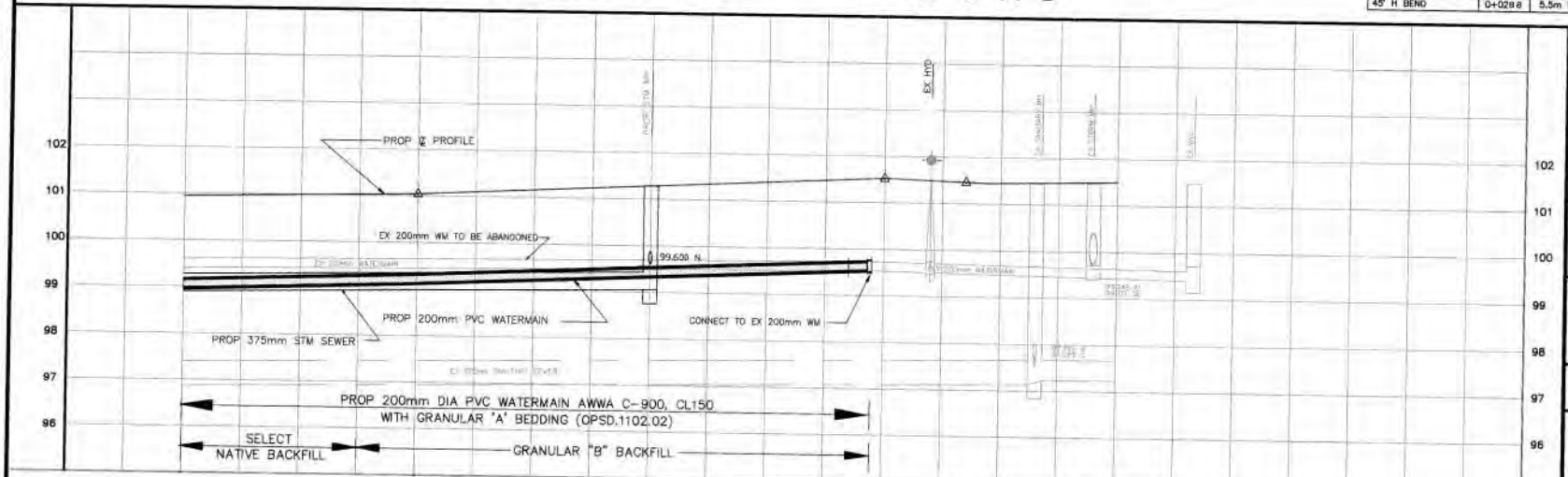


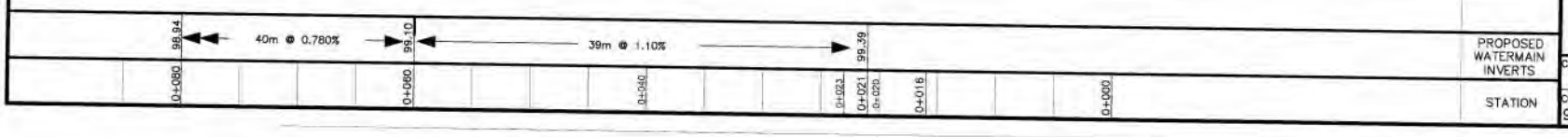
GENERAL NOTES:

1. ALL WATERMAIN & SANITARY SEWER INSTALLATION SHALL CONFORM TO ONTARIO PROVINCIAL STANDARD DRAWINGS & SPECIFICATIONS AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
2. THE LOCATIONS OF EXISTING WATERMAIN, SANITARY SEWER AND SERVICES ARE APPROXIMATE ONLY AND MAY NOT ALL BE SHOWN. THE CONTRACTOR MUST VERIFY THE ELEVATION, SIZE AND LOCATION OF THE EXISTING WATERMAIN, SANITARY SEWER AND SERVICES IN THE FIELD PRIOR TO CONSTRUCTION.
3. ALL EXISTING 20mm COPPER WATER SERVICES TO BE TRANSFERRED TO THE NEW MAIN & ALL GALVANIZED OR UNDERSIZED WATER SERVICES TO BE REPLACED COMPLETELY WITH 20mm COPPER AS PER OPSD 1104.01 FROM NEW MAIN TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.
4. CATHODIC PROTECTIONS ARE REQUIRED FOR DUCTILE IRON WATERMAIN, VALVES AND FITTINGS (SEE DETAILS)
5. IF PVC BENDS AND MECHANICAL RESTRAINT JOINTS ARE USED, THE RESTRAINED JOINTS TO BE WRAPPED WITH DENSO TAPES & THE OPSD 1103.01 & 1103.02 WILL NOT BE REQUIRED
6. WATERMAIN, WATER SERVICES & SANITARY LATERALS UNDER PAVEMENT & DRIVEWAYS TO BE GRANULAR "B" BACKFILL

WATERMAIN DATA

ITEM	STATION	℄ CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
RELOCATE EX HYD	0+016.0	10.04m LT	1005.01	99.50±	BREAK OFF FLANGE (ELEV 101.63)
45°-200mm H&V BEND	0+026	3.5m LT	1103.01 1103.02	99.53	CONNECT TO EX 200mm WM
45° H BEND	0+028	5.5m LT	1103.01	99.51	





NO	Date	By	REVISIONS	MANU CAD

Design	B.K.W.	Ch'kd	Date JUNE 1993
Drawn	W.G.N.	Ch'kd	
Scale	Horiz. 0 2 0 4		References
	Vert. 0 5 0 1		

APPROVALS

Municipal

Regional

Commissioner of Public Works

Director of Design & Construction

Field Notes

Stamp

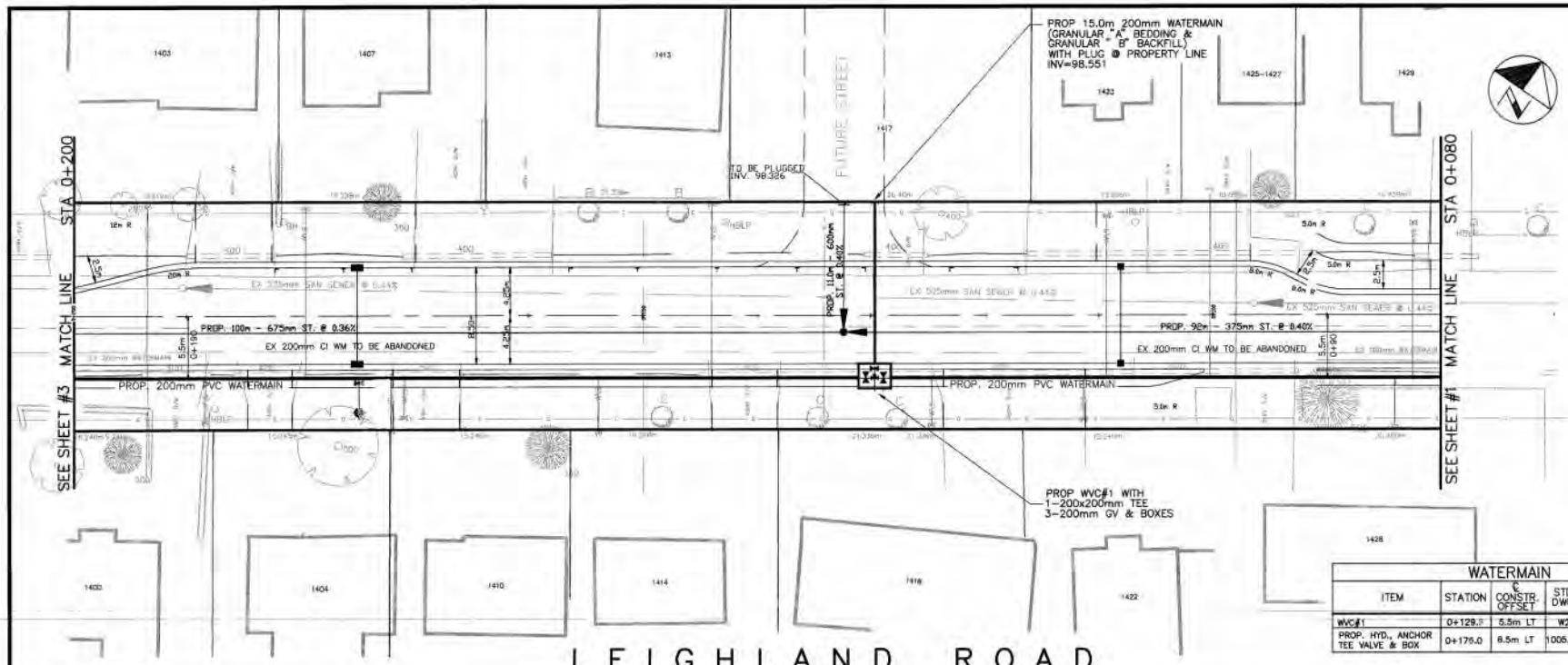
REGIONAL MUNICIPALITY OF Halton | CITY OF BURLINGTON

TITLE

PROPOSED 200mm WATERMAIN ON
LEIGHLAND ROAD
CITY OF BURLINGTON
FROM
BRANT ST WESTERLY FOR 80m

Consultant File NO	Regional Drawing NO
CONTRACT NO 93-5 / PR-1493	Drawing NO SHEET 1 OF 7

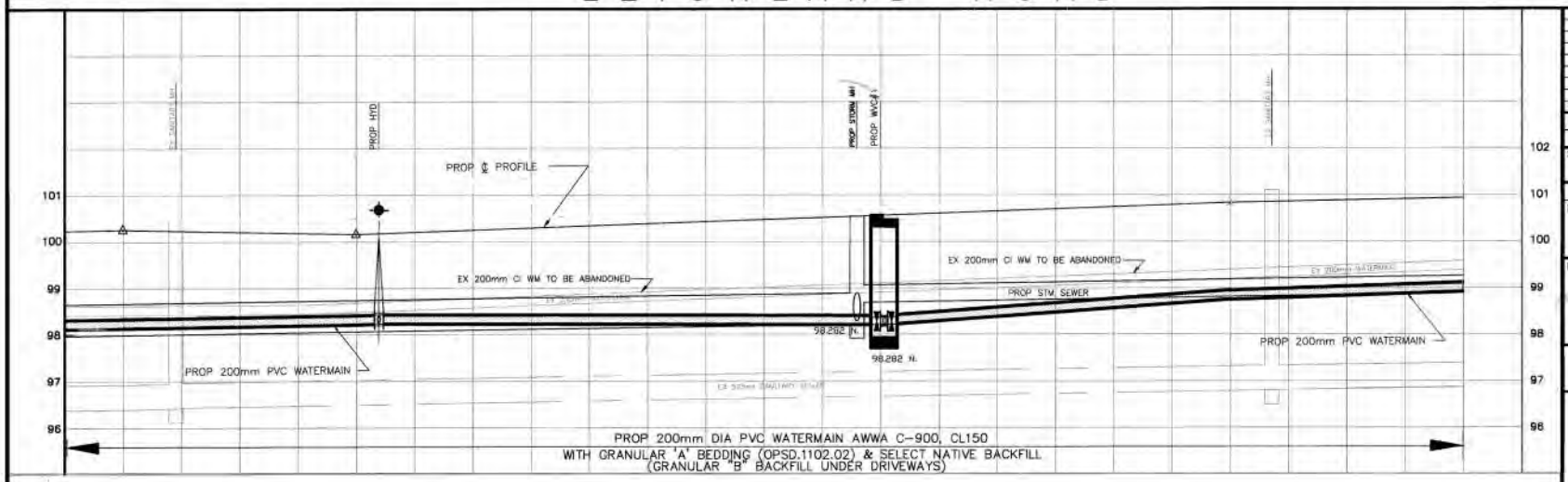
PR-1493-93 1 of 7



FOR NOTES SEE SHEET 1 OF 7

WATERMAIN DATA

ITEM	STATION	E CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
WVC#1	0+129.3	5.5m LT	W2	98.203	1-200mm TEE & 3-200mm GV&BOX
PROP. HYD., ANCHOR TEE VALVE & BOX	0+175.0	6.5m LT	1005.01	98.203	BREAK OFF FLG ELV 100.332



	85m @ 0.36%		45.5m @ 0.00%		29.5m @ 2.00%		40.0m @ 0.78%	
PROPOSED WATERMAIN INVERTS	98.113	98.20	98.20	98.20	98.79	98.94		
STATION	0+200	0+180	0+175	0+173	0+160	0+140	0+129.7	0+128.5	0+120	0+100	0+080

NO	Date	By	REVISIONS	MANU CAD
Design	B.K.W.	Ch'kd		Date JUNE 1993
Drawn	W.G.N.	Ch'kd		
Scale Horiz. 0 1 2 3 4 Vert. 0 0.5 1				References

APPROVALS

Municipal

Regional

Commissioner of Public Works

Director of Design & Construction

Field Notes

Stamp

REGIONAL MUNICIPALITY OF Halton

CITY OF BURLINGTON

TITLE

200mm WATERMAIN ON
LEIGHLAND ROAD
CITY OF BURLINGTON
FROM
FROM 80m W OF BRANT ST TO 140m EAST OF HELENA ST

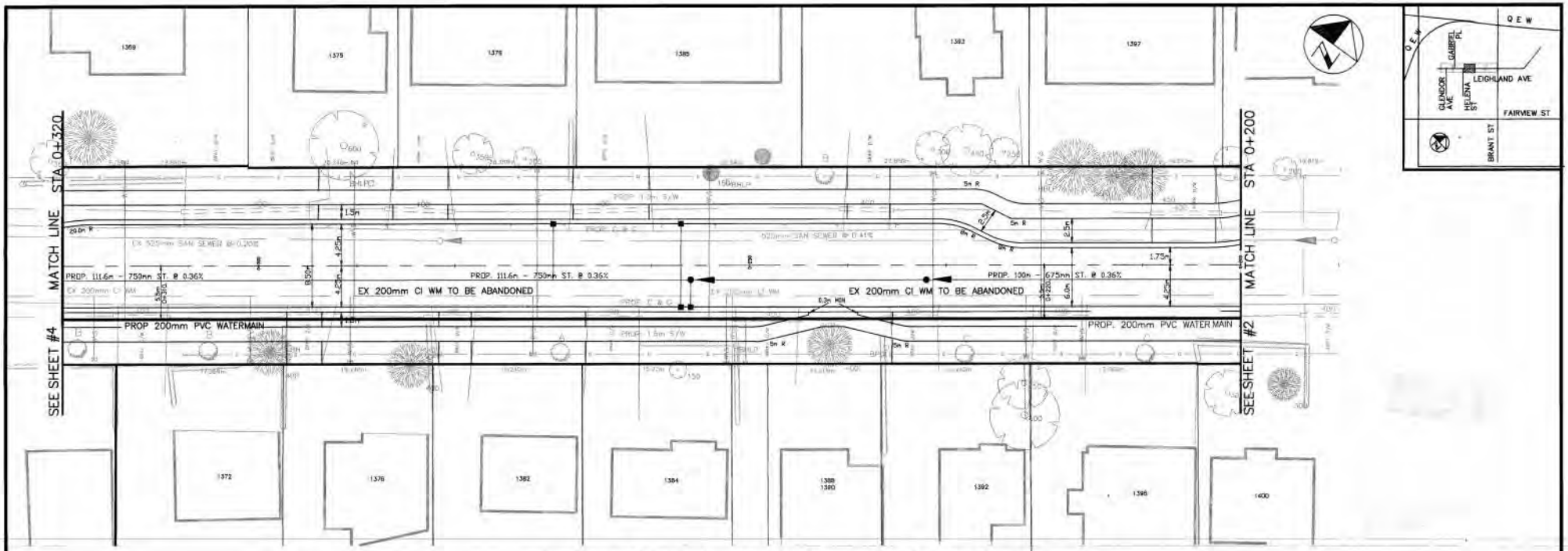
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CONTRACT NO 93-5 / PR-1493

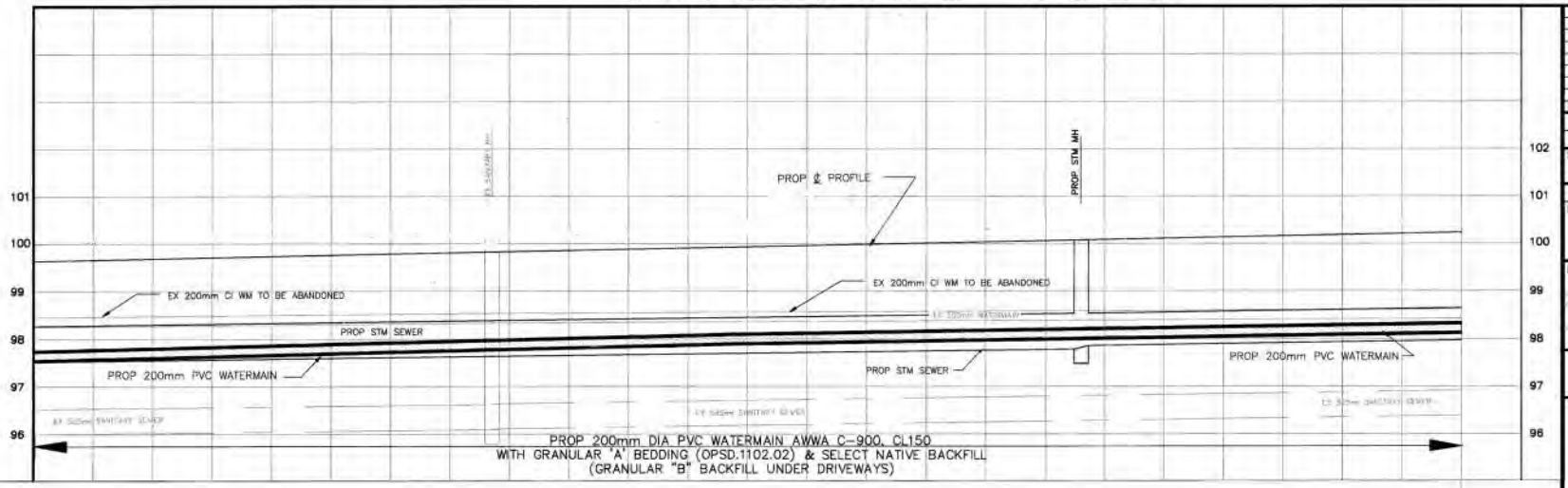
Drawing NO SHEET 2 OF 7

PR-1493-93 2 of 7



LEIGHLAND ROAD

FOR NOTES SEE SHT 1 OF 7



NO	Date	By	REVISIONS	MAN./ CAD
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Drawn	W.G.N.	Ch'kd		References
Scale Horiz. 0 2 0 4				
Vert. 0 0.5 0 1				

APPROVALS

Municipal

Regional

Commissioner of Public Works

Director of Design & Construction

Field Notes

Stamp

Halton — CITY OF BURLINGTON

69.5m @ 0.65%	85m @ 0.36%	
97.509	97.997	98.113
PROPOSED WATERMAIN INVERTS		
0+320	0+300	0+280	0+260	0+240	0+220	0+200
STATION						

TITLE

200mm WATERMAIN ON

LEIGHLAND ROAD

CITY OF BURLINGTON

FROM

200m WEST OF BRANTS ST TO 20m EAST OF HELENA ST

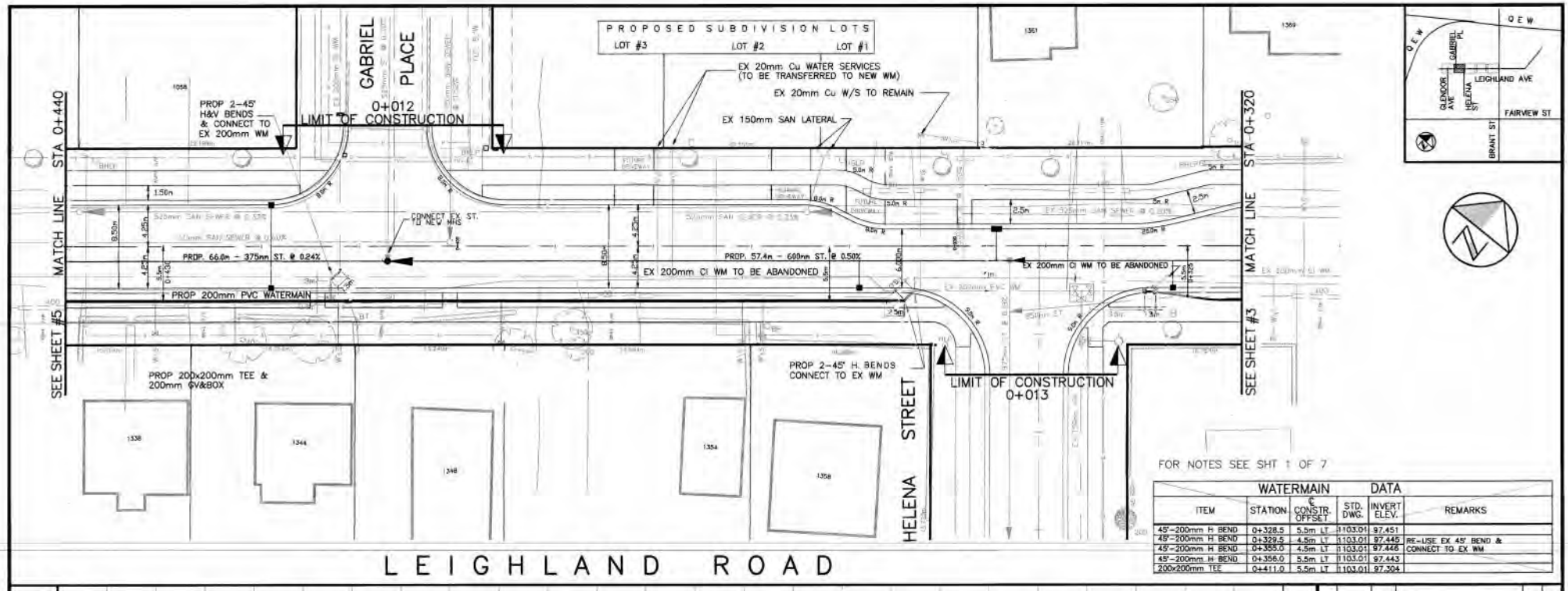
Consultant File NO

Regional Drawing NO

CONTRACT NO 93-5 / PR-1493

Drawing NO SHEET 3 OF 7

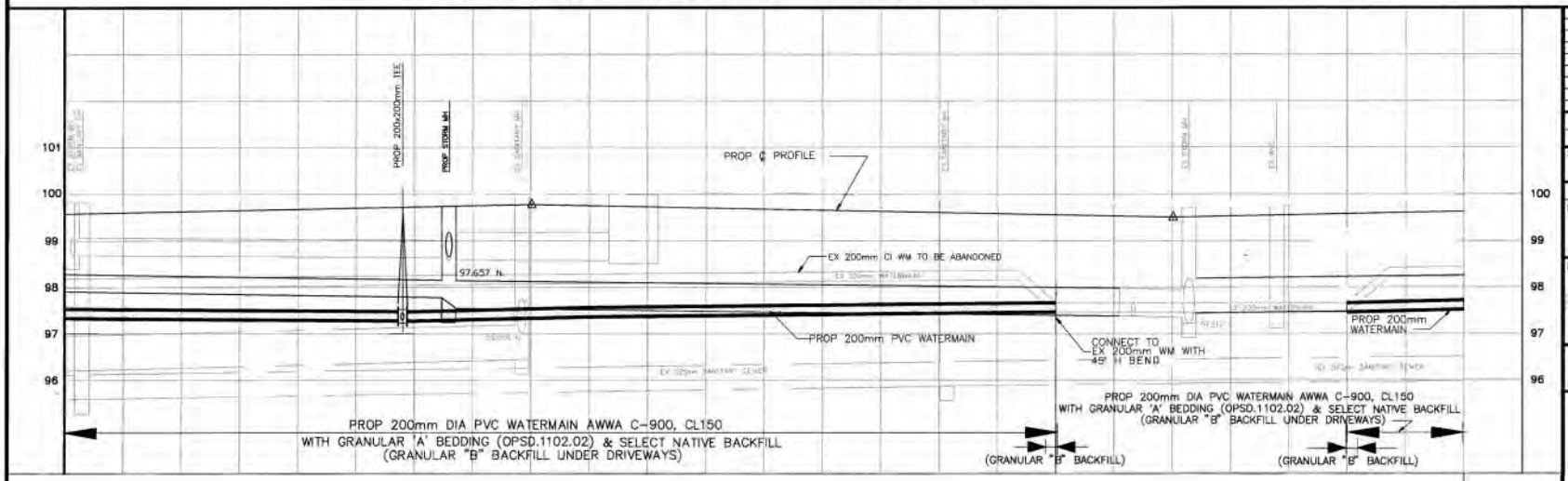
PR-1493-93 3 of 7



FOR NOTES SEE SHT 1 OF 7

WATERMAIN DATA

ITEM	STATION	℄ CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
45°-200mm H BEND	0+328.5	5.5m LT	1103.01	97.451	
45°-200mm H BEND	0+329.5	4.5m LT	1103.01	97.445	RE-USE EX 45° BEND &
45°-200mm H BEND	0+353.0	4.5m LT	1103.01	97.446	CONNECT TO EX WM
45°-200mm H BEND	0+356.0	5.5m LT	1103.01	97.443	
200x200mm TEE	0+411.0	5.5m LT	1103.01	97.304	



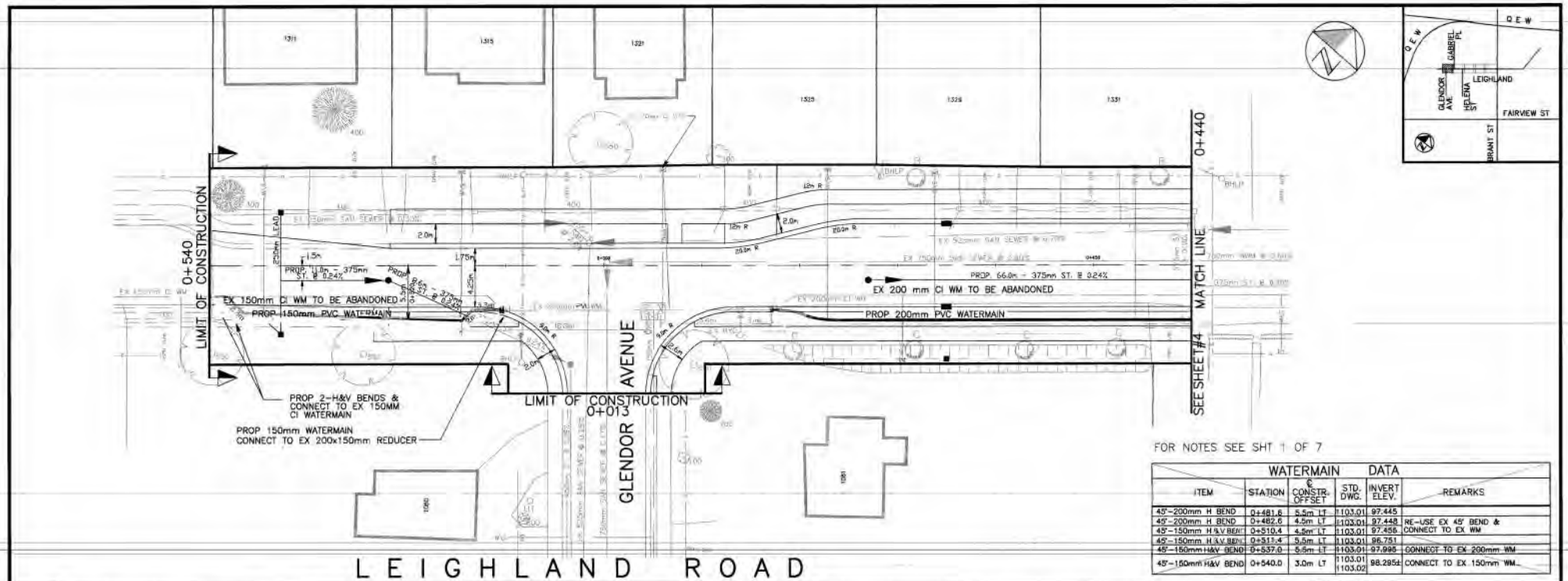
NO	Date	By	REVISIONS	MANJ CAD
Design	B.K.W.	Ch'kd		Date JUNE 1993
Drawn	W.G.N.	Ch'kd		
Scale Horiz. 0 2 0 4 Vert. 0 0.5 0 1				References
APPROVALS				Field Notes
Municipal				Stamp
Regional				
Commissioner of Public Works				
Director of Design & Construction				

REGIONAL MUNICIPALITY OF Halton | CITY OF BURLINGTON

TITLE
150 & 200mm WATERMAIN ON
LEIGHLAND ROAD
CITY OF BURLINGTON
FROM
20m E OF HELENA ST TO 30m W OF GABRIEL PLACE

Consultant File NO	Regional Drawing NO
CONTRACT NO 93-5/PR-1493	Drawing NO SHEET 4 OF 7

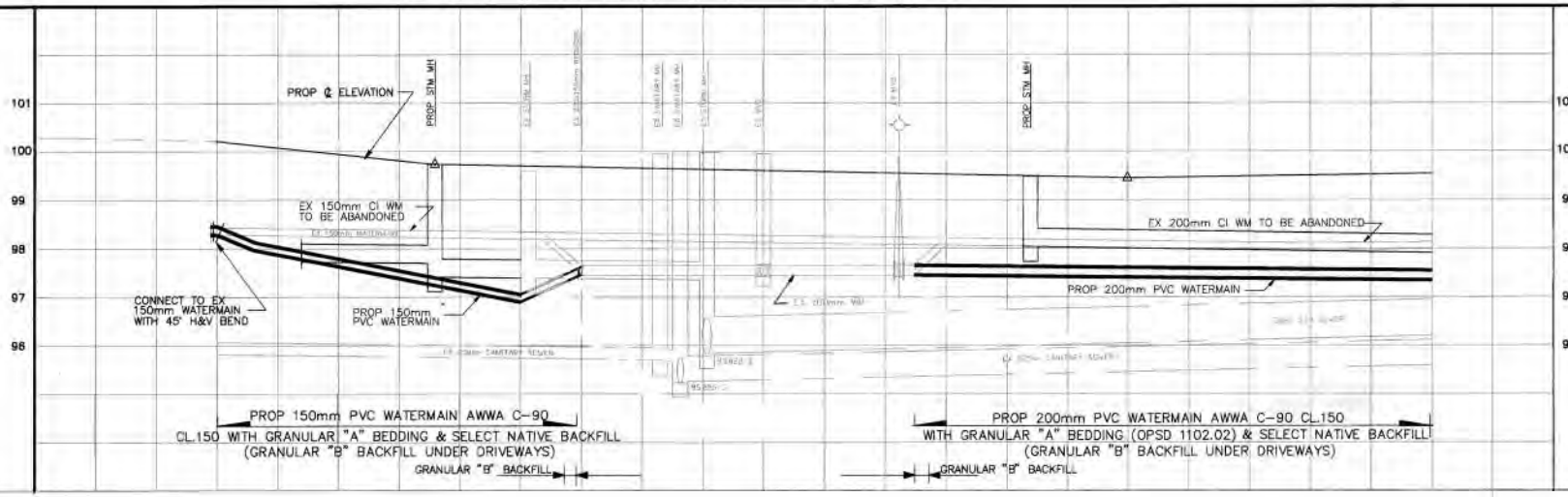
PR-1493-93 4 of 7



FOR NOTES SEE SHT 1 OF 7

WATERMAIN DATA

ITEM	STATION	S CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
45°-200mm H BEND	0+481.6	5.5m LT	1103.01	97.445	
45°-200mm H BEND	0+482.6	4.5m LT	1103.01	97.448	RE-USE EX 45° BEND &
45°-150mm H&V BEND	0+510.4	4.5m LT	1103.01	97.456	CONNECT TO EX WM
45°-150mm H&V BEND	0+513.4	5.5m LT	1103.01	96.751	
45°-150mm H&V BEND	0+537.0	5.5m LT	1103.01	97.995	CONNECT TO EX 200mm WM
45°-150mm H&V BEND	0+540.0	3.0m LT	1103.01 1103.02	98.295±	CONNECT TO EX 150mm WM



NO	Date	By	REVISIONS	MANU CAD
Design	B.K.W.	Ch'kd		Date JUNE 1993
Drawn	W.G.N.	Ch'kd		References
Scale Horiz. Vert.				

APPROVALS

Municipal

Regional

Commissioner of Public Works

Director of Design & Construction

Field Notes

Stamp

Regional Municipality of Halton

City of Burlington

TITLE

PROPOSED 150 & 200mm WATERMAIN ON LEIGHLAND ROAD
CITY OF BURLINGTON
FROM
30m WEST OF GABRIEL PL TO 40m WEST OF GLENDOR AVE

Consultant File NO

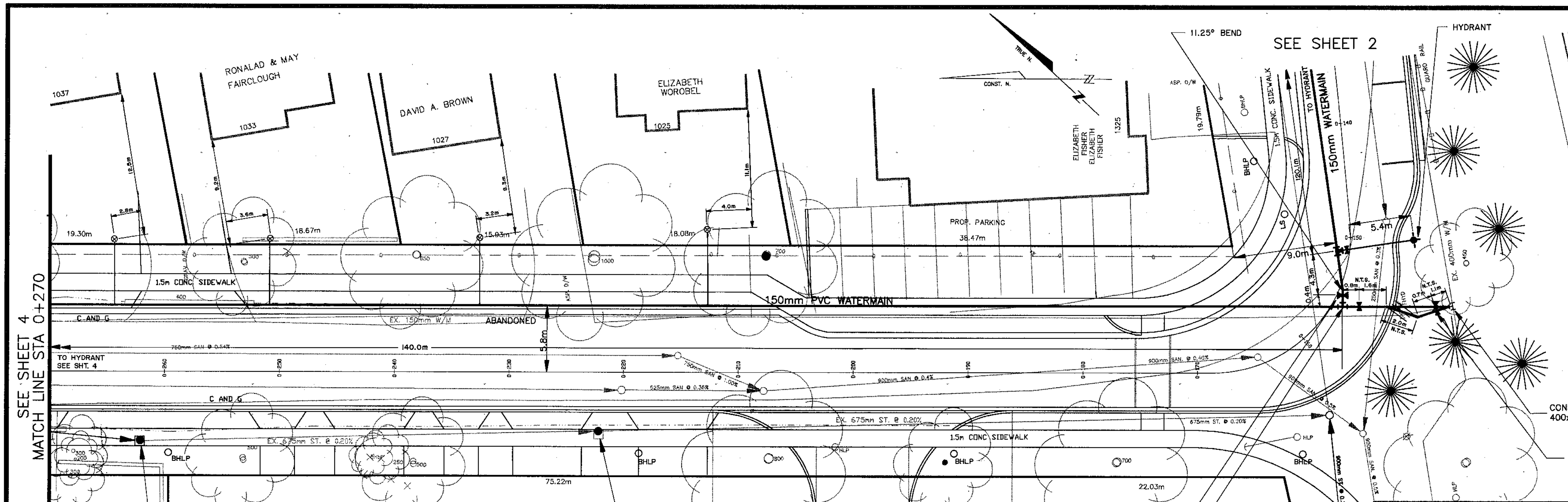
Regional Drawing NO

CONTRACT NO 93-5 / PR-1493

Drawing NO SHEET 5 OF 7

PROPOSED WATERMAIN INVERTS	98.29±	97.99	97.45	97.448	97.362		
STATION	0+540	0+520	0+510.4	0+500	0+480	0+460	0+440

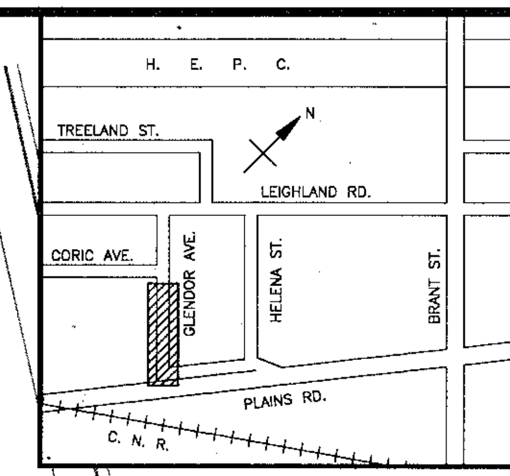
PR-1493-93 5 of 7



GENERAL NOTES

1. ALL WATERMAIN AND SANITARY SEWER INSTALLATION SHALL CONFORM TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
2. THE LOCATIONS OF EXISTING WATERMAIN, SANITARY SEWER, AND SERVICES ARE APPROXIMATE. THE CONTRACTOR SHOULD VERIFY ELEVATION, SIZE AND LOCATION IN THE FIELD.
3. ALL EXISTING WATER SERVICES ARE TO BE REPLACED WITH 20mm DIA. COPPER AS PER OPSD 1104.01 UNLESS OTHERWISE NOTED AND ARE TO BE REPLACED FROM THE PROPOSED WATERMAIN TO THE PROPERTY LINE WITH NEW CURB STOP AND SERVICE BOX.
4. ALL EXISTING VALVES SHOWN THUS ⊗ TO BE REMOVED.
5. ALL EXISTING HYDRANTS SHOWN THUS // TO BE REMOVED AND RETURNED TO THE REGIONAL STOREROOM.
6. ALL EXISTING VALVE CHAMBERS SHOWN THUS ⊗ TO BE BROKEN DOWN 1.0m BELOW GRADE AND BACKFILL WITH GRANULAR MATERIAL.
7. FOR CATHODIC PROTECTION SEE DETAILS ON SHEET 7 OF 9.

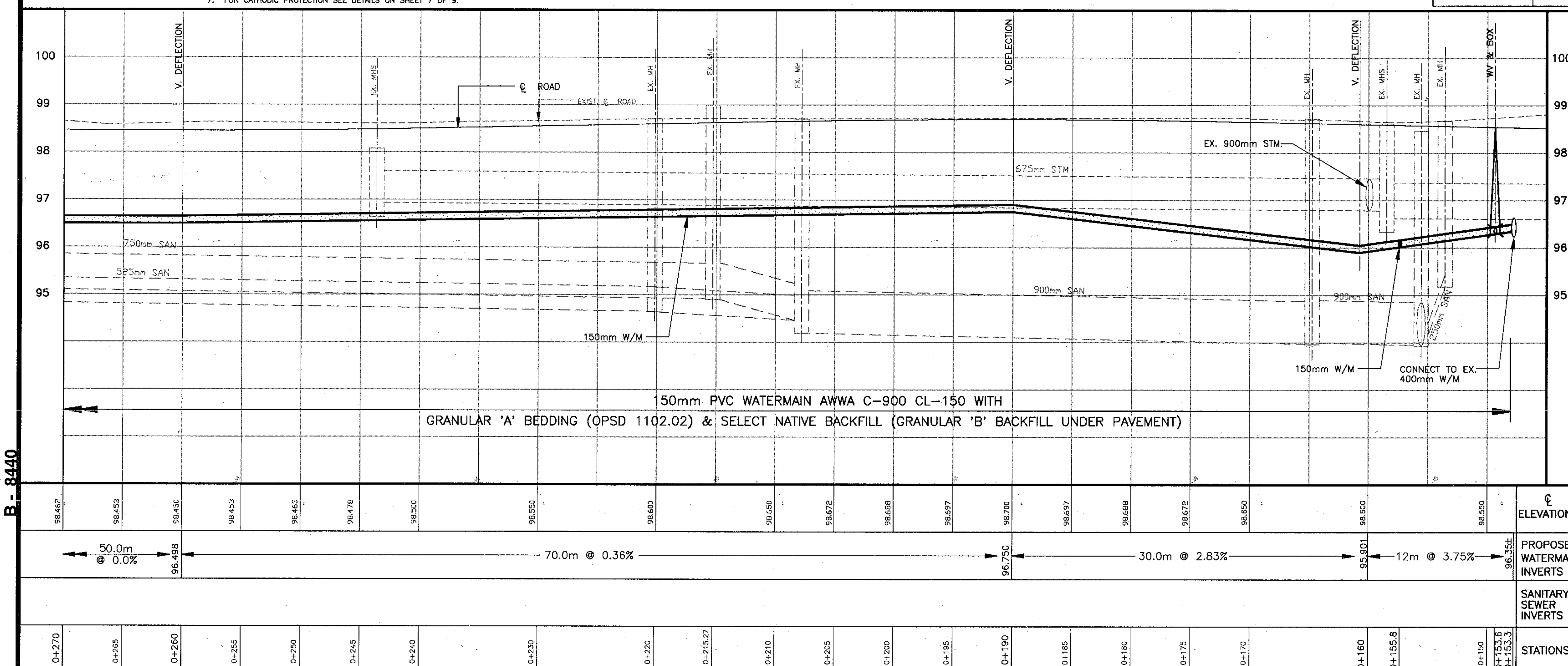
GLENDOR AVENUE



KEY PLAN

WATERMAIN DATA

ITEM	STATION	℄ CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
CONNECT TO EX. 400x 150mm TEE	0+153.3	9.80m LT	–	96.35±	
150mm GV & BOX	0+153.6	8.37m LT	W3	96.294	
150x150mm TEE	0+155.8	0.92m LT	1103.01	95.944	
V. DEFLECTION	0+160	3.723m RT	–	95.901	
V. DEFLECTION	0+190	5.8m RT	–	96.750	
V. DEFLECTION	0+260	5.8m RT	–	96.498	



NO.	DATE	BY	REVISIONS
1	FEB. 94	D.K.	AS CONSTRUCTED

DESIGN	B.K.W.	CHECKED	[signature]	DATE
DRAWN	L.C./E.S.	CHECKED	[signature]	JULY 1992

SCALE HORIZ: 1=200 VERT: 1=50

REFERENCES:

APPROVALS

MUNICIPAL

EXECUTIVE DIRECTOR OF PUBLIC WORKS

DATE

REGIONAL

COMMISSIONER OF PUBLIC WORKS

DIRECTOR OF DESIGN & CONSTRUCTION

FIELD NOTES:

STAMP: LICENSED PROFESSIONAL ENGINEER J. Y-K. CHOI Aug 10, 92 PROVINCE OF ONTARIO

CONSULTANT

REGIONAL MUNICIPALITY OF Halton — JOINT CONTRACT — CITY OF BURLINGTON

TITLE
PROP. 150mm WATERMAIN REPLACEMENT ON
GLENDOR AVENUE
IN THE CITY OF BURLINGTON
FROM
PLAINS RD. E. TO 15m SOUTH OF CORIC AVE.

MUNICIPAL DRAWING NO.

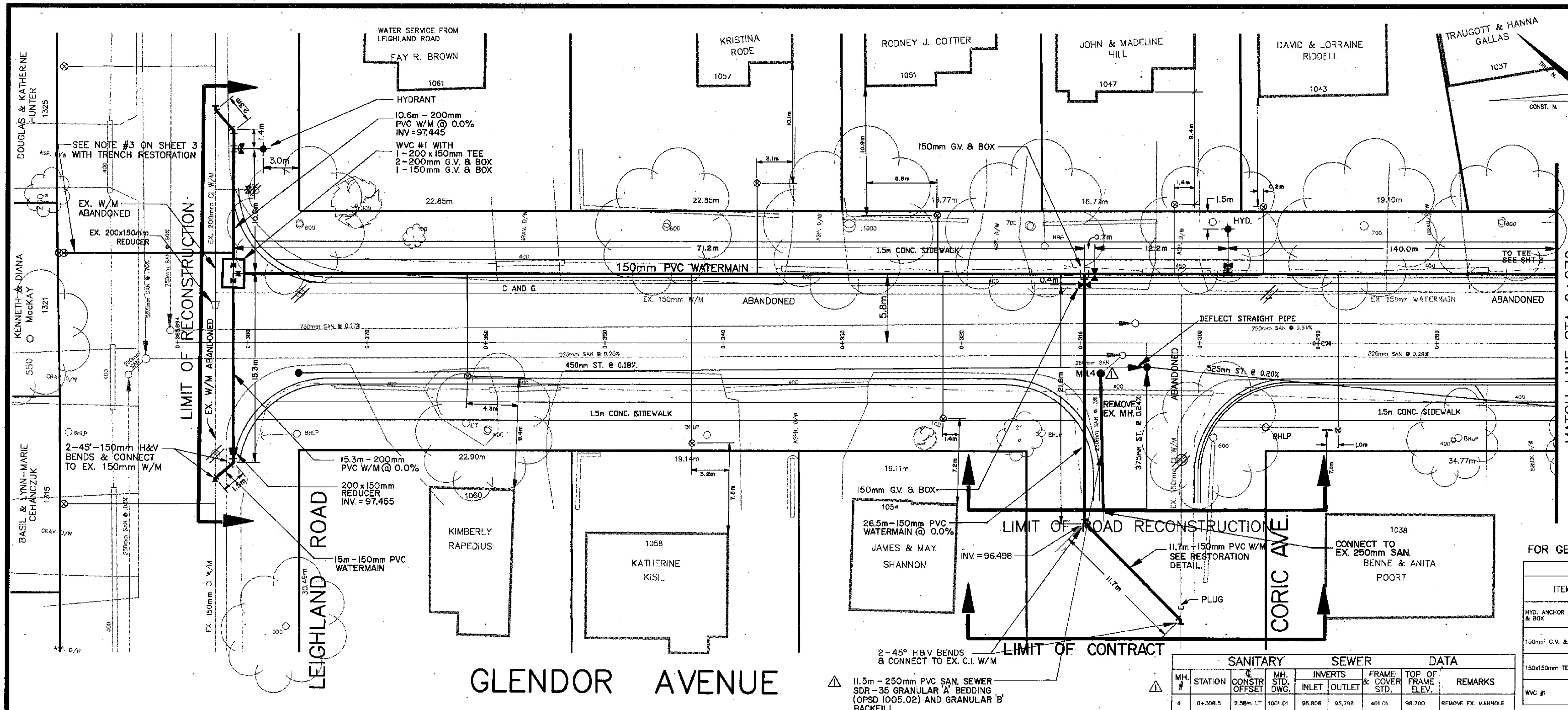
REGIONAL DRAWING NO. B - 8440

CONTRACT NO. 92-27/PR-1412

SHEET 3 OF 9

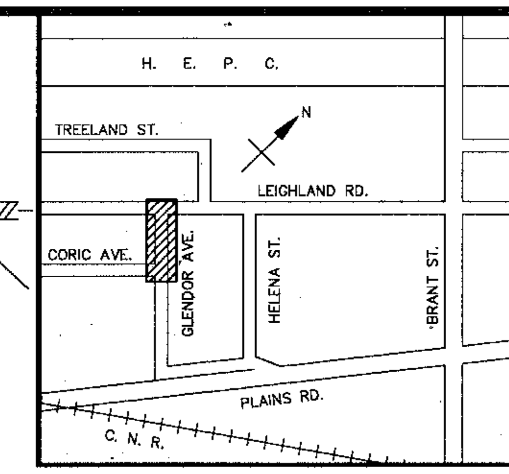
B - 8440

PR-1412
SHT 3 OF 9

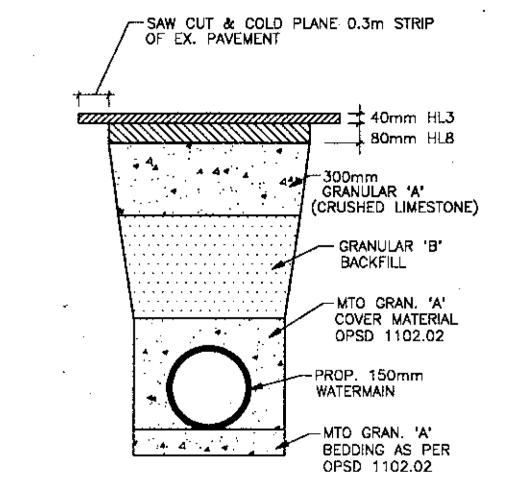


⚠ 11.5m - 250mm PVC SAN. SEWER SDR-35 GRANULAR 'A' BEDDING (OPSD 1005.02) AND GRANULAR 'B' BACKFILL

SANITARY SEWER DATA								
MH. #	STATION	℄ CONSTR OFFSET	MH. STD. DWG.	INVERTS INLET	INVERTS OUTLET	FRAME & COVER STD.	TOP OF FRAME ELEV.	REMARKS
4	0+308.5	2.58m LT	1001.01	95.806	95.796	401.01	98.700	REMOVE EX. MANHOLE



KEY PLAN

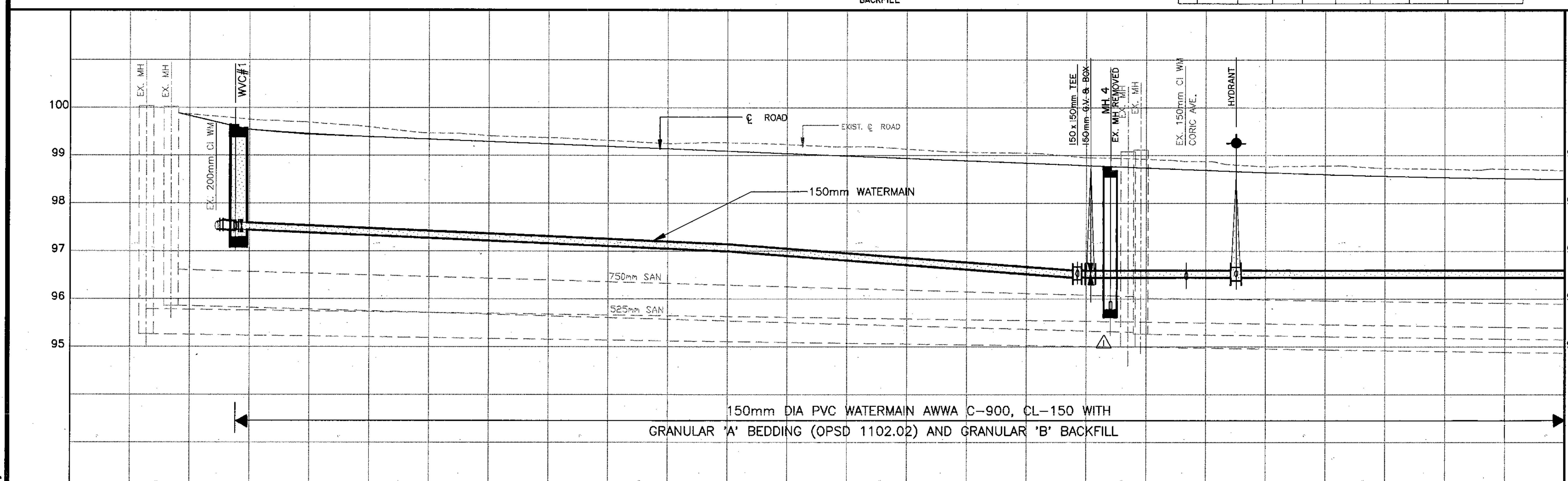


TRENCH RESTORATION DETAIL

(CORIC AVE.)

FOR GENERAL NOTES SEE SHEET 3 OF 9.

WATERMAIN DATA					
ITEM	STATION	℄ CONSTR. OFFSET	STD. DWG.	INVERT ELEV.	REMARKS
HYD. ANCHOR TEE & G.V. & BOX		5.8m RT.	W3 1105.01	96.498	
150mm G.V. & BOX		5.8m RT.	W3	96.498	
150x150mm TEE		5.8m RT.	1103.01	96.510	
WVC #1		5.8m RT.	W2	97.455	C/W 1-200x150mm TEE 2-200mm G.V. & BOX 1-150mm G.V. & BOX



℄ ELEVATIONS	99.620 (FUT)	99.500	99.413	99.350	99.250	99.150	99.050	98.950	98.850	98.750	98.650	98.603	98.563	98.528	98.500	98.478
PROPOSED WATERMAIN INVERTS	97.455	41.2m @ 1.10%		97.002	30m @ 1.68%		50.0m @ 0.00%									
SANITARY SEWER INVERTS	W. 95.806 SE. 95.796															
STATIONS	0+385.894	0+381.2	0+380	0+375	0+370	0+360	0+350	0+340.0	0+330	0+320	0+310.7	0+308.3	0+300	0+295	0+290	0+285	0+280	0+275.0

NO.	DATE	BY	REVISIONS
2	FEB. 94	D.K.	AS CONSTRUCTED
⚠	13/8/92	BS	ADD SAN. ON CORIC AVE.

DESIGN B.K.W. CHECKED [signature] DATE JULY 1992

DRAWN L.C. CHECKED [signature]

SCALE HORIZ: 1=200 VERT: 1=50

REFERENCES:

FIELD NOTES:

APPROVALS

MUNICIPAL

EXECUTIVE DIRECTOR OF PUBLIC WORKS

DATE

REGIONAL

COMMISSIONER OF PUBLIC WORKS [signature]

DIRECTOR OF DESIGN & CONSTRUCTION [signature]

STAMP: LICENSED PROFESSIONAL ENGINEER J. Y-K. CHOI Aug 10, 92 PROVINCE OF ONTARIO

CONSULTANT

REGIONAL MUNICIPALITY OF Halton — JOINT CONTRACT — CITY OF BURLINGTON

TITLE
PROP. 150mm WATERMAIN REPLACEMENT ON
GLENDOR AVENUE
IN THE CITY OF BURLINGTON
FROM
15m S. OF CORIC AVE. TO LEIGHLAND RD.

MUNICIPAL DRAWING NO.

REGIONAL DRAWING NO. B - 8441

CONTRACT NO. 92-27/PR-1412 SHEET 4 OF 9

PR-1412 SHT 4 OF 9

B - 8441

PLAN OF SURVEY SHOWING TOPOGRAPHIC FEATURES OF PART OF

LOT 15
REGISTRAR'S COMPILED PLAN 99
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 200

0 5 10 20 metres

THE INTENDED PLOT SIZE OF THIS PLAN IS 810mm IN WIDTH BY 600mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:200 (INCLUDING 15mm BEYOND EACH BORDER)

MacKAY, MacKAY & PETERS LIMITED - ONTARIO LAND SURVEYORS

© 2023

METRIC DISTANCES AND COORDINATES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

COLOUR THE ORIGINAL SIGNED PRINT OF THIS PLAN OF SURVEY CONTAINS COLOUR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-52480

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR IN ACCORDANCE WITH REGULATION 1026, SECTION 29(5)

BRANT STREET
(BY REGISTERED PLAN 99)
PIN 07080-0005

(P1&MEAS) N46°04'50"W (P4,P11&M)

NORTHERLY ANGLE OF LEIGHLAND ROAD REGISTERED PLAN 210

WIDENING BY BY-LAW 3929, INST. No. 301872

PART 12 PLAN EX-118

PART 1 PLAN 20R-1404 | PART 2 PLAN 20R-1404 | PART 3 PLAN 20R-1404 | PART 4 PLAN 20R-1404 | PART 5 PLAN 20R-1404 | PART 6 PLAN 20R-1404

PART 9 PLAN EX-118 | PART 10 PLAN EX-118 | PART 11 PLAN EX-118 (P1,P4,P11&M) 19.04 | PART 13 PLAN EX-118 (P11,CALC&M) 36.58 | PART 14 PLAN EX-118 (15.24 P2,P4,P9,P10,P11) 15.29 | PART 15 PLAN EX-118 | PART 16 PLAN EX-118

PART 11 PLAN 20R-17708 PIN 07081-0444

35.74 (P11&M) (35.79 P1,P4,P9,P10)

45.72 (P11&M)

PART 2 PLAN 20R-10053

PART 1 PLAN 20R-10053

PART OF LOT 15 REGISTRAR'S COMPILED PLAN 99

No. 1066 2 STOREY STUCCO BUILDING DS=102.28

No. 1060 2 STORY BRICK BUILDING DS=102.74

No. 1056 2 STOREY BRICK BUILDING DS=102.64

No. 1052 2 STOREY BRICK BUILDING DS=102.97

PART 1 PLAN 20R-12704

PIN 07081-0445

PIN 07081-0260

PIN 07081-0256

PIN 07081-0359

PART 2 PLAN 20R-11168

PART 3 PLAN 20R-11168

PART 1 PLAN 20R-10282

PART 1 PLAN 20R-8331

N43°57'00"E (P11&M)

N43°56'10"E (P11&M)

N45°52'35"W (P3,P7&S) (N44°55'00"W P2) (N45°51'45"W P4,P5,P10) (N45°44'30"W P11)

19.34 (P3,P5,P7&S) (19.04 P4,P10) (18.99 P6)

N46°06'10"W (P3,P5,P7&M)

35.46 (P5&M)

21.34 (P4,P5,P11&M)

21.31 (P11&M) CHAIN LINK FENCE

15.24 (P2,P4,P11&M) 15.27 (P11&M)

36.58 (P11&M)

133.06 (P3,P4&M)

50.96 (P3&M)

39.78 (P7&M)

44.64 (R&M)

45.07 (R&M)

LEIGHLAND ROAD (BY REGISTERED PLAN 210)

HALTON COMMON ELEMENTS CONDOMINIUM PLAN No. 576

BLOCK 35878

PART OF LOT 15 REGISTRAR'S COMPILED PLAN 99 PART 1 PLAN 20R-14761

SAN-MH 101.31 (LOCATION NOT TO SCALE)

LEGEND

- ■ DENOTES A SURVEY MONUMENT FOUND
- □ DENOTES A SURVEY MONUMENT PLANTED
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- PB DENOTES PLASTIC BAR
- IP DENOTES IRON PIPE
- P1 DENOTES PLAN 20R-17708
- P2 DENOTES PLAN BY YATES & YATES LIMITED DATED OCTOBER 10, 1956 (56Y-624)
- P3 DENOTES PLAN 20M-1060
- P4 DENOTES PLAN 20R-10282
- P5 DENOTES PLAN BY MMP LIMITED DATED MARCH 2, 1998 (97H-443)
- P6 DENOTES PLAN BY YATES & YATES LIMITED DATED MAY 2, 1995 (95Y-105)
- P7 DENOTES HALTON COMMON ELEMENTS CONDOMINIUM PLAN No. 576
- P8 DENOTES PLAN 20R-10053
- P9 DENOTES EXPROPRIATION PLAN EX-118
- P10 DENOTES PLAN 20R-11168
- P11 DENOTES PLAN BY MMP LIMITED DATED AUGUST 21, 2019 (19-184)
- PIN DENOTES PROPERTY IDENTIFICATION NUMBER
- (OU) DENOTES ORIGIN UNKNOWN
- ℄ DENOTES CENTRELINE
- BP DENOTES BELL PEDESTAL
- CBP DENOTES CABLE PEDESTAL
- WHP DENOTES WOOD HYDRO POLE
- ULS DENOTES UTILITY LIGHT STANDARD
- OHW DENOTES OVERHEAD WIRE
- LS DENOTES LIGHT STANDARD
- CB DENOTES CATCH BASIN
- STM-MH DENOTES STORM MANHOLE
- SAN-MH DENOTES SANITARY MANHOLE
- GM DENOTES GAS METER
- RS DENOTES ROAD SIGN
- RW DENOTES RETAINING WALL
- BOL DENOTES BOLLARD
- WHV DENOTES WATER HYDRANT VALVE
- FH DENOTES FIRE HYDRANT
- GV DENOTES GAS VALVE
- BF DENOTES BOARD FENCE
- CLF DENOTES CHAIN LINK FENCE
- CRW DENOTES CONCRETE RETAINING WALL
- DENOTES GAS MAIN LOCATE
- DENOTES GAS SERVICE LOCATE
- DENOTES COMMUNICATION LOCATE
- DENOTES HYDRO LOCATE
- DENOTES WATER MAIN LOCATE
- DENOTES WATER SERVICE LOCATE
- DENOTES SANITARY SEWER LOCATE
- DENOTES STORM SEWER LOCATE
- V DENOTES HYDRO VAULT
- G DENOTES GARBAGE CAN

DENOTES DECIDUOUS TREE SCALED TO CANOPY TRUNK SIZE SHOWN IN METRES

DENOTES CONIFEROUS TREE SCALED TO CANOPY TRUNK SIZE SHOWN IN METRES

ALL BUILDING TIES ARE TO FOUNDATION AND ARE PERPENDICULAR TO PROPERTY LINES UNLESS OTHERWISE NOTED

UTILITY LOCATE NOTE

UTILITY LOCATES UNDERTAKEN BY CONQUEST LOCATING COMPLETED ON APRIL 13, 2023

BENCHMARK NOTE

CITY OF BURLINGTON BENCHMARK No. 1066
ELEVATION = 93.044 METRES (CGVD28:78 ADJUSTMENT)

BRASS CAP IS SET IN CONCRETE SIDEWALK ON NORTH SIDE OF DEYNCOURT DRIVE WEST OF GEORGE STREET

BEARING REFERENCE

BEARINGS ARE GRID AND ARE REFERRED TO THE SOUTHWESTERLY LIMIT OF BRANT STREET AS SHOWN ON PLAN 20R-17708 HAVING A BEARING OF N46°04'50"W

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 17th DAY OF APRIL, 2023.

JUNE 15, 2023
DATE

P.K. RAD
ONTARIO LAND SURVEYOR
FOR MACKAY, MACKAY & PETERS LIMITED

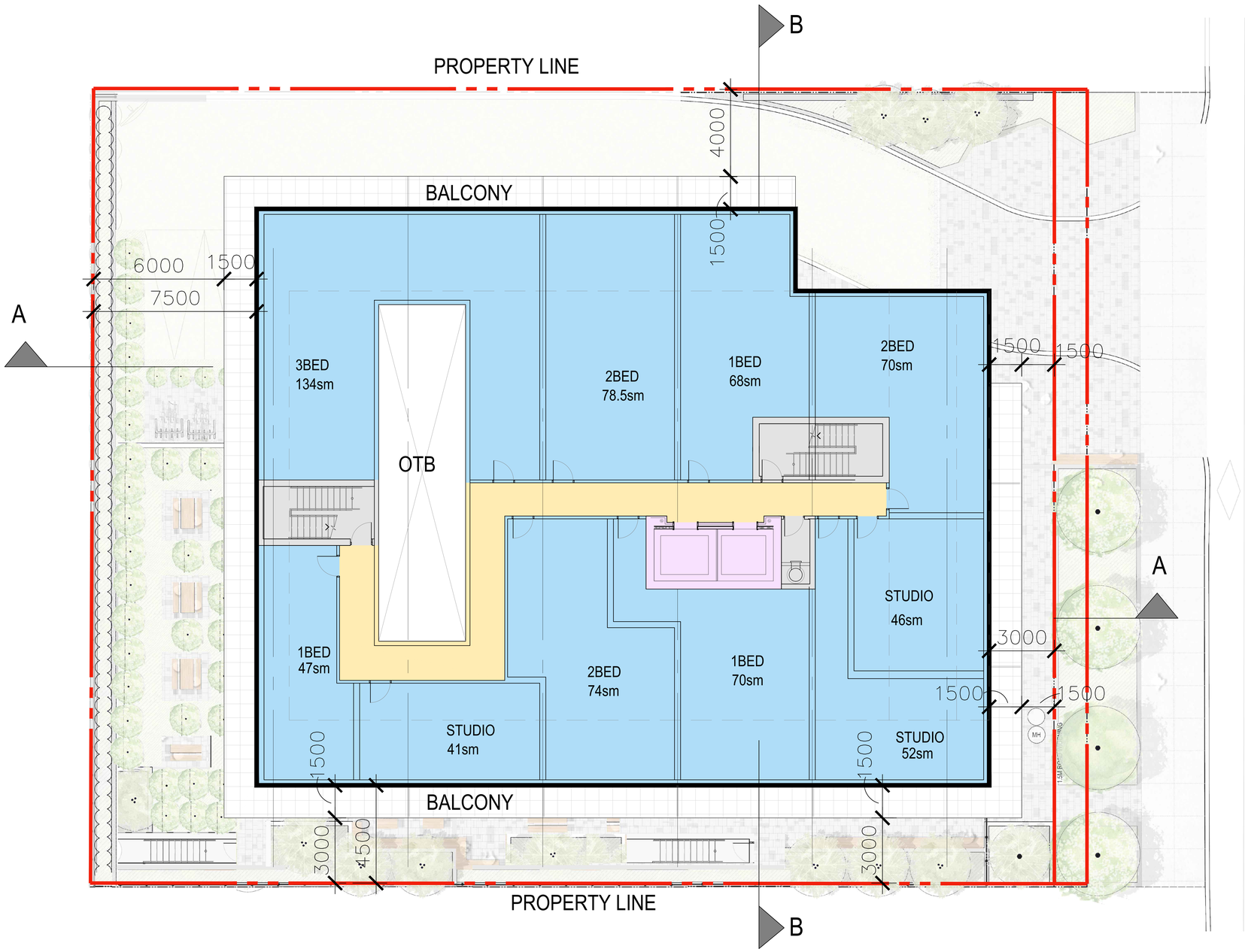
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MMP
MacKay, MacKay & Peters Limited
LAND SURVEYORS & MAPPERS
SINCE 1906

3380 South Service Road
Unit 101
Burlington, ON
L7N 3J5
(905) 639-1375

halton@mmplimited.com
mmplimited.com

DRAWN BY: D.S.
PARTY CHIEF: N.C.
CHECKED BY: P.K.
PROJECT No.: 23-071-PS



ISSUES/REVISIONS

ISSUE	TITLE	DATE
-	ISSUED FOR REVIEW	2025-JULY-22
A1	ISSUED FOR REZONING APPLICATION	2025-OCT-24

ISSUES/REVISIONS

ISSUE	TITLE	DATE

KEY PLAN

Project North

N

Seal

Date

CHECK, VERIFY AND REPORT ANY DISCREPANCIES TO THE CONSULTANT WHOSE SEAL IS AFFIXED TO THIS DRAWING. THIS DRAWING SHALL NOT BE SCALED FOR THE PURPOSE OF CONSTRUCTION.
THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNTIL SIGNED AND DATED IN THE SPACE ABOVE BY THE NAMED CONSULTANT.

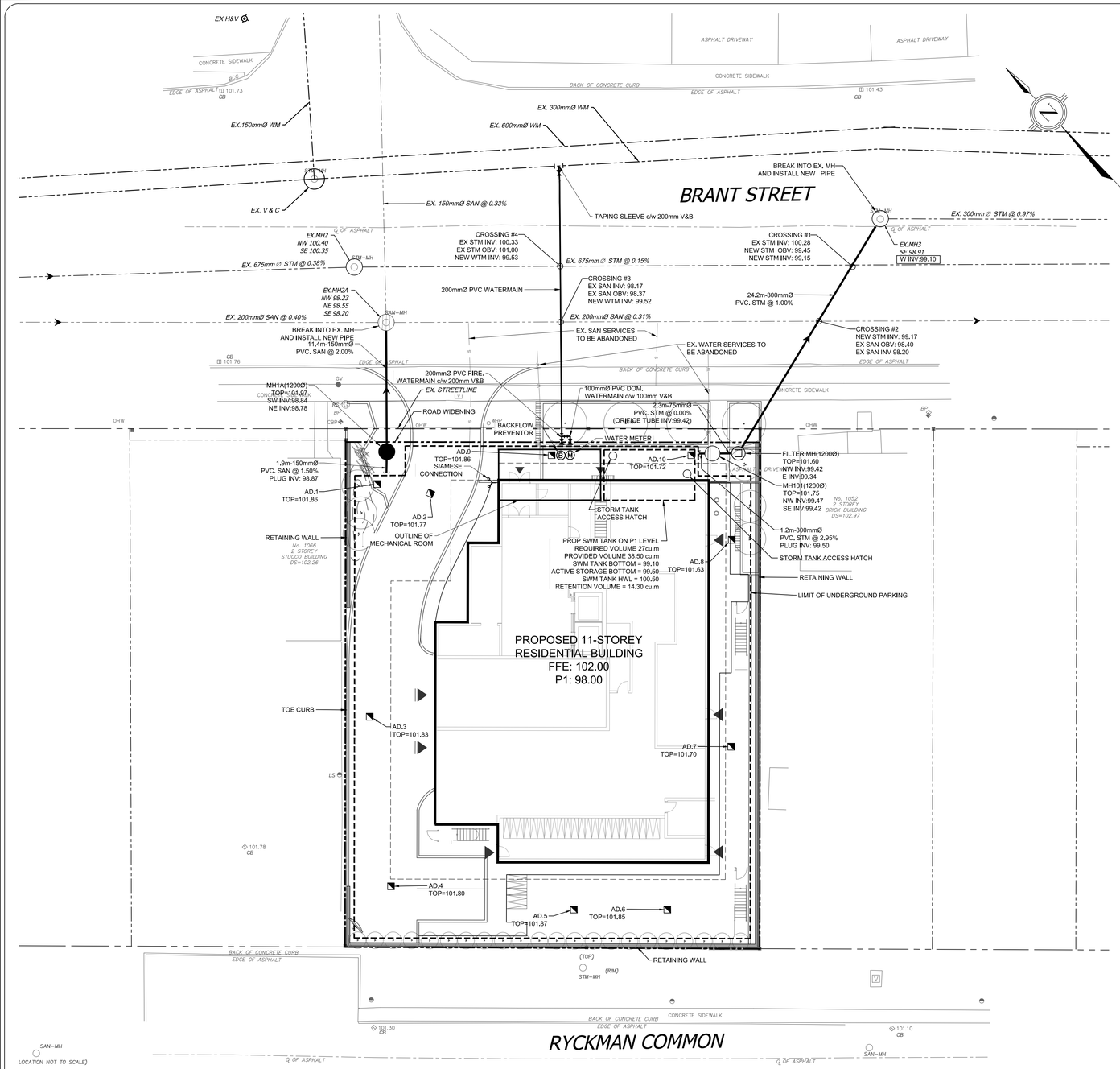
WZMH ARCHITECTS
95 St. Clair Ave W., Suite 1500
Toronto, Ontario, Canada M4V 1N6
Tel: 416-961-4111
www.wzmh.com

BRANT STREET
BURLINGTON, ONTARIO
-

Drawing Title
2ND FLOOR PLAN

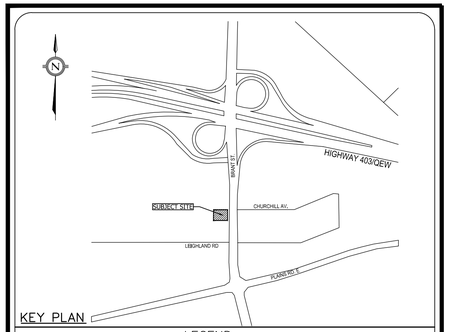
Date	----
Scale	1:75
Checked By	
Drawn By	
Project No.	08192.000
Drawing No.	A-201

Plot Time: Oct 09, 2025 - 10:37pm
Drawing Name: \\wzmh\Projects\8192\6_Drawings\10_Drawings-Design (SD-00)\1 BRANT STREET\A-201_2ND FLOOR.dwg



LEGEND

- EXISTING FIRE HYDRANT
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- H&V — PROPOSED FIRE HYDRANT AND VALVE
- V&B — PROPOSED VALVE AND BOX
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPERTY LINE
- WATERMAIN
- STORM PIPE
- SANITARY PIPE
- CATCHBASIN
- DOUBLE CATCHBASIN
- CATCHBASIN MANHOLE
- RETAINING WALL
- LIMIT OF P1 PARKING LEVEL
- UNDERGROUND SWM TANK
- SWALE
- EX. WATERMAIN
- EX. STORM PIPE
- EX. SANITARY PIPE
- DRIVE IN DOOR
- BUILDING ENTRANCE



KEY PLAN

LEGEND

SITEPLAN

PROVIDED BY: WZMH ARCHITECTS LIMITED
95 ST. CLAIR W, SUITE 1500
TORONTO, ON M4V 1N6
PHONE: 416-961-4111

LANDSCAPE PLAN

PROVIDED BY: PMA LANDSCAPE ARCHITECTS LIMITED
359 KEELE STREET
TORONTO, ON M6P 2K6
PHONE: 416-239-9818

LEGAL & TOPOGRAPHY

PROVIDED BY: MACKAY, MACKAY & PETERS LIMITED
3380 SOUTH SERVICE ROAD, UNIT 101
TORONTO, ON L7N 3J5
PHONE: 905-639-1375

ORIGINAL SURVEY DATE: JUNE 16, 2023

BENCHMARK NOTE

CITY OF BURLINGTON BENCHMARK No. 1066
ELEVATION = 93.044 METRES (CGVD28:78 ADJUSTMENT)

BRASS CAP IS SET IN CONCRETE SIDEWALK ON NORTH SIDE OF DEYNCOURT DRIVE WEST OF GEORGE STREET

No.	REVISIONS/ISSUED	DATE	BY	CITY
2.0	SECOND SUBMISSION	2025/12/22	PM	
1.0	FIRST SUBMISSION	2025/06/09	PM	

counterpoint ENGINEERING
COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

LICENSED PROFESSIONAL ENGINEER
P. G. MATHUMO
100179607
2025-12-22
PROVINCE OF ONTARIO

ENGINEER'S STAMP

APPLICANT:

2735842 ONTARIO INC.;, 2060188 ONTARIO INC.;
2735841 ONTARIO INC. & 2059977 ONTARIO INC.

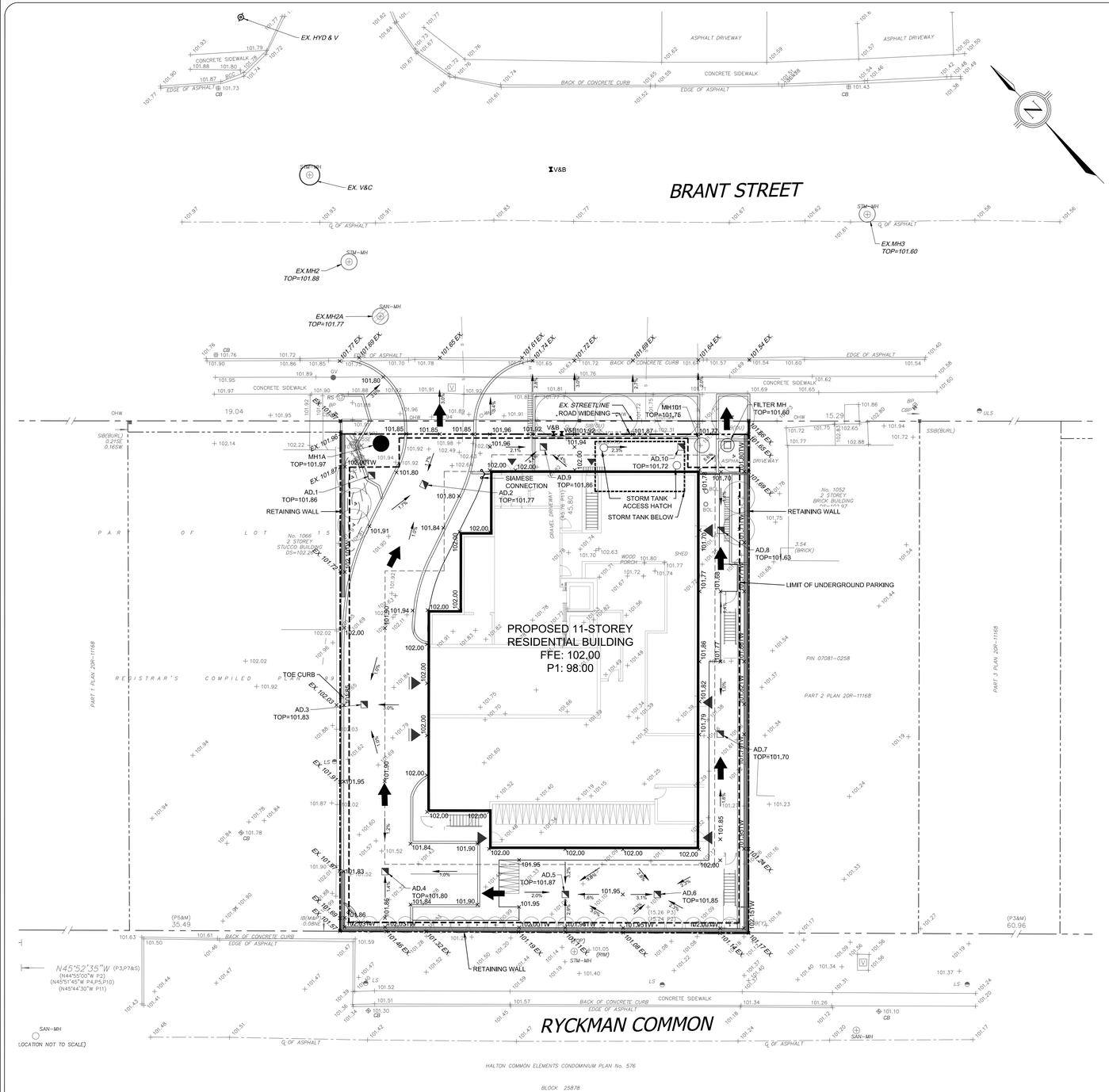
SITE LOCATION:

1056 & 1060 BRANT STREET
BURLINGTON, ONTARIO
PROPOSED HIGH RISE RESIDENTIAL BUILDING

SERVICING PLAN

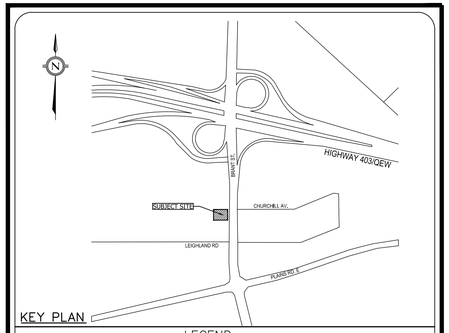
DESIGNED BY:	PM	CHECKED BY:	AD	DATE:	MARCH 04, 2025
DRAWING BY:	PM	PROJECT NO.	23077	DRAWING NO.	C101
SWM BY:	PM				
SCALE: 1:200	5 0m 2 4 6 8 10			PLAN NO.	

REGION FILE No.:



LEGEND

- EXISTING ELEVATION
- EXISTING CONTOUR
- PROPOSED ELEVATION
- PROPOSED TOP/BOTTOM OF CURB ELEVATION
- PROPOSED TOP/BOTTOM OF WALL ELEVATION
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- H&V PROPOSED FIRE HYDRANT AND VALVE
- V&B PROPOSED VALVE AND BOX
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED CATCHBASIN MANHOLE
- PROPERTY LINE
- PROPOSED GRADE
- OVERLAND FLOW
- RETAINING WALL
- LIMIT OF P1 PARKING LEVEL
- SWALE
- DRIVE IN DOOR
- BUILDING ENTRANCE



KEY PLAN

LEGEND

SITEPLAN

PROVIDED BY: WZMH ARCHITECTS LIMITED
95 ST. CLAIR W, SUITE 1500
TORONTO, ON M4V 1N6
PHONE: 416-961-4111

LANDSCAPE PLAN

PROVIDED BY: PMA LANDSCAPE ARCHITECTS LIMITED
359 KEELE STREET
TORONTO, ON M6P 2K6
PHONE: 416-239-9818

LEGAL & TOPOGRAPHY

PROVIDED BY: MACKAY, MACKAY & PETERS LIMITED
3380 SOUTH SERVICE ROAD, UNIT 101
TORONTO, ON L7N 3J5
PHONE: 905-639-1375

ORIGINAL SURVEY DATE: JUNE 16, 2023

BENCHMARK NOTE

CITY OF BURLINGTON BENCHMARK No. 1066
ELEVATION = 93.044 METRES (CGVD28:78 ADJUSTMENT)

BRASS CAP IS SET IN CONCRETE SIDEWALK ON NORTH SIDE OF DEYNCOURT DRIVE WEST OF GEORGE STREET

No.	REVISIONS/ISSUED	DATE	BY	CITY
2.0	SECOND SUBMISSION	2025/12/22	PM	
1.0	FIRST SUBMISSION	2025/06/09	PM	

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LICENSED PROFESSIONAL ENGINEER
P. G MATHUMO
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2025-12-22
PROVINCE OF ONTARIO

ENGINEER'S STAMP

APPLICANT:

2735842 ONTARIO INC.;, 2060188 ONTARIO INC.;
2735841 ONTARIO INC. & 2059977 ONTARIO INC.

SITE LOCATION:

1056 & 1060 BRANT STREET
BURLINGTON, ONTARIO
PROPOSED HIGH RISE RESIDENTIAL BUILDING

GRADING PLAN

DESIGNED BY:	PM	CHECKED BY:	AD	DATE:	MARCH 04, 2025
DRAWING BY:	PM	PROJECT NO.	23077	DRAWING NO.	C201
SWM BY:	PM				
SCALE: 1:200	5 0m 2 4 6 8 10			PLAN NO.	

REGION FILE No.:

Appendix B

- Domestic and Fire Demand Calculations

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT
Fire Underwriters Survey

Project : 1056 & 1060 Brant Street
Project No: 23077
Rev. Date: Apr-11, 2025

Guide for Determination of Required Fire Flow Copyright I.S.O

$$RFF = 220C\sqrt{A}$$

Where:

RFF = the Required Fire Flow in litres per minutes (LPM)
C = the Construction Coefficient is related to the type of construction of the building
A = the Total Effective Floor Area (effective building area) in square metres of the building

Type of Construction		Coefficient
Type V	Wood Frame	1.5
Type IV-A	Encapsulated Mass Timber	0.8
Type IV-B	Rated Mass Timber	0.9
Type IV-C	Ordinary Mass Timber	1.0
Type IV-D	Un-Rated Mass Timber	1.5
Type III	Ordinary	1.0
Type II	Noncombustible	0.8
Type I	Fire Resistive	0.6

Contents		Factor
NC	Non-Combustible	-25%
LC	Limited Combustible	-15%
C	Combustible	0%
FB	Free Burning	15%
RB	Rapid Burning	25%

1) Required Fire Flow

Type of Construction:	Type III		
C=	1.0		
A*=	1,216	m^2	*Largest floor area plus 25 percent of the next two floors
F=	**7,671**	**L/min**	

2) Occupancy and Contents Adjustment Factor

Type of Occupancy	C				
Contents Adjustment Factor	0%		=	0	L/min
F=	**7671L/min +**	**0**	**L/min =**	**7,671**	**L/min**

3) System Type Reduction

NFPA 13 Sprinkler:	YES	30%			
Standard Water Supply:	YES	10%			
Fully Supervised:	YES	10%			
Total Credit		50%			
Reduction of:	50%	L/min	=	3,835	L/min
F=	**7671L/min -**	**3,835**	**L/min =**	**3,835**	**L/min**

4) Exposure Adjustment Charge

Building Face	Dist(m)	Charge
North	8	20%
East	30+	0%
South	8	20%
West	22	10%
Total		50%

of 7670.9 L/min = 3,835 L/min
(max exposure charge can be 75%)

Separation Distance	Maximum Exposure Adjustment Charge
0 m to 3 m	25%
3.1 m to 10 m	20%
10.1 m to 20 m	15%
20.1 m to 30 m	10%
Greater than 30	0%

F= 3835L/min + 3835L/min = 7,671 L/min

F=	**8,000**	**L/min**
F=	**133**	**L/s**
F=	**2,113**	**gpm**

(round to the nearest 1,000L/min)

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Domestic Water Demand Design Calculations

Project:	**1056 & 1060 Brant Street**
Project No:	**23077**
Client:	**Almadev**
Location:	**Burlington, Ontario**
Site Area:	0.162 ha
Date:	Apr-11, 2025

Per Capita Demand*

Average Daily Consumption Rate	275	L/person/day

Peaking Factors*

Conditions	Residential	Non-Residential
Maximum Daily Demand	2.25	2.25
Maximum Hour Demand	4	2.25
Average Daily Demand	1	1

Population Densities*

Apartments within MTSA	2000	person/ha
Commercial/Retail	90	person/ha

*Regional Municipality of Halton
Water and Wastewater Linear Design Manual Version 6, Oct 2024

Site Statistics (Circulated March 13, 2025)

Population Mix	Area (Ha.)
Residential Area	0.162
Commercial	0

Equivalent Population

Land Use	Population
Residential	324
Commercial	0
Total Equivalent Population	**324**

Water Demand based on Equivalent Population

Land Use	Population	Nominal Demand (L/min)	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max Daily Demand (L/min)
Residential	324	62	62	248	139
Non-Residential	0	0	0	0	0
Total	**324**	**62**	**62**	**248**	**139**

Required Fire Flow (RFF)

RFF per FUS 2020 Gudelines (L/min)	8,000

Design Flow

Maximum Hour Demand (L/min):	248
Maximum Day Demand + Fire Flow (L/min):	8,139

Lozzi Aqua Check Massimo Lozzi

12307 Woodbine Ave, P.O. Box 519 Cell: 416 990-2131

Gormley, ON L0H 1G0 E-mail: lozziaquacheck@gmail.com

Hydrant Flow Test Form

Job Location: 1056-1060 Brant St. Date: October 27, 2025

Time of Test: 11:00 am

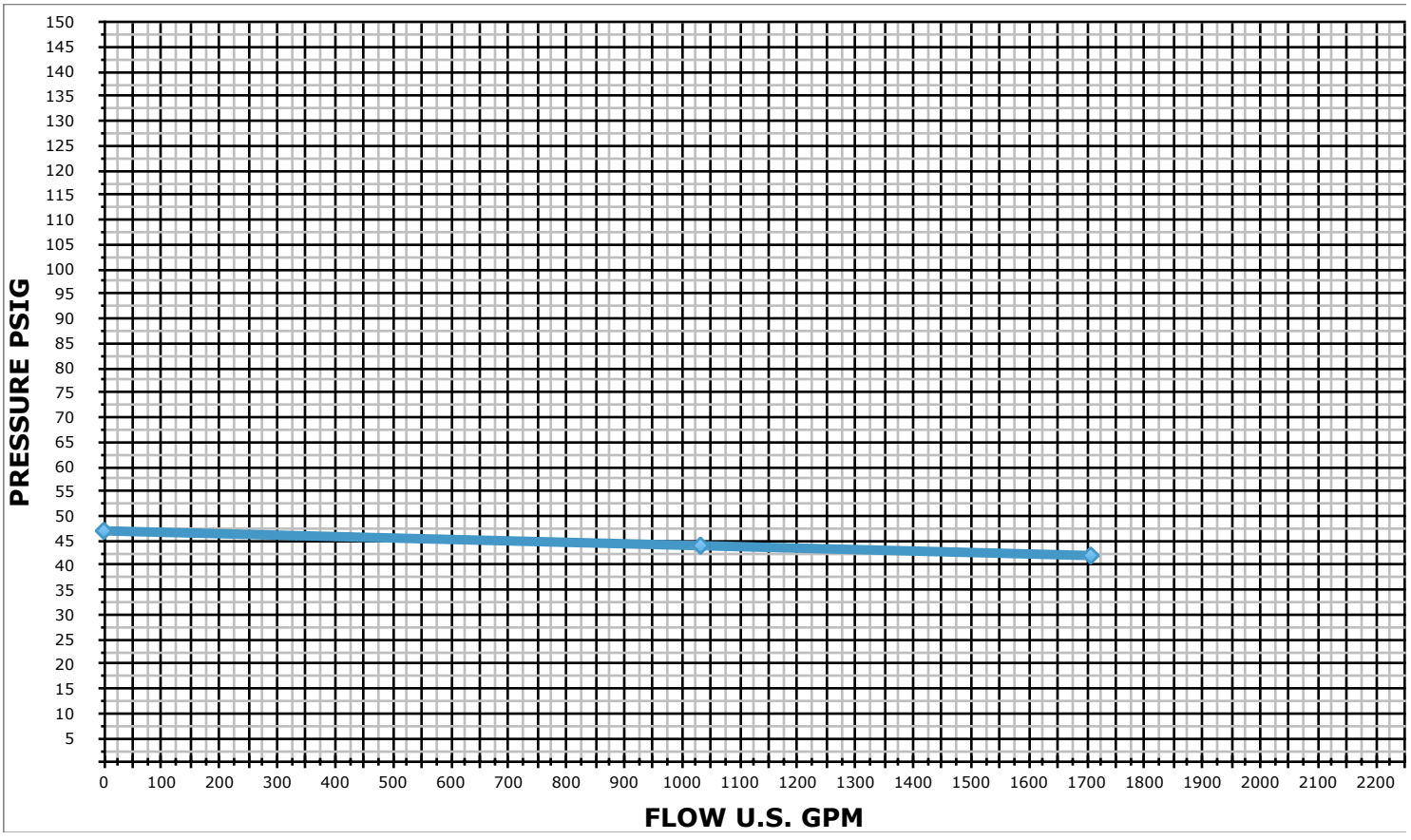
Location of Flow Hydrant: at the N/E corner of Brant Street and Churchill Ave.

Residual: hydrant at the S/W corner of Brant Street and Leighland Rd.

Main Size: 300mm Static Pressure: 47 psi

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	47
2.	1 x 2 ½	38	1032	44
3.	2 x 2 ½	26	1707	42

Note: Flow test conducted in accordance with NFPA 291



Lozzi Aqua Check

12307 Woodbine Ave, P.O. Box 519

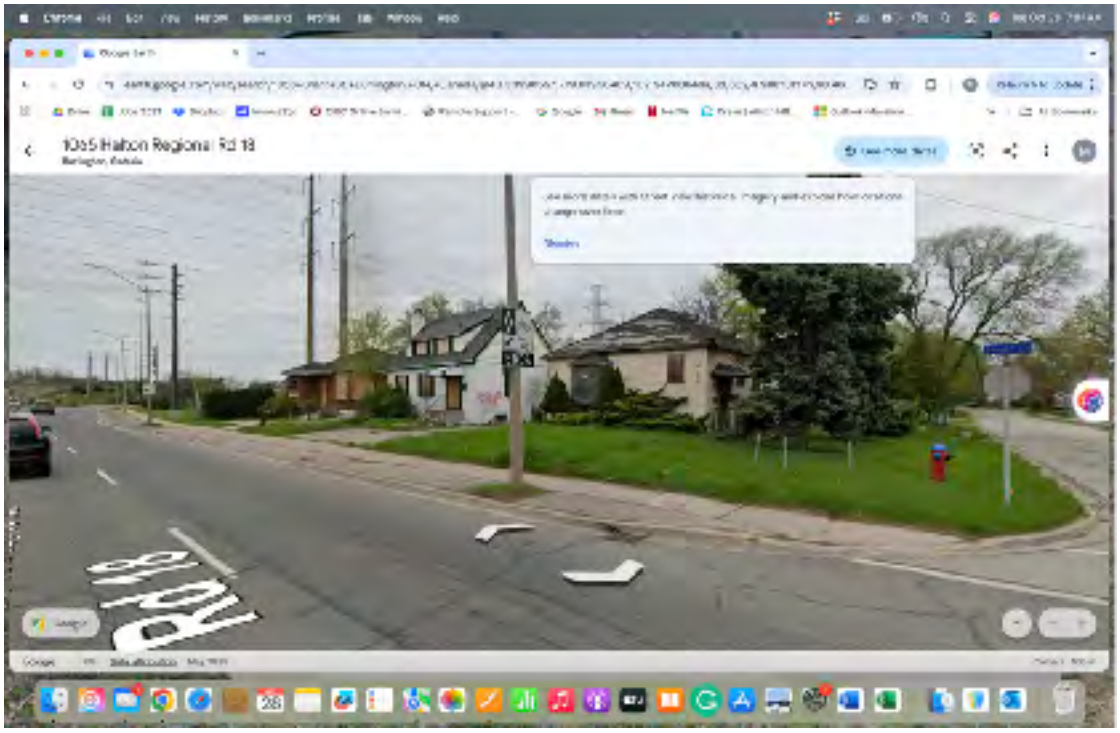
Gormley, ON L0H 1G0

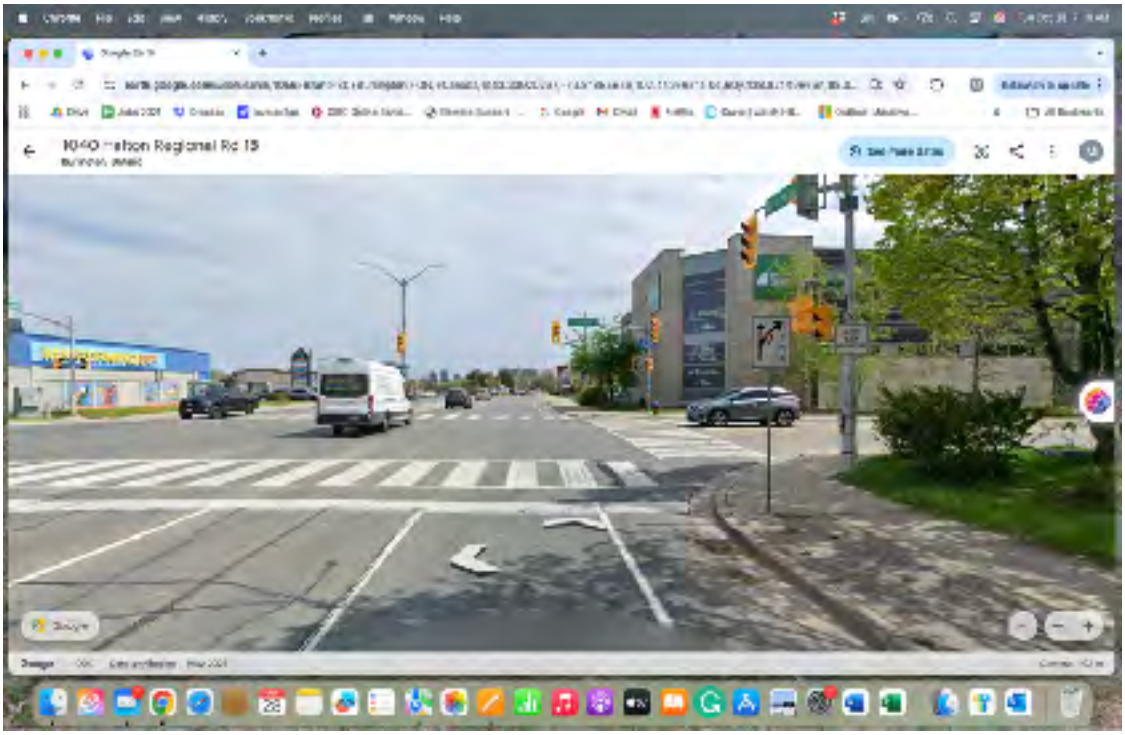
Massimo Lozzi

Cell: 416 990-2131

E-mail: lozziaquacheck@gmail.com

Flow





Lozzi Aqua Check

12307 Woodbine Ave, P.O. Box 519

Gormley, ON L0H 1G0

Massimo Lozzi

Cell: 416 990-2131

E-mail: lozziaquacheck@gmail.com

Appendix C

- Sanitary Demand Calculations
- Upstream & Downstream Sanitary Drainage Plan
- Pre Development and Post Development Downstream Sanitary

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Existing Sanitary Flow Design Calculations

Project:	**1056 & 1060 Brant Street**
Project No:	**23077**
Client:	**Almadev**
Location:	**Burlington, Ontario**
Site Area:	0.162 ha
Rev Date:	April-11, 2025

Halton Region Peak Flow Design Parameters

Average Daily Consumption Rate	275	L/person/day
Average Infiltration Rate	0.286	L/s/ha

Population Densities*

Single Family	95	person/ha
Commercial/Retail	90	person/ha

*Regional Municipality of Halton
Water and Wastewater Linear Design Manual Version 6, Oct 2024

Population Mix	Area (Ha.)
Residential Area	0.162
Commercial	0

Kavg 1

Equivalent Population

Land Use	Population
Residential	15.39
Commercial	0
Total Equivalent Population	15

Sanitary Demand Calculations

	Population	Peaking Factor (M)	Peak Domestic Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Total	15	4.00	0.20	0.05	0.24

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Proposed Sanitary Flow Design Calculations

Project:	**1056 & 1060 Brant Street**
Project No:	**23077**
Client:	**Almadev**
Location:	**Burlington, Ontario**
Site Area:	0.162 ha
Rev Date:	April-11, 2025

Halton Region Peak Flow Design Parameters

Average Daily Consumption Rate	275	L/person/day
Average Infiltration Rate	0.286	L/s/ha

Population Densities*

Apartments within MTSA	2000	person/ha
Commercial/Retail	90	person/ha

*Regional Municipality of Halton
Water and Wastewater Linear Design Manual Version 6, Oct 2024

Site Statistics (Circulated March 13, 2025)

Population Mix	Area (Ha.)
Residential Area	0.162
Commercial	0

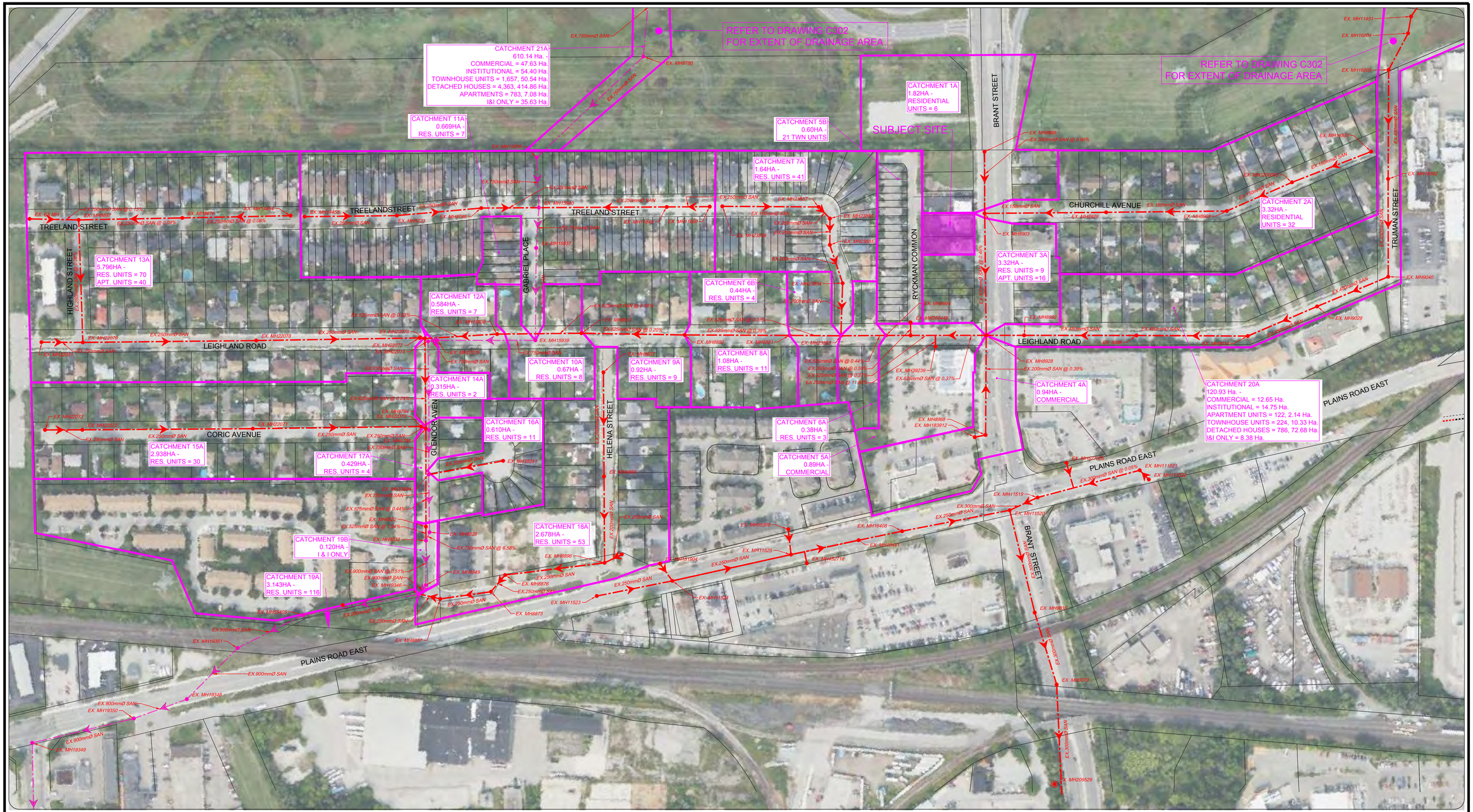
Kavg 1

Equivalent Population

Land Use	Population
Residential	324
Commercial	0
Total Equivalent Population	**324**

Sanitary Demand Calculations

	Population	Peaking Factor (M)	Peak Domestic Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Total	324	4.00	4.13	0.05	4.17



SANITARY TRIBUTARY AREA BOUNDARY
EXISTING TRUNK SANITARY SEWER
EXISTING LOCAL SANITARY SEWER
EXISTING SANITARY MANHOLE



No.	REVISIONS/ISSUED	DATE	BY	CITY
1.0	FIRST SUBMISSION	2025/12/01	PM	AD

counterpoint ENGINEERING

COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

ENGINEER'S STAMP

APPLICANT:

2735842 ONTARIO INC.;, 2060188 ONTARIO INC.;
2735841 ONTARIO INC. & 2059977 ONTARIO INC.

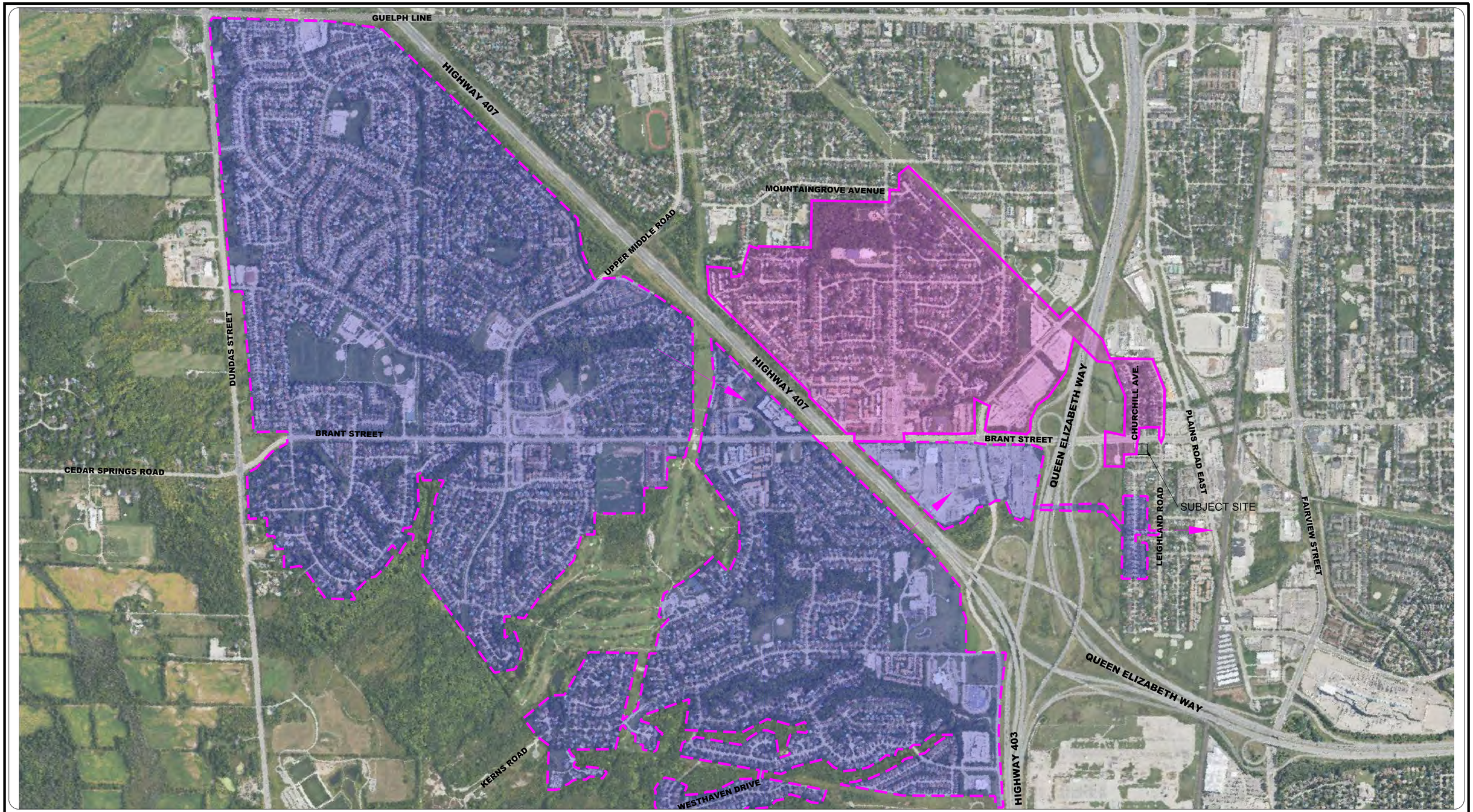
SITE LOCATION:

1056 & 1060 BRANT STREET
BURLINGTON, ONTARIO
PROPOSED HIGH RISE RESIDENTIAL BUILDING

DOWNSTREAM SANITARY DRAINAGE PLAN

DESIGNED BY:	PM	CHECKED BY:	AD
DRAWING BY:	PM	PROJECT NO.	23077
SWM BY:	N/A	DATE:	OCTOBER 27, 2025
SCALE: 1:1,500 (50 40 30 20 10 0m 15 30 45 60 75)		DRAWING NO.	C301
		PLAN NO.	

REGION FILE No.:

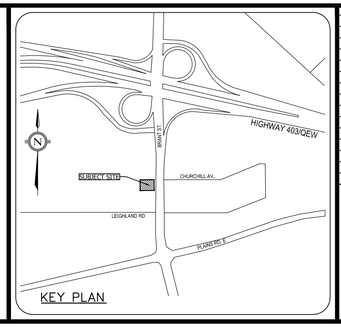


LEGEND

SANITARY TRIBUTARY AREA BOUNDARY (UPSTREAM OF MH 8952)

SANITARY TRIBUTARY AREA BOUNDARY (UPSTREAM OF MH 15939 - NOT INCLUDED IN DOWNSTREAM SEWER ANALYSIS)

DRAINAGE DIRECTION



KEY PLAN

No.	REVISIONS/ISSUED	DATE	BY	CITY
1.0	FIRST SUBMISSION	2025/12/01	PM	AD

counterpoint ENGINEERING

COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

ENGINEER'S STAMP

APPLICANT:

2735842 ONTARIO INC.;, 2060188 ONTARIO INC.;
2735841 ONTARIO INC. & 2059977 ONTARIO INC.

SITE LOCATION:

1056 & 1060 BRANT STREET
BURLINGTON, ONTARIO
PROPOSED HIGH RISE RESIDENTIAL BUILDING

UPSTREAM SANITARY DRAINAGE PLAN

DESIGNED BY:	PM	CHECKED BY:	AD	DATE:	OCTOBER 27, 2025
DRAWING BY:	PM	PROJECT NO.	23077	DRAWING NO.	
SWM BY:	N/A				
SCALE: 1:7500	150 0m 150 300 450			PLAN NO.	C302

REGION FILE No.:

COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

PRE-DEVELOPMENT DOWNSTREAM SANITARY SEWER DESIGN SHEET

DATE: 2025-12-01
DESIGNED BY: PM
CHECK BY: AD

Single Family	95 persons/Hectare	Apartments	600	persons/Hectare
Single Family	2.78 persons per unit	Apartments	2.78	persons per unit
Townhouse	260 persons/Hectare	Commercial/Inst.	90	persons/Hectare
Townhouse	2.78 persons per unit			

Average Flow = 275 L/day/cap
= 0.00318287 L/s

Infiltration factor = 0.25 l/sec per hectare
0.013 PVC/Conc. Pipe

1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
STREET 1	MANHOLE		LENGTH	TRIBUTARY AREAS (ha)								Existing Residential									Commercial				Schools/Instutional						Extraneous Flows	DESIGN PEAK FLOW	SEWER DESIGN						
				Incremental Area						Inc. Area Total	Acc. Area Total	# of Res. Units	# of Town Units	# of Apt. Units	Incremental Population	Accumulative Res. Pop.	Incremental Average Flow	Residential Peaking Factor	Incremental Res. Peak Flow	Accumulative Res. Peak Flow	Incremental Average Flow	Com/Inst. Peaking Factor	Incremental Com/Inst. Peak Flow	Accumulative Com/Inst. Peak Flow	Incremental Pop.	Accumulative School.. Pop.	Incremental Average Flow	School/Inst. Peaking Factor	Incremental Peak Flow	Accumulative Peak Flow		EXPECT.	SIZE	SLOPE	Capacity	V(m/s)		Flow depth	Qa/Qf
	FROM	TO	(m)	Single. Res.	Twnh.	Apt.	Com.	Inst.	I/I Only	(Ha.)	(Ha.)				Persons		Total			(L/s)	(L/s)			(L/s)				(L/s)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(L/s)	FULL	ACTUAL	%	%
Upstream - Brant Street	MH8888	MH8903	54.4	1.73	0.00	0	0.089			1.82	1.82	6	0	0	17	17	0.05	4.39	0.23	0.23	0.03	4.42	0.11	0.11	0	0	0.00	4.50	0.00	0.00	0.46	0.80	300	0.96	94.7	1.34	0.408	6.5%	0.8%
Upstream - Churchill Avenue	MH8929	MH8903	107.1	3.31	0.00	0	0			3.31	3.31	32	0	0	89	89	0.28	4.26	1.21	1.21	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.83	2.03	150	0.78	13.5	0.76	0.545	26.0%	15.1%
Brant Street	MH8903	MH8928	107.6	1.13	0.00	0	0			1.13	6.26	9	0	16	70	175	0.22	4.28	0.95	2.39	0.00	4.50	0.00	0.11	0	0	0.00	4.50	0.00	0.00	1.57	4.06	300	0.46	65.6	0.93	0.508	16.5%	6.2%
Upstream - Leighland Avenue	MH8952	MH8928	33.4	72.68	10.33	2.14	12.65	14.75	8.38	120.93	120.93	786	224	122	3,147	3,147	10.02	3.42	34.30	34.30	3.62	3.76	13.64	13.64	2,355	2,355	7.50	1.75	13.15	13.15	30.23	91.32	525	0.65	346.7	1.60	1.349	35.0%	26.3%
Upstream - Brant Avenue South	MH8968	MH8928	87.9				0.94			0.94	0.94										0.27	4.26	1.15	1.15	0	0	0.00	4.50	0.00	0.00	0.24	1.38	200	0.39	20.5	0.65	0.370	17.5%	6.8%
Leighland Avenue	MH8928	MH20450	66.7				0.89	0.00		0.89	129.02				0	3,322	0.00	4.50	0.00	36.69	0.25	4.27	1.09	15.98	0	2,355	0.00	4.50	0.00	13.15	32.26	98.08	525	0.37	261.6	1.21	1.115	42.0%	37.5%
Upstream - Rykman Common	MH20448	MH20450	11.5		0.60					0.60	0.60		21		58	58	0.19	4.30	0.80	0.80	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.15	0.95	300	1.25	108.1	1.53	0.465	6.5%	0.9%
Leighland Avenue	MH20450	MH8904	21.9							0.00	129.62				0	3,380	0.00	4.50	0.00	37.49	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	32.41	99.03	525	0.37	261.6	1.21	1.122	42.5%	37.9%
Leighland Avenue	MH8904	MH23853	39.7	0.38						0.38	130.00	3			8	3,389	0.03	4.42	0.12	37.61	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	32.50	99.24	525	0.37	261.6	1.21	1.122	42.5%	37.9%
Upstream - Treeland Street	MH23854	MH23853	46.5	1.64						1.64	1.64	41			114	114	0.36	4.23	1.53	1.53	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.41	1.94	250	0.50	42.0	0.86	0.433	14.5%	4.6%
Leighland Avenue	MH23853	MH8881	45.2	0.44						0.44	132.08	4			11	3,514	0.04	4.41	0.16	39.30	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.02	101.45	525	0.35	254.4	1.18	1.103	43.5%	39.9%
Leighland Avenue	MH8881	MH8850	92.5	1.08						1.08	133.16	11			31	3,545	0.10	4.35	0.42	39.72	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.29	102.14	525	0.39	268.6	1.24	1.152	42.5%	38.0%
Leighland Avenue	MH8850	MH8813	91.2	0.92						0.92	134.08	9			25	3,570	0.08	4.37	0.35	40.07	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.52	102.72	525	0.20	192.3	0.89	0.902	52.0%	53.4%
Leighland Avenue	MH8813	MH15936	74.3	0.67						0.67	134.75	8			22	3,592	0.07	4.37	0.31	40.38	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.69	103.20	525	0.36	258.0	1.19	1.125	44.0%	40.0%
Leighland Avenue	MH15936	MH22076	63.8	0.58						0.58	135.33	7			19	3,611	0.06	4.38	0.27	40.65	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.83	103.62	525	0.53	313.1	1.45	1.295	39.5%	33.1%
Upstream - Leighland Road	MH22078	MH22076	4.7	5.80						5.80	5.80	70		40	306	306	0.97	4.07	3.97	3.97	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	1.45	5.42	250	2.00	84.1	1.71	0.955	17.0%	6.4%
Glendor Avenue	MH22076	MH8786	79.5	0.32						0.32	141.45	2			6	3,923	0.02	4.44	0.08	44.69	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	35.36	109.19	525	0.28	227.6	1.05	1.037	48.5%	48.0%
Upstream Coric Avenue	MH22071	MH8786	4.7	2.94						2.94	2.94	30			83	83	0.27	4.26	1.13	1.13	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.73	1.87	250	0.37	36.2	0.74	0.380	15.0%	5.2%
Glendor Avenue	MH8786	MH8822	86.4	0.43						0.43	144.81	4			11	4,017	0.04	4.41	0.16	45.98	0.00	4.50	0.00	15.98	0		0.00	4.50	0.00	13.15	36.20	111.32	525	0.44	285.3	1.32	1.230	43.0%	39.0%
Glendor Avenue	MH8822	MH8832	12.3	0.00						0.00	144.81	0			0	0	0.00	4.50	0.00	45.98	0.00	4.50	0.00	15.98	0		0.00	4.50	0.00	13.15	36.20	111.32	525	1.54	533.7	2.47	1.946	31.0%	20.9%
Upstream - SAN TRUNK	MH8828	MH8822	8.1	418.86	53.15	7.08	65.46	36.13	1.10	581.78	580.68	4,363	1,657	783	18,912	18,912	60.20	2.68	161.14	161.14	18.75	3.18	59.60	59.60	0	0	0.00	4.50	0.00	0.00	145.17	365.90	750	6.58	2,855.7	6.46	4.419	24.0%	12.8%
Glendor Avenue - SAN TRUNK	MH8822	MH8849	39.3						0.12	0.12	725.61					22,929	0.00	4.50	0.00	161.14	0.00	4.50	0.00	75.58	0	0	0.00	4.50	0.00	13.15	181.40	431.27	900	0.51	1,292.8	2.03	1.820	39.5%	33.4%

COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

POST-DEVELOPMENT DOWNSTREAM SANITARY SEWER DESIGN SHEET

DATE: 2025-12-01
DESIGNED BY: PM
CHECK BY: AD

Single Family	95 persons/Hectare	Apartments	600	persons/Hectare	
Single Family	2.78 persons per unit	Apartments	2.78	persons per unit	
Townhouse	260 persons/Hectare	Commercial/Inst.	90	persons/Hectare	
Townhouse	2.78 persons per unit	Apartments within MTSA	2000	persons/Hectare	

Average Flow = 275 L/day/cap
= 0.00318287 L/s

Infiltration factor = 0.25 l/sec per hectare
0.013 PVC/Conc. Pipe

1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
STREET	MANHOLE		LENGTH	TRIBUTARY AREAS (ha)								Existing Residential									Commercial				Schools/Instutional						Extraneous Flows	DESIGN PEAK FLOW	SEWER DESIGN						
				Incremental Area						Inc. Area Total	Acc. Area Total	# of Res. Units	# of Town Units	# of Apt Units	Incremental Population	Accumulative Res. Pop.	Incremental Average Flow	Residential Peaking Factor	Incremental Res. Peak Flow	Accumulative Res. Peak Flow	Incremental Average Flow	Com/Inst. Peaking Factor	Incremental Com/Inst. Peak Flow	Accumulative Com/Inst. Peak Flow	Incremental Pop.	Accumulative School.. Pop.	Incremental Average Flow	School/Inst. Peaking Factor	Incremental Peak Flow	Accumulative Peak Flow		EXPECT.	SIZE	SLOPE	Capacity	V(m/s)		Flow depth	Qa/Qf
	FROM	TO	(m)	Single. Res.	Twnh.	Apt.	Com.	Inst.	I/I Only	(Ha.)	(Ha.)				Persons		Total			(L/s)	(L/s)			(L/s)			(L/s)		(L/s)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(L/s)	FULL	ACTUAL	%	%
Upstream - Brant Street	MH8888	MH8903	54.4	1.73	0.00	0	0.089			1.82	1.82	6	0	0	17	17	0.05	4.39	0.23	0.23	0.03	4.42	0.11	0.11	0	0	0.00	4.50	0.00	0.00	0.46	0.80	300	0.96	94.7	1.34	0.408	6.5%	0.8%
Upstream - Churchill Avenue	MH8929	MH8903	107.1	3.31	0.00	0	0			3.31	3.31	32	0	0	89	89	0.28	4.26	1.21	1.21	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.83	2.03	150	0.78	13.5	0.76	0.545	26.0%	15.1%
Upstream - Subject Site	MH1A	MH8903	11.9			0.162	0			0.16	0.16		0	0	**324**	**324**	1.03	4.06	4.19	4.19	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.04	4.23	150	2.00	21.5	1.22	0.945	30.0%	19.6%
Brant Street	MH8903	MH8928	107.6	1.13	0.00	0	0			1.13	6.42	9	0	16	70	175	0.22	4.28	0.95	6.58	0.00	4.50	0.00	0.11	0	0	0.00	4.50	0.00	0.00	1.61	8.29	300	0.46	65.6	0.93	0.634	24.0%	12.6%
Upstream - Leighland Avenue	MH8952	MH8928	33.4	72.68	10.33	2.14	12.65	14.75	8.38	120.93	120.93	786	224	122	3,147	3,147	10.02	3.42	34.30	34.30	3.62	3.76	13.64	13.64	2,355	2,355	7.50	1.75	13.15	13.15	30.23	91.32	525	0.65	346.7	1.60	1.349	35.0%	26.3%
Upstream - Brant Avenue South	MH8968	MH8928	87.9				0.94			0.94	0.94										0.27	4.26	1.15	1.15	0	0	0.00	4.50	0.00	0.00	0.24	1.38	200	0.39	20.5	0.65	0.370	17.5%	6.8%
Leighland Avenue	MH8928	MH20450	66.7				0.89	0.00		0.89	129.18				0	3,322	0.00	4.50	0.00	40.88	0.25	4.27	1.09	15.98	0	2,355	0.00	4.50	0.00	13.15	32.30	102.31	525	0.37	261.6	1.21	1.128	43.0%	39.1%
Upstream - Rykman Common	MH20448	MH20450	11.5		0.60					0.60	0.60		21		58	58	0.19	4.30	0.80	0.80	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.15	0.95	300	1.25	108.1	1.53	0.465	6.5%	0.9%
Leighland Avenue	MH20450	MH8904	21.9							0.00	129.78				0	3,380	0.00	4.50	0.00	41.68	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	32.45	103.26	525	0.37	261.6	1.21	1.134	43.5%	39.5%
Leighland Avenue	MH8904	MH23853	39.7	0.38						0.38	130.16	3			8	3,389	0.03	4.42	0.12	41.80	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	32.54	103.47	525	0.37	261.6	1.21	1.134	43.5%	39.6%
Upstream - Treeland Street	MH23854	MH23853	46.5	1.64						1.64	1.64	41			114	114	0.36	4.23	1.53	1.53	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.41	1.94	250	0.50	42.0	0.86	0.433	14.5%	4.6%
Leighland Avenue	MH23853	MH8881	45.2	0.44						0.44	132.24	4			11	3,514	0.04	4.41	0.16	43.49	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.06	105.68	525	0.35	254.4	1.18	1.115	44.5%	41.5%
Leighland Avenue	MH8881	MH8850	92.5	1.08						1.08	133.32	11			31	3,545	0.10	4.35	0.42	43.91	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.33	106.37	525	0.39	268.6	1.24	1.164	43.5%	39.6%
Leighland Avenue	MH8850	MH8813	91.2	0.92						0.92	134.24	9			25	3,570	0.08	4.37	0.35	44.26	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.56	106.95	525	0.20	192.3	0.89	0.909	53.0%	55.6%
Leighland Avenue	MH8813	MH15936	74.3	0.67						0.67	134.91	8			22	3,592	0.07	4.37	0.31	44.57	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.73	107.43	525	0.36	258.0	1.19	1.136	45.0%	41.6%
Leighland Avenue	MH15936	MH22076	63.8	0.58						0.58	135.50	7			19	3,611	0.06	4.38	0.27	44.84	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	33.87	107.85	525	0.53	313.1	1.45	1.311	40.5%	34.4%
Upstream - Leighland Road	MH22078	MH22076	4.7	5.80						5.80	5.80	70		40	306	306	0.97	4.07	3.97	3.97	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	1.45	5.42	250	2.00	84.1	1.71	0.955	17.0%	6.4%
Glendor Avenue	MH22076	MH8786	79.5	0.32						0.32	141.61	2			6	3,923	0.02	4.44	0.08	48.88	0.00	4.50	0.00	15.98	0	2,355	0.00	4.50	0.00	13.15	35.40	113.42	525	0.28	227.6	1.05	1.046	49.5%	49.8%
Upstream Coric Avenue	MH22071	MH8786	4.7	2.94						2.94	2.94	30			83	83	0.27	4.26	1.13	1.13	0.00	4.50	0.00	0.00	0	0	0.00	4.50	0.00	0.00	0.73	1.87	250	0.37	36.2	0.74	0.380	15.0%	5.2%
Glendor Avenue	MH8786	MH8822	86.4	0.43						0.43	144.97	4			11	4,017	0.04	4.41	0.16	50.17	0.00	4.50	0.00	15.98	0		0.00	4.50	0.00	13.15	36.24	115.55	525	0.44	285.3	1.32	1.243	44.0%	40.5%
Glendor Avenue	MH8822	MH8832	12.3	0.00						0.00	144.97	0			0	0	0.00	4.50	0.00	50.17	0.00	4.50	0.00	15.98	0		0.00	4.50	0.00	13.15	36.24	115.55	525	1.54	533.7	2.47	1.963	31.5%	21.7%
Upstream - SAN TRUNK	MH8828	MH8822	8.1	418.86	53.15	7.08	65.46	36.13	1.10	581.78	580.68	4,363	1,657	783	18,912	18,912	60.20	2.68	161.14	161.14	18.75	3.18	59.60	59.60	0	0	0.00	4.50	0.00	0.00	145.17	365.90	750	6.58	2,855.7	6.46	4.419	24.0%	12.8%
Glendor Avenue - SAN TRUNK	MH8822	MH8849	39.3						0.12	0.12	725.77					22,929	0.00	4.50	0.00	161.14	0.00	4.50	0.00	75.58	0	0	0.00	4.50	0.00	13.15	181.44	431.31	900	0.51	1,292.8	2.03	1.820	39.5%	33.4%

Appendix D

- Stormwater Management Calculations
  - Existing Flows
  - Allowable Release Rate Calculations
  - Proposed Storage Calculations
  - Water Balance Calculations

SWM DESIGN CALCULATIONS
Pre-Development Uncontrolled Release Rate Calculations
Area 101

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: Mar-08, 2025

Prepared by: PM
Checked By: AD
Last Revised: Dec-22, 2025

Event:	2	years		
ABC's:	a	681.52		
	b	6		
	c	0.78		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.45		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.163	ha	
Intensity [$i=a/(t+b)^c$]	i	78.39	mm/hr	
Flow [Q=CiA/360]	Q	0.02	m^3/s	
		16.0	l/s	

Event:	5	years		
ABC's:	a	802.04		
	b	5		
	c	0.764		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.45		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.163	ha	
Intensity [$i=a/(t+b)^c$]	i	101.31	mm/hr	
Flow [Q=CiA/360]	Q	0.02	m^3/s	
		20.7	l/s	

Event:	10	years		
ABC's:	a	918.28		
	b	5		
	c	0.762		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.45		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.1632	ha	
Intensity [$i=a/(t+b)^c$]	i	116.63	mm/hr	
Flow [Q=CiA/360]	Q	0.02	m^3/s	
		23.8	l/s	

Event:	25	years		
ABC's:	a	1065.95		
	b	5		
	c	0.762		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.50		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.1632	ha	
Intensity [$i=a/(t+b)^c$]	i	135.38	mm/hr	
Flow [Q=CiA/360]	Q	0.03	m^3/s	
		30.4	l/s	

Event:	50	years		
ABC's:	a	1172.34		
	b	5		
	c	0.761		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.54		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.1632	ha	
Intensity [$i=a/(t+b)^c$]	i	149.30	mm/hr	
Flow [Q=CiA/360]	Q	0.04	m^3/s	
		36.5	l/s	

Event:	100	years		
ABC's:	a	1281.34		
	b	5		
	c	0.761		
Time of Concentration:	t	10	min	
Runoff Coefficient:	C	0.56		
Actual Runoff Coefficient	C	0.45		
Site Area	A	0.1632	ha	
Intensity [$i=a/(t+b)^c$]	i	163.18	mm/hr	
Flow [Q=CiA/360]	Q	0.04	m^3/s	
		41.6	l/s	

SWM DESIGN CALCULATIONS
100-Year Post-development Required Storage Calculations (Area 201)

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: 22-Dec-25

Prepared by: PM
Checked by: AD
Last Revised: 22-Dec-25

Rainfall Data

Location:	Burlington	a	1281.34
Event	100-year	b	5
		c	0.761

Site Data

Area (ha)	0.1617
Runoff Coefficient	0.78
Adjusted Runoff Coefficient	1.00
AC	0.13
Tc (min)	10
Time Increment (min)	5
Release Rate (l/s)	16.7
Storage Required (m^3)	27

The Rational Equation:

$$Q = \frac{(C)(i)(A)}{360}$$

where,

Q = the design flow (m^3/s)
C = the site specific runoff coefficient
A = the drainage area (ha)
i = rainfall intensity (mm/hr)

Time	Rainfall Intensity	Storm Runoff	Runoff Volume	Released Volume	Storage Volume	
(min)	(mm/hr)	(m^3/s)	(m^3)	(m^3)	(m^3)	
10	163	0.06	34	10	24	
15	131	0.05	41	15	26	
20	111	0.04	47	20	27	********
25	96	0.03	51	25	26	
30	86	0.03	54	30	24	
35	77	0.03	57	35	22	
40	71	0.02	60	40	19	
45	65	0.02	62	45	17	
50	61	0.02	64	50	14	
55	57	0.02	66	55	11	
60	53	0.02	67	60	7	
65	51	0.02	69	65	4	
70	48	0.02	71	70	1	
75	46	0.02	72	75	0	
80	44	0.02	73	80	0	
85	42	0.01	75	85	0	
90	40	0.01	76	90	0	
95	39	0.01	77	95	0	
100	37	0.01	78	100	0	
105	36	0.01	79	105	0	
110	35	0.01	80	110	0	
115	34	0.01	81	115	0	
120	33	0.01	82	120	0	

SWM DESIGN CALCULATIONS
Post-Development Uncontrolled Release Rate Calculations
Area UNC

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: Mar-08, 2025

Prepared by: PM
Checked By: AD
Last Revised: Mar-08, 2025

Event:	2	years
ABC's: a	681.52	
ABC's: b	6	
ABC's: c	0.78	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.25	
Actual Runoff Coefficient C	0.25	
Site Area A	0.001	ha
Intensity [i=a/(t+b)^c] i	78.39	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.1	l/s

Event:	5	years
ABC's: a	802.04	
ABC's: b	5	
ABC's: c	0.764	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.25	
Actual Runoff Coefficient C	0.25	
Site Area A	0.001	ha
Intensity [i=a/(t+b)^c] i	101.31	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.1	l/s

Event:	10	years
ABC's: a	1331.42	
ABC's: b	5.26	
ABC's: c	0.84	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.25	
Actual Runoff Coefficient C	0.25	
Site Area A	0.00135	ha
Intensity [i=a/(t+b)^c] i	134.94	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.1	l/s

Event:	25	years
ABC's: a	1817.88	
ABC's: b	6.22	
ABC's: c	0.87	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.28	
Actual Runoff Coefficient C	0.25	
Site Area A	0.00135	ha
Intensity [i=a/(t+b)^c] i	161.00	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.2	l/s

Event:	50	years
ABC's: a	1918.97	
ABC's: b	6	
ABC's: c	0.86	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.30	
Actual Runoff Coefficient C	0.25	
Site Area A	0.00135	ha
Intensity [i=a/(t+b)^c] i	176.82	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.2	l/s

Event:	100	years
ABC's: a	2167.43	
ABC's: b	6.03	
ABC's: c	0.860	
Time of Concentration: t	10	min
Runoff Coefficient: C	0.31	
Actual Runoff Coefficient C	0.25	
Site Area A	0.00135	ha
Intensity [i=a/(t+b)^c] i	199.39	mm/hr
Flow [Q=CiA/360] Q	0.00	m^3/s
	0.2	l/s

SWM DESIGN CALCULATIONS
Orifice Calculation

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: Mar-08, 2025

Prepared by: PM
Checked by: AD
Last Revised: Dec-01, 2025

Orifice Location	=	**MH.101**		**Downstream of MH101**
Orifice Coefficient (C)	=	0.82		**[TUBE]**
Acceleration due to gravity (g)	=	9.81	m/s/s	
High Water Level	=	**100.50**	m	**[100-year storm event]**
Orifice Invert Elevation	=	99.420	m	
Orifice Diameter	=	**75**	**mm**	
Orifice Springline Elevation		99.42	m	
Cross section area of orifice (A)	=	0.0044	sq.m.	
Head (H)	=	**1.08**	m	
Actual Discharge (Q) (C x A x (2 x g x H)^0.5)	=	**16.7**	L/s	**[1:100 year storm event]**

SWM DESIGN CALCULATIONS
Water Balance Calculation

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: Mar-08, 2025

Prepared by: P.M
Revised by: P.M
Last Revised: 22-Dec-25

1. VOLUME TO BE RETAINED

Total Area of Site (A) =	1,632	sq.m.
Target Retention Depth (D) =	0.005	(m)
Storage Volume Required = V = A x D =	**8.2**	(cu.m.)

2. STORAGE VOLUME PROVIDED

Landscape Areas

Area (A) =	100	sq.m.
Initial Abstraction =	0.005	
Storage Volume Provided = V = A x *v* x d =	**0.5**	(cu.m.)

Water Re-use Cistern

Storage Volume Provided =	**8.0**	(cu.m.)
Storage Volume Provided =	**8.5**	(cu.m.)

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SWM DESIGN CALCULATIONS
Post-development TSS Removal Calculation

Project Name: 1056-1060 Brant Street
Municipality: Burlington, Ontario
Project No.: 23077
Date: Mar-08, 2025

Prepared by: P.M
Revised By: P.M
Last Revised: 22-Dec-25

Mitigated TSS Removal Rates with Landscape/Amenity Areas, Roof and Jellyfish Filter Treatment Train

Mitigated	Area (Ha)	TSS Removal Credit	% Area of Site	Overall TSS Removal
Conventional Roof Area	**0.071**	100.0%	43.6%	43.6%
Conventional Pavement/Sidewalk Area	**0.082**	0.0%	50.3%	0.0%
Landscaped Area	**0.010**	80.0%	6.1%	4.9%
Sub-Total Onsite TSS removal before Jellyfish	**0.163**		100.0%	**48.5%**
Untreated TSS remaining %				51.5%
80% TSS Removal Credit for Remaining Untreated TSS for Jellyfish Filter				41.2%
Total TSS removal				**89.7%**

Reference: New Jersey Stormwater Best Management Practices Manual
Chapter 4 - TSS Removal Rates for BMP's in Series

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◆ Verification Statement ◆ Verification Statement ◆ Verification Statement ◆

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

Jellyfish® Filter

Developed by Imbrium Systems, Inc.,
Whitby, Ontario, Canada

Registration: GPS-ETV_V2022-03-01

In accordance with

ISO 14034:2016

Environmental Management —
Environmental Technology Verification (ETV)

John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

March 1, 2022
Vancouver, BC, Canada

Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada |V6C 3E2

Technology description and application

The Jellyfish® Filter is an engineered stormwater quality treatment technology designed to remove a variety of stormwater pollutants including floatable trash and debris, oil, coarse and fine suspended sediments, and particulate-bound pollutants such as nutrients, heavy metals, and hydrocarbons. The Jellyfish Filter combines gravitational pre-treatment (sedimentation and floatation) and membrane filtration in a single compact structure. The system utilizes membrane filtration cartridges comprised of multiple detachable pleated filter elements ('filtration tentacles") that provide high filtration surface area with the associated advantages of high flow rate, high sediment capacity, and low filtration flux rate.

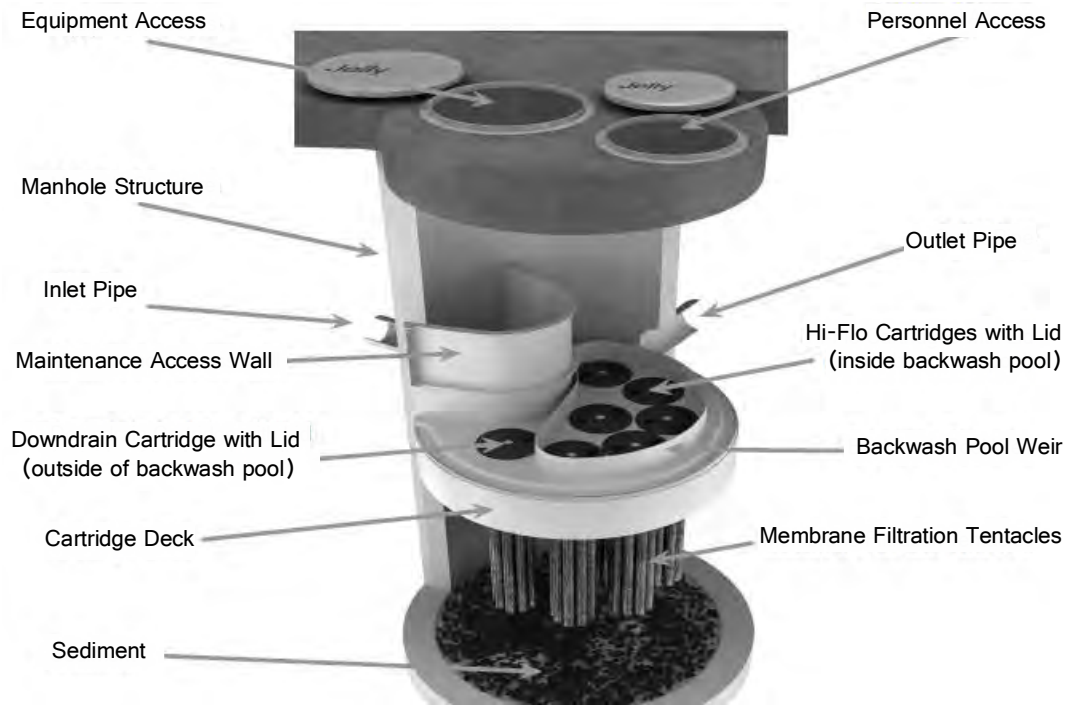


Figure 1. Cut-away graphic of a Jellyfish® Filter manhole with 6 hi-flo cartridges and 1 draindown cartridge

Figure 1 depicts a cut-away graphic of a typical 6-ft diameter Jellyfish® Filter manhole with 6 hi-flo cartridges and 1 draindown cartridge (JF6-6-1). Stormwater influent enters the system through the inlet pipe and builds a pond behind the maintenance access wall, with the pond elevation providing driving head. Flow is channeled downward into the lower chamber beneath the cartridge deck. A flexible separator skirt surrounds the filtration zone where the filtration tentacles of each cartridge are suspended, and the volume between the vessel wall and the outside surface of the separator skirt comprises a pre-treatment channel. As flow spreads throughout the pre-treatment channel, floatable pollutants accumulate at the surface of the pond behind the maintenance access wall and also beneath the cartridge deck in the pre-treatment channel, while coarse sediments settle to the sump. Flow proceeds under the separator skirt and upward into the filtration zone, entering each filtration tentacle and depositing fine suspended sediment and associated particulate-bound pollutants on the outside surface of the membranes. Filtered water proceeds up the center tube of each tentacle, with the flow from each tentacle combining under the cartridge lid, and discharging to the top of the cartridge deck through the cartridge lid orifice. Filtered effluent from the hi-flo cartridges enters a pool enclosed by a 15-cm high weir, and if storm intensity and resultant driving head is sufficient, filtered water overflows the weir and proceeds across the cartridge deck to the outlet pipe. Filtered effluent discharging from the draindown cartridge(s) passes directly to the outlet pipe, and requires only a minimal amount of driving head (2.5 cm) to provide forward flow. As

storm intensity subsides and driving head drops below 15 cm, filtered water within the backwash pool reverses direction and passes backward through the hi-flo cartridges, and thereby dislodges sediment from the membrane which subsequently settles to the sump below the filtration zone. During this passive backwashing process, water in the lower chamber is displaced only through the draindown cartridge(s). Additional self-cleaning processes include gravity, as well as vibrational pulses emitted when flow exits the orifice of each cartridge lid, and these combined processes significantly extend the cartridge service life and maintenance cleaning interval. Sediment removal from the sump by vacuum is required when sediment depths reach 30 cm, and cartridges are typically removed, externally rinsed, and recommissioned on an annual basis, or as site-specific maintenance conditions require. Filtration tentacle replacement is typically required every 3 – 5 years.

Performance conditions

The data and results published in this Verification Statement were obtained from the field testing conducted on a Jellyfish Filter JF6-6-1 (6-ft diameter manhole with 6 hi-flo cartridges and 1 draindown cartridge), in accordance with the requirements outlined by the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) as written by the Washington State Department of Ecology, (WADOE, 2011). The drainage area providing stormwater runoff to the test unit was 86 acres and was 32% impervious. Throughout the monitoring period (March 2017 – April 2020), a total of 25 individual storm events were sampled. The Basic Treatment standard outlined in the TAPE requires ≥ 80% total suspended solids (TSS) removal at influent TSS concentrations ranging from 100 to 200 mg/L. In addition, the Phosphorus Treatment standard outlined in the TAPE requires ≥ 50% removal of total phosphorus (TP) at influent concentrations ranging from 0.10 to 0.5 mg/L. For this verification, the performance claim for TSS removal is for influent TSS concentration ≥ 100 mg/L, and the performance claim for TP removal is for influent TP concentration ≥ 0.1 mg/L. Based on these requirements, 15 and 18 sample pairs deemed qualified for evaluating the removal performance of TSS and TP, respectively. Prior to starting the performance testing program, a quality assurance project plan (QAPP) was submitted to and approved by the State of Washington Department of Ecology.

Table 1 shows the specified and achieved TAPE criteria for storm selection and sampling.

Table 1. Specified and achieved TAPE criteria for storm selection and sampling

Description	TAPE criteria value	Achieved value
Total rainfall	> 3.8 mm (0.15 in)	> 3.8 mm (0.15 in)[1]
Minimum inter-event period	6 hours	6 hours
Minimum flow-weighted composite sample storm coverage	Minimum 70% including as much of the first 20% of the storm	> 70%
Minimum influent/effluent samples	10, but a minimum of 5 subsamples for composite samples	10, except for two events that had 9 aliquots
Total sampled rainfall	N/A	8.29 in
Number of storms	Minimum 15 (preferably 20)	25

[1]N.B. Storm event depth was greater than the TAPE rainfall depth guideline of 0.15 inches for all events sampled, except for the 3/21/2017, 3/22/2019, 3/26/2019, and 04/13/2019 events. Given the size of the drainage basin, storm events below this threshold produced adequate runoff volume for sampling. Only two of these events were used to evaluate performance, and all had rainfall depths of 0.11 inches or greater. These events were included as their runoff volumes, precipitation durations, and influent TSS concentrations were all within range of the total data set.

The 6-ft diameter test unit has sedimentation surface area of 2.62 m^2 (28.26 ft^2). Each of the seven filter cartridges employed in the test unit uses filtration tentacles of 137 cm (54 in) length, with filter surface area of 35.4 m^2 (381 ft^2) per cartridge, and total filter surface area of 247.8 m^2 (2667 ft^2) for the seven cartridges combined. The design treatment flow rate is 5 L/s (80 gal/min) for each of the six hi-flo

cartridges and 2.5 L/s (40 gal/min) for the single draindown cartridge, for a total design treatment flow rate of 32.5 L/s (520 gal/min) at design driving head of 457 mm (18 in). This translates to a filtration flux rate (flow rate per unit filter surface area) of 0.14 L/s/m^2 (0.21 gal/min/ft^2) for each hi-flo cartridge and 0.07 L/s/m^2 (0.11 gal/min/ft^2) for the draindown cartridge. The design flow rate for each cartridge is controlled by the sizing of the orifice in the cartridge lid. The distance from the bottom of the filtration tentacles to the sump is 61 cm (24 in).

Performance claim(s)

The Jellyfish® Filter demonstrated the removal efficiencies indicated in **Table 2** for TSS and TP during field monitoring conducted in accordance with the Washington State Department of Ecology's Technology Assessment Protocol – Ecology (TAPE), and using the following design parameters:

- System hydraulic loading rate (system treatment flow rate per unit of sedimentation surface area) of 12.5 L/s/m^2 (18.4 gal/min/ft^2) or lower
- Filtration flux rate (flow rate per unit filter surface area) of 0.14 L/s/m^2 (0.21 gal/min/ft^2) or lower for each hi-flo cartridge and 0.07 L/s/m^2 (0.11 gal/min/ft^2) or lower for each draindown cartridge
- Distance from the bottom of the filtration tentacles to the sump of 61 cm (24 in) or greater
- Driving head of 457 mm (18 in) or greater

Table 2. Bootstrapped mean, median, and 95% confidence interval (median) for removal efficiencies of Total Suspended Solids (TSS) and Total Phosphorus (TP)

Parameter	Mean (%)	Median (%)	Median – 95% Lower Limit	Median – 95% Upper Limit
TSS [1]	87.6	90.1	85.1	91.6
TP [2]	77.3	77.5	70.8	85.6

[1] TSS influent concentration ≥ 100 mg/L
[2] TP influent concentration ≥ 0.1 mg/L

N.B. As with any field test of stormwater treatment devices, removal efficiencies will vary based on pollutant influent concentrations and other site-specific conditions.
The performance claims can be applied to other Jellyfish® Filter models smaller or larger than the tested model as long as the untested models are designed in accordance with the design parameters specified in the performance claims.

Performance results

Performance Claims – Removal Efficiency for Total Suspended Solids

Raw data summarizing the percent removal of total suspended solids (TSS) by the Jellyfish® Filter at the design system hydraulic loading rate of 12.5 L/s/m^2 (18.4 gal/min/ft^2) for 15 sample pairs deemed qualified are presented in **Table 3**. Data were analyzed and evaluated using a bootstrap approach of random sampling by replacement to estimate population distribution and thereby the upper and lower limit of the confidence interval.

Table 3. Raw data summarizing the percent removal of total suspended solids (TSS)

Event ID	TSS Influent (mg/L)	TSS Effluent (mg/L)	TSS Removal (%) (Inf ≥ 100 mg/L)
3/21/2017	102.0	22.0	78.4
4/7/2017	201.0	30.8	84.7
4/12/2017	108.0	24.4	77.4
4/19/2017	452.0	44.6	90.1
4/26/2017	257.0	10.0	96.1

6/15/2017	134.0	10.4	92.2
3/8/2018	755.0	47.2	93.8
3/14/2018	181.0	27.0	85.1
3/22/2018	224.0	20.0	91.1
4/5/2019	171.0	23.0	86.6
4/13/2019	117.0	25.0	78.6
5/18/2019	254.0	20.0	92.1
12/7/2019	200.0	17.0	91.5
3/30/2020	605.0	51.0	91.6
4/20/2020	210.0	29.0	86.2
n	15	15	15
Min	102.0	10.0	77.4
Max	755.0	51.0	96.1
Median	201.0	24.4	90.1
Mean	264.7	26.8	87.7
SD	190.9	12.3	5.9

Performance Claims – Removal Efficiency for Total Phosphorus

Raw data summarizing the percent removal of total phosphorus (TP) by the Jellyfish® Filter at the design system hydraulic loading rate of 12.5 L/s/m^2 (18.4 gal/min/ft^2) for 18 sample pairs deemed qualified are presented in **Table 4**. Data were analyzed and evaluated using a bootstrap approach of random sampling by replacement to estimate population distribution and thereby the upper and lower limit of the confidence interval.

Table 4. Raw data summarizing the percent removal of total phosphorus (TP)

Event ID	TP Influent (mg/L)	TP Effluent (mg/L)	TP Removal (%) (Inf ≥ 0.1 mg/L)
4/7/2017	0.706	0.092	87.0
4/12/2017	0.338	0.076	77.5
4/19/2017	0.500	0.036	92.8
4/26/2017	0.504	0.042	91.7
5/13/2017	0.256	0.110	57.0
6/8/2017	0.256	0.104	59.4
6/15/2017	0.362	0.052	85.6
3/8/2018	1.75	0.130	92.6
3/14/2018	0.652	0.094	85.6
3/22/2018	0.364	0.072	80.2
3/27/2019	0.226	0.070	69.1
4/5/2019	0.337	0.092	72.9
4/13/2019	0.249	0.087	65.1
5/18/2019	1.09	0.173	84.1
12/7/2019	0.335	0.105	68.7
12/19/2019	0.211	0.093	56.2
3/30/2020	1.05	0.092	91.2
4/20/2020	0.451	0.112	75.2
n	18	18	18
Min	0.211	0.036	56.2
Max	1.75	0.173	92.8
Median	0.363	0.092	78.9
Mean	0.535	0.091	77.3
SD	0.400	0.032	12.5

Verification

The verification was completed by the Verification Expert, the Centre for Advancement of Water and Wastewater Technologies ("CAWT"), contracted by GLOBE Performance Solutions, using the International Standard ***ISO 14034:2016 Environmental management -- Environmental technology verification (ETV)***. Data and information provided by Imbrium Systems to support the performance claim included the performance monitoring report "General Use Level Designation Technical Evaluation Report" prepared by CONTECH Engineered Solutions, Portland, OR, USA, and dated December 28, 2020. This report is based on a field testing completed by CONTECH personnel at a site in Dundee, Oregon between March 2017 and April 2020 in accordance with the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) as written by the Washington State Department of Ecology (WADOE, 2011).

What is ISO14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV) and was developed and published by the *International Organization for Standardization (ISO)*. The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

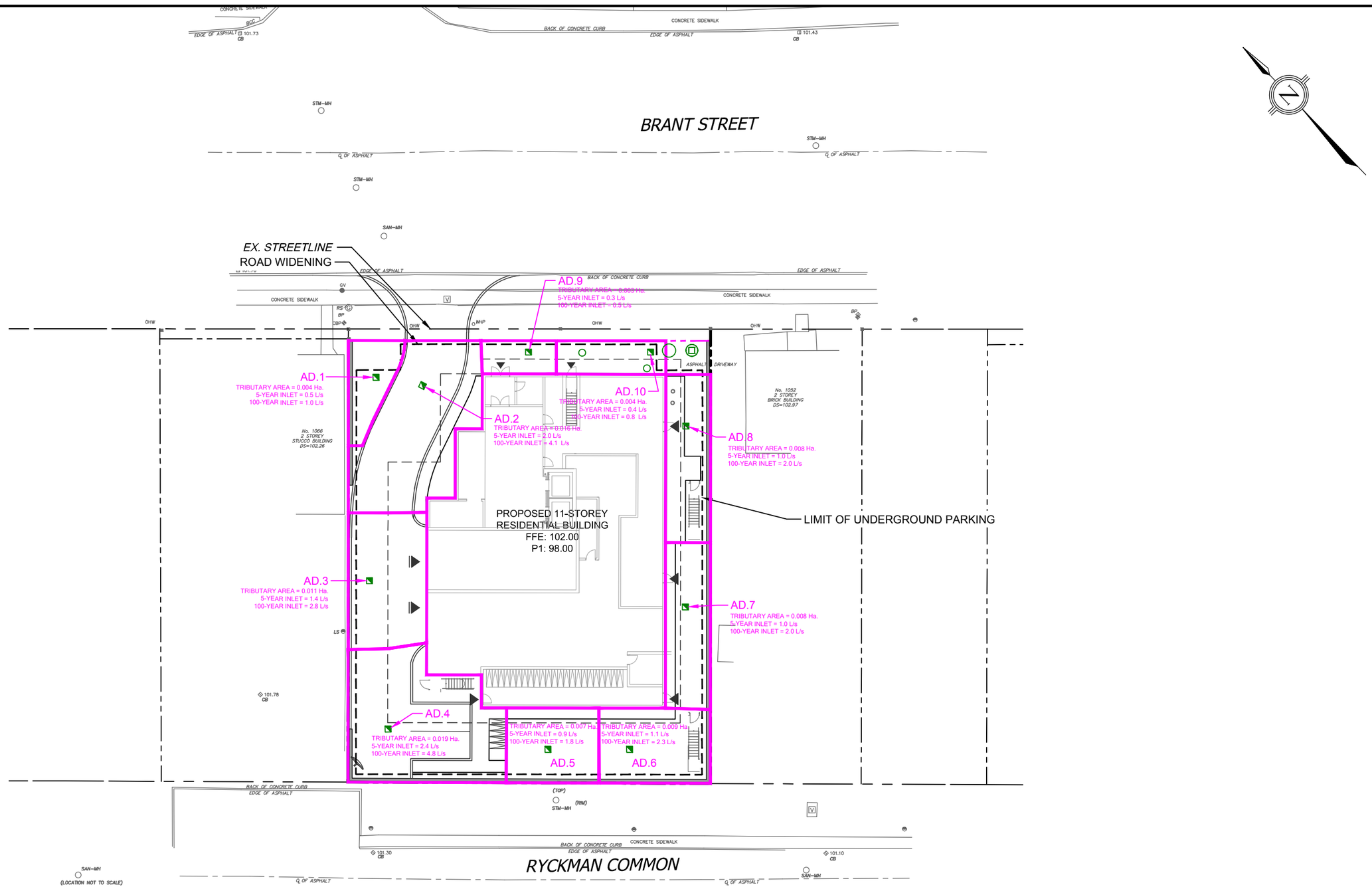
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Limitation of verification - Registration: GPS-ETV_V2022-03-01
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POST DEVELOPMENT DRAINAGE PLAN (AREA DRAINS)

1056 & 1060 BRANT STREET
PROPOSED 11-STOREY
RESIDENTIAL BUILDING
BURLINGTON, ONTARIO

DESIGNED BY:	PM	DATE:	APRIL 11, 2025
CHECKED BY:	AD	FILE #:	23077
DRAWING BY:	PM		
CHECKED BY:	AD	DWG No:	FIG.5A
SCALE:	NTS		