



**DeSantis (2489752 Ontario Inc.)
Proposed Mixed-Use Development
Stormwater Management Report**

**526 Bay Street
Midland ON
23-6998**

September 29, 2026

Submitted By:

Quantum Engineering Inc.
97 Copeland Creek Drive
Tiny, ON L9M 0M2
T (705) 549-1791
F (866) 516-9827

Distribution List

Hard Copies	PDF	Email	Organization Name
0	1	Yes	Town of Midland
0	1	Yes	Louie DeSantis
0	1	Yes	HaNK Architecture + Interiors Inc.

Record of Revisions

Revision	Date	Description
1.0	December 2024	Initial Submission to Owner
2.0	July 2026	Submission to Owner (Residential Only)
3.0	September 2026	Submission to Owner (Mixed Use Only)
4.0	September 2026	Submission to Town for Site Plan Approval

Prepared By:



Katrina Lalonde, P.Eng.

Reviewed By:



David W. Lalonde, P. Eng.



Disclaimers

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of Quantum Engineering Inc. (Quantum).

In the preparation of the various instruments of service contained herein, Quantum was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than Quantum. For its part Quantum has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. Quantum, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third-party materials and documents.

Quantum makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

1.0 Table of Contents

1.0	Table of Contents	c
1.0	Introduction	d
2.0	Background	d
2.1	Site Description	d
2.2	Existing Drainage	e
2.3	Soil Conditions	e
2.4	Proposed Development	e
3.0	Hydrology	e
4.0	Stormwater Management Plan.....	g
.1	Quality Control.....	h
.2	Quantity Control	h
5.0	Operational Maintenance Plan.....	h
6.0	Conclusions.....	i

Appendices

Appendix A – Drawings

Drawing SW1 – Stormwater – Pre-Development
Drawing SW2 – Stormwater – Post-Development
Drawing C1 – Site Plan
Drawing C3 – Servicing Plan

Appendix B – Design Calculations

Rational Method – Peak Flow Calculations
Storm Sewer Design Sheet

1.0 Introduction

Quantum Engineering Inc. (Quantum) has been retained by Louie DeSantis (2489752 Ontario Inc.) to provide engineering services related to the site plan design; including but not limited to, site servicing; grading; and stormwater management design for the proposed mixed-use development. The proposed development is to be located at 526 Bay Street in the Town of Midland and consists of a four-storey building complete with ground floor indoor parking and residential amenity and commercial spaces as well as three upper floors containing a total of fifteen (15) residential apartment units and one (1) residential unit for the building manager.

The purpose of this report is to outline the stormwater management strategy for the site and demonstrate compliance with the design standards of the Town of Midland, and the Ministry of the Environment, Conservation and Parks (MECP).

This Stormwater Management (SWM) Report has been prepared in support of an application for Site Plan Approval from the Town of Midland for the proposed mixed-use development at 526 Bay Street and is submitted for Town approval of the Stormwater Management Design for the subject property.

2.0 Background

2.1 Site Description

According to the hydrogeological assessment, the subject property is a 0.152 ha parcel situated between Bayshore Drive and Bay Street, east of First Street in the Town of Midland. The site currently functions as a parking lot and features a flat topography with a total relief of approximately 0.5m. The site location is illustrated below in Figure 1.



Figure 1: Site Location

2.2 Existing Drainage

For the purposes of this SWM Report, pre-development conditions are defined as the existing site conditions as of December 2024. Current on-site drainage infrastructure consists of a single catch basin that captures the majority of the existing asphalt surface runoff. This catch basin discharges into a 450mm diameter concrete storm pipe, which subsequently connects to a 525mm diameter concrete storm sewer located on Bayshore Drive. Runoff from the remaining asphalt surface currently drains uncontrolled off-site toward First Street.

2.3 Soil Conditions

Subsurface conditions at the subject site consist of fill material—situated beneath topsoil or asphalt - extending to a maximum depth of 3.1m below grade. This is underlain by a combination of silty clay, sandy silt, and silty sand, as detailed in the Hydrogeological Assessment prepared by Pinchin Ltd. Groundwater levels were measured between 1.1m and 2.24m below grade. In-situ hydraulic conductivity (k) testing in selected monitoring wells yielded values ranging from 1.2×10^{-6} cm/s to 1.2×10^{-3} cm/s. For the purposes of our design calculations, the geometric mean of 3.4×10^{-5} cm/s (as calculated by Pinchin) was utilized. The complete assessment, dated May 4, 2026, has been provided under separate cover.

2.4 Proposed Development

The project involves the construction of a four-storey building complete with ground floor indoor parking and residential amenity and commercial spaces as well as three upper floors containing a total of fifteen (15) residential apartment units and one (1) residential unit for the building manager.

The site will be serviced by a two-way entrance from First Street, providing access to the interior parking area. A total of fifteen parking spaces - one parking space for each residential apartment unit - is proposed.

Pedestrian connectivity is facilitated by a network of sidewalks adjacent to the building. To preserve the existing green space, the remaining site area will be maintained as grassed and landscaped open space, providing an exterior space towards the water, and a vegetative buffer between the development and adjacent industrial properties.

Supporting civil site plan, prepared by Quantum Engineering Inc., is provided in Appendix A.

3.0 Hydrology

Peak flows and storage requirements were calculated using the Rational Method ($Q = C \times I \times A$). This method calculates peak flows based on drainage area, runoff coefficient, and rainfall intensity. The drainage areas for pre-development and post-development conditions can be found on Drawing SW1 and SW2 in Appendix A. Runoff coefficients are as noted in Table 1 below, and rainfall intensity data are determined based on intensity-

duration frequency (IDF) curves provided in the Town of Midland Engineering Development Design Standards, downloaded April 2026.

Table 1 : Land Use Categories and Runoff Coefficient Table

Land Use	Runoff Coefficient
Grass	0.20
Paved	0.95
Building	0.70
Trees	0.10

Tables 2 through 6 below summarize the results of the stormwater management analysis with more detailed calculations found in Appendix B.

Table 2: Pre-Development Weighted Runoff Coefficients

Catchment	Total Area	Grass	Paved	Building	Trees	Gravel	Weighted C
Area	[m ²]	[m ²]	[m ²]	[m ²]	[m ²]	[m ²]	
101	1,520.9	110.2	1410.7	0	0	0	0.94

Table 3: Pre-Development Peak Flows

Catchment	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Area	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s
101	0.0179	0.0239	0.0282	0.0334	0.0377	0.0417

Table 4: Post-Development Weighted Runoff Coefficient

Catchment	Total Area	Grass	Paved	Building	Trees	Gravel	Weighted C
Area	[m ²]	[m ²]	[m ²]	[m ²]	[m ²]	[m ²]	
201	144.6	0	144.6	0	0	0	0.95
202	281.8	170.1	111.7	0	0	0	0.50
203	18.7	0	18.7	0	0	0	0.95
204	1075.8	0	0	1075.8	0	0	0.70

Table 5: Uncontrolled Post-Development Peak Flows

Catchment Area	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s
201	0.0017	0.0023	0.0027	0.0032	0.0036	0.0040
202	0.0017	0.0023	0.0028	0.0033	0.0037	0.0041
203	0.0002	0.0003	0.0003	0.0004	0.0005	0.0005
204	0.0094	0.0126	0.0149	0.0176	0.0199	0.0220
Total	0.0131	0.0175	0.0207	0.0245	0.0277	0.0306

Table 6: Pre vs. Uncontrolled Post Development Peak Flow Comparison

Development Area	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s	m ³ /s
Pre	0.0179	0.0239	0.0282	0.0334	0.0377	0.0417
Post (Uncontrolled)	0.0131	0.0175	0.0207	0.0245	0.0277	0.0306
Difference	≤ 0.0	≤ 0.0	≤ 0.0	≤ 0.0	≤ 0.0	≤ 0.0

As can be seen above in Table 6, the uncontrolled post-development peak flows for all catchment areas (201 to 204) cumulatively are lower than the pre-development conditions (catchment area 101). Therefore, no requirement for stormwater management quantity control is required or proposed. Pre-development and post-development site conditions are shown on Drawing SW1 and SW2 in Appendix A, respectively.

4.0 Stormwater Management Plan

In general, the stormwater management approach utilized for this site is to have the surface stormwater runoff from catchment areas 201, 202 and 203 remain uncontrolled and shed towards the adjacent Town streets and municipal storm sewer system. This approach is consistent with their existing conditions. For Catchment Area 204, the stormwater runoff from the building roof will be directed via interior gravity drains to a proposed catch basin on-site within Catchment Area 202. Additionally, the surface runoff from the indoor parking area will be collected into proposed catch basins complete with an oil-grit separator (design to be completed as part of the building plumbing system design) and discharge into the same proposed catch basin. The proposed catch basin in Catchment Area 202 will connect into the existing (decommissioned) 450mm diameter concrete stormwater pipe, which ultimately discharges into the Town's storm sewer system on Bayshore Drive.

Construction details are included within the complete Site Plan Application Drawing Set (Project No. 23-6998, Drawings C1 to C5 by Quantum Engineering Inc., dated September 2026).

The following stormwater management plan has been prepared to address both stormwater quality control, and stormwater quantity control. The intent of this plan is to address stormwater in an environmentally friendly manner.

.1 Quality Control

Quality control is being provided through the use of standard goss traps at the outlets of all proposed catch basins, allowing for the settlement of particles for removal. Catch basins should have a minimum 0.6m deep sump area. As part of the building design, an oil-grit separator is proposed to be provided for the interior parking area prior to entering the Town's storm sewer infrastructure.

For the system to function as intended, it is critical that the system not be clogged with sediment and debris. Our office recommends that catch basins be cleaned-out once or twice per year to ensure the continued removal of silt and oil from the stormwater runoff.

.2 Quantity Control

As previously mentioned, since the post-development peak flow rates are less than the pre-development peak flow rates for surface stormwater runoff, no stormwater quantity control facilities have been proposed.

5.0 Operational Maintenance Plan

To ensure the long-term functionality of the on-site stormwater system, a regular inspection and maintenance program should be implemented by the Owner. This includes semi-annual inspections of all catch basins, as well as the periodic removal of accumulated sediment.

The anticipated operation and maintenance (O&M) activities for the site's stormwater infrastructure are outlined in Table 7. Following the completion of construction, a detailed O&M Manual should be prepared to guide the property owner in the routine inspection and servicing of the storm sewer network to ensure continued compliance with MECP and municipal standards.

Table 7: Recommended Maintenance for Proposed Stormwater Management System

Component	Frequency	Actions Required
Catch Basins (CB)	Twice Annually	Remove debris/ice from grates to allow for drainage year-round and prevent localized flooding during spring thaw Remove sediment in CB sump (clean out recommended when it reaches 100 mm from the outlet pipe at a minimum).
Goss Traps	Twice Annually	Ensure bottom of trap is submerged below water level. Check for debris accumulation as well as damage to the trap itself. Clean-out and repair as required.
Storm Pipes	Every 2-5 Years	Flush if significant sediment is observed in the downstream catch basins.
Oil Grit Separator	Twice Annually	Inspected the distance from the floor of the unit to the top of the silt pile as well as the thickness of the floating oil layer at the water surface. Check for any large floatables (trash, branches) blocking the orifices or bypass weir. Clean-out as required as per specific manufacturer's requirements.

6.0 Conclusions

This Stormwater Management Report demonstrates that the proposed mixed-use development at 526 Bay Street adheres to the design criteria established by the Town of Midland and the MECP. Through the implementation of the proposed grading plan and the installation of a high-efficiency Oil-Grit Separator (OGS) for the interior parking levels, the development will achieve Enhanced Level (80% TSS removal) quality protection. Furthermore, the site design ensures that post-development peak flows are managed to pre-development levels, mitigating any adverse impacts on the downstream municipal infrastructure. Based on this analysis, the proposed Stormwater Management design is technically sound and supports the application for Site Plan Approval.

We trust this SWM Report meets the requirements of the Town of Midland. Should you have any questions, feel free to contact our office.

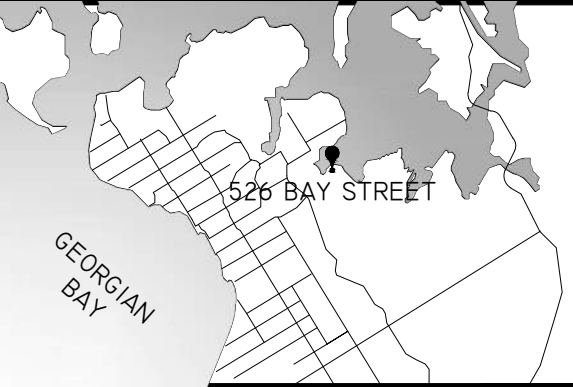
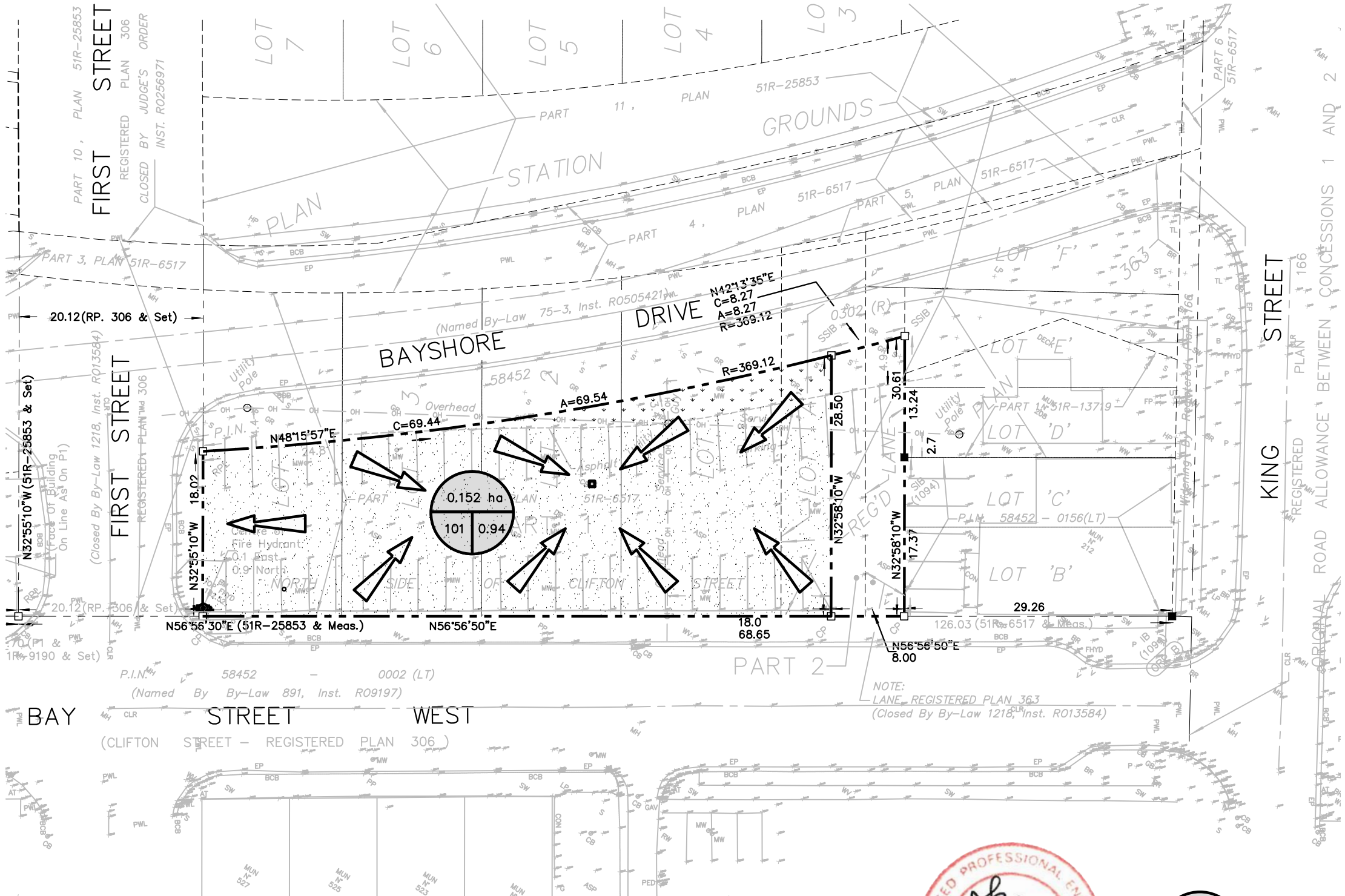
Appendix A – Drawings

SW1 – Stormwater – Pre Development

SW2 – Stormwater – Post Development

Drawing C1 – Site Plan

Drawing C3 – Servicing Plan



No.	DESCRIPTION	DATE
1	FOR TOWN PRECONSULT	DEC. 19, 2023
2	FOR ZONING AMENDMENT	MAY 1, 2024
3	FOR ZONING AMENDMENT	JUNE 6, 2024
4	FOR CLIENT REVIEW	DEC 16, 2024
5	FOR CLIENT REVIEW	APR 20, 2026
6	FOR CLIENT REVIEW	JULY 29, 2026
7	FOR CLIENT REVIEW	SEPT 22, 2026
8	SITE PLAN APPROVAL	SEPT 29, 2026



QUANTUM
ENGINEERING

97 COPELAND CREEK DR
TINY ONTARIO L9M 0M2
PHONE: (705) 549-1791
FAX: (866) 516-9827
WWW.QENG.CA

PROJECT
APARTMENT /
COMMERCIAL BLDG

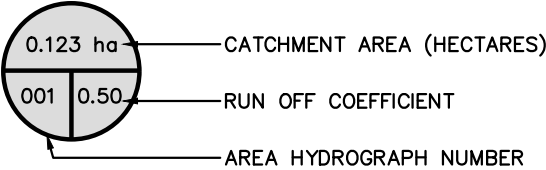
LOCATION
526 BAY STREET
MIDLAND, ON

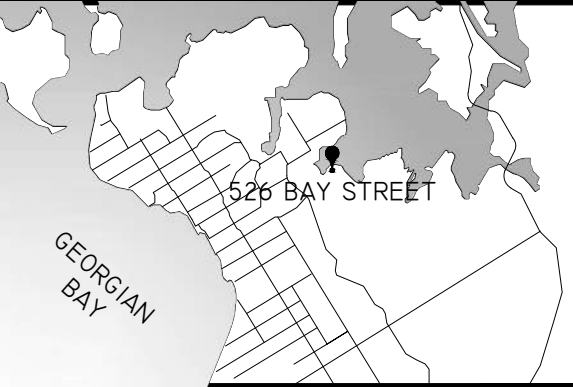
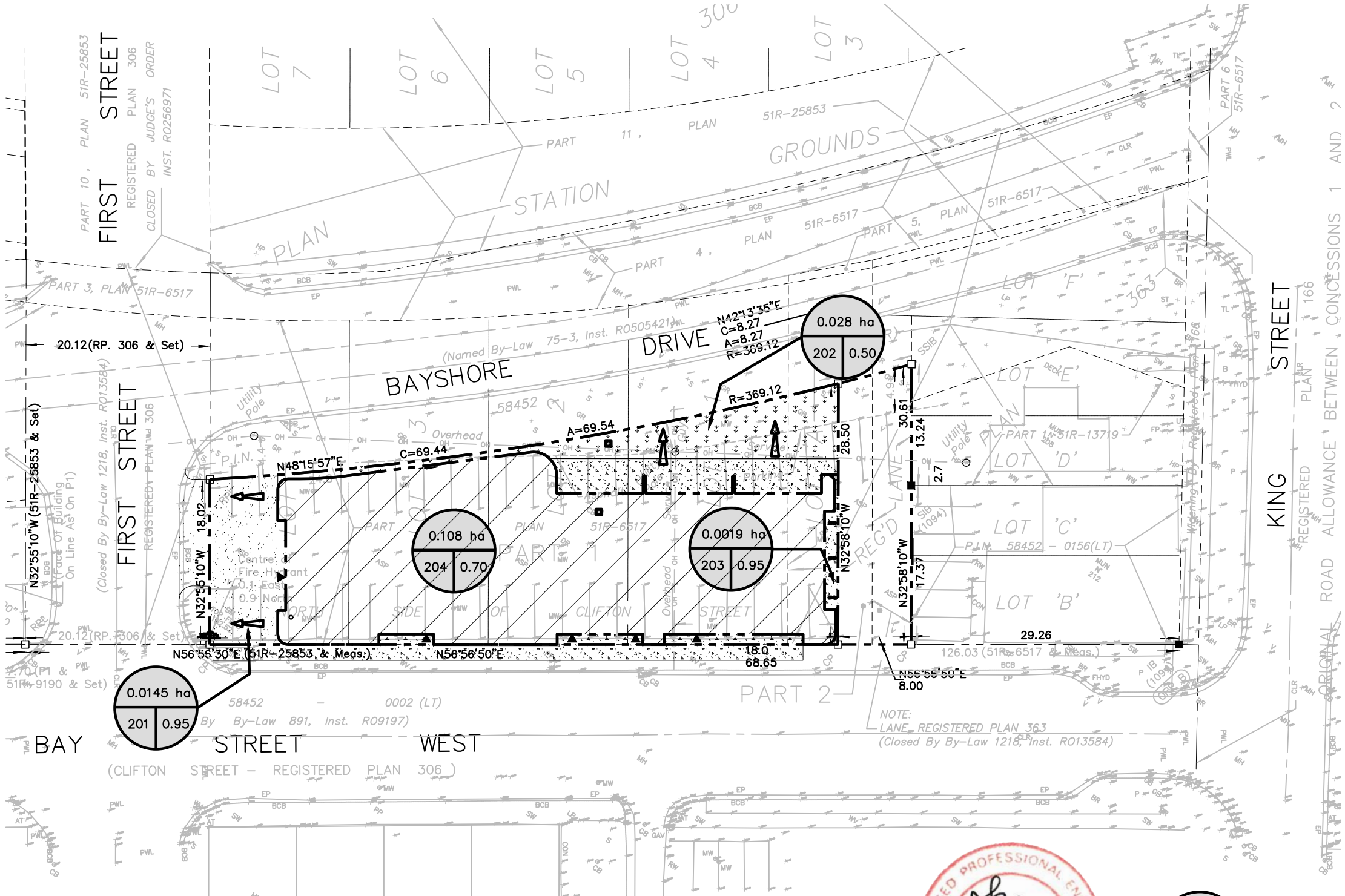
FOR
LOUIE DESANTIS

DRAWING
PRE-DEVELOPMENT

DATE	DEC 2024	PROJECT No	PAGE ID
DRAWN BY	K.J.L.	6998	SWI
SCALE	SEE PLOT		

PRE-DEVELOPMENT AREAS
SCALE: 1:500





No.	DESCRIPTION	DATE
1	FOR TOWN PRECONSULT	DEC. 19, 2023
2	FOR ZONING AMENDMENT	MAY 1, 2024
3	FOR ZONING AMENDMENT	JUNE 6, 2024
4	FOR CLIENT REVIEW	DEC 16, 2024
5	FOR CLIENT REVIEW	APR 20, 2026
6	FOR CLIENT REVIEW	JULY 29, 2026
7	FOR CLIENT REVIEW	SEPT 22, 2026
8	SITE PLAN APPROVAL	SEPT 29, 2026



QUANTUM
ENGINEERING

97 COPELAND CREEK DR
TINY ONTARIO L9M 0M2
PHONE: (705) 549-1791
FAX: (866) 516-9827
WWW.QENG.CA

PROJECT
APARTMENT /
COMMERCIAL BLDG

LOCATION
526 BAY STREET
MIDLAND, ON

FOR
LOUIE DESANTIS

DRAWING
POST-DEVELOPMENT

DATE	DEC 2024	PROJECT No	PAGE ID
DRAWN BY	K.J.L.	6998	SW2
SCALE	SEE PLOT		

LEGEND:

- CONCRETE
- GRAVEL
- GRASS
- ASPHALT
- BUILDING



0.123 ha — CATCHMENT AREA (HECTARES)
001 — RUN OFF COEFFICIENT
— AREA HYDROGRAPH NUMBER

POST-DEVELOPMENT AREAS
SCALE: 1:500

PART OF LOTS 1, 2, 3 AND 4
NORTH SIDE OF CLIFTON STREET
REGISTERED PLAN 306
PART OF LOT A
NORTH SIDE OF CLIFTON STREET
AND PART OF LANE (Closed By By-Law 1218, Inst. R013584)
REGISTERED PLAN 363
TOWN OF MIDLAND
COUNTY OF SIMCOE

ZONING INFORMATION:

CURRENT ZONING DESIGNATION:
DOWNTOWN CORE COMMERCIAL (DC)
PROPOSED CHANGE TO ZONING: AMENDMENT FOR 6.1.3.6
(ZBA-04-25)
CURRENT BUILDING CLASSIFICATION: N/A
PROPOSED BUILDING CLASSIFICATION(S): C/E
GROSS FLOOR AREA (GFA): PROPOSED 36,522 FT² (3393 M²)

ZONING MATRIX:
(AS PER TOWN OF MIDLAND DOWNTOWN CORE COMMERCIAL)

	REQUIRED	PROPOSED
MINIMUM LOT AREA:	0.0m ²	1520.9 M ²
MINIMUM LOT FRONTAGE:	0.0m	18.02m
MAXIMUM LOT COVERAGE:	N/A	70.0%
MINIMUM YARD SETBACKS:		
(A) FRONT:	1.5M	7.43M
(B) REAR:	0.0M	0.25M
(C) INTERIOR SIDE:	0.0M	0.0M
(D) EXTERIOR SIDE:	0.0M	0.0M
MAXIMUM YARD SETBACKS:		
(A) FRONT:	3.0M	7.43M
MAX. BUILDING HEIGHT:	17.0M	16.9M
PARKING:		
PARKING SPACES	N/A	14
BARRIER FREE	N/A	1
LOADING	N/A	0

SURFACE AREAS:

TOTAL SITE AREA: 1520.9 M²
BUILDING FOUNDATION FOOTPRINT: 1064 M²
TOTAL PAVED/CONCRETE AREA: 284 M²
TOTAL GRASSED AREA: 173 M²

NOTE: DISTANCES ON THIS PLAN ARE METRIC AND CAN BE
CONVERTED TO IMPERIAL BY **MULTIPLYING BY 3.28**

ELEVATIONS AND SERVICES ARE IN METRIC

GENERAL NOTES:

- CONTRACTOR TO CHECK ALL DIMENSIONS, SPECIFICATIONS, ETC., ON SITE AND IS RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO OUR OFFICE PRIOR TO CONSTRUCTION. CONTRACTOR TO DETERMINE & CONFIRM THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF QUANTUM ENGINEERING. THEY ARE TO REMAIN THE PROPERTY OF OUR OFFICE AND MUST BE RETURNED UPON REQUEST. THESE DRAWINGS ARE NOT TO BE USED IN ANY OTHER LOCATION WITHOUT THE WRITTEN APPROVAL FROM OUR OFFICE. REPRODUCTIONS OF THESE DOCUMENTS OR DRAWINGS IN WHOLE OR IN PART IS FORBIDDEN WITHOUT WRITTEN PERMISSION FROM OUR OFFICE.
- ALL CONSTRUCTION & INFRASTRUCTURE SHALL CONFORM TO THE MOST RECENT EDITIONS OF ALL APPLICABLE CODES IN EFFECT AT THE PROJECT LOCATION. ALL WORKS TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AS WELL AS TOWN OF MIDLAND SPECIFICATIONS.
- OFFICIAL COPIES MUST BEAR AN ORIGINAL SIGNATURE AND SHOW THE ENGINEERS STAMP IN RED.
- DO NOT SCALE DRAWINGS.

BARRIER FREE PATH OF TRAVEL:

- OBC 3.8.1.3.1 BARRIER FREE PATH OF TRAVEL SLOPE MAXIMUM 1:20; MINIMUM WIDTH 1.12m (3'-8")
- MAXIMUM BEVEL 1:2
- MAXIMUM 12m (40') CURB AT LEVEL CHANGES
- MINIMUM LANDING AT TOP AND BOTTOM OF SLOPED PORTION 1.67m (66") SQUARE

UTILITIES:

- BUILDING SERVICED WITH MUNICIPAL WATER & SEWER, AND 240V HYDRO. HYDRO SERVICE LOCATION AND INSTALLATION REQUIREMENTS TO BE CONFIRMED WITH LOCAL AUTHORITY (NEWMARKET-TAY POWER DISTRIBUTION LTD.).
- COMPACTION OF BACKFILL FOR UTILITY TRENCHES SHALL BE 95% SPDD, UNLESS OTHERWISE SPECIFIED BY LOCAL AUTHORITIES.
- CONTRACTOR RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

GARBAGE STORAGE:

- ALL GARBAGE TO BE STORED IN DUMPSTER LOCATED IN DESIGNATED AREA.

SNOW STORAGE:

- ALL SNOW TO BE STORED ON SITE WITHIN DESIGNATED SNOW STORAGE AREAS.
- SNOW NOT TO BE PUSHED ONTO OR STORED ON ADJACENT ROADS, DESIGNATED PARKING SPACES OR BARRIER FREE SPACES AND PATHS OF TRAVEL.

EXTERIOR LIGHTING:

- ALL SECURITY LIGHTING TO BE SHIELDED SO THAT LIGHT DOES NOT INFRINGE ON ADJACENT PROPERTIES & WILL BE DARK SKY FRIENDLY.
- EXTERIOR SCONCE LIGHTING TO BE PROVIDED AT ALL BUILDING ACCESSES / ENTRANCES.
- EXTERIOR LIGHTING TO BE AS PER PROPOSED ELECTRICAL SITE PLAN / PHOTOMETRIC PLAN

DRIVEWAY:

- PAVED AREA TO BE A MINIMUM OF 75MM HL3A ON A MINIMUM OF 250MM OF GRANULAR 'A' COMPACTED TO 98% SPDD.
- ASPHALT & GRANULAR COURSES SHALL CONFORM TO ALL APPLICABLE ONTARIO PROVINCIAL STANDARDS.

GRASSED AREA:

- ALL DISTURBED AREAS ARE TO BE RESTORED TO ORIGINAL CONDITION AS REQUIRED.
- GRASSED AREAS TO BE SOODED OVER A MINIMUM 150 MM OF TOPSOIL.

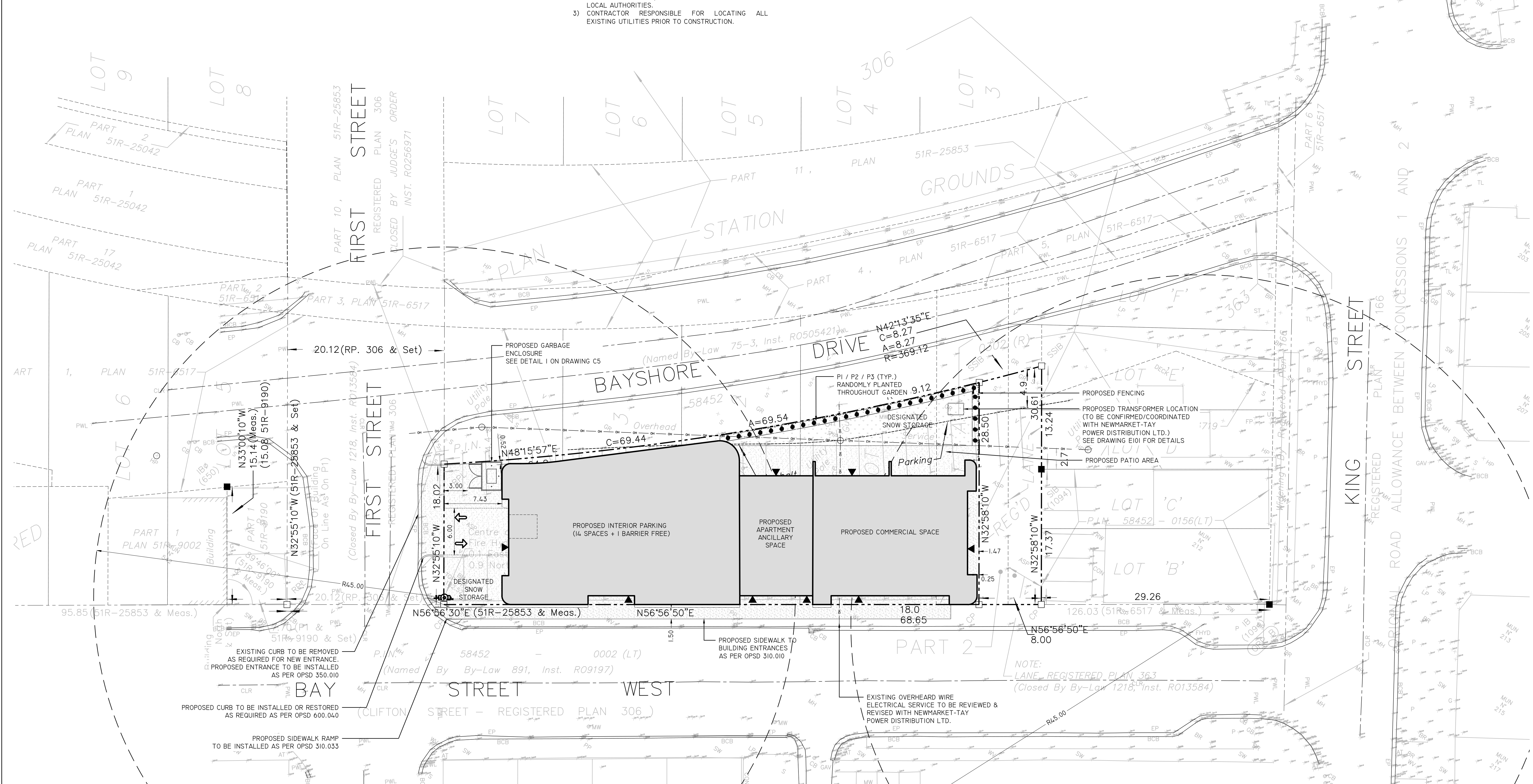
PARKING / LOADING:

- ALL PARKING SPACES MUST CONFORM WITH MOST RECENT EDITIONS OF TOWN OF MIDLAND ZONING BY-LAWS.
- NO MINIMUM PARKING SPACE REQUIRED FOR ALL THE PERMITTED USES OF DOWNTOWN CORE ZONE (DC) AS PER ZONING BY-LAW, SECTION 4.1.3.
- NO LOADING SPACE REQUIRED FOR DC ZONE AS PER ZONING BY-LAW, SECTION 4.1.10.1.
- PROPOSED PARKING FOR THE MIXED-USE RESIDENTIAL APARTMENT / COMMERCIAL DEVELOPMENT IS 14 INTERIOR PARKING SPACES AND 1 INTERIOR BARRIER FREE PARKING SPACE.

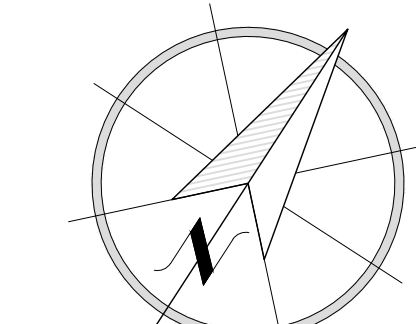
PLANTING SCHEDULE					
Label	Quantity	Common Name	Botanical Name	Size / Height	Form
P1	9	Silky / Gray or Red Osler Dogwood	Cornus amomum / racemosa / sericea	0.6m - 1.2m	Potted
P2	10	Day Lilies	Hemerocallis	0.3m - 0.8m	Potted
P3	10	Maiden Grass	Panicum virgatum 'Gracillimus'	0.6m - 1.2m	Potted

LEGEND:

- PROPOSED PRIVACY FENCE
- BUILDING ACCESS C/W EXTERIOR WALL SCONCE LIGHTING
- DIRECTION OF TRAFFIC
- UTILITY POLE
- FIRE HYDRANT C/W VALVE & BOX (AS PER OFSD 1105.010)
- GRASSED AREA
- PAVED AREA
- SIDEWALK / CONCRETE ACCESS
- SLOPED LANDSCAPE

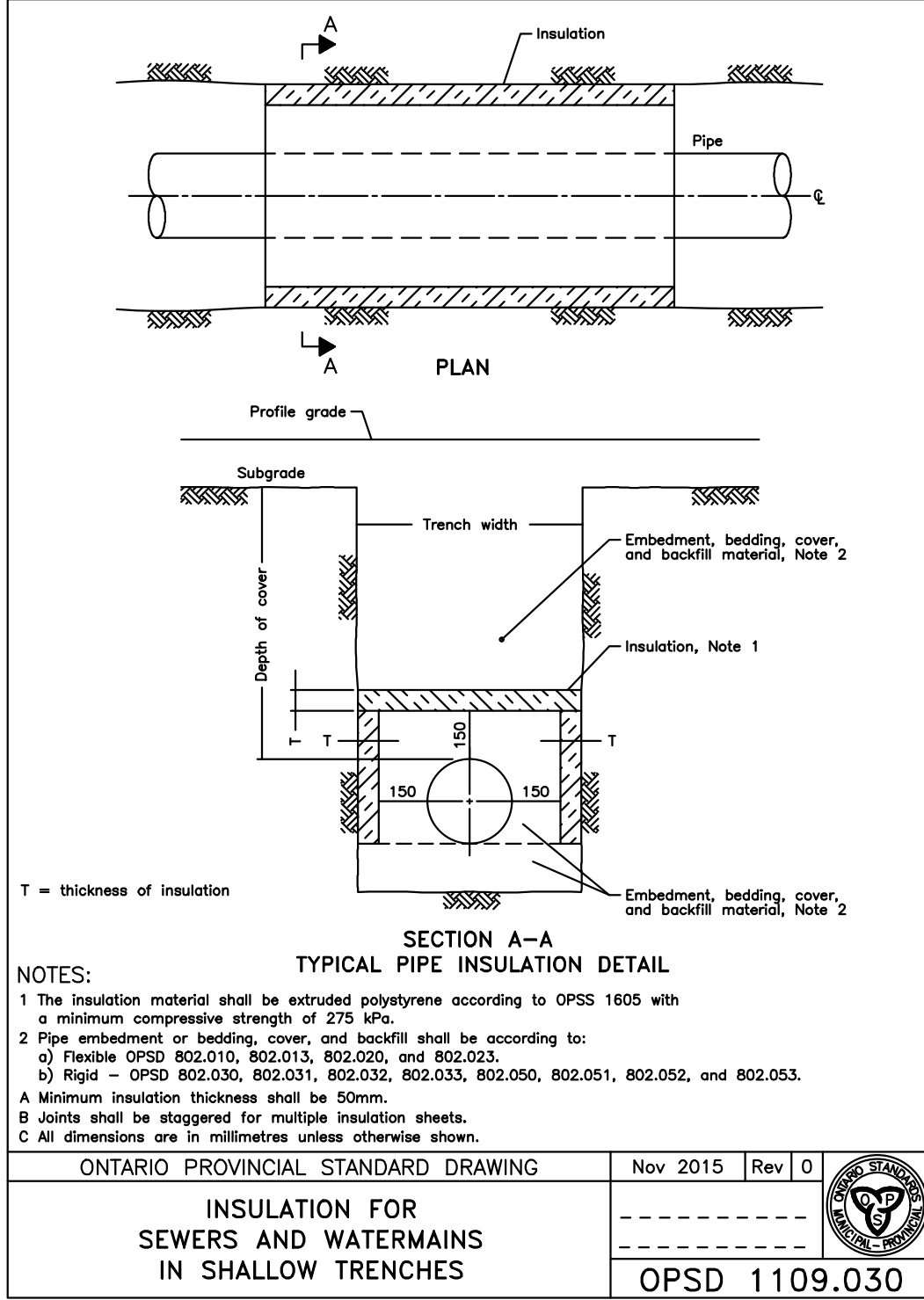
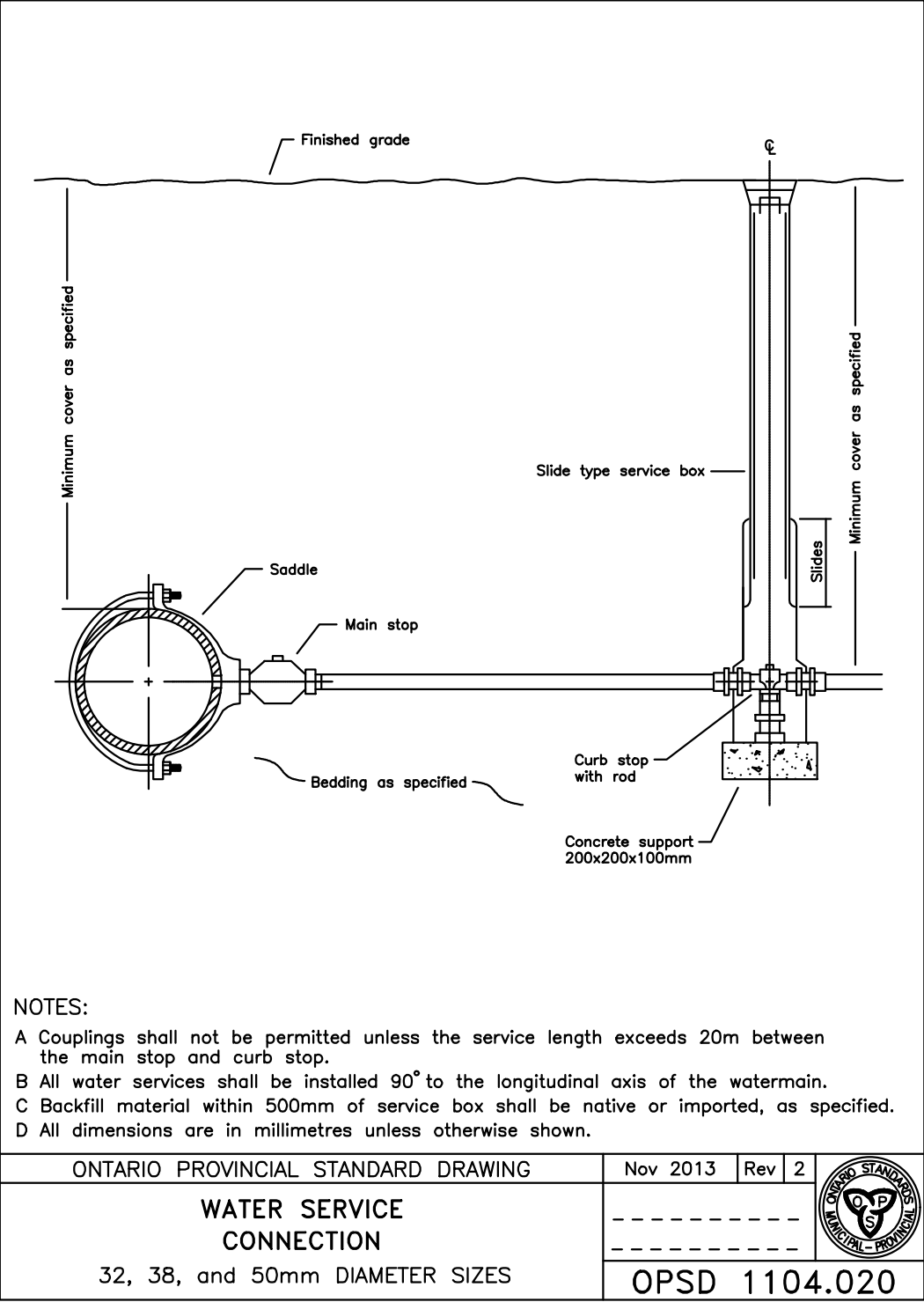
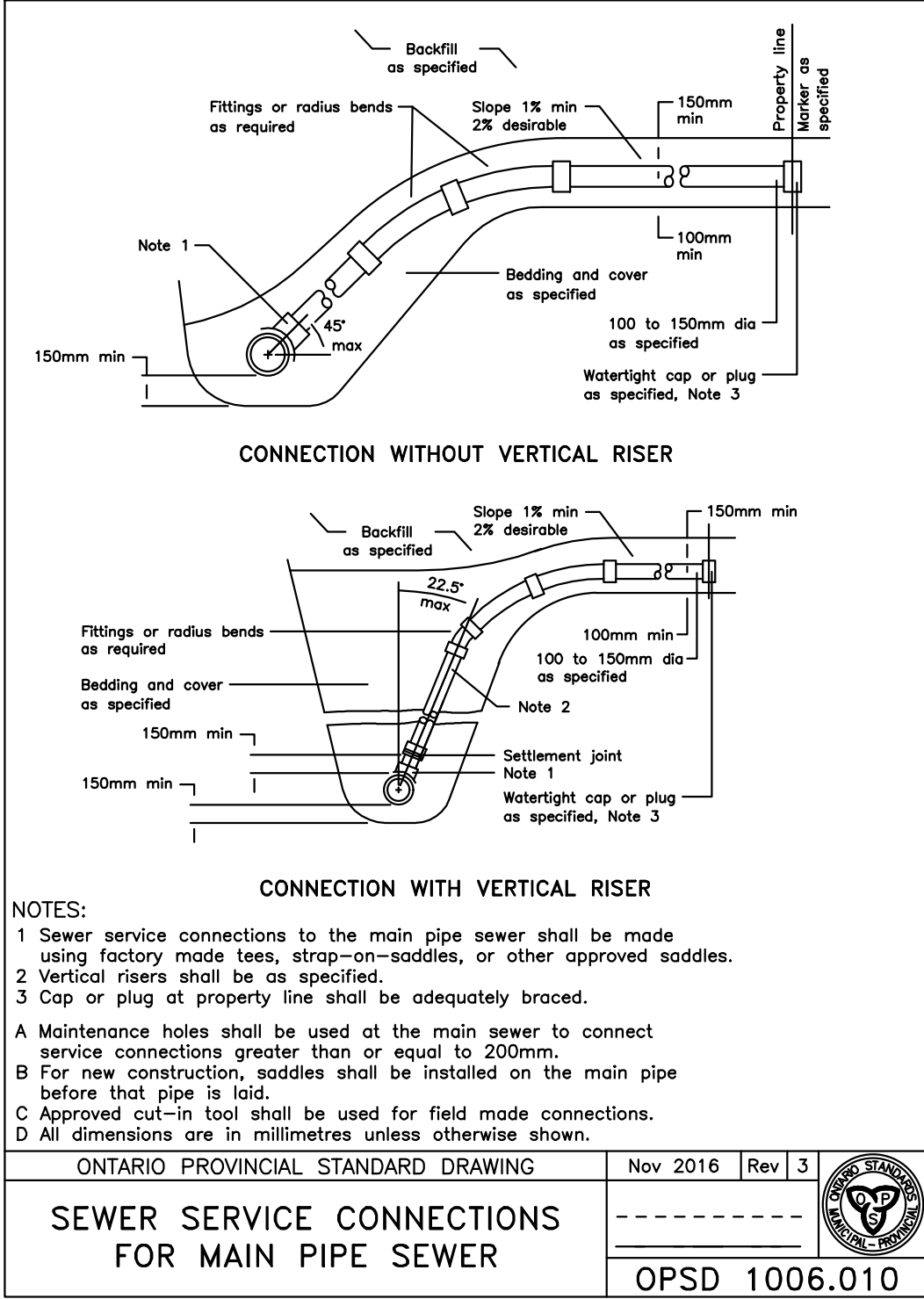


SITE PLAN
SCALE: 1" = 25'



PROJECT	APARTMENT / COMMERCIAL BLDG		
LOCATION	526 BAY STREET MIDLAND, ON		
FOR	LOUIE DESANTIS		
DRAWING	SITE PLAN		
DATE	DEC. 2023	PROJECT NO.	PAGE ID
DRAWN BY	K.J.L.	6998	CI
SCALE	SEE PLOT		

PART OF LOTS 1, 2, 3 AND 4
NORTH SIDE OF CLIFTON STREET
REGISTERED PLAN 306
PART OF LOT A
NORTH SIDE OF CLIFTON STREET
AND PART OF LANE (Closed By By-Law 1218, Inst. R013584)
REGISTERED PLAN 363
TOWN OF MIDLAND
COUNTY OF SIMCOE

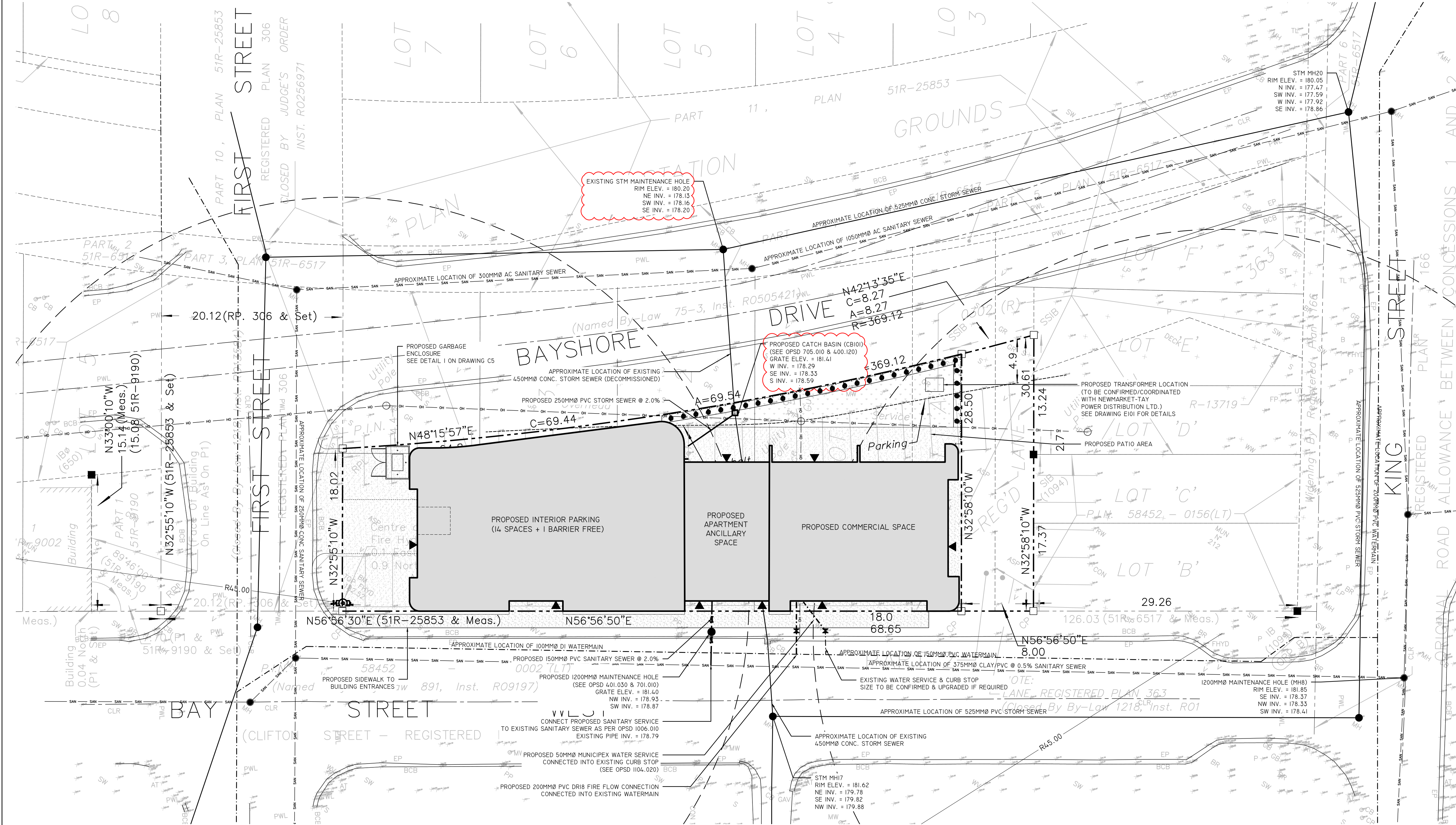


- GENERAL NOTES:
- 1) CONTRACTOR TO CHECK ALL DIMENSIONS, SPECIFICATIONS, ETC., ON SITE AND IS RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO OUR OFFICE PRIOR TO CONSTRUCTION. CONTRACTOR TO DETERMINE & CONFIRM THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 - 2) ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF QUANTUM ENGINEERING. THEY ARE TO REMAIN THE PROPERTY OF OUR OFFICE AND MUST BE RETURNED UPON REQUEST. THESE DRAWINGS ARE NOT TO BE USED IN ANY OTHER LOCATION WITHOUT THE WRITTEN APPROVAL FROM OUR OFFICE. REPRODUCTIONS OF THESE DOCUMENTS OR DRAWINGS IN WHOLE OR IN PART IS FORBIDDEN WITHOUT WRITTEN PERMISSION FROM OUR OFFICE.
 - 3) ALL CONSTRUCTION & INFRASTRUCTURE SHALL CONFORM TO THE MOST RECENT EDITIONS OF ALL APPLICABLE CODES IN EFFECT AT THE PROJECT LOCATION. ALL WORKS TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AS WELL AS TOWN OF MIDLAND SPECIFICATIONS.
 - 4) OFFICIAL COPIES MUST BEAR AN ORIGINAL SIGNATURE AND SHOW THE ENGINEERS STAMP IN RED.
 - 5) DO NOT SCALE DRAWINGS.

- SANITARY SERVICING NOTES:
- 1) MINIMUM COVER OF 2.8M TO BE MAINTAINED FOR ALL SANITARY SEWER AND SERVICES.
 - 2) WHERE PIPE COVER IS LESS THAN 2.8M, ADEQUATE INSULATION AS PER OPSD 1109.030 TO BE PROVIDED.
 - 3) A MINIMUM HORIZONTAL SEPARATION OF 2.5M (EDGE TO EDGE) AND A MINIMUM VERTICAL SEPARATION OF 0.5M (BOTTOM OF PIPE TO TOP OF PIPE) FROM ANY WATER SERVICE IS REQUIRED.
 - 4) ALL MAINTENANCE HOLES TO BE 1200MM UNLESS OTHERWISE NOTED WITH SOLID RECTANGULAR RUNGS AND FULL HEIGHT BENCHING. OPSD: ALL MAINTENANCE HOLE COVERS TO BE AS PER OPSD 401.010 TYPE 'A'. ALL MAINTENANCE HOLES SHALL BE COMPLETE WITH FROST STRAPS AS PER OPSD 701.100. MODULAR ADJUSTMENT UNITS TO BE PROVIDED AS PER OPSD 704.010 WITH A MAXIMUM THICKNESS OF 300MM.
 - 5) ALL SANITARY SEWERS (200 TO 375MM DIAMETER) TO BE PVC SDR-35 AND ALL SANITARY SERVICES TO BE PVC SDR-28.
 - 6) BEDDING TO BE IN ACCORDANCE WITH OPSD 802.010.
 - 7) SERVICE CONNECTIONS TO BE AS PER OPSD 1006.010.
 - 8) SANITARY SERVICE CONNECTIONS TO USE PRE-FABRICATED TEES (C/W SWEEPS) OR AS OTHERWISE APPROVED BY ENGINEER.
 - 9) SEWER BEDDING AND COMPACTION TO BE AS PER APPLICABLE OPSD MUNICIPAL STANDARDS.
 - 10) ALL SANITARY SERVICING MATERIALS AND MANUFACTURER'S TO BE AS PER THE TOWN OF MIDLAND PRODUCT LIST AS PER ENGINEERING DESIGN STANDARDS, APPENDIX B.
 - 11) ALL SANITARY SEWER IS REQUIRED TO BE TESTED FOR INFILTRATION/EXFILTRATION PER OPSD.MUNI 410 AND TESTING PER OPSD.MUNI 407. TYPE OF TESTING WILL DEPEND ON ELEVATION OF GROUNDWATER RELATIVE TO EACH SECTION OF PIPE.
 - 12) ALL NEW SANITARY SERVICING SHALL UNDERGO CCTV INSPECTION IN ACCORDANCE WITH OPSD.MUNI 409 W/ A DIGITAL COPY TO BE PROVIDED TO THE ENGINEER AND TOWN FOR REVIEW AND APPROVAL.

LEGEND:

---	EXISTING WATERMAIN/SERVICE
---	PROPOSED WATER SERVICE
---	EXISTING SANITARY SEWER
---	PROPOSED SEWER SERVICE
---	EXISTING STORM SEWER
---	PROPOSED STORM SEWER
---	EXISTING GAS
---	PROPOSED GAS
---	EXISTING HYDRO
---	PROPOSED HYDRO
---	EXISTING BELL
---	PROPOSED BELL
○	MAINTENANCE HOLE
○ _{UP}	UTILITY POLE
⊞	VALVE & BOX



- WATER SERVICING NOTES:
- 1) IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT AND SUPPORT EXISTING UNDERGROUND/OVERHEAD UTILITIES, WHICH MAY BE ENCOUNTERED DURING WORK.
 - 2) ONLY MUNICIPAL WATER DEPARTMENT STAFF ARE PERMITTED TO OPERATE VALVES, HYDRANTS, AND OTHER EXISTING APPURTENANCES.
 - 3) ALL WATER SERVICING MATERIALS AND MANUFACTURERS ARE TO BE IN ACCORDANCE WITH TOWN OF MIDLAND ENGINEERING STANDARDS AND PRE-APPROVED BY THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.
 - 4) MINIMUM COVER OF 1.8M TO BE MAINTAINED FOR ALL WATER MAIN AND SERVICES.
 - 5) WHERE PIPE COVER IS LESS THAN 1.8M, ADEQUATE INSULATION AS PER OPSD 1109.030 TO BE PROVIDED.
 - 6) WATER MAIN OR SERVICES CROSSING OVER A SEWER, JOINTS ARE TO BE OFFSET A MINIMUM OF 2.5M HORIZONTALLY FROM THE CENTRELINE OF THE SEWER. MAINTAIN 0.5M VERTICAL CLEAR SEPARATION AND INCLUDE 100MM THICK INSULATION PLACED BETWEEN THE SEWER AND MAIN/SERVICE FOR A DISTANCE EXTENDING 1.8M BEYOND THE LIMITS OF THE SEWER CROSSING.
 - 7) WATERMAIN BEDDING TO BE AS PER OPSD 802.010 OR AS OTHERWISE APPROVED BY THE MUNICIPALITY.
 - 8) SERVICE TAPPING SHALL BE PLACED A MINIMUM OF 1.0M FROM EACH OTHER AND A MINIMUM OF 0.6M FROM JOINTS.
 - 9) CONTINUOUS TRACER WIRE MUST BE INSTALLED WITH AND ALONG THE PIPE AND BROUGHT TO THE SURFACE AT EACH VALVE BOX AND HYDRANT (AROUND PORT) & ATTACHED BY MEANS OF TAPE AT INTERNALS NOT EXCEEDING 3M. TRACER WIRE CONNECTIONS TO BE ACHIEVED WITH A WATERPROOF AND CORROSION PROOF CONNECTOR. TRACER WIRE TO BE INSTALLED AS PER TOWN OF MIDLAND ENGINEERING STANDARDS AND PRODUCT LIST (APPENDIX C). A CONTINUITY TEST IS TO BE COMPLETED BY TOWN STAFF. SHOULD A PROBLEM BE ENCOUNTERED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND ASSOCIATED COST.
 - 10) ALL METALLIC FITTINGS, VALVES, JOINT RESTRAINTS, ETC. TO BE EPOXY COATED OR STAINLESS STEEL.
 - 11) FOR 100MM DIAMETER OR LARGER, RESTRAINED JOINTS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, END OF MAINS AND CONNECTIONS FOR ALL MAINS IN ACCORDANCE WITH OPSD 1103.010 AND 1103.020.
 - 12) ALL WATERMAIN USED FOR FIRE PROTECTION MUST SATISFY THE REQUIREMENTS OF THE FIRE UNDERWRITERS SURVEY.
 - 13) ALL WATER SERVICING MATERIALS AND MANUFACTURER'S TO BE AS PER THE TOWN OF MIDLAND PRODUCT LIST AS PER ENGINEERING DESIGN STANDARDS, APPENDIX C.
 - 14) CONTRACTOR SHALL PRESSURE TEST, CHLORINATE AND FLUSH NEW WATERMAIN/SERVICES. ANY PRESSURE TESTING, CHLORINATING AND FLUSHING BEYOND THE INITIAL PROCEDURE WILL BE THE CONTRACTOR'S RESPONSIBILITY.
 - 15) TESTING AND DISINFECTION OF WATER SERVICES TO BE COMPLETED IN ACCORDANCE WITH TOWN OF MIDLAND ENGINEERING STANDARDS IN THE PRESENCE OF TOWN WATER DIVISION STAFF.



PROJECT: APARTMENT / COMMERCIAL BLDG
LOCATION: 526 BAY STREET MIDLAND, ON
FOR: LOUIE DESANTIS

DRAWING: SERVICING PLAN

DATE	DEC. 2024	PROJECT NO	PAGE ID
DRAWN BY	K.J.L.	6998	C3
SCALE	SEE PLOT		

Appendix B – Design Calculations

Pre Development – Catchment 101

Post Development – Catchment 201

Post Development – Catchment 202

Post Development – Catchment 203

Post Development – Catchment 204

Pre Development

Catchment Area 1,520.9 [m²]
 Runoff Coeff. 0.94 [unitless]

2 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	44.8354	0.0179
30	26.5352	0.0106
60	14.6093	0.0058
120	7.6936	0.0031
130	7.1310	0.0028
140	6.6451	0.0026
150	6.2212	0.0025
160	5.8481	0.0023
170	5.5172	0.0022
180	5.2218	0.0021

25 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	83.8461	0.0334
30	51.0082	0.0203
60	28.6034	0.0114
120	15.2269	0.0061
130	14.1259	0.0056
140	13.1734	0.0052
150	12.3412	0.0049
160	11.6079	0.0046
170	10.9569	0.0044
180	10.3750	0.0041

5 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	60.0026	0.0239
30	36.0016	0.0143
60	20.0009	0.0080
120	10.5887	0.0042
130	9.8186	0.0039
140	9.1529	0.0036
150	8.5718	0.0034
160	8.0601	0.0032
170	7.6060	0.0030
180	7.2003	0.0029

50 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	94.7149	0.0377
30	58.2861	0.0232
60	32.9443	0.0131
120	17.6214	0.0070
130	16.3536	0.0065
140	15.2561	0.0061
150	14.2966	0.0057
160	13.4506	0.0054
170	12.6992	0.0051
180	12.0273	0.0048

10 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	70.8722	0.0282
30	42.8742	0.0171
60	23.9508	0.0095
120	12.7212	0.0051
130	11.7992	0.0047
140	11.0018	0.0044
150	10.3053	0.0041
160	9.6918	0.0039
170	9.1472	0.0036
180	8.6606	0.0034

100 Year

Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	104.7384	0.0417
30	64.4957	0.0257
60	36.4703	0.0145
120	19.5126	0.0078
130	18.1093	0.0072
140	16.8942	0.0067
150	15.8319	0.0063
160	14.8954	0.0059
170	14.0634	0.0056
180	13.3195	0.0053

Post Development

Catchment Area
Runoff Coeff.
Proposed Storage Volume

144.6 [m2]
0.95 [unitless]
0 [m3]

2 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	44.8354	0.0017
30	26.5352	0.0010
60	14.6093	0.0006
120	7.6936	0.0003
130	7.1310	0.0003
140	6.6451	0.0003
150	6.2212	0.0002
160	5.8481	0.0002
170	5.5172	0.0002
180	5.2218	0.0002

5 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	60.0026	0.0023
30	36.0016	0.0014
60	20.0009	0.0008
120	10.5887	0.0004
130	9.8186	0.0004
140	9.1529	0.0003
150	8.5718	0.0003
160	8.0601	0.0003
170	7.6060	0.0003
180	7.2003	0.0003

10 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	70.8722	0.0027
30	42.8742	0.0016
60	23.9508	0.0009
120	12.7212	0.0005
130	11.7992	0.0005
140	11.0018	0.0004
150	10.3053	0.0004
160	9.6918	0.0004
170	9.1472	0.0003
180	8.6606	0.0003

25 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	83.8461	0.0032
30	51.0082	0.0019
60	28.6034	0.0011
120	15.2269	0.0006
130	14.1259	0.0005
140	13.1734	0.0005
150	12.3412	0.0005
160	11.6079	0.0004
170	10.9569	0.0004
180	10.3750	0.0004

50 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	94.7149	0.0036
30	58.2861	0.0022
60	32.9443	0.0013
120	17.6214	0.0007
130	16.3536	0.0006
140	15.2561	0.0006
150	14.2966	0.0005
160	13.4506	0.0005
170	12.6992	0.0005
180	12.0273	0.0005

100 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	104.7384	0.0040
30	64.4957	0.0025
60	36.4703	0.0014
120	19.5126	0.0007
130	18.1093	0.0007
140	16.8942	0.0006
150	15.8319	0.0006
160	14.8954	0.0006
170	14.0634	0.0005
180	13.3195	0.0005

Post Development

Catchment Area
Runoff Coeff.
Proposed Storage Volume

281.8 [m²]
0.50 [unitless]
0 [m³]

2 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	44.8354	0.0017
30	26.5352	0.0010
60	14.6093	0.0006
120	7.6936	0.0003
130	7.1310	0.0003
140	6.6451	0.0003
150	6.2212	0.0002
160	5.8481	0.0002
170	5.5172	0.0002
180	5.2218	0.0002

5 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	60.0026	0.0023
30	36.0016	0.0014
60	20.0009	0.0008
120	10.5887	0.0004
130	9.8186	0.0004
140	9.1529	0.0004
150	8.5718	0.0003
160	8.0601	0.0003
170	7.6060	0.0003
180	7.2003	0.0003

10 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	70.8722	0.0028
30	42.8742	0.0017
60	23.9508	0.0009
120	12.7212	0.0005
130	11.7992	0.0005
140	11.0018	0.0004
150	10.3053	0.0004
160	9.6918	0.0004
170	9.1472	0.0004
180	8.6606	0.0003

25 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	83.8461	0.0033
30	51.0082	0.0020
60	28.6034	0.0011
120	15.2269	0.0006
130	14.1259	0.0005
140	13.1734	0.0005
150	12.3412	0.0005
160	11.6079	0.0005
170	10.9569	0.0004
180	10.3750	0.0004

50 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	94.7149	0.0037
30	58.2861	0.0023
60	32.9443	0.0013
120	17.6214	0.0007
130	16.3536	0.0006
140	15.2561	0.0006
150	14.2966	0.0006
160	13.4506	0.0005
170	12.6992	0.0005
180	12.0273	0.0005

100 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	104.7384	0.0041
30	64.4957	0.0025
60	36.4703	0.0014
120	19.5126	0.0008
130	18.1093	0.0007
140	16.8942	0.0007
150	15.8319	0.0006
160	14.8954	0.0006
170	14.0634	0.0005
180	13.3195	0.0005

Post Development

Catchment Area
Runoff Coeff.
Proposed Storage Volume

18.7 [m2]
0.95 [unitless]
0 [m3]

2 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	44.8354	0.0002
30	26.5352	0.0001
60	14.6093	0.0001
120	7.6936	0.0000
130	7.1310	0.0000
140	6.6451	0.0000
150	6.2212	0.0000
160	5.8481	0.0000
170	5.5172	0.0000
180	5.2218	0.0000

5 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	60.0026	0.0003
30	36.0016	0.0002
60	20.0009	0.0001
120	10.5887	0.0001
130	9.8186	0.0000
140	9.1529	0.0000
150	8.5718	0.0000
160	8.0601	0.0000
170	7.6060	0.0000
180	7.2003	0.0000

10 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m3/s]
15	70.8722	0.0003
30	42.8742	0.0002
60	23.9508	0.0001
120	12.7212	0.0001
130	11.7992	0.0001
140	11.0018	0.0001
150	10.3053	0.0001
160	9.6918	0.0000
170	9.1472	0.0000
180	8.6606	0.0000

25 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m3/s]
15	83.8461	0.0004
30	51.0082	0.0003
60	28.6034	0.0001
120	15.2269	0.0001
130	14.1259	0.0001
140	13.1734	0.0001
150	12.3412	0.0001
160	11.6079	0.0001
170	10.9569	0.0001
180	10.3750	0.0001

50 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m3/s]
15	94.7149	0.0005
30	58.2861	0.0003
60	32.9443	0.0002
120	17.6214	0.0001
130	16.3536	0.0001
140	15.2561	0.0001
150	14.2966	0.0001
160	13.4506	0.0001
170	12.6992	0.0001
180	12.0273	0.0001

100 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m3/s]
15	104.7384	0.0005
30	64.4957	0.0003
60	36.4703	0.0002
120	19.5126	0.0001
130	18.1093	0.0001
140	16.8942	0.0001
150	15.8319	0.0001
160	14.8954	0.0001
170	14.0634	0.0001
180	13.3195	0.0001

Post Development

Catchment Area 1,075.8 [m²]
 Runoff Coeff. 0.70 [unitless]
 Proposed Storage Volume 0 [m³]

2 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	44.8354	0.0094
30	26.5352	0.0056
60	14.6093	0.0031
120	7.6936	0.0016
130	7.1310	0.0015
140	6.6451	0.0014
150	6.2212	0.0013
160	5.8481	0.0012
170	5.5172	0.0012
180	5.2218	0.0011

5 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	60.0026	0.0126
30	36.0016	0.0076
60	20.0009	0.0042
120	10.5887	0.0022
130	9.8186	0.0021
140	9.1529	0.0019
150	8.5718	0.0018
160	8.0601	0.0017
170	7.6060	0.0016
180	7.2003	0.0015

10 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Development Peak Q
[min]	[mm/hr]	[m ³ /s]
15	70.8722	0.0149
30	42.8742	0.0090
60	23.9508	0.0050
120	12.7212	0.0027
130	11.7992	0.0025
140	11.0018	0.0023
150	10.3053	0.0022
160	9.6918	0.0020
170	9.1472	0.0019
180	8.6606	0.0018

25 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	83.8461	0.0176
30	51.0082	0.0107
60	28.6034	0.0060
120	15.2269	0.0032
130	14.1259	0.0030
140	13.1734	0.0028
150	12.3412	0.0026
160	11.6079	0.0024
170	10.9569	0.0023
180	10.3750	0.0022

50 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	94.7149	0.0199
30	58.2861	0.0122
60	32.9443	0.0069
120	17.6214	0.0037
130	16.3536	0.0034
140	15.2561	0.0032
150	14.2966	0.0030
160	13.4506	0.0028
170	12.6992	0.0027
180	12.0273	0.0025

100 Year		
Duration	IDF Curves (Per Midland Calculations)	Post Developme nt Peak Q
[min]	[mm/hr]	[m ³ /s]
15	104.7384	0.0220
30	64.4957	0.0135
60	36.4703	0.0077
120	19.5126	0.0041
130	18.1093	0.0038
140	16.8942	0.0035
150	15.8319	0.0033
160	14.8954	0.0031
170	14.0634	0.0030
180	13.3195	0.0028

