

Mr. Andrew Wallace
Planner
Norfolk County
50 Colborne Street South
Simcoe, ON N3Y 4H3

Arcadis Professional Services
(Canada) Inc.
360 James Street North
Suite 200
Hamilton, Ontario L8L 1H5
Canada
Phone: 905 546 1010
www.arcadis.com

Date: February 24, 2025
Our Ref: 148728
Subject: Site Plan Approval – 25 St. Andrew St., Port Dover - 1000033566
Ontario Inc.

Dear Mr. Wallace,

On behalf of our client, 1000033566 Ontario Inc., please accept this letter and the following materials as part of our complete submission of a Site Plan Application (“SPA”) for the lands municipally known as 25 St. Andrews St. (“Subject Lands”)

The subject lands are legally identified as PDOV PLAN 207 BLK 50 LOT 35. The subject lands are currently occupied by a one-storey residential dwelling. Surrounding land uses include residential to the North, East commercial (Dairy Bar) to the west and a vacant parcel to the South.

The intent of the proposed site plan approval is to redevelop the lands for a surface parking lot which will ultimately owned and operated by the County of Norfolk. The proposed parking lot will replace the existing Clinton Municipal Parking lot located at 33 Clinton Street. The new St. Andrews parking lot proposes twenty-eight (28) standard parking spaces and two (2) accessible parking spaces for a total of thirty (30) parking spaces to replace the 14 spaces within the Clinton Municipal Parking Lot.

The St. Andrews parking lot is planned to provide pedestrian access to Main Street via a proposed pedestrian walkway proposed on the adjacent property to the south which is subject to a separate SPA application process. The relocation of hydro and other utility will be coordinated with the 200 Main Street SPA Application process.

In terms of the current planning framework, the Norfolk County Official Plan (“OP”) designates the subject lands as ‘Downtown’ under Schedule B.17 of the Plan. The proposed municipal parking lot is a permitted land use under the ‘Downtown’ designation. It is the intent of the new municipal parking lot to improve public parking thereby contributing to the economic viability of the Downtown area. The connection to Main Street via the proposed walkway will provide convenient parking in proximity to the main shopping area. The proposed use is permitted under the OP and no amendment is required.

The subject lands are designated as Central Business District Zone (“CBD”) according to Zoning By-Law Norfolk County 1-Z-2014 (“ZBL”) which lists ‘a parking lot’ as one of the permitted uses. As required under the County’s by-law, the site plan meets the regulations for Off-Street Parking providing for spaces that are 5.8m x 3.0m with minimum aisle width of 7.3m. Two accessible parking stalls meets the Type A (5.8m x 3.4m) and Type B (5.8m x 2.4m) dimensions with a 1.5m access aisle between the accessible stalls. Therefore, the proposed development does not require an amendment to the ZBL.

Mr. Andrew Wallace
Norfolk County
February 24, 2025

Please accept the items listed below as part of our complete submission for Site Plan Approval. These have been submitted electronically. If hard copies are required, please advise.

- A Signed Site Plan Application Form
- One (1) copy of the Architectural Package prepared by VanGroll & Associates Inc.
- One (1) copy of the Pre-Development Drainage Area Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Post-Development Drainage Area Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Downstream Analysis Memo prepared by Arcadis Professional Services
- One (1) copy of the Erosion and Sediment Control Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Grading Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Site Servicing Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Cross Section Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the General Notes and Details prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of Storm Water Management Design Report prepared by Arcadis Professional Services (Canada) Inc.

We trust that the attached materials provide you with sufficient information for the processing of this application. Should you have any further questions or require anything more for the processing of this file, please do not hesitate to contact the undersigned.

Sincerely,
Arcadis Professional Services (Canada) Inc.



Carmen Jandu, MCIP RPP
Planner – Senior Associate



Nickee Digman
Planning Technician

CC. Ms. Brooke Hayward, via email.

Planning Department Development Application Form

Complete Application

A complete development application consists of the following:

1. A completed, signed, and notarized application form
2. Supporting information adequate to illustrate your proposal as indicated in **Section H** of this application form
3. Written authorization from the registered owner of the subject lands where the applicant is not the owner as per Section N
4. Cash, debit, credit or cheque payable to Norfolk County in the amount set out in the user fees By-Law that will be accepted and deposited once the application has been deemed complete.

Pre-Submission Consultation:

Norfolk County requires a Pre-Consultation Meeting for all applications; however, minor applications may be exempted depending on the nature of the proposal. The purpose of a Pre-Consultation Meeting is to provide the applicant with an opportunity to present the proposed application, discuss potential issues, and for the Norfolk County and Agency staff to identify the application requirements. Application requirements, as detailed in the Pre-Consultation Meeting Comments, are valid for one year after the meeting date.

Development Application Process

Once an application has been deemed complete by a Planner, Norfolk County staff will circulate the application to adjacent landowners, public agencies, and internal departments for comment. The time involved in application processing varies depending on its complexity, acceptability to the other agencies, and statutory Planning Act decision time-frames.

Payment is required once your application is deemed complete. Pre-payments will not be accepted.

Norfolk County collects personal information submitted through this form under the Municipal Freedom of Information and Protection Act's authority. Norfolk County will use this information for the purposes indicated or implied by this form. You can direct questions about collecting personal information to Norfolk GIS Services at NorfolkGIS@norfolkcounty.ca.

Additional studies required for the complete application shall be at the applicant's sole expense. Sometimes, peer reviews may be necessary to review particular studies at the applicant's expense. In these cases, Norfolk County staff will select the company to complete the peer review.

Norfolk County will refund the original fee if applicants withdraw their applications before circulation. If Norfolk County must recirculate your drawings, there will be an additional fee. If Norfolk County must do more than three reviews of engineering drawings due to revisions by the owner or failure to revise engineering drawings as requested, Norfolk County will charge an additional fee. Full refunds are only available before Norfolk County has circulated the application.

Notification Sign Requirements

For public notification, Norfolk County will provide you with a sign to indicate the intent and purpose of your development application. It is your responsibility to:

1. Post one sign per frontage in a conspicuous location on the subject lands.
2. Ensure one sign is posted at the front of the subject lands at least three feet above ground level and not on a tree.
3. Notify the Planner when the sign is in place.
4. Maintain the sign until the development application is finalized and, after that, remove it.

Contact Us

For additional information or assistance completing this application, please contact a Planner at 519-426-5870 or 519-875-4485 extension 1842 or planning@norfolkcounty.ca. Please submit the completed application and fees to the attention of the Planning Department at 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6.

For Office Use Only:

File Number	_____	Public Notice Sign	_____
Related File Number	_____	Application Fee	_____
Pre-consultation Meeting	_____	Conservation Authority Fee	_____
Application Submitted	_____	Well & Septic Info Provided	_____
Complete Application	_____	Planner	_____

Check the type of planning application(s) you are submitting.

- ☐ Official Plan Amendment
- ☐ Zoning By-Law Amendment
- ☐ Temporary Use By-law
- ☐ Draft Plan of Subdivision/Vacant Land Condominium
- ☐ Condominium Exemption
- ☒ Site Plan Application
- ☐ Extension of a Temporary Use By-law
- ☐ Part Lot Control
- ☐ Cash-in-Lieu of Parking
- ☐ Renewable Energy Project or Radio Communication Tower

Please summarize the desired result of this application (for example, a special zoning provision on the subject lands to include additional use(s), changing the zone or official plan designation of the subject lands, creating a certain number of lots, or similar)

Property Assessment Roll Number: _____

A. Applicant Information

Name of Owner

Address

Town and Postal Code

Phone Number

Cell Number

Email

Name of Applicant

Address

Town and Postal Code

Phone Number

Cell Number

Email

Name of Agent

Address

Town and Postal Code

Phone Number

Cell Number

Email

Unless otherwise directed, Norfolk County will forward all correspondence and notices regarding this application to both owner and agent noted above.

☐ Owner

☐ Agent

☐ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):

Municipal Civic Address: _____

Present Official Plan Designation(s): _____

Present Zoning: _____

2. Is there a special provision or site specific zone on the subject lands?

☐ Yes ☐ No If yes, please specify corresponding number:

3. Present use of the subject lands:

4. Please describe **all existing** buildings or structures on the subject lands and whether they will be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from the front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.

6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ☐

If yes, identify and provide details of the building:

8. If known, the length of time the existing uses have continued on the subject lands:

9. Existing use of abutting properties:

10. Are there any easements or restrictive covenants affecting the subject lands?

☐ Yes ☐ No If yes, describe the easement or restrictive covenant and its effect:

C. Purpose of Development Application

Note: Please complete all that apply.

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:

3. Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? ☐ Yes ☐ No If yes, describe its effect:

4. Does the requested amendment remove the subject land from an area of employment? ☐ Yes ☐ No If yes, describe its effect:

5. Does the requested amendment alter, replace, or delete a policy of the Official Plan?
☐ Yes ☐ No If yes, identify the policy, and also include a proposed text of the policy amendment (if additional space is required, please attach a separate sheet):

6. Description of land intended to be severed in metric units:

Frontage: _____

Depth: _____

Width: _____

Lot Area: _____

Present Use: _____

Proposed Use: _____

Proposed final lot size (if boundary adjustment): _____

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

Description of land intended to be retained in metric units:

Frontage: _____

Depth: _____

Width: _____

Lot Area: _____

Present Use: _____

Proposed Use: _____

Buildings on retained land: _____

7. Description of proposed right-of-way/easement:

Frontage: _____

Depth: _____

Width: _____

Area: _____

Proposed use: _____

8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

9. Site Information**Zoning****Proposed**

Please indicate unit of measurement, for example: m, m² or %

Lot frontage	_____	_____
Lot depth	_____	_____
Lot width	_____	_____
Lot area	_____	_____
Lot coverage	_____	_____
Front yard	_____	_____
Rear yard	_____	_____
Left Interior side yard	_____	_____
Right Interior side yard	_____	_____
Exterior side yard (corner lot)	_____	_____
Landscaped open space	_____	_____
Entrance access width	_____	_____
Exit access width	_____	_____
Size of fencing or screening	_____	_____
Type of fencing	_____	_____

10. Building Size

Number of storeys	_____	_____
Building height	_____	_____
Total ground floor area	_____	_____
Total gross floor area	_____	_____
Total useable floor area	_____	_____

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	_____	_____
Number of visitor parking spaces	_____	_____
Number of accessible parking spaces	_____	_____
Number of off street loading facilities	_____	_____

12. Residential (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe: _____

Type	Number of Units	Floor Area per Unit in m2
Single Detached	_____	_____
Semi-Detached	_____	_____
Duplex	_____	_____
Triplex	_____	_____
Four-plex	_____	_____
Street Townhouse	_____	_____
Stacked Townhouse	_____	_____
Apartment - Bachelor	_____	_____
Apartment - One bedroom	_____	_____
Apartment - Two bedroom	_____	_____
Apartment - Three bedroom	_____	_____

Other facilities provided (for example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe:

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

Seating Capacity (for assembly halls or similar): _____

Total number of fixed seats: _____

Describe the type of business(es) proposed: _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Is open storage required: ☐ Yes ☐ No

Is a residential use proposed as part of, or accessory to commercial/industrial use?

☐ Yes ☐ No If yes please describe:

14. Institutional (if applicable)

Describe the type of use proposed: _____

Seating capacity (if applicable): _____

Number of beds (if applicable): _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

15. Describe Recreational or Other Use(s) (if applicable)

D. Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ☐ No ☐ Unknown

If yes, specify the uses (for example: gas station or petroleum storage):

2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? ☐ Yes ☐ No ☐ Unknown

3. Provide the information you used to determine the answers to the above questions:

4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ☐ No

E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ☐ Yes ☐ No

If no, please explain:

2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ☐ Yes ☐ No

If no, please explain:

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☐ Yes ☐ No

If no, please explain:

Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

Livestock facility or stockyard (submit MDS Calculation with application)

☐ On the subject lands or ☐ within 500 meters – distance _____

Wooded area

☐ On the subject lands or ☐ within 500 meters – distance _____

Municipal Landfill

☐ On the subject lands or ☐ within 500 meters – distance _____

Sewage treatment plant or waste stabilization plant

☐ On the subject lands or ☐ within 500 meters – distance _____

Provincially significant wetland (class 1, 2 or 3) or other environmental feature

☐ On the subject lands or ☐ within 500 meters – distance _____

Floodplain

☐ On the subject lands or ☐ within 500 meters – distance _____

Rehabilitated mine site

☐ On the subject lands or ☐ within 500 meters – distance _____

Non-operating mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Active mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Industrial or commercial use (specify the use(s))

☐ On the subject lands or ☐ within 500 meters – distance _____

Active railway line

☐ On the subject lands or ☐ within 500 meters – distance _____

Seasonal wetness of lands

☐ On the subject lands or ☐ within 500 meters – distance _____

Erosion

☐ On the subject lands or ☐ within 500 meters – distance _____

Abandoned gas wells

☐ On the subject lands or ☐ within 500 meters – distance _____

F. Servicing and Access

1. Indicate what services are available or proposed:

Water Supply

- | | |
|--|---|
| <input type="checkbox"/> Municipal piped water | <input type="checkbox"/> Communal wells |
| <input type="checkbox"/> Individual wells | <input type="checkbox"/> Other (describe below) |
-

Sewage Treatment

- | | |
|---|---|
| <input type="checkbox"/> Municipal sewers | <input type="checkbox"/> Communal system |
| <input type="checkbox"/> Septic tank and tile bed in good working order | <input type="checkbox"/> Other (describe below) |
-

Storm Drainage

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Storm sewers | <input type="checkbox"/> Open ditches |
| <input type="checkbox"/> Other (describe below) | |
-

2. Existing or proposed access to subject lands:

- | | |
|---|---|
| <input type="checkbox"/> Municipal road | <input type="checkbox"/> Provincial highway |
| <input type="checkbox"/> Unopened road | <input type="checkbox"/> Other (describe below) |

Name of road/street: _____

G. Other Information

1. Does the application involve a local business? ☐ Yes ☐ No

If yes, how many people are employed on the subject lands?

2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.

H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Key map
4. Scale, legend and north arrow
5. Legal description and municipal address
6. Development name
7. Drawing title, number, original date and revision dates
8. Owner's name, address and telephone number
9. Engineer's name, address and telephone number
10. Professional engineer's stamp
11. Existing and proposed easements and right of ways
12. Zoning compliance table – required versus proposed
13. Parking space totals – required and proposed
14. All entrances to parking areas marked with directional arrows
15. Loading spaces, facilities and routes (for commercial developments)
16. All dimensions of the subject lands
17. Dimensions and setbacks of all buildings and structures
18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
19. Gross, ground and useable floor area
20. Lot coverage
21. Floor area ratio
22. Building entrances, building type, height, grades and extent of overhangs
23. Names, dimensions and location of adjacent streets including daylighting triangles
24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
25. All exterior stairways and ramps with dimensions and setbacks
26. Retaining walls including materials proposed
27. Fire access and routes
28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
29. Location of mechanical room, and other building services (e.g. A/C, HRV)
30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
31. Winter snow storage location

32. Landscape areas with dimensions
33. Natural features, watercourses and trees
34. Fire hydrants and utilities location
35. Fencing, screening and buffering – size, type and location
36. All hard surface materials
37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
38. Business signs (make sure they are not in sight lines)
39. Sidewalks and walkways with dimensions
40. Pedestrian access routes into site and around site
41. Bicycle parking
42. Architectural elevations of all building sides
43. All other requirements as per the pre-consultation meeting

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

- ☐ Zoning Deficiency Form
- ☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)
- ☐ Architectural Plan
- ☐ Buildings Elevation Plan
- ☐ Cut and Fill Plan
- ☐ Erosion and Sediment Control Plan
- ☐ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)
- ☐ Landscape Plan
- ☐ Photometric (Lighting) Plan
- ☐ Plan and Profile Drawings
- ☐ Site Servicing Plan
- ☐ Storm water Management Plan
- ☐ Street Sign and Traffic Plan
- ☐ Street Tree Planting Plan
- ☐ Tree Preservation Plan
- ☐ Archaeological Assessment
- ☐ Environmental Impact Study

- ☐ Functional Servicing Report
- ☐ Geotechnical Study / Hydrogeological Review
- ☐ Minimum Distance Separation Schedule
- ☐ Noise or Vibration Study
- ☐ Record of Site Condition
- ☐ Storm water Management Report
- ☐ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

- ☐ Plan of standard condominium (2 paper copies and 1 electronic copy)
- ☐ Draft condominium declaration
- ☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

I. Development Agreements

A development agreement may be required prior to site plan approval, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.

J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required, it is their solicitor's responsibility on behalf of the owner, to disclose the registration of all transfer(s) of land and/or easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act, R.S.O. 1990, c. P. 13* for the purposes of processing this application.


Owner/Applicant Signature

Feb 5/25
Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We 1000033566 Ontario Inc. am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize Arcadis Professional Services Inc. c/o Carmen Jandu, Agent to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.


Owner

Feb 5/25
Date

Owner

Date

N. Declaration

I, Carmen Jandu of Town of Oakville, Halton Region

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:

City of Hamilton




Owner/Applicant Signature

In _____

This 3rd day of February

A.D., 2025



A Commissioner, etc.

Jared Vail Marcus, a Commissioner, etc
Province of Ontario,
for Arcadis Professional Services(Canada) Inc.
Expires June 16, 2026

SUBJECT

Downstream Sewer Capacity Analysis of Developments at
25 St. Andrew Street and 200 Main Street, Port Dover,
Norfolk County

DATE

2025-02-19

DEPARTMENT

CA700 CA MOB: D&E Roads & Highways Ontario

COPIES TO

Imad Qneibi

TO

County of Norfolk

OUR REF

N/A

PROJECT NUMBER

148728

NAME

Rakesh Pandey

Associate Principal – Practice Lead, Municipal Engineering

rakesh.pandey@arcadis.com

1 Objective

This memo documents the storm sewer downstream capacity assessment from the proposed 25 St. Andrew Street and 200 Main Street developments. This memo supports the “DRAFT 25 St. Andrew Street in Port Dover Drainage and Stormwater Management Report” prepared by Arcadis, dated February 12, 2024, and the “DRAFT - 200 Main Street in Port Dover Drainage and Stormwater Management Report”, prepared by Arcadis, dated October 10, 2024, under a separate application.

2 Introduction

Arcadis has been retained by the County of Norfolk to assess the downstream for the proposed redevelopment at 200 Main Street and 25 St. Andrew Street in Port Dover, Norfolk County, Ontario, hereafter referred to as “the Site.” The Site is located under the jurisdiction of the Long Point Region Conservation Authority, within the Lynn-Black Creek and Dedrick-Young Creek subwatersheds. For the Site's location, existing and proposed downstream sewer legs to the outlets refer to Figures 1 and 2. The native soil was identified as clayey silt and silt as per the 200 Main Street, Port Dover Geotechnical Investigation Report prepared by MTE Consultants Inc. As flows from the proposed developments are only being diverted from the Main Street outlet to the St. Patrick Street outlet, only the storm sewer legs from the Site to the St. Patrick Street outlet will be assessed (as marked in Figures 1 and 2).

2.1 PCSWMM Modelling

A high-level PCSWMM model was used to evaluate the existing and post-development sewer capacity at the downstream sewer legs. Conservative assumptions were made regarding soil characteristics, such as modelling the native site soil as Silty Clay. Various parameters were sourced from PCSWMM for the soil properties and overland Manning's n values. The 5-year Design storm was generated using the Norfolk Design Criteria IDF curves for analysis. An area-wide assumption was made in the existing and proposed conditions, where runoff coefficients were based on a combination of the runoff coefficients from the Stantec Drainage Study Report, and Norfolk County Criteria.

Surface data (DEM) was obtained from Ontario GeoHub and various data including drainage areas, the storm sewer lengths, slopes and sizes were based on the proposed storm sewers provided in the “Port Dover Drainage Area Study Report” prepared by Stantec 2001.

Existing inverts around the proposed developments were provided by a survey from the 200 Main Street Report and respective connections were back-calculated based on their slopes from the Stantec Drainage Study Report. The proposed connections to the existing infrastructure were detailed in both the 200 Main Street Report and the 25 St. Andrew Street Report.

3 Results

3.1 Existing Condition Assessment

Please refer to the existing drainage sections in both 25 St. Andrew Street in Port Dover and 200 Main Street Drainage and Stormwater Management Reports. A PCSWMM model has been created for the existing condition 5-year design storm scenario. Table 1 shows the cumulative flow and the maximum flow depth over the full depth represented as a percentage from the PCSWMM results. Refer to the attached Existing Profiles for additional information.

Table 1: Existing Condition: Flow and Percent Full of Storm Sewer Legs to the St. Patrick Street Outlet

Location		Cumulative Flow (L/s)	Percent Full (%)
Manhole No. ⁽¹⁾			
From	To		
MH-O1-US1	MH11A	190	61
MH11A	MH10A	201	48
MH10A	MH-O1-1	201	59
MH-O1-1	MH-O1-2	201	71
MH-O1-2	MH-O1-3	508	58
MH-O1-3	MH-O1-4	579	69
MH-O1-4	ST-PATRICK-OUTLET	626	75

- ⁽¹⁾ Manhole numbers provided either from surveyed data from 200 Main Street Drainage and Stormwater Management Report, proposed site servicing drawings for 200 Main Street or 25 St Andrew Street or generated for modelling purposes.

3.1 Proposed Condition Assessment

Please refer to the proposed drainage sections in both 25 St. Andrew Street in Port Dover and 200 Main Street Drainage and Stormwater Management Reports. A PCSWMM model has been created for the proposed condition 5-year design storm scenario. Table 2 shows the cumulative flow and the maximum flow depth over the full depth represented as a percentage from the PCSWMM results. Refer to the attached Proposed Profiles for additional information.

Table 2: Proposed Condition: Flow and Percent Full of Storm Sewer Legs to the St. Patrick Street Outlet

Location		Cumulative Flow (L/s)	Percent Full (%)
Proposed Manhole No. ⁽¹⁾			
From	To		
MH-O1-US1	MH1-Proposed	190	81
MH1-Proposed	MH2-Proposed	196	80
MH2-Proposed	MH11A	226	66
MH11A	MH10A	230	51
MH10A	MH-O1-1	230	64
MH-O1-1	MH-O1-2	229	75
MH-O1-2	MH-O1-3	534	59
MH-O1-3	MH-O1-4	604	71
MH-O1-4	ST-PATRICK-OUTLET	650	77

- ⁽¹⁾ Manhole numbers provided either from surveyed data from 200 Main Street Drainage and Stormwater Management Report, proposed site servicing drawings for 200 Main Street or 25 St. Andrew Street or generated for modelling purposes.

The upstream connection to MH1-Proposed should be highlighted as the largest percent full depth for the 5-year storm event. No pipe exceeds 95% full capacity as required by the Norfolk County Design Criteria.

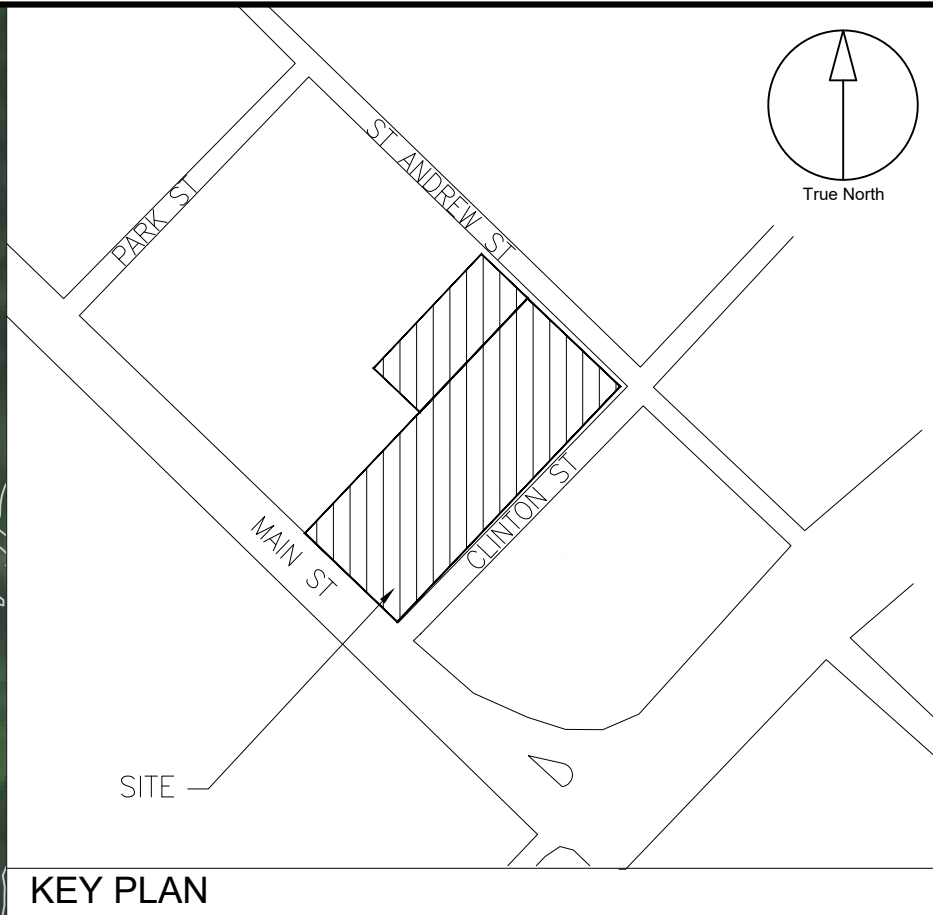
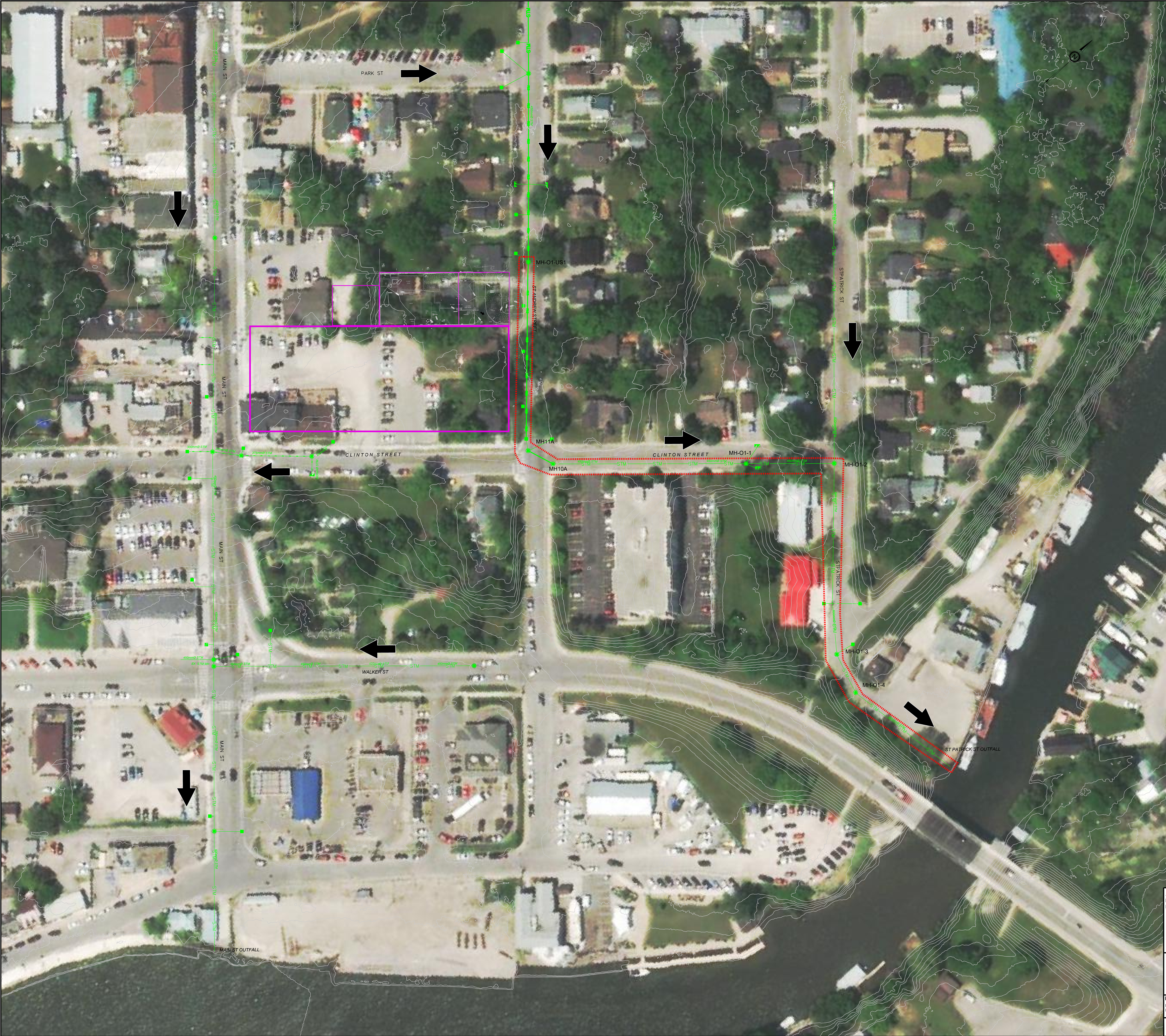
3.2 Capacity Analysis

The storm sewer downstream capacity assessment from the proposed 25 St. Andrew Street and 200 Main Street developments indicated the existing municipal sewer has enough capacity to accommodate flows from the 25 St. Andrew Street and 200 Main Street sites. Table 2 demonstrates the proposed condition results on flow and percent full or surplus capacity of storm sewer legs to the St. Patrick Street Outlet.

4 Conclusions

Based on the findings of this assessment, it is concluded that the existing municipal sewer has enough capacity to accommodate flows from the proposed developments at 25 St. Andrew Street and 200 Main Street and no pipe exceeds 95% full capacity as required by the Norfolk County Design Criteria.

Enc. Figures 1 & 2 of Existing and Proposed Drawings, and Existing and Proposed PCSWMM Profiles



CLIENT

COPYRIGHT

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.

ISSUES		DATE
No.	DESCRIPTION	DATE
0	ISSUE FOR REVIEW	2025-02-12

LEGEND

PROPERTY LINE

DRAINAGE AREA BOUNDARY

EXISTING DOUBLE CATCH BASIN

EXISTING CATCH BASIN

EXISTING MAINTENANCE HOLE

EXISTING STORM PIPE

OVERLAND FLOW

DOWNSTREAM EXTENT OF STORM SEWER ASSESSMENT

Norfolk
COUNTY

ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING

DATE

ARCADIS

175 Galaxy Blvd, Unit 100 |
Toronto, ON | M9W 0C9 | Canada

www.arcadis.com

PROJECT

200 MAIN STREET
NORFOLK COUNTY

LIST OF DRAWINGS

EXISTING

PROPOSED

SITE PLAN INFORMATION

VAN GROLL & ASSOCIATES INC.
2 ST CLARE AVE. W. F18
TORONTO, ONTARIO M4V 1L5
PHONE: (905) 339-2811 EXT 228

SURVEY INFORMATION

MacAULAY, WHITE & MUIR LTD.
ONTARIO LAND SURVEYORS
440 HARDY ROAD, UNIT 2, BRANTFORD,
ONTARIO N3T 5L8
PHONE: (519) 752-0040 FAX: (519) 752-0087
EMAIL: mwm@survey@bell.ca

BENCHMARK INFORMATION:

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM CITY OF TORONTO BENCHMARK No. XXXX, HAVING AN ELEVATION = 182.32 METRES.

SCALE: 1:500

PROJECT NO:
30259186

DRAWN BY:
LZ

CHECKED BY:
JT

PROJECT MGR:
IQ

APPROVED BY:
RP

SHEET TITLE

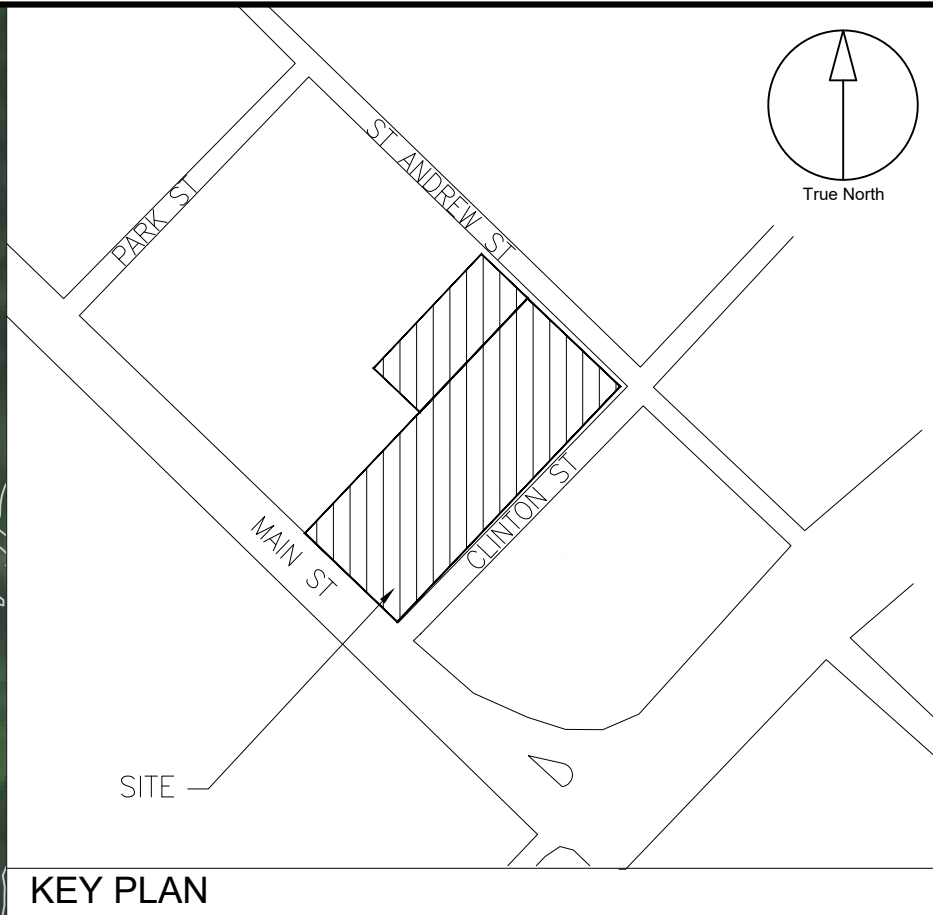
EXISTING

SHEET NUMBER

FIGURE 1

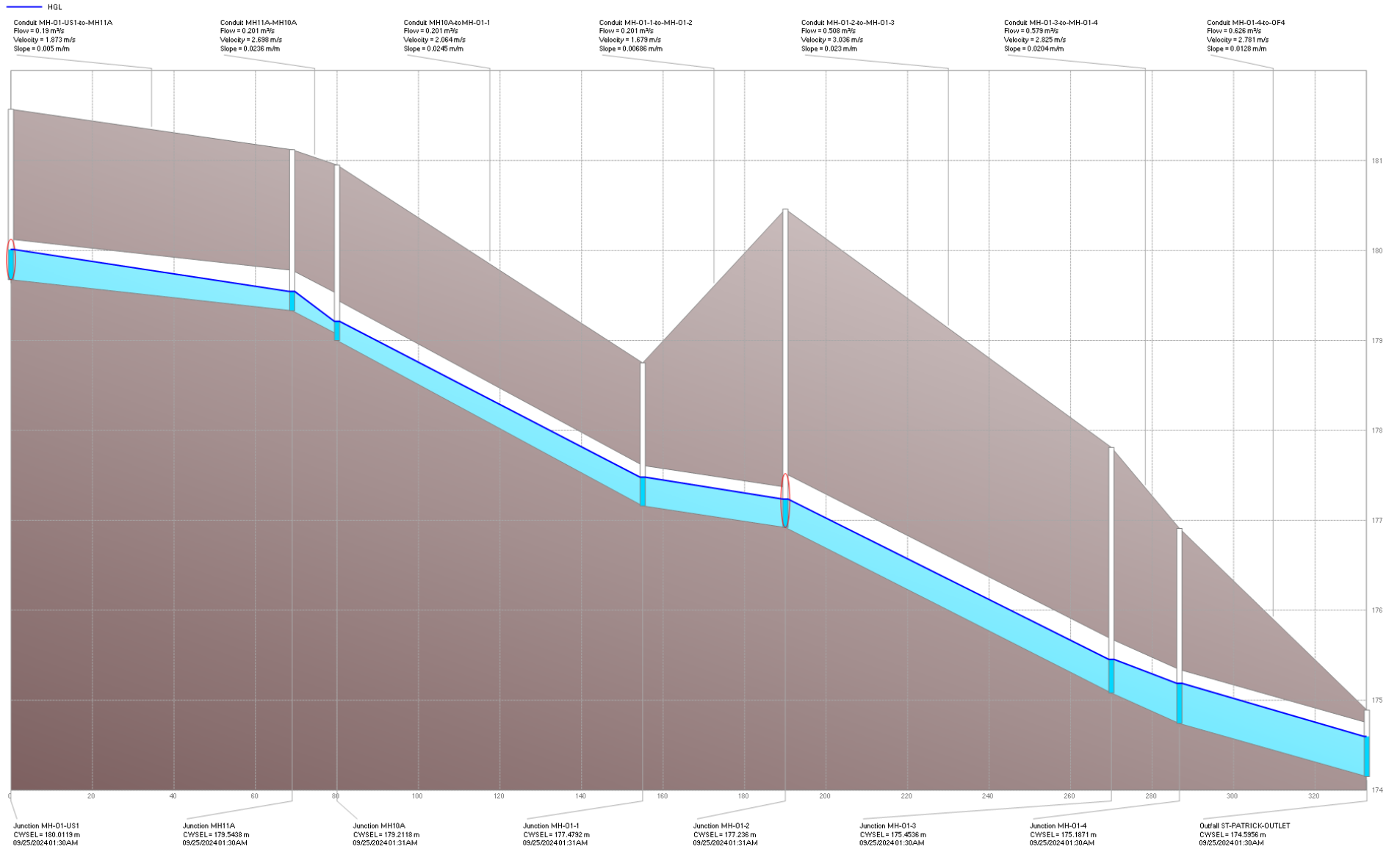
ISSUE

01

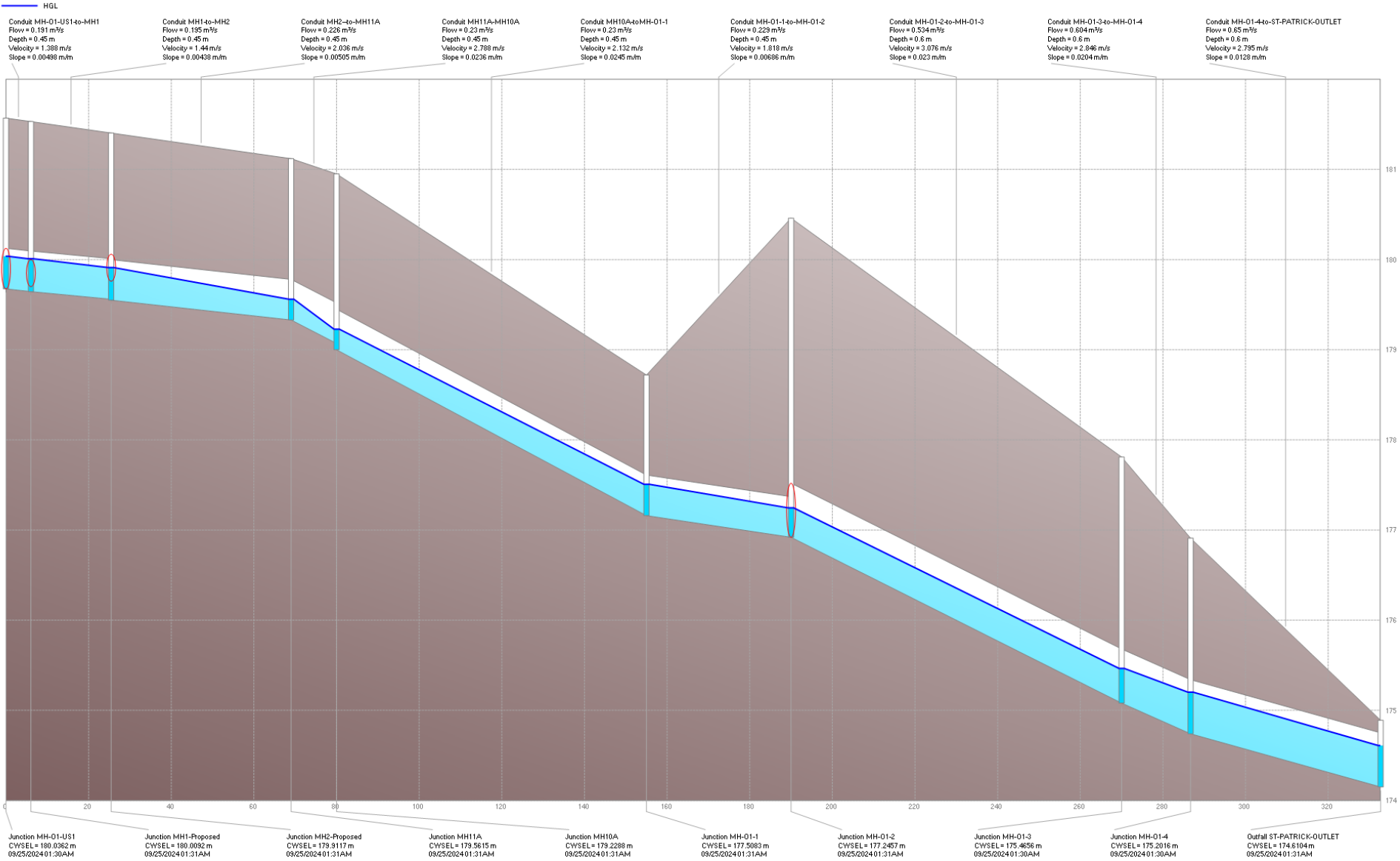


CLIENT		
COPYRIGHT		
ARCADIS PROFESSIONAL SERVICES (CANADA) INC. is a member of ARCADIS Group of companies		
ISSUES		
No.	DESCRIPTION	DATE
0	ISSUE FOR REVIEW	2025-02-07
LEGEND		
PROPERTY LINE		
DRAINAGE AREA BOUNDARY		
EXISTING DOUBLE CATCH BASIN		
EXISTING CATCH BASIN		
EXISTING MAINTENANCE HOLE		
EXISTING STORM PIPE		
PROPOSED MAINTENANCE HOLE		
PROPOSED OGS (OIL & GRIT SEPARATOR)		
PROPOSED CATCH BASIN		
PROPOSED STORM PIPE		
OVERLAND FLOW		
DOWNSTREAM EXTENT OF STORM SEWER ASSESSMENT		
Norfolk COUNTY		
ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.		
MANAGER, DEVELOPMENT ENGINEERING DATE		
ARCADIS		
175 Galaxy Blvd, Unit 100 Toronto, ON M9W 0C9 Canada		
www.arcadis.com		
PROJECT		
200 MAIN STREET NORFOLK COUNTY		
LIST OF DRAWINGS		
EXISTING		
PROPOSED		
SITE PLAN INFORMATION		
SURVEY INFORMATION		
BENCHMARK INFORMATION:		
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM CITY OF TORONTO BENCHMARK No. XXXX, HAVING AN ELEVATION = 182.32 METRES.		
SCALE: 1:500		
PROJECT NO: 30259186		
DRAWN BY: LZ		CHECKED BY: JT
PROJECT MGR: IQ		APPROVED BY: RP
SHEET TITLE		
PROPOSED		
SHEET NUMBER		ISSUE
FIGURE 2		01

Existing - St. Patrick Street Outlet
5-Year Storm Event



Proposed - St. Patrick Street Outlet
5-Year Storm Event



Drainage and Stormwater Management Report

25 St. Andrew Street, Port Dover, Norfolk County, ON

February 13, 2025

Drainage and Stormwater Management Report

25 St. Andrew Street, Port Dover, Norfolk County, ON

February 13, 2025

Prepared By:

Arcadis Professional Services (Canada) Inc.
175 Galaxy Boulevard, Unit 100
Toronto West, Ontario M9W 0C9
Canada
Phone: 416 679 1930

Arcadis Ref:

148728

Rakesh Pandey
Associate Principal – Practice Lead, Municipal Engineering

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

Version Control

Issue	Rev. No.	Date Issued	Page No.	Description	Reviewed By
SWM	00	13 February 2025		Drainage and SWM Report	Imad Qneibi

Contents

Preamble 1

1 Introduction..... 2

1.1 Background Information and Design Criteria 2

1.2 PCSWMM Modelling 3

2 Existing Conditions..... 3

2.1 Existing Drainage Patterns 3

3 Proposed Conditions 4

3.1 Proposed Drainage Patterns 4

3.2 Water Quantity / Peak Flow Control..... 4

3.3 Water Quality 6

3.4 Storm Service Connection 6

3.5 Sediment and Erosion Control..... 7

4 Conclusions 7

Tables

Table 1: Analysis of Subcatchments and Runoff Peak Flow Calculations..... 4

Table 2: Analysis and Uncontrolled Proposed Runoff Volume Calculations..... 5

Table 3: Analysis of Proposed Runoff Volume Retained On-site 5

Table 4: Existing and Controlled Proposed Peak Flows (38 mm & 75 mm Orifice Plate)..... 6

Table 5: Storm Service Connection Summary..... 7

Figures

Figure 1 Site Location

Appendices

- Appendix A - Pre-Development Drainage Area Plan
- Appendix B - Post-Development Drainage Area Plan
- Appendix C - Proposed Grading Plan
- Appendix D - Site Servicing Plan & General Notes and Details
- Appendix E - Proposed Cross-Section
- Appendix F - Stormwater Calculations
- Appendix G - PCSWMM Parameters
- Appendix H - Stormceptor OGS Model Specifications
- Appendix I - Erosion and Sediment Control Plan

Preamble

This Drainage and Stormwater Management Report complements the “DRAFT - 200 Main Street in Port Dover Drainage and Stormwater Management Report”, prepared by Arcadis, dated October 10, 2024, under a separate application.

1 Introduction

Arcadis has been retained by the County of Norfolk to prepare a Drainage and Stormwater Management Report for the proposed redevelopment at 25 St. Andrew Street in Port Dover, Norfolk County, Ontario, hereafter referred to as "the Site." The Site is located under the jurisdiction of the Long Point Region Conservation Authority, within the Lynn-Black Creek and Dedrick-Young Creek subwatersheds. The site is bounded by the 200 Main Street property to the south, and St. Andrew Street to the east. Residential properties bound the site to the north. Refer to Figure 1 in the Appendix for the site location. The Site is divided into two subcatchments areas of 0.06 ha and 0.04 ha respectively.

The existing Site consists of a residential property with a grassed yard, a two-storey garage, and a residential area to the north of the site. Groundwater data south of the site was encountered at elevations ranging from 174.6 to 178 masl, and the native soil was identified as clayey silt and silt as per the 200 Main Street, Port Dover Geotechnical Investigation Report prepared by MTE Consultants Inc.

The proposed parking lot is to be located northwest and adjacent to the proposed development at 200 Main Street northwest of the site, refer to the "DRAFT - 200 Main Street in Port Dover Drainage and Stormwater Management Report" for that corresponding application. Addressing the drainage of the external area indicated in that report will be included.

The objective of this Drainage and Stormwater Management Report is to verify and summarize recommended drainage and stormwater management strategy while identifying opportunities for improvements that exist within the study limits to mitigate the possible impacts of the proposed redevelopment to the receiving drainage systems. A PCSWMM model was developed to support the findings of this report.

1.1 Background Information and Design Criteria

In preparation for this report, the following relevant documents were reviewed:

- DRAFT - 200 Main Street in Port Dover Drainage and Stormwater Management Report, prepared by Arcadis October 2024.
- 200 Main Street, Port Dover Geotechnical Investigation Report prepared by MTE Consultants Inc., June 2024.
- Norfolk County Official Plan, January 2021.
- The Corporation of Norfolk County Design Criteria, February 2019.
- Ministry of Environment, Conservation and Parks (MECP) Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under an Environmental Compliance Approval, May 2023.
- Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual, March 2003.

In compliance with Norfolk County's current policies and guidelines, the following design criteria have been applied in developing the drainage and stormwater management strategies for this project:

Water Quality

- Water quality treatment shall conform to MECP requirement for Enhanced Level of Protection (Level 1), i.e., removal of 80% of Total Suspended Solids (TSS) from runoff prior to discharge into the receiving water body.

Water Quantity / Peak Flow Control

- According to the County's guidelines, peak flows discharged from the site shall not increase as a result of the proposed development for the 2-year to the 100-year storm events. All stormwater management measures must meet the "Enhanced" level of protection as per the MECP Stormwater Management Planning and Design Manual.

IDF Curves

- Norfolk County IDF curves are to be used for hydrological analyses.

It should be noted the Site is not located in the Dingle Creek subwatershed nor greater than 0.40 ha and is therefore not subject to the special policy water management objectives outlined in the Norfolk Design Criteria.

1.2 PCSWMM Modelling

A high-level PCSWMM model was used to evaluate the existing and post-development conditions. Conservative assumptions were made regarding soil characteristics, such as modelling the native site soil as Silty Clay. Various parameters were sourced from PCSWMM for the soil and overland Manning's n values. Design storms for 2, 5, 10, and 100 years were generated using the Norfolk Design Criteria IDF curves for analysis. An additional 25 mm 4-hour Chicago design storm hyetograph from a comparable area in southern Ontario (City of Pickering) was applied for analysis of the runoff volume. A site-wide assumption was made in the existing and proposed conditions, where runoff coefficients were used from the Norfolk Design Criteria based on the appropriate cover. See Appendix G for modelling parameters and additional information.

2 Existing Conditions

2.1 Existing Drainage Patterns

The study area, including 25 St. Andrew Street, is predominantly urban-residential. Drainage is influenced by topography, land cover, and grade variations around the Site. The primary drainage infrastructure, including catchbasins, storm drains, and municipal storm sewers, is located outside the study area. This includes the 450 mm storm sewer running along St. Andrew Street. Refer to Appendix C Site Servicing Plan for additional existing stormwater infrastructure.

The overland flow from the west portion of the site flows southwest, and the overland flow of the east portion of the site flows southeast, both portions diverging from the middle of the property. The east portion of the site enters an existing catchbasin on St. Andrew Street. The west portion drains southwest toward the 200 Main Street property, ultimately discharging eastward to a catchbasin on Clinton Street. See Appendix A for the pre-development drainage area plan.

As mentioned in the previous report, "DRAFT—200 Main Street in Port Dover Drainage and Stormwater Management Report", the external drainage area (EXT01) will be addressed in this later application. Previously, this area was 0.039 ha and located southwest of the site. Figure 1 shows that this area now overlaps with the A1 subcatchment by 0.01 ha. For the current evaluation, the EXT-01 subcatchment is considered to be 0.028 ha and, in its existing condition, drains overland towards the 200 Main Street site. Additional details can be found in Figure 1 and the calculations in Appendix D.

3 Proposed Conditions

3.1 Proposed Drainage Patterns

The proposed redevelopment primarily includes a 0.10 ha parking lot, with most stormwater captured overland through two proposed catchbasins and one OGS unit with an inlet. As mentioned in the Existing Drainage Patterns section above, the external subcatchment area (EXT01) located southwest of the site has an area of 0.028 ha. The external area flows overland to a catchbasin (DCIB) located on the southwest of the site. This catchbasin connects north to a catchbasin manhole (CBMH1), which collects the flow from the west portion of the site. This catchbasin manhole connects northeast, where the east portion of the site will flow northwest into a catchbasin manhole (CBMH2). These pipes are sized to 450 mm. The cumulative flow is then stored in a cast-in-place concrete storage tank (6.0 m x 5.0 m x 0.9 m). The storage chamber outlets the flow controlled by an orifice plate, which is then treated by an EFO4 OGS unit before entering the 300 mm service connection and discharging into the 450 mm diameter municipal stormwater system on St. Andrew Street. See Appendix B, C and D for the Post-development Drainage Area Plan, Proposed Grading Plan, Site Servicing Plan and General Notes for additional details.

3.2 Water Quantity / Peak Flow Control

The Norfolk County Design Criteria provided IDF curves and runoff coefficient guidelines. Peak flows were calculated for both subcatchments. The table below shows the PCSWMM model results for the subcatchment peak flows for the 2-year to 100-year 4-hour Chicago storm events under existing and proposed conditions. See Appendix F for further information regarding the IDF curve and runoff coefficient data.

Table 1: Analysis of Subcatchments and Runoff Peak Flow Calculations

Catchment ID	Total Area (ha)	Percent Imperv. (%)	Runoff Coeff.	Peak Flow (m³/s)				
				2-Year	5-Year	10-Year	25-Year	100-Year
Existing								
A1PRE	0.060	30.77	0.45	0.006	0.009	0.012	0.015	0.020
A2PRE	0.040	30.77	0.45	0.005	0.007	0.009	0.011	0.014
EXT01	0.028	34.62	0.48	0.004	0.007	0.008	0.010	0.012
Proposed Uncontrolled								
A1POST	0.060	100	0.90	0.016	0.022	0.026	0.031	0.039
A2POST	0.040	100	0.90	0.008	0.011	0.013	0.015	0.018
EXT01	0.028	34.62	0.48	0.004	0.007	0.008	0.010	0.012

According to Norfolk County guidelines, the proposed peak flows must not exceed existing conditions. In the current drainage pattern, the A1PRE and EXT01 subcatchments drain into the Clinton Street storm sewer, while the A2PRE peak flows enter the St. Andrew Street storm sewer. For the proposed condition, the A1POST, A2POST, and EXT01 subcatchments will all contribute their cumulative flows into the St. Andrew Street storm sewer. Therefore, the peak flows entering the St. Andrew Street storm sewer from the existing condition will be the maximum values for the post-development scenario.

Table 2 highlights the existing and uncontrolled proposed runoff volumes for design storms from 25 mm to 100-year events.

Table 2: Analysis and Uncontrolled Proposed Runoff Volume Calculations

Subcatchment	Runoff Volume (m ³)					
	25 mm	2-Year	5-Year	10-Year	25-Year	100-Year
Existing						
A1PRE	7.22	13.20	21.09	26.34	33.12	43.73
A2PRE	4.84	8.807	14.01	17.47	21.94	28.93
EXT01	3.79	6.68	10.43	12.92	16.14	21.14
Uncontrolled Proposed						
A1POST	14.82	21.11	29.60	35.07	42.10	52.96
A2POST	9.74	13.87	19.45	23.05	27.67	34.81
EXT01	3.79	6.68	10.43	12.92	16.14	21.14

To control the post-development 100-yr peak flow to the existing conditions, the PCSWMM calculated that 32.4 m³ was required for storage. The proposed 6.0m x 5.0m x 0.9 concrete storage tank would provide 27 m³ of internal storage. In addition to a proposed concrete storage tank, the required volume is met by the storage capacity within the pipes and catchbasins. Table 3 highlights the on-site storage totals and shows that the site can contain the required volume (38.6 m³ > 32.4 m³) as demonstrated by the 100-year design storm on-site. With the proposed total storage of 38.6 m³, no flooding occurred at any node during the 100-year design storm, as demonstrated by the proposed PCSWMM model results. See the calculations in Appendix F and the Site Servicing Plan in Appendix D for additional details.

Table 3: Analysis of Proposed Runoff Volume Retained On-site

Proposed Concrete Storage Chamber (m ³)	Pipe and Manhole Storage Volume (m ³)	TOTAL on-site (m ³)	Total Volume On-Site Volume Required from 100-year (m ³)
27.0	11.6	38.6	32.4

An orifice plate in the control manhole was sized at a diameter of 1.5 inches (38 mm) to ensure the controlled peak flow did not exceed the existing peak flow for the 2-year to 100-year storm events while not surcharging the municipal sewer storm connection. Table 4 highlights peak flows for the existing, uncontrolled and controlled post-development conditions.

Table 4: Existing and Controlled Proposed Peak Flows (38 mm & 75 mm Orifice Plate)

Outlet	Peak Flow (m ³ /s)					
	25 mm	2-Year	5-Year	10-Year	25-Year	100-Year
Existing						
St. Andrew Street Catchbasin	0.002	0.005	0.007	0.009	0.011	0.014
Uncontrolled Proposed						
No Orifice - Service Connection to Municipal Storm Sewer	0.012	0.020	0.027	0.032	0.037	0.045
Controlled Proposed to Storm Service Connection (38 mm)						
Service Connection to Municipal Storm Sewer	0.002	0.003	0.003	0.003	0.003	0.004
Controlled Proposed to Storm Service Connection (75 mm)						
Service Connection to Municipal Storm Sewer	0.005	0.007	0.008	0.008	0.009	0.011

However, it should be noted that the recommended size for the orifice as per the MECP Stormwater Management Planning and Design Manual 2003 would be 75 mm due to clogging concerns. For practical design purposes, a 75 mm orifice plate would meet the existing condition criteria to mitigate post-development 10- to 100-year flow conditions as shown in Table 4.

3.3 Water Quality

An Oil and Grit Separator (OGS) was sized for the site to meet the 80% TSS removal requirement as per County Criteria. Appendix H outlines specifications for the proposed Stormceptor Imbrium EFO4 Model.

3.4 Storm Service Connection

Per Norfolk County's guidelines, an orifice plate outlet control has been sized for discharging to the municipal sewer. The controlled peak flow does not exceed the existing peak flow for the 5-year storm event while not surcharging the storm service connection. Table 5 below shows the summary of the storm service connection. For additional details see the Site Servicing Plan and Proposed Cross-Section in Appendix D and E. The capacity calculations are included in Appendix F.

Table 5: Storm Service Connection Summary

From	To	Pipe Diameter (mm)	Slope (%)	Peak Flow (L/s)	Capacity (L/s)	Percent Full (%)
Stormceptor OGS Unit	Municipal Storm Sewer	300	0.31	8	61.2	14.9

3.5 Sediment and Erosion Control

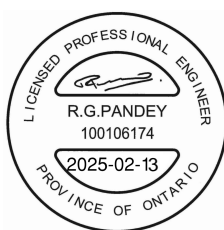
An Erosion and Sediment Control Plan has been developed that implements best practice construction measures to minimize disturbance of sediment/erosion. See Appendix I for the Erosion and Sediment Control Plan.

4 Conclusions

The proposed redevelopment of 25 St. Andrew Street in Port Dover has been thoroughly analyzed in terms of drainage and stormwater management. The following findings and recommendations have been derived based on the detailed hydrological assessments, PCSWMM modelling, and relevant design criteria:

- The existing site consists of a residential property, with native soils identified as clayey silt and silt. The south neighbouring property (200 Main Street) groundwater levels range between elevations of 174.6 to 178 masl.
- The proposed redevelopment will be a 0.10 ha municipal parking lot in addition to a 0.028 ha external area.
- Stormwater will be primarily captured by three proposed catchbasins, with the cumulative captured flow stored in a cast-in place concrete storage tank. This flow is then controlled by an orifice plate and then treated by an OGS unit then directed to the municipal storm sewer on St. Andrew Street.
- PCSWMM modelling indicates a required 32.4 m³ volume which 38.6 m³ can be contained on-site to meet criteria.
- Water quality treatment will be addressed through a Stormceptor EFO4 Oil Grit Separator (OGS), which meets Norfolk County's requirement of 80% Total Suspended Solids (TSS) removal. Regular maintenance of the OGS is recommended to ensure ongoing compliance with water quality standards.
- A 38 mm orifice plate was sized to ensure the controlled peak flow does not exceed existing peak 2- to 100-year flow conditions.
- However, an orifice plate sized to 75 mm would meet minimum provincial guidelines to avoid clogging and would ensure the controlled peak flow does not exceed existing peak 10- to 100-year flow conditions.
- The storm service connection has been sized to ensure the capacity for the required release rate.
- A sediment and erosion control plan for construction has been developed and provided.
- A downstream storm sewer analysis will be reviewed and submitted to the county at a later date.

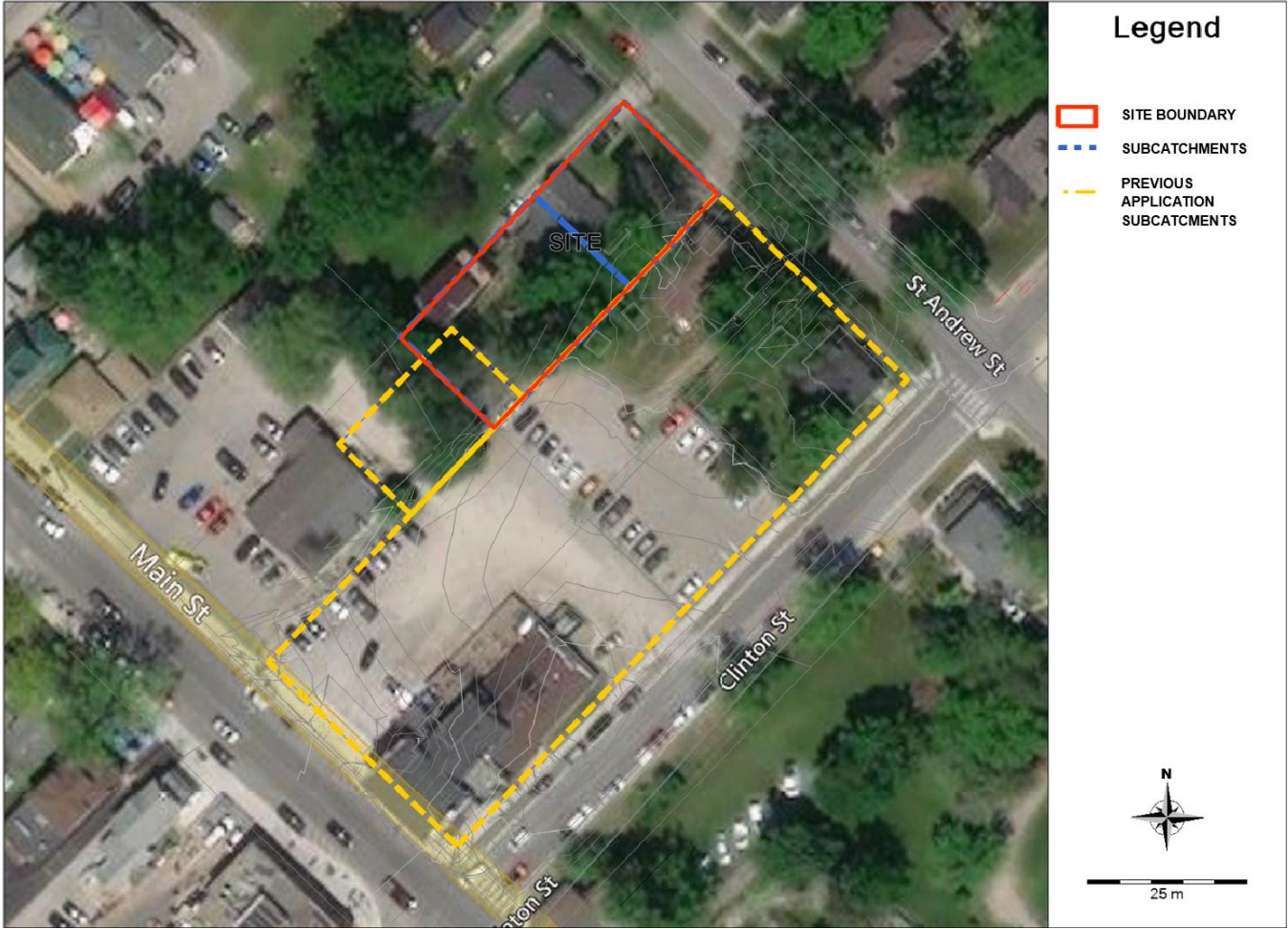
Respectfully Submitted:



Rakesh Pandey Ph.D. P.Eng.
Associate Principal - Practice Lead, Municipal
Engineering Arcadis Professional Services (Canada) Inc.
100 - 175 Galaxy Blvd | Toronto | ON | M9W 0C9 |
Canada
T: +1 416 679 1930 ext 65493

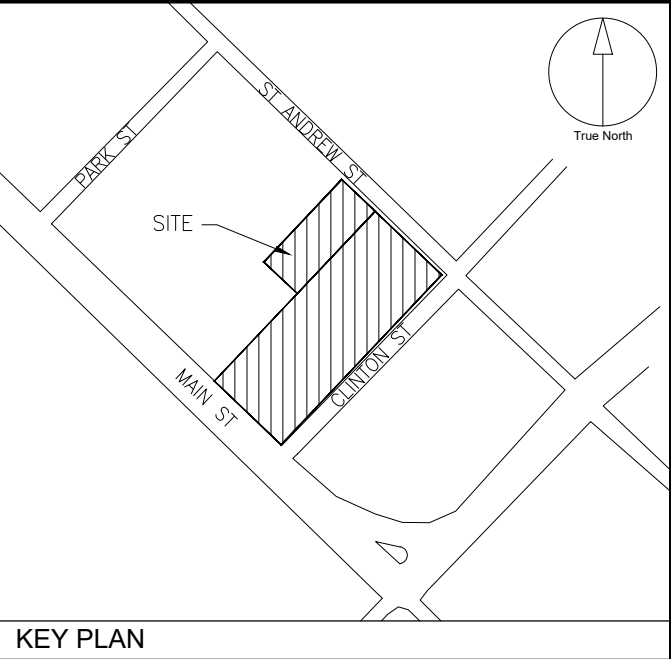
Figure 1

Site Location



Appendix A

Pre-Development Drainage Area Plan



CLIENT



















1000033566 ONTARIO INC.

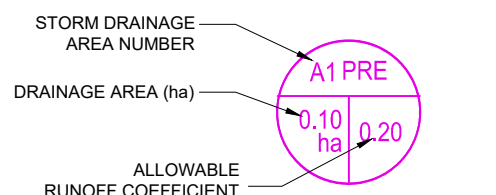
COPYRIGHT

This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted by ARCADIS for general confirmation before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND	
PROPERTY LINE	
PROPOSED GRADE	 × 149.50
EXISTING GRADE	 × 149.38E
PROPOSED TOP OF SLOPE	 × 149.50TS
PROPOSED TOP OF WALL	 × 149.50TW
PROPOSED BOTTOM OF WALL	 × 149.50BW
PROPOSED OGS (OIL & GRIT SEPARATOR)	
PROPOSED MANHOLE	
PROPOSED CATCH BASIN	 AD
PROPOSED AREA DRAIN	
HIGH POINT RIDGE	
EXISTING STORM MANHOLE	
EXISTING SANITARY MANHOLE	
EXISTING CATCH BASIN	
EXISTING FIRE HYDRANT	 EX FH
EMERGENCY OVERLAND FLOW ROUTE	
EXISTING OVERLAND FLOW ROUTE	
FFE (FINISHED FLOOR ELEVATION)	FFE=104.50
DRAINAGE AREA BOUNDARY	



Norfolk
COUNTY

ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY
STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS
VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING	DATE
----------------------------------	------



www.arcadis.com

PROJECT

**ST. ANDREWS MUNICIPAL
PARKING LOT**

25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:
148728

DRAWN BY: TC	CHECKED BY: SS
PROJECT MGR: IQ	APPROVED BY: IQ

SHEET TITLE

PRE-DEVELOPMENT
DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
DAP-01	01

LIST OF DRAWINGS	
SG-01 SITE GRADING PLAN	
SS-01 SERVICES PLAN	
EC-01 EROSION CONTROL PLAN	
D-D-01 NOTES AND DETAILS	
DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN	
DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN	
X5-01 CROSS SECTION	
SITE PLAN INFORMATION	
VAN GOKAL & ASSOCIATES INC.	
21 ST CLAIR AVE. E. F18	
TORONTO, ONTARIO M5E 1L5	
(PHONE) (336)261-1128	
(FAX) (336)261-1128	
SURVEY INFORMATION	
PASCH & HYTER LTD.	
ONTARIO LAND SURVEYORS	
P.O. Box 1333 Highway 9 East, Unit 1	
DUNWILLIE, ONT. N4A 2N1	
DUNWILLIE (905) 743-8789	
TORR. EMB. 90047-0073	
BENCHMARK INFORMATION:	
SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTHWEST CORNER OF DUNDAS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 162.32m.	

[illegible]

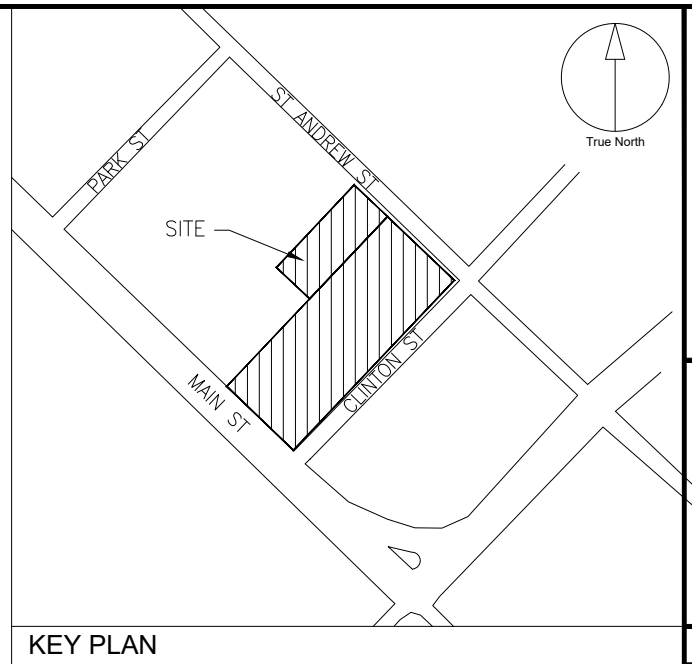
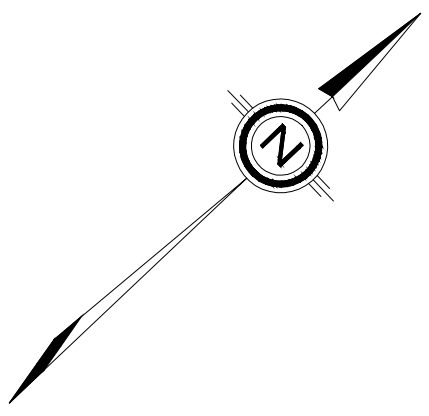
Appendix B

Post-Development Drainage Area Plan

Appendix C

Proposed Grading Plan

PAVEMENT COMPONENT	LIGHT DUTY	HEAVY DUTY
ASPHALT HOT MIX HL3	40mm	50mm
ASPHALT HOT MIX HL8	50mm	70mm
OPSS 1010 GRANULAR 'A'	150mm	150mm
OPSS 1010 GRANULAR 'B' TYPE III	450mm	600mm



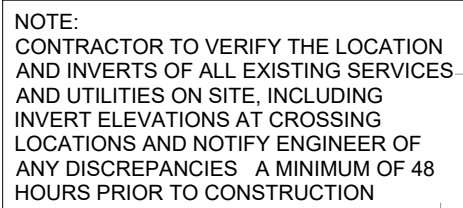
CLIENT

1000033566 ONTARIO INC.

COPYRIGHT

This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and coordinates on the job, and ARCADIS shall be informed of any variations from the dimensions and coordinates shown on the drawing. Shop drawings shall be submitted to ARCADIS for general concurrence before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies



ALL EXISTING SERVICES
WITHIN BUILDING ZONE TO BE
REMOVED/ RELOCATED (TYP.)



















MATCH NEW ASPHALT PAVING GRADE
TO EXISTING ASPHALT GRADES (TYP.)

MOVE
CURB

五

ST. ANDREW STREET

LEGEND

PROPERTY LINE	
PROPOSED GRADE	 $\times 149.50$
EXISTING GRADE	 $\times 149.33\text{E}$
PROPOSED TOP OF SLOPE	 $\times 149.50\text{TS}$
PROPOSED TOP OF WALL	 $\times 149.50\text{TW}$
PROPOSED BOTTOM OF WALL	 $\times 149.50\text{BW}$
PROPOSED OGS (OIL & GEL GRIT SEPARATOR)	
PROPOSED MANHOLE	
PROPOSED CATCH BASIN	 AD
PROPOSED AREA DRAIN	
HIGH POINT RIDGE	
EXISTING STORM MANHOLE	
EXISTING SANITARY MANHOLE	
EXISTING CATCH BASIN	
EXISTING FIRE HYDRANT	
EMERGENCY OVERLAND FLOW ROUTE	 <i>EX.FH</i>
EXISTING OVERLAND FLOW ROUTE	
	



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY
STANDARDS, THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS
VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE



8133 Warden Ave, Unit 300 |
Markham, ON | L6G 1B3 | Canada

www.arcadis.com

PROJECT
ST. ANDREWS MUNICIPAL
PARKING LOT
25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:

DRAWN BY:

CHECKED BY:

PROJECT MG

APPROVED BY _____

SHEET TITLE

SITE GRADING PLAN

SHEET NUMBER

SG-01

ISSUE
01

SCALE CHECK

Appendix D

Site Servicing Plan & General Notes and Details

GENERAL NOTES:

- PRIOR TO STARTING ANY WORKS, THE CONTRACTOR MUST ENSURE THAT ALL NECESSARY APPROVALS ARE IN PLACE FROM THE CORPORATION OF NORFOLK COUNTY AND OTHER EXTERNAL AGENCIES, AS REQUIRED.
- ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
- ALL WORK AND MATERIALS TO CONFORM WITH THE CURRENT PROVINCIAL BUILDING CODE, MINISTRY OF THE ENVIRONMENT OF ONTARIO, NORFOLK COUNTY, AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
- FOR ALL CONSTRUCTION DETAILS NOT SHOWN ON THE DRAWINGS, REFERENCE SHALL BE MADE TO THE DESIGN STANDARDS OF THE CORPORATION OF NORFOLK COUNTY.
- THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
- THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH PROVIDER PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE REPORTED TO THE ENGINEER 48 HRS PRIOR TO CONSTRUCTION. LOST TIME AND/OR ANY ADDITIONAL WORKS DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF ANY CONFLICTS 48 HRS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
- THE CONTRACTOR MUST INSTALL ALL SEDIMENT CONTROL DEVICES PRIOR TO THE COMMENCEMENT OF SITE GRADING WORKS. SILT LADEN WATER MUST NOT BE PERMITTED TO ENTER INTO ANY EXISTING CATCH BASINS, INLETTING STRUCTURES, OR WATER COURSES. ADDITIONAL CONTROLS AS DEEMED REQUIRED BY THE AUTHORITIES AND/OR THE ENGINEER DURING CONSTRUCTION ACTIVITIES SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR MUST INSPECT SEDIMENT CONTROLS ON A REGULAR BASIS AND AFTER EVERY RAINFALL EVENT. REPAIRS MUST BE DONE IN A TIMELY MANNER TO PREVENT SEDIMENT FROM ENTERING ANY WATER SYSTEMS. ADDITIONAL SILT FENCING MUST BE AVAILABLE IN CASE IMMEDIATE REPAIR IS REQUIRED.
- ALL DIMENSIONS, ELEVATIONS AND OTHER INFORMATION SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR 72 HOURS PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES FOUND MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
- THE CONTRACTOR IS TO PROVIDE A TOTAL OF TWO CCTV CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT, TWO CD COPIES AND ONE VIDEO TAPE IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.
- LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
- ALL PVC SANITARY SEWERS TO BE MANDREL AND AIR TESTED.
- ALL PVC STORM SEWERS TO BE MANDREL TESTED. AIR TEST ONLY ON RECOMMENDATION BY SOIL CONSULTANT.

CONSTRUCTION NOTES:

- AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION FOR SERVICES ON ANY EXISTING ROAD ALLOWANCE AND EXISTING SERVICES WITHIN AN EXISTING EASEMENT MAINTAINED BY NORFOLK COUNTY IN PORT DOVER ONTARIO, THE SUBDIVIDER / DEVELOPER IS TO OBTAIN A PERMIT OF APPROVED WORK FROM NORFOLK COUNTY AND PORT DOVER ONTARIO.
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY MEASURES TO CONTROL SILT ENTERING THE STORM DRAINAGE SYSTEM TO THE SPECIFICATIONS OUTLINED IN THE GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES PREPARED BY THE MINISTRY OF NATURAL RESOURCES. THESE MEASURES ARE TO BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION FOR THIS PROJECT, AND ARE TO REMAIN IN PLACE UNTIL CONSTRUCTION HAS BEEN COMPLETED TO THE SPECIFICATIONS OF THE TOWN ENGINEER.
- ALL WORK SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF NORFOLK COUNTY AND PORT DOVER ONTARIO OR ONTARIO PROVINCIAL STANDARDS.
- NO FOUNDATION DRAIN CONNECTIONS WILL BE PERMITTED. SUMP PUMPS SHALL BE DISCHARGED TO THE OUTSIDE GROUND SURFACE DRAINING AWAY FROM THE BUILDING. REQUIRED TO CONFORM WITH OBC, DIV.B.9.14.
- THE SUBDIVIDER / DEVELOPER IS TO NOTIFY NORFOLK COUNTY AND PORT DOVER ONTARIO AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. PERMITS ARE REQUIRED PRIOR TO COMMENCEMENT OF WORK AND 48 HOURS IS REQUIRED PRIOR TO INSPECTION REQUESTS.
- THE SUBDIVIDER / DEVELOPER IS TO MEET ALL REQUIREMENTS OF THE OWNERS OF THE UTILITIES ON THIS PLAN, AND MUST MAKE SATISFACTORY ARRANGEMENTS WITH THE UTILITY COMPANIES FOR CROSSING THEIR INSTALLATIONS AND FOR PROVIDING ADEQUATE PROTECTION DURING CONSTRUCTION.
- IF COMMON TRENCH CONSTRUCTION IS TO BE USED FOR THE INSTALLATION OF STORM AND SANITARY SEWERS ON ANY STREET WITHIN THIS SUBDIVISION / DEVELOPMENT / PROJECT, THE PDC'S ARE TO BE CONSTRUCTED AT LEAST 2 METERS BEHIND THE CURB LINE ON THAT STREET, AT THE SAME TIME AS INSTALLATION OF THE SEWERS.
- ALL ORGANIC, UNSTABLE OR UNSUITABLE MATERIALS BENEATH THE ROAD ALLOWANCES OR HOUSE FOUNDATIONS MUST BE REMOVED AND THESE AREAS BACKFILLED WITH AN APPROVED FILL MATERIAL. ALL TO THE SATISFACTION OF A GEOTECHNICAL ENGINEER.

GRADING:

- PRIOR TO COMMENCEMENT OF GRADING WORKS ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND OPERATIONAL. THE CONTRACTOR SHALL MAINTAIN ALL WORKS UNTIL SERVING CONSTRUCTION IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND THE CORPORATION OF NORFOLK COUNTY.
- ALL GRANULAR BASE AND SUB-BASE COURSE MATERIALS SHALL BE COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- PAVEMENT STRUCTURE TO BE CONSTRUCTED AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
- CONCRETE CURBS SHALL BE AS PER OPSD 600.060 AND OPSD 600.110.
- INSPECTIONS: ALL WORK ON THE MUNICIPAL RIGHT-OF-WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMAINS AND SEWERS TO BE INSPECTED BY THE MUNICIPALITY WHEN REQUIRED BY THE MUNICIPALITY.
- CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE IF REQUIRED BY THE MUNICIPALITY OR THE REGION.
- EMBANKMENTS TO BE SLOPED AT MAX. 3:1, UNLESS OTHERWISE SPECIFIED.
- SEDIMENT CONTROL TO BE PROVIDED AT CATCH BASINS AND CATCH BASIN MANHOLES UPON INSTALLATION OF STRUCTURES AS PER DETAIL PROVIDED.
- CONTRACTOR WILL BE RESPONSIBLE FOR ALL REMOVALS AS REQUIRED TO FACILITATE NEW CONSTRUCTION. ALL EXISTING STRUCTURES, VALVES, ETC. ARE TO BE ADJUSTED TO PROPOSED ELEVATIONS.
- EXISTING ELEVATIONS AT MATCH POINTS, AS SHOWN ON PLANS, ARE TO BE CONFIRMED BY THE CONTRACTOR 72 HOURS PRIOR TO MOBILIZATION OF FORCES. LOST TIME AND/OR ANY ADDITIONAL WORKS DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM EXISTING ELEVATIONS AND NOTIFY THE ENGINEER OF POSSIBLE CONFLICTS 72 HOURS PRIOR TO MOBILIZATION WILL BE AT THE EXPENSE OF THE CONTRACTOR.

MANHOLES AND CATCHBASINS:

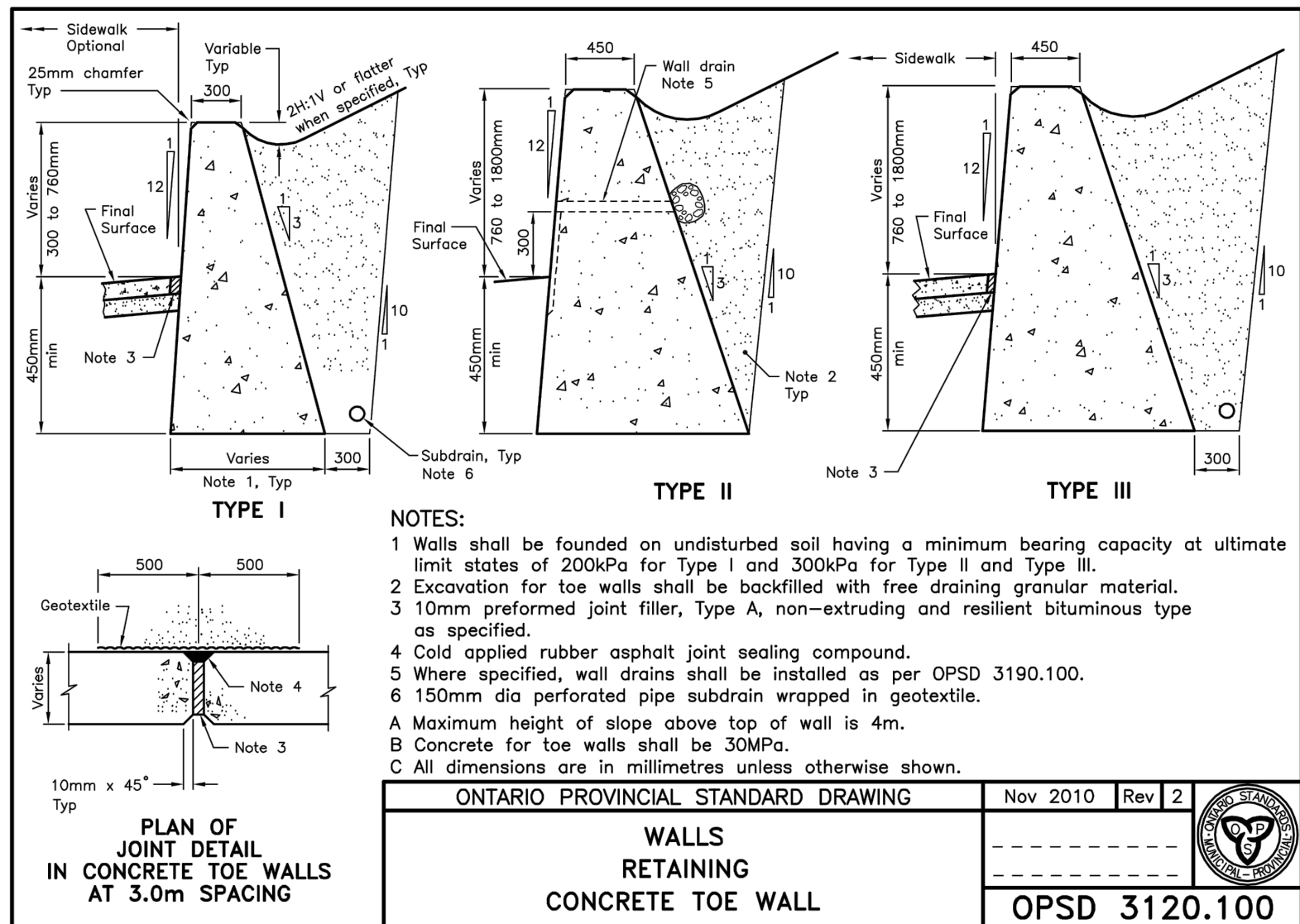
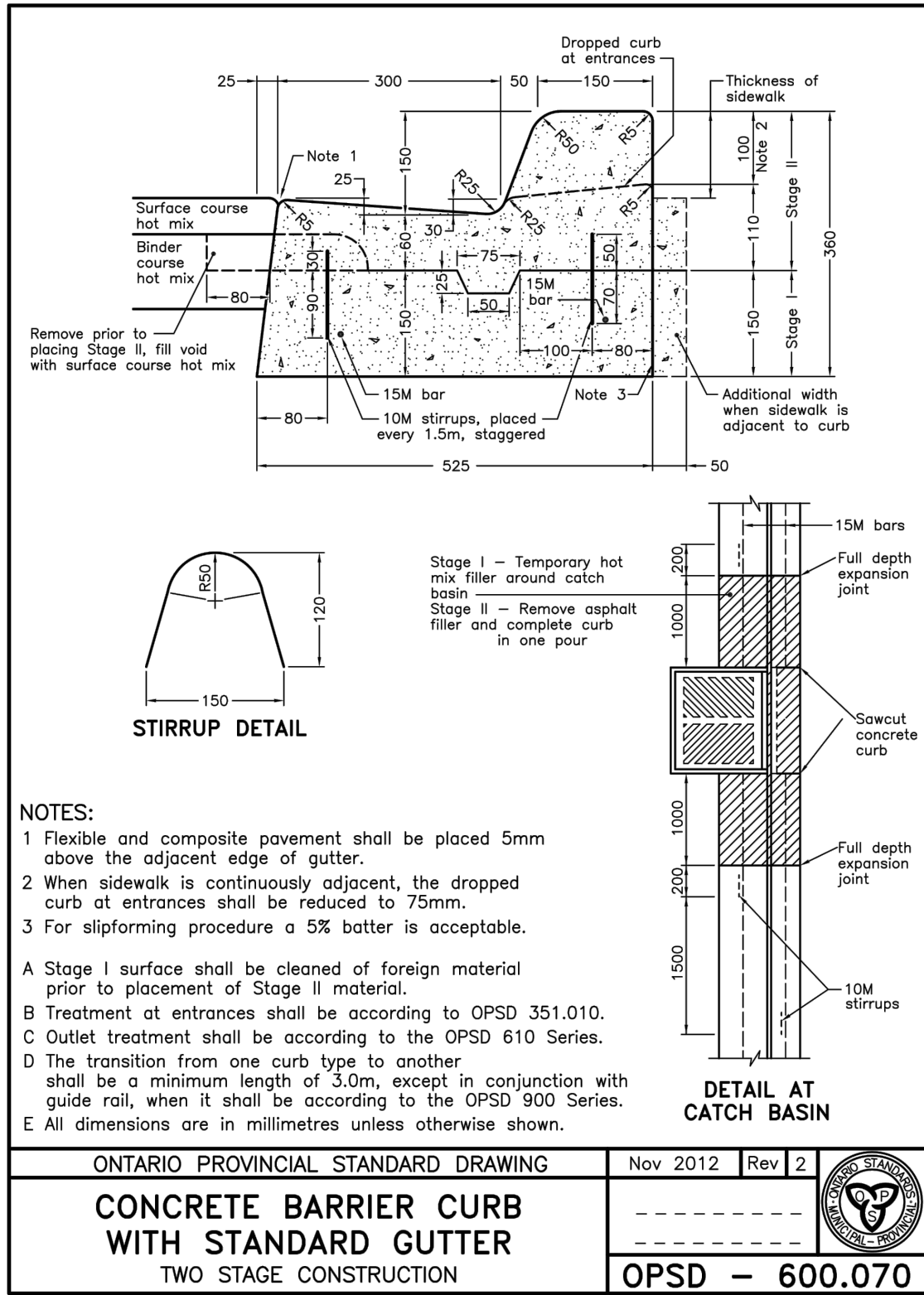
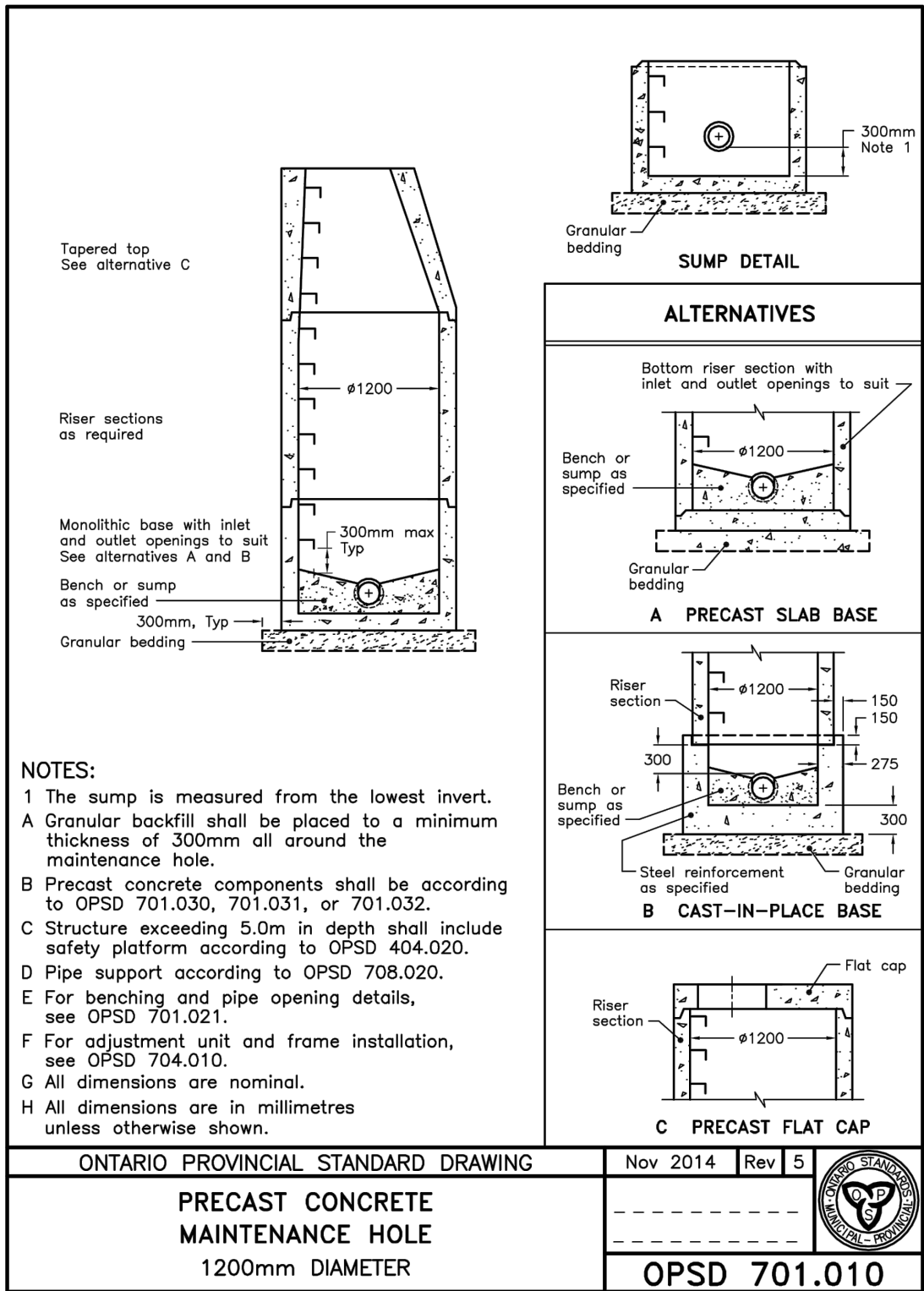
- ALL PRECAST CONCRETE MANHOLES TO MEET M.O.E. SPECIFICATIONS AND CONFORM TO OPSD STANDARDS 701.010 AND 701.011.
- MANHOLE COVERS TO BE AS PER OPSD 401.010, TYPE 'A' FOR SANITARY AND TYPE 'B' FOR STORM.
- MANHOLE AND CATCHBASIN ADJUSTERS SHALL BE AS PER OPSD 704.010.
- MANHOLE STEPS SHALL BE RECTANGULAR STAINLESS STEEL AS PER OPSD 405.010.
- SAFETY PLATFORMS SHALL BE PROVIDED, AS PER OPSD 404.020, FOR MANHOLES WITH DEPTH EXCEEDING 5.0m.
- BENCHING TO BE PROVIDED AT ALL MANHOLES UNLESS OTHERWISE STATED IN ACCORDANCE WITH OPSD 701.021
- ALL SINGLE AND DOUBLE CATCH BASINS SHALL BE PRECAST AS PER OPSD 705.010 AND 705.020 RESPECTIVELY.
- CATCHBASIN LEADS SHALL BE PVC SDR 35 INSTALLED AT A MINIMUM OF 1.0% SLOPE AND WITH MINIMUM COVER OF 1.2m. SIZES ARE AS FOLLOWS: SINGLE CB- 250mm DIA., DOUBLE CB- 300mm DIA., REAR LOT CB- 300mm DIA. (UNLESS OTHERWISE NOTED)
- CATCHBASIN SUMP TO BE 0.60m DEEP FOR 600x600, AND 0.30m DEEP FOR 1200x1200.
- ALL CATCH BASIN FRAMES AND COVERS SHALL BE AS PER OPSD 400.110.
- DURING CONSTRUCTION ALL CATCH BASINS SHALL BE EQUIPPED WITH A TEMPORARY SEDIMENT CONTROL DEVICE.
- ALL MANHOLE AND CATCH BASIN EXCAVATIONS SHALL BE BACKFILLED WITH GRANULAR 'B' COMPACTED TO 98% SPMD0 AND BE PLACED IN ACCORDANCE WITH THE LATEST REVISION OF THE GEOTECHNICAL REPORT.

STORM AND SANITARY SEWERS:

- SANITARY SEWERS SHALL BE GREEN PVC SDR 35 (UNLESS OTHERWISE NOTED) INSTALLED IN ACCORD. W/ OPSD 802.01 (NOV. 2010, REV. 2) SANITARY SERVICES SHALL BE GREEN 150mm DIA. PVC SDR 28 INSTALLED IN ACCORD. W/ OPS 1006.020 (NOV. 2005, REV. 1). MIN. 2% SLOPE INSTALLED 2.0m PAST CURB LINE. BEDDING AND COVER MATERIAL FOR SANITARY SEWERS SERVICE CONNECTIONS SHALL BE GRANULAR 'A' COMPACTED TO 98% STANDARD PROCTOR DENSITY.
- ALL SANITARY SEWERS TO BE INSTALLED AS PER COUNTY OF NORFOLK DESIGN GUIDELINES AND SPECIFICATIONS
- STORM SEWERS SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED): 300mm DIA. - PVC SDR-35 525mm DIA. AND GREATER - 65-D CONCRETE
- CONCRETE STORM SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH OPSD 802.03 (2010) CLASS B. BEDDING MATERIAL SHALL BE GRANULAR 'A' COMPACTED TO 98% S.P.D. COVER MATERIAL SHALL BE SAND COMPACTED TO 98% S.P.D.
- PVC STORM SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH OPSD 802.01 (2010). BEDDING AND COVER MATERIAL SHALL BE GRANULAR 'A' COMPACTED 98% S.P.D.
- SUB-GRADE TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF GRANULAR 'B' TO CONFIRM GRANULAR 'B' THICKNESS REQUIRED.

WATERMAINS:

- ALL WATERMAINS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NORFOLK COUNTY DRAWINGS, M.O.E. GUIDELINES, OPSD STANDARDS AND SPECIFICATIONS AND AWWASTANDARDS AND SPECIFICATIONS.
- WATERMAIN SHALL BE BLUE AWWA C-9-- PVC DR 18 CLASS 150 UNLESS OTHERWISE NOTED) INSTALLED IN ACCORDANCE WITH OPSD 1103.010 (NOV. 2006, REV. 1) AND 1103.020 (NOV. 2006, REV. 2). WATERMAIN SHALL HAVE TWELVE GAUGE TRACER WIRE FASTENED AT NO GREATER THAN 6.0m INTERVALS AND BROUGHT UP TO FINISHED GRADE AT WATER VALVE BOXES
- WATER SERVICES TO BE 20mm DIA. TYPE 'K' COPPER PIPE, POLYETHYLENE OR MUNICIPEX (OR APPROVED EQUAL), IN ACCORDANCE WITH OPSD 1104.010 (NOV 2006, REV. 2) INSTALLED TO 3.0m PAST CURB LINE.
- ALL WATERMAIN AND SANITARY SEWERS TO BE INSTALLED AS PER COUNTY OF NORFOLK DESIGN GUIDELINES AND SPECIFICATIONS.
- BEDDING AND COVER MATERIAL FOR WATERMAIN AND SERVICE CONNECTIONS SHALL BE GRANULAR "A" COMPACTED TO 100% S.P.D. AS PER OPSD 802.010
- WHERE WATERMAINS OR WATER SERVICES CONFLICT WITH SEWERS, THEY SHALL BE DEFLECTED BELOW THE SEWER TO PROVIDE A MINIMUM SEPARATION DISTANCE OF 0.50m VERTICALLY AND INSULATED.
- VALVES SHALL BE RESILIENT SEAT EPOXY COATED GATE VALVES COMPLYING TO LATEST AWWA CS00 SPECIFICATIONS. VALVE BOXES AS SUPPLIED BY 'MUELER LIMITED' OR 'CANADA VALVE' INSTALLED IN ACCORDANCE WITH OPSD 1101.030 AND OPSD 1100.020.
- HYDRANTS TO COMPLY TO AWWA C502 'CANADA VALVE' (DARLING), 'CENTURY', 'MACIVITY M67' ARE ACCEPTED. MUST HAVE BRASS TO BRASS SEAT, OPEN COUNTER CLOCKWISE AND BE COATED WITH HIGH QUALITY YELLOW PAINT (OPSD 1105.02) (NOV.2006, REV. 1). ALL EQUIPPED WITH 100mm STORZ CONNECTION (CAP PAINTED BLACK).
- SUB-GRADE TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF GRANULAR 'B' TO CONFIRM GRANULAR 'B' THICKNESS REQUIRED.
- MINIMUM 1.7m COVER FOR WATERMAIN AND WATER SERVICES.
- THE OWNER SHALL GRANT THE NECESSARY EASEMENT(S) TO NORFOLK COUNTY AND PORT DOVER ONTARIO TO ENABLE MAINTENANCE OF THE WATER SERVICES ON SITE AND TO INCLUDE A REQUIREMENT FOR A FIRE HYDRANT MAINTENANCE AGREEMENT FOR THE SITE.
- THE FIRE FLOW DEMAND FOR THE SITE AND WATERMAIN DESIGN SHALL BE CALCULATED IN ACCORDANCE WITH THE SECTION 10.1.1 OF NORFOLK COUNTY DESIGN CRITERIA DATED AUGUST, 2017.



- LIST OF DRAWINGS**
- SG-01 SITE GRADING PLAN
 - SS-01 SERVICING PLAN
 - EC-01 EROSION CONTROL PLAN
 - DD-01 NOTES AND DETAILS
 - DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN
 - DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN
 - XS-01 CROSS SECTION

SITE PLAN INFORMATION	SURVEY INFORMATION
VAN GROLL & ASSOCIATES INC. 2 ST CLARE AVE. W. F18 TORONTO, ONTARIO M6V 1L5 PHONE: (905) 339-2811 EXT 228	RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. Box 4, 1331 Highway #1 East, Unit B, DUNVILLE, ONT. M1A 2K1 DUNVILLE: (905) 761-1188 FORT ERIE: (905) 871-9757

BENCHMARK INFORMATION:
SITE BENCHMARK IS TOP NAT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.32m

SCALE: NOT TO SCALE

CLIENT

1000033566 ONTARIO INC.

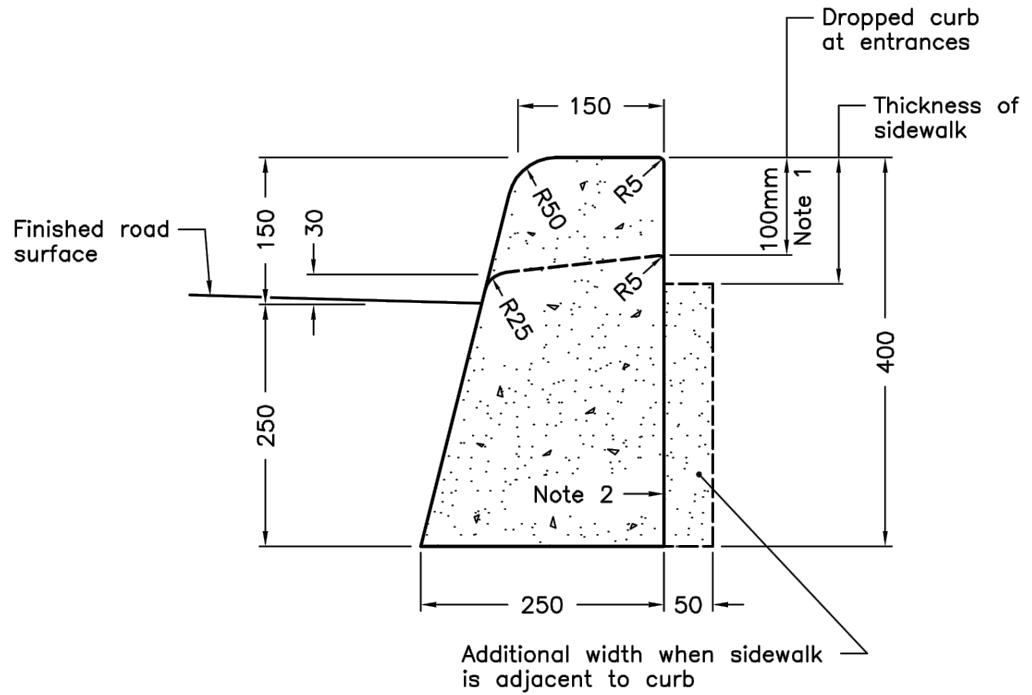
COPYRIGHT

This drawing has been prepared solely for the intended use. This any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES	No.	DESCRIPTION	DATE
	1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND



ONTARIO PROVINCIAL STANDARD DRAWING Nov 2012 Rev 2

CONCRETE BARRIER CURB

OPSD 600.110



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE



www.arcadis.com

PROJECT

ST. ANDREWS MUNICIPAL PARKING LOT

25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:

148728

DRAWN BY:

TC

CHECKED BY:

SS

PROJECT MGR:

IQ

APPROVED BY:

IQ

SHEET TITLE

GENERAL NOTES AND DETAILS

SHEET NUMBER

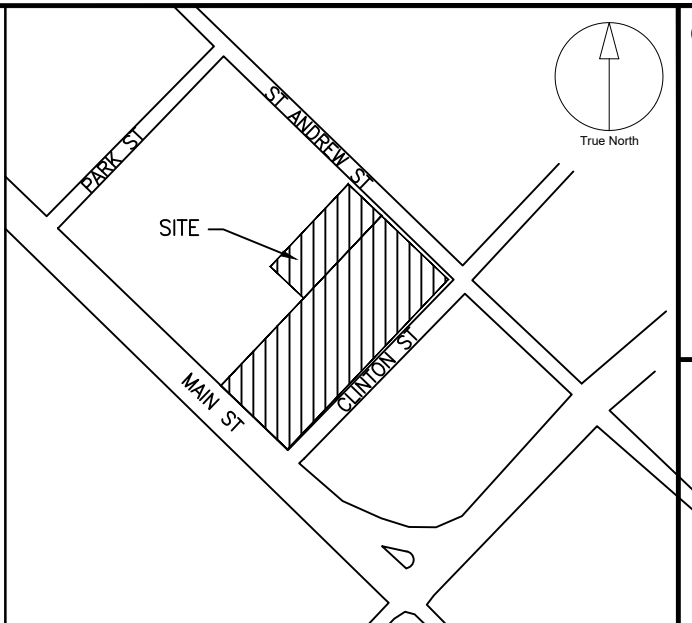
DD-01

ISSUE

01

Appendix E

Proposed Cross-Section



CLIENT

1000033566 ONTARIO INC.

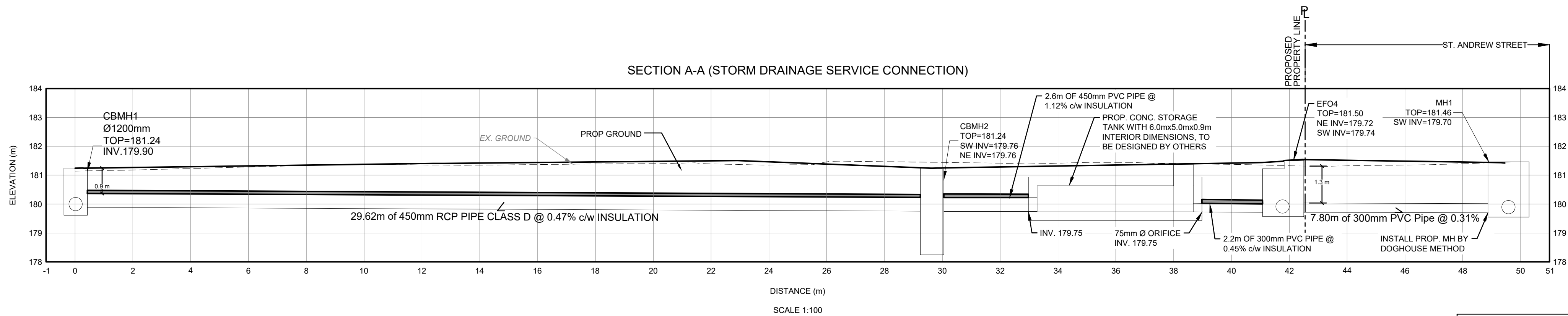
COPYRIGHT

This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND	
PROPERTY LINE	-----
PROPOSED SANITARY MANHOLE	⊗
PROPOSED STORM MANHOLE	⊙
PROPOSED AREA DRAIN	⊗ AD
PROPOSED CATCH BASIN	⊗ CB
EXISTING CATCH BASIN	□
PROPOSED VALVE AND BOX	⊗ V&B
EXISTING FIRE HYDRANT	⊗ EX.FH
PROPOSED SIAMESE CONNECTION	⊗
PROPOSED STORM	-----
PROPOSED SANITARY	-----
PROPOSED WATER	-----
EXISTING COMBINED	-----
EXISTING WATER	-----
EXISTING STORM	-----
PROPOSED DOMESTIC WATER METER	[M]
PROPOSED BACKFLOW PREVENTER	[B]
PROPOSED DOUBLE CHECK DETECTOR ASSEMBLY	[D]



EXISTING UTILITIES TO BE DAYLIGHTED
PRIOR TO CONSTRUCTION TO CONFIRM
LOCATION AND DEPTH. NOTIFY ENGINEER
IF ANY DISCREPANCIES / CONFLICTS ARE
IDENTIFIED. A MINIMUM OF 72 HOURS
BEFORE CONSTRUCTION



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE

ARCADIS
8133 Warden Ave. Unit 300 |
Markham, ON | L6G 1B3 | Canada
www.arcadis.com

PROJECT
**ST. ANDREWS MUNICIPAL
PARKING LOT**
25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:
148728

DRAWN BY: TC	CHECKED BY: SS
PROJECT MGR: IQ	APPROVED BY: IQ

SHEET TITLE
CROSS-SECTION

SHEET NUMBER XS-01	ISSUE 01
------------------------------	--------------------

LIST OF DRAWINGS
SG-01 SITE GRADING PLAN
SS-01 SERVICING PLAN
EC-01 EROSION CONTROL PLAN
DD-01 NOTES AND DETAILS
DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN
DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN
XS-01 CROSS SECTION

SITE PLAN INFORMATION VAN GROLL & ASSOCIATES INC. 2 ST CLARE AVE. W. F18 TORONTO, ONTARIO M6V 1L5 PHONE: (905) 339-2811 EXT 228	SURVEY INFORMATION RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. Box 6, 1331 Highway #8 East, Unit B, DUNWILLIE, ONT. N1A 2X1 DUNWILLIE: 905-774-1188 FORT ERIE: 905-871-9757
--	--

BENCHMARK INFORMATION:
SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.32m

SCALE: 1:100

Appendix F

Stormwater Calculations

Appendix F

IDF Curve Data

Return Period	A	B	C
Norfolk County			
2	529.711	4.501	0.745
5	583.017	3.007	0.703
10	670.324	3.007	0.698
25	721.533	2.253	0.679
50	766.038	1.898	0.668
100	801.041	1.501	0.657

RUNOFF CO-EFFICIENTS Table Per Section 7.8.04 from the Norfolk Design Criteria 2019

Based on Area

Single Family Residential 0.45


Based on Surface

Pavement 0.9

Appendix F

City of Pickering Chicago 25 mm 4 hr Design Storm		
Time		Intensity (mm/hr)
		25mm
0	0:00	0
10	0:10	2.17
20	0:20	2.38
30	0:30	2.66
40	0:40	3.03
50	0:50	3.58
60	1:00	4.47
70	1:10	6.2
80	1:20	12.18
90	1:30	41.67
100	1:40	15.28
110	1:50	9.22
120	2:00	6.88
130	2:10	5.62
140	2:20	4.8
150	2:30	4.21
160	2:40	3.78
170	2:50	3.45
180	3:00	3.18
190	3:10	2.95
200	3:20	2.76
210	3:30	2.62
220	3:40	2.47
230	3:50	2.35
240	4:00	2.23

Appendix F



Prepared by: SN & JT

External Area Composite Runoff Coefficient

25 St Andrew Street, Port Dover

148728

January 2025

EXT01 Previous Application (200 Main Street, Port Dover)

	(ha)		
Total Area:	0.039		
Gravel:	0.019	Coefficient:	0.70
Landscape:	0.019	Coefficient:	0.25
Composite C:	0.48		

EXT01 Exisiting Minus Overlap from A1 (25 St. Andrew Street)

	(ha)		
Total Area:	0.028		
Gravel:	0.014	Coefficient:	0.70
Landscape:	0.014	Coefficient:	0.25
Composite C:	0.48		

Appendix F

Storm Service Connection Sewer Characteristics							
Length (m)	Pipe Dia (inch)	Pipe Dia (mm)	Pipe Type	n	Slope %	Cap full Q (L/s)	Vel. V (m/s)
7.80	-	300	PVC	0.013	0.31	53.8	0.76

Orifice Plate DIA. (mm)	Peak Flow (L/s)	Percent Full (%)
75	8	14.9

Appendix F

Volume of Structures			
Pipes		Volume (m ³)	
	Storage-to-OGS	0.16	
	CBMH2-to-Storage	0.41	
	CBMH1-to-OGS	4.71	
	DCIB1-to-CBMH1	2.33	
	Total	7.61	
Structures		Volume (m ³)	
	DCIB1 (1.2x0.6)	0.76	
	CBMH1 (1200mm Dia)	1.51	
	CBMH2 (1200 mm Dia)	1.67	
	Total	3.95	Grand Total 11.6 m ³

Appendix G

PCSWMM Parameters

Appendix G

PCSWMM SOIL PARAMETERS

Soil Texture Class ⁽¹⁾	Hydraulic Conductivity (mm/hr)	Suction Head (mm)	Porosity	Field Capacity	Wilting Point	Initial Deficit
Silty Clay	0.51	290.07	0.479	0.371	0.251	0.228

⁽¹⁾ Using the Conservative estimate of Silty Clay, as MTI Consultants Inc. Geotechnical Report native soils were predominantly clayey silt and silt overlying silt, clay and clayey silt made up the composition of the glacial till deposits.

Appendix G

PCSWMM PARAMETERS

EXISTING							
1	2	3	4	5	6	7	8
CA ID #	TOTAL AREA (ha)	R.C. (-)	% IMPERV.	MAX ELEV. (m)	MIN ELEV. (m)	FLOW LENGTH (m)	SLOPE (%)
A1PRE	0.060	0.45	30.77	181.40	181.20	34.64	0.58
A2PRE	0.040	0.45	30.77	181.40	181.20	27.21	0.74
EXT01	0.028	0.48	34.62	181.97	180.99	18.86	5.20
PROPOSED							
1	2	3	4	5	6	7	8
CA ID #	TOTAL AREA (ha)	R.C. (-)	% IMPERV.	MAX ELEV. (m)	MIN ELEV. (m)	FLOW LENGTH (m)	SLOPE (%)
A1POST	0.060	0.90	100.00	181.70	180.79	29.06	1.10
A2POST	0.040	0.90	100.00	181.70	180.96	24.65	1.70
EXT01	0.028	0.48	34.62	181.97	180.99	18.86	5.20

Appendix H

Stormceptor OGS Model Specifications

Stormceptor® EF Sizing Report

Imbrium® Systems

ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

01/15/2025

Province:	Ontario	Project Name:	25 St. Andrew Street,
City:	Port Dover, Norfolk County	Project Number:	148728
Nearest Rainfall Station:	BRANTFORD MOE	Designer Name:	James Taylor
Climate Station Id:	6140954	Designer Company:	Arcadis
Years of Rainfall Data:	41	Designer Email:	james.nodwelltaylor@arcadis.com
		Designer Phone:	519-831-1685
Site Name:		EOR Name:	
		EOR Company:	
Drainage Area (ha):	0.10	EOR Email:	
Runoff Coefficient 'c':	0.90	EOR Phone:	

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0
Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	3.27
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	134
Estimated Average Annual Sediment Volume (L/yr):	109

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	97
EFO5	99
EFO6	100
EFO8	100
EFO10	100
EFO12	100

Recommended Stormceptor EFO Model: **EFO4**
 Estimated Net Annual Sediment (TSS) Load Reduction (%): **97**
 Water Quality Runoff Volume Capture (%): **> 90**

Stormceptor® EF Sizing Report

THIRD-PARTY TESTING AND VERIFICATION

► **Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

► **Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

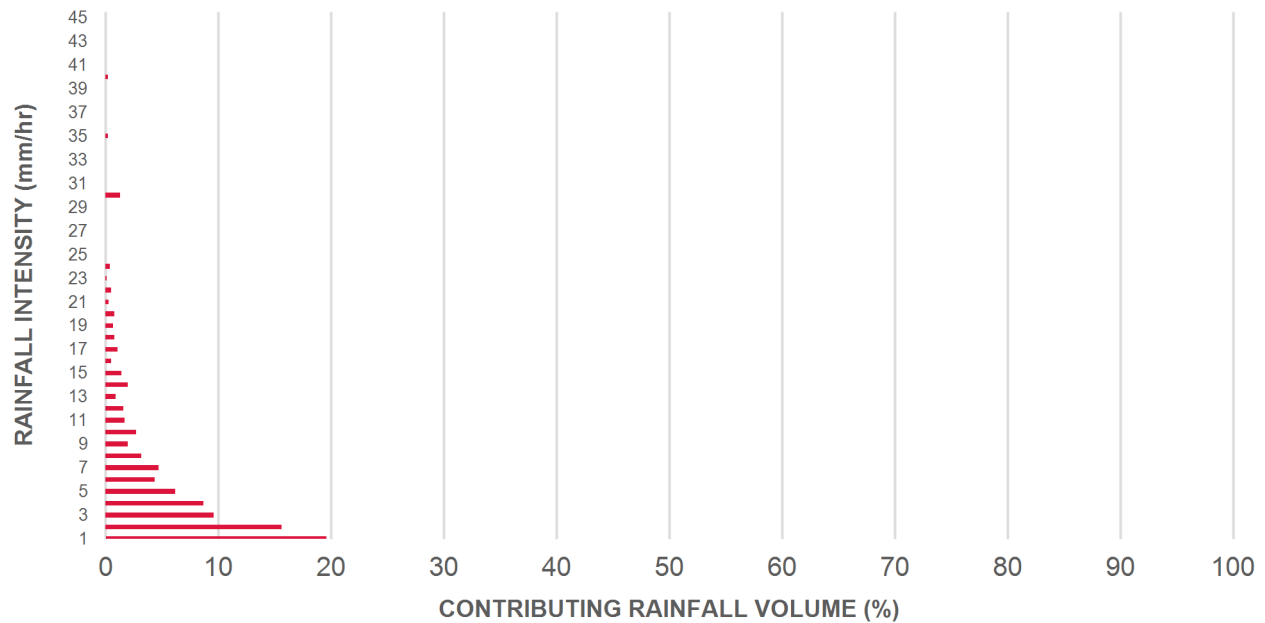
Stormceptor®EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	9.1	9.1	0.13	8.0	6.0	100	9.1	9.1
1.00	19.6	28.8	0.25	15.0	13.0	100	19.6	28.8
2.00	15.6	44.4	0.50	30.0	25.0	100	15.6	44.4
3.00	9.6	54.0	0.75	45.0	38.0	100	9.6	54.0
4.00	8.7	62.7	1.00	60.0	50.0	100	8.7	62.7
5.00	6.2	68.9	1.25	75.0	63.0	100	6.2	68.9
6.00	4.4	73.3	1.50	90.0	75.0	100	4.4	73.3
7.00	4.7	77.9	1.75	105.0	88.0	98	4.6	77.8
8.00	3.2	81.1	2.00	120.0	100.0	96	3.1	80.9
9.00	2.0	83.1	2.25	135.0	113.0	95	1.9	82.8
10.00	2.7	85.7	2.50	150.0	125.0	93	2.5	85.3
11.00	1.7	87.4	2.75	165.0	138.0	92	1.5	86.8
12.00	1.6	89.0	3.00	180.0	150.0	89	1.4	88.2
13.00	0.9	89.8	3.25	195.0	163.0	88	0.8	88.9
14.00	2.0	91.8	3.50	210.0	175.0	87	1.7	90.7
15.00	1.4	93.2	3.75	225.0	188.0	86	1.2	91.9
16.00	0.5	93.7	4.00	240.0	200.0	83	0.4	92.3
17.00	1.1	94.8	4.25	255.0	213.0	83	0.9	93.1
18.00	0.8	95.5	4.50	270.0	225.0	82	0.6	93.8
19.00	0.7	96.2	4.75	285.0	238.0	82	0.6	94.3
20.00	0.8	97.0	5.00	300.0	250.0	81	0.7	95.0
21.00	0.3	97.4	5.25	315.0	263.0	80	0.3	95.3
22.00	0.5	97.8	5.50	330.0	275.0	80	0.4	95.6
23.00	0.1	97.9	5.75	345.0	288.0	79	0.1	95.7
24.00	0.4	98.3	6.00	360.0	300.0	78	0.3	96.0
25.00	0.0	98.3	6.26	375.0	313.0	78	0.0	96.0
30.00	1.3	99.6	7.51	450.0	375.0	75	1.0	97.0
35.00	0.2	99.8	8.76	525.0	438.0	72	0.1	97.1
40.00	0.2	100.0	10.01	600.0	500.0	69	0.1	97.3
45.00	0.0	100.0	11.26	676.0	563.0	66	0.0	97.3
Estimated Net Annual Sediment (TSS) Load Reduction =								97 %

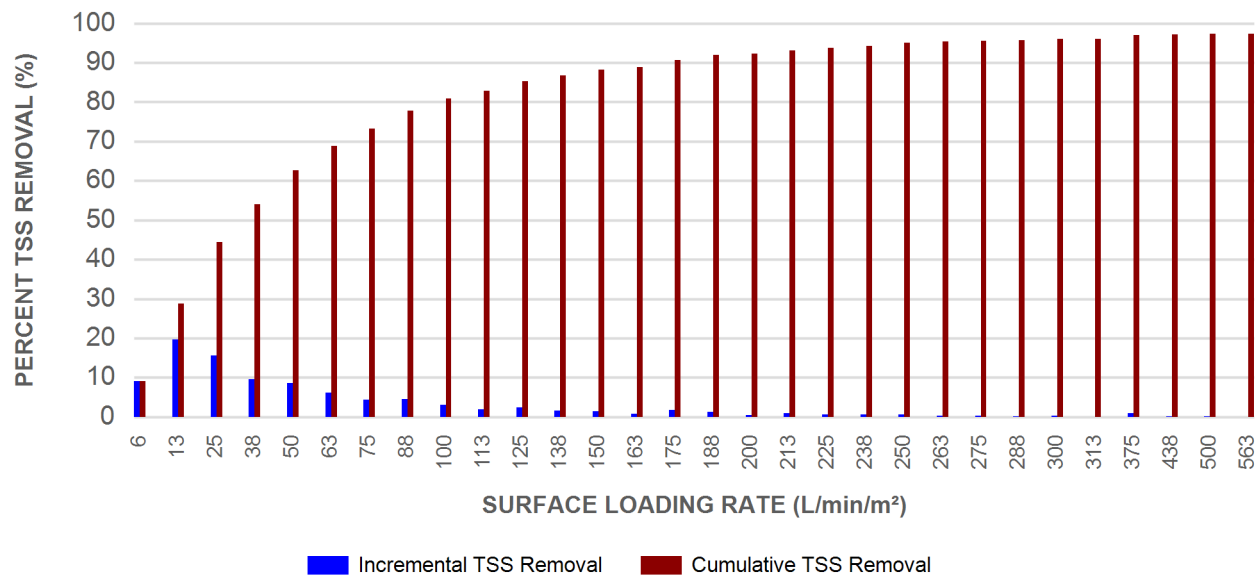
Climate Station ID: 6140954 Years of Rainfall Data: 41

Stormceptor®EF Sizing Report

RAINFALL DATA FROM BRANTFORD MOE RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Stormceptor® EF Sizing Report

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

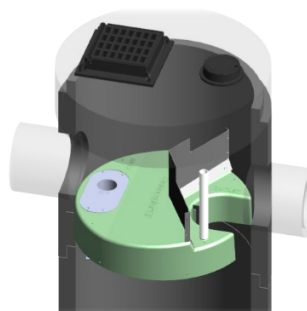
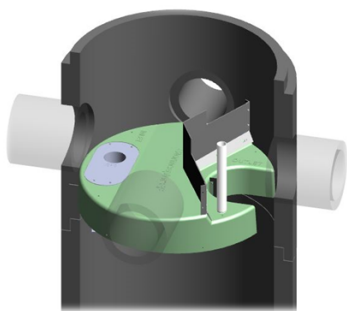
► **Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

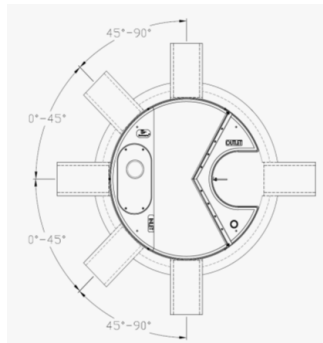
► **Stormceptor® EF and EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



Stormceptor® EF Sizing Report



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1.

For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m ³ sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

Stormceptor®EF Sizing Report

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid

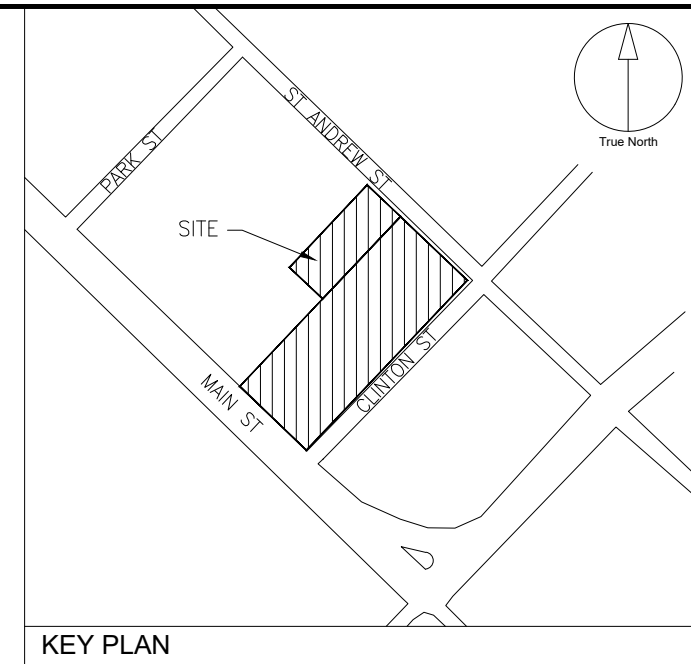
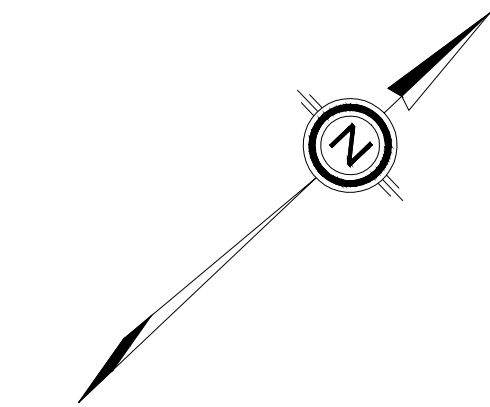
Stormceptor®EF Sizing Report

Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Appendix I

Erosion and Sediment Control Plan



<p>CALIENT</p> <p>1000033566 ONTARIO INC.</p>
<p>COPYRIGHT</p> <p>This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Within dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop-drawings shall be submitted by ARCADIS for general concurrence before proceeding with fabrication.</p> <p>ARCADIS PROFESSIONAL SERVICES (CANADA) INC.</p> <p>is a member of ARCADIS Group of companies</p>

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND

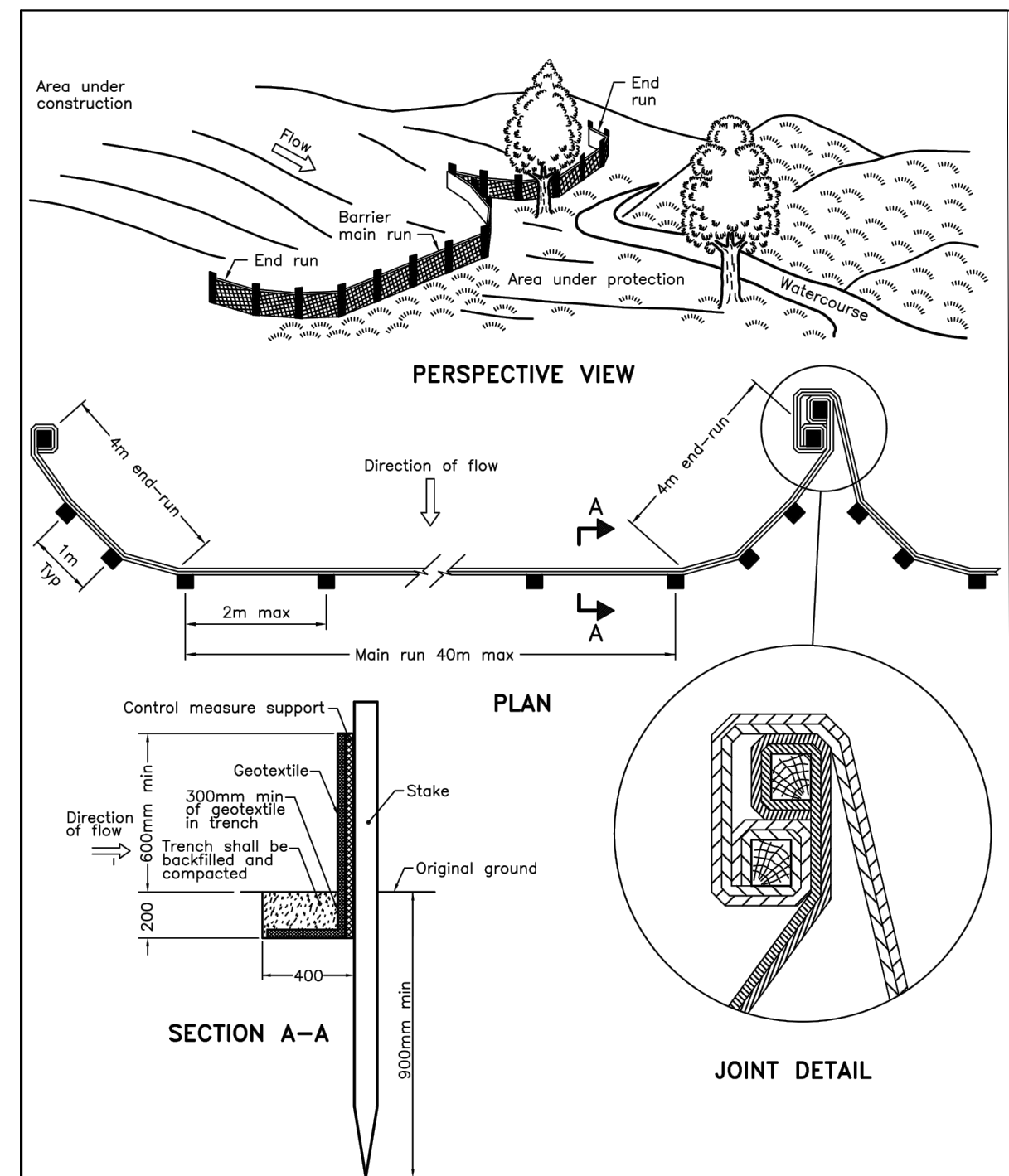

PROPERTY LINE

TEMPORARY SILT FENCE


PROPOSED SEDIMENT TRAP

TEMPORARY GRAVEL MUD MAT

EXISTING OVERLAND FLOW ROUTE



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3	
HEAVY-DUTY SILT FENCE BARRIER			
	OPSD 219.130		



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY
STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS
VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE



www.arcadis.com

PROJECT

**ST. ANDREWS MUNICIPAL
PARKING LOT**

25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

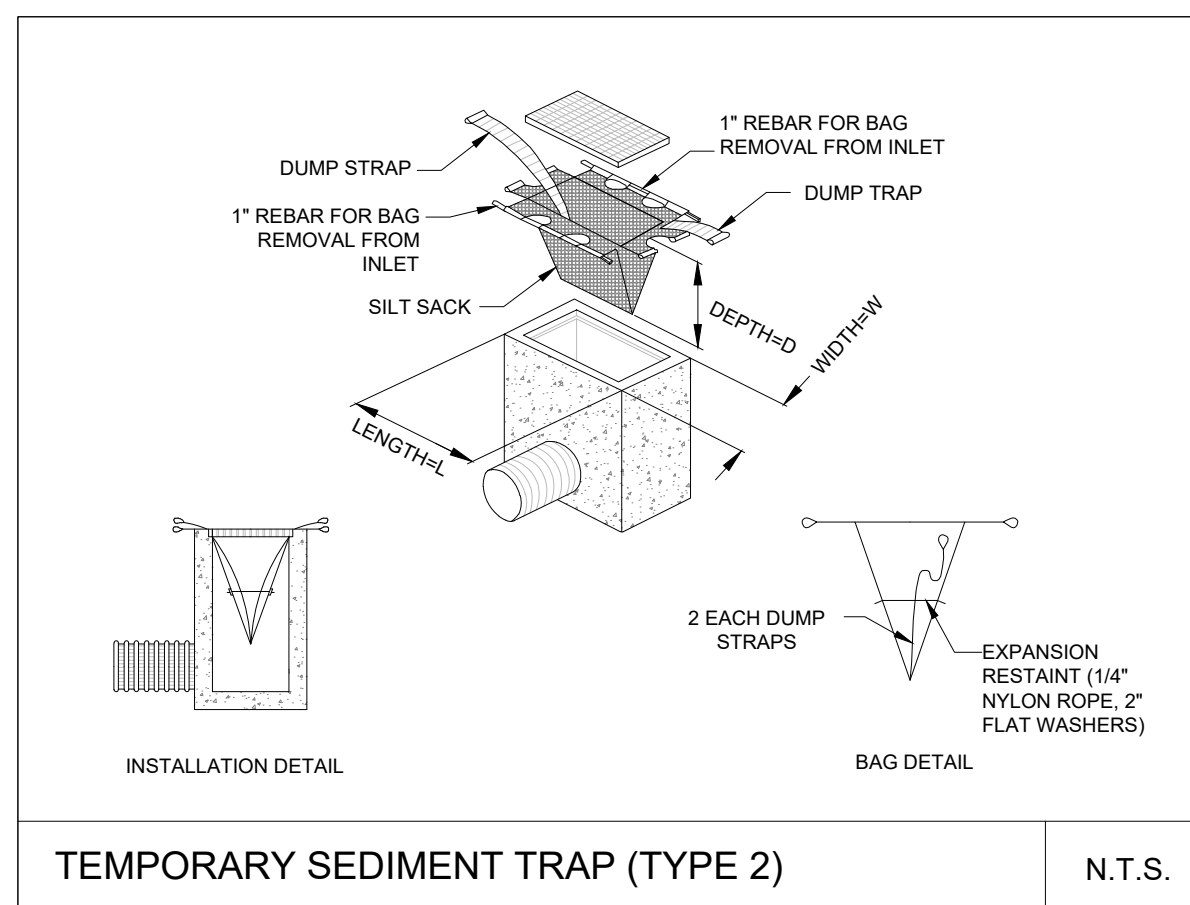
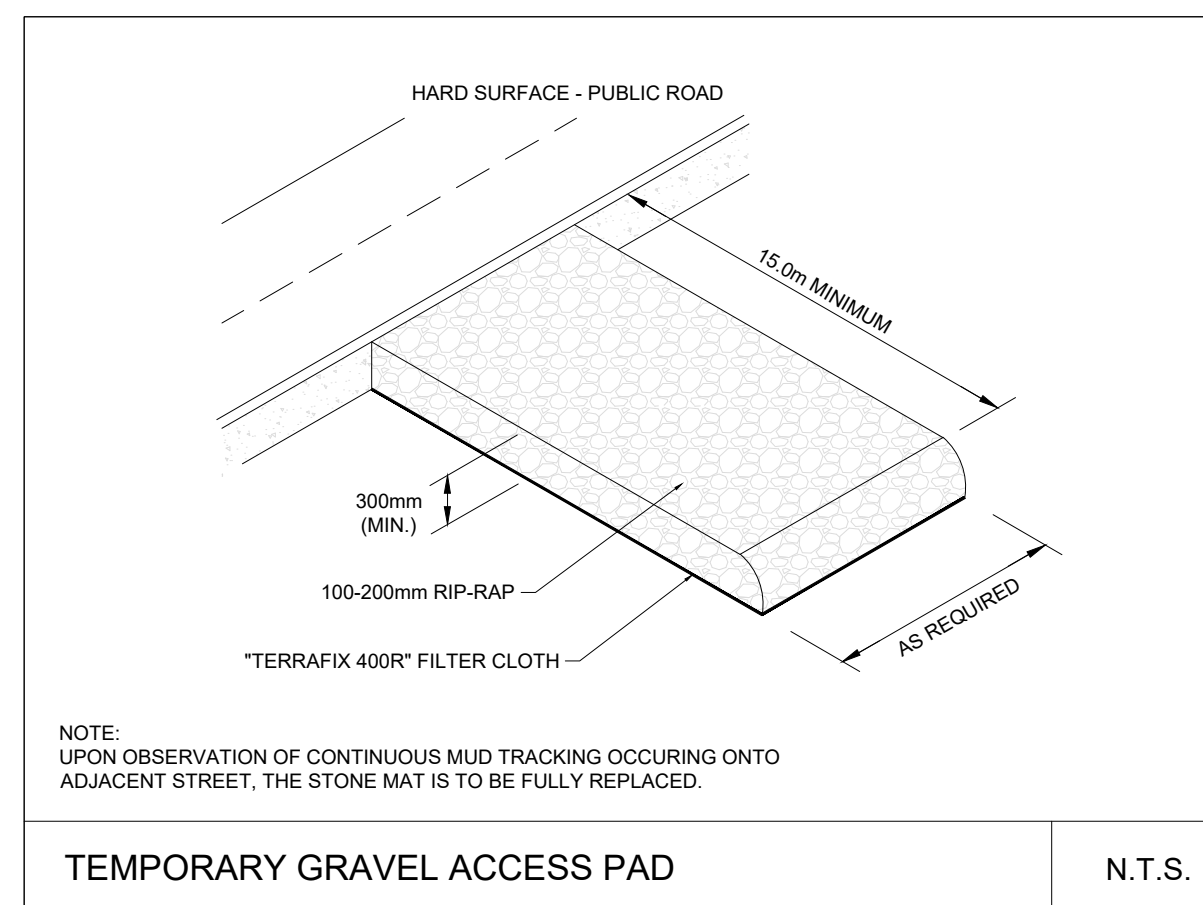
PROJECT NO: 148728	
DRAWN BY: TC	CHECKED BY: SS
PROJECT MGR: IQ	APPROVED BY: IQ

EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER	ISSUE
ESC-01	01

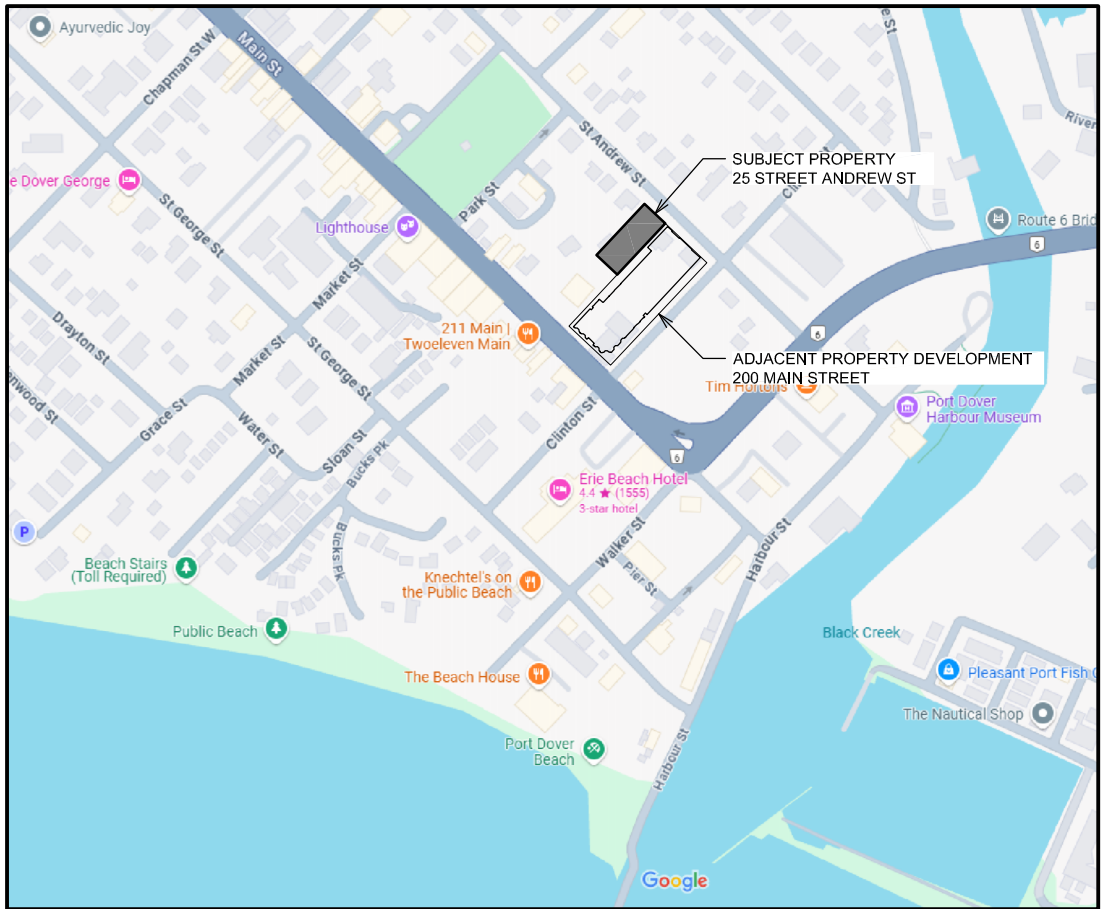
- EROSION AND SEDIMENT CONTROL / GENERAL
NOTES:

1. SEDIMENT BARRIER AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF THE CONSTRUCTION.
2. ALL SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL THE AREA IS STABILIZED.
3. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
4. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
5. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
6. WILL COMPLY WITH CITY OF PORT DOVER NOISE BY-LAW.
7. SEDIMENT CONTROL FENCE TO BE AS PER OPSD 219 130.
8. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION ACCESS.
9. ALL TOPSOIL STOCKPILES TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING.
10. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS AND AREA DRAINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS AND DRIVEWAYS OR BACKLAYS ARE FULLY PAVED AND SLODGED. FILTER FABRIC FOR SILT CONTROL TO BE TYPHLOX 270G OR APPROVED EQUIVALENT.
11. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS ON (PUBLIC STREET) ACROSS THE PROPERTY'S FRONTAGE.
12. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCE, SEDIMENT CONTROL AND MUD MATS
13. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.



LIST OF DRAWINGS SG-01 SITE GRADING PLAN SS-01 SERVING PUMP EC-01 EROSION CONTROL PLAN DD-01 NOTES AND DETAILS DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN XS-01 CROSS SECTION	
SITE PLAN INFORMATION VAN ROOIJ & ASSOCIATES INC. 1000 W. F18 TORONTO, ONTARIO M1S 1F6 PHONE: (905) 399-2811 EXT 228	SURVEY INFORMATION RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. BOX 8, 1333 Highway #3 East, Unit 10 DUNVILLE, ONT. M1A 2X1 DUNVILLE: 905-774-7188 FORT ERIE: 905-871-49757
BENCHMARK INFORMATION: SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTH/WESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 162.23mm.	
SCALE:	





KEYPLAN
SCALE: N.T.S.

1.0 OWNER	ARCHITECT:	
100033566 ONTARIO INC.	VAN GROLL & ASSOCIATES INC.	
2 ST. CLAIR AVE. W. F18	130 VICTORIA ROAD	
VICTORIA, ON	TORONTO, ONTARIO	
N0E 1W0	M4V 1L5	
	ATTN: Elroy Van Groll	
	Tel: 905-339-2811 EXT 228	
2.0 PROJECT LOCATION	25 ST. ANDREW STREET, PORT DOVER,	
ONTARIO, N0A 1N0		
3.0 LEGAL DESCRIPTION	LOTS 31, 32, 33 & 34, BLOCK 50, REGISTERED PLAN 207	
NORFOLK COUNTY (FORMERLY TOWN OF PORT DOVER)		
4.0 ZONING CATEGORY	CENTRAL BUSINESS ZONE	
5.0 PROPOSED USE	MUNICIPAL PARKING LOT	
6.0 LOT AREA	METRIC (SQ.M)	IMPERIAL (SQ.F)
EXISTING LOT AREA	1,013	10,904
7.0 PROPOSED COVERAGE	METRIC (SQ.M)	IMPERIAL (SQ.F)
PROPOSED NEW BUILDING AREA	-209	-2,250
PERCENTAGE LOT COVERAGE	0	0
13.0 PARKING CALCULATION	PARKING IS BEING PROVIDED AS AGREED BETWEEN OWNER AND CITY AS PART OF LAND TRANSFER AND DEVELOPMENT.	
PARKING PROVIDED ON SITE	30 SPACES	

ZONING COMPLIANCE CHART		
SITE INFORMATION	ZONING	PROPOSED
Lot frontage	N/A	20.30m
Lot depth	N/A	49.99m
Lot width	N/A	20.26m
Lot area	N/A	1,013.22sq.m
Lot coverage	80%	N/A
Front yard	0m	N/A
Rear yard	0m	N/A
Left interior side yard	0m	N/A
Right interior side yard	0m	N/A
Exterior side yard (corner lot)	0m	N/A
Landscaped open space	N/A	88.51sq.m
Entrance access width	N/A	7.3m
Exit access width	N/A	7.3m
Size of fencing or screening	N/A	N/A
Type of fencing	N/A	N/A

SITE PLAN NOTES	
GENERAL NOTES FOR DEVELOPMENT PLAN:	
DASHED - DOT STYLE LINE TYPE - - - - - THROUGHOUT THIS DRAWING INDICATES EXISTING MATERIALS TO BE REMOVED. THIS DRAWING MAY NOT REPRESENT ALL MATERIALS TO BE REMOVED. SITE VERIFY EXISTING SITE CONDITIONS. REMOVE ALL MATERIALS AS REQUIRED TO DO WORK IDENTIFIED ON ALL SETS OF DRAWINGS. THIS DRAWING IS GENERATED FROM THE SITE SURVEY NOTED WITHIN. SEE SITE SURVEY FOR ALL EXISTING MATERIALS AND STRUCTURES.	
HEAVY LONG-DASHED LINE INDICATES EXISTING PROPERTY LINE. SEE ALSO SURVEY.	
OUTLINE OF EXISTING BUILDING ON SITE TO BE REMOVED. CAP AND PRESERVE EXISTING SERVICES FOR REUSE OR ABANDON OR REMOVE AS PER SITE SURVEY DRAWINGS.	
LIGHT SOLID HATCHED AREA INDICATES NEW ASPHALT PAVING. MAKEUP OF ASPHALT PARKING LOT TO BE DIRECTED BY GEOTECHNICAL ENGINEER DURING THE PROCESS OF CONSTRUCTION. GEOTECH TO REVIEW MODIFIED SOIL CONDITION AND ADVISE ON MAKEUP OF BASE AND ASPHALT LAYERS. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION AND GRADING.	
INSTALL NEW CONCRETE CURBS TO MEET NORFOLK COUNTY MUNICIPAL STANDARDS. SEE ALSO CIVIL DRAWINGS FOR SPECIFICATIONS. MATCH AND BLEND WITH EXISTING CURBS WHERE ADJOINING.	
INSTALL NEW 2.1m WIDE POURED CONCRETE SIDEWALK TO MEET NORFOLK COUNTY MUNICIPAL STANDARDS. SEE ALSO CIVIL DRAWINGS FOR SPECIFICATIONS. MATCH AND BLEND WITH EXISTING SIDEWALK WHERE ADJOINING.	
PROPOSED SIDEWALK ALIGNMENT IS INTENDED TO ALIGN WITH ADJACENT SITE PROPOSAL AT 200 MAIN STREET PROPERTY. PROPOSED SIDEWALK IS MOVED OUT TO EDGE OF ROAD ON THAT PROPOSAL TO PROVIDE SAFER PEDESTRIAN PASSAGE THROUGH VEHICLE PARKING GARAGE ENTRANCES.	
INSTALL AND CONTINUE NEW 2.1m WIDE POURED CONCRETE SIDEWALK THROUGH SITE ENTRANCE AS INDICATED. ASPHALT TO MATCH SIDEWALK ELEVATION ON EACH SIDE. SEE ALSO CIVIL DRAWINGS.	
BLEND NEW SIDEWALK INTO ADJACENT EXISTING SIDEWALK.	
INSTALL NEW 2.1m WIDE POURED CONCRETE PEDESTRIAN CONNECTION WALKWAY TO NEW PARKING LOT ON ADJACENT SITE TO MEET NORFOLK COUNTY MUNICIPAL STANDARDS. ENSURE WALKWAY MEETS OBC PATH OF TRAVEL REQUIREMENTS OF 1:20 MAXIMUM SLOPE. SEE ALSO CIVIL DRAWINGS FOR SPECIFICATIONS.	
SLOPE CONCRETE WALKWAY DOWN TO FLUSH CURB AT ASPHALT PARKING FOR BARRIER FREE PATH OF TRAVEL FROM PARKING LOT TO WALKWAY. 1:12 MAXIMUM SLOPE.	
INSTALL NEW ACCESSIBLE PARKING SPACE SIGN AT ALL BARRIER FREE PARKING SPACES TO MEET REQUIREMENTS OF NORFOLK COUNTY.	
INSTALL PAINTED CROSS HATCH PATTERN AT NEW ACCESSIBLE PARKING SPACE TRANSFER AREA TO MEET REQUIREMENTS OF NORFOLK COUNTY.	
RED DASHED CIRCLE INDICATES EXISTING HYDRO POLE TO BE REMOVED AND REPLACED. EXISTING HYDRO LINES TO BE RE-ROUTED TO NEW POLE LOCATIONS, OR BURIED UNDERGROUND. SEE ELECTRICAL DRAWINGS FOR FULL EXTENT OF REMOVALS AND REPLACEMENT.	
SOLID HATCHED CURBS INDICATE PROPOSED RETAINING. SEE CIVIL DRAWINGS FOR RETAINING DESIGN.	
BUBBLE HATCHED AREA INDICATES PARKING SPACE TO BE USED AS SNOW STORAGE LOCATION.	

SYMBOLS LEGEND		
SITE LIGHT FIXTURES. SEE EXTERIOR LIGHTING LAYOUT DRAWING BY 'J' + 'B' ENGINEERING INC.		
WALL	LIGHT	LIGHT
PACK	STANDARD	STANDARD
SITE TRAFFIC DIRECTION ARROW		
BUILDING VEHICLE ENTRANCE/EXIT (LARGE SYMBOL WITH 'V')		
BUILDING PEDESTRIAN ENTRANCE/EXIT (SMALL SYMBOL)		
PRIMARY PEDESTRIAN ENTRANCE/EXIT		
FIRE DEPARTMENT SIAMSE CONNECTION		
SITE SIGNS (IE: ACCESSIBLE, FIRE ROUTE)		
BIKE RACK		
FIRE HYDRANT		

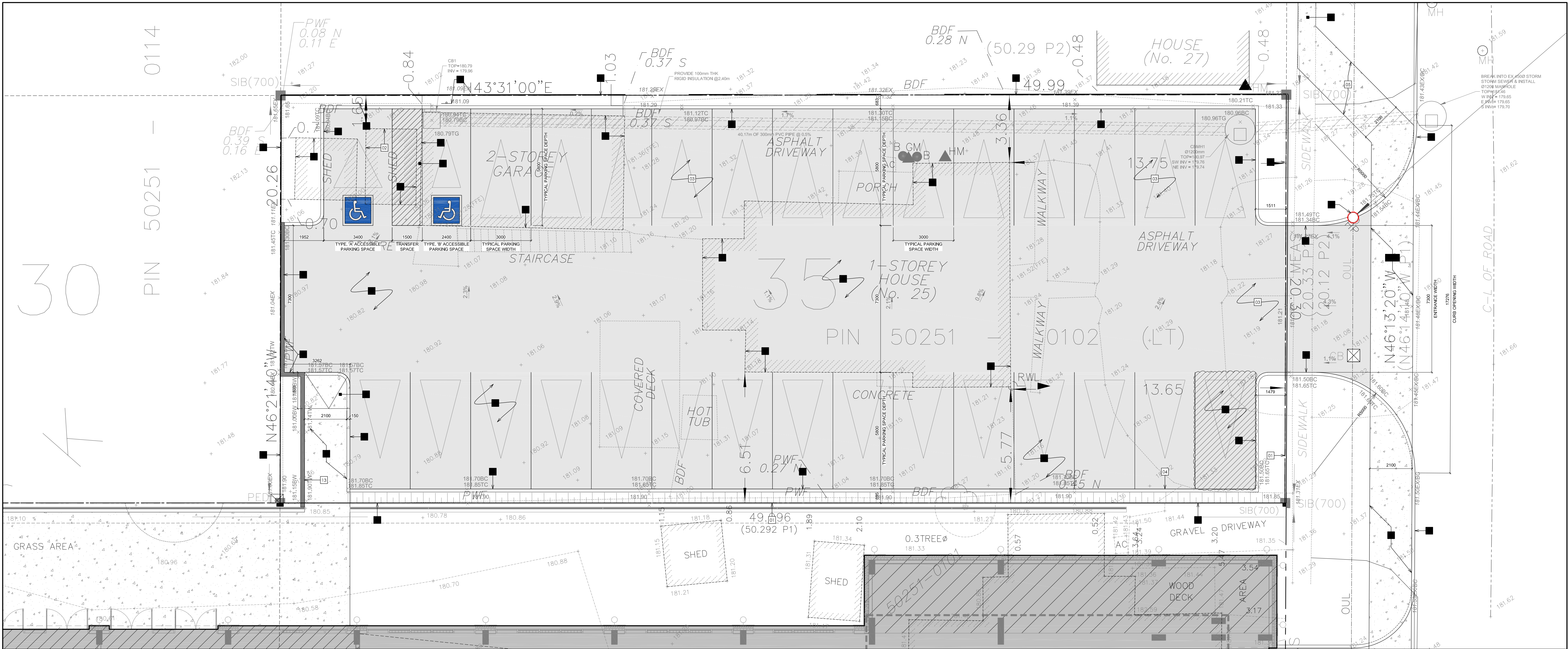
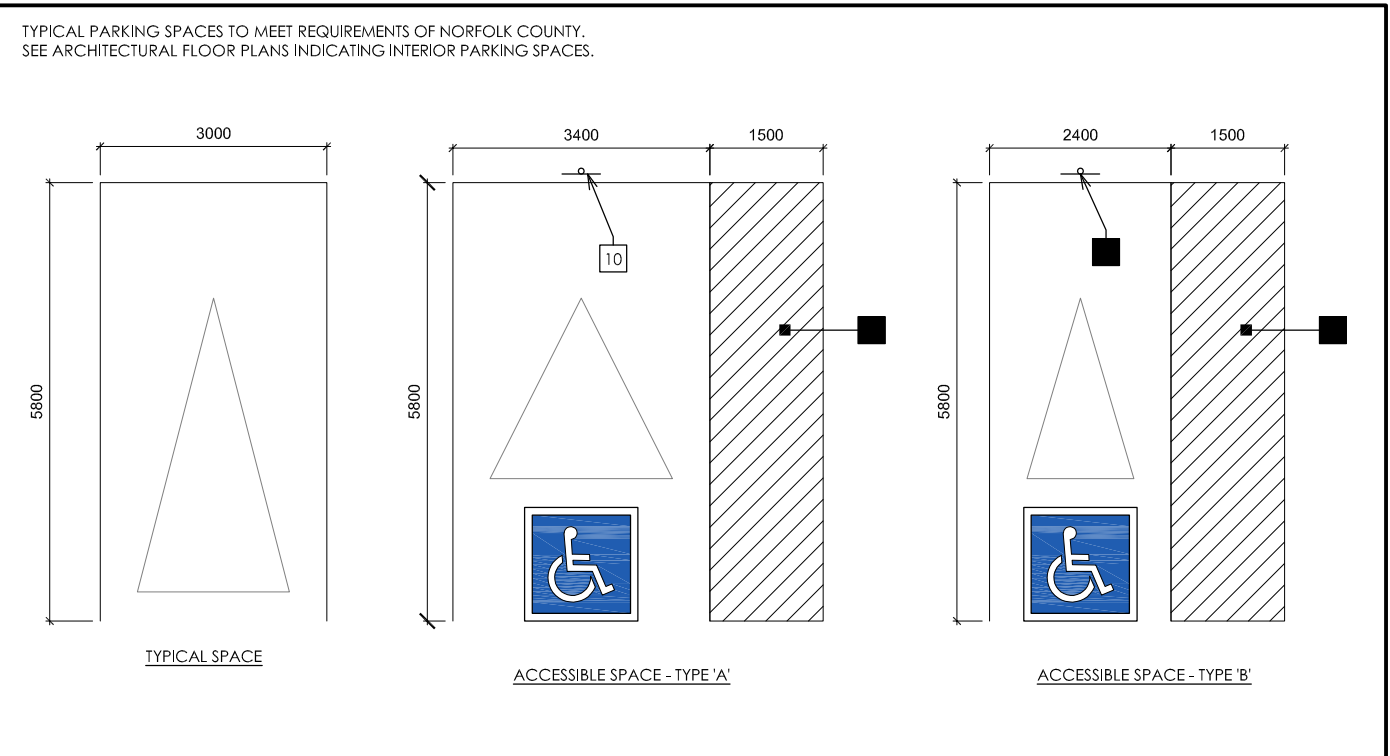
SURVEY DATA	
SURVEY DATA FOR THIS SITE WAS TAKEN FROM:	
SURVEYOR'S REAL PROPERTY REPORT	
PLAN OF SURVEY WITH TOPOGRAPHY OF	
LOTS 31, 32, 33 & 34, BLOCK 50, REGISTERED PLAN 207	
NORFOLK COUNTY (FORMERLY TOWN OF PORT DOVER)	
TOWN OF PORT DOVER, NORFOLK COUNTY	
DATED SEPTEMBER 2, 2022	
MAGALAY, WHITE & MUIR LTD.	
ONTARIO LAND SURVEYORS	
440 HARDY ROAD, UNIT 2, BRANTFORD,	
ONTARIO N6T 5L6	
TEL: (519) 752-0040 FAX: (519) 752-0087	
E-MAIL: mmsurvey@bnel.ca	

DRAWINGS MUST **NOT** BE SCALED. CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS, SPECIFICATIONS AND DRAWINGS ON SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH ANY OF THE WORK.

STAMP: **ONTARIO ASSOCIATION OF ARCHITECTS**
ELROY VAN GROLL
LICENCE 4707

PROJECT NORTH:

TRUE NORTH:



SITE PLAN
SCALE: 1:100

01	ISSUED FOR SITE PLAN APPROVAL	CH	25.01.31
NO.	DESCRIPTION	BY	DATE

VG & A van Groll & Associates Inc.
2 St. Clair Avenue W., F18
Toronto, ON, M4V 1L5
905 339 2811
vangrollassociates.com

CLIENT:

PROJECT:

**ST. ANDREWS
MUNICIPAL PARKING
LOT**

ADDRESS: 25 ST. ANDREW STREET
PORT DOVER, ON
N0A 1N0

DRAWING TITLE:

SITE PLAN

DATE: 25.01.31

DRAWN: CH

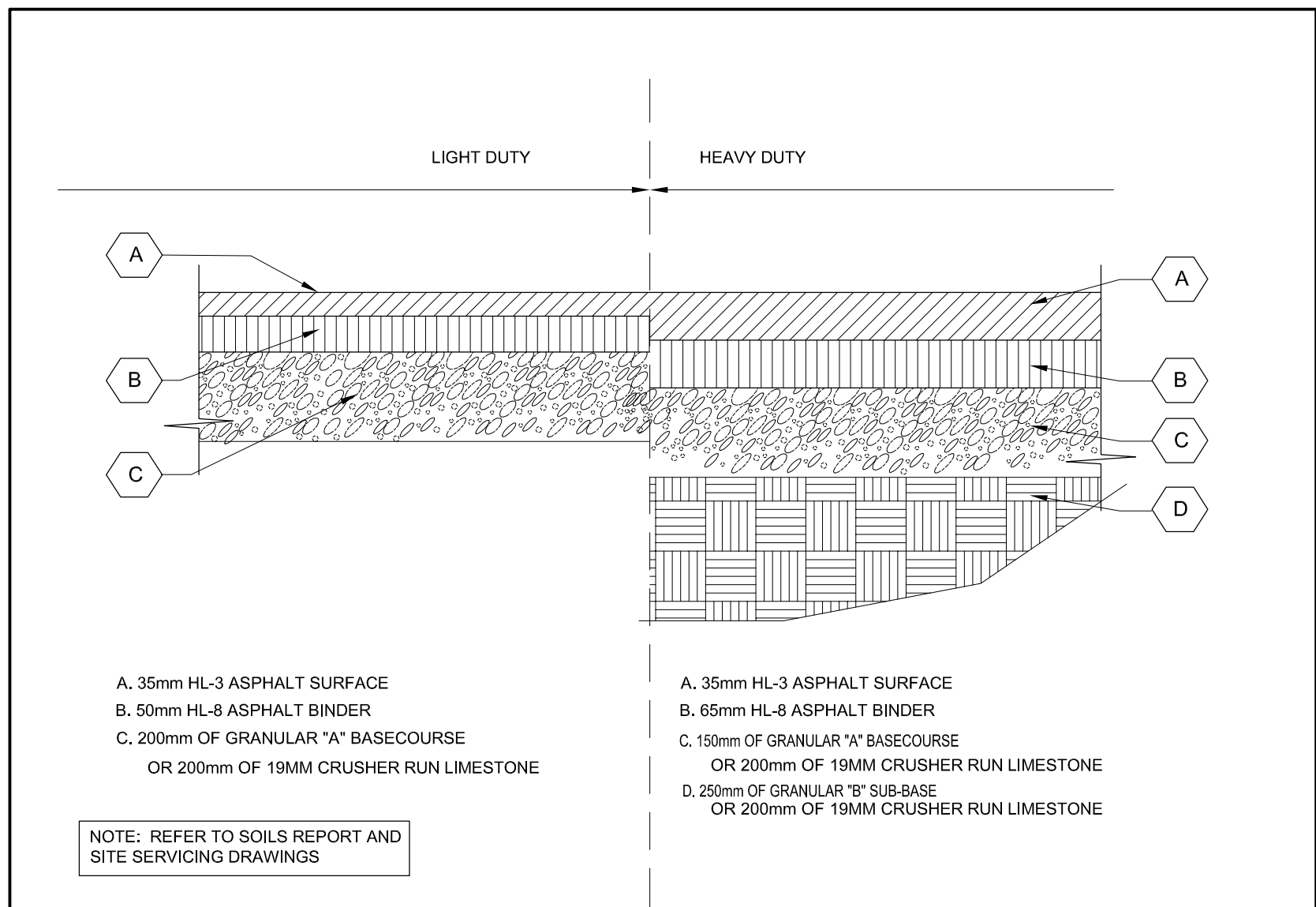
JOB NUMBER:

SCALE: 1 : 100

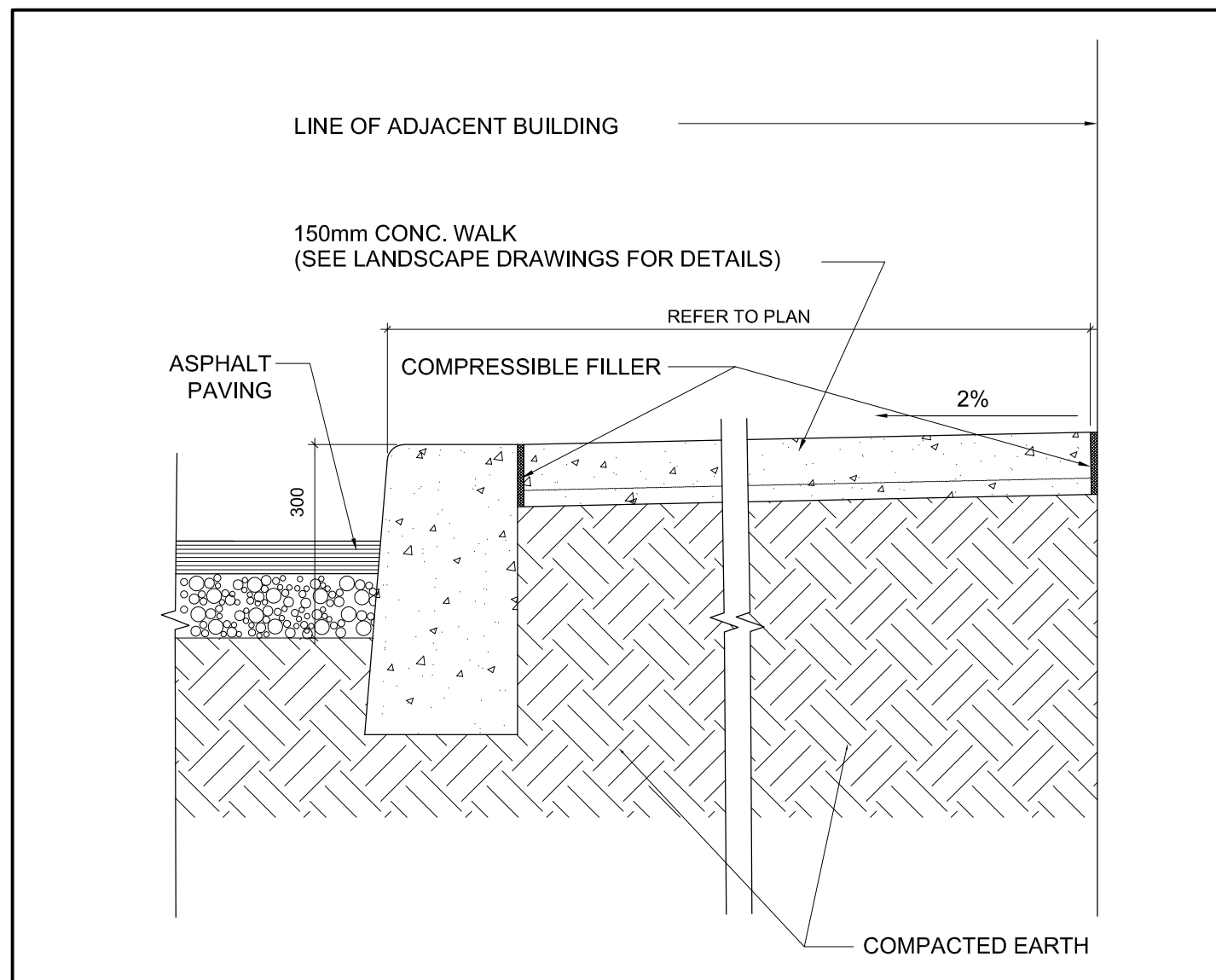
SHEET NUMBER:

171-050

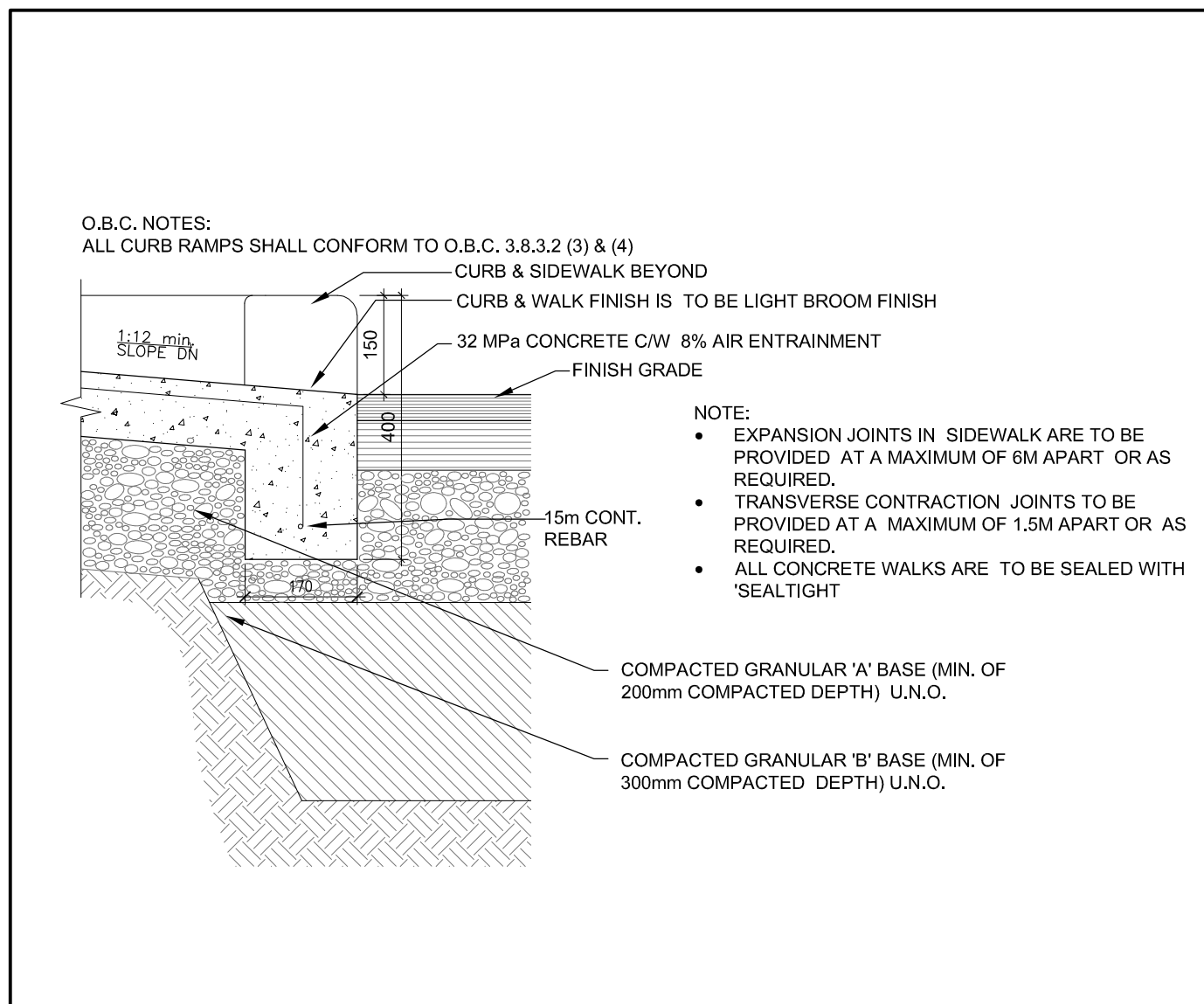
A1.0



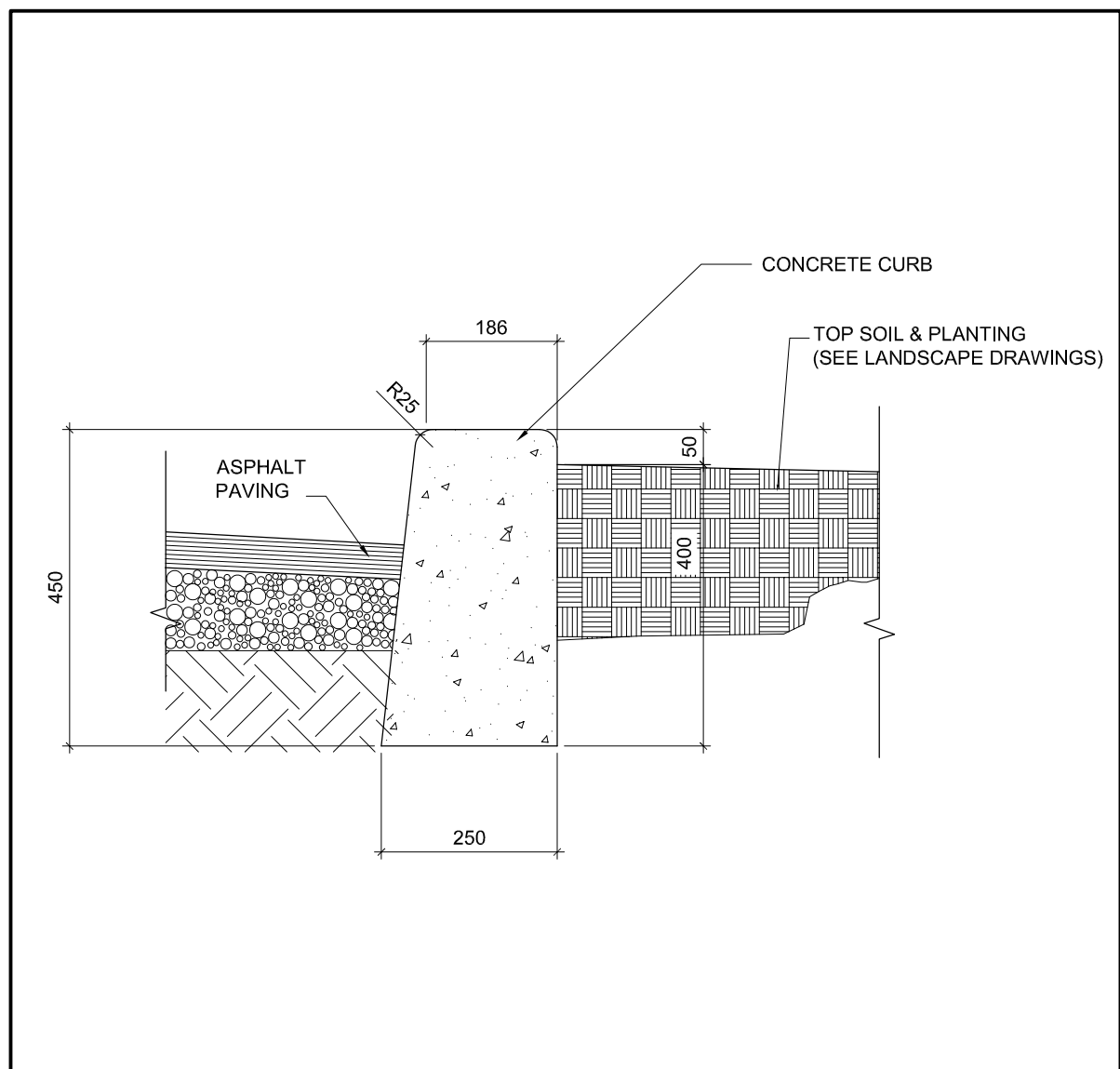
11 TYPICAL PAVING DETAIL
SCALE: 1:10



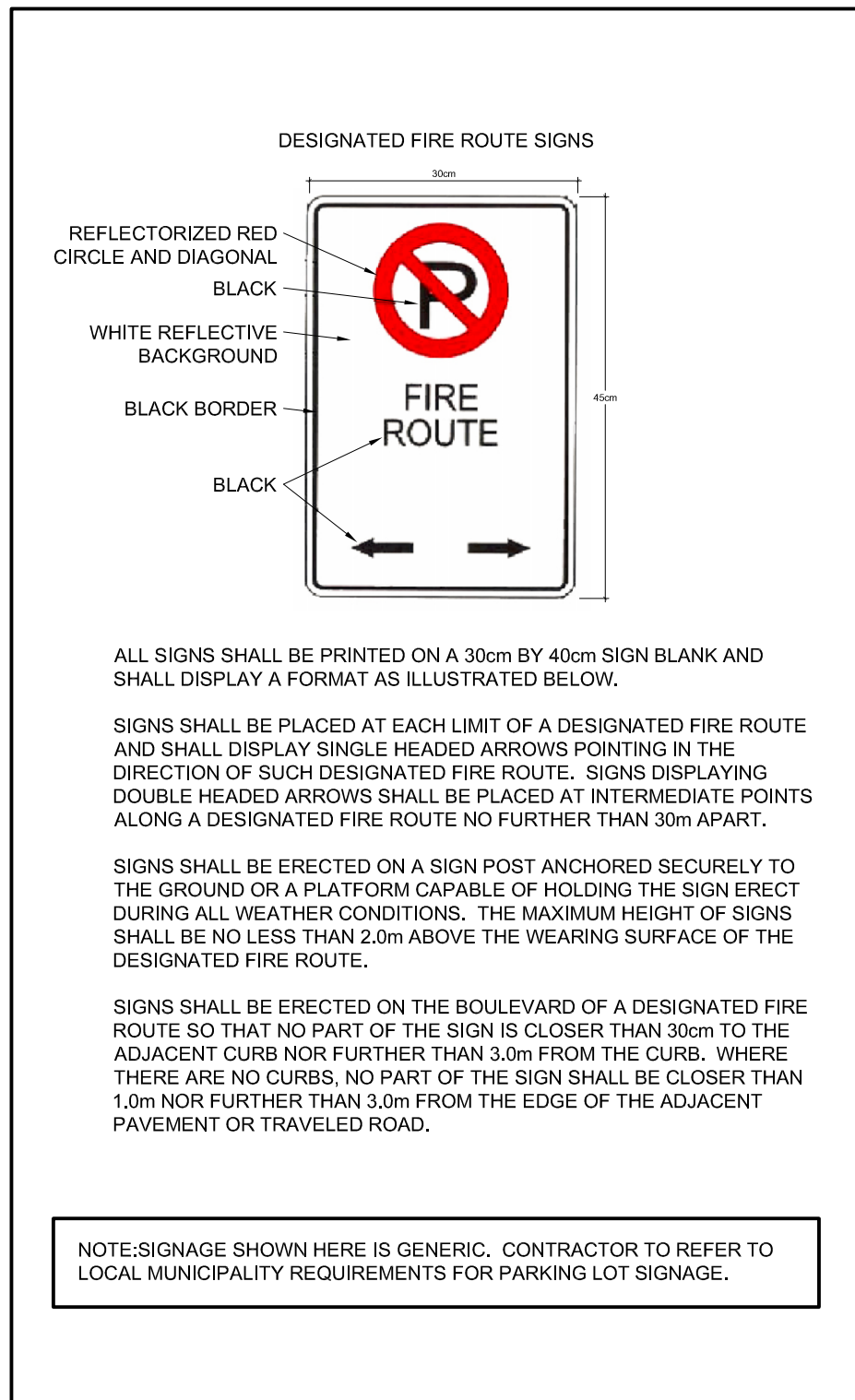
10 TYPICAL CONCRETE CURB AT WALKWAY DETAIL
SCALE: 1:10



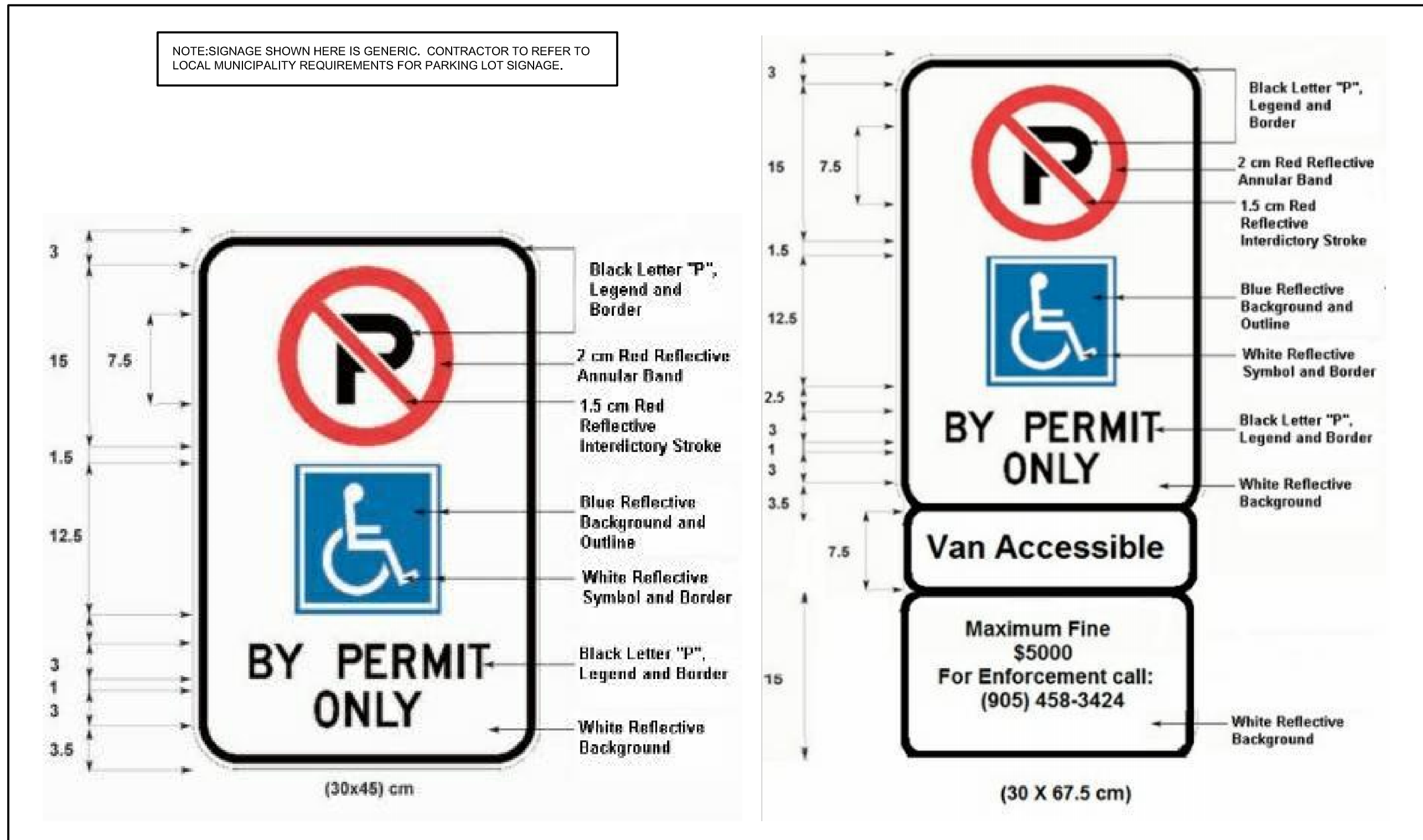
09 RAMP BASE DETAIL
SCALE: 1:10



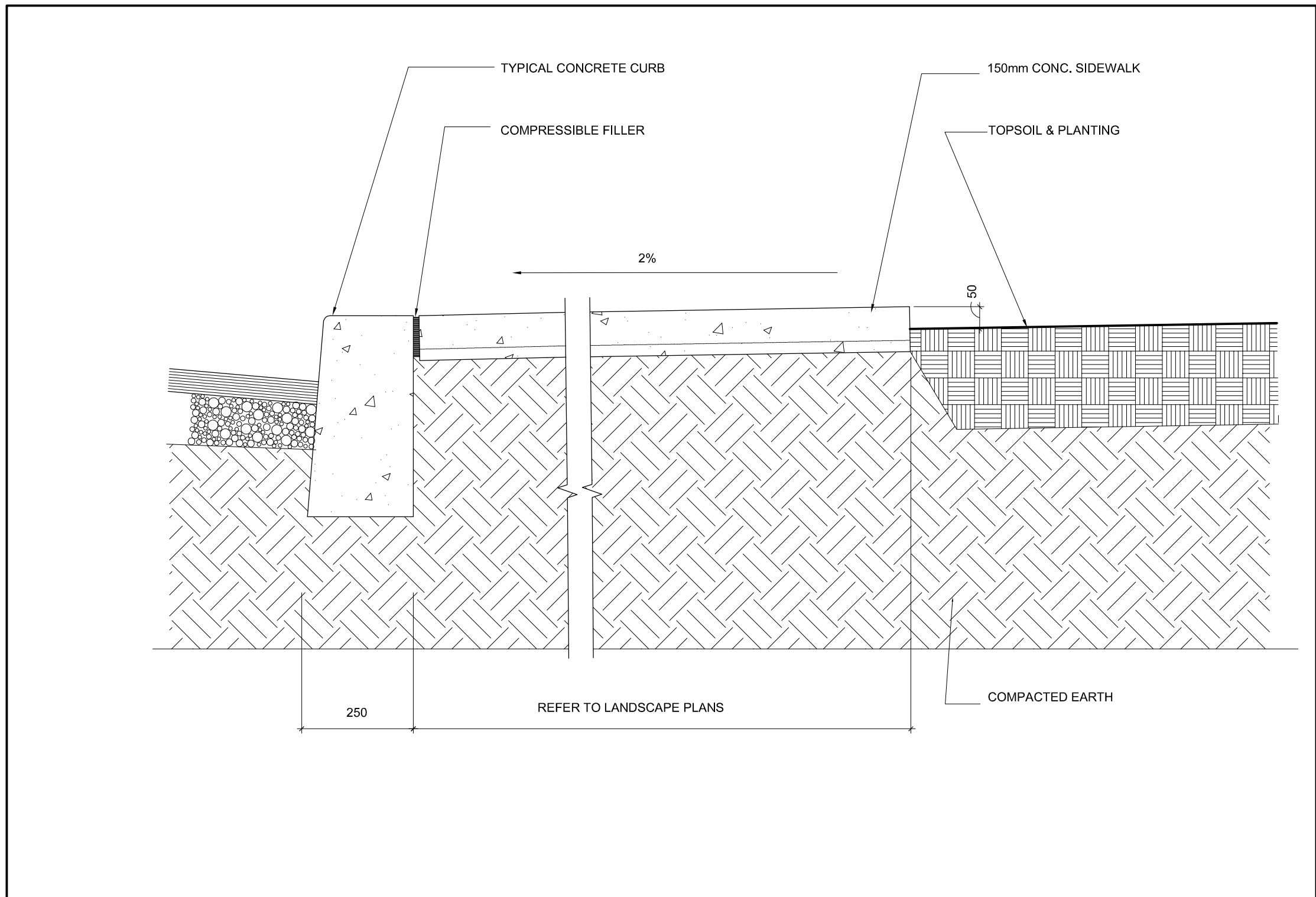
08 TYPICAL CONCRETE CURB DETAIL
SCALE: 1:10



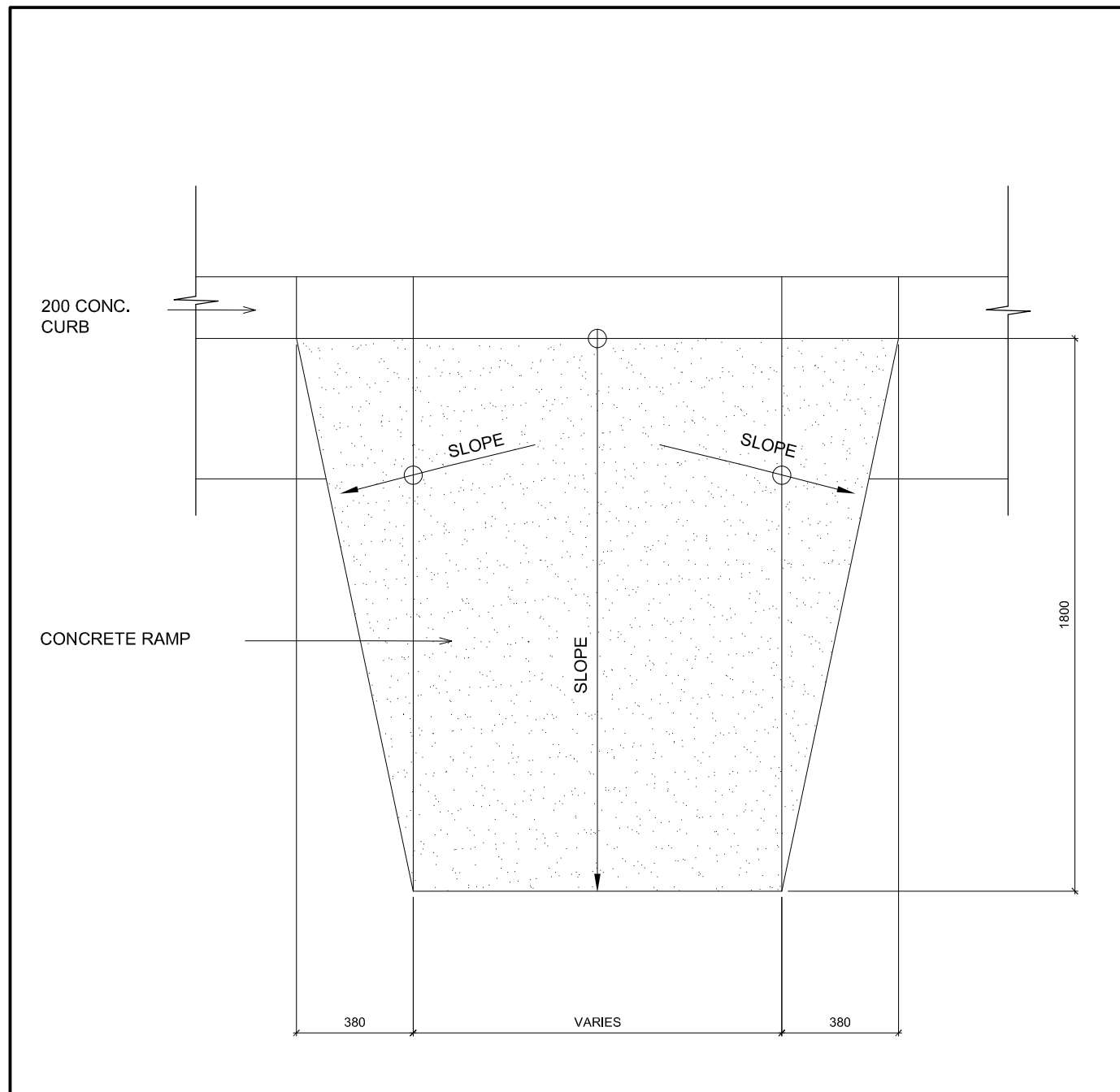
07 SIGN DETAILS
SCALE: N.T.S.



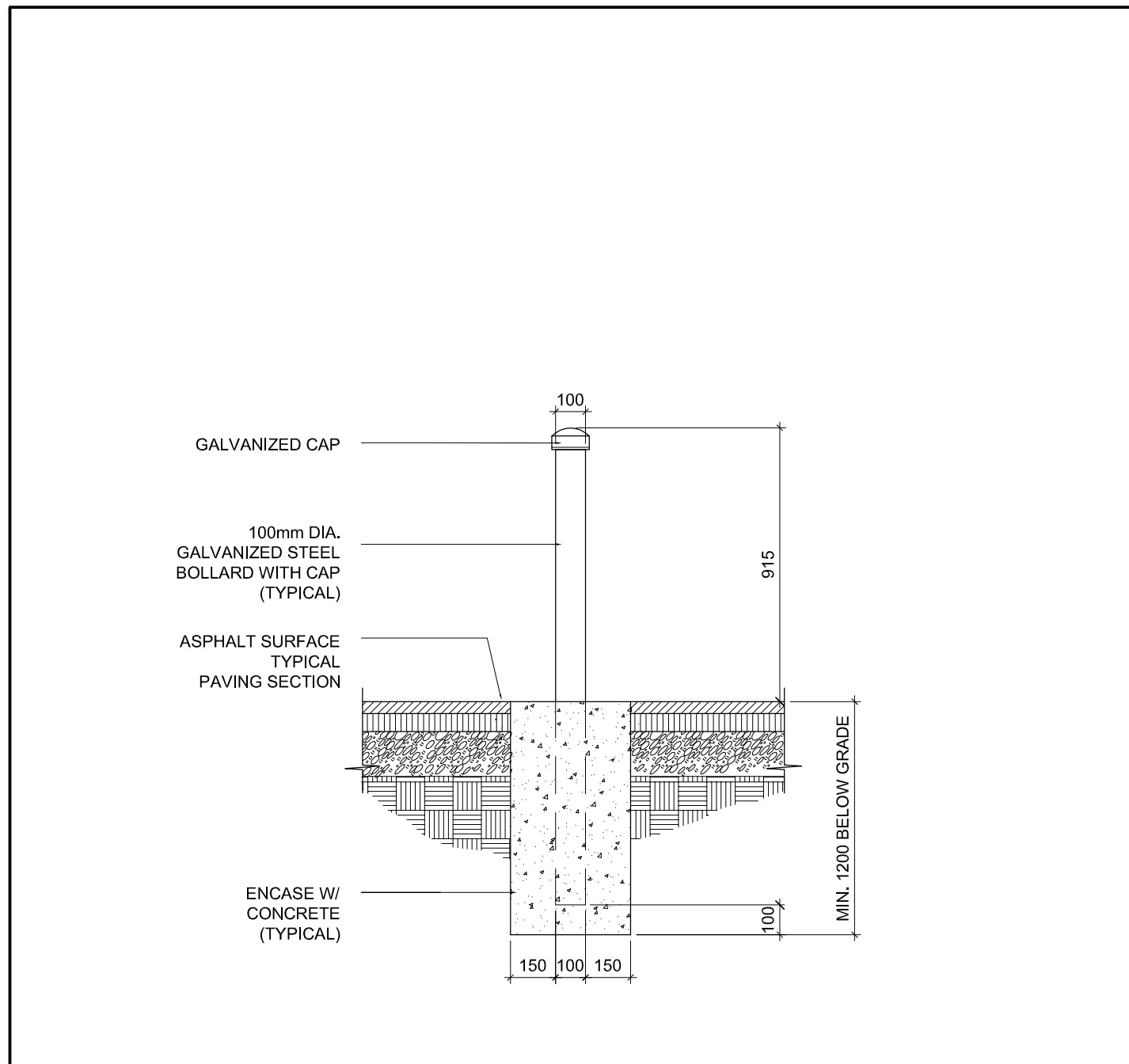
06 BARRIER FREE PARKING SIGNAGE
SCALE: N.T.S.



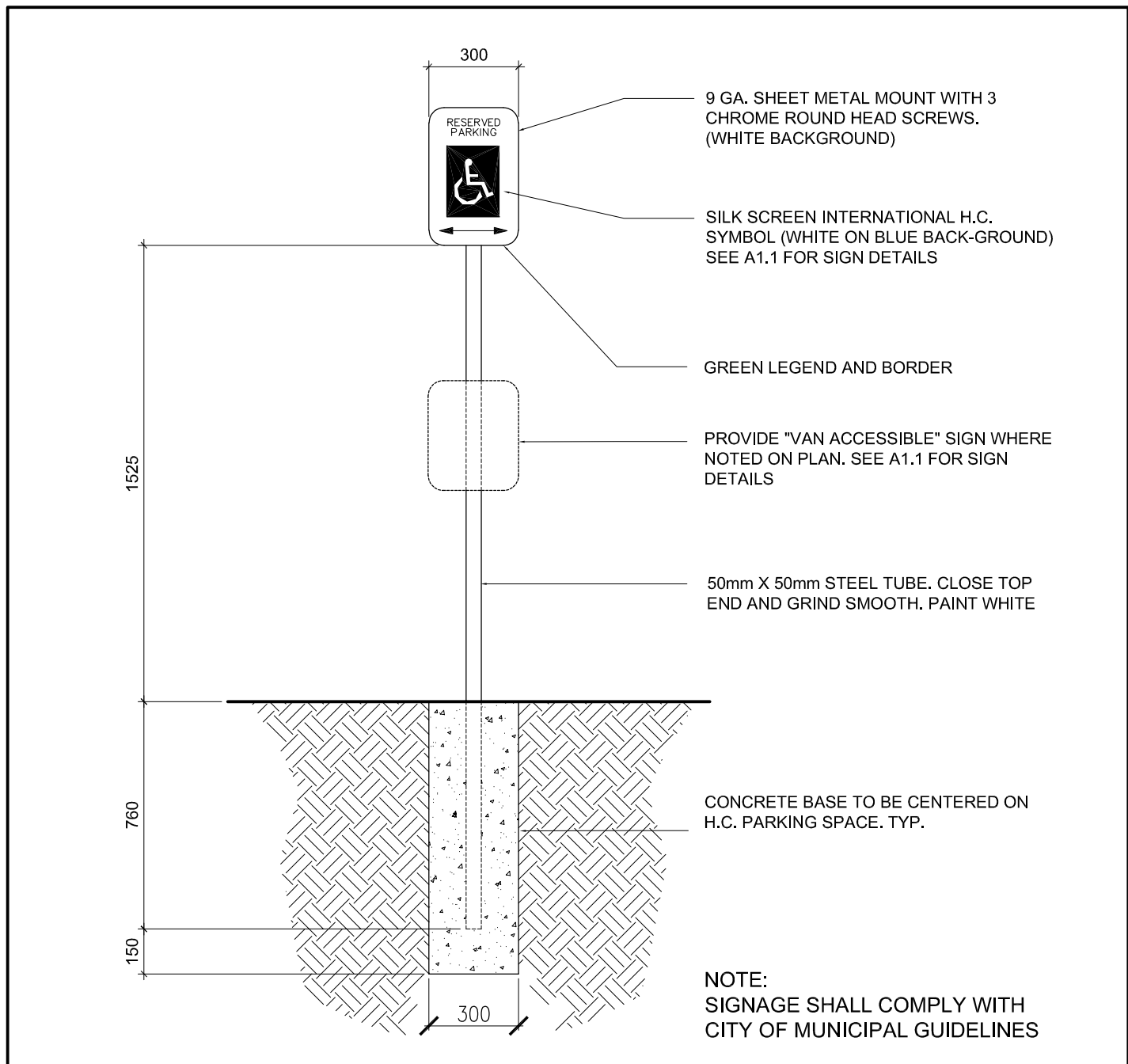
05 TYPICAL CONCRETE CURB AT WALKWAY AND GUTTER DETAIL
SCALE: 1:10



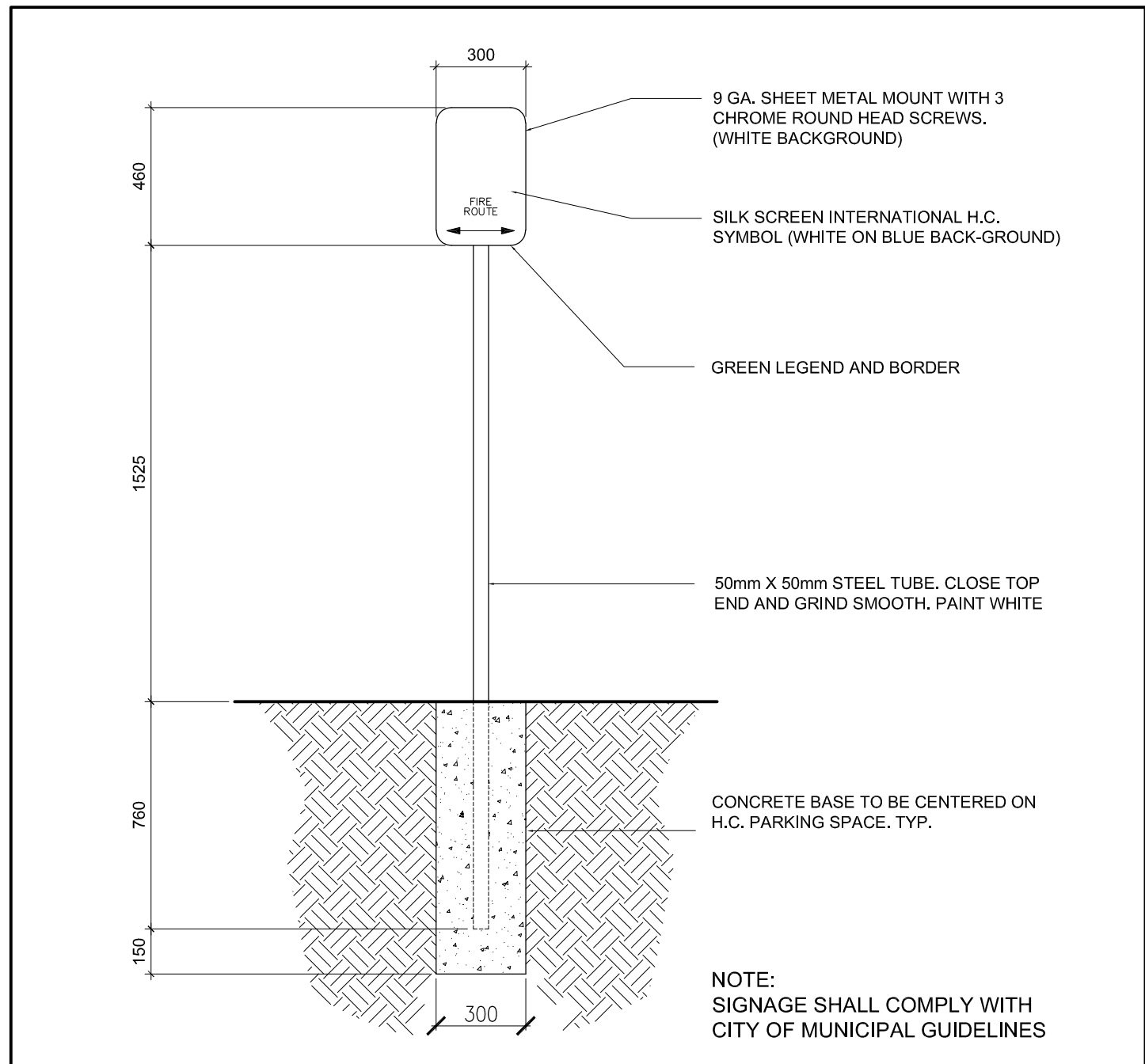
04 TYPICAL RAMP PLAN
SCALE: 1:20



03 TYPICAL BOLLARD DETAIL
SCALE: 1:20

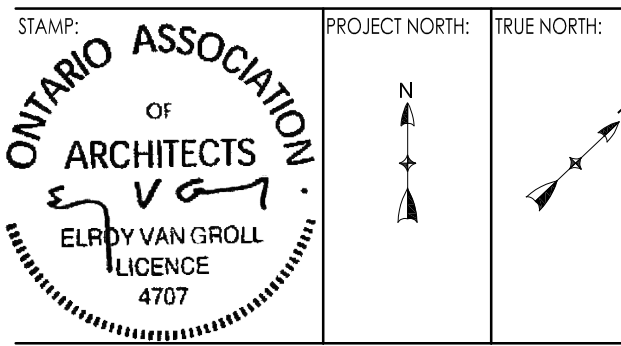


02 BARRIER FREE PARKING SIGN
SCALE: 1:20



01 FIRE ROUTE SIGN
SCALE: 1:20

DRAWINGS MUST **NOT** BE SCALED.
CONTRACTOR MUST CHECK AND VERIFY
ALL DIMENSIONS, SPECIFICATIONS AND
DRAWINGS ON SITE AND REPORT ANY
DISCREPANCIES TO THE ARCHITECT PRIOR
TO PROCEEDING WITH ANY OF THE WORK.



NO.	DESCRIPTION	CH	DATE
01	ISSUED FOR SITE PLAN APPROVAL	CH	25.01.31



CLIENT:

PROJECT:
**ST. ANDREWS
MUNICIPAL PARKING
LOT**

ADDRESS: 25 ST. ANDREW STREET
PORT DOVER, ON
N0A 1N0

DRAWING TITLE:

SITE DETAILS

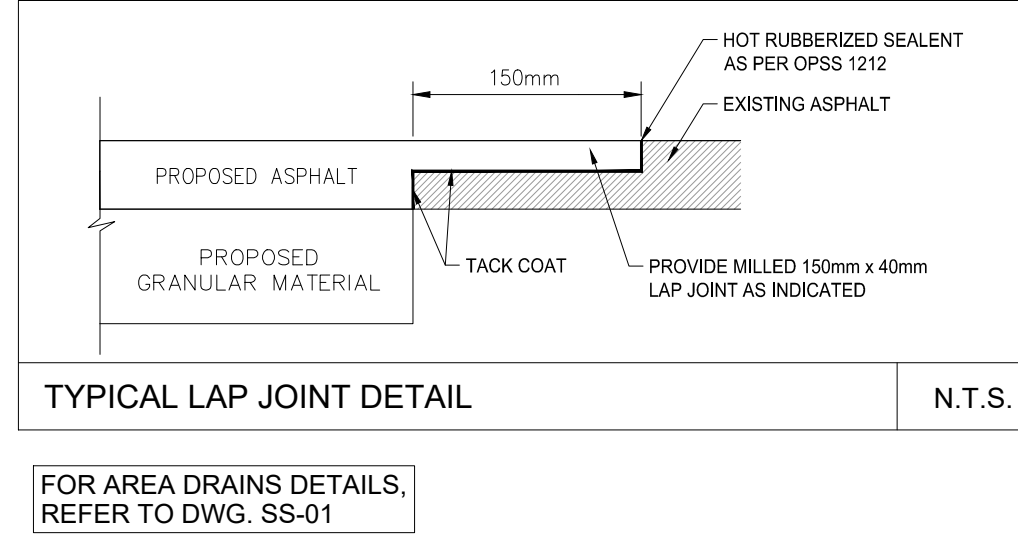
DATE: 25.01.31 SCALE: AS NOTED
DRAWN: CH SHEET NUMBER:
JOB NUMBER:

171-050 **A1.2**

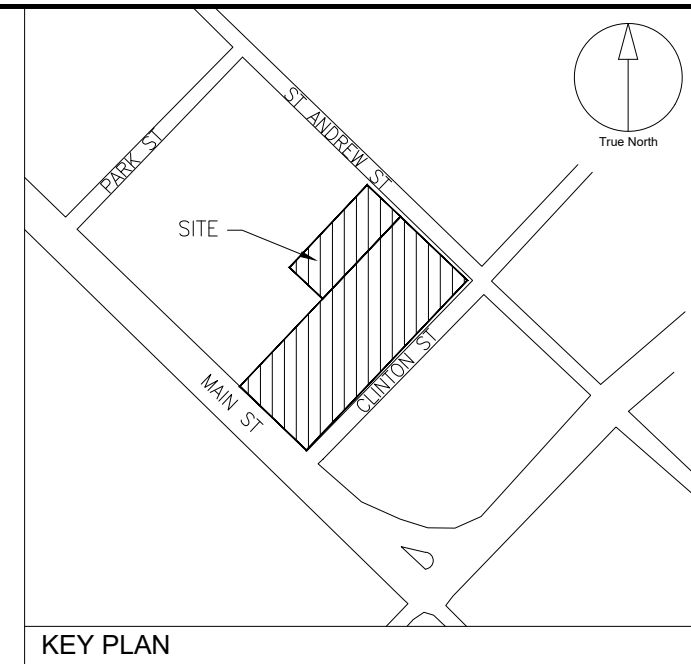
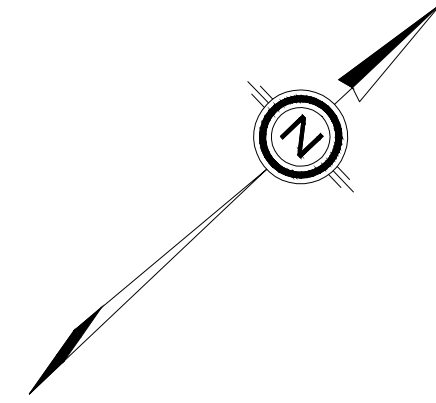
ROADWAY / DRIVEWAY / PARKING AISLES PAVEMENT
STRUCTURE DESIGN

PAVEMENT COMPONENT	LIGHT DUTY	HEAVY DUTY
ASPHALT HOT MIX HL3	40mm	50mm
ASPHALT HOT MIX HL8	50mm	70mm
OPSS 1010 GRANULAR 'A'	150mm	150mm
OPSS 1010 GRANULAR 'B' TYPE III	450mm	600mm

REFER TO GEOTECHNICAL ASSESSMENT REPORT
PREPARED BY
MTE CONSULTANTS DATED JUN. 06, 2024,
MTE FILE No.: 54639-200



FOR AREA DRAINS DETAILS,
REFER TO DWG. SS-01



CLIENT

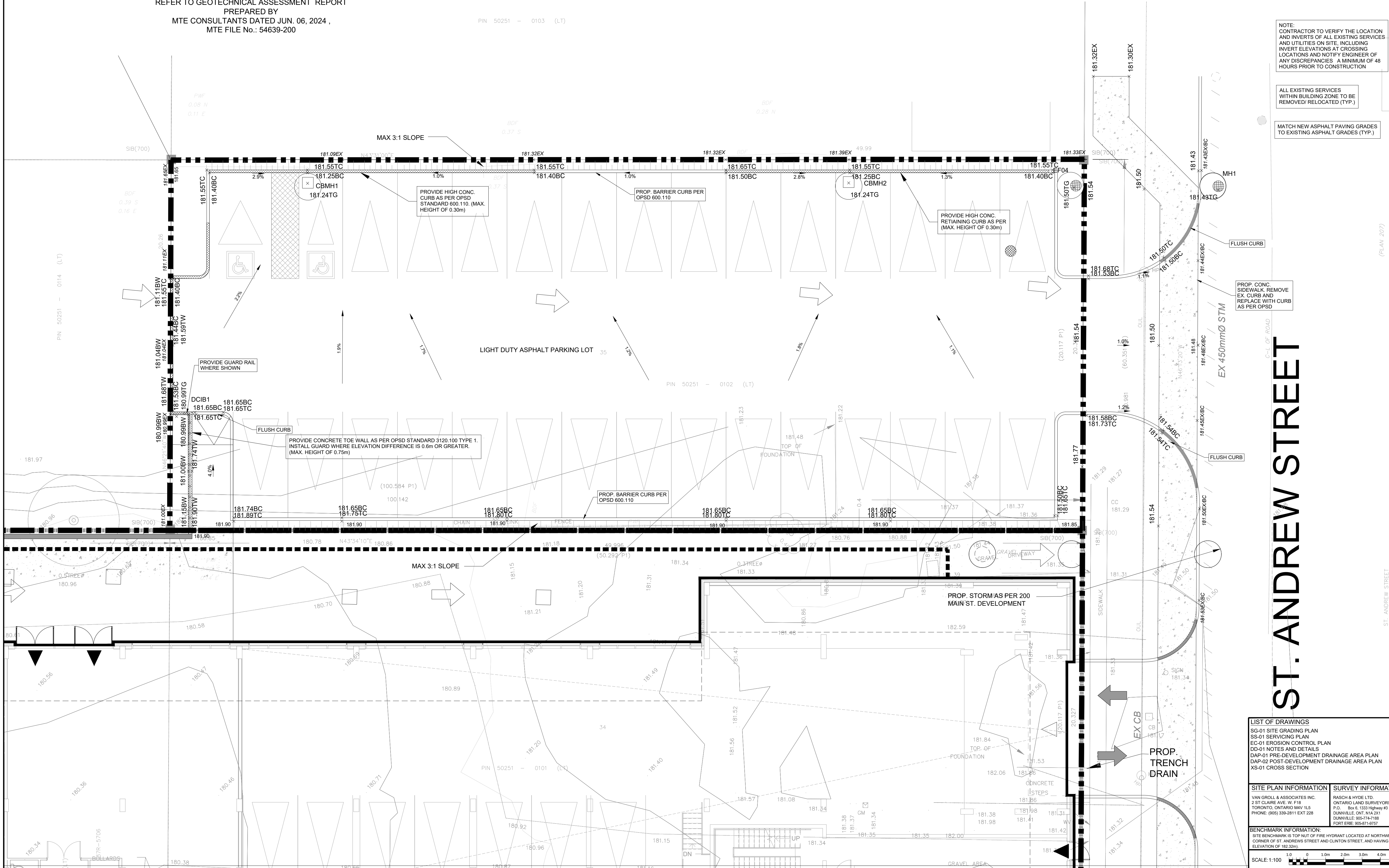
1000033566 ONTARIO INC.

COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES	DESCRIPTION	DATE
No.		
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND	
PROPERTY LINE	---
PROPOSED GRADE	x 149.50
EXISTING GRADE	x 149.33EX
PROPOSED TOP OF SLOPE	x 149.50TS
PROPOSED TOP OF WALL	x 149.50TW
PROPOSED BOTTOM OF WALL	x 149.50BW
PROPOSED OGS (OIL & GRIT SEPARATOR)	○
PROPOSED MANHOLE	○
PROPOSED CATCH BASIN	⊠ AD
PROPOSED AREA DRAIN	□
HIGH POINT RIDGE	- - -
EXISTING STORM MANHOLE	○
EXISTING SANITARY MANHOLE	○
EXISTING CATCH BASIN	⊠
EXISTING FIRE HYDRANT	● EX-FH
EMERGENCY OVERLAND FLOW ROUTE	→
EXISTING OVERLAND FLOW ROUTE	→



NOTE:
CONTRACTOR TO VERIFY THE LOCATION
AND INVERTS OF ALL EXISTING SERVICES
AND UTILITIES ON SITE, INCLUDING
INVERT ELEVATIONS AT CROSSING
LOCATIONS AND NOTIFY ENGINEER OF
ANY DISCREPANCIES A MINIMUM OF 48
HOURS PRIOR TO CONSTRUCTION

ALL EXISTING SERVICES
WITHIN BUILDING ZONE TO BE
REMOVED/ RELOCATED (TYP.)

MATCH NEW ASPHALT PAVING GRADES
TO EXISTING ASPHALT GRADES (TYP.)

PROP. CONC.
SIDEWALK, REMOVE
EX CURB AND
REPLACE WITH CURB
AS PER OPSD



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY
STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS
VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE

ARCADIS
8133 Warden Ave. Unit 300 |
Markham, ON | L6G 1B3 | Canada
www.arcadis.com

PROJECT
**ST. ANDREWS MUNICIPAL
PARKING LOT**
25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO: 148728	CHECKED BY: SS
DRAWN BY: TC	APPROVED BY: IQ
PROJECT MGR: IQ	

SHEET TITLE SITE GRADING PLAN	
SHEET NUMBER SG-01	ISSUE 01

LIST OF DRAWINGS SG-01 SITE GRADING PLAN SS-01 SERVICING PLAN EC-01 EROSION CONTROL PLAN DO-01 NOTES AND DETAILS DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN XS-01 CROSS SECTION	SITE PLAN INFORMATION VAN GROLL & ASSOCIATES INC. 2 ST CLARE AVE. W. F18 TORONTO, ONTARIO M6H 1L5 PHONE: (905) 339-2811 EXT 228
BENCHMARK INFORMATION: SITE BENCHMARK IS TOP NAT. OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.53m.	SURVEY INFORMATION RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. Box 6, 1333 Highway #5 East, Unit B, DUNKVILLE, ONT. N1A 2K1 DUNKVILLE: 905-774-1198 FORT ERIE: 905-871-8797

SCALE: 1:100

Mr. Andrew Wallace
Planner
Norfolk County
50 Colborne Street South
Simcoe, ON N3Y 4H3

Arcadis Professional Services
(Canada) Inc.
360 James Street North
Suite 200
Hamilton, Ontario L8L 1H5
Canada
Phone: 905 546 1010
www.arcadis.com

Date: February 14, 2025
Our Ref: 148728
Subject: Site Plan Approval – 25 St. Andrew St., Port Dover - 1000033566
Ontario Inc.

Dear Mr. Wallace,

On behalf of our client, 1000033566 Ontario Inc., please accept this letter and the following materials as part of our complete submission of a Site Plan Application (“SPA”) for the lands municipally known as 25 St. Andrews St. (“Subject Lands”)

The subject lands are legally identified as PDOV PLAN 207 BLK 50 LOT 35. The subject lands are currently occupied by a one-storey residential dwelling. Surrounding land uses include residential to the North, East commercial (Dairy Bar) to the west and a vacant parcel to the South.

The intent of the proposed site plan approval is to redevelop the lands for a surface parking lot which will ultimately owned and operated by the County of Norfolk. The proposed parking lot will replace the existing Clinton Municipal Parking lot located at 33 Clinton Street. The new St. Andrews parking lot proposes twenty-eight (28) standard parking spaces and two (2) accessible parking spaces for a total of thirty (30) parking spaces to replace the 14 spaces within the Clinton Municipal Parking Lot.

The St. Andrews parking lot is planned to provide pedestrian access to Main Street via a proposed pedestrian walkway proposed on the adjacent property to the south which is subject to a separate SPA application process. The relocation of hydro and other utility will be coordinated with the 200 Main Street SPA Application process.

In terms of the current planning framework, the Norfolk County Official Plan (“OP”) designates the subject lands as ‘Downtown’ under Schedule B.17 of the Plan. The proposed municipal parking lot is a permitted land use under the ‘Downtown’ designation. It is the intent of the new municipal parking lot to improve public parking thereby contributing to the economic viability of the Downtown area. The connection to Main Street via the proposed walkway will provide convenient parking in proximity to the main shopping area. The proposed use is permitted under the OP and no amendment is required.

The subject lands are designated as Central Business District Zone (“CBD”) according to Zoning By-Law Norfolk County 1-Z-2014 (“ZBL”) which lists ‘a parking lot’ as one of the permitted uses. As required under the County’s by-law, the site plan meets the regulations for Off-Street Parking providing for spaces that are 5.8m x 3.0m with minimum aisle width of 7.3m. Two accessible parking stalls meets the Type A (5.8m x 3.4m) and Type B (5.8m x 2.4m) dimensions with a 1.5m access aisle between the accessible stalls. Therefore, the proposed development does not require an amendment to the ZBL.

Mr. Andrew Wallace
Norfolk County
February 14, 2025

Please accept the items listed below as part of our complete submission for Site Plan Approval. These have been submitted electronically. If hard copies are required, please advise.

- A Signed Site Plan Application Form
- One (1) copy of the Architectural Package prepared by VanGroll & Associates Inc.
- One (1) copy of the Pre-Development Drainage Area Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Post-Development Drainage Area Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Erosion and Sediment Control Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Grading Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Site Servicing Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the Cross Section Plan prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of the General Notes and Details prepared by Arcadis Professional Services (Canada) Inc.
- One (1) copy of Storm Water Management Design Report prepared by Arcadis Professional Services (Canada) Inc.

We trust that the attached materials provide you with sufficient information for the processing of this application. Should you have any further questions or require anything more for the processing of this file, please do not hesitate to contact the undersigned.

Sincerely,
Arcadis Professional Services (Canada) Inc.

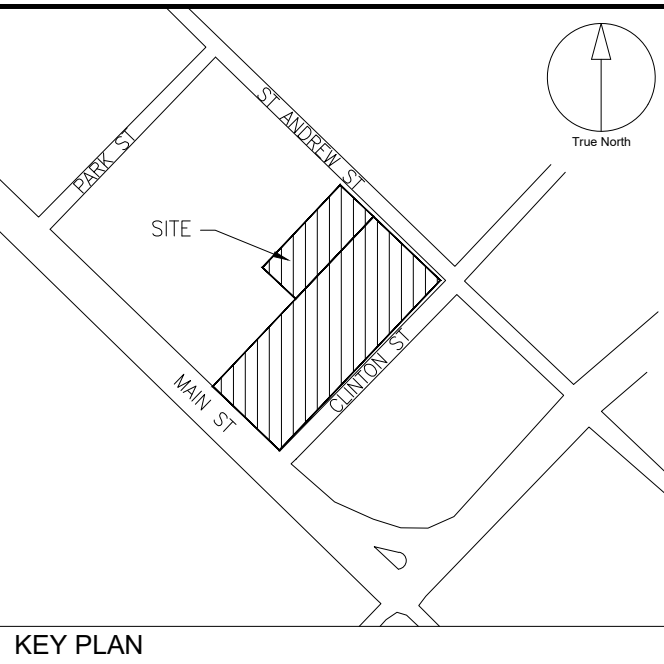
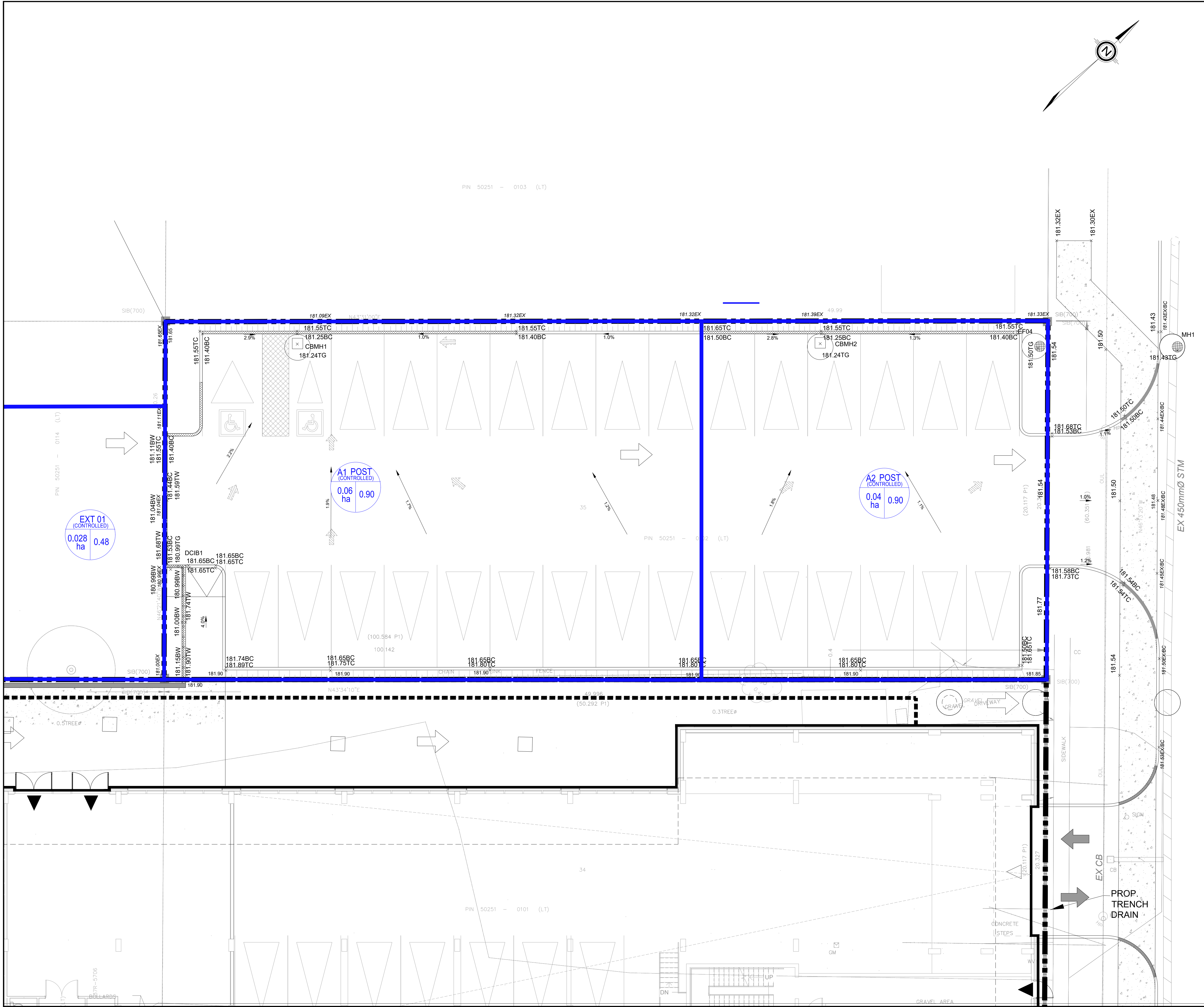


Carmen Jandu, MCIP RPP
Planner – Senior Associate



Nickee Digman
Planning Technician

CC. Ms. Brooke Hayward, via email.



CLIENT

1000033566 ONTARIO INC.

COPYRIGHT

This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND

PROPERTY LINE

PROPOSED GRADE

EXISTING GRADE

PROPOSED TOP OF SLOPE

PROPOSED TOP OF WALL

PROPOSED BOTTOM OF WALL

PROPOSED OGS (OIL & GRIT SEPARATOR)

PROPOSED MANHOLE

PROPOSED CATCH BASIN

PROPOSED AREA DRAIN

HIGH POINT RIDGE

PROPOSED SANITARY MANHOLE

PROPOSED VALVE AND BOX

PROPOSED SIAMESE CONNECTION

EXISTING STORM MANHOLE

EXISTING SANITARY MANHOLE

EXISTING CATCH BASIN

EXISTING FIRE HYDRANT

EMERGENCY OVERLAND FLOW ROUTE

EXISTING OVERLAND FLOW ROUTE

FFE (FINISHED FLOOR ELEVATION)

DRAINAGE AREA BOUNDARY

STORM DRAINAGE AREA NUMBER

DRAINAGE AREA (ha)

ALLOWABLE RUNOFF COEFFICIENT

FFE=104.50

A1 POST (CONTROLLED) 0.06 ha 0.90

A2 POST (CONTROLLED) 0.04 ha 0.90

A1 POST 4.157 ha 0.20



Norfolk COUNTY

ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING	DATE
----------------------------------	------

ARCADIS

8133 Warden Ave. Unit 300 | Markham, ON | L6G 1B3 | Canada

www.arcadis.com

PROJECT

ST. ANDREWS MUNICIPAL PARKING LOT

25 ST. ANDREW ST., PORT DOVER NORFOLK COUNTY

PROJECT NO:	148728
DRAWN BY:	TC
CHECKED BY:	SS
PROJECT MGR:	IQ
APPROVED BY:	IQ

SHEET TITLE

POST-DEVELOPMENT DRAINAGE AREA PLAN

SHEET NUMBER	DAP-02
ISSUE	01

LIST OF DRAWINGS

SG-01 SITE GRADING PLAN

SS-01 SERVICING PLAN

EC-01 EROSION CONTROL PLAN

DC-01 NOTES AND DETAILS

DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN

DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN

XS-01 CROSS SECTION

SITE PLAN INFORMATION

VAN GROLL & ASSOCIATES INC. 2 ST CLARE AVE. W. F18 TORONTO, ONTARIO M6V 1L5 PHONE: (905) 339-2811 EXT 228

RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. Box 6, 1333 Highway 45 East, Unit B, DUNKVILLE ONT. N1A 2K1 DUNKVILLE: 905-774-1198 FORT ERIE: 905-871-8797

BENCHMARK INFORMATION:

SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.53m.

SCALE: 1:100

1.0 0 1.0m 2.0m 3.0m 4.0m 5.0m

GENERAL NOTES:

- PRIOR TO STARTING ANY WORKS, THE CONTRACTOR MUST ENSURE THAT ALL NECESSARY APPROVALS ARE IN PLACE FROM THE CORPORATION OF NORFOLK COUNTY AND OTHER EXTERNAL AGENCIES, AS REQUIRED.
- ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
- ALL WORK AND MATERIALS TO CONFORM WITH THE CURRENT PROVINCIAL BUILDING CODE, MINISTRY OF THE ENVIRONMENT OF ONTARIO, NORFOLK COUNTY, AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
- FOR ALL CONSTRUCTION DETAILS NOT SHOWN ON THE DRAWINGS, REFERENCE SHALL BE MADE TO THE DESIGN STANDARDS OF THE CORPORATION OF NORFOLK COUNTY.
- THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
- THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH PROVIDER PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE REPORTED TO THE ENGINEER 48 HRS PRIOR TO CONSTRUCTION. LOST TIME AND/OR ANY ADDITIONAL WORKS DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF ANY CONFLICTS 48 HRS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
- THE CONTRACTOR MUST INSTALL ALL SEDIMENT CONTROL DEVICES PRIOR TO THE COMMENCEMENT OF SITE GRADING WORKS. SILT LADEN WATER MUST NOT BE PERMITTED TO ENTER INTO ANY EXISTING CATCH BASINS, INLETTING STRUCTURES, OR WATER COURSES. ADDITIONAL CONTROLS AS DEEMED REQUIRED BY THE AUTHORITIES AND/OR THE ENGINEER DURING CONSTRUCTION ACTIVITIES SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR MUST INSPECT SEDIMENT CONTROLS ON A REGULAR BASIS AND AFTER EVERY RAINFALL EVENT. REPAIRS MUST BE DONE IN A TIMELY MANNER TO PREVENT SEDIMENT FROM ENTERING ANY WATER SYSTEMS. ADDITIONAL SILT FENCING MUST BE AVAILABLE IN CASE IMMEDIATE REPAIR IS REQUIRED.
- ALL DIMENSIONS, ELEVATIONS AND OTHER INFORMATION SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR 72 HOURS PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES FOUND MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
- THE CONTRACTOR IS TO PROVIDE A TOTAL OF TWO CCTV CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT, TWO CD COPIES AND ONE VIDEO TAPE IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.
- LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
- ALL PVC SANITARY SEWERS TO BE MANDREL AND AIR TESTED.
- ALL PVC STORM SEWERS TO BE MANDREL TESTED. AIR TEST ONLY ON RECOMMENDATION BY SOIL CONSULTANT.

CONSTRUCTION NOTES:

- AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION FOR SERVICES ON ANY EXISTING ROAD ALLOWANCE AND EXISTING SERVICES WITHIN AN EXISTING EASEMENT MAINTAINED BY NORFOLK COUNTY IN PORT DOVER ONTARIO, THE SUBDIVIDER / DEVELOPER IS TO OBTAIN A PERMIT OF APPROVED WORK FROM NORFOLK COUNTY AND PORT DOVER ONTARIO.
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY MEASURES TO CONTROL SILT ENTERING THE STORM DRAINAGE SYSTEM TO THE SPECIFICATIONS OUTLINED IN THE GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES PREPARED BY THE MINISTRY OF NATURAL RESOURCES. THESE MEASURES ARE TO BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION FOR THIS PROJECT, AND ARE TO REMAIN IN PLACE UNTIL CONSTRUCTION HAS BEEN COMPLETED TO THE SPECIFICATIONS OF THE TOWN ENGINEER.
- ALL WORK SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF NORFOLK COUNTY AND PORT DOVER ONTARIO OR ONTARIO PROVINCIAL STANDARDS.
- NO FOUNDATION DRAIN CONNECTIONS WILL BE PERMITTED. SUMP PUMPS SHALL BE DISCHARGED TO THE OUTSIDE GROUND SURFACE DRAINING AWAY FROM THE BUILDING. REQUIRED TO CONFORM WITH OBC, DIV.B.9.14.
- THE SUBDIVIDER / DEVELOPER IS TO NOTIFY NORFOLK COUNTY AND PORT DOVER ONTARIO AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. PERMITS ARE REQUIRED PRIOR TO COMMENCEMENT OF WORK AND 48 HOURS IS REQUIRED PRIOR TO INSPECTION REQUESTS.
- THE SUBDIVIDER / DEVELOPER IS TO MEET ALL REQUIREMENTS OF THE OWNERS OF THE UTILITIES ON THIS PLAN, AND MUST MAKE SATISFACTORY ARRANGEMENTS WITH THE UTILITY COMPANIES FOR CROSSING THEIR INSTALLATIONS AND FOR PROVIDING ADEQUATE PROTECTION DURING CONSTRUCTION.
- IF COMMON TRENCH CONSTRUCTION IS TO BE USED FOR THE INSTALLATION OF STORM AND SANITARY SEWERS ON ANY STREET WITHIN THIS SUBDIVISION / DEVELOPMENT / PROJECT, THE PDC'S ARE TO BE CONSTRUCTED AT LEAST 2 METERS BEHIND THE CURB LINE ON THAT STREET, AT THE SAME TIME AS INSTALLATION OF THE SEWERS.
- ALL ORGANIC, UNSTABLE OR UNSUITABLE MATERIALS BENEATH THE ROAD ALLOWANCES OR HOUSE FOUNDATIONS MUST BE REMOVED AND THESE AREAS BACKFILLED WITH AN APPROVED FILL MATERIAL. ALL TO THE SATISFACTION OF A GEOTECHNICAL ENGINEER.

GRADING:

- PRIOR TO COMMENCEMENT OF GRADING WORKS ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND OPERATIONAL. THE CONTRACTOR SHALL MAINTAIN ALL WORKS UNTIL SERVING CONSTRUCTION IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND THE CORPORATION OF NORFOLK COUNTY.
- ALL GRANULAR BASE AND SUB-BASE COURSE MATERIALS SHALL BE COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- PAVEMENT STRUCTURE TO BE CONSTRUCTED AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
- CONCRETE CURBS SHALL BE AS PER OPSD 600.060 AND OPSD 600.110.
- INSPECTIONS: ALL WORK ON THE MUNICIPAL RIGHT-OF-WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMANS AND SEWERS TO BE INSPECTED BY THE MUNICIPALITY WHEN REQUIRED BY THE MUNICIPALITY.
- CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE IF REQUIRED BY THE MUNICIPALITY OR THE REGION.
- EMBANKMENTS TO BE SLOPED AT MAX. 3:1, UNLESS OTHERWISE SPECIFIED.
- SEDIMENT CONTROL TO BE PROVIDED AT CATCH BASINS AND CATCH BASIN MANHOLES UPON INSTALLATION OF STRUCTURES AS PER DETAIL PROVIDED.
- CONTRACTOR WILL BE RESPONSIBLE FOR ALL REMOVALS AS REQUIRED TO FACILITATE NEW CONSTRUCTION. ALL EXISTING STRUCTURES, VALVES, ETC. ARE TO BE ADJUSTED TO PROPOSED ELEVATIONS.
- EXISTING ELEVATIONS AT MATCH POINTS, AS SHOWN ON PLANS, ARE TO BE CONFIRMED BY THE CONTRACTOR 72 HOURS PRIOR TO MOBILIZATION OF FORCES. LOST TIME AND/OR ANY ADDITIONAL WORKS DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM EXISTING ELEVATIONS AND NOTIFY THE ENGINEER OF POSSIBLE CONFLICTS 72 HOURS PRIOR TO MOBILIZATION WILL BE AT THE EXPENSE OF THE CONTRACTOR.

MANHOLES AND CATCHBASINS:

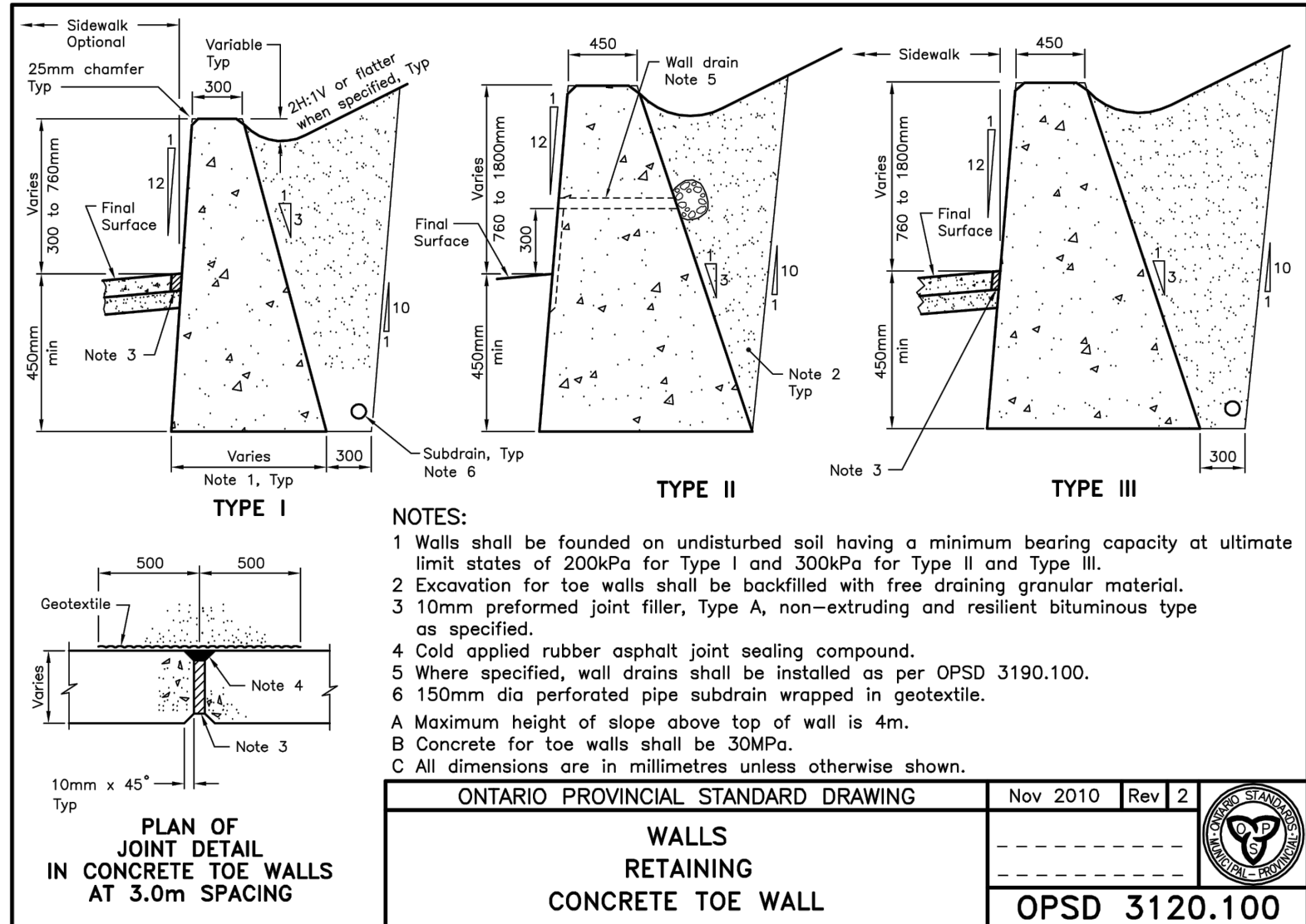
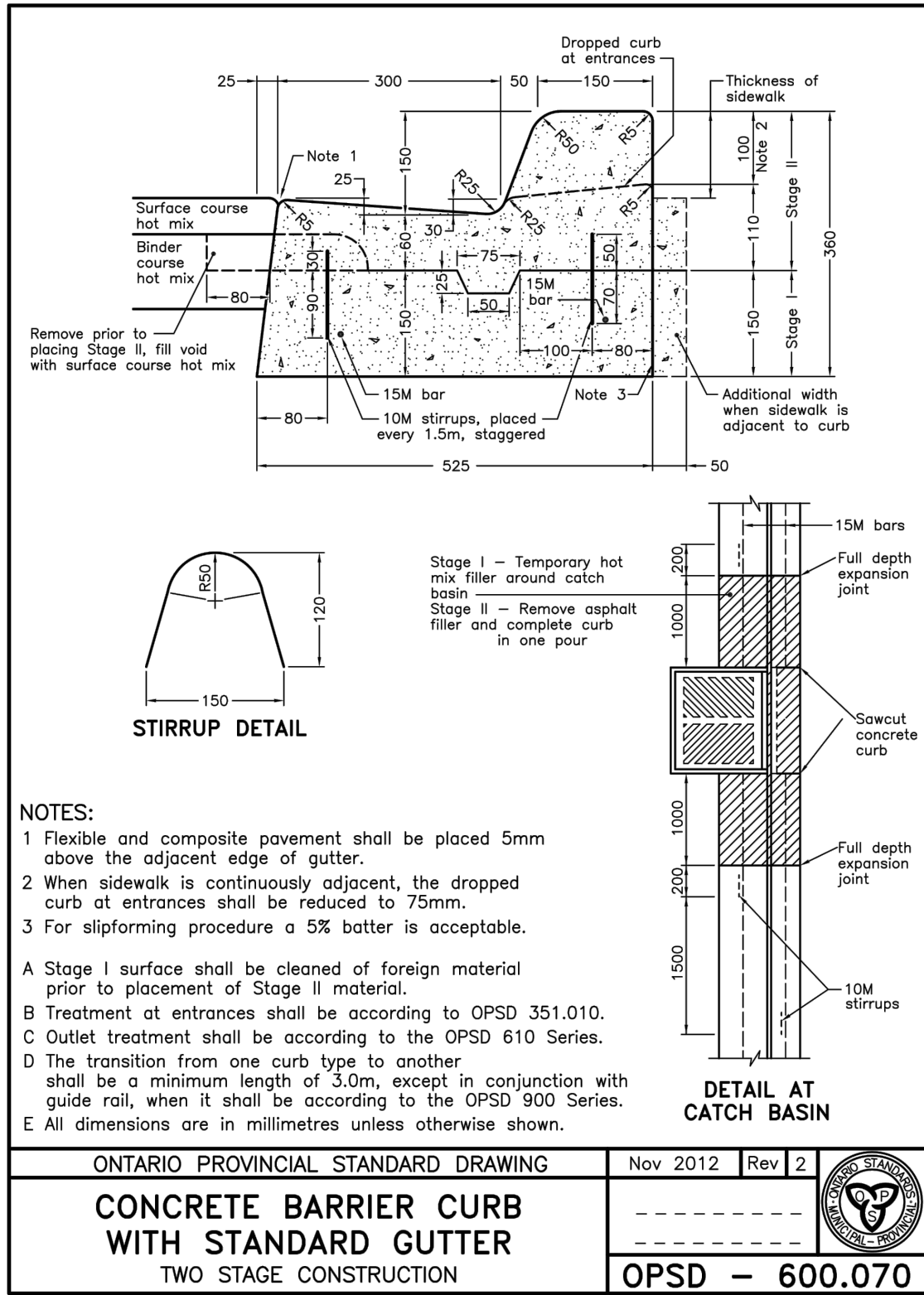
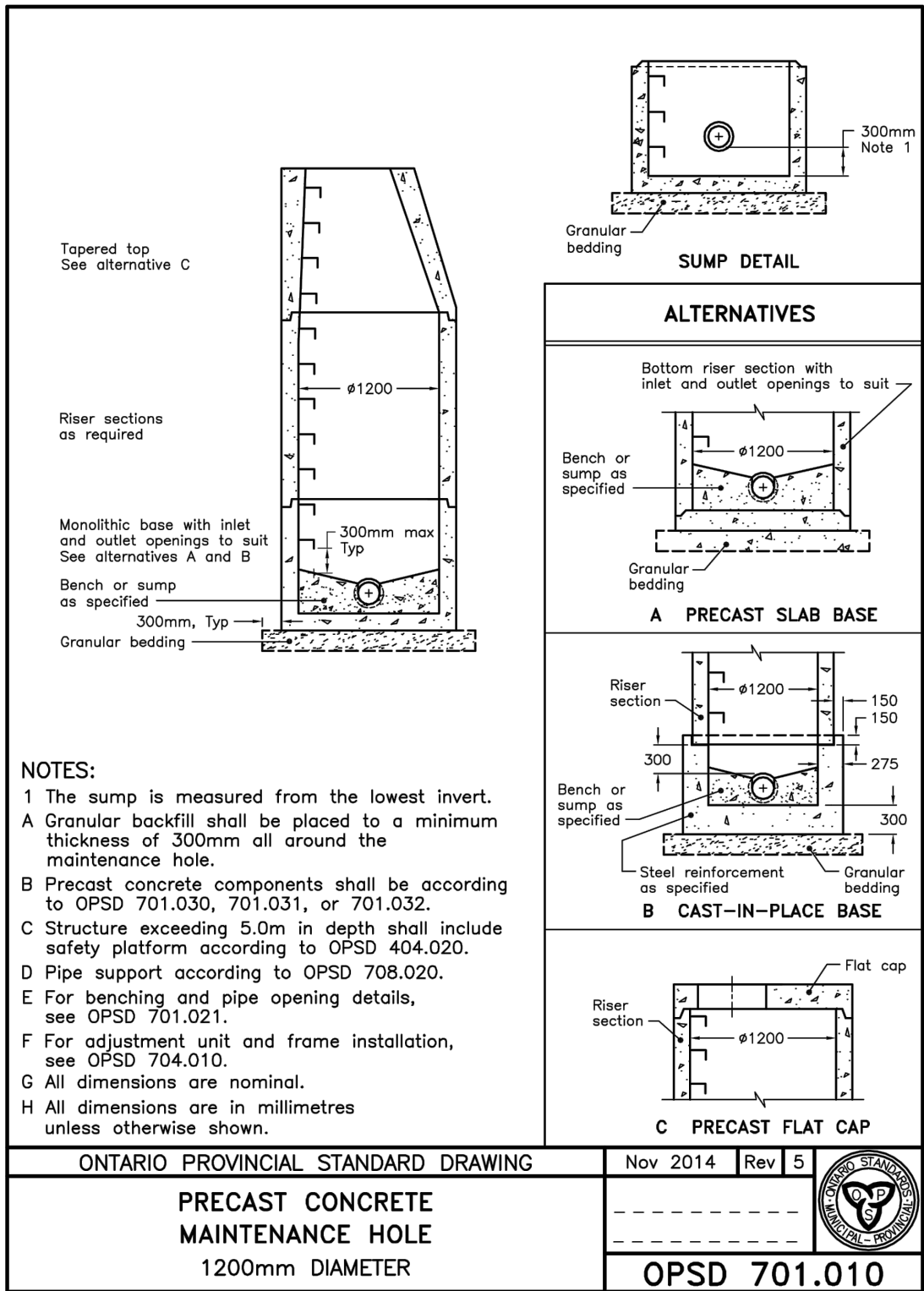
- ALL PRECAST CONCRETE MANHOLES TO MEET M.O.E. SPECIFICATIONS AND CONFORM TO OPSD STANDARDS 701.010 AND 701.011.
- MANHOLE COVERS TO BE AS PER OPSD 401.010, TYPE 'A' FOR SANITARY AND TYPE 'B' FOR STORM.
- MANHOLE AND CATCHBASIN ADJUSTERS SHALL BE AS PER OPSD 704.010.
- MANHOLE STEPS SHALL BE RECTANGULAR STAINLESS STEEL AS PER OPSD 405.010.
- SAFETY PLATFORMS SHALL BE PROVIDED, AS PER OPSD 404.020, FOR MANHOLES WITH DEPTH EXCEEDING 5.0m.
- BENCHING TO BE PROVIDED AT ALL MANHOLES UNLESS OTHERWISE STATED IN ACCORDANCE WITH OPSD 701.021
- ALL SINGLE AND DOUBLE CATCH BASINS SHALL BE PRECAST AS PER OPSD 705.010 AND 705.020 RESPECTIVELY.
- CATCHBASIN LEADS SHALL BE PVC SDR 35 INSTALLED AT A MINIMUM OF 1.0% SLOPE AND WITH MINIMUM COVER OF 1.2m. SIZES ARE AS FOLLOWS: SINGLE CB- 250mm DIA., DOUBLE CB- 300mm DIA., REAR LOT CB- 300mm DIA. (UNLESS OTHERWISE NOTED)
- CATCHBASIN SUMP TO BE 0.60m DEEP FOR 600x600, AND 0.30m DEEP FOR 1200x1200.
- ALL CATCH BASIN FRAMES AND COVERS SHALL BE AS PER OPSD 400.110.
- DURING CONSTRUCTION ALL CATCH BASINS SHALL BE EQUIPPED WITH A TEMPORARY SEDIMENT CONTROL DEVICE.
- ALL MANHOLE AND CATCH BASIN EXCAVATIONS SHALL BE BACKFILLED WITH GRANULAR 'B' COMPACTED TO 98% SPMD0 AND BE PLACED IN ACCORDANCE WITH THE LATEST REVISION OF THE GEOTECHNICAL REPORT.

STORM AND SANITARY SEWERS:

- SANITARY SEWERS SHALL BE GREEN PVC SDR 35 (UNLESS OTHERWISE NOTED) INSTALLED IN ACCORD. W/ OPSD 802.01 (NOV. 2010, REV. 2) SANITARY SERVICES SHALL BE GREEN 150mm DIA. PVC SDR 28 INSTALLED IN ACCORD. W/ OPS 1006.020 (NOV. 2005, REV. 1). MIN. 2% SLOPE INSTALLED 2.0m PAST CURB LINE. BEDDING AND COVER MATERIAL FOR SANITARY SEWERS SERVICE CONNECTIONS SHALL BE GRANULAR 'A' COMPACTED TO 98% STANDARD PROCTOR DENSITY.
- ALL SANITARY SEWERS TO BE INSTALLED AS PER COUNTY OF NORFOLK DESIGN GUIDELINES AND SPECIFICATIONS
- STORM SEWERS SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED): 300mm DIA. - PVC SDR-35 525mm DIA. AND GREATER - 65-D CONCRETE
- CONCRETE STORM SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH OPSD 802.03 (2010) CLASS B. BEDDING MATERIAL SHALL BE GRANULAR 'A' COMPACTED TO 98% S.P.D. COVER MATERIAL SHALL BE SAND COMPACTED TO 98% S.P.D.
- PVC STORM SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH OPSD 802.01 (2010). BEDDING AND COVER MATERIAL SHALL BE GRANULAR 'A' COMPACTED 98% S.P.D.
- SUB-GRADE TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF GRANULAR 'B' TO CONFIRM GRANULAR 'B' THICKNESS REQUIRED.

WATERMANS:

- ALL WATERMANS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NORFOLK COUNTY DRAWINGS, M.O.E. GUIDELINES, OPSD STANDARDS AND SPECIFICATIONS AND AWWASTANDARDS AND SPECIFICATIONS.
- WATERMAIN SHALL BE BLUE AWWA C-9-- PVC DR 18 CLASS 150 UNLESS OTHERWISE NOTED) INSTALLED IN ACCORDANCE WITH OPSD 1103.010 (NOV. 2006, REV. 1) AND 1103.020 (NOV. 2006, REV. 2). WATERMAIN SHALL HAVE TWELVE GAUGE TRACER WIRE FASTENED AT NO GREATER THAN 6.0m INTERVALS AND BROUGHT UP TO FINISHED GRADE AT WATER VALVE BOXES
- WATER SERVICES TO BE 20mm DIA. TYPE 'K' COPPER PIPE, POLYETHYLENE OR MUNICIPEX (OR APPROVED EQUAL), IN ACCORDANCE WITH OPSD 1104.010 (NOV 2006, REV. 2) INSTALLED TO 3.0m PAST CURB LINE.
- ALL WATERMAIN AND SANITARY SEWERS TO BE INSTALLED AS PER COUNTY OF NORFOLK DESIGN GUIDELINES AND SPECIFICATIONS.
- BEDDING AND COVER MATERIAL FOR WATERMAIN AND SERVICE CONNECTIONS SHALL BE GRANULAR "A" COMPACTED TO 100% S.P.D. AS PER OPSD 802.010
- WHERE WATERMANS OR WATER SERVICES CONFLICT WITH SEWERS, THEY SHALL BE DEFLECTED BELOW THE SEWER TO PROVIDE A MINIMUM SEPARATION DISTANCE OF 0.50m VERTICALLY AND INSULATED.
- VALVES SHALL BE RESILIENT SEAT EPOXY COATED GATE VALVES COMPLYING TO LATEST AWWA CS00 SPECIFICATIONS. VALVE BOXES AS SUPPLIED BY 'MUELER LIMITED' OR 'CANADA VALVE' INSTALLED IN ACCORDANCE WITH OPSD 1101.030 AND OPSD 1100.020.
- HYDRANTS TO COMPLY TO AWWA C502 'CANADA VALVE' (DARLING), 'CENTURY', 'MACIVITY M67' ARE ACCEPTED. MUST HAVE BRASS TO BRASS SEAT, OPEN COUNTER CLOCKWISE AND BE COATED WITH HIGH QUALITY YELLOW PAINT (OPSD 1105.02) (NOV.2006, REV. 1). ALL EQUIPPED WITH 100mm STORZ CONNECTION (CAP PAINTED BLACK).
- SUB-GRADE TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF GRANULAR 'B' TO CONFIRM GRANULAR 'B' THICKNESS REQUIRED.
- MINIMUM 1.7m COVER FOR WATERMAIN AND WATER SERVICES.
- THE OWNER SHALL GRANT THE NECESSARY EASEMENT(S) TO NORFOLK COUNTY AND PORT DOVER ONTARIO TO ENABLE MAINTENANCE OF THE WATER SERVICES ON SITE AND TO INCLUDE A REQUIREMENT FOR A FIRE HYDRANT MAINTENANCE AGREEMENT FOR THE SITE.
- THE FIRE FLOW DEMAND FOR THE SITE AND WATERMAIN DESIGN SHALL BE CALCULATED IN ACCORDANCE WITH THE SECTION 10.1.1 OF NORFOLK COUNTY DESIGN CRITERIA DATED AUGUST, 2017.



- LIST OF DRAWINGS**
- SG-01 SITE GRADING PLAN
 - SS-01 SERVICING PLAN
 - EC-01 EROSION CONTROL PLAN
 - DD-01 NOTES AND DETAILS
 - DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN
 - DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN
 - XS-01 CROSS SECTION

SITE PLAN INFORMATION	SURVEY INFORMATION
VAN GROLL & ASSOCIATES INC. 2 ST CLARE AVE. W. F18 TORONTO, ONTARIO M6V 1L5 PHONE: (905) 339-2811 EXT 228	RASCH & HYDE LTD. ONTARIO LAND SURVEYORS P.O. Box 4, 1331 Highway #1 East, Unit B, DUNVILLE, ONT. M1A 2K1 DUNVILLE: (905) 774-1188 FORT ERIE: (905) 871-9757

BENCHMARK INFORMATION:
SITE BENCHMARK IS TOP NAT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.32m

SCALE: NOT TO SCALE

CLIENT

1000033566 ONTARIO INC.

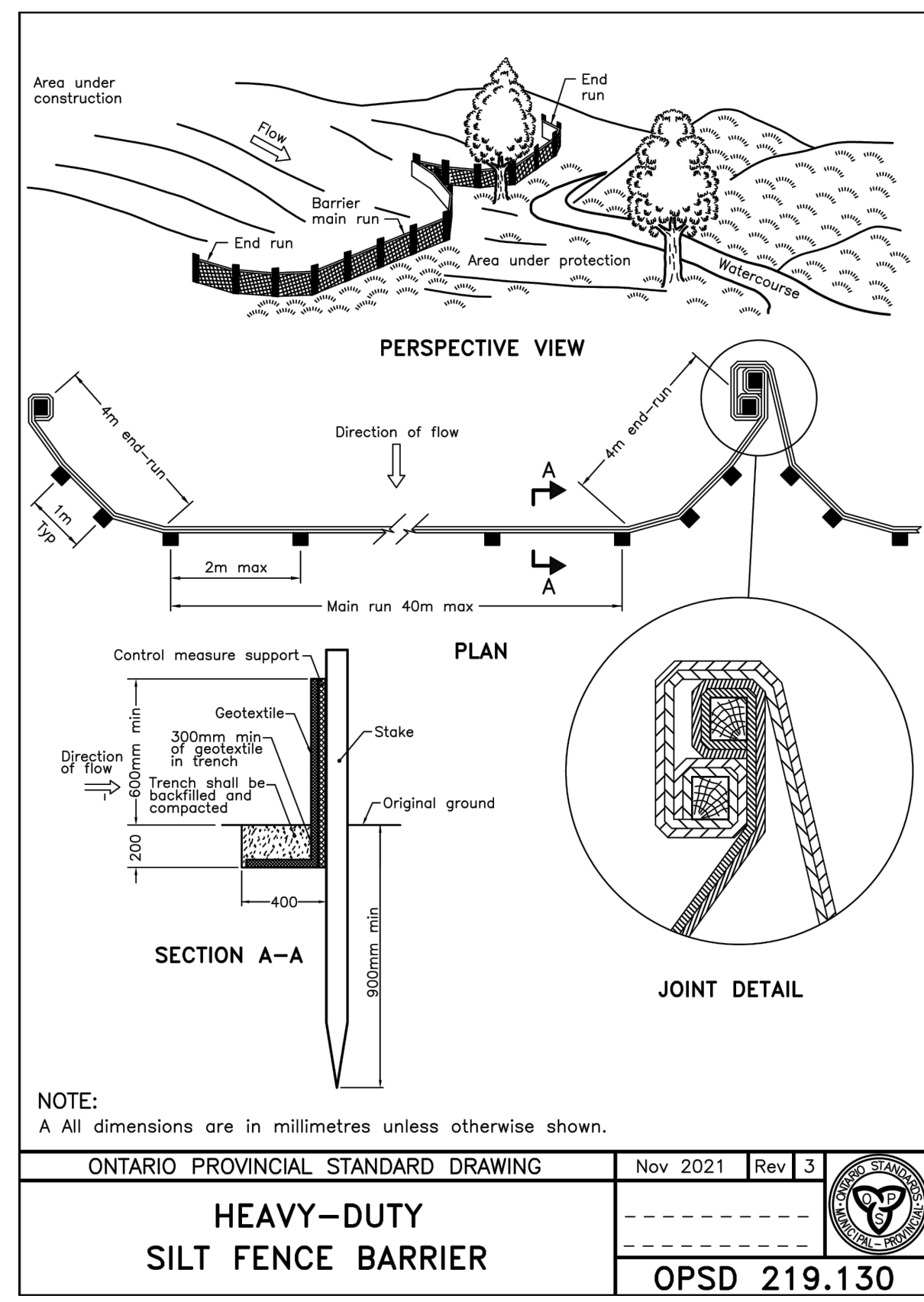
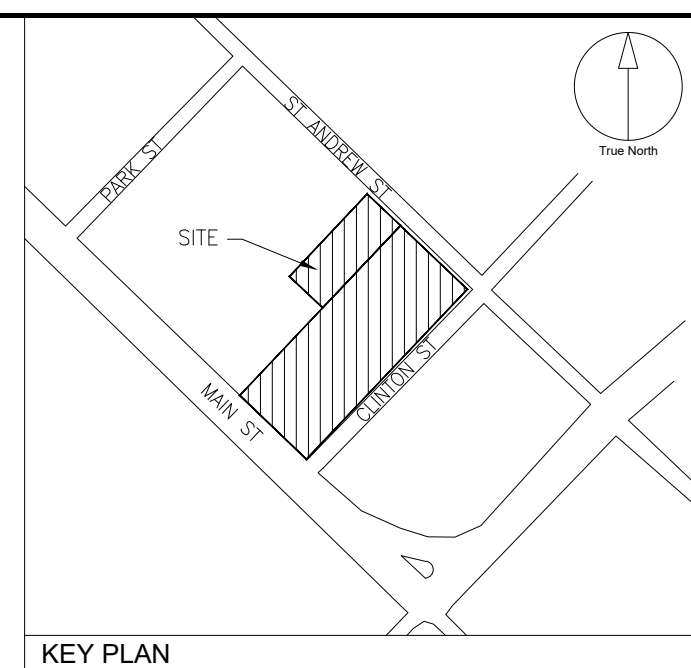
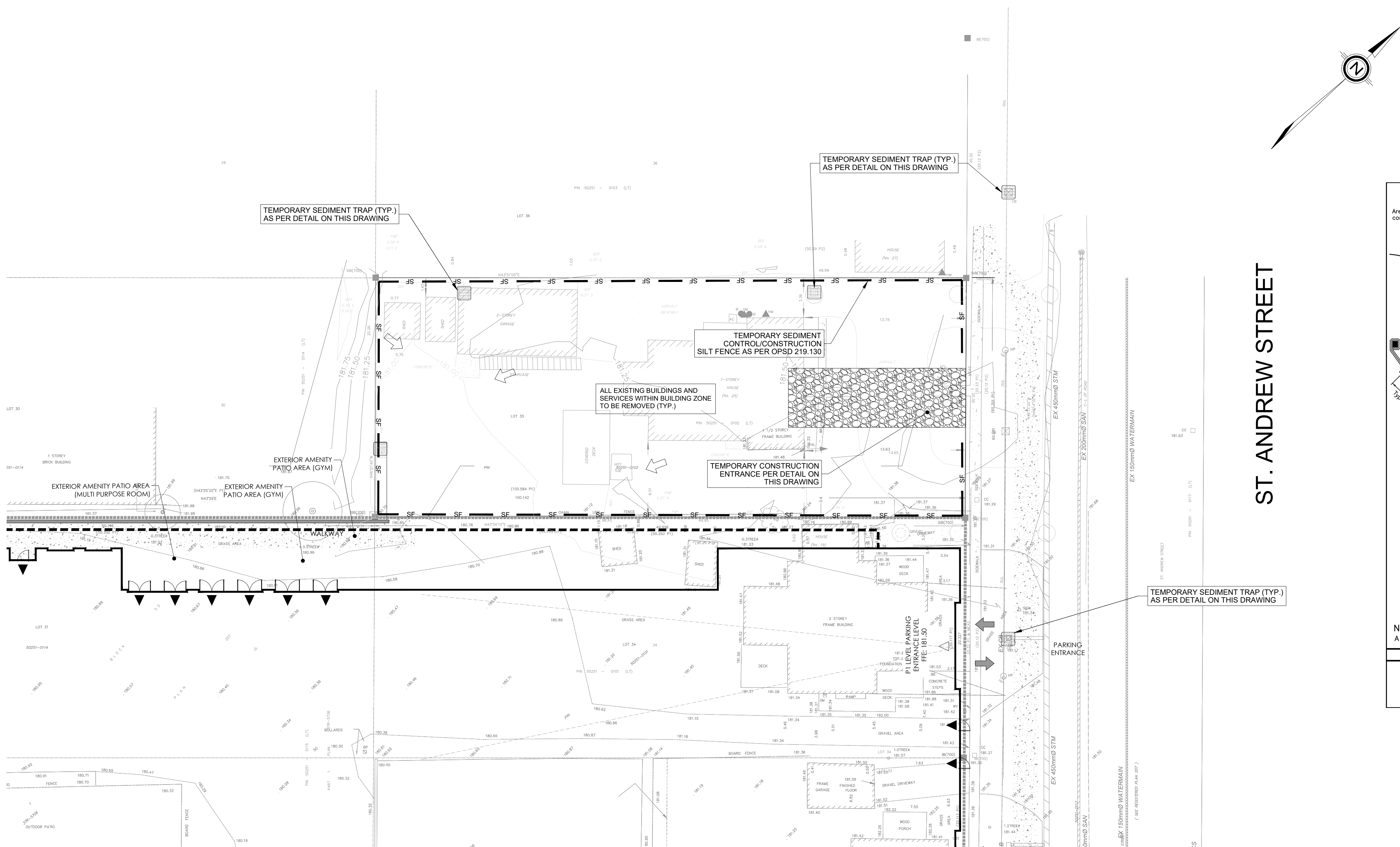
COPYRIGHT

This drawing has been prepared solely for the intended use. This any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES	No.	DESCRIPTION	DATE
	1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND



CLIENT
1000033566 ONTARIO INC.

COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND

PROPERTY LINE
TEMPORARY SILT FENCE
PROPOSED SEDIMENT TRAP
TEMPORARY GRAVEL MUD MAT
EXISTING OVERLAND FLOW ROUTE

Professional Engineer Seal: L. J. SZARZ, 100530281, 02/13/2025, PROVINCE OF ONTARIO

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2021 Rev 3

HEAVY-DUTY SILT FENCE BARRIER

OPSD 219.130

Norfolk COUNTY

ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE

ARCADIS
8133 Warden Ave. Unit 300 |
Markham, ON | L6G 1B3 | Canada
www.arcadis.com

PROJECT
ST. ANDREWS MUNICIPAL
PARKING LOT
25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:
148728

DRAWN BY:
TC

CHECKED BY:
SS

PROJECT MGR:
IQ

APPROVED BY:
IQ

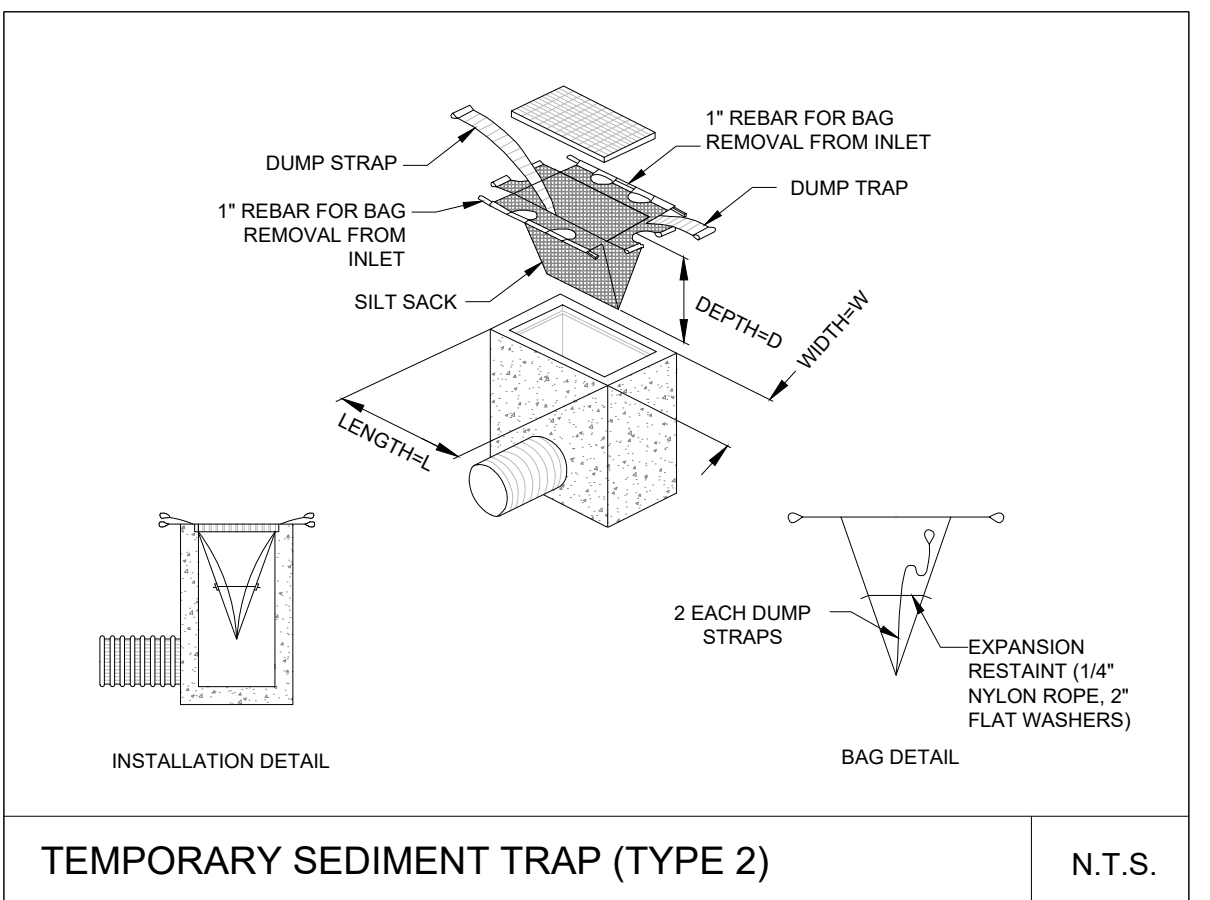
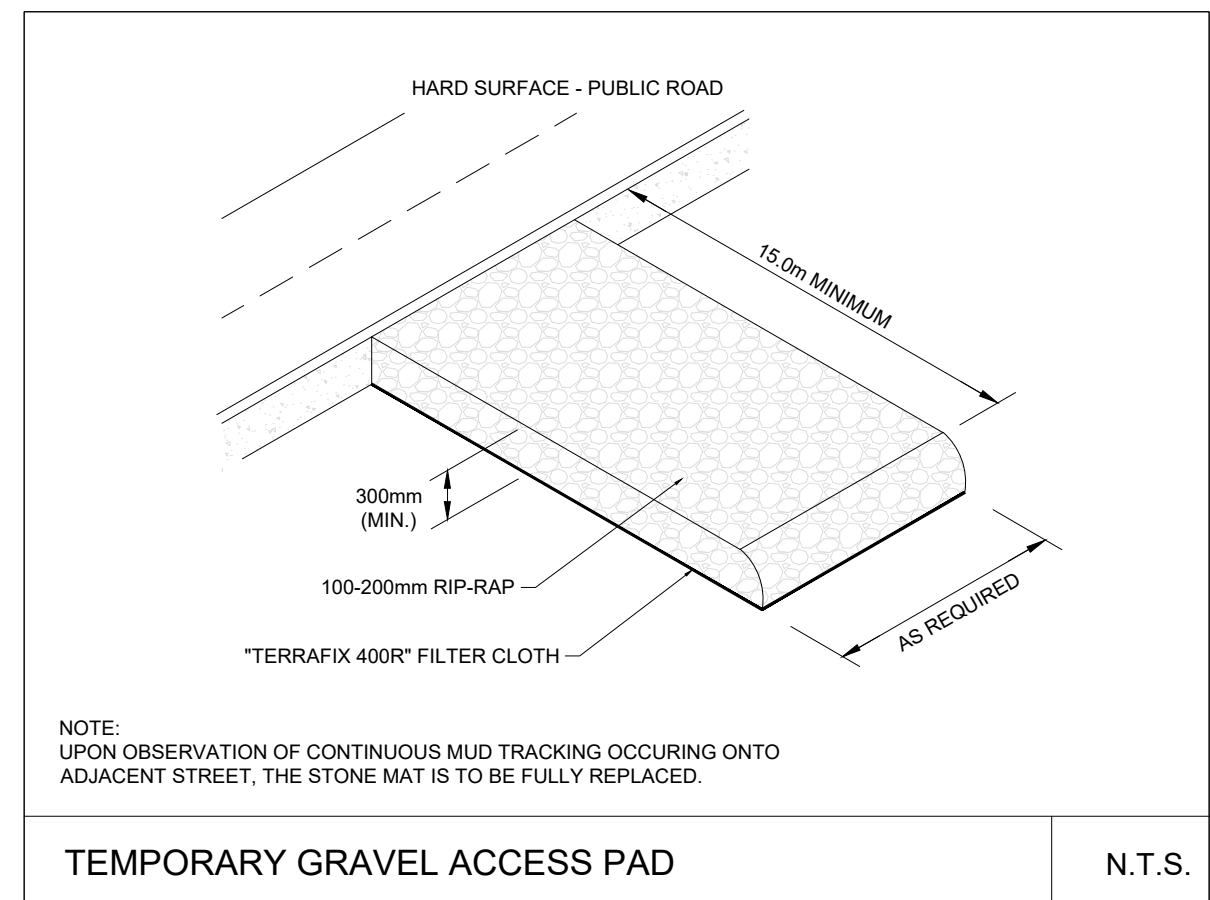
SHEET TITLE
EROSION AND SEDIMENT
CONTROL PLAN

SHEET NUMBER
ESC-01

ISSUE
01

EROSION AND SEDIMENT CONTROL / GENERAL NOTES:

1. SEDIMENT BARRIER AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF THE CONSTRUCTION.
2. ALL SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL THE AREA IS STABILIZED.
3. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
4. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
5. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
6. WILL COMPLY WITH CITY OF PORT DOVER NOISE BY-LAW.
7. SEDIMENT CONTROL FENCE TO BE AS PER OPSD 219.130.
8. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION ACCESS.
9. ALL TOPSOIL STOCKPILES TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING.
10. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS AND AREA DRAINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED OR BACKYARDS GRADED AND SODDED. FILTER FABRIC FOR SILT CONTROL TO BE TERRAFIX 270R OR APPROVED EQUIVALENT.
11. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS (ON PUBLIC STREET) ACROSS THE PROPERTY'S FRONTAGE.
12. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCE, SEDIMENT CONTROL AND MUD MATS
13. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.



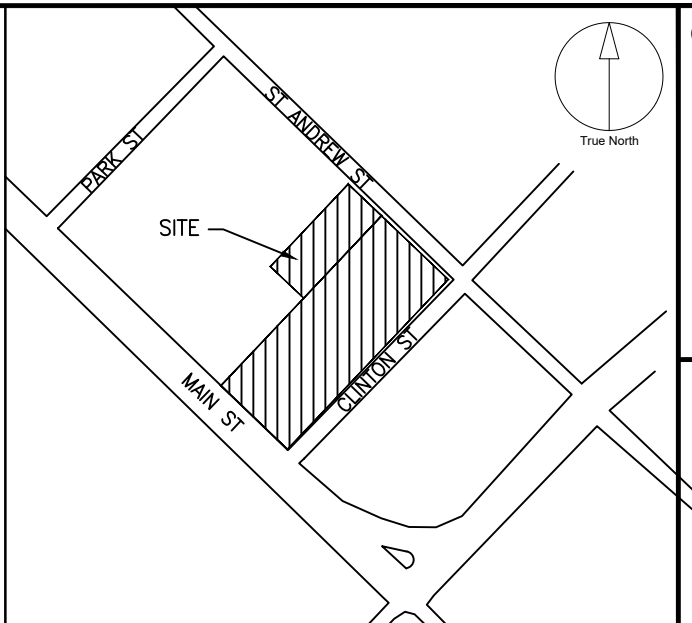
LIST OF DRAWINGS
SG-01 SITE GRADING PLAN
SS-01 SERVICING PLAN
EC-01 EROSION CONTROL PLAN
DS-01 NOTES AND DETAILS
DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN
DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN
XS-01 CROSS SECTION

SITE PLAN INFORMATION
VAN GROLL & ASSOCIATES INC.
2 ST CLARE AVE. W. F18
TORONTO, ONTARIO M6H 1L5
PHONE: (905) 339-2811 EXT 228

SURVEY INFORMATION
RASCH & HYDE LTD.
ONTARIO LAND SURVEYORS
P.O. Box 6, 1333 Highway #5 East, Unit B,
DUNKVILLE ONT. N1A 2K1
DUNKVILLE: 905-774-1198
FORT ERIE: 905-871-8797

BENCHMARK INFORMATION:
SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.53m.

SCALE:



CLIENT

1000033566 ONTARIO INC.

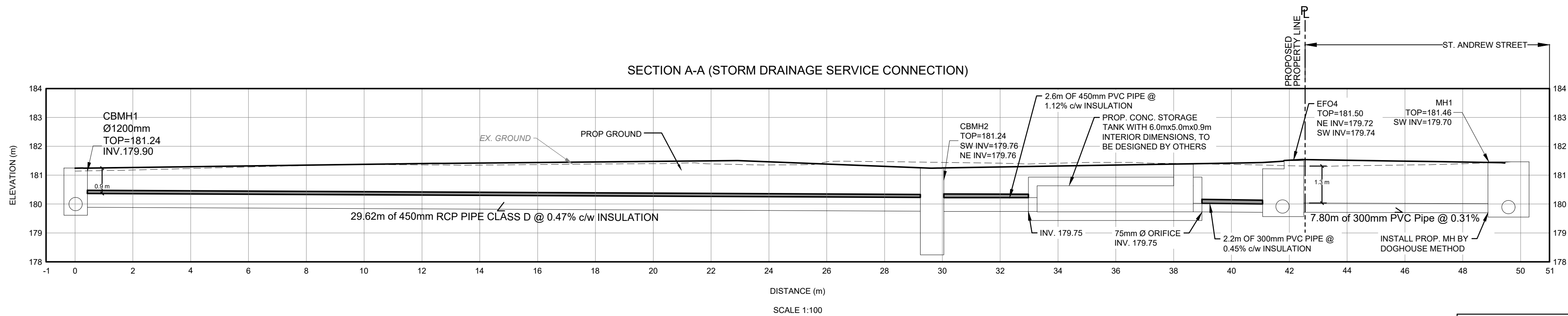
COPYRIGHT

This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by ARCADIS is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and ARCADIS shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to ARCADIS for general conformance before proceeding with fabrication.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
is a member of ARCADIS Group of companies

ISSUES		
No.	DESCRIPTION	DATE
1.	ISSUED FOR SPA SUBMISSION	FEB. 13, 2025

LEGEND	
PROPERTY LINE	-----
PROPOSED SANITARY MANHOLE	⊗
PROPOSED STORM MANHOLE	⊙
PROPOSED AREA DRAIN	⊗ AD
PROPOSED CATCH BASIN	⊗ CB
EXISTING CATCH BASIN	□
PROPOSED VALVE AND BOX	⊗ V&B
EXISTING FIRE HYDRANT	⊗ EX.FH
PROPOSED SIAMESE CONNECTION	⊗
PROPOSED STORM	-----
PROPOSED SANITARY	-----
PROPOSED WATER	-----
EXISTING COMBINED	-----
EXISTING WATER	-----
EXISTING STORM	-----
PROPOSED DOMESTIC WATER METER	[M]
PROPOSED BACKFLOW PREVENTER	[B]
PROPOSED DOUBLE CHECK DETECTOR ASSEMBLY	[D]



EXISTING UTILITIES TO BE DAYLIGHTED PRIOR TO CONSTRUCTION TO CONFIRM LOCATION AND DEPTH. NOTIFY ENGINEER IF ANY DISCREPANCIES / CONFLICTS ARE IDENTIFIED. A MINIMUM OF 72 HOURS BEFORE CONSTRUCTION



ACCEPTED TO BE IN ACCORDANCE WITH THE NORFOLK COUNTY STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING DATE

ARCADIS
8133 Warden Ave. Unit 300 |
Markham, ON | L6G 1B3 | Canada
www.arcadis.com

PROJECT
**ST. ANDREWS MUNICIPAL
PARKING LOT**
25 ST. ANDREW ST., PORT DOVER
NORFOLK COUNTY

PROJECT NO:
148728

DRAWN BY: TC	CHECKED BY: SS
PROJECT MGR: IQ	APPROVED BY: IQ

SHEET TITLE
CROSS-SECTION

SHEET NUMBER XS-01	ISSUE 01
------------------------------	--------------------

LIST OF DRAWINGS
SG-01 SITE GRADING PLAN
SS-01 SERVICING PLAN
EC-01 EROSION CONTROL PLAN
DD-01 NOTES AND DETAILS
DAP-01 PRE-DEVELOPMENT DRAINAGE AREA PLAN
DAP-02 POST-DEVELOPMENT DRAINAGE AREA PLAN
XS-01 CROSS SECTION

SITE PLAN INFORMATION
VAN GROLL & ASSOCIATES INC.
2 ST CLARE AVE. W. F18
TORONTO, ONTARIO M6V 1L5
PHONE: (905) 339-2811 EXT 228

SURVEY INFORMATION
RASCH & HYDE LTD.
ONTARIO LAND SURVEYORS
P.O. Box 6, 1331 Highway #8 East, Unit B,
DUNWILLIE, ONT. N1A 2X1
DUNWILLIE: 905-774-1188
FORT ERIE: 905-871-9757

BENCHMARK INFORMATION:
SITE BENCHMARK IS TOP NUT OF FIRE HYDRANT LOCATED AT NORTHWESTERLY CORNER OF ST. ANDREWS STREET AND CLINTON STREET, AND HAVING AN ELEVATION OF 182.32m

SCALE: 1:100
1.0m 0 1.0m 2.0m 3.0m 4.0m 5.0m