

Appendix D

Sanitary Sewer

Sanitary Downstream Analysis Memo
Sanitary Service Design Calculations

Fora Developments

Combined and Storm Capacity Analysis

2400 - 2440 Dundas Street West, Toronto, ON

October 2024

Combined and Storm Sewer Capacity Analysis

2400 - 2440 Dundas Street West, Toronto, ON

October 10th, 2024

Prepared By:

Arcadis Professional Services (Canada) Inc.
8133 Warden Avenue, Unit 300
Markham, Ontario L6G 1B3
Canada
Phone: 905 763 2322

Prepared For:

Fora Developments
Toronto, ON, M6P 1W9
Canada
Phone: 416 536 3600

Our Ref:
145725



Jason Jenkins
Associate Principal , P.Eng

Michael Simone
Engineering Intern, E.I.T

Mark Mendrek
Engineering Intern, E.I.T

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 (optional)

Revision No.	Date Issued	Description	Reviewed By
V1	May 28, 2024	Draft Report for Client Review	Will Heywood
V2	October 10, 2024	Draft Report for Client Review	Jason Jenkins

Contents

Introduction..... 1

1 Background..... 1

2 Drainage System..... 3

2.1 Existing Infrastructure 3

2.2 Post-Development Flows 4

2.3 Combined and Storm Sewer Analysis..... 6

3 MECP F-5-5 Compliance 8

4 Conclusion 10

Tables

Table 2-1 Existing Site Populations..... 3

Table 2-2 Proposed Development Site Populations (Residential)..... 4

Table 2-3 Proposed Development Site Populations (ICII) 4

Table 3-2 Relevant Developments 6

Table 5-1 Analysis Scenarios 7

Figures

Figure 1-1 Sewer Analysis Overview Map 2

Figure 3-1 Storm Analysis Overview Map 9

Figure 2-1 CB3517408760 2-Year Discharge 5

Appendices

Appendix SCA-1 Background

Appendix SCA-2 Hydraulic Modeling Results

Introduction

Arcadis Professional Services (Canada) Inc. (Arcadis) has been retained by Fora Developments (the “Owner”) to prepare a Functional Servicing Report to support the Zoning By Law Amendment (ZBA) process for a proposed mixed-use development located at 2400 - 2440 Dundas Street West (the “Subject Site”), in the City of Toronto (the “City”). The purpose of this report is to assess the downstream capacity of the receiving combined sewers pre and post development.

As part of the Sewer Assessment Guidelines (July 2021), the downstream capacity assessment has to the following criteria.

- Criterion 1 (“Design Function”)
 - Under proposed design flow conditions, plus contributing peak stormwater flows under the 2-yr design storm event, there shall be no surcharge in the sewer systems.
- Criterion 3 (WWF Mitigation”)
 - Under the 2-yr design storm event, off-site WWF and I&I mitigation measures will offset two times the proposed increase from on-site discharges to the system.
 - For systems containing CSO points for CSO control, ensure there will be no increase in peak overflow rate at the CSO point.

To meet both criteria, a proposed disconnection of one catchbasin located on Randolph Avenue currently connected to the combined system, will be redirected to the storm system located on Perth Avenue via a proposed storm sewer extension. A storm sewer assessment was then completed to prove that the additional flow which is redirected to the existing storm system from the combined system has sufficient capacity.

The City’s Design Criteria for Sewers and Watermains (2021) states that storm sewers are expected to operate under free flow conditions in a 2-year storm event.

1 Background

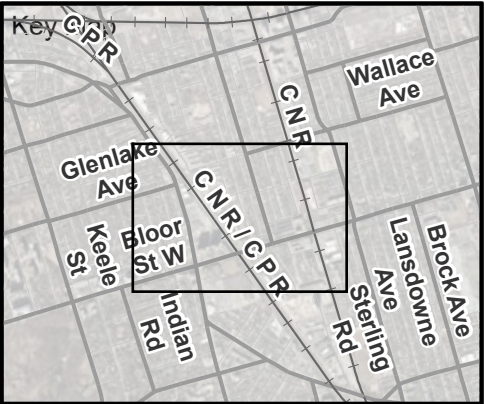
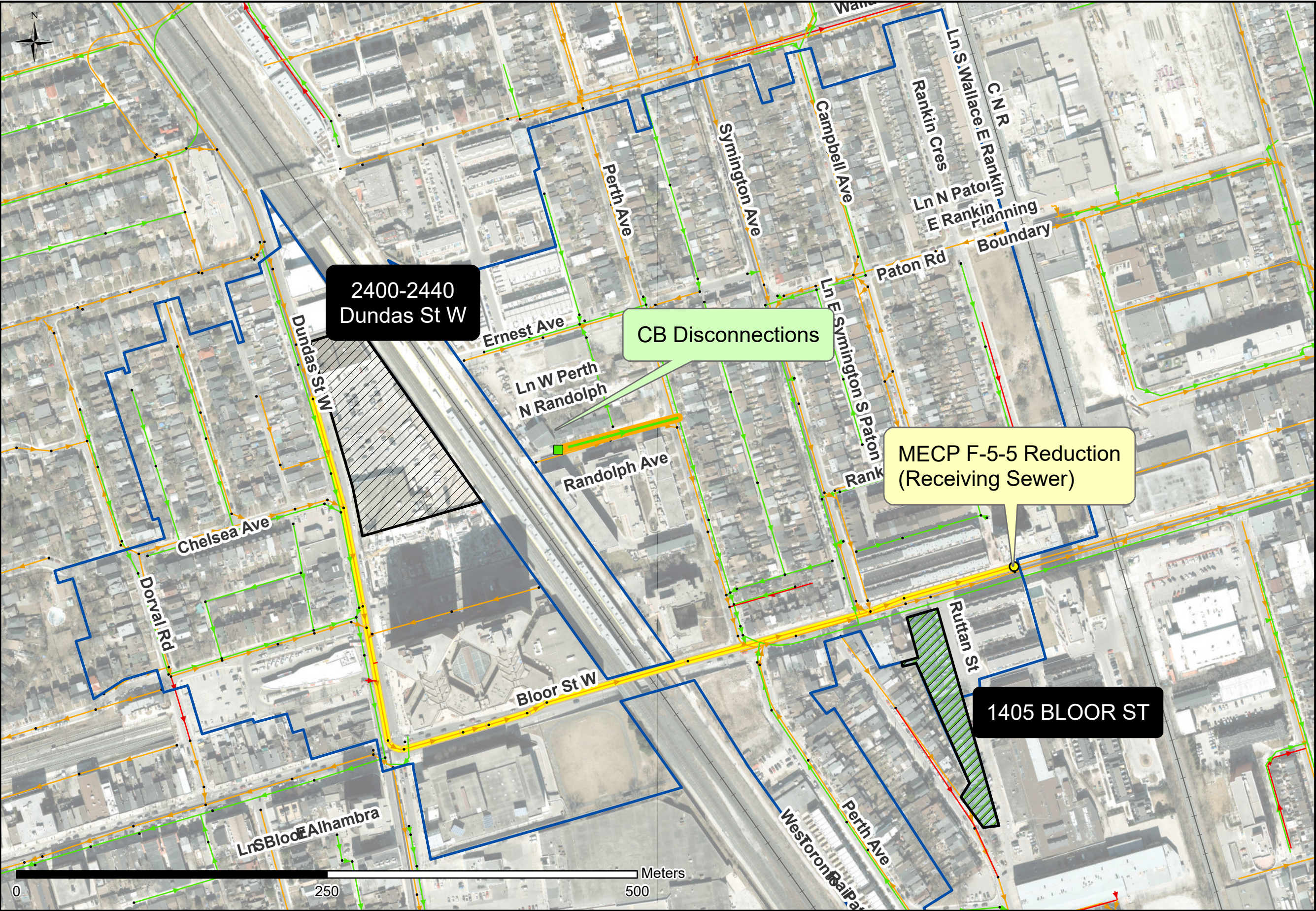
The development site location is located within the City’s Basement Flooding Study Area 44 (“BF44”). The downstream combined sewer analysis was conducted using the City’s InfoWorks model prepared as part of the Environmental Assessment for Basement Flooding Area (BFA) 42-44-62. The model was completed in 2022. The data release form can be found in Appendix A.

The following background and supporting information were used:

- The City of Toronto’s BFA 44-42-62 InfoWorks ICM model.
- The Sewer Capacity Assessment Guidelines for the City of Toronto dated July 2021.
- The Design Criteria for Sewers and Watermains for the City of Toronto dated January 2021.
- Google Maps Overhead Satellite Imagery, Google Street View, & ESRI Base maps.

Figure 1-1 on the following page, shows the proposed site location, catchbasin disconnection locations, recent developments, analyzed sewers and land use.

Figure 1-1 Sewer Analysis Overview Map



Legend

- Maintenance Holes
- Catch Basin Disconnections
- ▨ Development Site
- ▨ Recent Developments
- Drainage Area

Sewer Network

- Combined Sewer
- Sanitary Sewer
- Storm Sewer
- Proposed Storm Extension
- Analyzed Line

2400-2440 Dundas St W
Combined Capacity Analysis
City of Toronto

ARCADIS

Project No.: 141003	Date: October 2024
------------------------	-----------------------

2 Drainage System

2.1 Existing Infrastructure

2.1.1.1 Sanitary Discharge

Per the City's record information, circular and egg shape combined sewers ranging from 675 mm x 1050 mm to 1200 mm carry flows southwards along Dundas Street West and eastwards along Bloor Street West. Sewer flows are eventually conveyed to a combined sewer overflow (CSO) at Bartlett Ave & Bloor St W. The existing 1.11 ha site currently consists of commercial buildings, an asphalt parking surface. Using the City's population density, the population calculations are shown in **Table 2-1**.

Table 2-1 Existing Site Populations

	GFA (m ²)	Rate	Population
Commercial Buildings	3125	1.1 pp/100 m ²	34
Total Proposed ICI Population			34

The corresponding pre-development peak sanitary flow is calculated as follows:

$$Q_{\text{Pre-Dev.}} = \left(\frac{250 \text{ L/c} \cdot \text{d} \cdot 34}{86400 \text{ s / day}} \right) + (0.26 \text{ L/s} \cdot \text{ha} \cdot 1.11 \text{ ha}) = \mathbf{0.39 \text{ L/s}}$$

2.1.1.2 Storm Discharge

A dye test investigation was conducted by Aqua flow Technology Inc to determine existing drainage connectivity for the subject site. The results of this investigation show that all existing storm flows are directed to the existing 450 mm storm sewer within Dundas Street West, and no storm flows are directed to the existing 1,050 mm combined sewer. Accordingly, an off-site disconnection will be required to satisfy MECP Procedure F-5-5.

See **Appendix SCA-1** for a copy of the dye test investigation.

2.2 Post-Development Flows

2.2.1.1 Sanitary Discharge

The anticipated sanitary discharge flows for the proposed site were calculated based on the site statistics provided along with the City's design criteria. Additionally, the long-term dewatering rate of 0.16 L/s (running 24 hrs. per day) has been included in post development flows.

The population calculations are shown in **Table 2-2** and

Table 2-3.

Table 2-2 Proposed Development Site Populations (Residential)

	Units/Area	Rate	Population
1 Bedroom	841	1.4 pp/unit	1178
2 Bedroom	251	2.1 pp/unit	528
3 Bedroom	122	3.1 pp/unit	379
Total Proposed Residential Population			2085

Table 2-3 Proposed Development Site Populations (ICII)

	Floor Area (m ² GFA)	Rate	Population
Commercial/Retail	3069.5	1.1 pp/100m ²	34
Office Space	3206.4	3.3 pp/100m ²	106
Total Proposed Residential Population			140

The corresponding post-development sanitary sewer flow is calculated as follows:

$$Q_{\text{Post-Dev}} = \text{Residential Flows} + \text{ICI Flows} + \text{Dewatering Rate} =$$

$$Q_{\text{Post-Dev}} = \left(\frac{240 \text{ L/c} \cdot \text{d} \cdot 2085 \text{ pers} \cdot 3.57_{\text{P.F.}}}{86400 \text{ s / day}} \right) + \left(\frac{250 \text{ L/c} \cdot \text{d} \cdot 140 \text{ pers}}{86400 \text{ s / day}} \right) + (0.26 \text{ L/s} \cdot \text{ha} \cdot 1.11 \text{ ha}) + 0.16 \text{ L/s} = \mathbf{21.53 \text{ L/s}}$$

The proposed development site discharges **21.37 L/s** of sanitary flow to the existing sewer system, which results in an increase of **21.14 L/s** (21.53 L/s – 0.39 L/s) under dry weather conditions. All construction is assumed to be conducted following the Ontario Building Code and therefore no elevated infiltration rate is expected to occur during extreme wet weather scenarios.

2.2.1.2 Storm Discharge

In addition to on-site storm controls detailed in the Functional Servicing and Stormwater Management Report (FSR/SWM) for the site. A proposed disconnection of one catch basin (CB3517408760) located on Randolph Avenue, currently connected to the combined system, will redirect flows to the 750mm storm sewer on Perth Avenue via a proposed storm sewer extension to comply with MECP Procedure F-5-5. Conceptual details of the storm sewer extension can be found in **Appendix SCA-2**.

Combined and Storm Sewer Capacity Analysis

According to the City's BF42-44-62 InfoWorks ICM Model, the peak flow for this catch basin under the 2-Year, 6-Hour Chicago storm event is **47.77 L/s**, as shown in **Figure 2-1**.

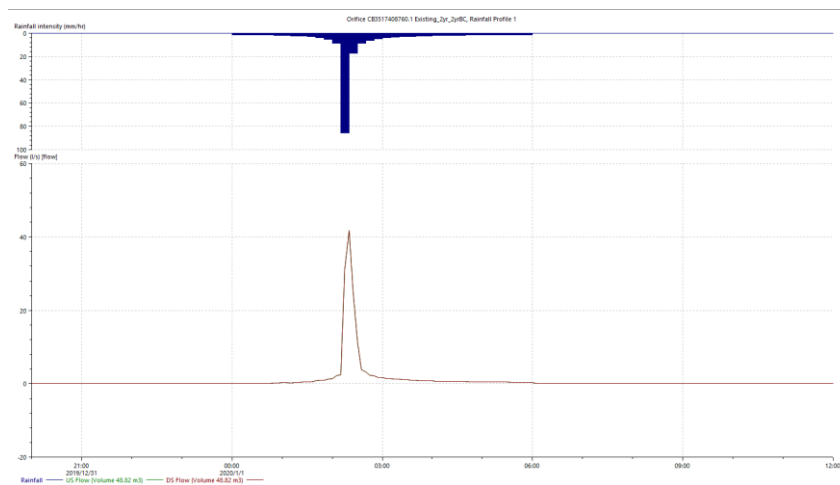


Figure 2-1 CB3517408760 2-Year Discharge

2.3 Combined and Storm Sewer Analysis

A combined and storm sewer analysis downstream of the developments site and proposed catch basin disconnection was conducted using Infoworks ICM software. The completed Infoworks model created for BFA 42-44-62 was obtained from the City and has been updated to include all proposed developments within the study area. The data release form can be found in **Appendix SCA-1**.

In the sewer capacity analysis, the following have been verified and incorporated in the model:

- Verification the sewer analysis model correctly represents the sewer system, including any updates to the sewer analysis to reflect changes (i.e. sewer construction) since the model was initially prepared.
- The model has been updated to include all sanitary peak flow rates from groundwater being discharged to the municipal sanitary system from all active and recent development applications located within the affected sanitary sewershed.
- Best efforts have been made to include all peak flows from Private Water discharge agreements in the sanitary sewershed.

2.3.1 Recent Developments

Developments relevant to the analysis were included as “Recent Developments” within the model. A recent development is considered as any development built or with an approved, active or under review Site Plan Application, since the development of the BFA 42-44-62 Model (Post 2022).

Proposed increase in flows from active developments listed on the City’s website were included in all analyzed scenarios and are presented in **Table 2-4**.

Table 2-4 Relevant Developments

Property Address	Application Number	Increase in Site Flow (L/s)	Notes
1405 BLOOR ST W	20199975STE09OZ	12.50	Under Review

Table 2-5 summaries each of the two (2) analysis scenarios. Under the proposed condition scenario, the development site discharge of **21.37 L/s** is applied in addition to the MECP F-5-5 Reduction. The combined sewer analysis will be conducted from the development site on Dundas Street West to the point of net decrease in the system, which occurs at the convergence of the combined sewers on Bloor Street West.

The storm sewer analysis was performed on all receiving storm sewers from the catchbasin reconnection location along Randolph Avenue up until the point where the existing hydraulic gradeline is no longer affected under the 2 year rainfall event. This occurs at pipe SL1446302.

Table 2-5 Analysis Scenarios

Scenario	Development Site Discharge to Combined	Catch Basin Discharge to Combined	Catch Basin Discharge to Storm	Rainfall Event Applied
Scenario 1: Existing Conditions (2-Yr Storm)	0.39 L/s	47.77 L/s	0 L/s	2-Year 6 Hour Chicago
Scenario 2: Proposed Conditions (2-Yr Storm)	21.14 L/s	0 L/s	47.77 L/s	2-Year 6 Hour Chicago

The results of each scenario are summarized in the following sections. **Appendix SCA-2** contains the detailed results sheets for each analysis scenario along with supporting flow generation sheets, and hydraulic grade line profiles (HGLs).

2.3.2 Scenario 1: Existing Conditions (2-Yr Storm)

This scenario evaluates the downstream sewer capacity under existing conditions with a 2-year storm applied.

Simulation results for this scenario indicate that all existing combined and storm sewers operate under free flow conditions. The maximum pipe diameter utilization of all combined sewers downstream of the development site is 81.8%. The maximum pipe diameter utilization of all storm sewers downstream of the development site is 38.7%

2.3.3 Scenario 2: Proposed Conditions (2-Yr Storm)

This scenario evaluates the downstream sewer capacity under proposed conditions with a 2-year storm applied. The proposed disconnection of the catchbasin on Randolph Avenue is modeled in the BFA 42-44-62 post development scenario by reconnecting the catchbasin lead from the combined sewer to the proposed storm sewer extension, prior to discharging into the existing storm network.

Simulation results for this scenario indicate that all existing combined and storm sewers operate under free flow conditions. The maximum pipe diameter utilization of all combined sewers downstream of the development site is 82.4%. The maximum pipe diameter utilization of all storm sewers downstream of the development site is 42.0%

3 MECP F-5-5 Compliance

In order to comply with MECP F-5-5, new developments connecting to combined sewers must demonstrate that:

- a) Increases in dry weather flow (DWF) causes no overflows at downstream CSO point/diversion structures under DWF plus 90% of the volume resulting from wet weather flow (WWF) from an average year.
- b) Under wet weather flow conditions, there is no increase in overflow volumes at downstream CSO points/diversion structures.

The assessment required to demonstrate the above requirements is as follows:

- a) Provide an on-site assessment of discharges (i.e. wastewater, inflow & infiltration and storm runoff) from the subject site showing no net increase in total flows under post-development conditions must be considered:
 - i. Confirm that storm runoff from the existing site is currently draining into the combined sewer system through investigation (e.g. sewer survey, service connection cards, CCTV, dye/smoke tests) to confirm any existing storm servicing connections (i.e., foundation/roof drain/catchbasin connections).
 - ii. Where existing storm contributions are confirmed to the combined sewer, demonstrate that reductions in the post development storm runoff rate as a result of on-site SWM controls can offset the increase in dry weather flows for the 2-year design storm event.

The site must present an off-site flow reduction option to offset the increase at a 2:1 ratio. A dye test investigation was conducted by Aquaflow Technology Inc. to determine and confirm the location of several possible catchbasins, and to verify if the catchbasins were connected to local combined sewers. Based on this investigation, the catchbasins on Randolph Avenue were confirmed to discharge to the existing combined sewer, one of which (CB3517408760) was chosen for disconnection. (see Appendix **SCA-1** for the full report)

Figure 3-1 provides an overview of the catchbasin disconnection located on Randolph Avenue currently connected to the combined system and the proposed storm sewer extension that will redirect that catchbasin to the storm sewer on Perth Avenue.

According to the City's BF42-44-62 InfoWorks ICM Model, the peak flow for this catch basin under the 2-Year, 6-Hour Chicago storm event is **47.77 L/s**, as shown in **Figure 2-1**.

As the proposed disconnection flow represents a flow more than double the proposed increase ($21.14 \text{ L/s} \times 2 = 42.28 \text{ L/s}$) from the site, the site is in compliance with MECP F-5-5 and the City of Toronto Sanitary Capacity Guidelines (July 2021).

It is important to note that the sanitary discharge connection of the development site is to the combined sewer on Dundas Street West. The point of net decrease in the system is not met until the convergence of the combined sewers on Bloor Street W near the intersection of Symington Ave & Bloor St W. Therefore, the downstream capacity analysis will be conducted up to the intersection of the combined sewer on Bloor Street West.

Figure 3-1 Storm Analysis Overview Map



Legend

- Maintenance Holes
- Catch Basin Disconnections

Sewer Network

- Combined Sewer
- Sanitary Sewer
- Storm Sewer
- Proposed Storm Extension
- Analyzed Line

2400-2440 Dundas St W
Combined Capacity Analysis
City of Toronto

ARCADIS

Project No.: 141003	Date: October 2024
------------------------	-----------------------

4 Conclusion

The downstream capacity of the receiving combined sewers for 2400 - 2440 Dundas Street West (the “Subject Site”) meets Criterion 1, as all existing combined sewers operate under free flow conditions in both existing and proposed conditions.

Criterion 2 will be met by a proposed disconnection of one catchbasin on Randolph Avenue from the combined system, which will be redirected to the storm system on Perth Avenue via a proposed storm sewer extension. This change is modeled in the BFA 42-44-62 post development scenario by reconnecting the catchbasin lead from the combined sewer to the proposed storm sewer extension, prior to discharging into the existing storm network.

The proposed catchbasin reconnection generates 47.77 L/s under a two-year storm event, which will now be diverted from the combined system to the storm system. Since the proposed disconnection flow exceeds the proposed site increase by more than double, the site complies with MECP F-5-5 and the City of Toronto Sanitary Capacity Guidelines (July 2021).

The downstream capacity of the receiving storm sewers from the catchbasin disconnection on Randolph Avenue meets the City’s Design Criteria for Sewers and Watermains (2021) as all storm sewers are expected to operate under free flow conditions in a 2-year storm even under both existing and proposed conditions.

Appendix SCA-1

Background

TWAG USER AGREEMENT

Between:

City of Toronto

(hereinafter referred to as the "City")

- and -

Arcadis

(hereinafter referred to as the "User")

WHEREAS the User has requested from the City disclosure of certain Toronto Water Asset Mapping ("TWAG") data for the purpose of

Sanitary and Storm sewer capacity analysis downstream of 2400 Dundas St West

(the "Purpose"); and

WHEREAS the City is prepared to make such disclosure to the User of the Information on certain express terms and conditions, including, among other things, the execution and delivery to the City of this TWAG User Agreement (hereinafter referred to as "Agreement") by the User;

WHEREAS the User accepts and agrees to all of the terms and conditions of this Agreement,

NOW THEREFORE IN CONSIDERATION of the disclosure of the Information to the User and for other good and valuable consideration, the receipt and sufficiency of which is acknowledged, the User agrees to the following terms and conditions:

1. Definitions

- (a) "City Solicitor" means the City Solicitor of the City of Toronto.
- (b) "Information" means any and all documents, records, information and/or material, however fixed, stored, expressed or embodied, which the User receives from the City by reason of this Agreement, or any part or portion thereof and includes, without limitation, the data and information referenced in Schedule "A" to this Agreement.
- (c) "Indemnitees" means the City and its elected officials, officers, directors, employees, agents, representatives, successors and assigns.
- (d) "Law" or "Laws" means all applicable statutes, laws, orders-in-council, by-laws, regulations, codes, ordinances, notices, rulings, orders, directives, requirements, policies and controls of the federal, provincial and municipal governments, including a by-law or policy of the municipal Council of the City and all applicable orders, judgments and declarations of a court or tribunal of competent jurisdiction; and a reference to any Law or Laws or to a provision thereof shall be deemed to include a reference to any Law or provision enacted in substitution therefor or amendment thereof.

Ownership of the Information

- 2.** The City is and shall be deemed and remain to be the sole and absolute owner of the Information. At the request of the City, the User shall return forthwith to the City all Information received pursuant to this Agreement, including all copies thereof.

Intellectual Property Rights

3. All of the Information is protected by intellectual property rights owned and controlled either by the City, or by third parties who have licensed their material to the City, including copyrights, patents, trade-marks and official marks. The Information may not be copied, downloaded, reproduced, republished, uploaded, posted, transmitted, distributed, altered or modified in any way without the prior written consent of the City or except as specifically permitted in this Agreement.
4. The trade marks, official marks and service marks contained in the Information are registered and unregistered marks of the City, or third parties who have licensed the use of such marks to the City. Nothing in this Agreement grants any licence or right to use any marks displayed in the Information without the written permission of the owner of the mark.

Confidential and Proprietary Information

5. The User acknowledges and agrees that the Information delivered to the User is and shall be considered, deemed and treated as proprietary and confidential information of the City, regardless of whether the City has identified the Information as such. The User shall not, by any act or omission, cause the diminishment of such rights. The User hereby undertakes to maintain the Information in confidence. The User acknowledges that it is a fiduciary of the City concerning the Information, and the User hold in trust for the City the Information and any benefits arising from the User's improper or unauthorized use of the Information.

Use of Information

6. The User may only use the Information solely for the Purpose and as reference documents and/or for general information purposes only and for no other or improper purpose.
7. The User acknowledges and agrees that the User is granted only a non-exclusive, restricted license to use the Information as provided in this Agreement.
8. The User may disclose the Information to its directors, officers, employees and any professional consultant(s), contractors and/or subcontractors the User may retain for the Purpose ("Representatives") provided, however, the User shall only disclose the Information on a strictly need-to-know basis to its Representatives solely for assisting in the Purpose. The User shall inform each such Representative of the confidential and proprietary nature of the Information and where such Representative is not already legally or contractually bound to maintain the confidentiality of the Information, the User shall obtain a written acknowledgment in favour of the City from each such Representative confirming the Representative's awareness of the confidential and proprietary nature of the Information and the Representative's agreement to keep the Information confidential and secure. The User assumes full responsibility and liability for ensuring that all of its Representatives are made aware of and comply with the obligations set out in this Agreement. The User shall be liable for any breach of this Agreement by any of its Representatives.

Non-Disclosure/Safeguarding of Information

9. The User acknowledges that it is a fundamental obligation of the User and the User agrees:
 - (a) to maintain and preserve the confidentiality of all of the Information disclosed or received;
 - (b) not to use the Information for any purpose except for the Purpose set out in this Agreement;
 - (c) not to publish, distribute or otherwise disclose the Information or any part thereof in any way and in any medium, mode or format to any person, save and except:
 - i. as permitted under this Agreement, or
 - ii. otherwise expressly permitted in writing and in advance by the City, or

- iii. as may be required by law to be disclosed pursuant to a court or tribunal order or other legal compulsion of competent jurisdiction in Canada and, if so compelled, the User shall only furnish the portion of the Information that it is legally compelled to furnish;
 - (d) not to copy or reproduce, in whole or in part, any of the Information other than strictly for the User's Purpose, without the City's prior written consent; and
 - (e) not to sell, license or otherwise transfer the Information to any third parties either voluntarily or by operation of law.
10. In the event that the User is compelled by law to disclose the Information or any part of it, the User promptly notify the City Solicitor in writing upon such legal requirement being imposed to permit the City an opportunity to seek an order or other remedy to prohibit or restrict such disclosure of such requirement prior to the disclosure or release of any of the Information at the following address:
- City of Toronto, Legal Services – Attention: City Solicitor
Metro Hall, 26th Floor, 55 John St., Toronto, ON M5V 3C6
Fax: 416-397-5624
11. The City's Information shall be safeguarded and protected by the User and the User shall take all proper measures and use its best efforts to protect and keep confidential such information from disclosure to third parties not bound by relevant non-disclosure agreements and to otherwise prevent the unauthorized disclosure of the Information to third parties. The User shall maintain the physical security of the Information notwithstanding the medium in which the Information is received or stored. The User shall advise the City Solicitor immediately in the event of a security breach.

"As Is" Nature of Information/No Warranty

12. The Information is provided by the City solely on "as is" basis and, without limiting the foregoing, the Information is provided for reference and general information purposes only.
13. While the City makes reasonable efforts to provide accurate Information, the Information:
- may not reflect the actual circumstances of the City infrastructure at any time including, without limitation, the past, current or full extent or state of the particular City infrastructure such as its depth, elevation, location, composition, components or condition or even its existence
 - may be based on limited information available at the time the Information was created;
 - may be subject to change at any time, without notice, and any updating of records concerning City infrastructure may only occur periodically from time to time;
 - may not reflect the current circumstances at the time the User accesses the Information;
 - is not intended to be an exhaustive record of information concerning or related to any particular City infrastructure or infrastructure adjacent thereto;
 - may be manually transcribed and include transcription errors;
 - may reflect approximations of the circumstances rather than actual circumstances; and
 - is only intended for general informational purposes and is not intended to be relied upon for any particular purpose, including the Purpose set out in this Agreement.
- The User acknowledges and accepts the foregoing limitations, without limitation, on the accuracy of the Information.
14. The Information is not to be used as a substitute for diligent field examinations legal surveys, subsurface investigations and other inspections or actions, as a prudent person would undertake and utilize. The User should obtain appropriate professional engineering and other advice and access resources relevant to their particular circumstances.
15. The User acknowledges and agrees that the City does not guarantee or make, and, to the fullest extent permissible pursuant to applicable law, expressly disclaims any representations and all warranties, express or implied, including but not limited to implied warranties of merchantability and fitness for a

particular purpose, with respect to the Information. Without limiting the foregoing, the City does not represent or warrant that the Information is free of errors or deficiencies of any kind or make any representation or warranty in respect to the content, accuracy, correctness, reliability, currency or completeness of the Information; or the satisfactory quality or fitness or suitability of the Information for a particular purpose.

Acceptance of Risk

16. The User agrees to accept and assume any and all risks and consequences flowing from or related to the use of the Information, or any part of the Information.
17. The User agrees, by using the Information or any part thereof, that neither the City nor any of its Indemnities shall have any responsibility or liability for any damages, loss or injury of any kind whatsoever including, without limitation, direct, compensatory, indirect, special, incidental, consequential, contributory, punitive, exemplary or other damages, any loss of profit, revenue, goodwill or savings, costs, expenses, harm to business, business interruption, reputation, loss of tangible or intangible property, legal fees or legal costs, whether based in contract, tort, negligence or any other legal basis, arising out of the use, application of, any decision made or action taken in reliance upon or inability to use, or any omissions or inaccuracies in, the Information or any part thereof, regardless of whether caused in whole or in part by the City's negligence or otherwise and even if the City has been specifically advised of the possibility of such damage, loss or injury, or if such damage, loss or injury was foreseeable.
18. The User hereby releases, remises and forever discharges the City, its Indemnities, successors and assigns, from all such responsibility or liability (as noted above) and from all manner of actions, causes of actions, debts, claims and demands whatsoever related to the use or otherwise of the Information.

Indemnity

19. The User will from time to time hereafter save, defend, save harmless and fully indemnify the City and its Indemnities from and against any and all claims, demands and liabilities which may be brought against or made upon the City and/or its Indemnities and against all loss, cost, damage and expenses whatsoever (including legal fees) which the City and/or its Indemnities may sustain, suffer or be put to in any way directly or indirectly as a result of a breach by the User of any obligation of the User in this Agreement.

Termination

20. The City may immediately terminate the User's right to use the Information if, in the sole discretion of the City, the User fails to comply with any of these terms and conditions of use or any other obligation of the User in this Agreement or engages in any misleading, dishonest or fraudulent activity concerning or related to the Information. Provided further, the City may terminate the User's use of the Information at its convenience on five calendar days' notice without default by the User. In the event of any termination of the User's use of the Information, the disclaimers, limitations of liabilities and indemnities set forth in these terms and conditions of use, shall survive the termination of this Agreement.

No Endorsement or Association

21. The User may not use any of the Information in a way that suggests any official status or that the City endorses the User or the User's use of the Information. The User shall not use the Information in any way to suggest that there is any endorsement by or association with the City of any business, product or service.

Compliance with Laws

22. The User represents and agrees that its use of the Information shall not violate any applicable law.

Governing Law/Severability

23. This Agreement shall be governed by, subject to and construed in accordance with the laws of the Province of Ontario and the laws of Canada, as applicable to the matters herein and shall be treated in all respects as an Ontario contract. Any action or other legal proceeding arising under or with respect to this licence or the subject matter of it (including any motion or other interlocutory proceeding) shall be brought in a Court or a tribunal or other forum of competent jurisdiction, whichever may be applicable, sitting in Toronto, Ontario, save and except the Supreme Court of Canada. The User and the City each irrevocably submit to the exclusive jurisdiction of the courts and tribunals of the Province of Ontario in accordance with the foregoing.
24. If any provision or part thereof of this Agreement is found to be invalid or unenforceable by law, then that provision or part thereof shall be deemed severable from this Agreement and will not affect the validity and enforceability of any remaining provisions which will remain in full force and effect.

No Agency

25. The User acknowledges and agrees that the User and the City are independent contractors, and no agency, partnership, joint venture or employee-employer relationship is intended or created by this Agreement.

No Waiver

26. It is agreed that no failure or delay by the City in exercising, fully, partially or at all, any right, power, remedy, entitlement, benefit or privilege conferred upon it by this Agreement shall operate as a waiver thereof. No waiver shall be inferred from or implied by anything done or omitted by the City or any of its representatives and no waiver of any rights of the City shall be effective unless expressly provided in writing by an authorized representative of the City.

Agreement in Writing

27. No verbal arrangement or agreement relating to this Agreement or the subject matter thereof will be of any force or effect unless it is in writing and signed by duly authorized representative(s) of the City. The City shall not be bound by any oral communication or representation whatsoever, including but not limited to any instruction, amendment and clarification of this Agreement or any of the documents comprising this Agreement, or any representation, information, advice, inference or suggestion, from any person (including but not limited to an elected official, employee, agent, independent consultant or any other person acting on the behalf of or at the direction of the City or other representative of the City) concerning this Agreement or any matter concerning this Agreement or the subject matter thereof. The City shall not be bound by any written representation whatsoever concerning this Agreement unless executed by the person designated and authorized in accordance with this Agreement or in accordance with a direction or authorization of City Council.

Entire Agreement

28. These terms and conditions of use constitute the entire agreement between the User and the City related to the Information and its use.

Notices

29. Any demand or notice to be given under this Agreement, unless otherwise provided in this Agreement, shall be made and given in writing and delivered to the party at the address as set out below, either personally, by facsimile or by means of prepaid registered mail addressed to such party as follows:

- (a) in the case of the City:
City of Toronto
General Manager, Toronto Water
24th Floor, East Tower City Hall

100 Queen Street West, Toronto, Ontario M5H 2N2
Telephone: (416) 392-8200 Facsimile: (416) 392-9793

(b) in the case of the User:

Arcadis
8133 Warden Avenue, Unit 300
Markham Ontario

or to such other addresses as one party may from time to time notify the other party in writing, and any demand or notice so made or given shall be deemed to have been given and received on the day on which it was personally delivered or, if delivered by facsimile, shall be deemed to be delivered as of the next Business Day following the date of transmission or, if mailed, then, in the absence of any interruption in postal service in the City of Toronto affecting the delivery or handling thereof, on the day following three (3) full Business Days following the date of mailing.

Successors/No Assignment

30. This Agreement may not be assigned by the User without the prior written consent of the City. Any assignment by the User of this Agreement contrary to the foregoing is prohibited and shall be void.

Understanding of Terms

31. The User acknowledges and agrees that the User has read and understood this document, that the User has had the opportunity to obtain independent legal advice with respect to it, and that the User is signing it voluntarily. The User acknowledges that the City is relying on the acknowledgements and agreements that the User has made in this document and particularly this paragraph, and further that the City would not have made the disclosure of information but for these acknowledgements and agreements.

The User hereby executes this Agreement on the date indicated below by the signature of its duly authorized representative.

Signed at _8133 Warden Avenue, Unit 300_, Ontario this _4_ day of _____October_____, 2024_____.

USER –

Arcadis



Signature of Authorized Representative

c/s

Name: Jason Jenkins

Title: Associate Principal - Practice Lead, P.ENG

I have authority to bind the corporation.

Schedule "A"

Information (Confidential)

1. Toronto Water Asset Geodatabase ("TWAG") Database Information including

STORM SEWER SYSTEM InfoWorks ICM Hydraulic Model for Basement Flooding Area (BFA) **44**.

SANITARY SEWER SYSTEM InfoWorks ICM Hydraulic Model for Basement Flooding Area (BFA) 44.

Table SCA 1-1

Development Site Area: 1.11 ha

Existing Site Flows

Unit Count

	Floor Area (m2 GFA)	Rate (per 100m2)	Pop (persons)
Commerical Building	3125	1.1	34
		Total:	34

Flow Gen. Rate 250 L/cap/day
 Peaked DWF 0.10 L/s

I-I Rate 0.26 L/s/ha I-I Rate 3.00 L/s/ha
 I-I Flow 0.29 L/s I-I Flow 3.34 L/s

Total DWF: **0.39** L/s Total WWF: **3.44** L/s

Proposed Site Flows

Towers A + B1 + B2

	Count	Rate (per unit)	Pop (persons)
1 Bedroom	841	1.4	1178
2 Bedroom	251	2.1	528
3 Bedroom	122	3.1	379
Total:	1214	Total:	2085

ICI Flows

	Floor Area (m2 GFA)	Rate (per 100m2)	Pop (persons)
Commerical/Retail	3069.5	1.1	34
Office Space	3206.4	3.3	106
Total:	6275.9	Total:	140

Dewatering Rate 0.16 L/s
 Peaking Factor 3.57
 Flow Gen. Rate (Res) 240 L/cap/day
 Flow Gen. Rate (ICI) 250 L/cap/day
 Peaked DWF 21.24 L/s

I-I Rate 0.26 L/s/ha
 I-I Flow 0.29 L/s

Total DWF: **21.53** L/s
 Total Increase in DWF: **21.14** L/s



**226 WILKINSON ROAD, BRAMPTON, ONTARIO L6T 4N7
(905) 792-8169**

**COMBINED & STORM SEWER INVESTIGATION REPORT
DYE TEST**

**200 MM - 375 MM DIAMETER COMBINED SEWERS
&
200 MM - 600 MM DIAMETER STORM SEWERS**

FOR

2400 DUNDAS STREET WEST

CITY OF TORONTO

**CONSULTING ENGINEER: ARCADIS
CONSULTING ENGINEER'S REPRESENTATIVE: MARK MENDREK**

THURSDAY, MAY 9TH, 2024

INDEX:

- 1. TITLE PAGE AND INDEX**
- 2. SUMMARY REPORT AND CONCLUSIONS**
- 3. SKETCH OF SEWERS INSPECTED**

**SEWER CLEANING, VIDEO INSPECTION, INSITU REPAIRS &
MUNICIPAL ENGINEERING SERVICES**

2. SUMMARY REPORT AND CONCLUSIONS:

The investigation of the combined and storm sewers at 2400 Dundas Street West was carried out by Steven Lostracco, P.Eng. of Aquaflow Technology, and was authorized by Mark Mendrek of Arcadis. The investigation was carried out on Thursday May 9th, 2024.

The purpose of this report was to determine which municipal sewer the street catchbasins connect to. Dye testing was carried out from each catchbasin to confirm which sewer they connect to.

1. CB-1 and CB-2 on Randolph connects to the 300 mm combined sewer. Green dye was pumped into the catchbasins and was observed at MH COMB-A.
2. CB-3 on Ernest connects to the 300 mm combined sewer. Green dye was pumped into the catchbasin and was observed at MH COMB-B.
3. CB-4, CB-5 and CB-7 on Campbell connect to the 300 mm combined sewer. Green dye was pumped into the catchbasins and was observed at MH COMB-C. Note, CB-6 could not be found, it is likely abandoned.
4. DCB-8 and DCB-9 on Rankin connect to the storm sewer on Rankin.



1. CB-1 and CB-2 on Randolph connect to COMB-A (Green dye)



2. CB-1 and CB-2 on Randolph connect to COMB-A (Green dye)



3. CB-1 and CB-2 on Randolph connect to COMB-A (Green dye)



4. CB-1 and CB-2 on Randolph connect to COMB-A (Green dye)



5. CB-3 Ernest connect to COMB-B (green dye)



6. CB-3 Ernest connect to COMB-B (green dye)



7. CB-3 Ernest connect to COMB-B (green dye)



8. CB-3 Ernest connect to COMB-B (green dye)



9. CB-4 and CB-5 on Campbell connect to COMB-C (green dye)



10. CB-4 and CB-5 on Campbell connect to COMB-C (green dye)



11. CB-4 and CB-5 on Campbell connect to COMB-C (green dye)



12. CB-4 and CB-5 on Campbell connect to COMB-C (green dye)



13. CB-7 on Campbell connects to COMB-D (green dye)



14. CB-7 on Campbell connects to COMB-D (green dye)



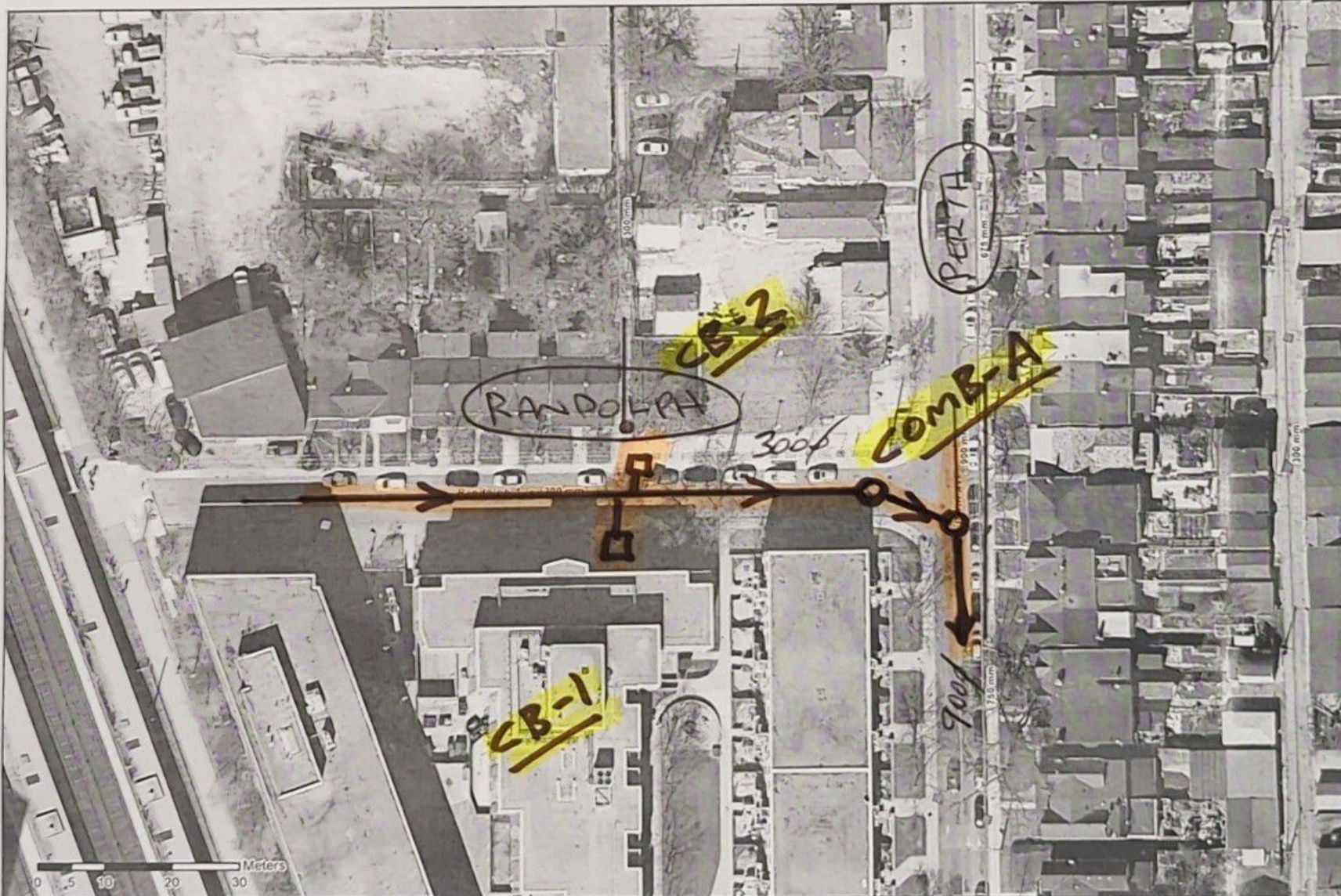
15. CB-7 on Campbell connects to COMB-D (green dye)

Report Prepared by:

A handwritten signature in black ink, appearing to read 'Steven Lostracco'.

Steven Lostracco, P. Eng.

Aquaflow - Catchbasin Disconnections Cluster 1



- Legend**
- Catchbasin DYE TEST
 - Catchbasin
 - Combined Sewer
 - Sanitary Sewer
 - Storm Sewer
 - Study Area

Catchbasin Disconnection
2400 Dundas Street West
City of Toronto

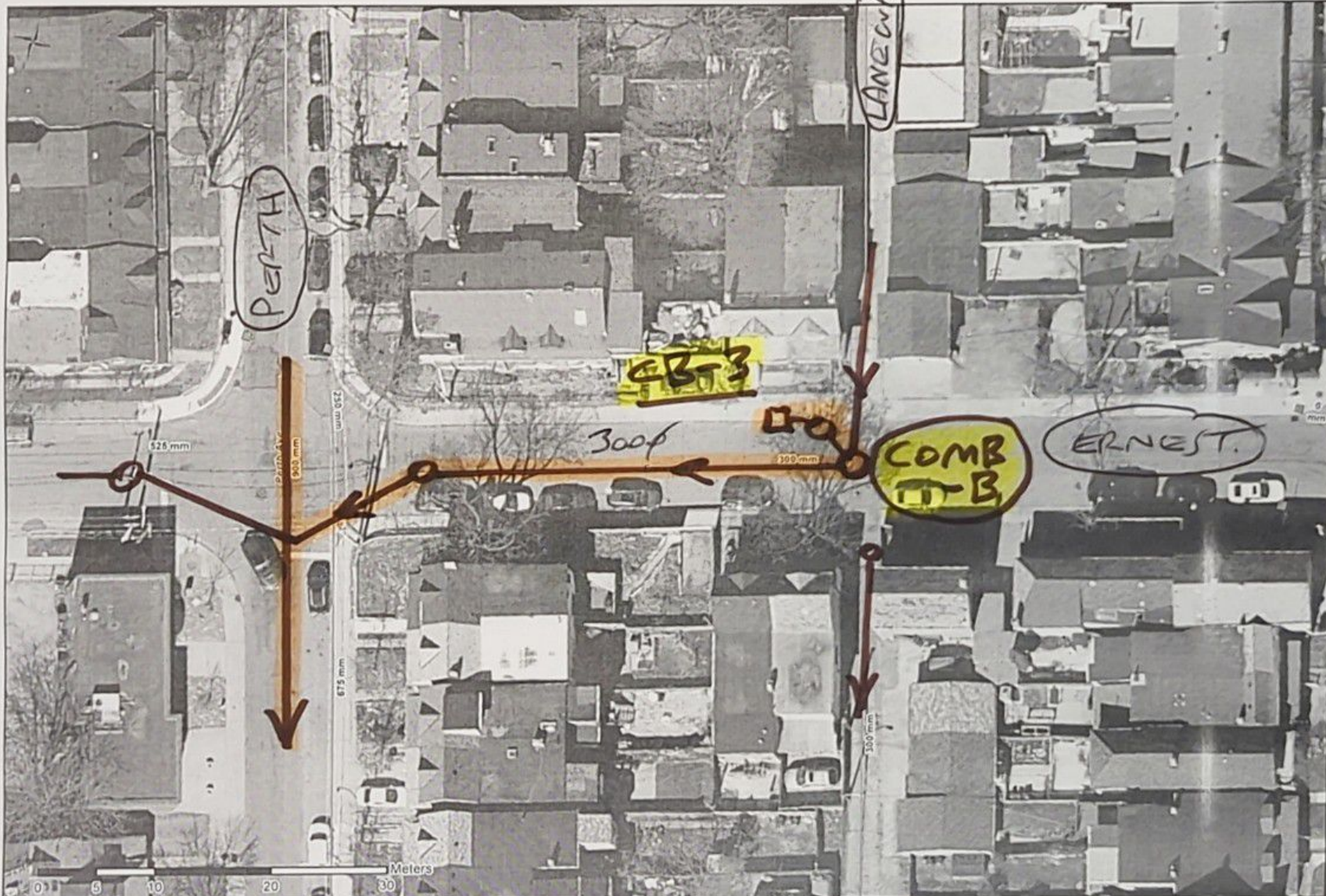
ARCADIS

Project No.: 141003
Date: May 2024

P. 1 of 4

2400 DUNDAS ST W
MAY. 9. 2024

Aquaflow - Catchbasin Disconnections Cluster 2



Legend

- Catchbasin DYE TEST
- Catchbasin
- Combined Sewer
- Sanitary Sewer
- Storm Sewer
- ▭ Study Area

Catchbasin Disconnection
2400 Dundas Street West
City of Toronto

ARCADIS

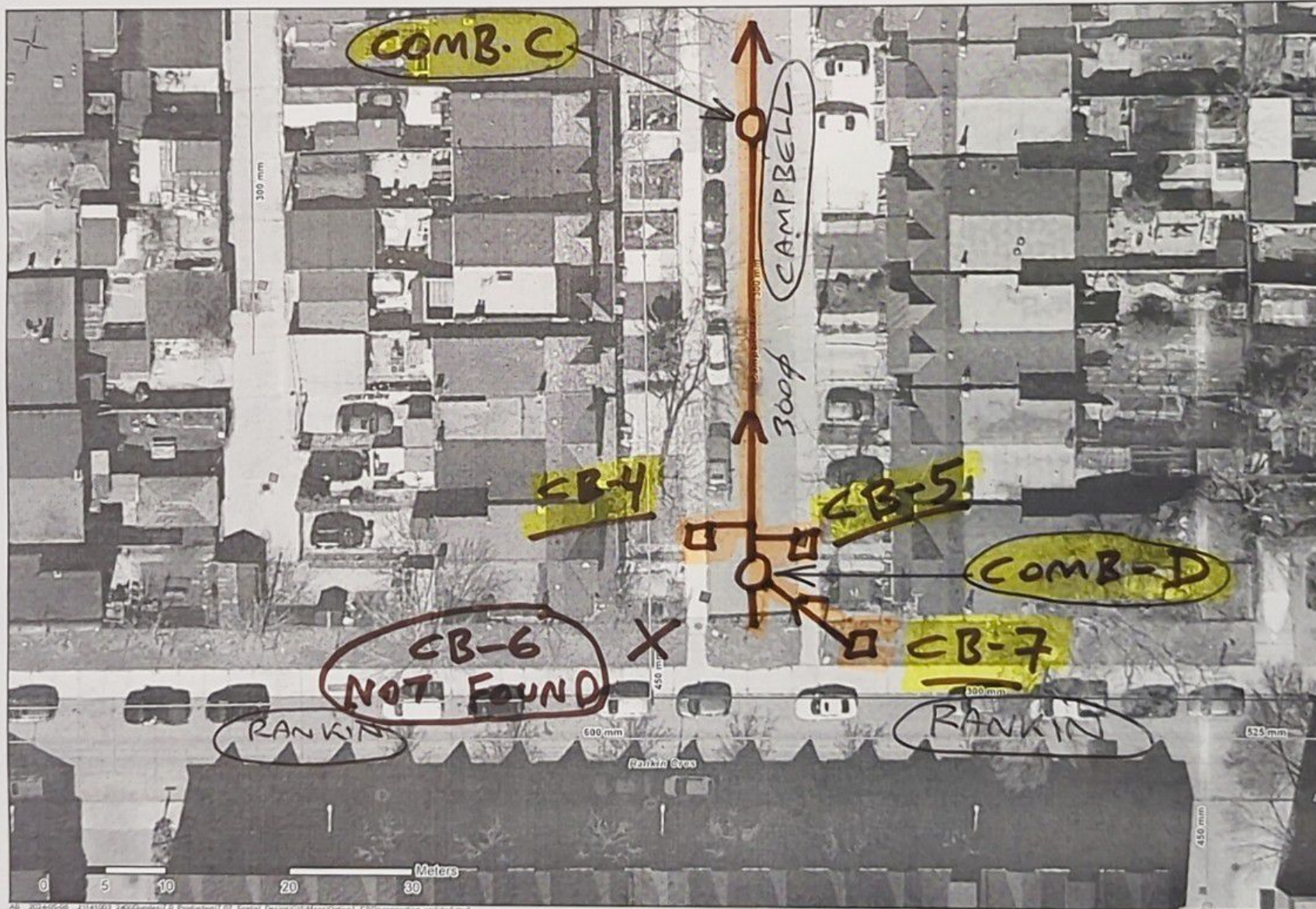
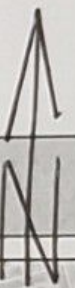
Project No.
141003

Date:
May 2024

P. 2 of 4

2400 DUNDAS ST W
MAY. 9. 2024

Aquaflow - Catchbasin Disconnections Cluster 4



Legend

- Catchbasin DYE TEST
- Catchbasin
- Combined Sewer
- Sanitary Sewer
- Storm Sewer
- ▭ Study Area

Catchbasin Disconnection
2400 Dundas Street West
City of Toronto

ARCADIS

Project No.

141003

Date:

May 2024

P. 3 OF 4

2400 DUNDAS ST. W
MAY. 9. 2024

Aquaflow - Catchbasin Disconnections Cluster 3



- Legend**
- Catchbasin DYE TEST
 - Catchbasin
 - Combined Sewer
 - Sanitary Sewer
 - Storm Sewer
 - Study Area

Catchbasin Disconnection
2400 Dundas Street West
City of Toronto

ARCADIS

Project No.: 141003 Date: May 2024

P. 4 of 4 2400 DUNDAS ST. W
MAY. 9. 2024



226 WILKINSON ROAD, BRAMPTON, ONTARIO L6T 4N7
(905) 792-8169

**COMBINED & STORM SEWER INVESTIGATION REPORT
DYE TEST**

**700x1050 MM COMBINED SEWER
&
100 MM - 600 MM DIAMETER STORM SEWER**

FOR

2400 DUNDAS STREET WEST

CITY OF TORONTO

**CONSULTING ENGINEER: IBI
CONSULTING ENGINEER'S REPRESENTATIVE: JASON JENKINS
CONSULTING ENGINEER'S REPRESENTATIVE: CASSIDY GOETZ
OWNER: FORA DEVELOPMENTS
OWNER'S REPRESENTATIVE: LYLE LEVINE**

FRIDAY, NOVEMBER 11TH, 2022

INDEX:

- 1. TITLE PAGE AND INDEX**
- 2. SUMMARY REPORT AND CONCLUSIONS**
- 3. SKETCH OF SEWERS INSPECTED**

**SEWER CLEANING, VIDEO INSPECTION, INSITU REPAIRS &
MUNICIPAL ENGINEERING SERVICES**

2. SUMMARY REPORT AND CONCLUSIONS:

The investigation of the combined & storm sewers at 2400 Dundas Street West was carried out by Steven Lostracco, P.Eng. of Aquaflow Technology, and was authorized by Jason Jenkins of IBI Group. The investigation was carried out on Friday November, 11th, 2022.

The purpose of this report was to determine which municipal sewer the storm drains connect to.

1. Shoppers Drugmart. All roof drains discharge through the side of the building to the parking lot which drains to the CB next to MH STM-3, which then drains to the 450 mm storm sewer on Dundas Street West.
2. All parking lot drainage flows into the CB's which outlets to the 450 mm storm sewer on Dundas Street West.
3. Freshco. All roof drains discharge into CBMH-2 which drains to the 450 mm storm sewer on Dundas Street West.



1. Shoppers Drugmart



2. Shoppers Drugmart



3. Shoppers Drugmart
Roof drainage discharges to the parking lot surface



4. Freshco



5. Freshco



6. Freshco

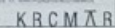


7. Freshco

Report Prepared by:

A handwritten signature in black ink, appearing to read 'Steven Lostracco'.

Steven Lostracco, P. Eng.



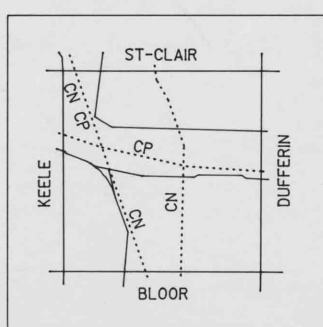


PHOTOMAP



The Municipality of
Metropolitan Toronto
MANAGEMENT SERVICES DEPARTMENT
Central Mapping
3284 Yonge Street, Suite 300
Toronto, Ontario M4N 2L6 392-2506

Street Index



100m 0 100m 200m 300m 400m 500m

PHOTOMAP SCALE 1:5 000 (approx.)

MAP LIBRARY

OCT 21 1991

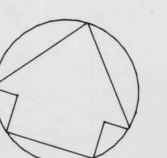
UNIVERSITY OF TORONTO
LIBRARY

Photomap Sheet Index

47K	48K	49K
47J	48J	49J
47H	48H	49H

SHEET 89-48J

AERIAL PHOTOGRAPHY
DATE FLOWN: APRIL 1989



1977

31



Appendix SCA-2

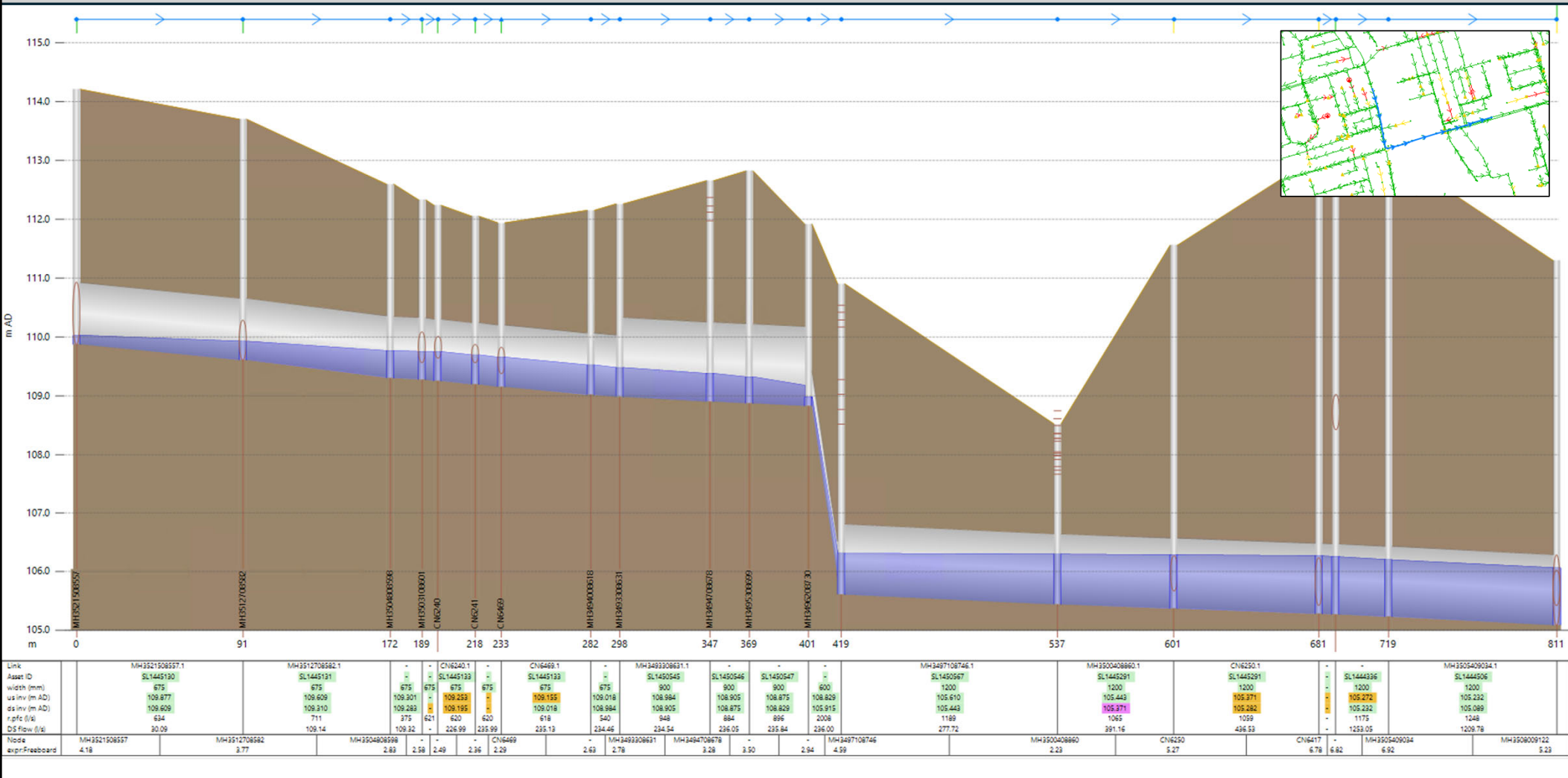
Hydraulic Modelling Results

Table SCA 1-2 | 2400 Dundas Combined Sewer Wet Weather Analysis Results

Pipe Data													InfoWorks Model Results													
													SC1: Existing Wet Weather Conditions (2-Yr Storm)						SC2 : Proposed Wet Weather Conditions (2-Yr Storm)							
Pipe ID	Map ID	Length (m)	Width (mm)	Height (mm)	Upstream Ground Level (m AD)	Upstream Invert (m AD)	Upstream Obvert (m AD)	Downstream Ground Level (m AD)	Downstream Invert (m AD)	Downstream Obvert (m AD)	Slope (%)	Full Flow Capacity (l/s)	Peak Flow (l/s)	Diameter Utilization (%)	Max Upstream HGL (m AD)	Max Downstream HGL (m AD)	Surcharge Status (m)	Maximum Surcharging (m)	Minimum Available Freeboard (m)	Peak Flow (l/s)	Diameter Utilization (%)	Max Upstream HGL (m AD)	Max Downstream HGL (m AD)	Surcharge Status (m)	Maximum Surcharging (m)	Minimum Available Freeboard (m)
Downstream Analyzed Pipes																										
MH3521508557.1	P.1	91.1	675	1050	114.21	109.88	110.93	113.70	109.61	110.66	0.29	634	30.1	14.1%	110.03	109.93	Free flow	None	N/A	50.7	19.7%	110.08	109.96	Free flow	None	N/A
MH3512708582.1	P.2	80.7	675	1050	113.70	109.61	110.66	112.59	109.31	110.36	0.37	711	111.0	30.1%	109.93	109.76	Free flow	None	N/A	131.7	33.0%	109.96	109.79	Free flow	None	N/A
MH3504808598.1	P.3	17.5	675	1050	112.59	109.30	110.35	112.33	109.28	110.33	0.10	375	109.3	44.1%	109.76	109.75	Free flow	None	N/A	129.9	46.7%	109.79	109.78	Free flow	None	N/A
MH3503108601.1	P.4	8.5	675	1050	112.33	109.28	110.33	112.23	109.25	110.30	0.28	621	114.1	45.1%	109.75	109.75	Free flow	None	N/A	134.4	47.5%	109.78	109.77	Free flow	None	N/A
CN6240.1	P.5	20.6	675	1050	112.23	109.25	110.30	112.05	109.20	110.25	0.28	620	227.7	47.0%	109.75	109.69	Free flow	None	N/A	248.1	49.2%	109.77	109.72	Free flow	None	N/A
CN6241.1	P.6	14.2	675	1050	112.05	109.20	110.25	111.94	109.16	110.21	0.28	620	236.0	47.5%	109.69	109.65	Free flow	None	N/A	256.4	49.7%	109.72	109.68	Free flow	None	N/A
CN6469.1	P.7	49.0	675	1050	111.94	109.16	110.21	112.15	109.02	110.07	0.28	618	236.8	47.5%	109.65	109.52	Free flow	None	N/A	257.2	49.7%	109.68	109.54	Free flow	None	N/A
MH3494008618.1	P.8	15.9	675	1050	112.15	109.02	110.07	112.26	108.98	110.03	0.21	540	235.1	48.0%	109.52	109.48	Free flow	None	N/A	255.6	50.1%	109.54	109.50	Free flow	None	N/A
MH3493308631.1	P.9	49.5	900	1350	112.26	108.98	110.33	112.65	108.91	110.26	0.16	948	234.5	36.5%	109.48	109.38	Free flow	None	N/A	255.2	38.1%	109.50	109.40	Free flow	None	N/A
MH3494708678.1	P.10	21.6	900	1350	112.65	108.91	110.26	112.82	108.88	110.23	0.14	884	236.5	35.0%	109.38	109.32	Free flow	None	N/A	257.1	36.4%	109.40	109.34	Free flow	None	N/A
MH3495308699.1	P.11	32.3	900	1350	112.82	108.88	110.23	111.92	108.83	110.18	0.14	896	236.0	32.9%	109.32	109.18	Free flow	None	N/A	256.7	34.1%	109.34	109.19	Free flow	None	N/A
MH3496208730.1	P.12	18.0	600	600	111.92	108.83	109.43	110.90	105.92	106.52	16.19	2008	236.0	25.2%	108.98	106.31	Free flow	None	N/A	256.6	26.0%	108.99	106.32	Free flow	None	N/A
MH3497108746.1	P.13	118.5	1200	1200	110.90	105.61	106.81	108.52	105.44	106.64	0.14	1189	277.7	58.2%	106.31	106.29	Free flow	None	N/A	297.9	59.1%	106.32	106.30	Free flow	None	N/A
MH3500408860.1	P.14	63.7	1200	1200	108.52	105.44	106.64	111.56	105.37	106.57	0.11	1065	391.2	70.8%	106.29	106.28	Free flow	None	N/A	412.1	71.7%	106.30	106.29	Free flow	None	N/A
CN6250.1	P.15	79.6	1200	1200	111.56	105.37	106.57	113.05	105.28	106.48	0.11	1059	436.5	75.9%	106.28	106.27	Free flow	None	N/A	457.1	76.7%	106.29	106.28	Free flow	None	N/A
CN6417.1	P.16	9.1	1200	1200	113.05	105.28	106.48	113.08	105.27	106.47	0.11	1050	1016.2	81.8%	106.26	106.26	Free flow	None	N/A	1032.6	82.4%	106.27	106.26	Free flow	None	N/A
MH3504409007.1	P.17	29.1	1200	1200	113.08	105.27	106.47	113.12	105.23	106.43	0.14	1175	1269.5	81.2%	106.25	106.20	Free flow	None	N/A	1286.6	81.8%	106.25	106.21	Free flow	None	N/A
MH3505409034.1	P.18	92.2	1200	1200	113.12	105.23	106.43	111.30	105.09	106.29	0.16	1248	1251.6	80.3%	106.20	106.06	Free flow	None	N/A	1270.6	80.7%	106.20	106.07	Free flow	None	N/A

J:\141003_2400Dundas\6.0_Technical\6.04_Design-Analysis\Combined Analysis\Infoworks Results Sheet - 2400 Dundas.xlsx\WWF Results

Scenario 1 (Combined): Existing Conditions (2-Year 6 Hour Chicago)



Scenario 2 (Combined): Proposed Conditions (2-Year 6 Hour Chicago)

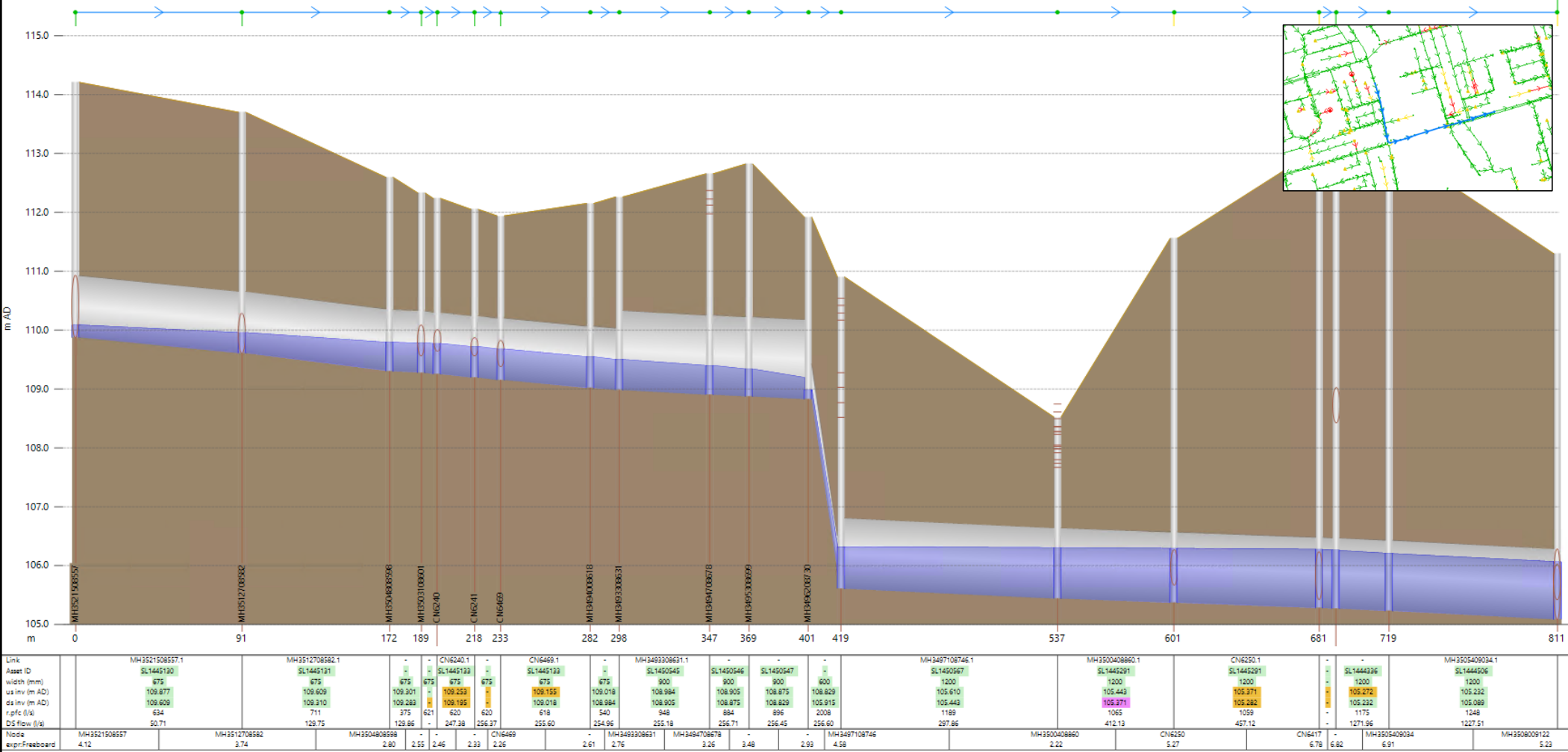
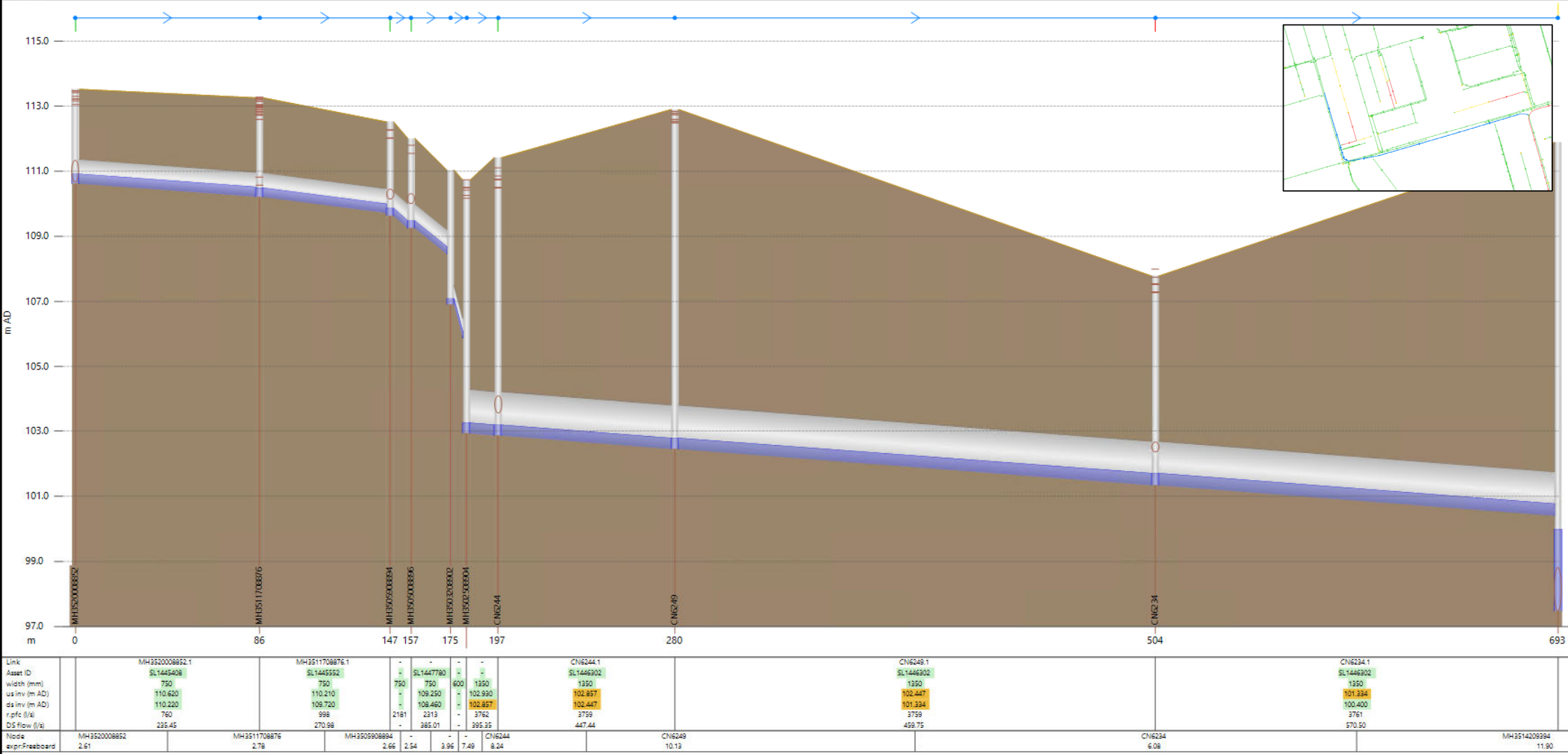


Table SCA 1-3 | 2400 Dundas Storm Sewer Wet Weather Analysis Results

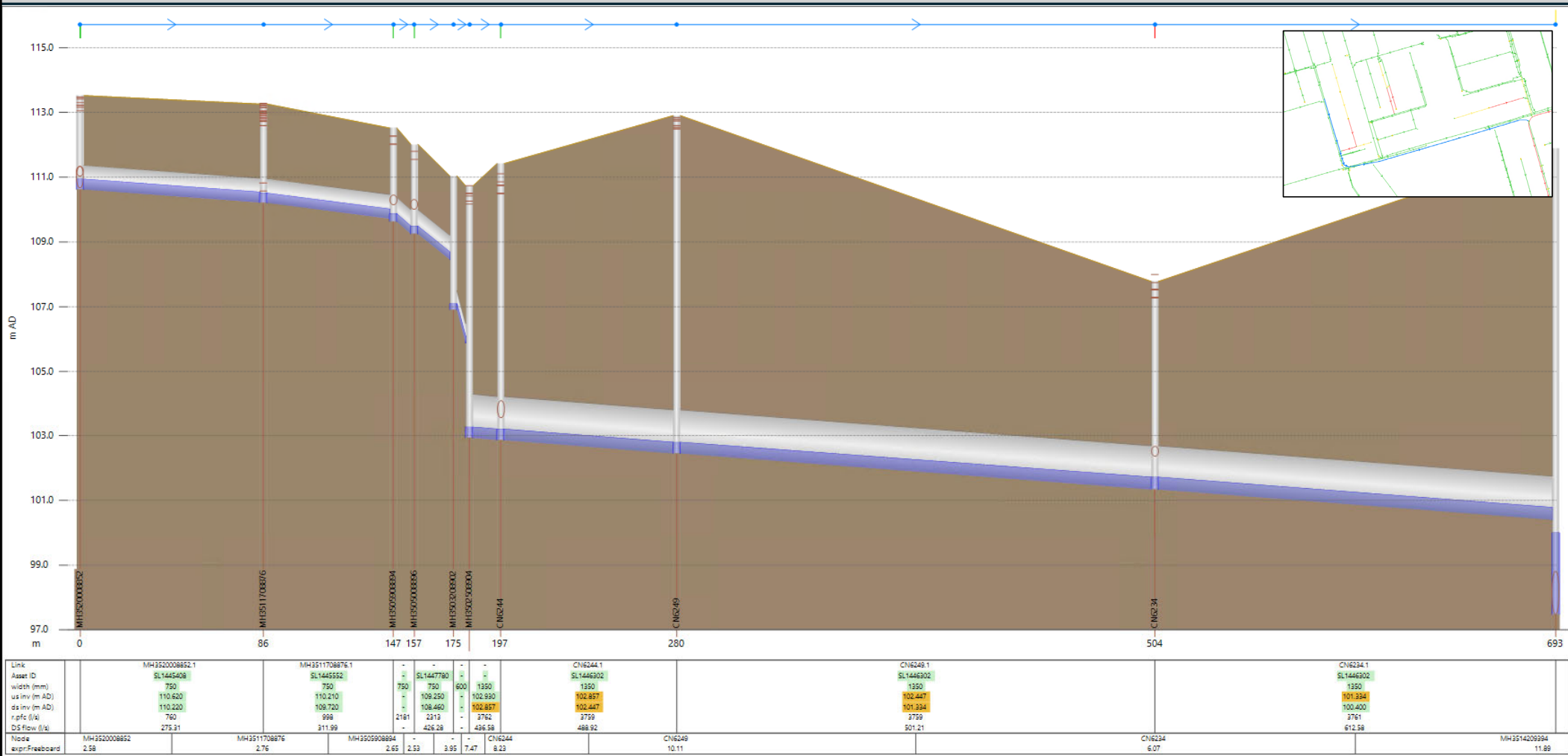
Pipe Data													InfoWorks Model Results													
													SC1: Existing Wet Weather Conditions (2-Yr Storm)							SC2 : Proposed Wet Weather Conditions (2-Yr Storm)						
Pipe ID	Map ID	Length (m)	Width (mm)	Height (mm)	Upstream Ground Level (m AD)	Upstream Invert (m AD)	Upstream Obvert (m AD)	Downstream Ground Level (m AD)	Downstream Invert (m AD)	Downstream Obvert (m AD)	Slope (%)	Full Flow Capacity (l/s)	Peak Flow (l/s)	Diameter Utilization (%)	Max Upstream HGL (m AD)	Max Downstream HGL (m AD)	Surcharge Status (m)	Maximum Surcharging (m)	Minimum Available Freeboard (m)	Peak Flow (l/s)	Diameter Utilization (%)	Max Upstream HGL (m AD)	Max Downstream HGL (m AD)	Surcharge Status (m)	Maximum Surcharging (m)	Minimum Available Freeboard (m)
Downstream Analyzed Pipes																										
MH3520008852.1	P.1	85.9	750	750	113.52	110.62	111.37	113.26	110.22	110.97	0.47	760	236.5	38.7%	110.91	110.51	Free flow	None	N/A	276.4	42.0%	110.94	110.54	Free flow	None	N/A
MH3511708876.1	P.2	61.0	750	750	113.26	110.21	110.96	112.52	109.72	110.47	0.80	998	272.3	36.0%	110.48	109.99	Free flow	None	N/A	313.3	38.8%	110.50	110.01	Free flow	None	N/A
MH3505908894.1	P.3	9.9	750	750	112.52	109.63	110.38	112.01	109.25	110.00	3.84	2181	382.5	30.0%	109.86	109.48	Free flow	None	N/A	423.8	31.5%	109.87	109.49	Free flow	None	N/A
MH3505008896.1	P.4	18.3	750	750	112.01	109.25	110.00	111.04	108.46	109.21	4.32	2313	385.1	29.3%	109.47	108.68	Free flow	None	N/A	426.4	30.8%	109.48	108.69	Free flow	None	N/A
MH3503208902.1	P.5	7.5	600	600	111.04	106.90	107.50	110.73	105.88	106.48	13.60	2265	386.3	29.7%	107.08	106.06	Free flow	None	N/A	427.6	31.0%	107.09	106.07	Free flow	None	N/A
MH3502508904.1	P.6	14.7	1350	1350	110.73	102.93	104.28	111.42	102.86	104.21	0.50	3762	395.4	23.0%	103.24	103.18	Free flow	None	N/A	436.6	24.1%	103.26	103.19	Free flow	None	N/A
CN6244.1	P.7	82.7	1350	1350	111.42	102.86	104.21	112.90	102.45	103.80	0.50	3759	450.3	23.8%	103.18	102.77	Free flow	None	N/A	492.0	24.8%	103.19	102.79	Free flow	None	N/A
CN6249.1	P.8	224.4	1350	1350	112.90	102.45	103.80	107.78	101.33	102.68	0.50	3759	460.6	24.1%	102.77	101.70	Free flow	None	N/A	502.2	25.1%	102.79	101.71	Free flow	None	N/A
CN6234.1	P.9	188.2	1350	1350	107.78	101.33	102.68	111.88	100.40	101.75	0.50	3761	574.5	26.8%	101.70	100.77	Free flow	None	N/A	616.8	27.8%	101.71	100.77	Free flow	None	N/A

J:\141003_2400Dundas\6.0_Technical\6.04_Design-Analysis\Combined Analysis\Infoworks Results Sheet - 2400 Dundas - Storm.xlsx\WWF Results

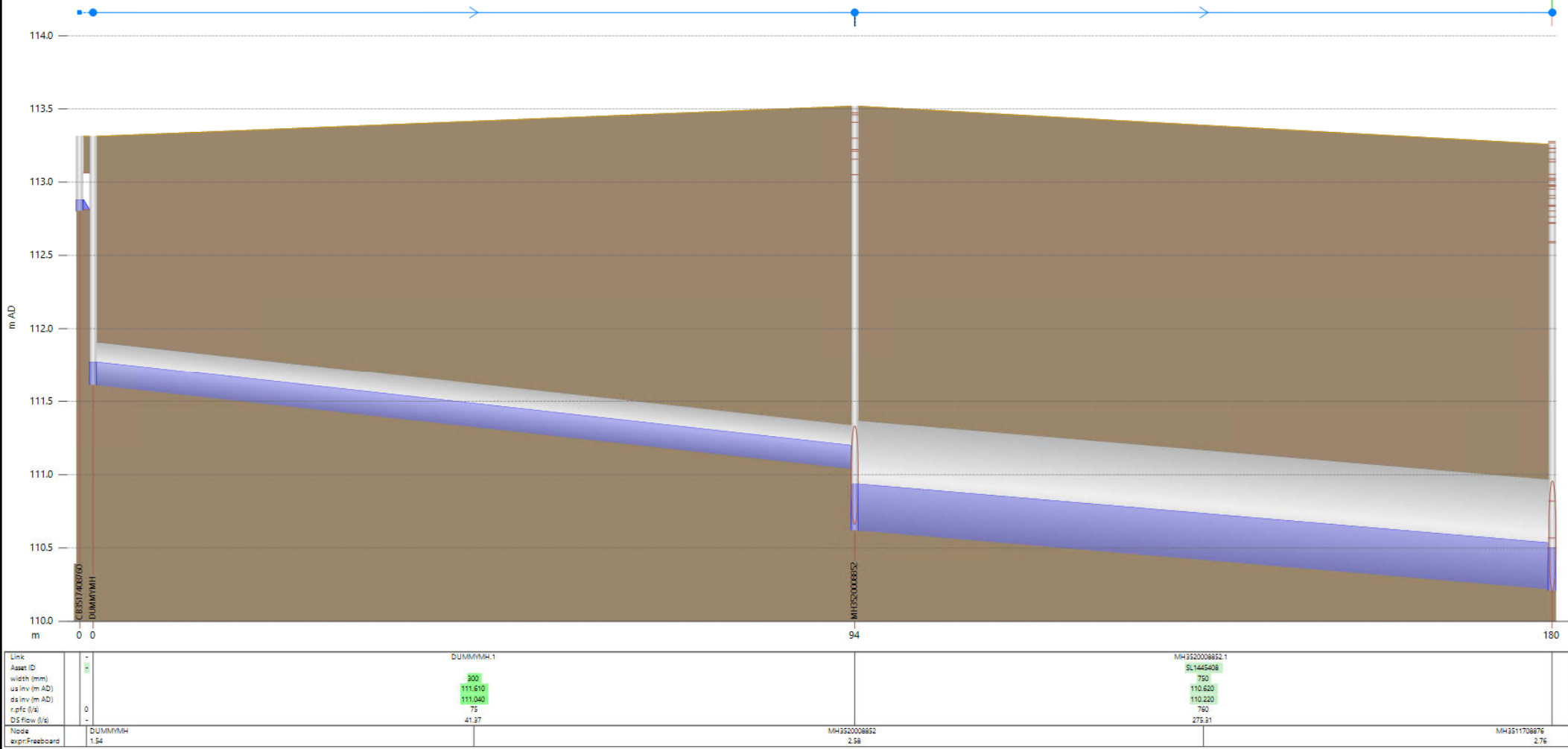
Scenario 1 (Storm): Existing Conditions (2-Year 6 Hour Chicago)



Scenario 2 (Storm): Proposed Conditions (2-Year 6 Hour Chicago)



Proposed Storm Extension (2-Year 6 Hour Chicago)



Arcadis Professional Services (Canada) Inc.
8133 Warden Avenue, Unit 300
Markham, Ontario L6G 1B3
Canada
Phone: 905 763 2322
Fax:
www.arcadis.com

Mixed-use development

NOTES:

Post-development domestic sewage flow based upon a unit flow of 450.0 Lpcd.

Maximum flow velocity for pipe flowing full = 3.0 m/s.

Minimum flow velocity for pipe flowing partially full (actual flow) = 0.6 m/s.

Infiltration= 0.26 L/s/ha

Mannings= 0.013

Project Name: 2400 Dundas Street West

Project Number: 141003

Date: October 10, 2024

Calc by: SS

	From	To	DESIGN FLOW CALCULATIONS										SEWER DESIGN & ANALYSIS							Notes
			Area (ha)	Density	Population	Cumulative Area (ha)	Cumulative Population	Residential Peaking Factor	Sewage Flow (L/s) (1)	Infiltration Flow (L/s) (2)	Groundwater Flow (L/s) (3)	Total Flow, Qd (L/s) (1)+(2)+(3)	Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)	Actual Velocity V (m/s)	Percent of Full Flow (%)	
Pre-Development																				
Ex. Comm. Bldg.			1.1100		34	1.1100	34	N/A	0.10	0.29		0.4								
Post-Development		Services																		
Tower A	MH1A	COMB	0.4384		801	0.4384	801	3.86	16.11	0.11	0.16	16.4	200	2.0%	7.0	48.4	1.49	1.35	34%	
Tower B1	MH2A	COMB	0.5715		861	0.5715	861	3.84	17.22	0.15		17.4	200	2.0%	5.9	48.4	1.49	1.37	36%	
Tower B2	MH3A	COMB	0.5715		453	0.5715	453	4.00	9.43	0.15		9.6	200	2.0%	3.1	48.4	1.49	1.16	20%	
Podium	MH4A	COMB	0.5715		106	0.5715	106	4.24	2.33	0.15		2.5	200	2.0%	7.4	48.4	1.49	0.78	5%	
Parkland	MH5A	COMB	0.1044		1	0.1044	1	4.47	0.03	0.03		0.1	150	2.0%	7.4	22.5	1.23	0.31	0%	

Pre-Development			
	Units / Area	Density	Population
Retail	3125 m2	1.1 pp/100m2	34
			0
Pop. =			34

Post-Development: Tower A			
	Units / Area	Density	Population
1 Bedroom	344	1.4 pp/unit	482
2 Bedroom	68	2.1 pp/unit	143
3 Bedroom	46	3.1 pp/unit	143
Retail	3070 m2	1.1 pp/100m2	34
Pop. =			801

Post-Development: Tower B1			
	Units / Area	Density	Population
1 Bedroom	329	1.4 pp/unit	461
2 Bedroom	117	2.1 pp/unit	246
3 Bedroom	50	3.1 pp/unit	155
Retail	0 m2	1.1 pp/100m2	0
Pop. =			861

Post-Development: Tower B2		Units / Area	Density	Population
1 Bedroom	1 Bedroom	172	1.4 pp/unit	241
2 Bedroom	2 Bedroom	62	2.1 pp/unit	131
3 Bedroom	3 Bedroom	26	3.1 pp/unit	81
Retail	Retail	0 m2	1.1 pp/100m2	0
Pop. =				453

Post-Development: Podium			
	Units / Area	Density	Population
Retail	0	1.1 pp/100m2	0
Office	3206	3.3 pp/100m2	106
Pop. =			106

Post-Development: Parkland			
	Units / Area	Density	Population
Parkland	0.1086 ha	10.0 pp/ha	1
Pop. =			1

Post-Development: Total		Units / Area	Density	Population
1 Bedroom	1 Bedroom	845	1.4 pp/unit	1183
2 Bedroom	2 Bedroom	247	2.1 pp/unit	520
3 Bedroom	3 Bedroom	122	3.1 pp/unit	378
Retail	Retail	3070	1.1 pp/100m2	35
Office	Office	3206	3.3 pp/100m2	106
Pop. =				2222

Appendix E

Water Supply

Hydrant Flow Test

Water Demand, Fire Flow, and Hazen-Williams Calculations

Sprinkler Confirmation Letter

Fire Resistive Construction Confirmation Letter

Hydrant Flow Testing

NOTE: Hydrants tested according to NFPA 291: Recommended Practice for Fire Flow Testing and Marking of Hydrants

Date of Testing	08-Jun-23
Project Number:	141003
Test ID	H2023-026
Site Location / Address:	2400 Dundas St W
Region / Municipality	Toronto
Hydrants Opened By:	Toronto
Tested by:	Daniel S James W

HYDRANT TEST LOCATION - RESIDUAL HYDRANT=R, FLOW HYDRANT=F
(NORTH AT TOP)



Test Data

Time of Test 11:31 AM
Pipe Size (mm) 300
Flow Hydrant Test Location (description) 2360 Dundas St W
Residual Hydrant Test Location (description) 2400 Dundas St W
Static Pressure(PSIG) 53

Q1 Test Data (1 Orifice)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
1	2.5	28	888	50

QT Test Data (2 Orifices)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
2	2.5	15	1300	48

Calculations

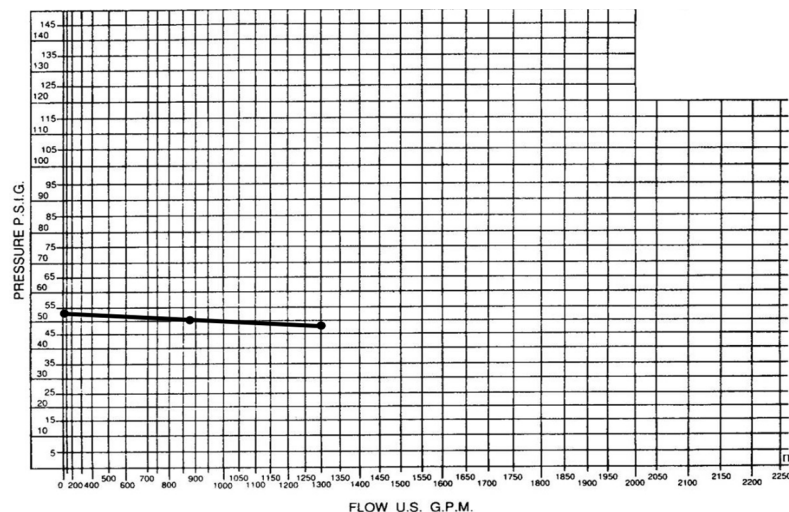
FORMULA: $Q = 29.83 \text{ cd}^2 \sqrt{p}$Where: c- coefficient of discharge (1 in smooth pipe)
 d- pipe diameter (inches)
p- pitot reading (psig)

Q1 - 1 Orifice(s) $Q1 = (29.83)(0.9)(2.5)^2 \sqrt{28} = 888$

QT - 2 Orifice(s) $QT = 2(29.83)(0.9)(2.5)^2 \sqrt{15} = 1300$

Static Pressure(PSIG) 53

Test Results Plot



2400 Dundas Street W

Mixed-use development



DOMESTIC WATER DEMAND CALCULATIONS

Project Name: 2400 Dundas Street W

Project Number: 141003

Date: October 10, 2024

Calc By: SS

1. Based on the City of Toronto Standards and
2. OBC, Part 8 "Sewage Systems", OBC Table 8.2.1.3.A and 8.2.1.3.B
3. ADD = 190 L/cap/day for residential uses

Peaking Factors		
Land Use	Peak Hour	Maximum Day
Residential	2.50	1.30
Commercial	1.20	1.10

					(ADDxP.F.)	(ADDxP.F.)
Tower A	Units	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
1 Bedroom	344 units	1.4 pp/unit	482	1.1	2.6	1.4
2 Bedroom	68 units	2.1 pp/unit	143	0.3	0.8	0.4
3 Bedroom	46 units	3.1 pp/unit	143	0.3	0.8	0.4
Office	0 m2	3.3 pp/100m2	0	0.0	0.0	0.0
Retail	3070 m2	1.1 pp/100m2	34	0.1	0.1	0.1
Totals =	458 units		801	1.69	4.22	2.19

					(ADDxP.F.)	(ADDxP.F.)
Tower B1	Units	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
1 Bedroom	329 units	1.4 pp/unit	461	1.0	2.5	1.3
2 Bedroom	117 units	2.1 pp/unit	246	0.5	1.4	0.7
3 Bedroom	50 units	3.1 pp/unit	155	0.3	0.9	0.4
Totals =	496 units		861	1.89	4.74	2.46

					(ADDxP.F.)	(ADDxP.F.)
Tower B2	Units	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
1 Bedroom	172 units	1.4 pp/unit	241	0.5	1.3	0.7
2 Bedroom	62 units	2.1 pp/unit	131	0.3	0.7	0.4
3 Bedroom	26 units	3.1 pp/unit	81	0.2	0.4	0.2
Totals =	260 units		453	1.00	2.49	1.29

					(ADDxP.F.)	(ADDxP.F.)
Podium	Units	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Office	3206 m2	3.3 pp/100m2	106	0.2	0.3	0.3
Retail	0 m2	1.1 pp/100m2	0	0.0	0.0	0.0
Totals =	3206 m2		106	0.23	0.28	0.26

					(ADDxP.F.)	(ADDxP.F.)
Parkland	Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Parkland	0.1044 ha	10.0 pp/ha	1	0.0	0.0	0.0
Totals =	0.1044 ha		1	0.00	0.00	0.00

Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
2,222	4.81	11.72	6.21

2400 Dundas Street W

Mixed-use development



FIRE FLOW DEMAND CALCULATIONS

Phase 1/Block A

Project Name: 2400 Dundas Street W

Project Number: 141003

Date: October 10, 2024

Calc By: SS

Based on the Water Supply for Public Fire Protection Manual, 2020 by the Fire Underwriters Survey

Step 1: Calculate Fire Flow (based on area)

Construction Coefficient =	0.6	
Largest Floor Area =	3,852	m2
Floor Above =	2,608	m2
Floor Below =		m2
Area =	4,504	m2
Fire Flow (F) =	9,000	L/min

F = required fire flow (L/min)

C = coefficient related to type of construction

1.5 for Type V wood frame construction

0.8 - 1.5 for Type IV mass timber construction

1.0 for Type III ordinary construction

0.8 for Type II non-combustible construction

0.6 for Type I fire resistive construction

A = total floor area excluding basements 50% below grade

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

* If vertical openings are inadequately protected, consider two largest two largest adjoining floors plus 50% of each of any floors above up to eight floors.

* If vertical openings are adequately protected (one hour rating), consider largest floor area + 25% of two immediately floors.

Step 2: Adjustment for Building Occupancy (shall not be less than 2000 L/s)

Occupancy Adjustment =	-0.15	
F ₁ = Fire Flow x Adjustment =	7,650	L/min

Non-Combust.	-25%	Free Burning	15%
Limited Comb.	-15%	Rapid Burning	25%
Combustable	No change		

Step 3: Adjust F1 for Fire Suppression System

Sprinkler Adjustment =	50%	
F ₂ = F ₁ x Adjustment =	3,825	L/min

Automatic Sprinklers per NFPA 13	-30%
Water supply is standard	-10%
Fully Supervised System	-10%

Step 4: Adjust F1 for Exposure / Proximity (shall not exceed 75%)

Proximity Adjustment =	45%	(max 75%)
F ₃ = F ₁ x Factor =	3,443	L/min

(3m, 22m, 22m, >30m)

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

Step 5: Calculate Adjusted Fire Flow (shall not be less than 2000 L/min or greater than 45,000 L/min)

F ₁ =	7,650	L/min
- F ₂ =	3,825	L/min
+ F ₃ =	3,443	L/min
Fire Flow =	7,000	L/min
Fire Flow =	116.7	L/s
Total Demand (Fire Flow + MDD) =	122.9	L/s

$$\text{Fire Flow} = F_1 - F_2 + F_3$$

Checks:

Fire Flow greater than 2000 L/min

Fire Flow less than 45,000 L/min

2400 Dundas Street W

Mixed-use development



FIRE FLOW DEMAND CALCULATIONS

Phase 2/Block B

Project Name: 2400 Dundas Street W

Project Number: 141003

Date: October 10, 2024

Calc By: SS

Based on the Water Supply for Public Fire Protection Manual, 1999 by the Fire Underwriters Survey

Step 1: Calculate Fire Flow (based on area)

Construction Coefficient =	0.6	
Largest Floor Area =	4,044	m2
Floor Above =	3,035	m2
Floor Below =		m2
Area =	4,803	m2
Fire Flow (F) =	9,000	L/min

F = required fire flow (L/min)

C = coefficient related to type of construction

1.5 for Type V wood frame construction

0.8 - 1.5 for Type IV mass timber construction

1.0 for Type III ordinary construction

0.8 for Type II non-combustible construction

0.6 for Type I fire resistive construction

A = total floor area excluding basements 50% below grade

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

* If vertical openings are inadequately protected, consider two largest two largest adjoining floors plus 50% of each of any floors above up to eight floors.

* If vertical openings are adequately protected (one hour rating), consider largest floor area + 25% of two immediately floors.

Step 2: Adjustment for Building Occupancy (shall not be less than 2000 L/s)

Occupancy Adjustment =	-0.15	
F ₁ = Fire Flow x Adjustment =	7,650	L/min

Non-Combust.	-25%	Free Burning	15%
Limited Comb.	-15%	Rapid Burning	25%
Combustable	No change		

Step 3: Adjust F₁ for Fire Suppression System

Sprinkler Adjustment =	50%	
F ₂ = F ₁ x Adjustment =	3,825	L/min

Automatic Sprinklers per NFPA 13	-30%
Water supply is standard	-10%
Fully Supervised System	-10%

Step 4: Adjust F₁ for Exposure / Proximity (shall not exceed 75%)

Proximity Adjustment =	45%	(max 75%)
F ₃ = F ₁ x Factor =	3,443	L/min
	(16m, 22m, 8m, >30m)	

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

Step 5: Calculate Adjusted Fire Flow (shall not be less than 2000 L/min or greater than 45,000 L/min)

F ₁ =	7,650	L/min
- F ₂ =	3,825	L/min
+ F ₃ =	3,443	L/min
Fire Flow =	7,000	L/min
Fire Flow =	116.7	L/s
Total Demand (Fire Flow + MDD) =	122.9	L/s

$$\text{Fire Flow} = F_1 - F_2 + F_3$$

Checks:

Fire Flow greater than 2000 L/min

Fire Flow less than 45,000 L/min

2400 Dundas Street W

Mixed-use development



HEAD LOSS CALCULATIONS

Project Name: 2400 Dundas Street W
Project Number: 141003
Date: October 10, 2024
Calc By: SS

Hydrant Flow Test

Flow (gpm)	Flow (L/s)	Flow (L/min)	Pressure (psi)	Pressure (kPa)
0	0.0	0	53	365
888	56.0	3,361	50	345
1,300	82.0	4,921	48	331

Residual Pressure at Main

Source: Walski, Thomas M. (2007): Advanced Water Distribution Modeling and Management

$$Q_R = Q_F \times \frac{h_r^{0.54}}{h_f^{0.54}}$$

where: Q_R = flow predicted at desired residual pressure
 Q_F = total flow measured during test
 h_r = pressure drop to desired residual pressure
 h_f = pressure drop to measured during test

Domestic (PHD)
Fire Flow (Fire+MDD)
To 20 psi

Flow (gpm)	Flow (L/s)	Flow (L/min)	Residual Pressure @ Main	
			(psi)	(kPa)
186	11.7	703	53	364
1,948	122.9	7,372	42	293
3,602	227.2	13,634	20	138

(1 gal = 3.785 L)

(Goal Seek)

Projecting Curve to Fire Flow
Projecting Curve to 20 psi

Residual Pressure at Building

$$h_L = \frac{10.675 * L * Q^{1.85}}{C^{1.85} * D^{4.8655}}$$

where: h_L = Pressure Drop (m)
 L = Length of Service (m)
 Q = Flow Rate (m³/s)
 D = Pipe Diameter (m)
 C = Roughness Coefficient

PHD Conditions

Fire + MDD Conditions

Domestic		
L=	5.0	m
Q=	0.012	m³/s
D=	150	mm
C=	100	
h_L =	0.0	m
h_L =	1.1	in
h_L =	0.0	psi
h_L =	0.3	kPa

Fire Service		
L=	17.5	m
Q=	0.123	m³/s
D=	200	mm
C=	110	
h_L =	1.6	m
h_L =	64.0	in
h_L =	2.3	psi
h_L =	15.9	kPa

Domestic
Fire

Flow (gpm)	Flow (L/s)	Flow (L/min)	Residual Pressure @ Bldg.	
			(psi)	(kPa)
186	11.7	703	53	364
1,948	122.9	7,372	40	277

Residual Pressure (DOMESTIC) at building is greater than 40 psi (276 kPa).
Residual Pressure (FIRE) at building is greater than 20 psi (140 kPa).

March 6th, 2023

Queen's Quay Terminal
207 Queen's Quay West,
Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
Fax (416) 598-5394
Internet: www.mcw.com

Honorary Chairman
G.C. BELLAMY P.Eng.

Board of Directors
D.C. BELLAMY P.Eng., MBA
J.W. SLOAN H.N.C.
E. GARFINKEL P.Eng., MBA
M.C. GILLIS P.Eng.
T. JANTZI P.Eng.

Partners
R. BUSCHAU P.Eng.
P. BUTRSINGKORN P.Eng.
J. FURLONG C.E.T., MBA
M. HUNTER P.Eng.
K. ISAAK P.Eng.
J. KURI P.Eng.
D. LAU P.Eng., RCDD
T. LOUCKS P.Eng., MBA
S. LOUIE P.Eng.
G. LOVELY P.Eng.
D. MACKERACHER P.Eng.
T. MCGAW P.Eng.
A. MEDEIROS
G.A. PEREZ P.Eng.
J. PEREZ-STONE P.Eng.
S. PIPER P.Eng.
S. REABURN P.Eng.
A. ROTOFF C.E.T.
S. SHREENAN P.Eng.
J. SMITH
C. TRAVIS C.E.T.
S. VAN WONDEREN P.Eng.
J. WILLIAMS P.Eng.

Principals
S. BORODINAS P.Eng.
S. BURTON P.Eng.
J. BUTKOVIC
M. CAMINITI
J. D'ANDRADE P.Eng.
J. GRAY P.Eng.
A. OLT P.Eng.
G. PLATT P.Eng.
J. RAVEN P.Eng.

Associates
S. BHOJAK P.Eng.
K. CHATTERJEE
M. FURTADO
S. GORIAL
C. GORMAN
M. GREEY P.Eng.
D. HILLYAR
N. LAO P.Eng.
C. LE P.Eng.
M. MCVAN
D. NEUTEL P.Eng.
M. PAICE P.Eng.
S. PERERA P.Eng.
K. SCHEMBRI
P. TERRY P.Eng.
T. TISLER P.Eng.
D. TURNER P.Eng.

Attention: Executive Director, Engineering and Construction Services

c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Development Engineering
2400-2440 Dundas Street West – Toronto, Ontario
FORA Developments

Dear Sir or Madam,

This letter is to confirm that the above referenced building will be fully sprinklered and designed to meet NFPA 13 and all applicable codes and standards.

The water supply will be standard for both sprinkler system and fire standpipe system required and the sprinkler system and standpipe system will be fully monitored and supervised.

In the event that you require any additional information please do not hesitate to contact us.

Yours truly,

Agustin Olt
P.Eng (Mechanical)
aolt@mcw.com



REDUCING OUR CLIENTS'
ENVIRONMENTAL
FOOTPRINT



GREATER TORONTO
Platinum Sponsor of the CaGBC
Greater Toronto Chapter

Consulting Professional Engineers
Toronto Vancouver Calgary Edmonton Winnipeg Ottawa Saint John Moncton Halifax

9 March 2023
Engineering & Construction Services
City of Toronto
Metro Hall, 16th Floor.
55 John Street
Toronto, ON

To whom it may concern,

Reference: 2400-2440 Dundas St W, Toronto, ON

Please be advised that the above-referenced building will be constructed in compliance with the 2015 Ontario Building Code (OBC), and equipped with a Fire Protection System conforming to the NFPA 13 Standards for Installation of Sprinkler Systems and specifically:

1. All structural members and floors will be of fire resistive construction per the Fire Underwriters Survey (FUS) 1999 with 2-hour ratings per the OBC.
2. All vertical openings and exterior vertical communications will be constructed with a 1-hour fire rating

Yours truly,



Carlo Odorico
Giannone Petricone Associates Inc. Architects
96 Spadina Avenue #900
Toronto, ON Canada M5V 2J6



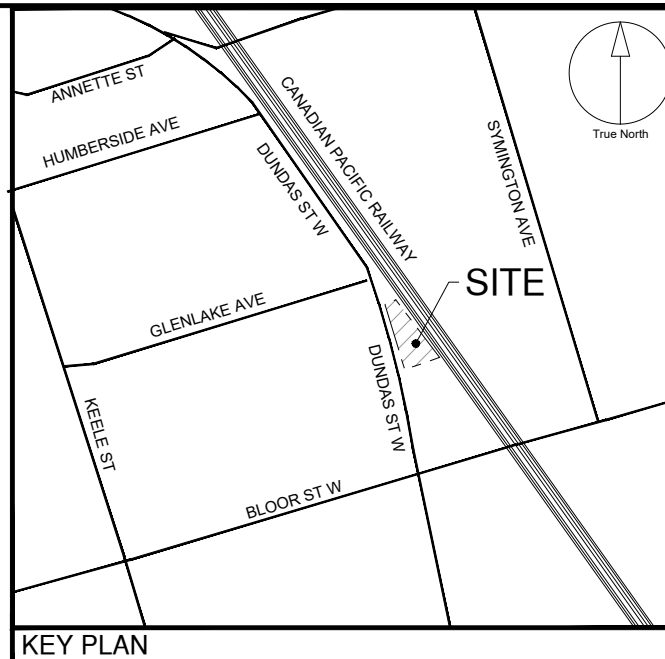
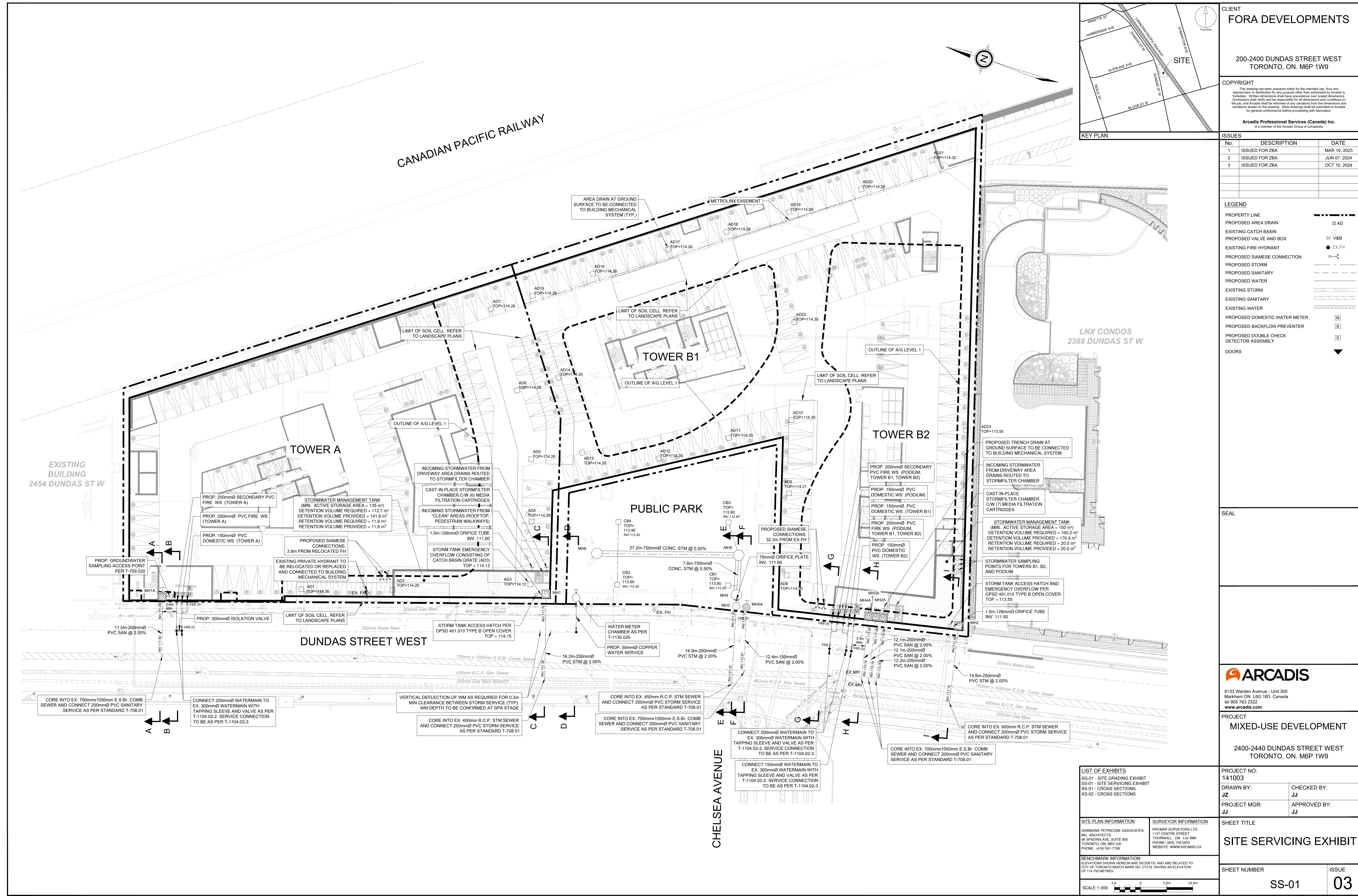
Appendix E

Exhibits

Site Servicing Exhibit

Site Grading Exhibit

Cross Sections



CLIENT
FORA DEVELOPMENTS

200-2400 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

COPYRIGHT
This drawing has been prepared solely for the intended use, and any reproduction or distribution for any purpose other than authorized by Arcadis is prohibited. 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 the Arcadis Group of companies.

ISSUES		
No.	DESCRIPTION	DATE
1	ISSUED FOR ZBA	MAR 10, 2023
2	ISSUED FOR ZBA	JUN 07, 2024
3	ISSUED FOR ZBA	OCT 10, 2024

LEGEND

PROPERTY LINE

PROPOSED AREA DRAIN

EXISTING CATCH BASIN

PROPOSED VALVE AND BOX

EXISTING FIRE HYDRANT

PROPOSED SIAMESE CONNECTION

PROPOSED STORM

PROPOSED SANITARY

PROPOSED WATER

EXISTING STORM

EXISTING SANITARY

EXISTING WATER

PROPOSED DOMESTIC WATER METER

PROPOSED BACKFLOW PREVENTER

PROPOSED DOUBLE CHECK DETECTOR ASSEMBLY

DOORS

AD

V&B

EX.FH

SI

B

D

Door

SEAL

ARCADIS

8133 Warden Avenue - Unit 300
Markham ON L6G 1B3 Canada
tel 905.763.2322
www.arcadis.com

PROJECT
MIXED-USE DEVELOPMENT

2400-2440 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

LIST OF EXHIBITS

SG-01 - SITE GRADING EXHIBIT
SS-01 - SITE SERVICING EXHIBIT
XS-01 - CROSS SECTIONS
XS-02 - CROSS SECTIONS

SITE PLAN INFORMATION

QUANTRON RETROCON ASSOCIATES
INC. ARCHITECTS
96 SPADINA AVE, SUITE 900
TORONTO, ON. M5V 2A6
PHONE: (416) 591-7788

SURVEYOR INFORMATION

KRCMAR SURVEYORS LTD.
1137 CENTRE STREET
THORNHILL, ON L4J 3M6
PHONE: (905) 738-0053
WEBSITE: WWW.KRCMAR.CA

BENCHMARK INFORMATION:

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCH MARK NO. C718, HAVING AN ELEVATION OF 114.789 METRES.

PROJECT NO:
141003

DRAWN BY:
JJ

CHECKED BY:
JJ

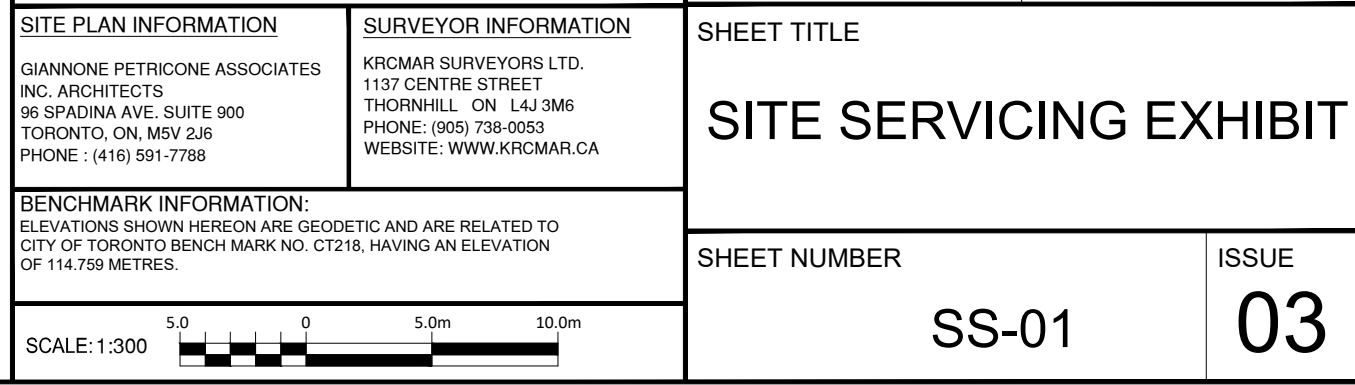
PROJECT MGR:
JJ

APPROVED BY:
JJ

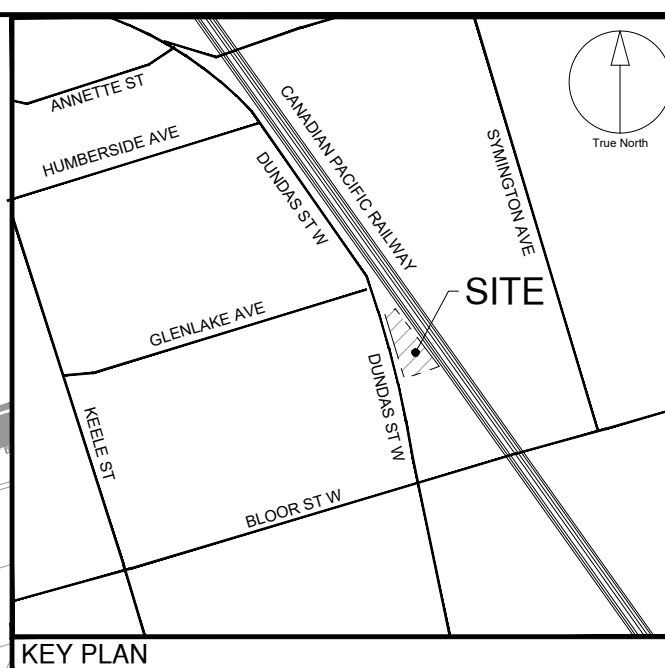
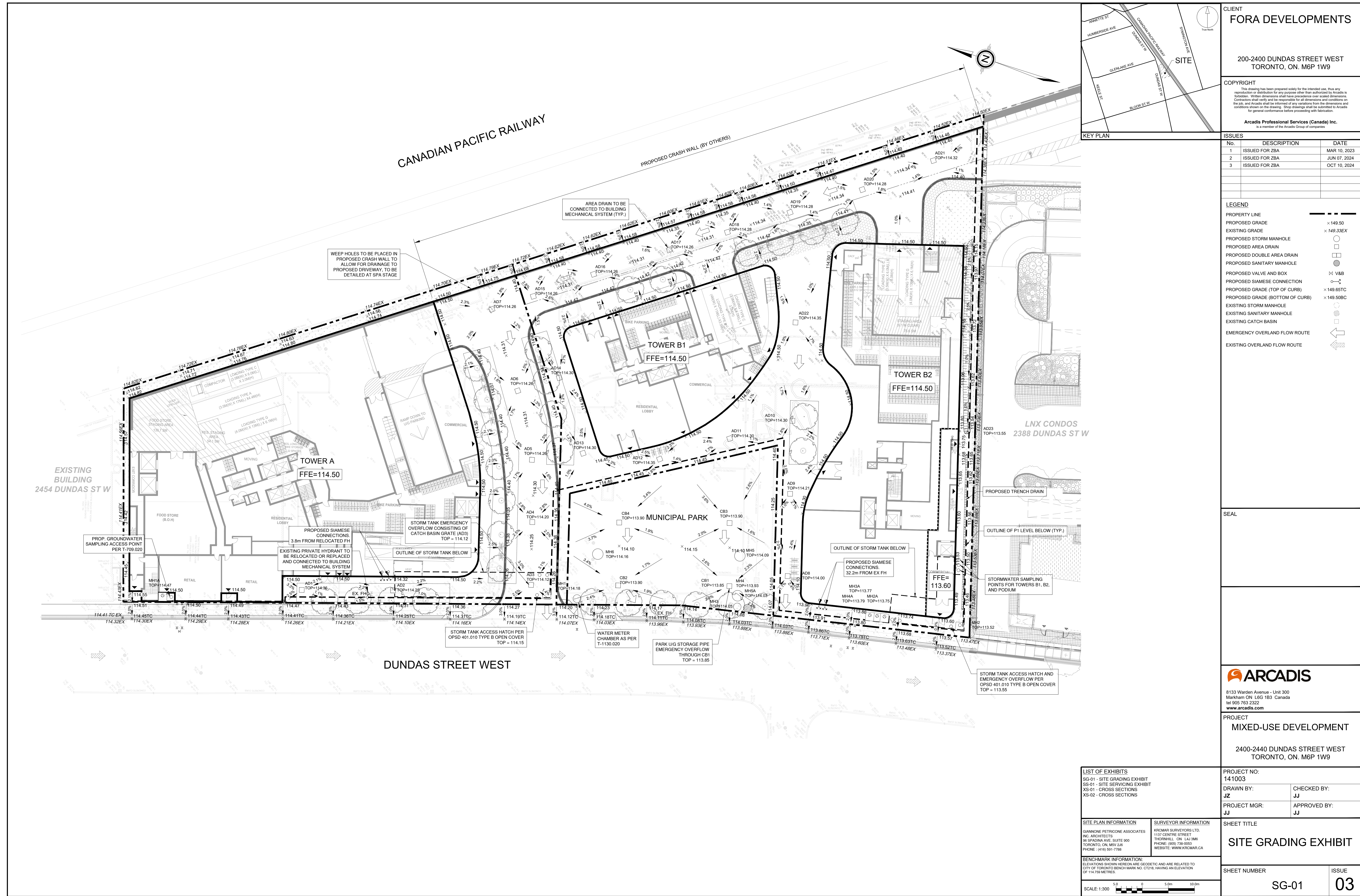
SHEET TITLE
SITE SERVICING EXHIBIT

SHEET NUMBER
SS-01

ISSUE
03



File Location: T:\141003_2400Dundas7.0_Production\7.0_Production\7.0_Servicing\SS-01.dwg Plot Date: October 10, 2024, by tszaszsb383 Last Saved: October 10, 2024, 4:40:07 PM by Kamli, Sudia



CLIENT
FORA DEVELOPMENTS

200-2400 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

COPYRIGHT
This drawing has been prepared solely for the intended use, and any reproduction or distribution for any purpose other than that authorized by Arcadis is prohibited. 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 the Arcadis Group of companies.

ISSUES		
No.	DESCRIPTION	DATE
1	ISSUED FOR ZBA	MAR 10, 2023
2	ISSUED FOR ZBA	JUN 07, 2024
3	ISSUED FOR ZBA	OCT 10, 2024

LEGEND

PROPERTY LINE

PROPOSED GRADE

EXISTING GRADE

PROPOSED STORM MANHOLE

PROPOSED AREA DRAIN

PROPOSED DOUBLE AREA DRAIN

PROPOSED SANITARY MANHOLE

PROPOSED VALVE AND BOX

PROPOSED SIAMESE CONNECTION

PROPOSED GRADE (TOP OF CURB)

PROPOSED GRADE (BOTTOM OF CURB)

EXISTING STORM MANHOLE

EXISTING SANITARY MANHOLE

EXISTING CATCH BASIN

EMERGENCY OVERLAND FLOW ROUTE

EXISTING OVERLAND FLOW ROUTE

× 149.50

× 149.33EX

○

□

□

○

⊗ V&B

—

× 149.65TC

× 149.50BC

○

□

→

→

SEAL

PROJECT
MIXED-USE DEVELOPMENT

8133 Warden Avenue - Unit 300
Markham ON L6G 1B3 Canada
tel 905.763.2322
www.arcadis.com

PROJECT
MIXED-USE DEVELOPMENT

2400-2440 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

LIST OF EXHIBITS

SG-01 - SITE GRADING EXHIBIT
SS-01 - SITE SERVICES EXHIBIT
XS-01 - CROSS SECTIONS
XS-02 - CROSS SECTIONS

SITE PLAN INFORMATION

QUANONE RETROGRADE ASSOCIATES
INC. ARCHITECTS
96 SPADINA AVE, SUITE 900
TORONTO, ON. M5V 2J6
PHONE: (416) 591-7788

SURVEYOR INFORMATION

KRCMAR SURVEYORS LTD.
1137 CENTRE STREET
THORNHILL, ON. L4J 3M6
PHONE: (905) 758-0053
WEBSITE: WWW.KRCMAR.CA

BENCHMARK INFORMATION:

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCH MARK NO. C718, HAVING AN ELEVATION OF 114.789 METRES.

SCALE: 1:300

3.0

0

5.0m

30.0m

PROJECT NO:
141003

DRAWN BY:
JJ

CHECKED BY:
JJ

PROJECT MGR:
JJ

APPROVED BY:
JJ

SHEET TITLE

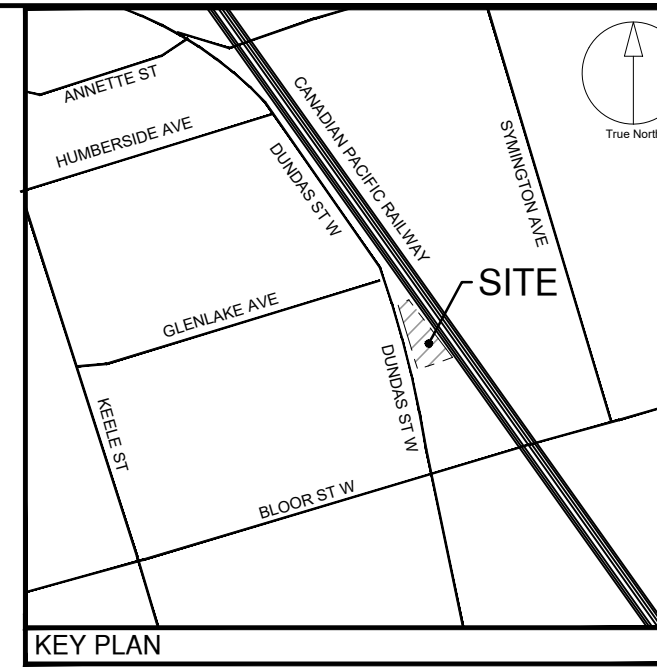
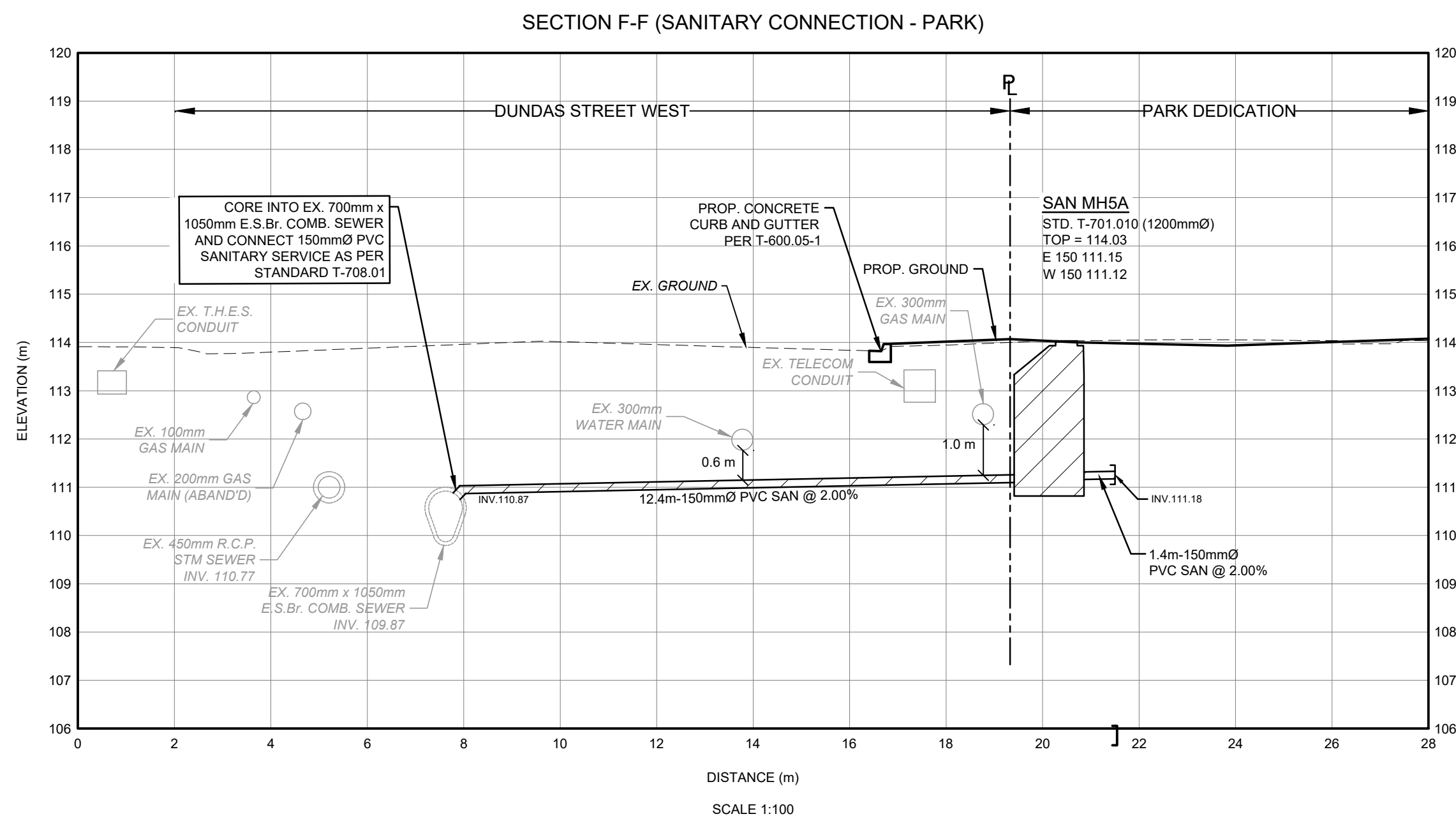
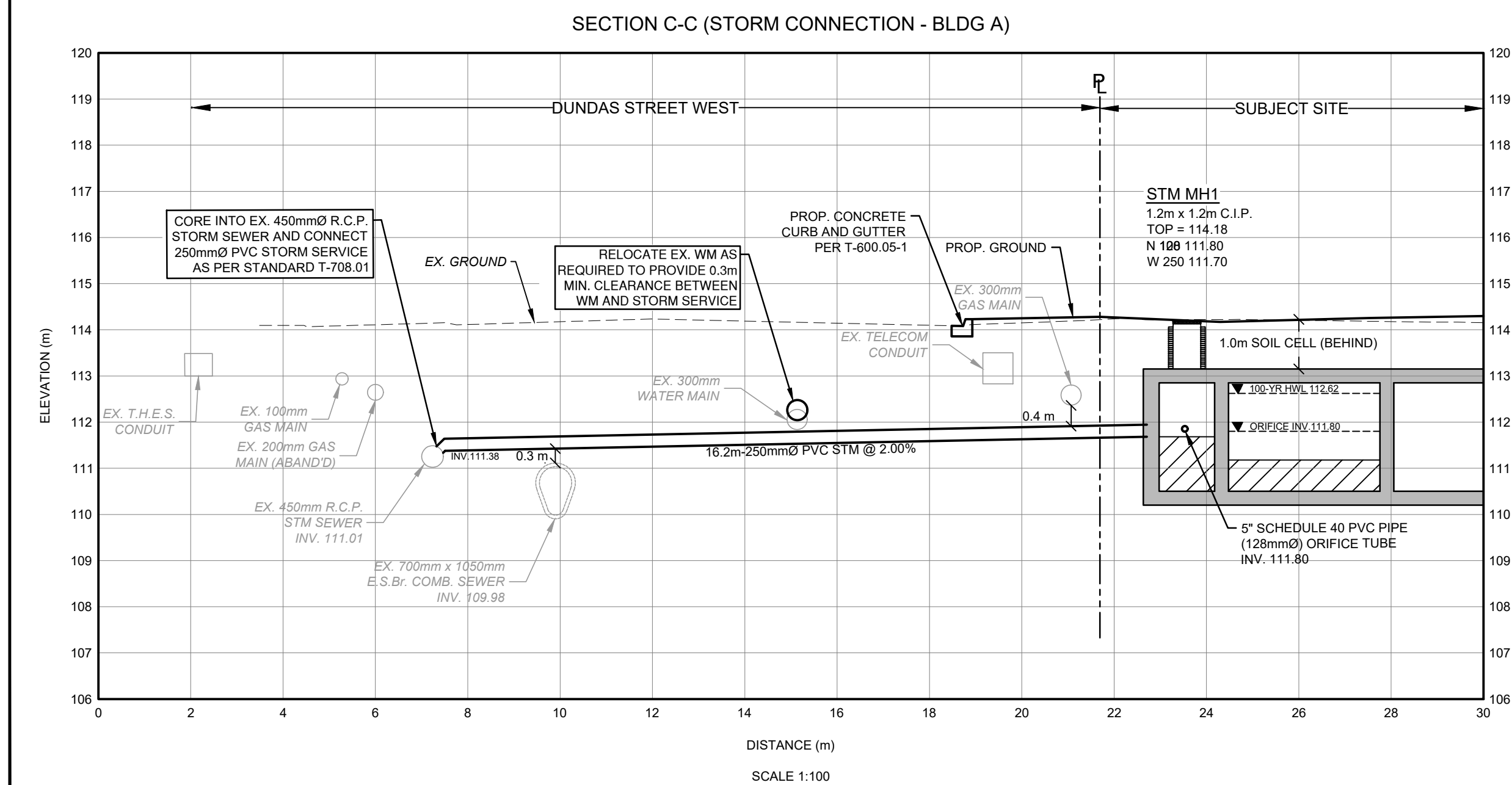
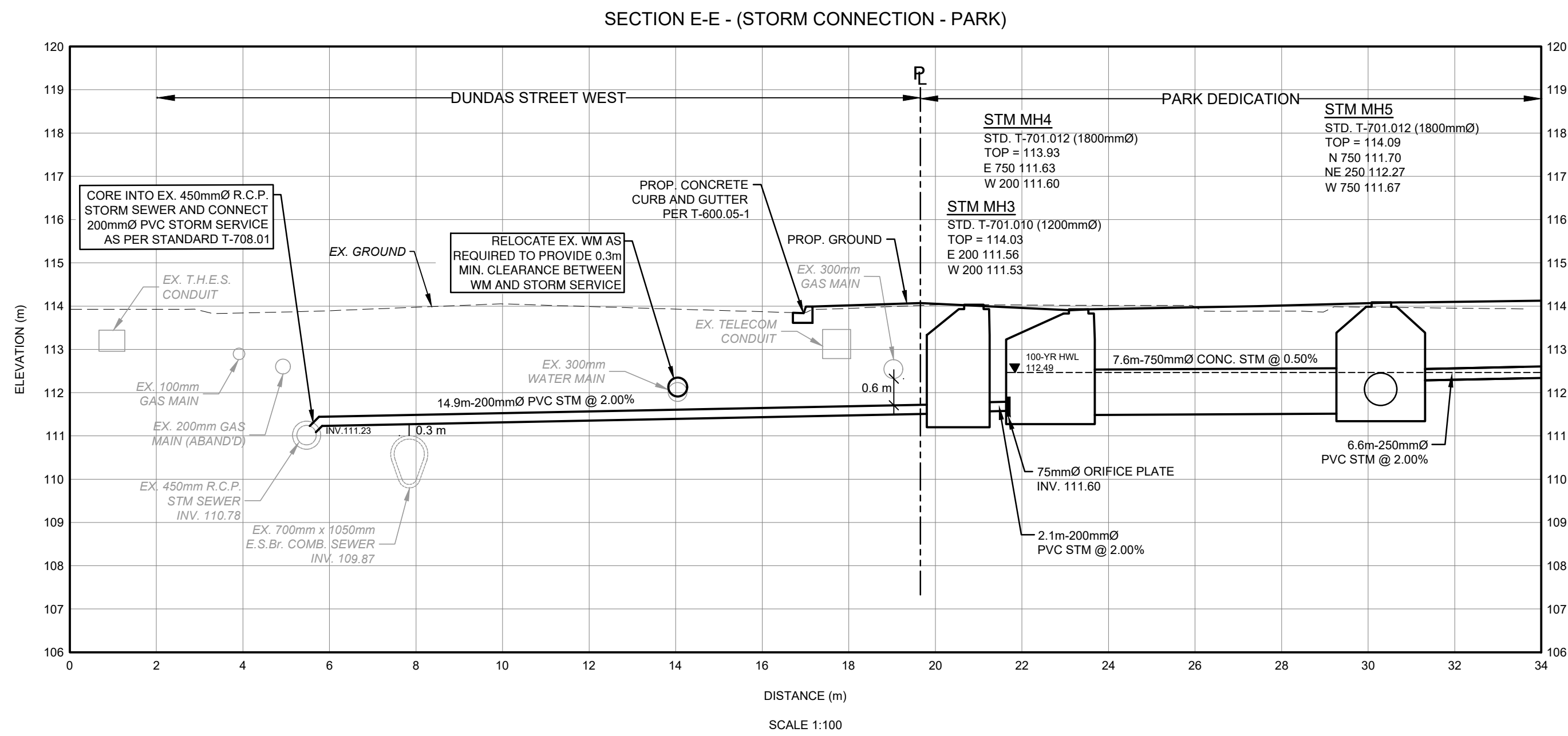
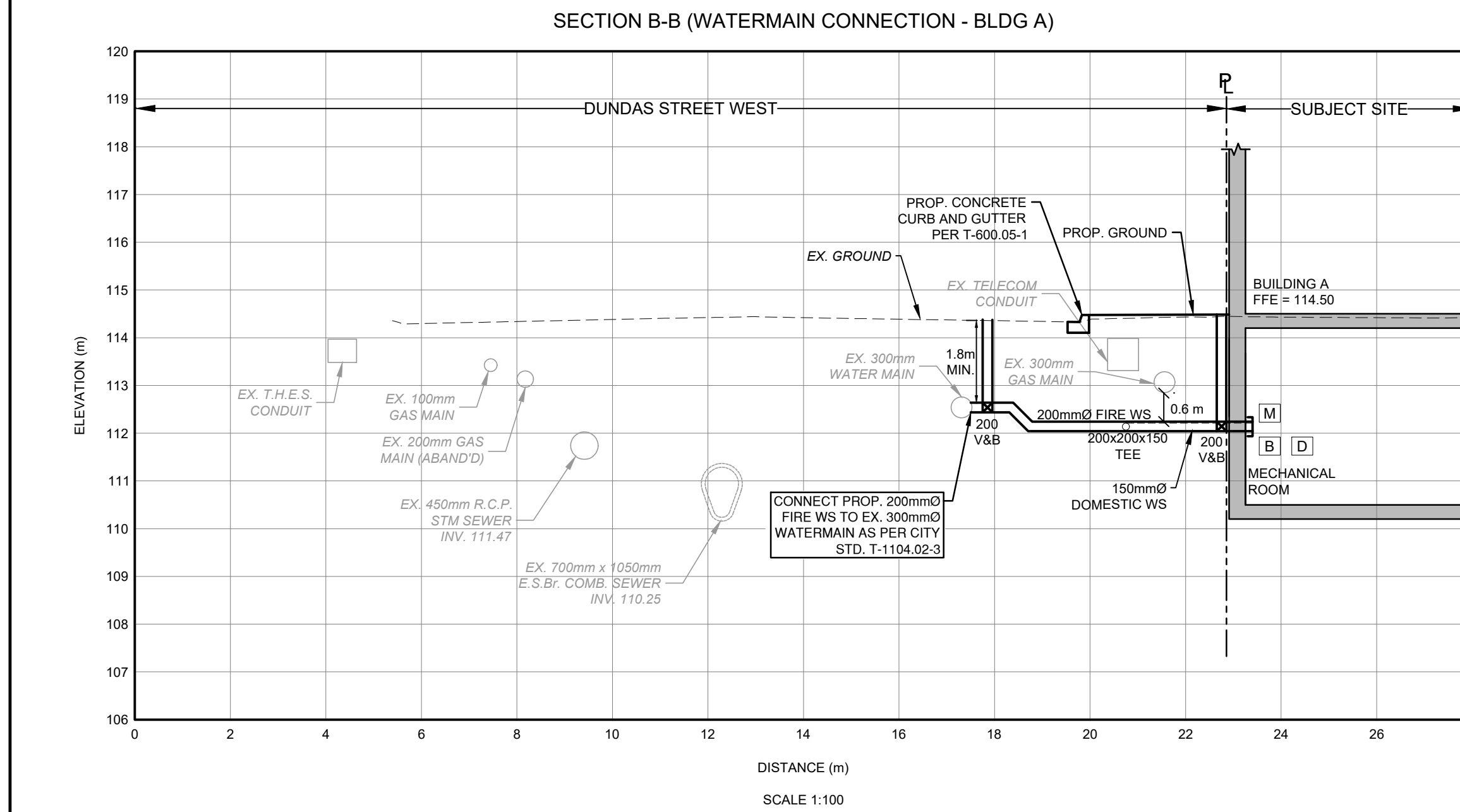
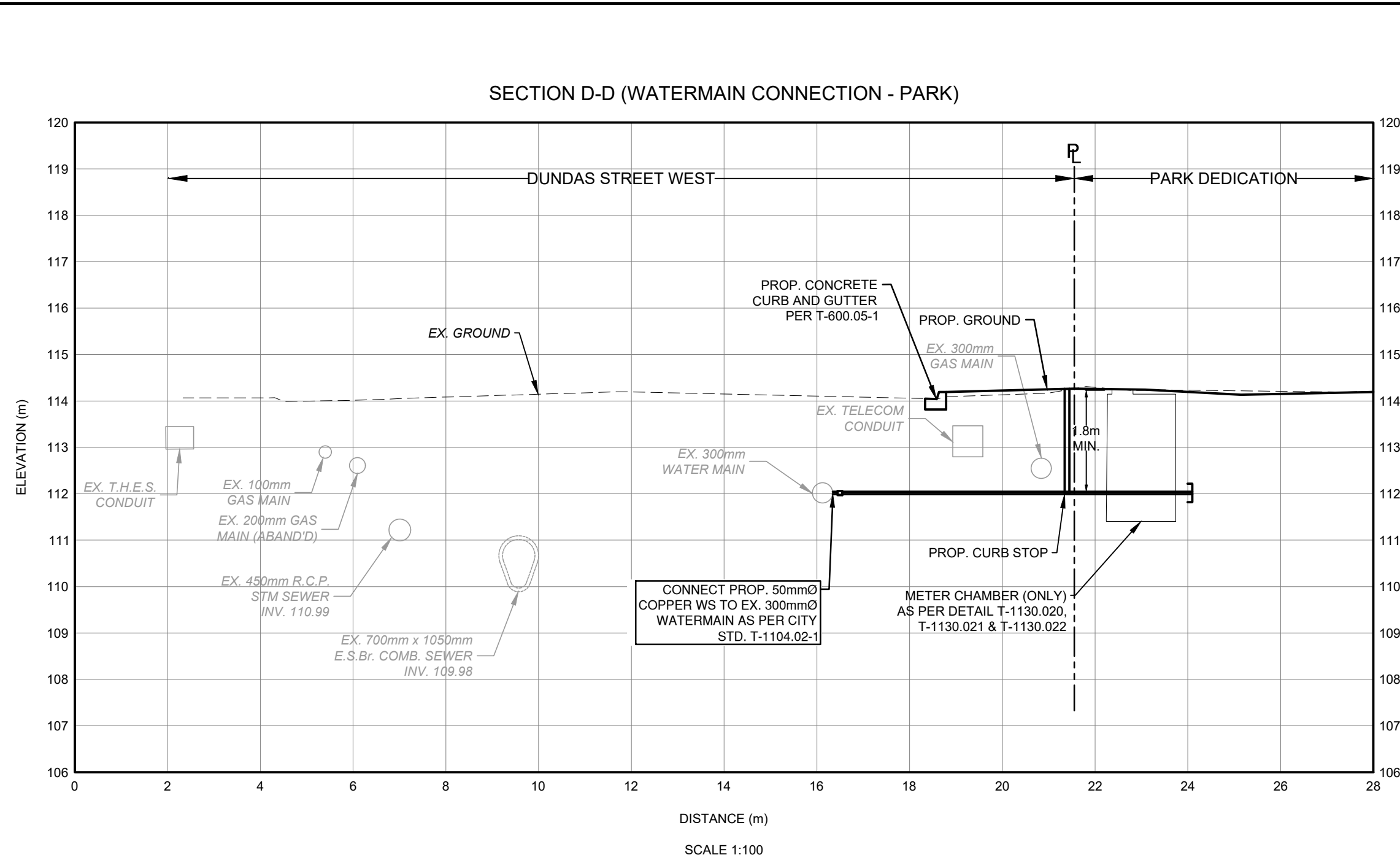
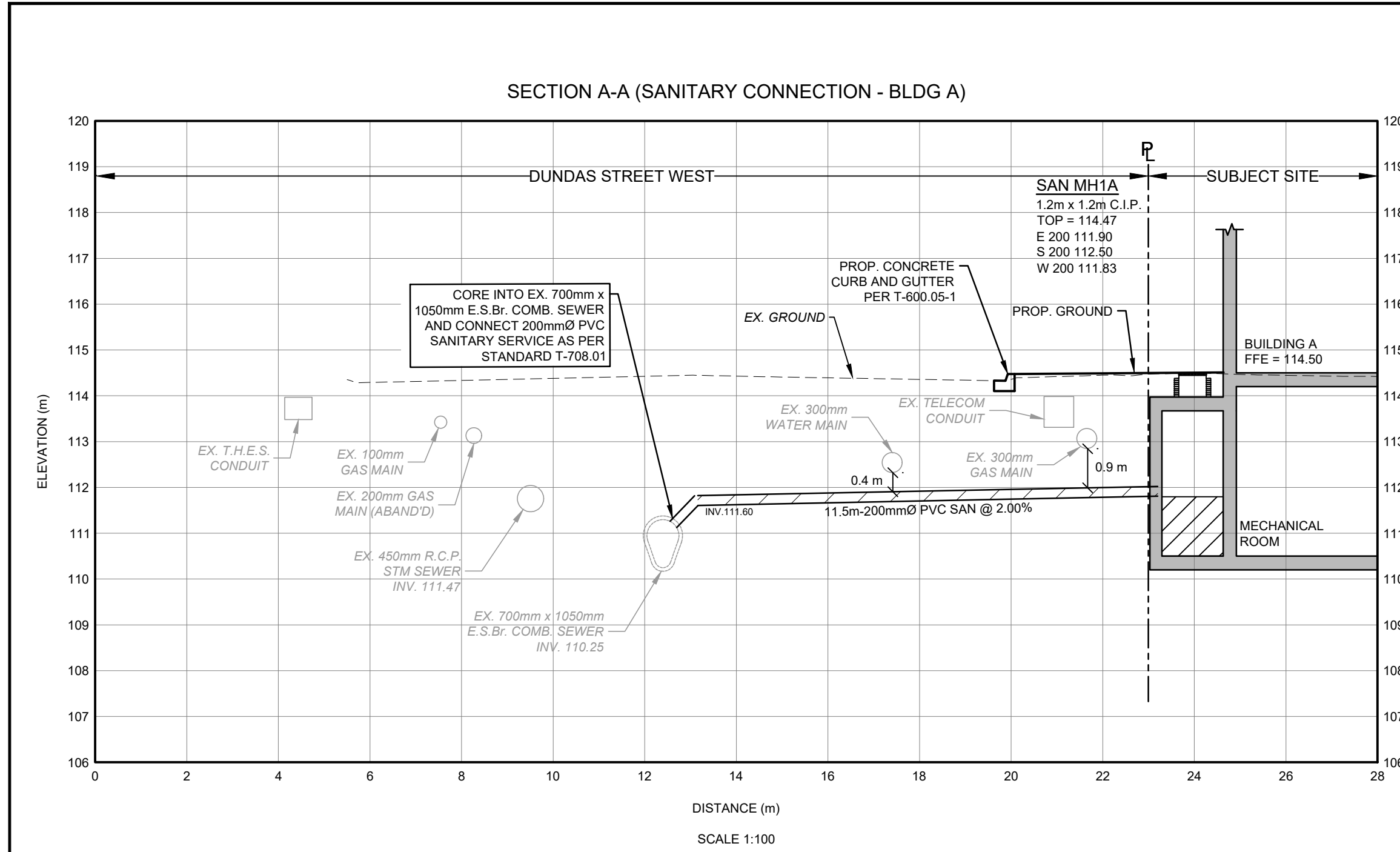
SITE GRADING EXHIBIT

SHEET NUMBER

SG-01

ISSUE

03



CLIENT
FORA DEVELOPMENTS

200-2400 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

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 the Arcadis Group of companies.

ISSUES		
No.	DESCRIPTION	DATE
1	ISSUED FOR ZBA	MAR 10, 2023
2	ISSUED FOR ZBA	JUN 07, 2024
3	ISSUED FOR ZBA	OCT 10, 2024

LEGEND

SEAL

ARCADIS

8133 Warden Avenue - Unit 300
Markham ON L6G 1B3 Canada
tel 905 763 2322
www.arcadis.com

PROJECT
MIXED-USE DEVELOPMENT

2400-2440 DUNDAS STREET WEST
TORONTO, ON. M6P 1W9

PROJECT NO:
141003

DRAWN BY:
JJ

CHECKED BY:
JJ

PROJECT MGR:
JJ

APPROVED BY:
JJ

SHEET TITLE
CROSS SECTIONS

SHEET NUMBER
XS-01

ISSUE
03

LIST OF EXHIBITS	
SG-01 - SITE GRADING EXHIBIT	
SS-01 - SITE SERVICING EXHIBIT	
XS-01 - CROSS SECTIONS	
XS-02 - CROSS SECTIONS	

SITE PLAN INFORMATION	SURVEYOR INFORMATION
QUANTRON RETROCOM ASSOCIATES INC. ARCHITECTS 96 SPADINA AVE, SUITE 900 TORONTO, ON. M5V 2J6 PHONE: (416) 591-7788	KRCMAR SURVEYORS LTD. 1137 CENTRE STREET THORNHILL, ON. L4J 3M6 PHONE: (905) 738-0053 WEBSITE: WWW.KRCMAR.CA

BENCHMARK INFORMATION:	
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCHMARK NO. C718, HAVING AN ELEVATION OF 114.789 METRES.	

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

Arcadis Professional Services (Canada) Inc.
8133 Warden Avenue, Unit 300
Markham, Ontario L6G 1B3
Canada
Phone: 905 763 2322
Fax:
www.arcadis.com