The Corporation of the Municipality of Brockton

By-Law 2022-037

Being a By-Law to Enter into a Site Plan Control Agreement Between the Corporation of the Municipality of Brockton and CONEX CANADA INC. and EXTRA REALTY LIMITED for 37 Yonge Street North, Walkerton.

Whereas the *Municipal Act, 2001, S.O. 2001, c. 25*, Section 5(1), as amended, provides that the powers of a municipal corporation are to be exercised by its council;

And Whereas the *Municipal Act, 2001, S.O. 2001, c. 25*, Section 5(3), as amended, provides that a municipal power, including a municipality's capacity rights, powers and privileges under section 9; shall be exercised by By-Law;

And Whereas subsection (7) of the said Section 41 authorizes the Corporation to require the Owner of the subject lands or its agent to enter into an Agreement with the Corporation

And Whereas the Council for The Corporation of the Municipality of Brockton deems it expedient to enter into a Site Plan Control Agreement with CONEX CANADA INC. and EXTRA REALTY LIMITED for a property located at 37 Yonge Street North, Walkerton, legally described as PT PARK LT 38 PL 162 PT 1 & 2 3R3215 T/W R367382, BROCKTON PIN 33196-0105 (LT);

Now Therefore the Council of the Corporation of the Municipality of Brockton **Enacts as Follows:**

1.0 That the Corporation of the Municipality of Brockton hereby enter into a Site Plan Control Agreement for a property located at 37 Yonge Street North, Walkerton, legally described as PT PARK LT 38 PL 162 PT 1 & 2 3R3215 T/W R367382, BROCKTON PIN 33196-0105 (LT) which shall detail certain terms and conditions of the proposed development by CONEX CANADA INC. and EXTRA REALTY LIMITED and this agreement, shall be attached hereto and marked as Schedule "A" and shall form an integral part of this by-law; and further that the Site Plan drawings be attached hereto and marked as Schedule "B" and form an integral part of this by-law; and further that the Stormwater Sewer Design Sheet by attached hereto and marked as Schedule "C" and form an integral part of this by-law; and further that the Functional Servicing Report be attached hereto and marked as Schedule "D" and form an integral part of this by-law;

2.0 That the Mayor and Director of Legislative and Legal Services (Clerk) are authorized to sign and execute the attached Site Plan Agreement as well as any other related documentation or any documentation required for the registration of the Site Plan Agreement on behalf of the Corporation.

3.0 That this By-Law shall come into effect upon final passage.

4.0 This By-Law may be cited as the "CONEX CANADA INC. Site Plan Control Agreement By-Law".

Read, Enacted, Signed and Sealed this 8th day of March, 2022.

_____
Mayor – Chris Peabody

_____
Director of Legislative and Legal Services (Clerk) – Fiona Hamilton

Municipality of Brockton

Site Plan Agreement

This Agreement made this 8th day of March, 2022 and referred to as the

"Site Plan Agreement"

BETWEEN:

CONEX, CANADA INC.
hereinafter referred to as the "Owner"

-and-

The Corporation of the Municipality of Brockton
hereinafter referred to as the "Municipality"

-and-

EXTRA REALTY LIMITED

hereinafter referred to as the "Mortgagee"

Whereas the Owner represents and warrants that he is or will be the registered owner of the lands described in Schedule "A" attached hereto (hereinafter called the "subject lands") which are affected by this Agreement;

And Whereas in this Agreement "Owner" includes any subsequent Owner of the aforementioned subject lands;

And Whereas the Municipality has enacted a Site Plan Control By-Law pursuant to the provision of Section 41, of the Planning Act RSO. 1990, c.P.13 as amended ("Planning Act");

And Whereas the Owner wishes to undertake a development on the subject lands in accordance with a Site Plan attached as Schedule "B" hereto, hereinafter called the "Approved Site Plan";

And Whereas subsection (7) of the said Section 41 of the Act authorizes the Municipality to require the Owner of the subject lands to enter into an Agreement with the Municipality;

And Whereas the covenants in this Agreement are binding upon the Owner and when registered on title are binding upon all successor's on title;

And Whereas the Municipality is of the opinion that it would not be proper or in the public interest to permit development of the subject lands unless assurances are given by the Owner that matters referred to in this Agreement are carried out in the manner hereinafter set forth;

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT in consideration of the mutual covenants, agreements, and promises herein contained and the sum of ONE ($1.00) DOLLAR of lawful money of Canada now paid by each of the parties hereto to the other (the receipt and sufficiency of which is hereby acknowledged) and other good and valuable consideration and the mutual agreements contained therein, the parties hereto covenant and agree as follows:

1. Introduction

1.1. The Owner agrees to enter into a Site Plan Agreement with the Municipality, for the development of all buildings and structures located on the subject lands.

1.2. The Owner agrees to allow the Municipality at the Owner's expense to register or deposit this Agreement in the Registry Office for the County of Bruce against the subject lands.

1.3. Nothing in this Agreement shall relieve the Owner from complying with any other applicable Municipal requirements or by-laws.

1.4. The Owner hereby grants to the Municipality, its servants, agents and contractors, a license to enter the subject lands for the purposes of inspection of the works on the subject lands or for any purpose pursuant to the rights of the Municipality under this Agreement.

2. Schedules

The following Schedules are attached hereto and form part of this Agreement:

2.1. SCHEDULE "A" Being a description of the lands affected by this Agreement.

2.2. SCHEDULE "B" Being a solicitor's Certificate of Ownership of the subject lands.

2.3. SCHEDULE "C" Being a schedule of financial obligations of the Owner payable upon execution of this Agreement or as otherwise provided.

2.4. SCHEDULE "D" Being a schedule of letters of credit to be obtained and filed with the Municipality by the Owner, upon execution of this Agreement.

2.5. SCHEDULE "E" Being a schedule for the release/reduction of securities by the Municipality to the Owner.

2.6. SCHEDULE "F" Being references of the approved plans referred to in this Agreement.

3. Site Development

3.1. The Owner agrees to undertake development on the subject lands, at his sole expense, in conformity with the Approved Site Plan as referenced in Schedule "F" attached hereto.

3.2. At the sole discretion of the Municipality, if the Owner fails to obtain a building permit within one (1) year of signing this Agreement then the Agreement may be automatically terminated and the approval granted to the Approved Site Plan is rescinded.

3.3. At the sole discretion of the Municipality, if the Owner has taken out a building permit but has not completed construction within two years of the date of the permit, this Agreement may be automatically terminated and the approval granted to the Approved Site Plan is rescinded.

3.4. The Owner agrees to restore the municipal streets, to current standards, which have been disturbed or damaged during the course of construction, to the satisfaction of the Municipality.

4. Landscaping

4.1. The Owner shall, at their own expense, install landscaping as indicated on the Approved Site Plan.

4.2. The Owner agrees to erect all fences that are illustrated on the approved Site Plan prior to occupancy**.**

5. Outside Storage

5.1. The Owner agrees that any outside storage is located within prescribed areas as shown on the approved site plan. If and when outside storage is placed in locations beyond the approved locations, the Owner shall be considered to be in breach of this agreement and subject to penalties as prescribed in the Planning Act.

6. Refuse Storage

6.1. The Owner agrees to provide a central refuse storage collection area and this area shall be either within a building or in a location shown on the approved site plan.

7. Loading, Parking and Driveways

7.1. The Owner agrees that any internal driveways which are necessary for and designated as a fire route shall be designed so as to carry the weight of the Municipality's firefighting equipment.

7.2. The Owner agrees that the surface treatment of any and all loading, parking area and driveways shall be constructed as set out on the Approved Site Plan. Surface treatment shall be adequately maintained and treated to prevent the raising of dust or loose particles and shall include provisions for adequate drainage facilities.

7.3. The Owner agrees that parking spaces shall be provided on the subject lands as indicated on the Approved Site Plan.

7.4. The Owner shall be required to provide and maintain accessible parking as per any Municipality By-Law in place relating thereto and any requirements as applies to the Highway Traffic Act.

8. Water and Sewer Services

8.1. The Owner shall install and connect water, storm and sanitary sewer services, as shown on the Approved Site Plan and as directed by the Chief Building Official and the Municipal Engineers. Said connections shall be at the sole expense of the Owner, subject to the required fees.

8.2. The parties hereto acknowledge that it is not the present intention of the Municipality to turn off the water at the watermain with respect to any existing private water service connections not utilized by the Owner; PROVIDED however that the Municipality reserves the right at any time to turn off the water at the cost of the Owner. In the meantime, the Owner for and on behalf of themselves and their heirs, executors, administrators, and assigns and their respective servants, workmen and agents, covenant and agree with the Municipality that they will not cause any damage directly or indirectly to any such unused watermain private service connections, including valve boxes and existing fire hydrants located on the subject lands of the Owner and in the event of any damage so caused by them or any of them, the Owner shall bear the cost of any repairs and/or replacements required by reason of such damage.

8.3. Disposal of waste water shall be in compliance with the requirements of the Ministry of the Environment and the Municipality's Sewer Use By-Law.

9. Drainage

9.1. The Owner agrees that surface and roof drainage systems shall be designed and constructed to the satisfaction of the Municipality and as shown on the Approved Site Plan. Water shall not be directed onto any adjoining properties without the express approval of the so affected property owner within a registered drainage easement.

9.2. As specified within the Con Ex Canada Inc. Functional Servicing Report dated October 2021 prepared by Cobide Engineering Inc. an oil grit separator is to be

installed in the location shown on the approved site plans as referenced in Schedule "F" to meet the recommended stormwater management quality control criteria. The oil grit separator shall be a 1200mm diameter Hydro First Defense, model FD-4HC oil grit separator. The approved oil grit separator shall not be changed from that provided without a submission by the developer's engineer and the consent of the Municipality.

9.3. The Owner agrees to submit a Lot Grading and Drainage Plan, prepared by a Professional Engineer, with the Approved Site Plan, illustrating how stormwater and surface water will be detained on the site and discharged to the municipal drainage system at a rate no higher than the pre-development flows.

9.4. Further the Owner shall retain a Professional Engineer to provide general reviews confirming that all Work has been constructed in general conformity with the Approved Site Plan and in accordance with all applicable law.

10. Hydro Connections

10.1. The Owner agrees that the electrical service from the public street or other distribution point, to the building shall be underground and that there will be no overhead wires leading to the buildings.

11. Signs

11.1. The Owner shall indicate the location and size of any and all proposed signs on the approved Site Plan. It is recognized that the content of the sign may change as building occupancy changes.

12. Lighting

12.1 The Owner agrees that all lighting shall be constructed as shown on the Approved Site Plan and shall be oriented and its intensity so controlled to prevent glare on adjacent roadways and properties. All parking lot lighting shall also comply with the Municipality's Dark Sky resolution.

13. External Works

13.1. The Owner covenants and agrees to provide, construct, install and pay for the external municipal services to the standards and specifications required by the Municipality as shown on the Approved Site Plan which include but are not limited to:

a) Water, storm and sanitary sewer laterals to the property line of the subject lands;

b) paved driveway approaches; and

c) extension of municipal sidewalks.

13.2. The Owner covenants and agrees to construct or install all external works, services and facilities to the satisfaction of the Municipality, in accordance with all municipal specifications and in a good and workmanlike manner. The Owner guarantees the workmanship and materials for the construction and installation of such external works, services and facilities and to main same free of defects for a period of one (1) years from the date of certification of substantial completion. The Owner covenants and agrees that it will promptly and properly repair all defects in such external works, services or facilities to the complete satisfaction of the Municipality.

13.3. The Owner acknowledges that any action taken by the Municipality or by its employees, agents or contractors relating to the removal of snow and ice, or sanding, or cleaning of any roads, or permitting the connection of additional services to any of the external works, services or facilities herein required to be

constructed or installed, during the guarantee and maintenance period is being done without prejudice to the Municipality's right to enforce and guarantee and maintenance provisions of this Agreement.

14. Phasing

14.1. ~~The Owner covenants and agrees to adhere to the Phasing Plan of the Approved Site Pan in constructing the proposed development and the approved structure(s) contemplated under this Agreement. The Owner acknowledges that each development phase shall be subject to the approval of the Chief Building Official prior to the issuance of any building permits for any phase.~~

Section 14. Phasing Intentionally Deleted

15. Easements, Municipal or Otherwise

15.1. The Owner, shall at his/her own expense cause to be prepared, granted and registered the following easements:

_____ (insert description of any necessary easements.)

Such other easements as may reasonably requested by the Municipality for future municipal purposes, provided that the Municipality will pay the cost of surveying and preparing any easement agreements so requested.

15.2. The Municipality and its Chief Building Official make no representations and warranties with respect to any existing easements affecting the subject property and their impact on the Approved Site Plan, this Agreement or any construction undertaken by the Owner. The Owner assumes all risks associated with same.

16. Maintenance

16.1. The Owner shall**:**

a) Complete the works and other facilities required on the Approved Site Plan and this Agreement at their sole expense and to the satisfaction of the Municipality;

b) Maintain those works and facilities located on the subject lands to the satisfaction of the Municipality at the sole risk and expense of the Owner; and

c) At all times in the future, provide to an acceptable standard removal of snow and ice from access ramps and driveways, parking areas, loading areas and walkways for the protection of people and property and to afford safe access to the subject lands.

16.2. Without limiting the generality of paragraph 16.1 (b), the Owner shall:

a) Maintain all hedges, trees, shrubs, and other ground cover in a healthy state;

b) Keep any works and facilities shown on the plan with respect to landscaping in good repair;

c) Refrain from doing anything that will have a detrimental effect on adjoining properties; and

d) Operate, monitor and maintain on site oil interceptors in accordance with standards and recommendations of the manufacturer. Oil Interceptor Inspection and Maintenance logs are to be made available to the Municipality upon notice.

17. Site Plan Inspection and Occupancy

17.1. The Owner agrees that prior to occupancy of any building on the subject land, the Owner shall request a Site Plan Inspection conducted by the municipality. An agent or employee of the municipality shall inspect the site and note any deficiency associated with the project that requires remedy prior to occupancy being granted. All deficiencies shall be remedied prior to the refund of the Performance Deposit. Deficiencies shall be considered to be a breach of this Agreement.

17.2. The Owner shall not occupy nor shall it allow anyone else to occupy any building or part thereof for which building permits have been issued until all works required under this Agreement are completed in accordance with the requirements of the Ontario Building Code, the applicable zoning by-law and any other municipal by-laws, and that the internal water distribution and sanitary sewer collection have been tested and approved and are operating in accordance with the conditions established by the Municipality.

17.3. In the event that a building or part thereof is occupied other than in accordance with the provisions of section 17.2 above, the Municipality shall be entitled to obtain an Order from a court of competent jurisdiction prohibiting the occupancy of any building or part thereof until such time as the terms of this Agreement have been fully complied with, and this Agreement shall constitute a full estoppel to any opposition brought by the Owner.

18. Professional Engineer

18.1. The Owner covenants and agrees to retain a Professional Engineer who holds a Certificate of Authorization for municipal engineering applications from the Association of Professional Engineers of Ontario to prepare the design of lot grading and drainage, site and external servicing plans, municipal service connection designs, and lot grading and drainage reports that are to be submitted to the Chief Building Officer for his/her approval.

18.2. The Owner’s Professional Engineer will be required to inspect and certify to Chief Building Officer that all internal and external services, lot grading and drainage requirements have been constructed in accordance with the approved Engineering Drawings and reports, prior to the release of performance deposit held for engineering-related works. The certificate, or certificates, shall be in a format acceptable to the Chief Building Officer. The Chief Building Officer may, upon pre-qualification of such, accept the use of other qualified professionals for certain components of the design, inspection and certification process.

19. Release and Indemnification

19.1. The Owner agrees that the Municipality shall not be liable to compensate the Owner, occupant, or any other person having an interest in the Subject Land by reason of anything done by or on behalf of the Municipality under this Agreement.

19.2. The Owner hereby covenants and agrees to waive any right or entitlement it may have to any action, cause of action, losses, liens, damages, suits, judgments, orders, awards, claims or demands whatsoever against the Municipality, its Council, employees, workers, agents, contractors, and consultants, and further covenants and agrees to indemnify and save harmless the Municipality, its Council, employees, workers, agents, contractors, and consultants from and against all actions, causes of action, losses, liens, damages, suits, judgments, orders, awards, claims and demands whatsoever, whether the same shall be with or without merit, and from all costs to which the Municipality, its Council, employees, workers, contractors, and consultants, may be put in defending or settling any such action, causes of actions, suits, claims or demands, which may arise either directly or indirectly by reason of, or as a consequence of, or in any way related to the Owner developing the Subject Land, including without limitation, the installation, maintenance, repair and/or operation of any facilities therein.

19.3. Without limiting that set out above, the Owner shall at all times indemnify and save harmless the Municipality of and from all losses, costs and damages which the Municipality may suffer or be put to, for or by reason of, or on account of, the construction, maintenance or existence of pavements, curbs, plantings, and other improvements upon the road allowances where the same are required by this Agreement to be provided by or at the expense of the Owner and such indemnity shall constitute a priority lien and charge upon the subject lands, and shall be added to the assessment roll as unpaid taxes and may be collected in a similar manner as unpaid Municipal taxes.

19.4. This Agreement and the provisions hereof do not give to the Owner or any person acquiring an interest in said lands (each hereinafter in this paragraph called “such persons”) any rights against the Municipality with respect to the failure of any such person to perform or fully perform any obligation under this Agreement, or the failure of the Municipality to force any such person to perform or fully perform any such obligations under this Agreement or the negligence of any such person in the performance of the said obligation. All facilities and matters required by this Agreement shall be provided by the Owner to the satisfaction of and at no expense to the Municipality, and shall be maintained to the satisfaction of the Municipality at the sole risk and expense of the Owner, and in default thereof and without limiting other remedies to the Municipality the provisions of Section 446 of the Municipal Act 2001, as amended, shall apply.

19.5. If any matter or thing required to be done by this Agreement is not done in accordance with the provisions of this Agreement and such default continues, in addition to other remedies available to it, the Municipality may direct that such matter or thing shall be done at the expense of the Owner, and the Municipality may recover at the expense incurred in doing it by action, the Owner hereby authorizes the Municipality to enter upon the said subject lands and do such matter or things.

20. Severability

20.1. The clauses of this Agreement shall be deemed independent and the striking down or invalidity of any one or more of the clauses does not invalidate this Agreement or the remaining clauses.

21. Performance Deposit

21.1. Prior to obtaining a Building Permit, the Owner agrees to provide the Municipality with a Performance Deposit in the amount of $11,089.67. The purpose of this security is to:

a) Ensure that the Owner constructs the project in compliance with the Approved Site Plan;

b) Ensure the provision of all matters and facilities required pursuant to this Agreement;

c) Ensure other applicable municipal requirements shall be met within the prescribed period of time;

d) To be used to cover the costs of any damage to municipal property during the course of construction.

21.2. The Performance Deposit shall be determined by the Municipality based upon a formula of 1% of the value of the project's construction (including land). The minimum Performance Deposit shall be $3,000 and the maximum Performance Deposit shall be $20,000. The Performance Deposit shall be in the form of cash, Certified Cheque, or by Irrevocable Letter of Credit.

21.3. The Performance Deposit shall be refunded to the Owner without interest upon as per Schedule “D” of this agreement.

22. Additional Permits

22.1. The Owner acknowledges that the Municipality by approving the Site Plans, and entering into this Agreement, does not relieve the Owner from the requirements of obtaining any permit or license that may be required by the Municipality, the County of Bruce or any other agency, including any provincially appointed regulatory body or Ministry, before the proposed development can proceed.

23. Termination of Agreement

23.1. If this Agreement is automatically terminated, the Municipality is deemed to have withdrawn its consent to the proposed development and a formal notice of termination stipulating all development is to cease may be issued until the Owner has entered into a further Site Plan Agreement. No liability or other duty required of the Municipality under this Agreement shall be imposed on the Municipality should this Agreement be terminated. The Municipality is under no obligation to return any money paid under this Agreement.

23.2. Notwithstanding anything contained herein to the contrary, and subject to approval by the Municipality, if the Owner is delayed in substantially completing the construction of any work or facility required by this Agreement by any act beyond the Owner's reasonable control, the time for completion shall be extended by a period of time equal to such delay.

24. Estoppel

24.1. The Owner further covenants and agrees that it will not call into question directly or indirectly in any proceeding whatsoever in law or in equity or before any administrative tribunal, the right of the Municipality to enter into this Agreement and to enforce each and every term, covenant and condition herein contained, and this paragraph may be pleaded as an estoppel against the Owner in any such proceeding**.**

25. Mortgagee's Covenants

25.1. The Mortgagee hereby postpones its interest as Mortgagee under a mortgage registered in the Bruce County Land Registry Office on the 4th day of October as Instrument Number BR174939 to the terms of this Agreement.

The Mortgagee shall not be required, in its capacity as mortgagee:

To install any works and services that have not been installed by the Owner;

To complete the installation of any works and services that the Owner has started to install, but not completed, or

To correct any deficiencies in works and services improperly installed by the Owner.

26. Notices

26.1. Any notices required or permitted to be given under this Agreement shall be in writing and may be served either personally, by email or by mailing such notice by registered mail postage prepaid or if the postal service has been disrupted for any reason, by delivering such notice by a prepaid courier service as follows:

The Municipality of Brockton
c/o Clerk
100 Scott Street
P.O. Box 68
WALKERTON, Ontario
N0G 2V0

Mario Garcia
113 William Street
Walkerton, Ontario
N0G 2V0
marioggarcia@live.com

26.2. If any notice is mailed by registered mail, postage prepaid or sent by prepaid courier service as aforesaid, it shall be deemed to have been received by the party to whom it was mailed or sent on the fifth day following the day upon which it was received by one of Her Majesty's post offices or is sent by courier, on the second day after which it was delivered to the courier service unless the second day ends on a Saturday, Sunday or legal holiday, in which case those days are not included in computing the two day period.

27. Agreement Runs with Land

27.1. This Agreement shall inure to the benefit of the Municipality, its successors and assigns. The benefits and the burden of the covenants, agreements, conditions and undertakings herein contained shall run with the land and are binding upon the land and upon the Owner and its successors and assigns.

This Agreement is also binding upon the Mortgagee and its respective heirs, executors, administrators, successors and assigns.

28. Municipal Expenses

28.1. The Owner shall pay to the Municipality the costs for all outside technical, professional and legal advice that the Municipality has incurred in order to approve the development covered by this agreement. These expenses do not include technical services rendered by full time municipal staff. The Financial Obligations are outlined in Schedule "C" of this Agreement. Securities and Performance deposits are outlined in Schedule "D" of this Agreement**.**

28.2. The Owner agrees to pay to the Municipality by cash or Certified Cheque, a contribution for the Municipality's municipal administrative services in the sum of $0.10 per square foot with a minimum fee of $500.00 as per the Fee By-Law of the Municipality based upon the building's foot print for all commercial and industrial developments. This fee will only be charged on the proposed building(s). Staged development will be charged the necessary fees as per the Fee By-Law of the Municipality as amended, once future development begins.

28.3. The total contribution for this development, based on a total building area of 18,568 square feet will be $1856.80 and shall be payable on execution of this Agreement and before the issuance of a building permit.

29. Miscellaneous provisions

29.1. In this Agreement, words importing the singular number include the plural and vice versa and words importing the masculine gender include the feminine and neuter genders.

29.2. The terms of this Agreement may be amended, altered, substituted, deleted, replaced, or added to only if such modification is in writing, signed by both parties and expressly stated to be a modification of this Agreement.

29.3. Headings in this Agreement shall not to be considered part of this Agreement and are included solely for the convenience of reference. They are not intended to be full or accurate descriptions of the contents thereof.

29.4. Should any provisions of this agreement require judicial interpretation, mediation or arbitration, it is agreed that the court, mediator or arbitrator interpreting or construing the same shall not apply a presumption that the terms thereof shall be more strictly construed against one Party by reason of the rule of construction that a document is to be construed more strictly against the Party who itself or through its agent prepared the same, it being agreed that both Parties, directly or through their agents have participated in the preparation of this agreement.

29.5. This Agreement shall be construed in accordance with and governed by the laws of the Province of Ontario.

29.6. The Owner acknowledges that the Owner has been advised to consult a lawyer before executing this Agreement. The Owner represents and warrants that the Owner has either obtained independent legal advice from the Owner's own lawyer with respect to the terms of this Agreement prior to execution or declined seeking such independent legal advice. The Owner represents and warrants that the Owner has read this Agreement and understands the terms and conditions and the Owner's rights and obligations under this Agreement and agrees to be bound by it.

This Section Intentionally Left Blank

Signed, Sealed and Delivered
In the Presence

Owner

CONEX, CANADA INC.

_____

Print Name: _____
I have authority to bind the Corporation

The Municipality of the Municipality of Brockton

Dated: _____ Per: _____
Chris Peabody – Mayor

Dated: _____ Per: _____
Fiona Hamilton – Clerk

We have the authority to bind the Municipality.

Schedule “A” to Site Plan Agreement

Description of Lands

Being: PT PARK LT 38 PL 162 PT 1 & 2 3R3215 T/W R367382; BROCKTON PIN 33196-0105 (LT)

Schedule "B" to Site Plan Agreement

Solicitor's Certificate of Ownership

I [Name of Solicitor]

a Solicitor of Ontario, do hereby certify that [Name of Owner(s)] is/are the sole Owners(s) in fee simple of all land described in Schedule "A" to the Site Plan Control Agreement herein referred to.

I further certify that there are no mortgages or other encumbrances upon said lands or any part thereof save and except the following:

[list of encumbrances]

I further certify that [Name of Owner(s)]

Is/are the sole Owner(s) in fee simple of all land to be conveyed to the Municipality pursuant to the said site Plan Control Agreement. All easements, licenses or rights-of-way to be conveyed to the Municipality will be so conveyed with the consent of all mortgages or other encumbrancers.

This certificate is given by me to the Municipality for the purpose of having the said Municipality act in reliance on it in entering into this Site Plan Control Agreement.

DATED at _____ this _____ day of _____ 201__.

TO: [name of Municipality]

_____

Solicitor for the Owner(s)Being: [legal description]

Schedule "C" to Site Plan Agreement

List of Financial Obligations to the Owner(s)

1.	Site Plan Agreement Registration/Preparation -	Invoiced for Actual Cost – (Refundable Deposit $1,000.00)
2.	Site Plan Agreement Preparation Fee -	$114.00
3.	Site Plan Agreement Administration Fee -	$1,856.80
	TOTAL	$1970.80

Schedule “D” to Site Plan Agreement

Security/Letter of Credit

SECURED WORKS		AMOUNT
1.	Performance Deposit	$11,089.67.00
2.	Site Plan Control Agreement Registration/Preparation Deposit	$1000.00
TOTAL		$12,089.67

Schedule "E" to Site Plan Agreement

Release of Security

Application for Reduction of Securities

Prior to the release of any security held by the Municipality for the works, facilities and matters set out in this Agreement, the Owner must supply the Municipality with the following documentation:

a) formal request for reduction/release;
b) consultant's certificate confirming compliance with plans;
c) as-constructed drawings;

Release of Securities

(a) Release of Performance Deposit

Upon the receipt by the Municipality of all the documents identified above works, and satisfaction to the Municipality that the work has been completed in conformity with the approved plans, the Municipality shall release the Performance Deposit.

(b) Release of Site Plan Control Agreement Registration/Preparation Deposit

Upon payment of the invoice for the cost incurred for the registration of the Site Plan Control Agreement in the Registry Office for the County of Bruce against the subject lands, the Municipality shall release the Site Plan Control Agreement/Preparation Deposit.

Schedule "F" to Site Plan Agreement

APPROVED PLANS

The following Plans and Reports for the River Breeze Townhouse Development form part of this Site Plan Agreement and are on file at the Clerk's Office for the Municipality.

01892 River Breeze (37 Yonge St) Second Submission 2022-02-15 prepared by Cobide Engineering Inc.

1. SHEET NO. 01892-EX1 – EXISTING CONDITIONS AND REMOVALS PLAN
2. SHEET NO. 01892-SP1 – DEVELOPMENT SITE PLAN
3. SHEET NO. 01892-SS1 – SITE SERVICING PLAN
4. SHEET NO. 01892-SGRT1 – SITE GRADING PLAN
5. SHEET NO. 01892-STM1 – STORM SEWER CATCHMENT AREAS
6. SHEET NO. 01892-DET1 – CHAMBER/MISCELLANEOUS DETAILS I
7. SHEET NO. 01892-DET2 – MISCELLANEOUS DETAILS II
8. SHEET NO. 01892-DET3 – MISCELLANEOUS DETAILS III

Report Titled – 2022-02-15 Yonge St FSR 01892 prepared by Cobide Engineering Inc.
Report Titled – 01892 Storm Sewer Design prepared by Cobide Engineering Inc.

2021-11-02-ARCHITECTURAL PLANS prepared by CONEX titled "River Breeze"

1. A 0.1 – COVER SHEET
2. SP 1.1 – PROPOSED SITE PLAN & STATISTICS
3. SP1.2 – PROPOSED SITE PLAN
4. SP1.3 – PROPOSED CONDOMINIUM PLAN
5. A 1.1.0 BLOCK 1 WALK-OUT BASEMENT
6. A 1.1.1 BLOCK 1 FIRST FLOOR PLAN
7. A.1.1.2 BLOCK 1 SECOND FLOOR PLAN
8. A 1.1.3 BLOCK 1 ROOF PLAN
9. A 1.1 BLOCK 1 PROPOSED FOUNDATION PLAN
10. A..2.1.0 BLOCK 1 EXTERIOR ELEVATIONS
11. A 5.1.0 RENDERS

The Owner agrees to construct all buildings, structures, works, services and facilities required under this Agreement in accordance with the above referenced Plans.

"RIVER BREEZE"

AT WALKERTON

37 YONGE STREET NORTH

WALKERTON,
ONTARIO, N0G2V0

SITE PLAN

CIVIL ENGINEERING

COBIDE ENGINEERING

TRAVIS BURNSIDE
PH: (519) 506 5959
TBURNSIDE@COBIDEENG.COM

DOCUMENT LIST:

A 0.1	COVER SHEET
SP 1.1	PROPOSED SITE PLAN & STATISTICS
SP 1.2	PROPOSED SITE PLAN
SP 1.3	PROPOSED CONDOMINIUM PLAN
A 1.1.0	BLOCK 1 WALK-OUT BASEMENT
A 1.1.1	BLOCK 1 FIRST FLOOR PLAN
A 1.1.2	BLOCK 1 SECOND FLOOR PLAN
A 2.1.0	BLOCK 1 EXTERIOR ELEVATIONS
A 5.1.1	RENDERS
EX 1	EXISTING CONDITIONS & REMOVALS PLAN
SP 1	DEVELOPMENT SITE PLAN
SS 1	SITE SERVICING PLAN
SGR 1	SITE GRADING PLAN
STM 1	STORM SEWER CATCHMENT AREAS
DET 1	CHAMBER / MISCELLANEOUS DETAILS 1
DET 2	MISCELLANEOUS DETAILS II
DET 3	MISCELLANEOUS DETAILS III

ISSUES:

NO.	DATE	DESCRIPTION
1	NOV 1, 2021	SITE PLAN APPLICATION

CONEX

CONEX CANADA INC.

WWW.CONEXTEAM.COM
MARIOG@CONEXTEAM.COM

PH: (226) 235-3030

A. Detail Number
B. Drawing Number – Where Detail Found

PROJECT NAME:

RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

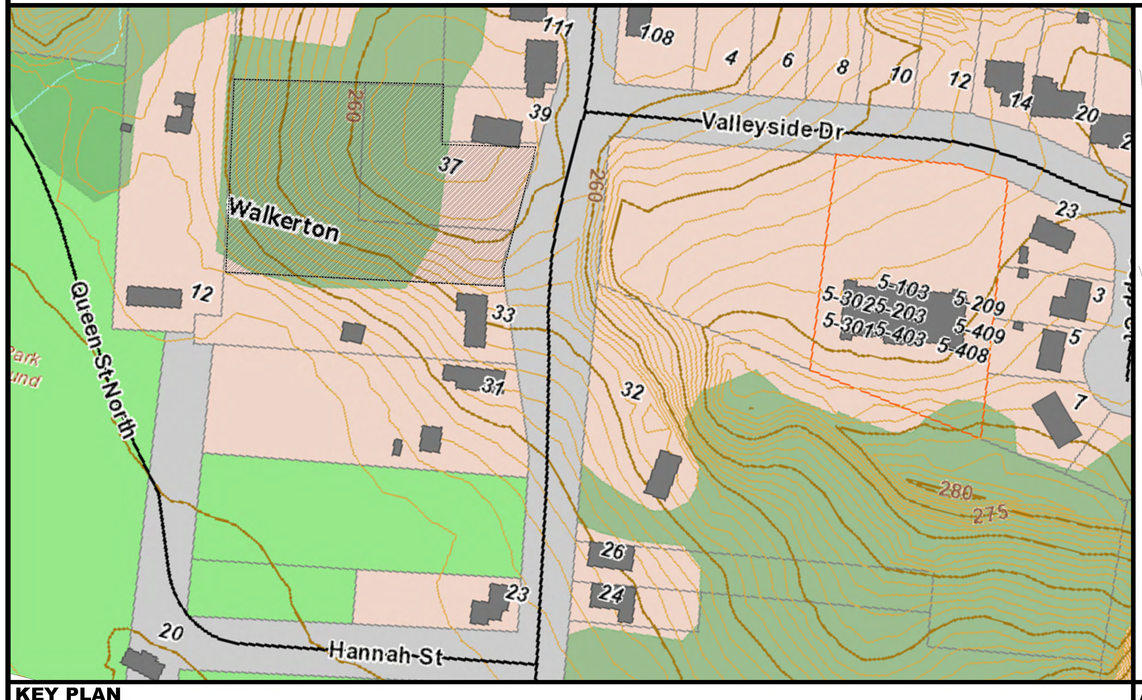
DRAWING TITLE:

COVER SHEET

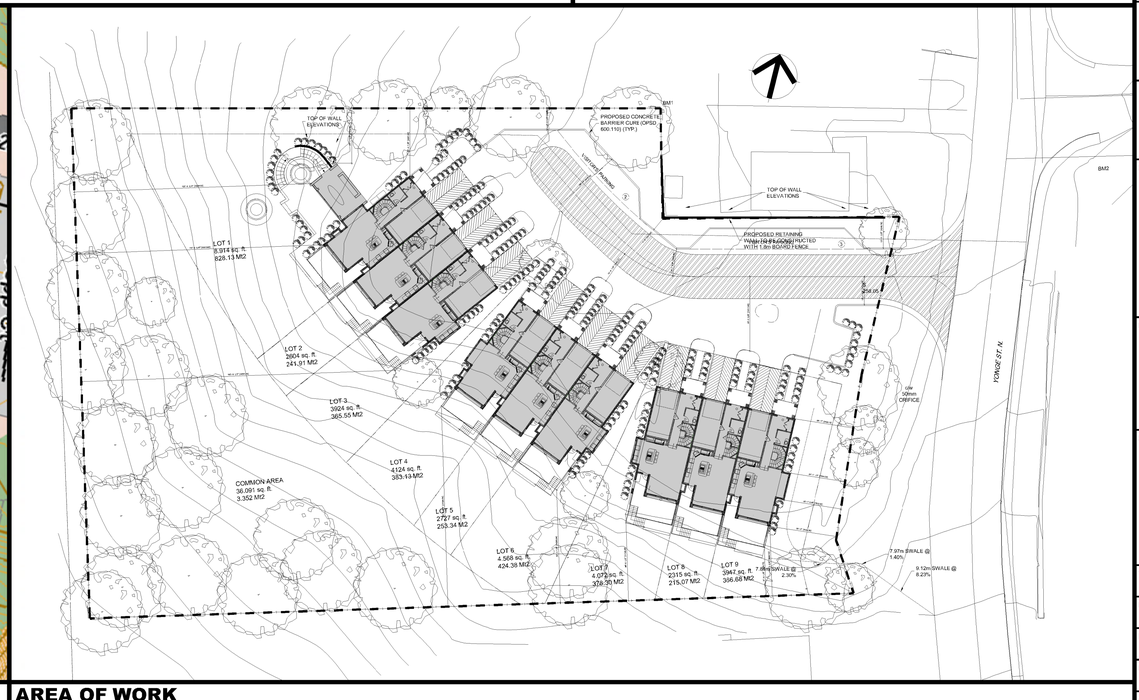
PROJECT NORTH:

STAMP:

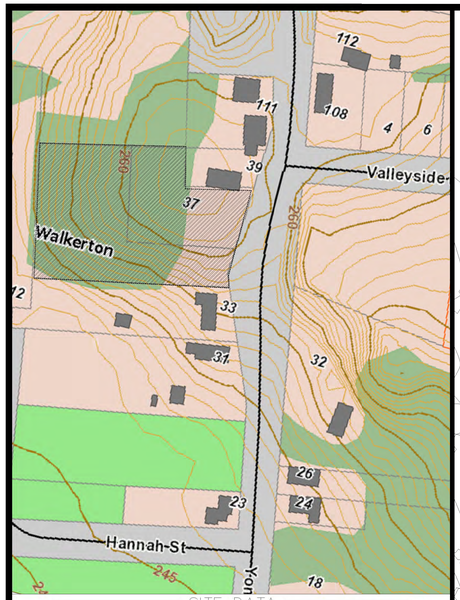
SCALE:	PROJECT NO.: 4800
DATE:	FILE NAME:
ISSUED: NOVEMBER 2021	DRAWING NO.: A 0.1
DRAWN BY: MGG	
CHECKED BY: JPG	



KEY PLAN
N.T.S.



AREA OF WORK
SCALE 1/64" = 1'-00"



SITE DATA

1. GROSS SITE AREA: 6,808 MT2 (73,286 SQ.FT.)
2. GROSS BUILDING AREA: 1.68 ACRES

TOWNHOUSES

BLOCK		SQ.M.	SQ. FT.
BLOCK 1	UNIT 1	195.27 SQ.M.	2,101 SQ. FT.
	UNIT 2	184.70 SQ.M.	1,988 SQ. FT.
	UNIT 3	195.01 SQ.M.	2,099 SQ. FT.
SUBTOTAL	3	574.98 SQ.M.	6,189 SQ. FT.
BLOCK 2	UNIT 4	195.27 SQ.M.	2,101 SQ. FT.
	UNIT 5	184.70 SQ.M.	1,988 SQ. FT.
	UNIT 6	195.01 SQ.M.	2,099 SQ. FT.
SUBTOTAL	3	574.98 SQ.M.	6,189 SQ. FT.
BLOCK 3	UNIT 7	195.01 SQ.M.	2,099 SQ. FT.
	UNIT 8	184.70 SQ.M.	1,988 SQ. FT.
	UNIT 9	195.27 SQ.M.	2,101 SQ. FT.
SUBTOTAL	3	574.98 SQ.M.	6,189 SQ. FT.
TOTAL	9 UNITS	1,724.94 SQ.M.	18,568 SQ. FT.

3. REQUIRED PARKING:

UNITS	PARKING REQUIREMENTS	PROVIDED PARKING
9 UNITS	1 PER UNIT + 0.25 FOR VISITORS 9 + 2.25 FOR VISITORS = 12 UNITS	23 UNITS

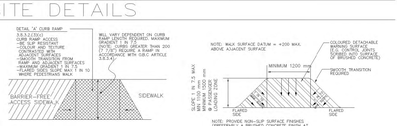
4. PROVIDED PARKING: 23 SPACES

ITEM	A	REQUIRED	PROPOSED
1	ZONES	R3 – 10	R3 – 10
2	PROPOSED USES	URBAN RESIDENTIAL MEDIUM DENSITY	
3	LOT AREA (SQ. M) MINIMUM	155 (SQ. M)	215.07 (SQ. M)
4	LOT FRONTAGE (M) MINIMUM	15 MTS (CLUSTER)	19.46 MTS (CLUSTER)
5	MINIMUM FRONT YARD:	7.5 MTS.	7.50 MTS.
6	MINIMUM EXTERIOR SIDE YARD:	7.5 MTS.	7.5 MTS
7	MINIMUM INTERIOR SIDE YARD:	3 MTS.	3.0 MTS.
8	MINIMUM REAR YARD:	7.5 MTS.	45.5 MTS.
9	MAXIMUM LOT COVERAGE:	40 %	12.27 %
10	MINIMUM LANDSCAPED AREA:	30 %	64 %
11	MINIMUM FLOR AREA, GROSS:	60 (SQ. M)	89.36 (SQ. M) 835.08 M2
12	MAXIMUN HEIGHT MAIN BUILDING	10 MTS.	9.5 MTS.

LEGEND

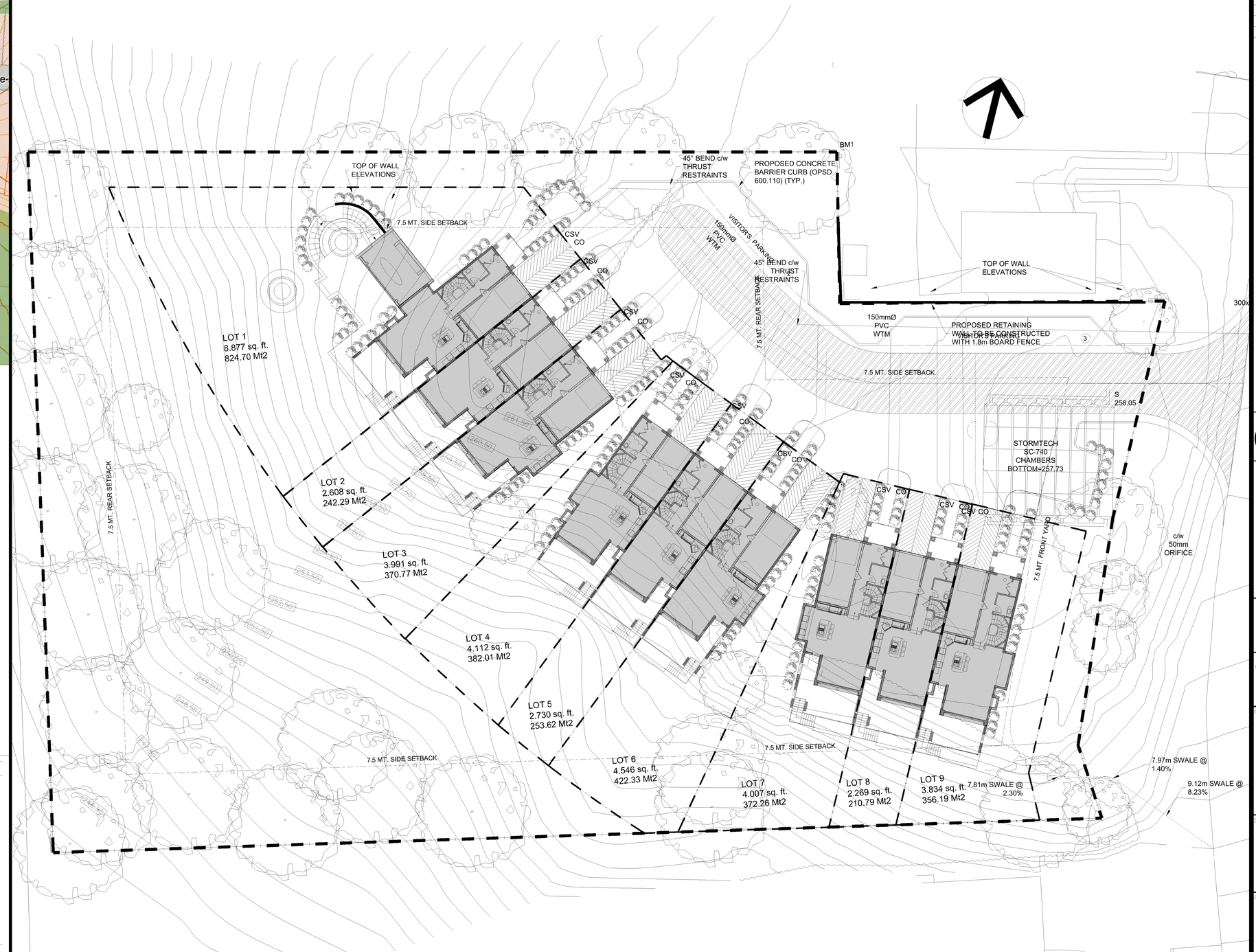
- GRASS (SEE LANDSCAPE DRAWINGS)
- SPECIAL, NON–SLIP CONC. SIDEWALK SURFACE–BARRIER FREE ACCESS
- SNOW ZONE
- FIBAR — FIBAR SAFETY SURFACE
- CONCRETE
- FIRE ROUTE (FIRE ROUTE TO BE POSTED AND DESIGNATED UNDER MUNICIPAL BY–LAW)
- AE — ALUMINUM EDGE
- B — NEW STEEL BOLLARD
- BR — BIKE RACK
- CB — CATCH BASIN
- CNC — NEW CONCRETE
- CC — CURB CUT
- FAP — RECESSED FIRE ALARM PANEL
- FR — FIRE ROUTE SIGN
- FH — FIRE HYDRANT
- FP — FLAG POLE
- G — GARBAGE CAN
- GB — GRAVEL BED
- GM — GAS METER
- GB/AE — GRAVEL BED & ALUMINUM EDGE
- HV — NEW HYDRO VAULT
- HP — HANDICAPPED PARKING SIGN
- STOP — STOP SIGN
- SP — HPCAS STAFF PARKING
- LB — LANDSCAPE BED 914 mm TYPICAL
- NIC — NOT IN CONTRACT
- SW — NEW CONCRETE SIDEWALK C/W CONTROL JOINTS @ 1220 / 1524 mm O.C.
- WM — WATER METER
- PARKING LOT LITE
- DOUBLE SIDED PARKING LOT LITE
- NEW TREE
- PROPERTY LINE
- NEW BLACK CHAIN LINK FEVCE CORE DRILL CONC. FOR POSTS
- 5' HIGH STAKED ORANGE CONSTRUCTION FENCE @ 6' O.C. C/W TIE WIRE ON TOP
- 6' HIGH BLACK IRON FENCE
- 6' HIGH BOARD ON BOARD CEDAR FENCE C/W LATTICE TOP

SITE DETAILS



CURB RAMP DETAIL

N.T.S



1 PROPOSED PRELIMINARY SITE PLAN & STATISTICS
SCALE: 1/16" = 1'-00"

ISSUES:

NO.	DATE	DESCRIPTION
1	NOV 1, 2021	SITE PLAN APPLICATION

CONEX®

CONEX CANADA INC.

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PH: (226) 235–3030

A: Detail Number
B: Drawing Number – Where Detail Found

PROJECT NAME:

RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE:

PROPOSED SITE PLAN & STATISTICS

PROJECT NORTH:

STAMP:

SCALE: 1/16" = 1'-00"

DATE:

ISSUED: NOVEMBER 2021

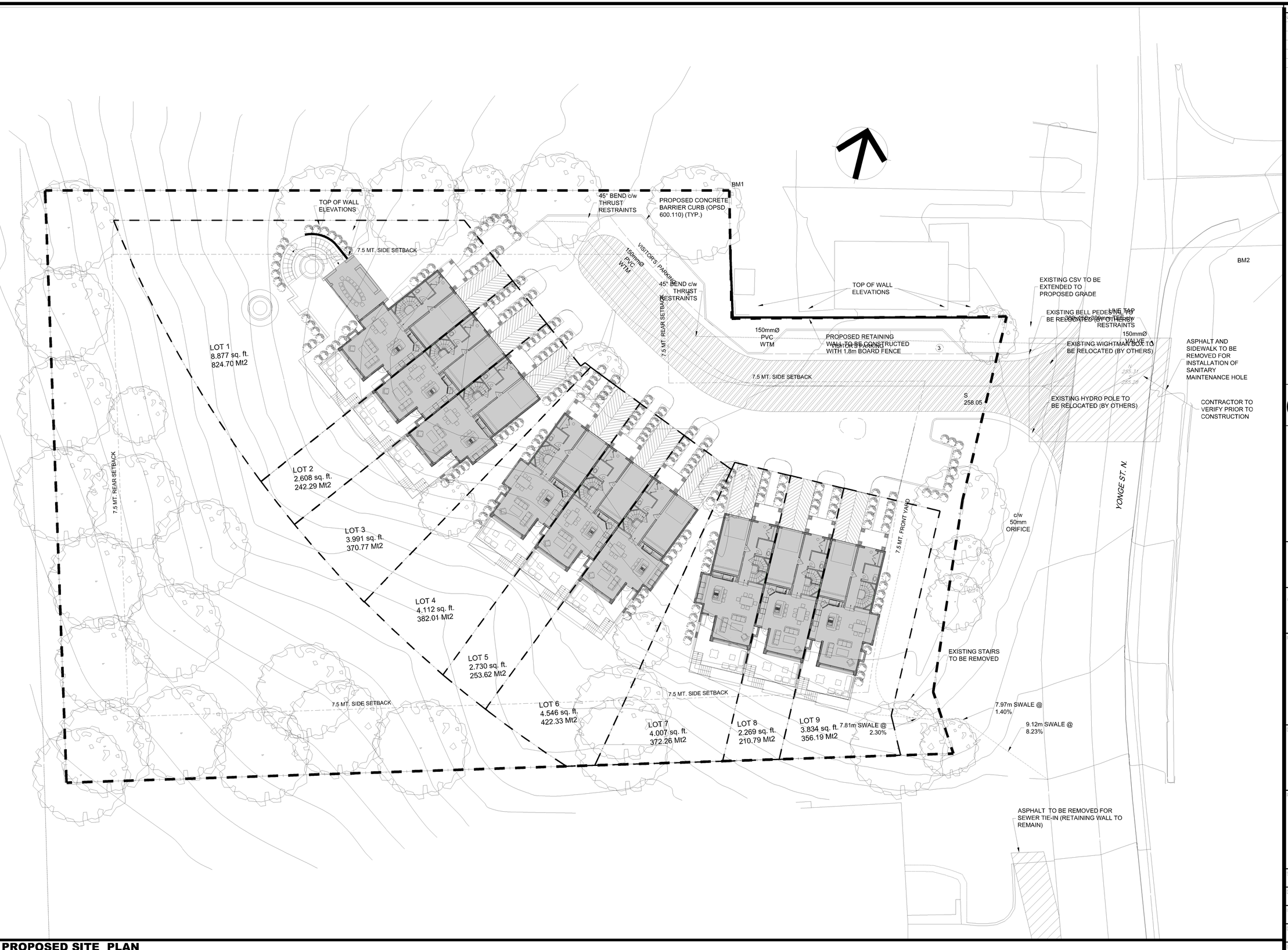
DRAWN BY: MGG

CHECKED BY: JPG

PROJECT NO.: 4800

FILE NAME:

DRAWING NO.: **SP 1.1**



1 PROPOSED SITE PLAN
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PROPOSED SITE PLAN

PROJECT NORTH:

STAMP:

SCALE: 1/16" = 1'-00"	PROJECT NO.: 4800
DATE:	FILE NAME:
ISSUED: NOVEMBER 2021	DRAWING NO.: **SP 1.2**
DRAWN BY: MGG	
CHECKED BY: JPG	

1 **PROPOSED SITE PLAN**
SCALE: 1/16" = 1'-00"

NO.	DATE	DESCRIPTION
1	NOV 1, 2021	SITE PLAN APPLICATION

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PROJECT NAME:

RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE:

PROPOSED CONDOMINIUM PLAN

PROJECT NORTH:

NORTH

STAMP:

SCALE: 1/16" = 1'-00"

DATE:

ISSUED: NOVEMBER 2021

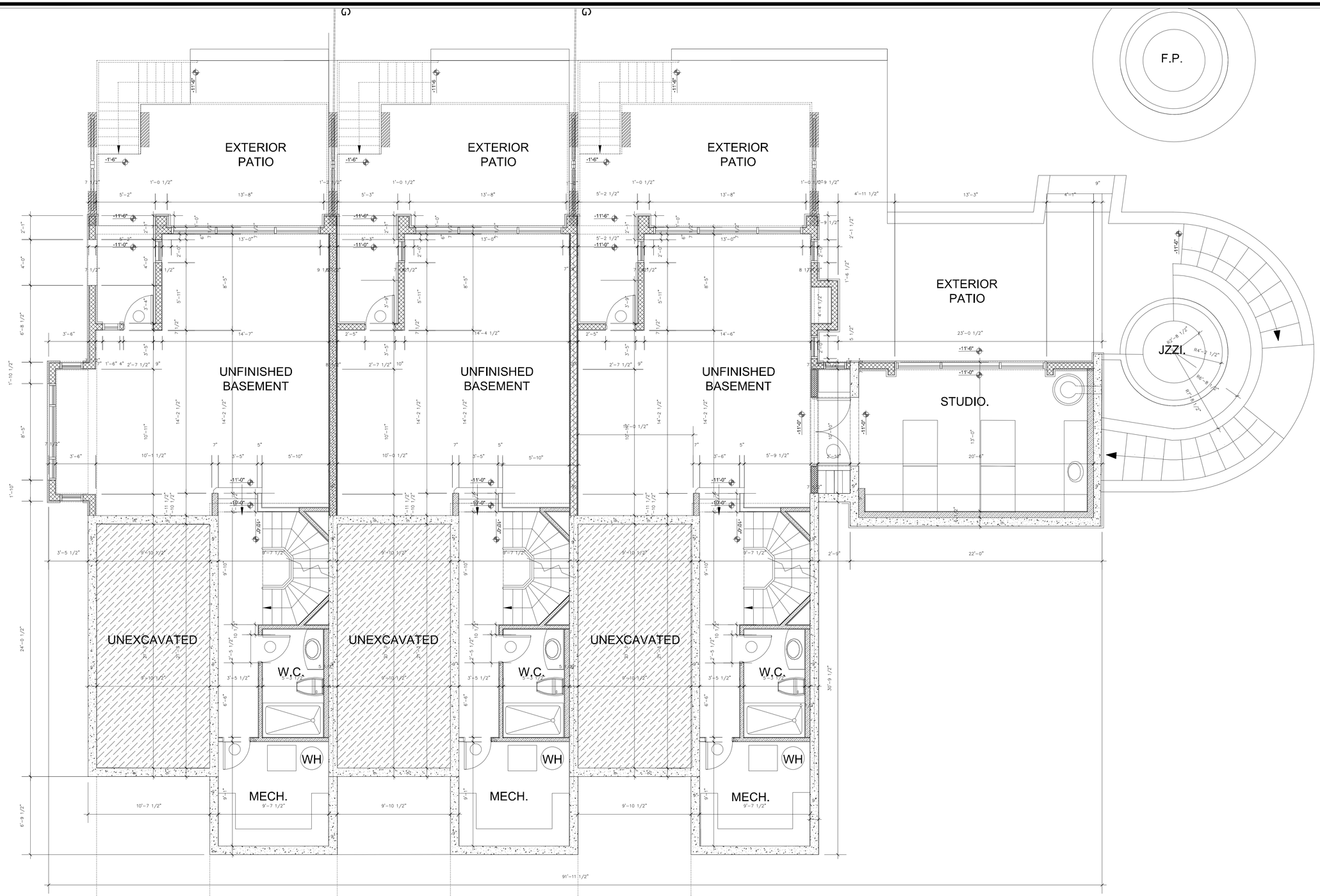
DRAWN BY: MGG

CHECKED BY: JPG

PROJECT NO.: 4800

FILE NAME:

DRAWING NO.: **SP 1.3**



1 **BLOCK 1 - PROPOSED BASEMENT PLAN**
SCALE: 1/4" = 1'-00"

ISSUES:

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1	NOV 1, 2021	SITE PLAN APPLICATION

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PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE: **BLOCK 1 PROPOSED BASEMENT PLAN**

PROJECT NORTH: NORTH

STAMP:

SCALE: 1/4" = 1'-00"

PROJECT NO.: 4800

DATE:

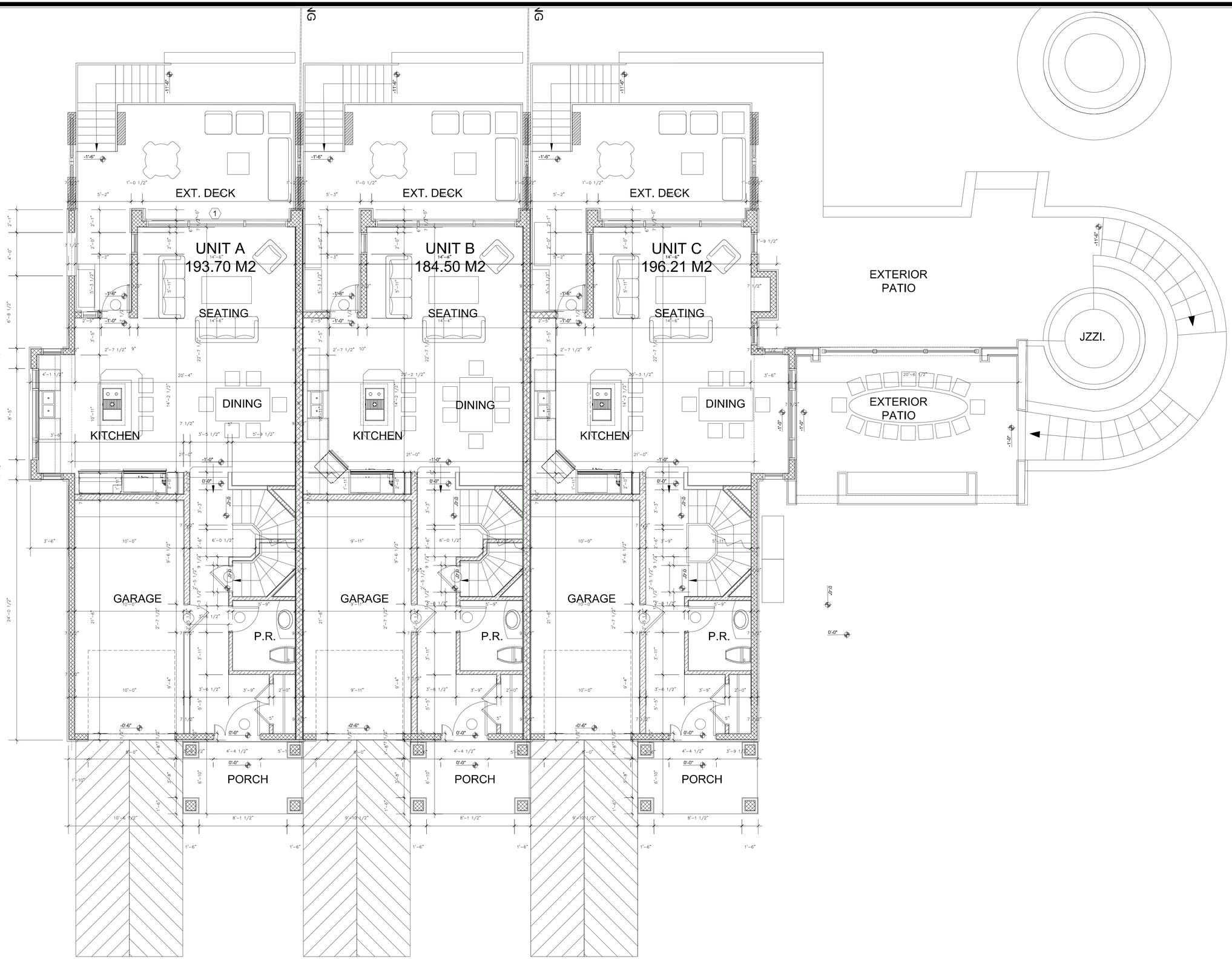
FILE NAME:

ISSUED: NOVEMBER 2021

DRAWN BY: MGG

DRAWING NO.: **A 1.1.0**

CHECKED BY: JPG



1 **BLOCK 1 - FIRST FLOOR PLAN**
SCALE: 1/4" = 1'-00"

ISSUES:		
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1	NOV 1, 2021	SITE PLAN APPLICATION

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37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE:

BLOCK 1 FIRST FLOOR PLAN

PROJECT NORTH: NORTH

STAMP:

SCALE: 1/4" = 1'-00"

DATE:

ISSUED: NOVEMBER 2021

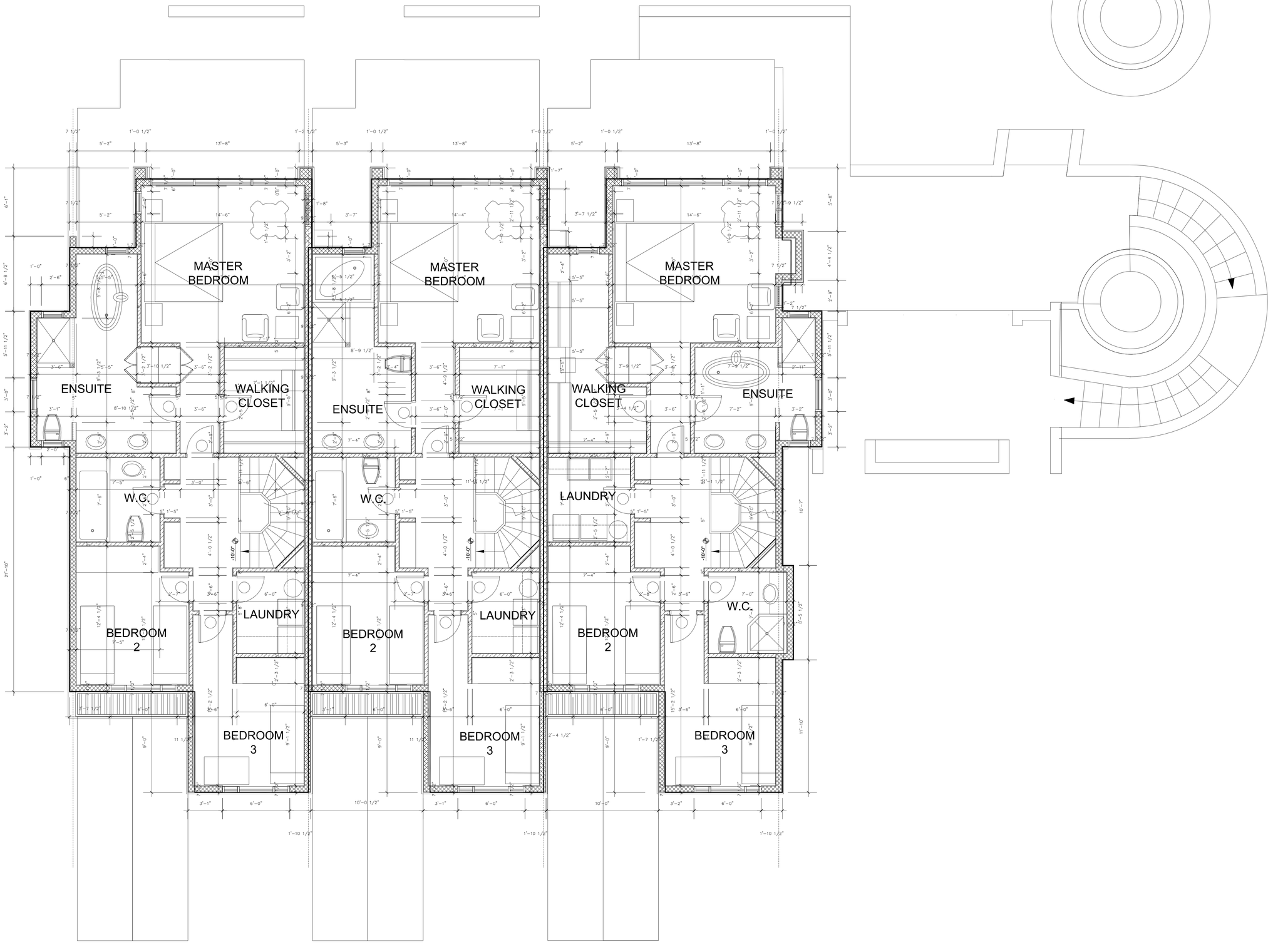
DRAWN BY: MGG

CHECKED BY: JPG

PROJECT NO.: 4800

FILE NAME:

DRAWING NO.: **A 1.1.1**



1 **BLOCK 1- PROPOSED SECOND FLOOR PLAN**
SCALE: 1/4" = 1'-00"

ISSUES:

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1	NOV 1, 2021	SITE PLAN APPLICATION

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PROJECT NAME:
RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO
N0G 2V0

DRAWING TITLE:
BLOCK 1 SECOND FLOOR PLAN

PROJECT NORTH:

NORTH

STAMP:

SCALE: 1/4" = 1'-00"	PROJECT NO.: 4800
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ISSUED: NOVEMBER 2021	DRAWING NO.: **A 1.1.2**
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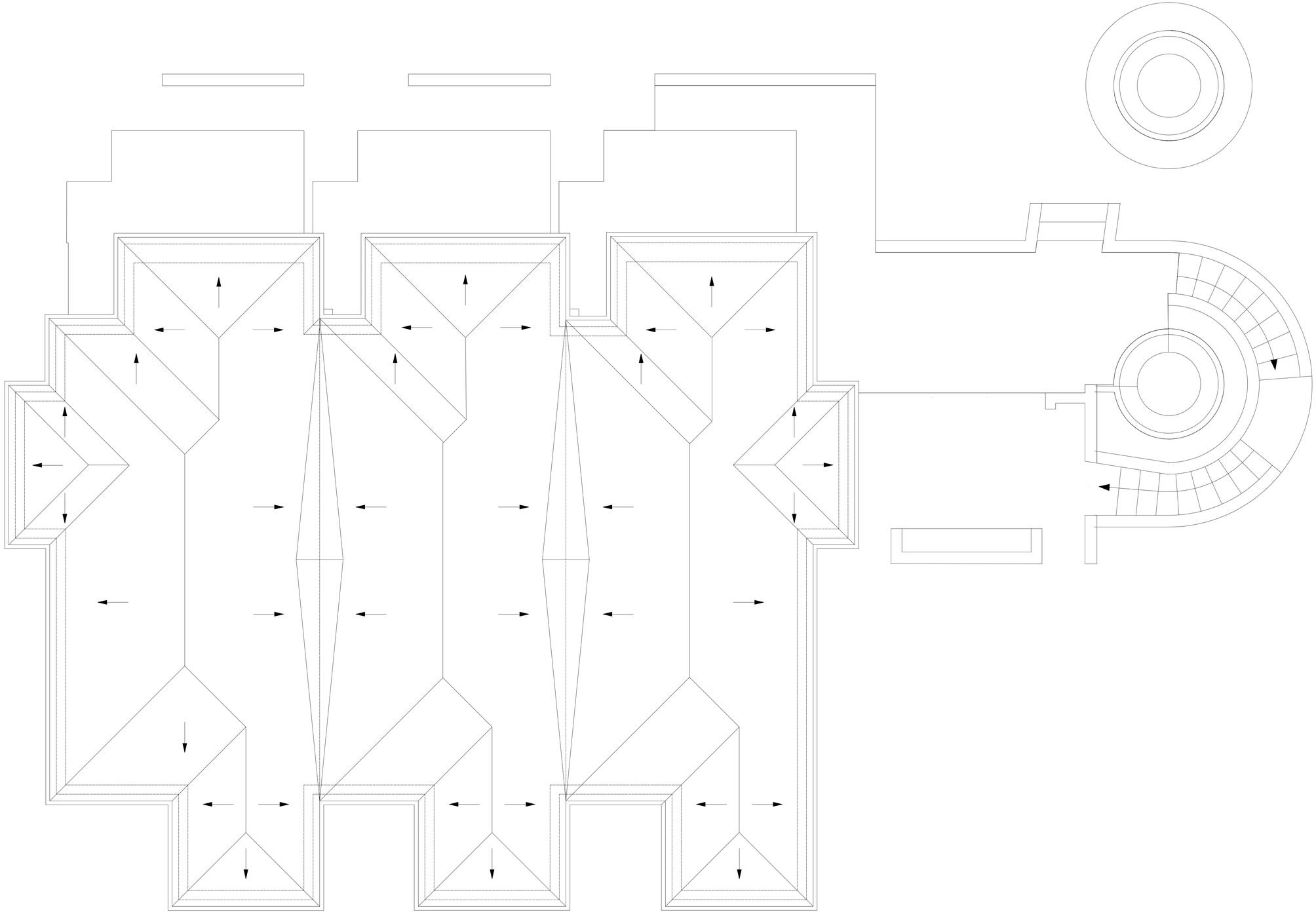

1 **BLOCK 1 - PROPOSED ROOF PLAN**
SCALE: 3/16" = 1'-00"

ISSUES:		
NO.	DATE	DESCRIPTION
1	NOV 1, 2021	SITE PLAN APPLICATION

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PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE:

BLOCK 1 ROOF PLAN

PROJECT NORTH:

NORTH

STAMP:

SCALE: 3/16" = 1'-00"

DATE:

ISSUED: NOVEMBER 2021

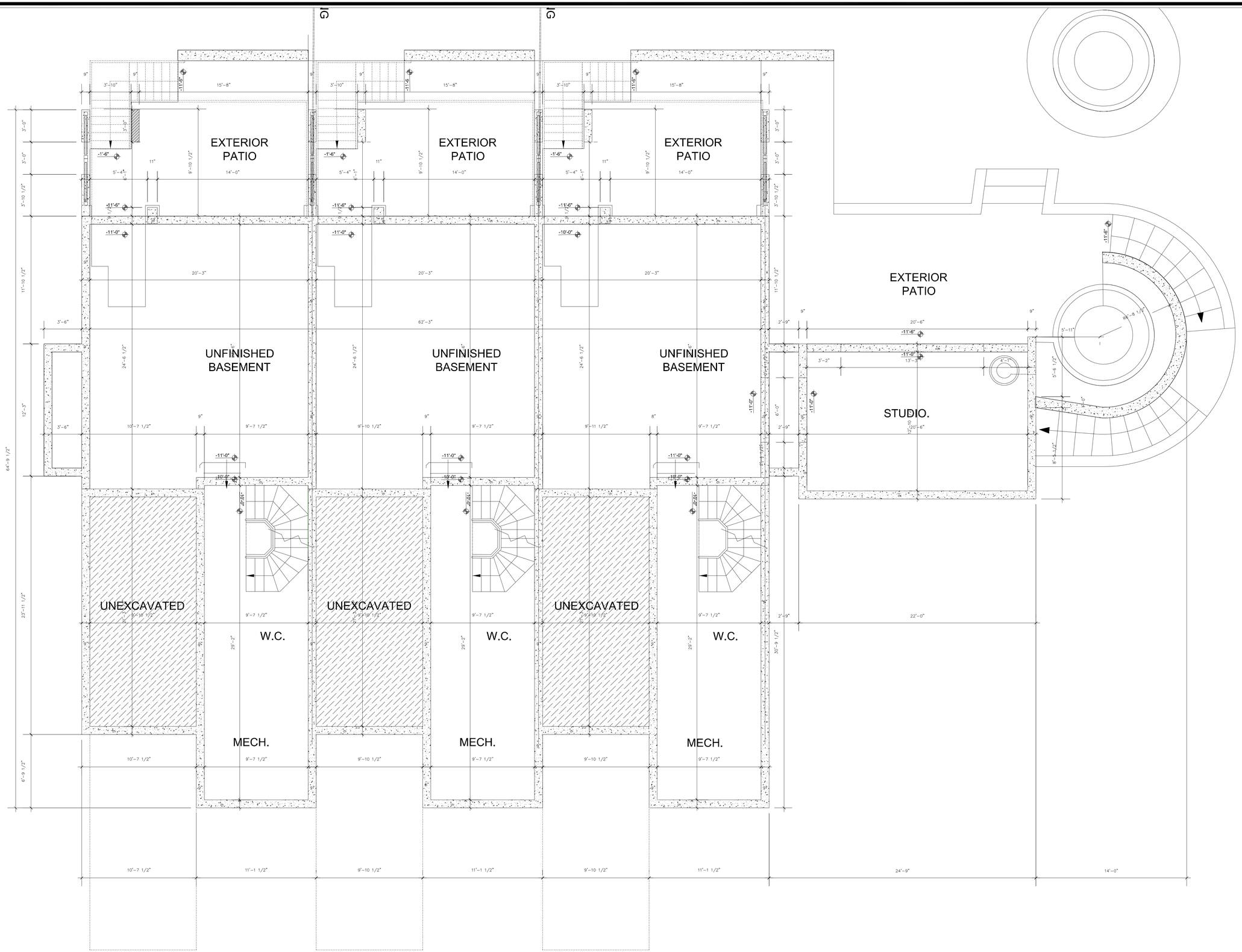
DRAWN BY: MGG

CHECKED BY: JPG

PROJECT NO.: 4800

FILE NAME:

DRAWING NO.: **A 1.1.3**



1 **BLOCK 1 - PROPOSED FOUNDATION PLAN**
SCALE: 1/4" = 1'-00"

ISSUES:		
NO.	DATE	DESCRIPTION
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PROJECT NAME:
RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE: **BLOCK 1 PROPOSED FOUNDATION PLAN**

PROJECT NORTH: NORTH

STAMP:

SCALE: 1/4" = 1'-00"

PROJECT NO.: 4800

DATE:

FILE NAME:

ISSUED: NOVEMBER 2021

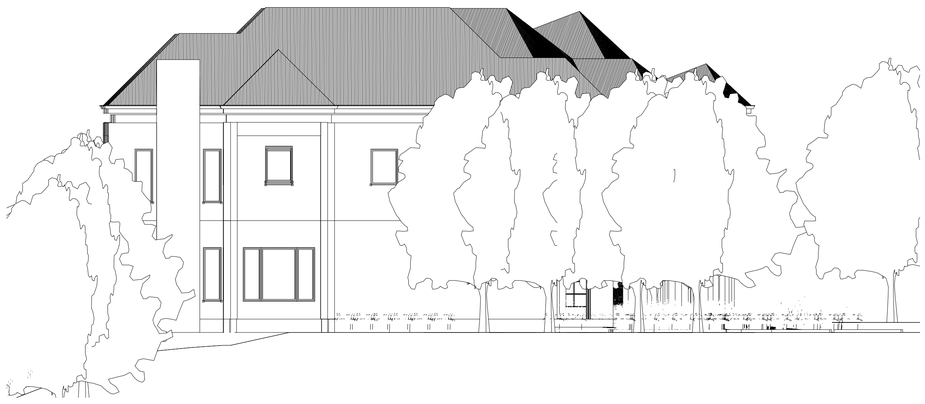
DRAWING NO.: **A 1.1**

DRAWN BY: MGG

CHECKED BY: JPG

1 WEST ELEVATION
SCALE: 1/8" = 1'-00"

2 EAST ELEVATION
SCALE: 1/8" = 1'-00"



3 SOUTH ELEVATION
SCALE: 1/8" = 1'-00"

4 BLOCK 1 - SOUTH ELEVATION
SCALE: 1/8" = 1'-00"

ISSUES:		
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1	NOV 1, 2021	SITE PLAN APPLICATION

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RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO N0G 2V0

DRAWING TITLE:

BLOCK 1 EXTERIOR ELEVATIONS

PROJECT NORTH: NORTH 3/32" = 1'-00"	STAMP:
SCALE:	PROJECT NO.: 4800
DATE:	FILE NAME:
ISSUED: NOVEMBER 2021	DRAWING NO.: **A 2.1.0**
DRAWN BY: MGG	
CHECKED BY: JPG	

1 **PROPOSED RENDERS**
SCALE: N.T.S.

ISSUES:

NO.	DATE	DESCRIPTION
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RIVER BREEZE AT WALKERTON

PROPOSED SITE PLAN

37 YONGUE ST. WALKERTON, ONTARIO
N0G 2V0

DRAWING TITLE:

RENDERS

PROJECT NORTH:

NORTH

STAMP:

SCALE: 1/16" = 1'-00"

DATE:

ISSUED: NOVEMBER 2021

DRAWN BY: MGG

CHECKED BY: JPG

PROJECT NO.: 4800

FILE NAME:

DRAWING NO.: **A 5.1.0**

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

RIVER BREEZE TOWNHOUSE DEVELOPMENT

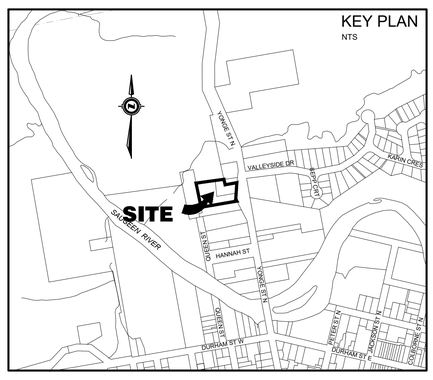
MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)

CONTRACT NO. 21-01892-01

MAYOR : MR. CHRIS PEABODY
CHIEF ADMINISTRATIVE OFFICER / CLERK : MS. SONYA WATSON
DIRECTOR OF OPERATIONS : MR. GREGORY FURTNEY

OWNER :

CON EX CANADA INC.



Index

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
2/15/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 - 10th STREET, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title: RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

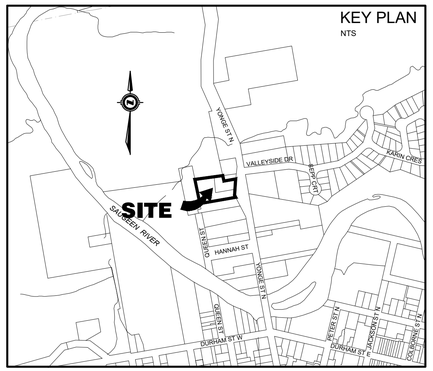
MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
TITLE SHEET

Client: CON EX CANADA INC.

Design:	TLB	Scale:	
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-TS

H:\Con Ex\01892 – 37 Yonge Street Townhouses\Drawings\Submissions\2021-09-29 Second Submission\01892 37 Yonge – Base 2021-09-29.dwg Feb 15, 2022 – 9:53am



LEGEND

- PROPERTY BOUNDARY
- EDGE OF EXISTING PAVEMENT
- EDGE OF EXISTING GRAVEL
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED SUBDRAIN
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED SANITARY SERVICE
- EXISTING SANITARY SERVICE
- PROPOSED WATER SERVICE
- SANMH — PROPOSED SANITARY MANHOLE
- SANMH — EXISTING SANITARY MANHOLE
- STMMH — PROPOSED STORM MANHOLE
- STMMH — EXISTING STORM MANHOLE
- 301 / 0.09Ha — CATCHMENT AREA ID / CATCHMENT AREA IN HECTARES
- PCBMH — PROPOSED CATCHBASIN MANHOLE
- PTCBMH — PROPOSED TWIN INLET CATCHBASIN MANHOLE
- PTICB — PROPOSED TWIN INLET CATCHBASIN
- PCB — PROPOSED CATCH BASIN
- CB — EXISTING CATCH BASIN
- PDICB — PROPOSED DITCH INLET CATCHBASIN
- PCO — PROPOSED SANITARY SERVICE CLEANOUT
- PCSV — PROPOSED CURB STOP VALVE
- CSV — EXISTING CURB STOP VALVE
- PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- MV — EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A — PROPOSED ELEVATION
- 486.21 / 486.27 — EXISTING ELEVATION

CAUTION:
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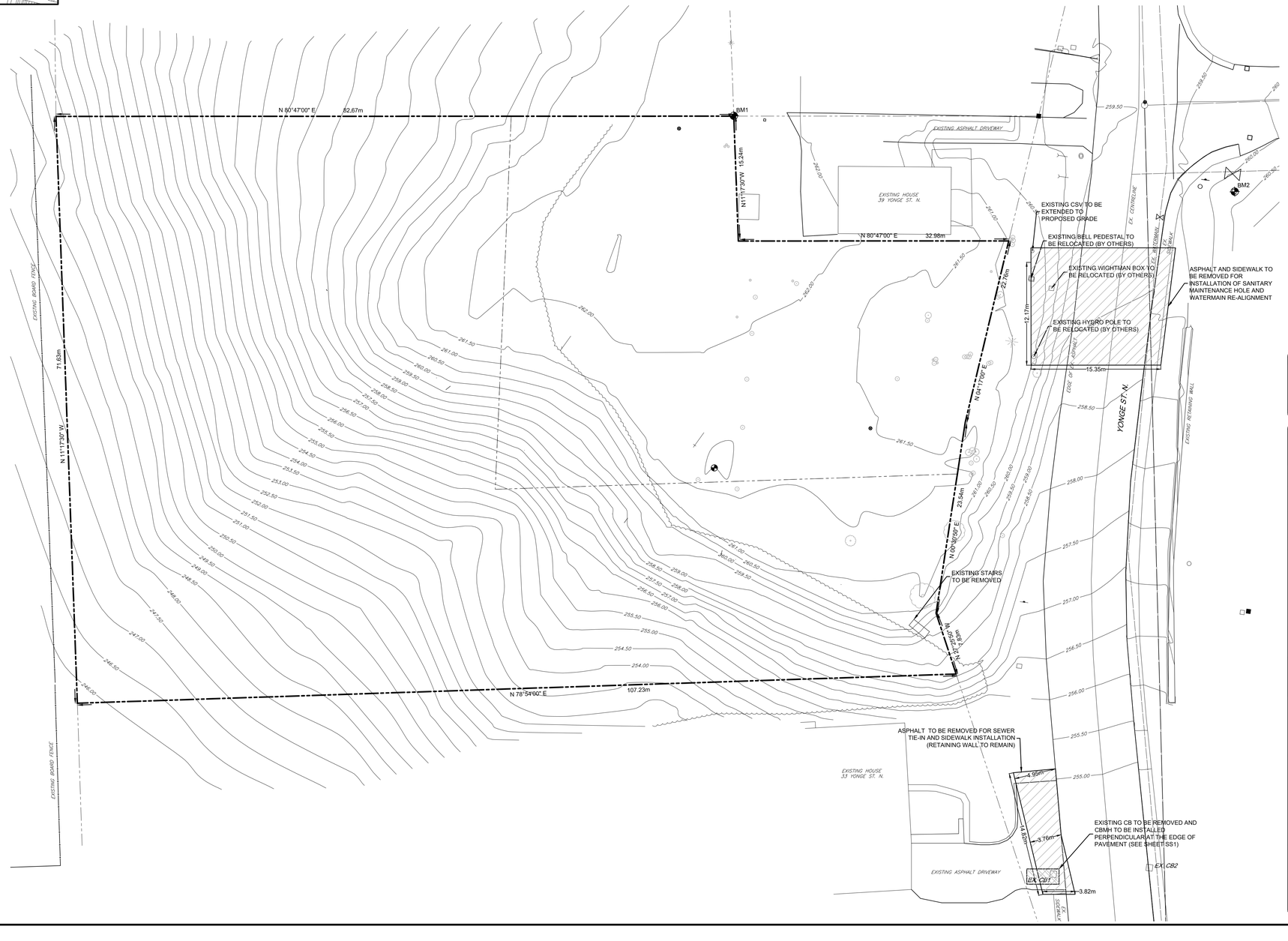
Notes

1. PROPERTY BOUNDARY DERIVED FROM PLAN 3R-3215 PREPARED BY HARRY R. WHALE INC. DATED APRIL 27, 1982.
2. TOPOGRAPHICAL INFORMATION DERIVED FROM FIELD SURVEY BY SMC GEOMATICS INC. ON JUNE 23, 2021.
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN TO BE MINIMUM 1.8m AT ALL POINTS.
5. SANITARY SEWER TO BE PVC SDR35 MATERIAL.
6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.



Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
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1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
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REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
2/15/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
EXISTING CONDITIONS AND REMOVALS PLAN

Client:
CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-EX1

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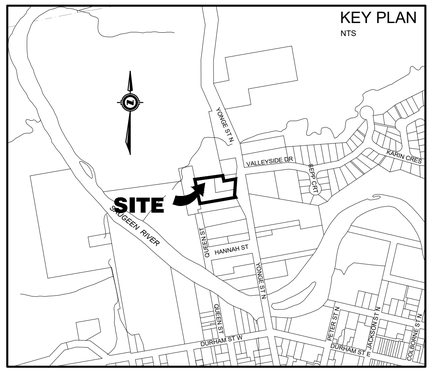

LEGEND

- PROPERTY BOUNDARY
- EDGE OF EXISTING PAVEMENT
- EDGE OF EXISTING GRAVEL
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED SUBDRAIN
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED SANITARY SERVICE
- EXISTING SANITARY SERVICE
- PROPOSED WATER SERVICE
- SANMH — PROPOSED SANITARY MANHOLE
- SANMH — EXISTING SANITARY MANHOLE
- STMMH — PROPOSED STORM MANHOLE
- STMMH — EXISTING STORM MANHOLE
- 301 / 0.09ha — CATCHMENT AREA ID / CATCHMENT AREA IN HECTARES
- CBMH — PROPOSED CATCHBASIN MANHOLE
- TICBMH — PROPOSED TWIN INLET CATCHBASIN MANHOLE
- TICB — PROPOSED TWIN INLET CATCHBASIN
- CB — PROPOSED CATCH BASIN
- CB — EXISTING CATCH BASIN
- DICB — PROPOSED DITCH INLET CATCHBASIN
- CO — PROPOSED SANITARY SERVICE CLEANOUT
- CSV — PROPOSED CURB STOP VALVE
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- HYD — PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- GV — EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A — PROPOSED ELEVATION
- 486.21 — EXISTING ELEVATION

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Notes

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2/15/2022
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PROVINCE OF ONTARIO

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Telephone: (519) 506-5959
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Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
DEVELOPMENT SITE PLAN

Client:
CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-SP1

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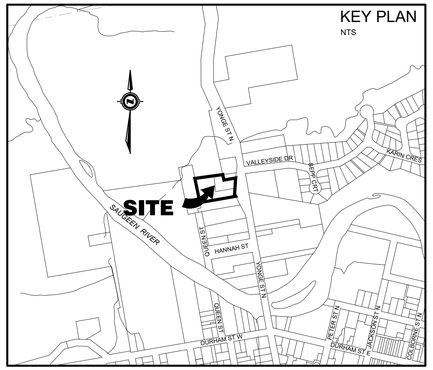
KEY PLAN
NTS



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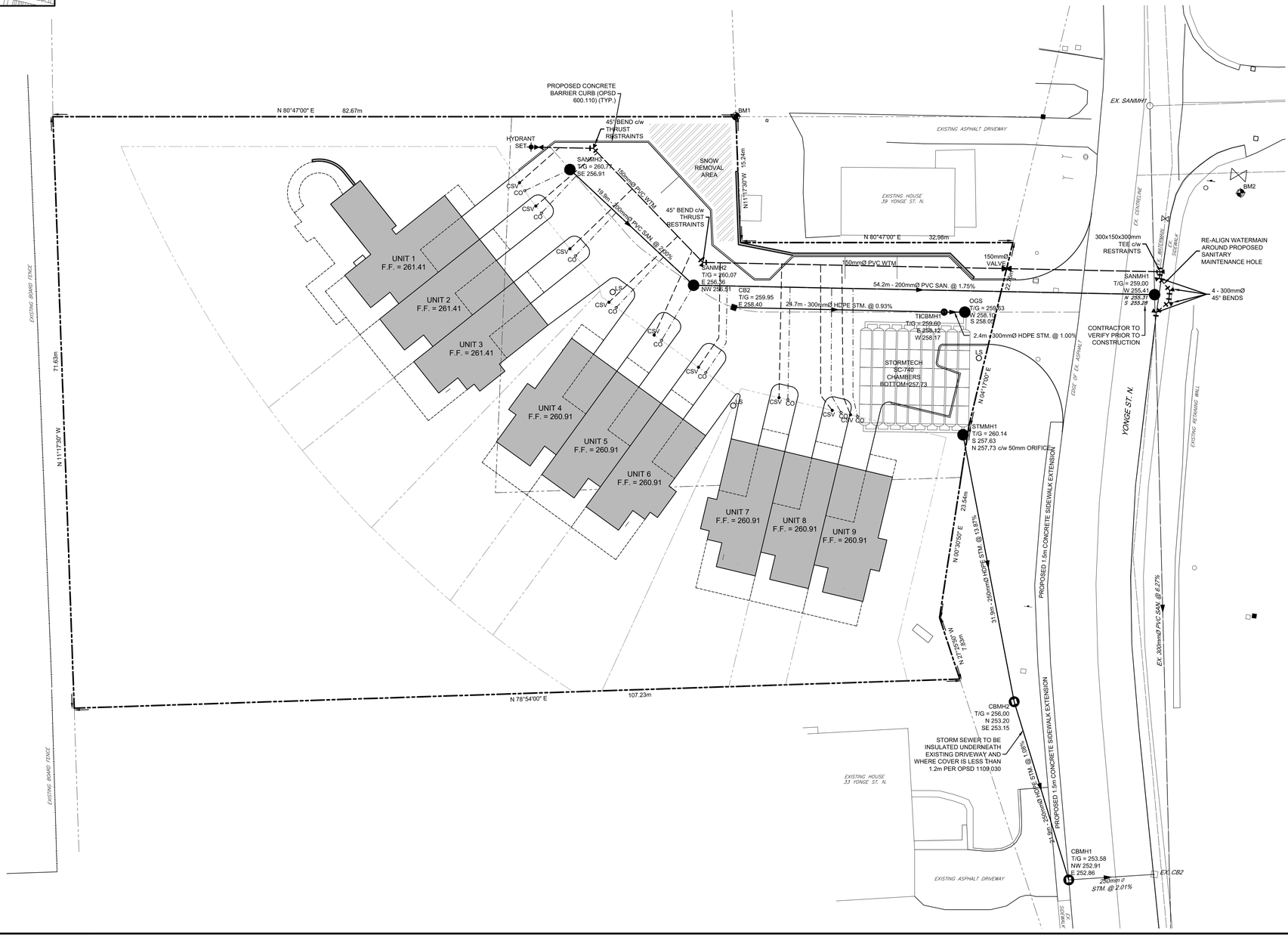

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T. L. BURNSIDE
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PROVINCE OF ONTARIO
2/16/2022

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Title:
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PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
SITE SERVICING PLAN

Client: CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

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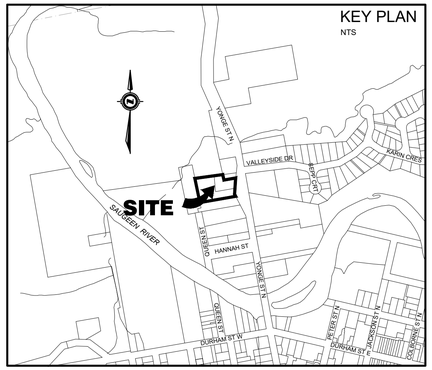

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LICENSED PROFESSIONAL ENGINEER
21/6/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
SITE GRADING PLAN

Client:
CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-SGR1

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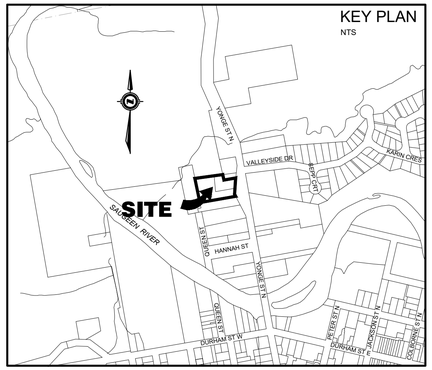

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Title: RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
STORM SEWER CATCHMENT AREAS

Client: CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-STM1

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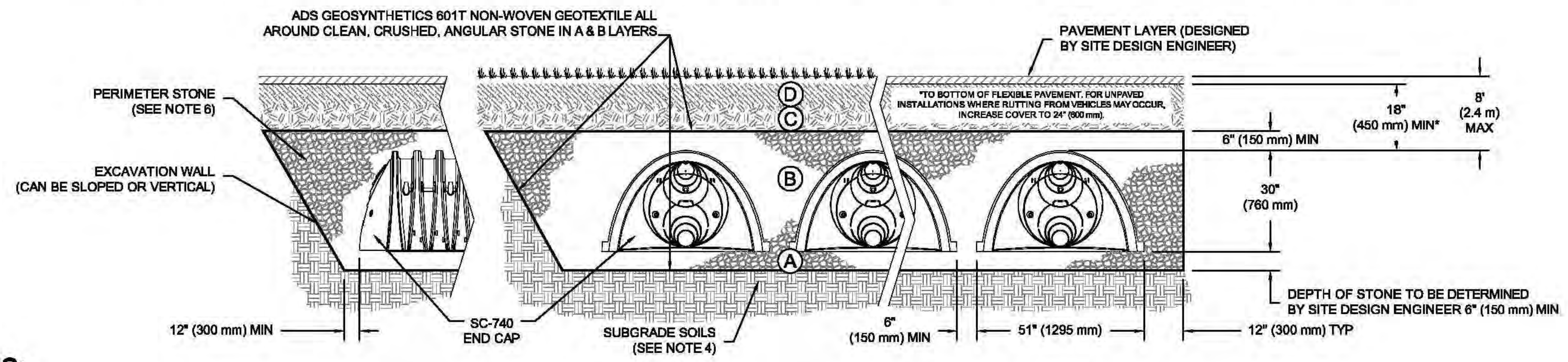
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

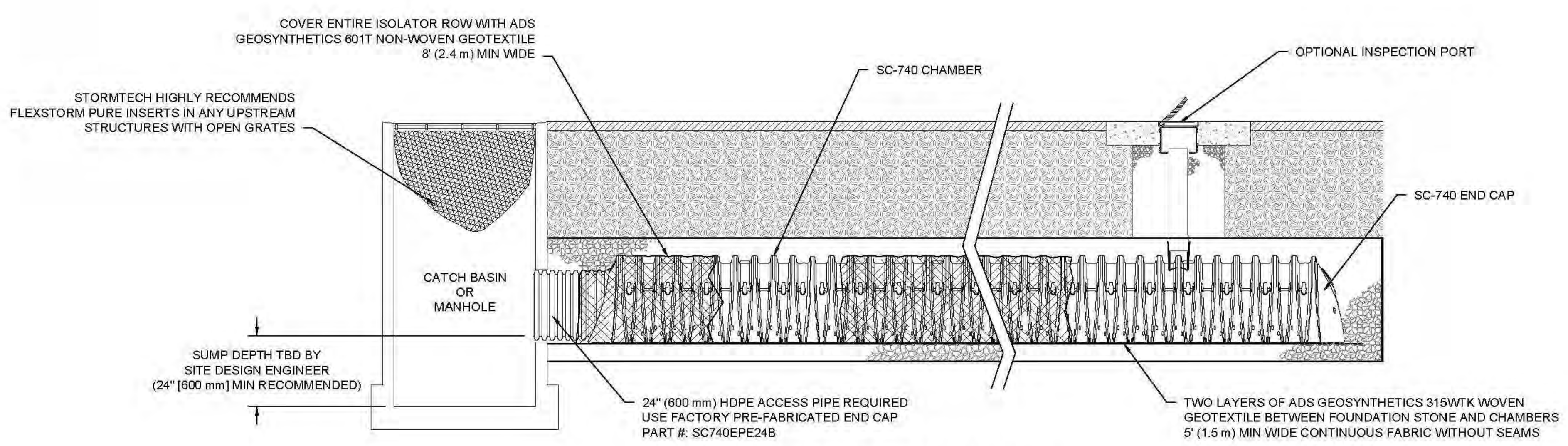
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.


ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE ALL AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS
PAVEMENT LAYER (DESIGNED BY SITE DESIGN ENGINEER)
PERIMETER STONE (SEE NOTE 6)
EXCAVATION WALL (CAN BE SLOPED OR VERTICAL)
*TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).
18" (450 mm) MIN*
8' (2.4 m) MAX
6" (150 mm) MIN
30" (760 mm)
DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 6" (150 mm) MIN
12" (300 mm) MIN
SC-740 END CAP
SUBGRADE SOILS (SEE NOTE 4)
6" (150 mm) MIN
51" (1295 mm)
12" (300 mm) TYP

NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

SC-740 STANDARD CROSS SECTION
DATE: 11/18/14 DRAWN: JLM CHECKED: JLM
SHEET 1 OF 1


COVER ENTIRE ISOLATOR ROW WITH ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE 8' (2.4 m) MIN WIDE
STORMTECH HIGHLY RECOMMENDS FLEXSTORM PURE INSERTS IN ANY UPSTREAM STRUCTURES WITH OPEN GRATES
SC-740 CHAMBER
OPTIONAL INSPECTION PORT
SC-740 END CAP
CATCH BASIN OR MANHOLE
SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" [600 mm] MIN RECOMMENDED)
24" (600 mm) HDPE ACCESS PIPE REQUIRED USE FACTORY PRE-FABRICATED END CAP PART #: SC740EPE24B
TWO LAYERS OF ADS GEOSYNTHETICS 315WTK WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 5' (1.5 m) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS

SC-740 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

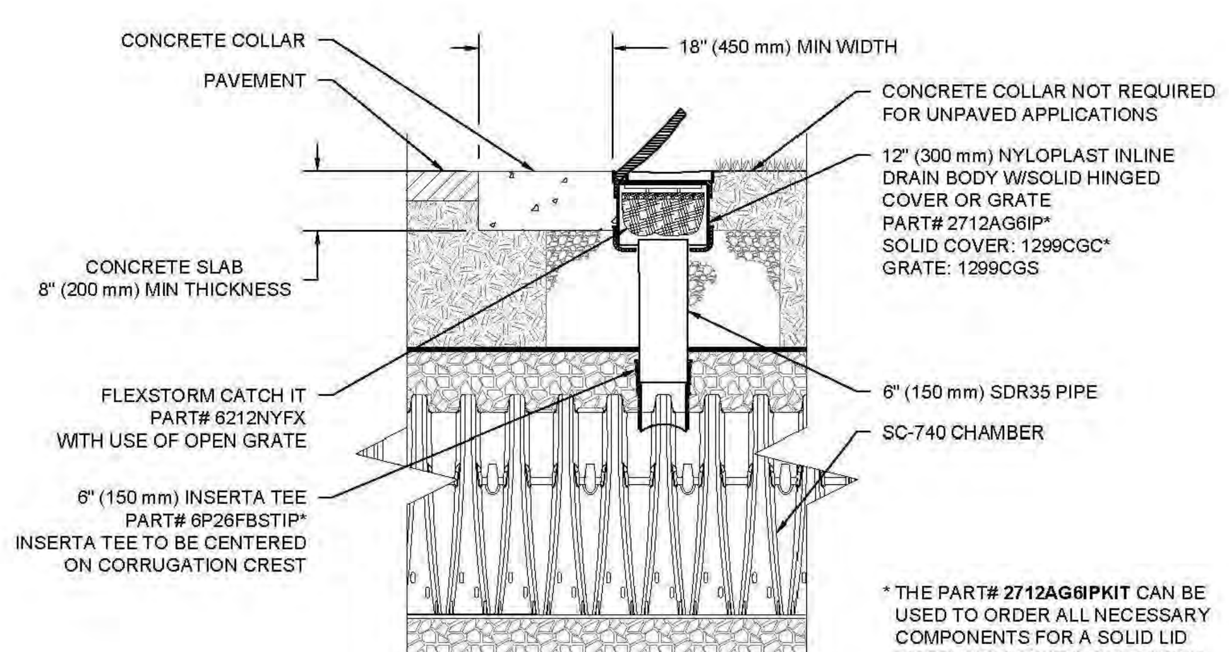
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

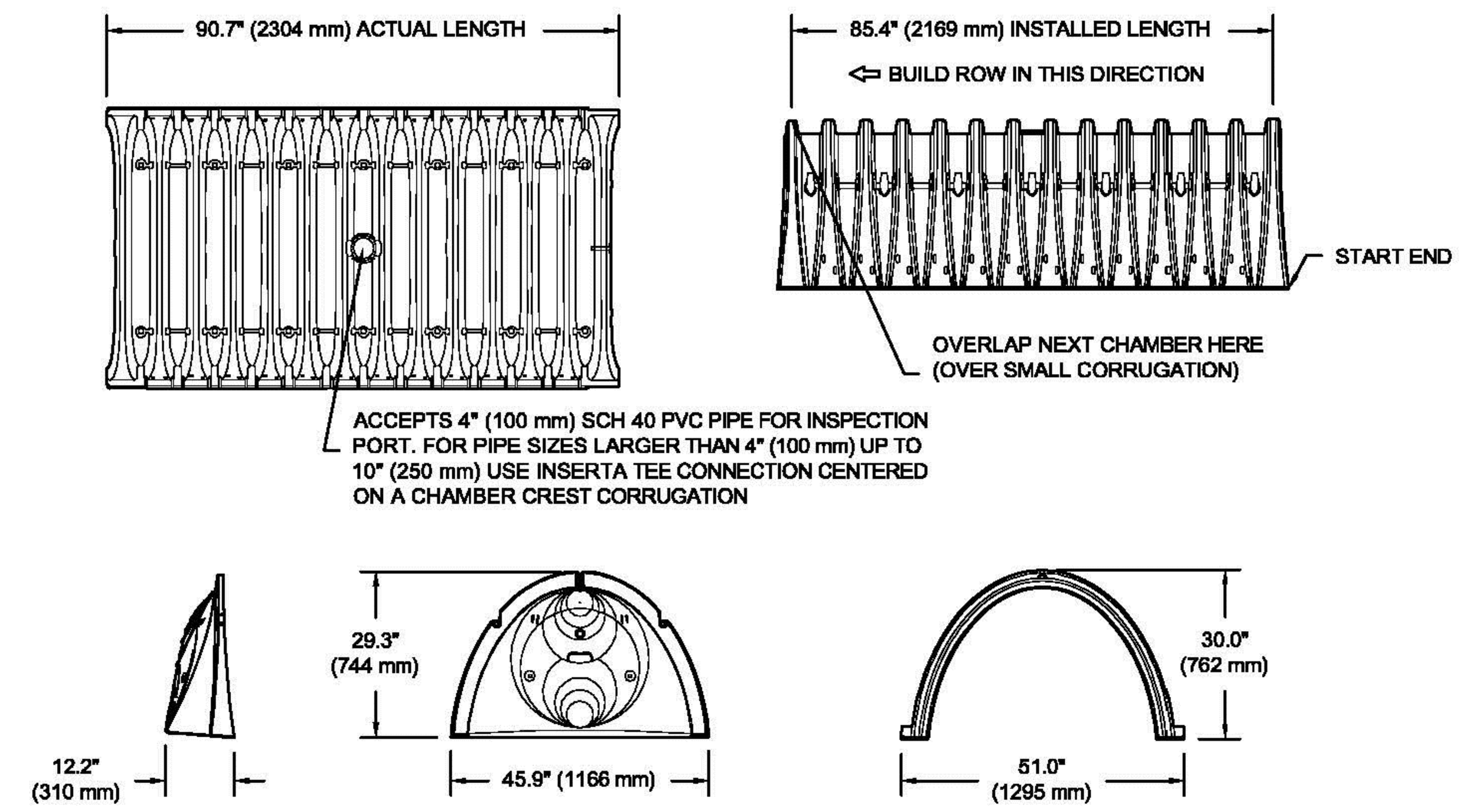
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.


CONCRETE COLLAR
PAVEMENT
18" (450 mm) MIN WIDTH
CONCRETE COLLAR NOT REQUIRED FOR UNPAVED APPLICATIONS
12" (300 mm) NYLOPLAST INLINE DRAIN BODY W/SOLID HINGED COVER OR GRATE
PART# 2712AG6IP*
SOLID COVER: 1299CGC*
GRATE: 1299CGS
CONCRETE SLAB 8" (200 mm) MIN THICKNESS
FLEXSTORM CATCH IT PART# 6212NYFX WITH USE OF OPEN GRATE
6" (150 mm) SDR35 PIPE
SC-740 CHAMBER
6" (150 mm) INSERTA TEE PART# 6P26FBSTIP* INSERTA TEE TO BE CENTERED ON CORRUGATION CREST
* THE PART# 2712AG6IPKIT CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

SC-740 6" INSPECTION PORT DETAIL
NTS

ISOLATOR ROW DETAILS SC-740
DATE: 03/08/17 DRAWN: JLM
SHEET 1 OF 1

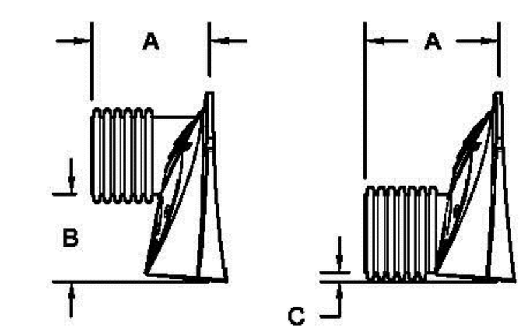
SC-740 TECHNICAL SPECIFICATION
NTS


90.7" (2304 mm) ACTUAL LENGTH
85.4" (2169 mm) INSTALLED LENGTH
BUILD ROW IN THIS DIRECTION
START END
OVERLAP NEXT CHAMBER HERE (OVER SMALL CORRUGATION)
ACCEPTS 4" (100 mm) SCH 40 PVC PIPE FOR INSPECTION PORT. FOR PIPE SIZES LARGER THAN 4" (100 mm) UP TO 10" (250 mm) USE INSERTA TEE CONNECTION CENTERED ON A CHAMBER CREST CORRUGATION
29.3" (744 mm)
30.0" (762 mm)
12.2" (310 mm)
45.9" (1166 mm)
51.0" (1295 mm)

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	—
SC740EPE06B / SC740EPE06BPC			—	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	—
SC740EPE08B / SC740EPE08BPC			—	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	—
SC740EPE10B / SC740EPE10BPC			—	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	—
SC740EPE12B / SC740EPE12BPC			—	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	—
SC740EPE15B / SC740EPE15BPC			—	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	—
SC740EPE18B / SC740EPE18BPC			—	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	—	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Notes

1. PROPERTY BOUNDARY DERIVED FROM PLAN 3R-3215 PREPARED BY HARRY R. WHALE INC. DATED APRIL 27, 1982.
2. TOPOGRAPHICAL INFORMATION DERIVED FROM FIELD SURVEY BY SMC GEOMATICS INC. ON JUNE 23, 2021.
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN TO BE MINIMUM 1.8m AT ALL POINTS.
5. SANITARY SEWER TO BE PVC SDR35 MATERIAL.
6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
2/15/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

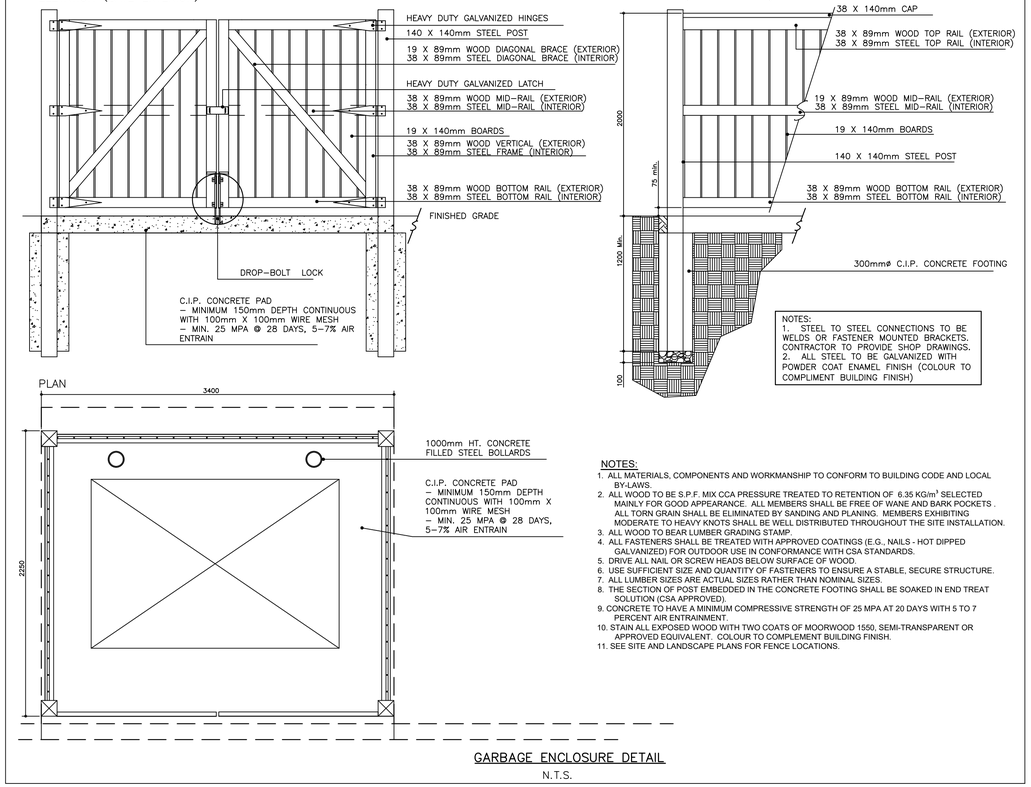
Title: RIVER BREEZE TOWNHOUSES PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON (FORMERLY TOWN OF WALKERTON) CHAMBER/MISCELLANEOUS DETAILS I

Client: CON EX CANADA INC.

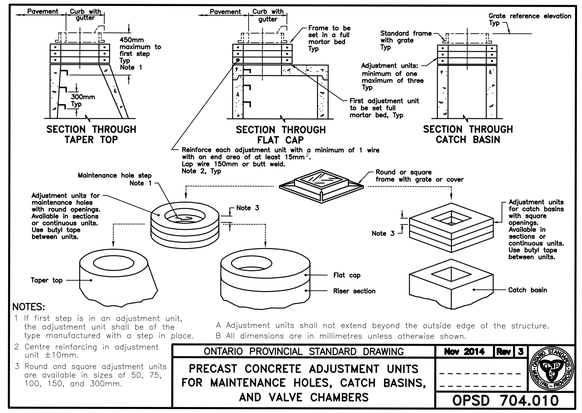
Design:	TLB	Scale:	1:250
Drawn:	TLB	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-DET1



GARBAGE ENCLOSURE DETAIL

N.T.S.

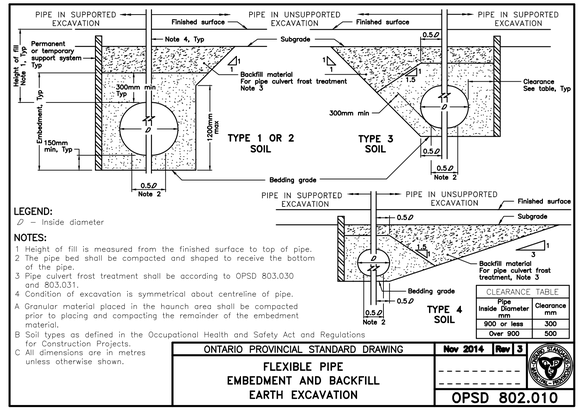


NOTES:

1 If first step is in an adjustment unit, the adjustment unit shall be of the type manufactured with a step in place.
2 Centre reinforcing in adjustment unit ±10mm.
3 Round and square adjustment units are available in sizes of 50, 75, 100, 150, and 300mm.

A Adjustment units shall not extend beyond the outside edge of the structure.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS		
	OPSD 704.010	



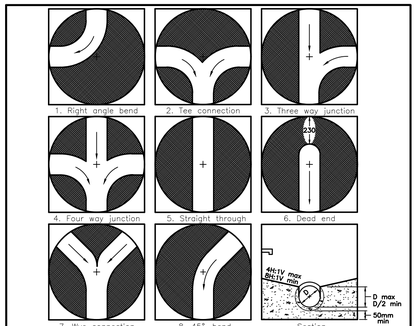
NOTES:

1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.

A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		
	OPSD 802.010	



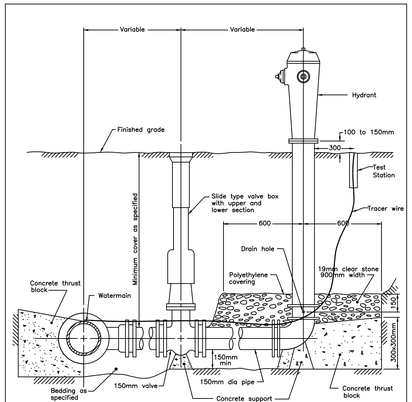
MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1-4	No. 5 and 6	No. 8	No.7	
				Inlet Hole	Outlet Hole
1200	700	860	780	860	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:

A Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		
	OPSD 701.021	



NOTES:

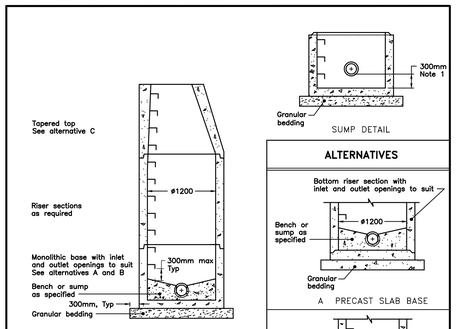
A All concrete thrust blocks to be poured or placed against undisturbed ground.
B Bond breaker to be used between the concrete and the fittings and appurtenances if poured method is used.
C Bolts and nuts for buried flange to flange connections are to be stainless steel.
D Flange of standpipe extensions not to be in frost zone.
E All dimensions are in millimetres unless otherwise shown.

	July 20/06	Rev 1
HYDRANT INSTALLATION		
	SS - 1105.010	

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Notes

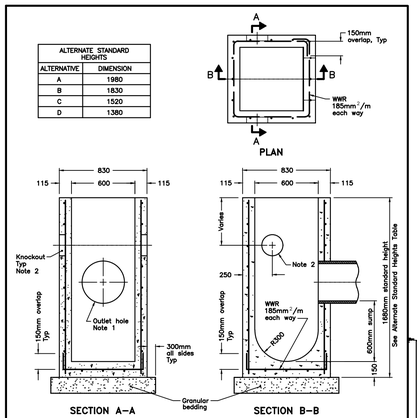
1. PROPERTY BOUNDARY DERIVED FROM PLAN 3R-3215 PREPARED BY HARRY R. WHALE INC. DATED APRIL 27, 1982.
2. TOPOGRAPHICAL INFORMATION DERIVED FROM FIELD SURVEY BY SMC GEOMATICS INC. ON JUNE 23, 2021.
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN TO BE MINIMUM 1.8m AT ALL POINTS.
5. SANITARY SEWER TO BE PVC SDR35 MATERIAL.
6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.



NOTES:

1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

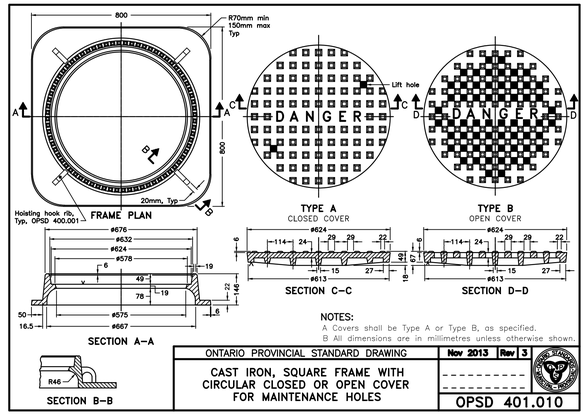
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		
	OPSD 701.010	



NOTES:

1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

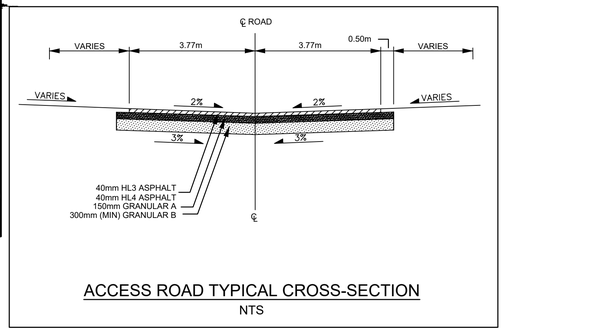
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE CATCH BASIN 600x600mm		
	OPSD 705.010	



NOTES:

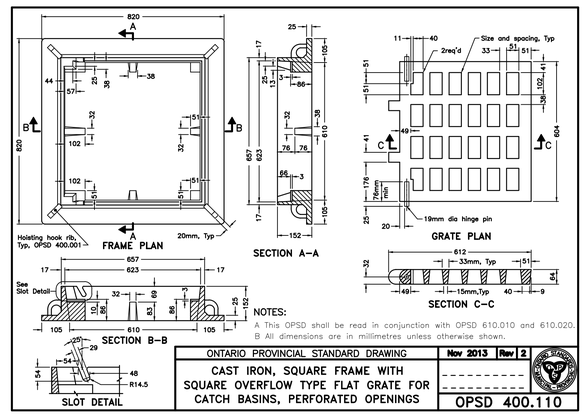
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 3
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES		
	OPSD 401.010	



ACCESS ROAD TYPICAL CROSS-SECTION

NTS



NOTES:

A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 2
CAST IRON, SQUARE FRAME WITH SQUARE OVERFLOW TYPE FLAT GRATE FOR CATCH BASINS, PERFORATED OPENINGS		
	OPSD 400.110	

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
4/5/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

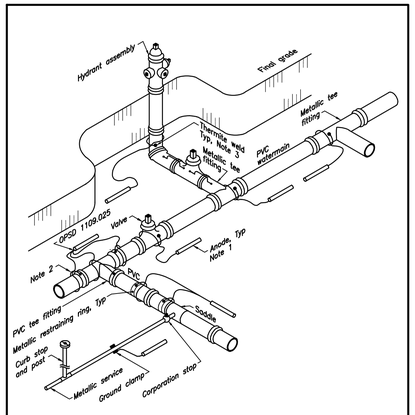
MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
MISCELLANEOUS DETAILS II

Client:
CON EX CANADA INC.

Design: TLB	Scale: 1:250
Drawn: TLB	Approved:
Checked: TLB	
Date: FEB 2022	Design Engineer

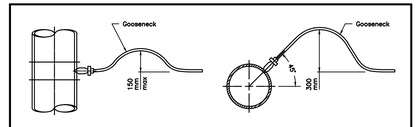
DRAWING No. 01892-DET2

H:\Con Ex\01892 - 37 Yonge Street Townhouses\Drawings\Submissions\2021-09-29 Second Submission\01892 37 Yonge - Base 2021-09-29.dwg



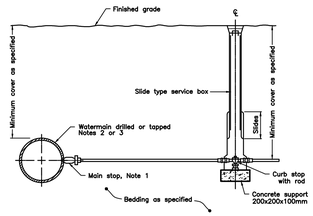
NOTES:
1. Anode shall be placed at least 1.0m away from the water system pipe and appurtenances and as deep as the bottom of the pipe and appurtenances. Minimum distance between anodes shall be 1.0m.
2. Anode connecting wire shall be loosely wrapped around pipes and fittings and knotted.
3. Protective coating shall be applied to all thermite welds.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS		OPSD 1109.011



HORIZONTAL GOOSENECK

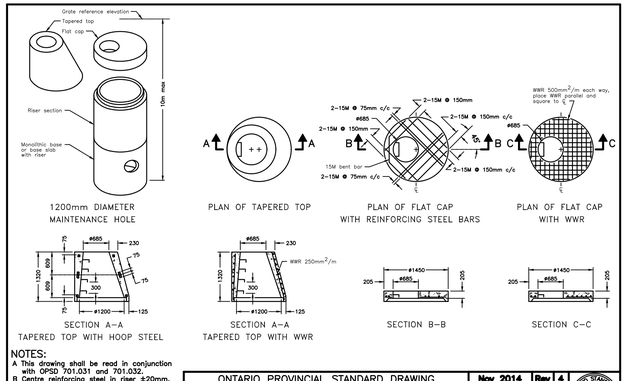
VERTICAL GOOSENECK OPTION



VERTICAL SECTION

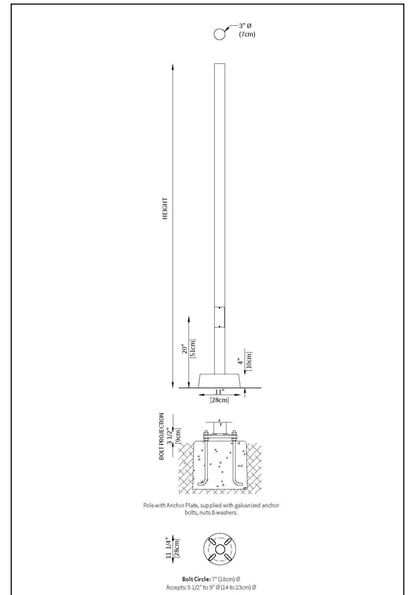
NOTES:
1 For plastic service pipes, install main stop at 15° above horizontal with a minimum 1.2m long gooseneck.
2 Direct tap ductile iron pipe with approved tool with standard AWWA inlet thread.
3 Service connections to plastic watermains shall be made using service saddles or factory made tees.
A When specified, the vertical gooseneck option shall be used.
B Couplings shall not be permitted unless the service length exceeds 20m between the main stop and curb stop.
C All water services shall be installed 90° to the longitudinal axis of the watermain.
D Backfill material within 500mm of service box shall be native or imported, as specified.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 3
WATER SERVICE CONNECTION 19 and 25mm DIAMETER SIZES		OPSD 1104.010



NOTES:
A This drawing shall be read in conjunction with OPSD 701.031 and 701.032.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER TAPERED TOP AND FLAT CAP		OPSD 701.030



LIGHT STANDARD - 3" ALUMINUM POLE

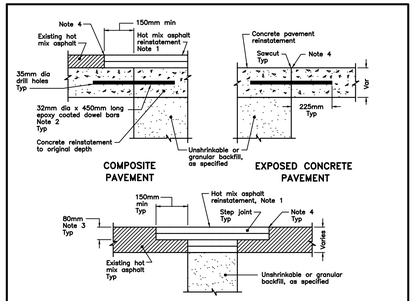
CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Notes

1. PROPERTY BOUNDARY DERIVED FROM PLAN 3R-3215 PREPARED BY HARRY R. WHALE INC. DATED APRIL 27, 1982.
2. TOPOGRAPHICAL INFORMATION DERIVED FROM FIELD SURVEY BY SMC GEOMATICS INC. ON JUNE 23, 2021.
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN TO BE MINIMUM 1.8m AT ALL POINTS.
5. SANITARY SEWER TO BE PVC SDR35 MATERIAL.
6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.

PROPOSED STREET LIGHT

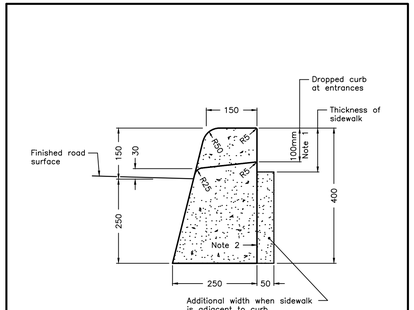
CYCLONE MERIDIAN LUMINAIRE



HOT MIX ASPHALT PAVEMENT

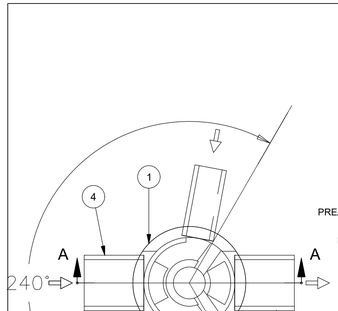
NOTES:
1 Hot mix asphalt type as specified. The surface course shall be placed in a minimum 40mm lift, other binder course lift thicknesses shall not exceed 80mm.
2 Dowels shall be installed at 300mm intervals along all transverse faces. The dowel bars shall be placed mid-depth of the specified slab thickness and parallel to the longitudinal axis and the horizontal plane of the pavement within the following tolerances:
a) Vertical Alignment: ± 15mm along the length of the dowel bar.
b) Horizontal Alignment: ± 15mm along the length of the dowel bar.
c) Side Shift: The centre of the dowel bar shall lie within ± 40mm from the transverse joint.
Tie bars shall be installed at 600mm intervals along all longitudinal faces and shall be aligned perpendicular to the longitudinal axis of the pavement. The tie bars shall be installed within a tolerance of ± 15mm from the specified depth.
Where reinforcement is present, dowel and tie bars may be adjusted 25mm horizontally and raised or lowered 10mm to avoid drilling reinforcement.
All dowels and tie bars shall be set with epoxy grout.
3 Where existing hot mix asphalt depth is between 80 and 120mm the step joint shall be 40mm deep. A step joint is not required for pavement depths less than 80mm.
4 Joint treatment as specified.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 2
PAVEMENT REINSTATEMENT FOR UTILITY CUTS		OPSD 509.010

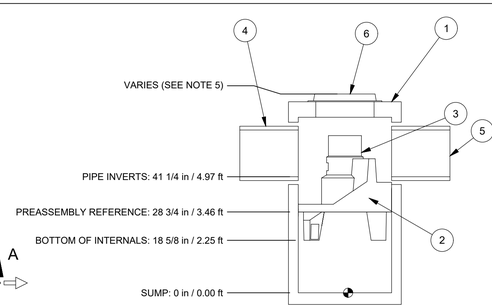


NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB		OPSD 600.110



Inlet pipe(s) can enter anywhere within 240° arc.



SECTION A-A

CAPACITIES:

1. PEAK HYDRAULIC FLOW: 18.0 cfs (510 l/s)
2. TREATMENT FLOW: 0.7 cfs (20 l/s)
3. SEDIMENT STORAGE CAPACITY: 0.7 cu. yd. (0.5 cu. m.)
4. OIL STORAGE CAPACITY: 191 gal. (723 liters)
5. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 24 in. (600 mm)

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific fabrication drawings.
2. The diameter of the inlet & outlet pipes may be no more than 24".
3. Multiple inlet pipes possible (refer to project plans).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plans).
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PRODUCT SPECIFICATIONS:
A. The treatment system shall use an induced vortex to separate pollutants from stormwater runoff.
B. The treatment system shall fit within the limits of excavation (area and depth) as shown in the project plans and will not exceed the dimensions for the design flow rates specified herein.
C. The treatment system shall remove greater than or equal to 90% of TSS based on the Target Particle Size (TPS) of 106 microns and/or 80% of TSS based on the TPS of 230 microns at 0.7 cfs and 1.2 cfs, respectively.
D. The treatment system shall convey the Peak On-line Flow Rates of up to 18 cfs without causing upstream surcharge conditions. Full-scale independent laboratory scour testing shall demonstrate effluent control of less than or equal to 5 mg/L for all flows up to 200% of MTFR-106.
E. The treatment system shall be capable of capturing and retaining fine silt and sand size particles. Analysis of captured sediment from full-scale field installations shall demonstrate particle sizes predominately in the 20-micron range

Parts List		
ITEM	SIZE (in)	DESCRIPTION
1	48	I.D. PRECAST MANHOLE
2		LEDGER SUPPORT
3		SEPARATION MODULE
4	24	INLET PIPE (BY OTHERS)
5	24	OUTLET PIPE (BY OTHERS)
6	30	FRAME AND COVER (OR GRATE) (ROUND)

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

REV	BY	DATE	DESCRIPTION
A	JL	11/5/15	SUMP DEPTH

REVISION HISTORY

CREATION_DATE | SCALE

AUTHOR | CHECKED_BY | ENG_APPROVED_BY

4-FT DIAMETER FIRST DEFENSE COMMENTS

TITLE
SUBJECT

Hydro International

Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
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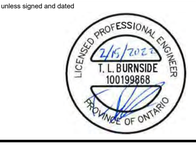
REVISION / ISSUE

Seal not valid unless signed and dated



COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
MISCELLANEOUS DETAILS III

Client:
CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	TLB	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-DET3

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COBIDE ENGINEERING INC

CONEX TOWNHOUSE DEVELOPMENT
37 YONGE STREET WALKERTON

DATE: August 2, 2021
DESIGNED BY: KW
CHECKED BY: TLB

STORM SEWER DESIGN SHEET
5-YEAR STORM

FILE NUMBER: 01892

I = a / ((tc + b) ^c)

a= 955.42
b= 7.82
c= 0.8071

LOCATION			DRAINAGE AREA							PIPE SELECTION					
	FROM M.H.	TO M.H.	AREA (ha)	C	A x R (ha)	ACCUM. AREA (ha)	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	TIME OF FLOW (min)
301	SITE	CB2	0.09	0.70	0.06	0.06	10.00	93.45	0.016	41.0	300	0.50	0.068	0.97	0.71
302	CB2	CBMH1/OGS	0.09	0.74	0.07	0.13	10.71	90.56	0.033	24.7	300	0.50	0.068	0.97	0.43
						Total	11.13								

COBIDE ENGINEERING INC

Subdivision: **CONEX TOWNHOUSE DEVELOPMENT 37 YONGE ST WALKERTON**
Date: August 2, 2021
Designed By: KW
Checked By: TLB
File Number: 01892

Post Development Runoff Coefficients

	Area/Width	"C"
Townhouse Area =	~~160.0~~	~~0.90~~
Townhouse Road Width =	~~7.0~~	~~0.90~~
Half Road Width =	~~4.69~~	~~0.90~~
Townhouse Driveway Area =	~~60.0~~	~~0.90~~
Pervious Area =	N/A	0.20

AREA ID	Total Area (ha)	Houses (#)	Semis (#)	Towns (#)	Townhouse Road (m)	Road (m)	House Driveways (#)	Semi/ Town Driveways (#)	Pervious (ha)	Impervious (ha)	Balanced 'C'
301	0.093								0.027	0.067	0.70
302	0.093								0.022	0.072	0.74

Notes:
Taken from the Ministry of the Environment - Guidelines for the Design of Storm Sewers
- Pervious area has a runoff coefficient equal to 0.20

CON EX CANADA INC.

FUNCTIONAL SERVICING REPORT

YONGE STREET TOWNHOUSES

MUNICIPALITY OF BROCKTON

FEBRUARY 2022

COBIDE Engineering Inc
517 10th Street
Hanover, ON N4N 1R1
TEL: 519-506-5959
www.cobideeng.com

COBIDE ENGINEERING INC

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APPENDICES

1. INTRODUCTION

Cobide Engineering Inc. was retained by Con Ex Canada Inc. to provide engineering services in support of a Re Zoning and Site Plan Approval Application. The application will be to develop nine (9) townhouses on the site in a condominium format.

A copy of the proposed Site Plan has been included in Appendix A as Drawing SP1.

1.1 LOCATION

The proposed development is located Parts 1 & 2 of Plan 3R-3215, Former Geographic Town of Walkerton, Municipality of Brockton, County of Bruce (described herein as the “site”). A Site Location Map is included below as Figure 1. The subject property is approximately 0.72 hectares in area.

Figure 1 - Site Location

1.2 DEVELOPMENT PROPOSAL

The development will consist of 9 condominium style townhouses and associated parking facilities.

The site will be accessed from Yonge Street.

2. WATER SERVICING

The proposed development will be serviced with a new 150mm diameter PVC watermain from the existing 300mm diameter main on Yonge Street. The new service will be tied into the existing watermain via a 300x300x150 tee.

A 19mm service will be installed from the 150mm main to each unit.

3. SANITARY SEWER SYSTEM

A new 200mm diameter service will be installed from the existing sanitary main on Yonge Street through the site.

Each unit will be serviced with a 125mm diameter service.

4. STORM SEWER SYSTEM

The subject property is currently vacant. The site is generally sloping in two directions from the middle of the site. The front portion of the site slopes from west to east and the remainder slopes from east to west/ southwest. There are no storm sewers on the property. The site discharges overland onto Yonge Street or west towards the Saugeen River. Yonge Street will be considered Discharge Point #1 and the back of the site will be considered Discharge Point #2 for the purposes of this report.

The proposed development will be serviced with a new stormwater drainage system consisting of catchbasins and a minimum 250 mm dia. storm sewer pipe that will discharge to an existing storm structure on Yonge Street to the south of the site.

The hydrologic modelling software PCSWMM Version 5.6.1803 Professional 2D was used to determine the pre and post-development peak flows of the 2 yr., 5 yr., 25 yr., 50 yr., and 100 yr. storm events (6 hour duration, SCS Type II, AMC II storm, Mount Forest IDF Parameters).

The pre-development and post development parameters and model outputs are contained in Appendix B.

4.1 DESIGN REQUIREMENTS

The intent of stormwater quantity control is to limit the flows under proposed conditions to existing levels or less to protect the downstream watercourses, infrastructure and properties.

Minor flows from the majority of the development will be conveyed to the proposed stormwater management facility via a new storm sewer collection system that will be constructed throughout the development. This storm sewer collection system will be designed to accommodate all flows up to and including the 5 year storm event.

Major flows (>5 year), will be conveyed overland within the road allowance of each street.

Due to the increase in impervious area, stormwater quantity control will be required for the site. The design of the stormwater management facility has assumed a free outlet from the storage facility.

4.2 SWM FACILITY CHARACTERISTICS

The stormwater management facility and outlet structure have been designed to control peak runoff rates as well as conform to MECP best practices.

In order to provide the above required volumes and discharges, an underground storage system will be implemented. Considering the site characteristics, the StormTech SC-740 Chamber from ADS was selected. The layout will consist of 9 rows of 5 chambers each with an inlet and outlet manifold.

The base of the stone will be at an elevation of 258.00 m with the base of the chambers at an elevation of 258.15 m. A 50 mm orifice will be installed on the outlet of a CB with an invert of 258.00 m to control peak runoff rates.

4.2.1 SWM FACILITY PERFORMANCE

Below is a summary of the hydraulic performance of the stormwater SWM Facility during the various storm events.

Table 6.1 – SWM Facility Performance

RETURN PERIOD	ELEVATION (m)	STORAGE (m^3)	DISCHARGE (l/s)
2 Year	257.92	36	2.3
5 Year	258.00	47	2.8
25 Year	258.15	64	3.5
50 Year	258.21	72	3.8
100 Year	258.28	79	4.1

4.3 MODELLING RESULTS

Based upon the above outlet structure, the following summarizes the pre-development and post development peak flows to the discharge point.

Table 6.2 - Peak Flow Summary

RETURN PERIOD	DISCHARGE POINT #1 (L/S)		DISCHARGE POINT #2 (l/s)	
	PRE	POST	PRE	POST
2 Year	2.3	2.3	7.4	8.8
5 Year	3.7	2.8	13.0	13.9
25 Year	6.2	3.5	23.5	23.5
50 Year	7.3	3.8	28.4	28.0
100 Year	8.5	4.1	33.5	32.6

As seen in the above table, the post development peak flows will be less the pre development peak flows for all design storm events at Discharge Point #1.

At Discharge Point #2, all storm events except the 2 and 5 year storm events are below the pre development peak flows. The exceedances are very small and not expected to cause any issues downstream. The catchment area is remaining largely unchanged from the pre development conditions expect for a small area at the top of the catchment area where the units are being developed. All of the impervious area will flow through the treed area prior to reaching the downstream property boundary. Due

to the flows going through the treed area before discharging the flows will be largely dispersed and not expected to impact any downstream infrastructure.

4.4 QUALITY CONTROL

The OGS has been designed in conformance with the MOE design guidelines to achieve an “Enhanced” Level of protection (min. 80% TSS removal). The OGS will be a FD4-HC from Hydro International or approved equivalent. This OGS unit will provide 94.9% TSS removal. The MOE SWM Design guidelines recommend OGS units be used to treat smaller catchment areas such as this project.

5. GRADING & EROSION AND SEDIMENT CONTROL

Erosion and sediment controls shall meet the requirements of the most recent version of the MOE *Stormwater Management Planning and Design Manual* at the time of construction.

5.1 CONSTRUCTION STAGE

Prior to the start of construction, appropriate sediment control facilities are to be in place. Following are details regarding erosion and sediment control that are to be implemented:

- Placement of Heavy Duty Siltation fence will also be installed at any development grading limits where runoff may discharge from the site;
- Installation of filter cloth under all new and existing catchbasin grates until paving of the subdivision streets is completed;
- Mud mats will be placed at construction accesses to keep public roadways free from debris during the construction period;
- Re-vegetate all disturbed areas after underground and surface works have been constructed.

Prior to removal of sediment control facilities, ensure that sediment that may have accumulated has been removed.

Once the area has been stabilized, the silt fencing can be removed.

6. UTILITIES

6.1 STREETLIGHTS

The configuration of the streetlights will be designed in accordance with municipal standards. Concrete poles shall be used with LED streetlights. Lighting will be designed in such a manner as to minimize light transmission onto neighbouring properties.

6.2 ELECTRICITY

Westario Power Inc. will be responsible for completing the design of the electrical distribution system. Each unit will be individually serviced from an on site padmount transformer. Underground distribution lines will be utilized for this development.

An existing pole will be required to be relocated as part of the servicing of the development due to the entrance location and the lowering of the grade to accommodate the proposed entrance.

6.3 NATURAL GAS

Union Gas will be responsible for completing the design of the natural gas distribution system. Each unit will be individually serviced. The existing gas main on Yonge Street will likely need to be lowered as part of the servicing of the development.

6.4 TELEPHONE/ CABLE TV/ INTERNET

Wightman and Eastlink will be given the opportunity to provide telephone, cable TV and internet services to the development. They will complete their own design, based upon Westario's proposed design configuration to ensure utilities are installed in a common trench. The existing telecommunications lines on Yonge Street will likely need to be lowered as part of the servicing of the development.

Sincerely,

Cobide Engineering Inc.

Travis Burnside, P. Eng.

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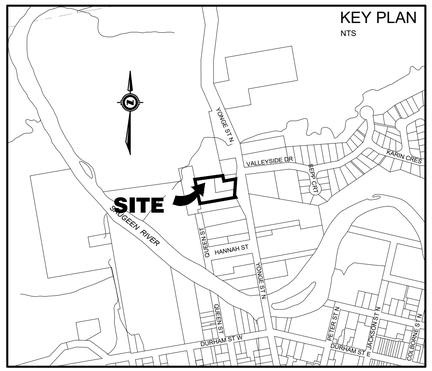
Appendix A

DRAWINGS

FUNCTIONAL SERVICING REPORT

YONGE STREET TOWNHOUSES

MUNICIPALITY OF BROCKTON



LEGEND

- PROPERTY BOUNDARY
- EDGE OF EXISTING PAVEMENT
- EDGE OF EXISTING GRAVEL
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED SUBDRAIN
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED SANITARY SERVICE
- EXISTING SANITARY SERVICE
- PROPOSED WATER SERVICE
- SANMH — PROPOSED SANITARY MANHOLE
- SANMH — EXISTING SANITARY MANHOLE
- STMMH — PROPOSED STORM MANHOLE
- STMMH — EXISTING STORM MANHOLE
- 301 / 0.09ha — CATCHMENT AREA ID / CATCHMENT AREA IN HECTARES
- CBMH — PROPOSED CATCHBASIN MANHOLE
- TICBMH — PROPOSED TWIN INLET CATCHBASIN MANHOLE
- TICB — PROPOSED TWIN INLET CATCHBASIN
- CB — PROPOSED CATCH BASIN
- CB — EXISTING CATCH BASIN
- DICB — PROPOSED DITCH INLET CATCHBASIN
- CO — PROPOSED SANITARY SERVICE CLEANOUT
- CSV — PROPOSED CURB STOP VALVE
- CSV — EXISTING CURB STOP VALVE
- HYD — PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- GV — EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A — PROPOSED ELEVATION
- 486.21 — EXISTING ELEVATION

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6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
2/15/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
DEVELOPMENT SITE PLAN

Client:
CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-SP1

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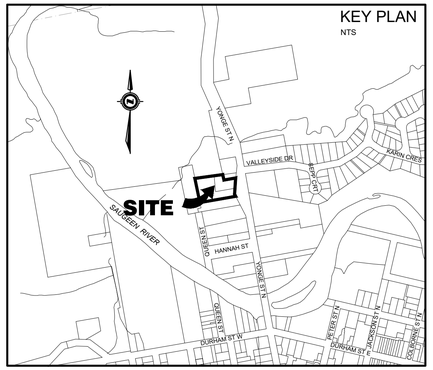
KEY PLAN
NTS

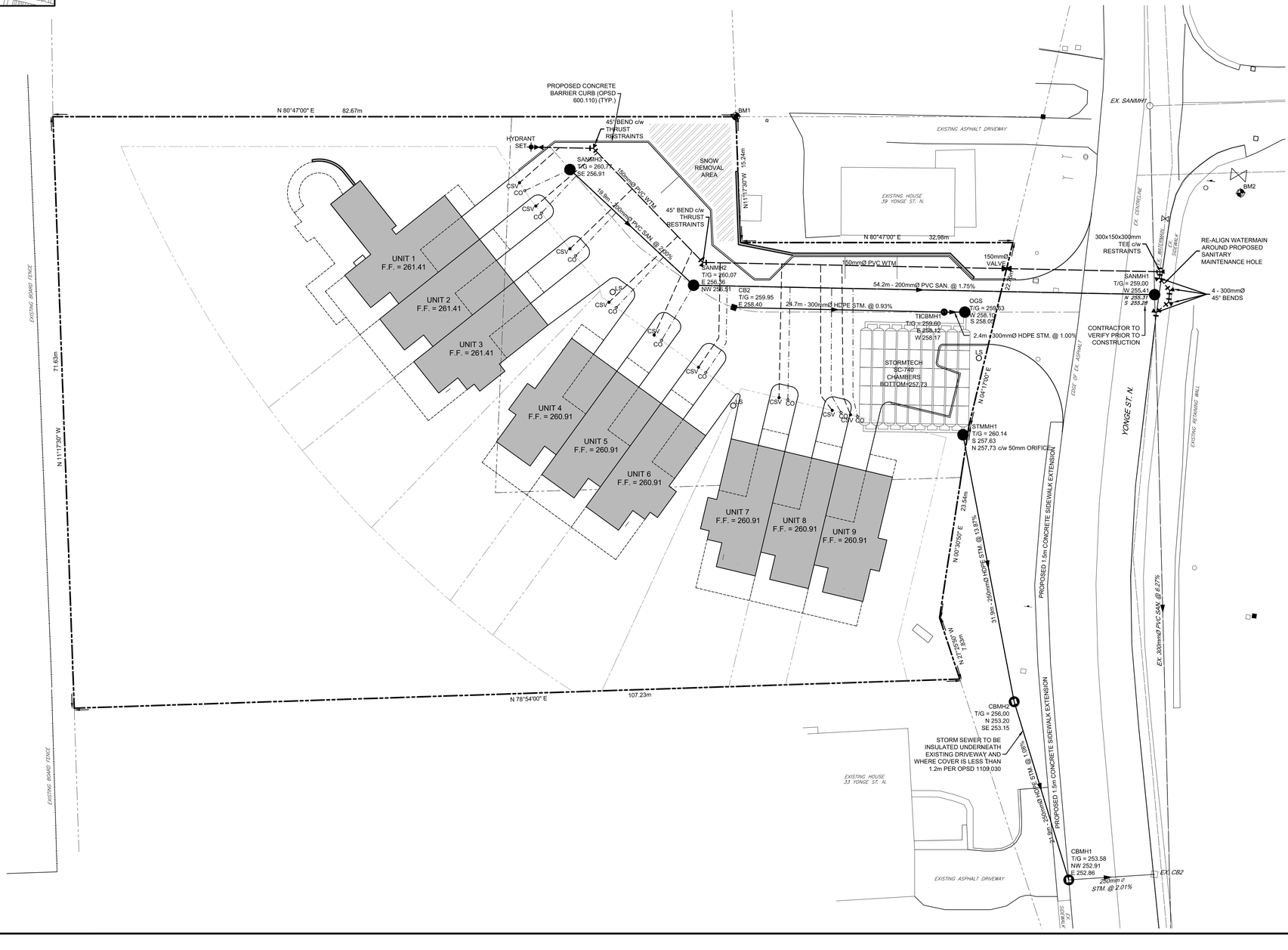


MAINTAIN MIN. 2.5m HORIZONTAL SEPARATION DISTANCE AND 0.5m VERTICAL SEPARATION DISTANCE BETWEEN WATERMAIN AND SANITARY/STORM SEWERS INCLUDING ALL CATCHBASIN LEADS EQUAL TO OR GREATER THAN 250mm IN DIAMETER

GEOTEXTILE CLOTH TO BE INSTALLED UNDER ALL CB AND CBMH GRATES AND TO REMAIN IN PLACE UNTIL ROAD PAVING IS COMPLETED

LEGEND

- PROPERTY BOUNDARY
- EDGE OF EXISTING PAVEMENT
- EDGE OF EXISTING GRAVEL
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED SUBDRAIN
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED SANITARY SERVICE
- EXISTING SANITARY SERVICE
- PROPOSED WATER SERVICE
- SANMH — PROPOSED SANITARY MANHOLE
- SANMH — EXISTING SANITARY MANHOLE
- STMMH — PROPOSED STORM MANHOLE
- STMMH — EXISTING STORM MANHOLE
- 301 (1.09ha) — CATCHMENT AREA ID
- CATCHMENT AREA IN HECTARES
- CBMH — PROPOSED CATCHBASIN MANHOLE
- TICBMH — PROPOSED TWIN INLET CATCHBASIN MANHOLE
- TICB — PROPOSED TWIN INLET CATCHBASIN
- CB — PROPOSED CATCH BASIN
- CB — EXISTING CATCH BASIN
- DICB — PROPOSED DITCH INLET CATCHBASIN
- CO — PROPOSED SANITARY SERVICE CLEANOUT
- CSV — PROPOSED CURB STOP VALVE
- CSV — EXISTING CURB STOP VALVE
- HYD — PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- MV — PROPOSED GATE VALVE
- MV — EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A — PROPOSED ELEVATION
- 1600.21 / 486.27 — EXISTING ELEVATION



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Notes

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6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

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LICENSED PROFESSIONAL ENGINEER
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO
2/16/2022

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:
RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
SITE SERVICING PLAN

Client: CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-SS1

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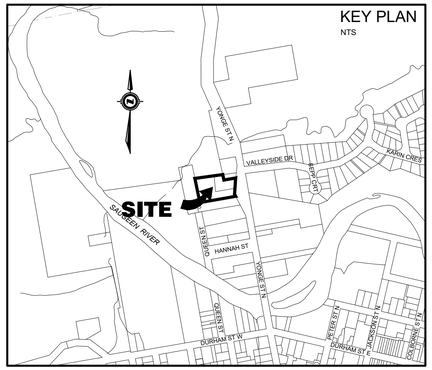

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- PROPOSED CURB STOP VALVE
- EXISTING CURB STOP VALVE
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- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- BENCHMARK
- PROPOSED ELEVATION
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Title:
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MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
PRE-DEVELOPMENT CATCHMENT AREAS

Client: CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	KW	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-SWM1

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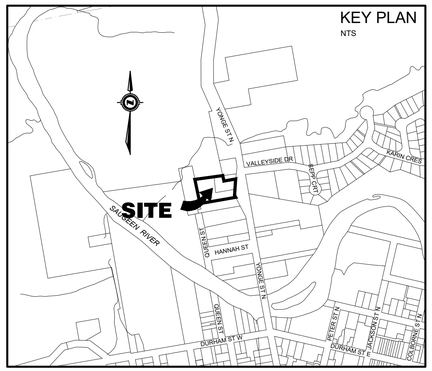

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- PCB — PROPOSED CATCH BASIN
- CB — EXISTING CATCH BASIN
- PDICB — PROPOSED DITCH INLET CATCHBASIN
- PCO — PROPOSED SANITARY SERVICE CLEANOUT
- PCSV — PROPOSED CURB STOP VALVE
- CSV — EXISTING CURB STOP VALVE
- PHYD — PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- PGV — PROPOSED GATE VALVE
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21/2/2022
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PROVINCE OF ONTARIO

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POST-DEVELOPMENT CATCHMENT AREAS

Client: CON EX CANADA INC.

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Checked:	TLB		
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DRAWING No. 01892-SWM2

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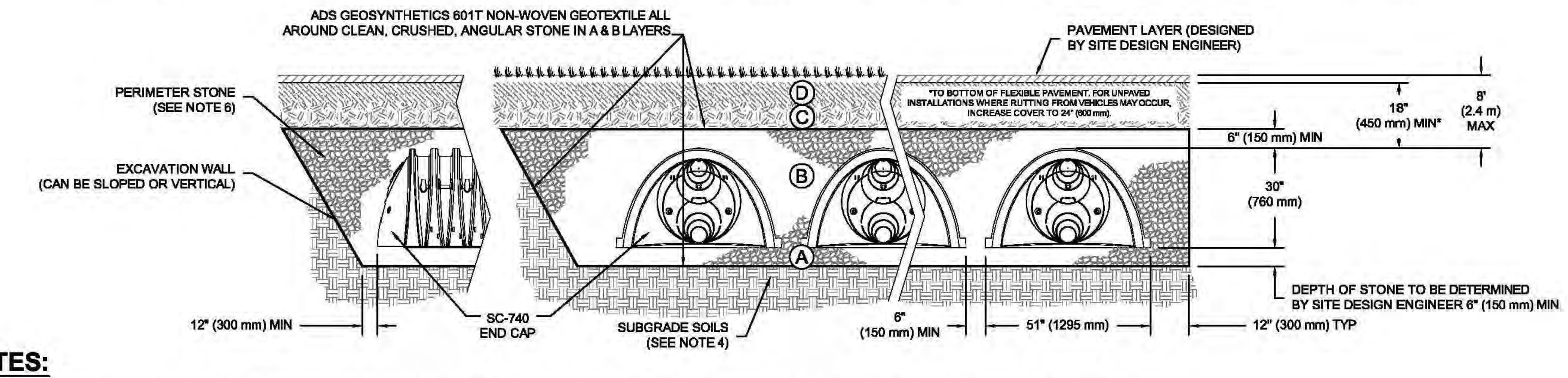
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE ALL AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS
PAVEMENT LAYER (DESIGNED BY SITE DESIGN ENGINEER)
PERIMETER STONE (SEE NOTE 6)
EXCAVATION WALL (CAN BE SLOPED OR VERTICAL)
D
C
B
A
*TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).
18" (450 mm) MIN*
8' (2.4 m) MAX
6" (150 mm) MIN
30" (760 mm)
DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 6" (150 mm) MIN
12" (300 mm) MIN
SC-740 END CAP
SUBGRADE SOILS (SEE NOTE 4)
6" (150 mm) MIN
51" (1295 mm)
12" (300 mm) TYP

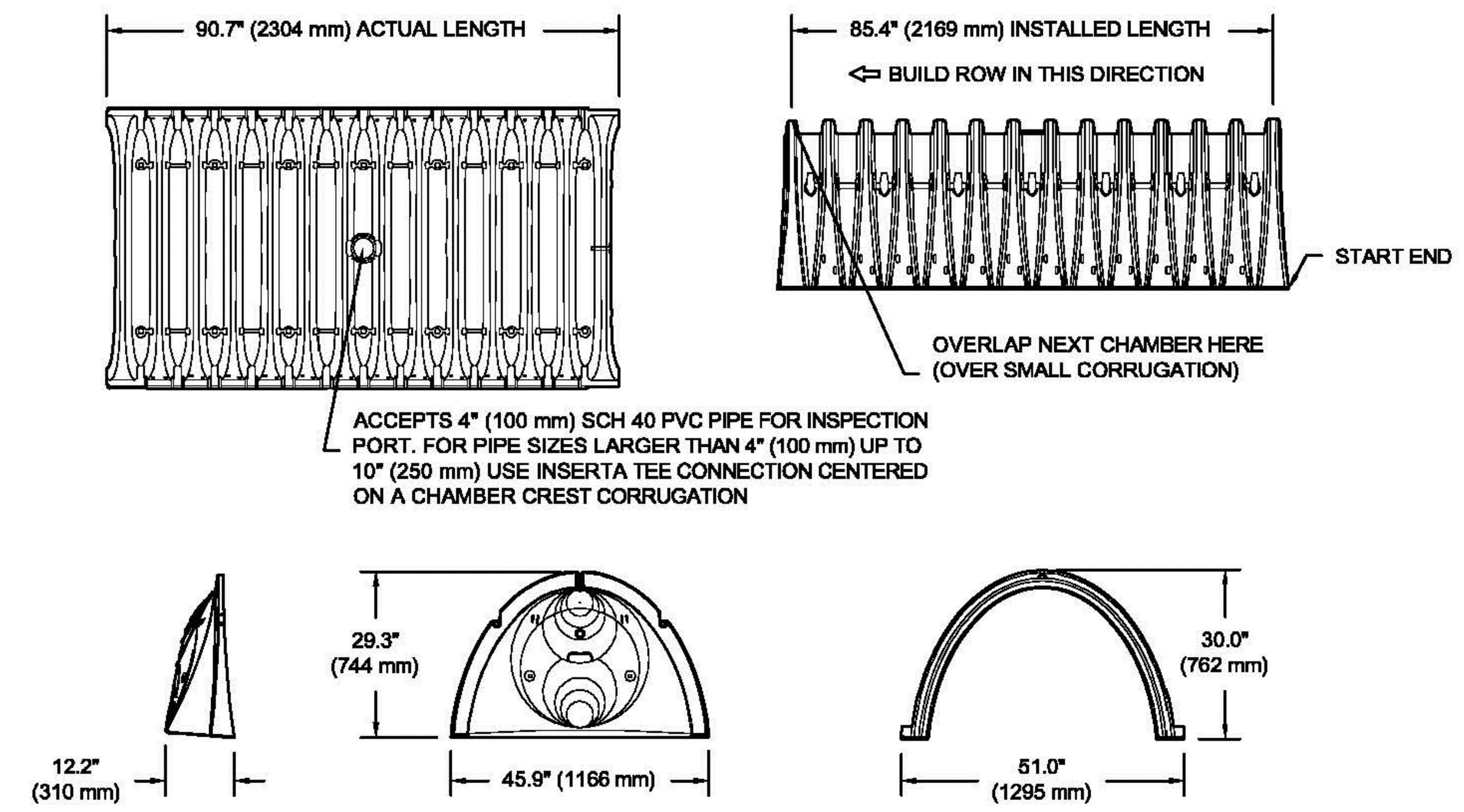
NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

SC-740 STANDARD CROSS SECTION
DATE: 11/18/14 DRAWN: JLM CHECKED: JLM PROJECT #:
REV DRW CHK DESCRIPTION
StormTech
4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473
ADS
SHEET 1 OF 1

SC-740 TECHNICAL SPECIFICATION

NTS

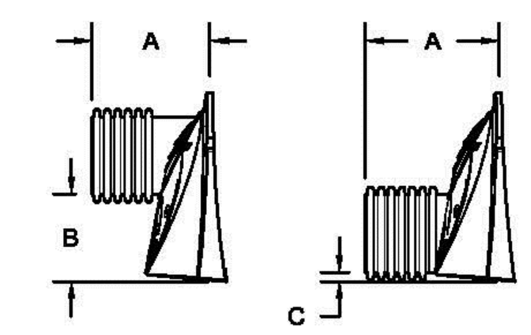


90.7" (2304 mm) ACTUAL LENGTH
85.4" (2169 mm) INSTALLED LENGTH
BUILD ROW IN THIS DIRECTION
START END
OVERLAP NEXT CHAMBER HERE (OVER SMALL CORRUGATION)
ACCEPTS 4" (100 mm) SCH 40 PVC PIPE FOR INSPECTION PORT. FOR PIPE SIZES LARGER THAN 4" (100 mm) UP TO 10" (250 mm) USE INSERTA TEE CONNECTION CENTERED ON A CHAMBER CREST CORRUGATION
12.2" (310 mm)
29.3" (744 mm)
45.9" (1166 mm)
30.0" (762 mm)
51.0" (1295 mm)

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



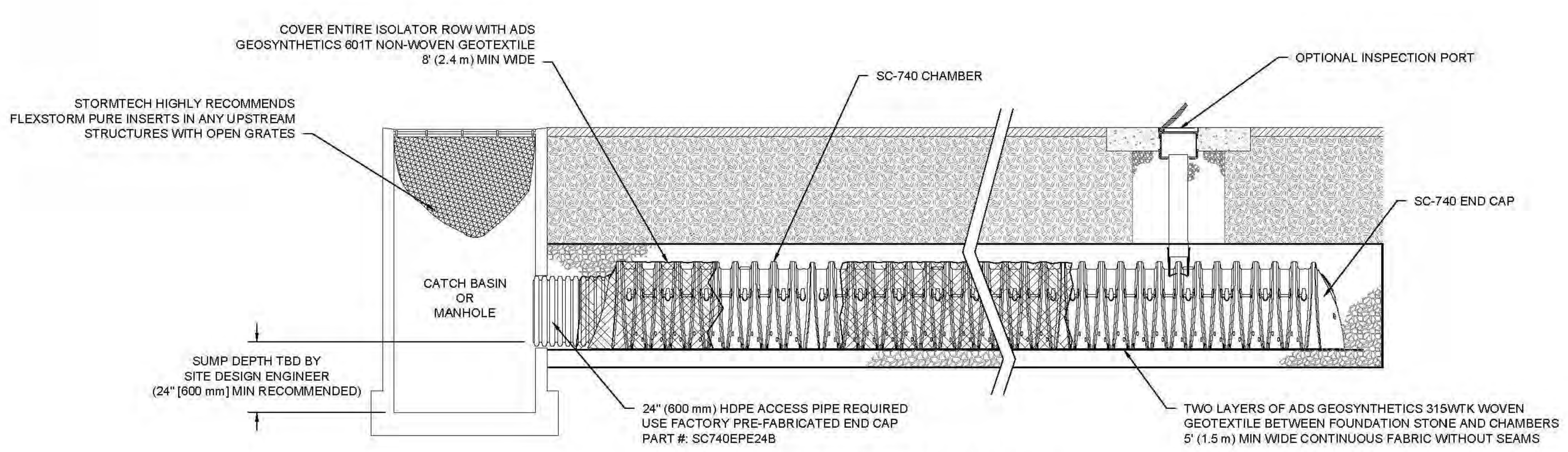
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	—
SC740EPE06B / SC740EPE06BPC			—	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	—
SC740EPE08B / SC740EPE08BPC			—	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	—
SC740EPE10B / SC740EPE10BPC			—	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	—
SC740EPE12B / SC740EPE12BPC			—	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	—
SC740EPE15B / SC740EPE15BPC			—	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	—
SC740EPE18B / SC740EPE18BPC			—	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	—	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL



COVER ENTIRE ISOLATOR ROW WITH ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE 8' (2.4 m) MIN WIDE
STORMTECH HIGHLY RECOMMENDS FLEXSTORM PURE INSERTS IN ANY UPSTREAM STRUCTURES WITH OPEN GRATES
SC-740 CHAMBER
OPTIONAL INSPECTION PORT
SC-740 END CAP
CATCH BASIN OR MANHOLE
SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" [600 mm] MIN RECOMMENDED)
24" (600 mm) HDPE ACCESS PIPE REQUIRED USE FACTORY PRE-FABRICATED END CAP PART #: SC740EPE24B
TWO LAYERS OF ADS GEOSYNTHETICS 315WTK WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 5' (1.5 m) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS

SC-740 ISOLATOR ROW DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

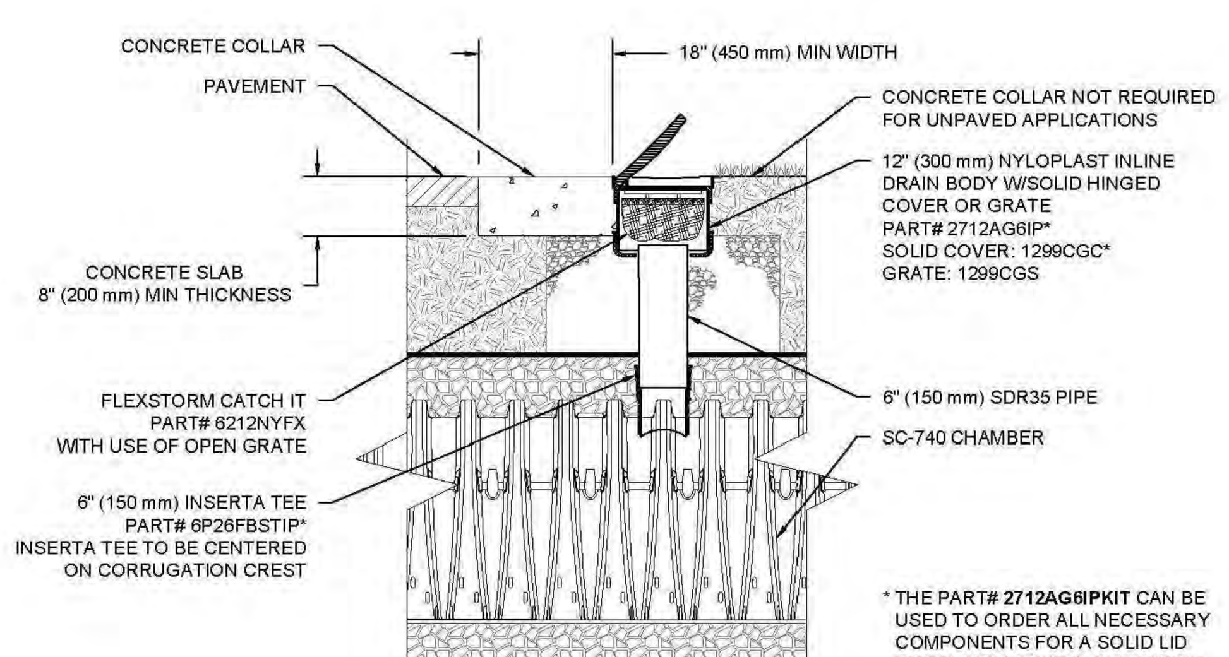
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



CONCRETE COLLAR
PAVEMENT
18" (450 mm) MIN WIDTH
CONCRETE COLLAR NOT REQUIRED FOR UNPAVED APPLICATIONS
12" (300 mm) NYLOPLAST INLINE DRAIN BODY W/SOLID HINGED COVER OR GRATE PART# 2712AG6IP* SOLID COVER: 1299CGC* GRATE: 1299CGS
CONCRETE SLAB 8" (200 mm) MIN THICKNESS
FLEXSTORM CATCH IT PART# 6212NYFX WITH USE OF OPEN GRATE
6" (150 mm) SDR35 PIPE
SC-740 CHAMBER
6" (150 mm) INSERTA TEE PART# 6P26FBSTIP* INSERTA TEE TO BE CENTERED ON CORRUGATION CREST
* THE PART# 2712AG6IPKIT CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

SC-740 6" INSPECTION PORT DETAIL

NTS

ISOLATOR ROW DETAILS SC-740
DATE: 03/08/17 DRAWN: JLM CHECKED: PROJECT #:
REV DRW CHK DESCRIPTION
StormTech
4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473
ADS
SHEET 1 OF 1

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Notes

1. PROPERTY BOUNDARY DERIVED FROM PLAN 3R-3215 PREPARED BY HARRY R. WHALE INC. DATED APRIL 27, 1982.
2. TOPOGRAPHICAL INFORMATION DERIVED FROM FIELD SURVEY BY SMC GEOMATICS INC. ON JUNE 23, 2021.
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN TO BE MINIMUM 1.8m AT ALL POINTS.
5 SANITARY SEWER TO BE PVC SDR35 MATERIAL.
6. WATERMAIN TO BE PVC DR18 MATERIAL.
7. ALL CONSTRUCTION TO CONFORM TO THE MUNICIPALITY OF BROCKTON'S MUNICIPAL DEVELOPMENT AND SERVICING GUIDELINES.

Benchmark Information

BM1
IB NORTHEAST CORNER OF PROPERTY.
ELEVATION 262.22m

BM2
SIB AT SOUTHEAST CORNER OF INTERSECTION OF YONGE STREET AND VALLEYSIDE DRIVE.
ELEVATION 260.41m

No.	DATE	DESCRIPTION	BY	APPD
2	FEB 15/22	SECOND SUBMISSION	TLB	SJC
1	OCT 5/21	REVISED FIRST SUBMISSION	TLB	SJC
1	SEPT 22/21	FIRST SUBMISSION	TLB	SJC
0	JUL 12/21	PRELIMINARY SUBMISSION	TLB	SJC

REVISION / ISSUE

Seal not valid unless signed and dated

LICENSED PROFESSIONAL ENGINEER
2/15/2022
T. L. BURNSIDE
100199868
PROVINCE OF ONTARIO

COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title: RIVER BREEZE TOWNHOUSES PROPOSED DEVELOPMENT

MUNICIPALITY OF BROCKTON (FORMERLY TOWN OF WALKERTON) CHAMBER/MISCELLANEOUS DETAILS I

Client: CON EX CANADA INC.

Design:	TLB	Scale:	1:250
Drawn:	TLB	Approved:	
Checked:	TLB		
Date:	FEB 2022		Design Engineer

DRAWING No. 01892-DET1

Appendix B

MODEL PARAMETERS AND OUTPUT

STORMWATER MANAGEMENT REPORT

YONGE STREET TOWNHOUSES

MUNICIPALITY OF BROCKTON

Table B.1 Parameter Summary Table

Proposed Conditions										
Outlet Location	**Model Catchment ID**	**Description**	**Area (ha)**	**Drainage Channel (m)**	**Flow Length (m)**	**Gradient (%)**	**Total Imperv. (%)**	**Not Connected Imperv. (%)**	**Manning's 'n' (Perv.)**	**CN (Perv.)**
Street	101	Front Portion of Property	0.10	42	25	4.0	1.8	0.0	0.25	77.0
Trees	102	Back Portion of Property	0.58	88	66	40.0	0.0	0.0	0.37	68.7
Street	201	Front Portion of Property	0.19	125	15	4.0	75.0	0.0	0.25	77.0
Trees	202	Back Portion of Property	0.49	88	56	33.0	10.6	100.0	0.37	68.7

Table B.2 Site Soils: (as per Ontario Soil Survey Report No. 16 for Bruce County)

Soil Type
Harriston Loam

Hydologic Soil Group
BC

TABLE OF CURVE NUMBERS (CN's)									
Land Use	Hydrologic Soil Type								
	A	AB	B	BC	C	CD	D	Manning's 'n'	
Meadow	50	54	58	64.5	71	74.5	78	0.4	continuous grass
Woodlot	50	55.3	60.5	67	73.5	76.8	80	0.4	forests
Long Grass	55	60	65	72	79	81.5	84	0.3	natural, not maintained
Lawns	60	65.5	71	77	83	86	89	0.25	maintained
Pasture/Range	58	61.5	65	70.5	76	78.5	81	0.17	farm pasture
Crop	66	70	74	78	82	84	86	0.13	farm land
Fallow (bare)	77	82	86	89	91	93	94	0.05	idle farm land (bare)
Built-up	60	65.5	71	77	83	89	89	0.25	Lawns Proposed
Streets, paved	98	98	98	98	98	98	98	0.01	

HYDROLOGIC SOIL TYPE (%) - Proposed Conditions								
Catchment	Hydrologic Soil Type							
	A	AB	B	BC	C	CD	D	TOTAL
101	0	0	0	100	0	0	0	100
102	0	0	0	100	0	0	0	100
201	0	0	0	100	0	0	0	100
202	0	0	0	100	0	0	0	100

LAND USE (%) - Proposed Conditions										
Catchment	Meadow	Woodlot	Long Grass	Lawns	Pasture Range	Crop	Fallow (Bare)	Imperv. Not Connected (Rooftops)	Imperv. Connected	Total
101	0	0	0	98.2	0	0	0	0.0	1.8	100
102	0	83	0	17	0	0	0	0.0	0.0	100
201	0	0	0	25.0	0	0	0	0.0	75.0	100
202	0	74	0	15	0	0	0	10.6	0.0	100

CURVE NUMBER (CN) - Proposed Conditions											
Catchment	Meadow	Woodlot	Long Grass	Lawns	Pasture Range	Crop	Fallow (Bare)	Built-up	Imperv. Not Connected (Rooftops)	Weighted CN - Pervious	Manning's 'n'
101	64.5	67	72	77	70.5	78	89	77	90	77.0	0.25
102	64.5	67.0	72	77	70.5	78	89	77	90	68.7	0.37
201	64.5	67	72	77	70.5	78	89	77	90	77.0	0.25
202	64.5	67	72	77	70.5	78	89	77	90	68.7	0.37

Table B.3: Impervious Area Determination for Subcatchment 201

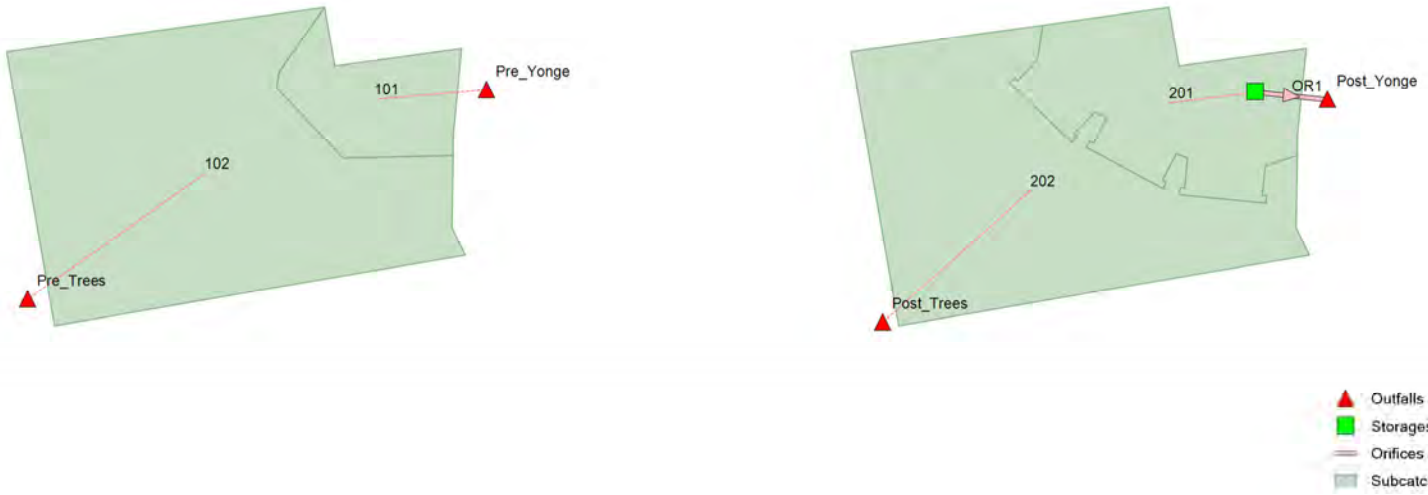
Proposed Conditions

Area of Concern	Total Area (ha)	Impervious Area Connected		Impervious Area Not Connected (Rooftops)		Total (%)
		(ha)	(%)	(ha)	(%)	
101	0.10	0.00	1.8	0.00	0.0	1.8
102	0.58	0.00	0.0	0.00	0.0	0.0
201	0.19	0.14	75.0	0.00	0.0	75.0
202	0.49	0.00	0.0	0.05	10.6	10.6

Table B.3 - Impervious Area Determination for Proposed Catchment 201

Catchment					Imperv. Area	Imperv %
101		m of	20	m wide ROW @ 55% imperv.	0.00 ha	0.0 %
		driveways @	90	m^2 @ 100% imperv.	0.00 ha	0.0 %
		driveways @	90	m^2 @ 100% imperv.	0.00 ha	0.0 %
		single res. homes with roof area of	250	m^2	0.00 ha	0.0 %
		Duplex unit with roof area of	250	m^2	0.00 ha	0.0 %
		Commercial with impervious area	3250	m^2	0.00 ha	0.0 %
		Apartment Block with impervious ar	4300	m^2	0.00 ha	0.0 %
	1	Roof	19	m^2	0.00 ha	1.8 %
					0.00 ha	
102		m of	20	m wide ROW @ 55% imperv.	0.00 ha	0.0 %
	0	Asphalt Area @	168	m^2 @ 100% imperv.	0.00 ha	0.0
		single res. homes with roof area of	200	m^2	0.00 ha	0.0
		Duplex unit with roof area of	250	m^2	0.00 ha	0.0
	0	Multi-family Blocks with roof area of	266	m^2	0.00 ha	0.0
					0.00 ha	
201		m of	20	m wide ROW @ 55% imperv.	0.00 ha	0.0 %
	1	Impervious Area @	1400	m^2 @ 100% imperv.	0.14 ha	75.0 %
		single res. homes with roof area of	2025	m^2	0.00 ha	0.0 %
		Duplex unit with roof area of	200	m^2	0.00 ha	0.0 %
	0	Apartment with roof area of	642	m^2	0.00 ha	0.0 %
					0.14 ha	
202		m of	20	m wide ROW @ 55% imperv.	0.00 ha	0.0 %
	0	Impervious Area @	390	m^2 @ 100% imperv.	0.00 ha	0.0 %
		driveways @	60	m^2 @ 100% imperv.	0.00 ha	0.0 %
		single res. homes with roof area of	225	m^2	0.00 ha	0.0 %
		Duplex unit with roof area of	125	m^2	0.00 ha	0.0 %
	3	Multi-family Blocks with roof area of	175	m^2	0.05 ha	10.6 %
					0.05 ha	

YONGE STREET TOWNHOUSES - MODEL SCHEMATIC



COBIDE
ENGINEERING INC

YONGE STREET TOWNHOUSES – SWM MODELLING – MODEL DETAILS

[TITLE]

[OPTIONS]

;;Options	Value
FLOW_UNITS	LPS
INFILTRATION	CURVE_NUMBER
FLOW_ROUTING	DYNWAVE
START_DATE	7/9/2021
START_TIME	00:00
REPORT_START_DATE	7/9/2021
REPORT_START_TIME	00:00
END_DATE	7/10/2021
END_TIME	00:00
SWEEP_START	1/1
SWEEP_END	12/31
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:05:00
DRY_STEP	00:05:00
ROUTING_STEP	5
ALLOW_PONDING	NO
INERTIAL_DAMPING	PARTIAL
VARIABLE_STEP	0.75
LENGTHENING_STEP	0
MIN_SURFAREA	0
NORMAL_FLOW_LIMITED	BOTH
SKIP_STEADY_STATE	NO
FORCE_MAIN_EQUATION	H-W
LINK_OFFSETS	ELEVATION
MIN_SLOPE	0
MAX_TRIALS	8
HEAD_TOLERANCE	0
SYS_FLOW_TOL	5
LAT_FLOW_TOL	5
MINIMUM_STEP	0.5
THREADS	2

[EVAPORATION]

;;Type	Parameters
CONSTANT	0.0
DRY_ONLY	NO

[RAINGAGES]

;;Name	Rain Type	Time Intrvl	Snow Catch	Data Source
SCS_6h_38.8mm_2yr	INTENSITY	0:05	1.0	TIMESERIES SCS_6h_38.8mm_2yr
SCS_6h_49.4mm_5yr	INTENSITY	0:05	1.0	TIMESERIES SCS_6h_49.4mm_5yr
SCS_6h_65.3mm_25yr	INTENSITY	0:05	1.0	TIMESERIES SCS_6h_65.3mm_25yr
SCS_6h_71.9mm_50yr	INTENSITY	0:05	1.0	TIMESERIES SCS_6h_71.9mm_50yr
SCS_6h_78.4mm_100yr	INTENSITY	0:05	1.0	TIMESERIES SCS_6h_78.4mm_100yr

[SUBCATCHMENTS]

;;Name	Raingage	Outlet	Total Area	Pcnt. Imperv	Width	Pcnt. Slope	Curb Length	Snow Pack
101	SCS_6h_78.4mm_100yr	Pre_Yonge	0.104	1.8	42	4	0	
102	SCS_6h_78.4mm_100yr	Pre_Trees	0.5771	0	88	40	0	
201	SCS_6h_78.4mm_100yr	SU1	0.187	75	125	4	0	
202	SCS_6h_78.4mm_100yr	Post_Trees	0.494	10.6	88	33	0	

YONGE STREET TOWNHOUSES – SWM MODELLING – MODEL DETAILS

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
101	0.01	0.25	0.05	0.05	25	OUTLET	
102	0.01	0.37	0.05	0.05	25	OUTLET	
201	0.01	0.25	0.05	0.05	25	OUTLET	
202	0.01	0.37	0.05	0.05	25	IMPERVIOUS	100

[INFILTRATION]

;;Subcatchment	CurveNum	HydCon	DryTime
101	77	0.5	7
102	68.7	0.5	7
201	77	0.5	7
202	68.7	0.5	7

[OUTFALLS]

;;Name	Invert Elev.	Outfall Type	Stage/Table Time Series	Tide Gate	Route To
Post_Trees	0	FREE		NO	
Post_Yonge	257.73	FREE		NO	
Pre_Trees	0	FREE		NO	
Pre_Yonge	0	FREE		NO	

[STORAGE]

;;Name	Invert Elev.	Max. Depth	Init. Depth	Storage Curve	Curve Params	Ponded Area	Evap. Frac.	Infiltration parameters
SU1	257.58	2.02	0	TABULAR	Chambers	0	0	

[ORIFICES]

;;Name	Inlet Node	Outlet Node	Orifice Type	Crest Height	Disch. Coeff.	Flap Gate	Open/Close Time
OR1	SU1	Post_Yonge	SIDE	257.73	0.65	NO	0

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels
OR1	CIRCULAR	0.05	0	0	0	

[CURVES]

;;Name	Type	X-Value	Y-Value
Chambers	Storage	0	68.56245177
Chambers		0.0254	68.56245177
Chambers		0.0508	68.56245177
Chambers		0.0762	68.56245177
Chambers		0.1016	68.56245177
Chambers		0.127	68.56245177
Chambers		0.1524	135.0042753
Chambers		0.1778	134.7342758
Chambers		0.2032	134.0932447
Chambers		0.2286	133.3947299
Chambers		0.254	132.730775
Chambers		0.2794	131.9215709
Chambers		0.3048	131.0200304
Chambers		0.3302	130.1178906
Chambers		0.3556	129.0622519
Chambers		0.381	128.0110864
Chambers		0.4064	126.7771294
Chambers		0.4318	125.5455834

```
Chambers                   0.4572     124.3990316
Chambers                   0.4826     122.8281691
Chambers                   0.508      121.3266236
Chambers                   0.5334     119.7188201
Chambers                   0.5588     117.9960492
Chambers                   0.5842     116.1914074
Chambers                   0.6096     114.4576274
Chambers                   0.635      112.3317037
Chambers                   0.6604     109.3490977
Chambers                   0.6858     106.6595544
Chambers                   0.7112     104.0959179
Chambers                   0.7366     100.9059523
Chambers                   0.762      97.17821734
Chambers                   0.7874     92.69448383
Chambers                   0.8128     86.74212031
Chambers                   0.8382     77.04909338
Chambers                   0.8636     73.46642294
Chambers                   0.889      70.21783503
Chambers                   0.9144     68.56245177
Chambers                   0.9398     68.56245177
Chambers                   0.9652     68.56245177
Chambers                   0.9906     68.56245177
Chambers                   1.016      68.56245177
Chambers                   1.0414     68.56245177
Chambers                   1.06       68.5
Chambers                   1.07       1
Chambers                   2          1

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
;SCS_6h_38.8mm design storm, total rainfall = 38.8 mm, rain units = mm/hr.
SCS_6h_38.8mm_2yr

;SCS_6h_49.4mm design storm, total rainfall = 49.4 mm, rain units = mm/hr.
SCS_6h_49.4mm_5yr

;SCS_6h_65.3mm design storm, total rainfall = 65.3 mm, rain units = mm/hr.
SCS_6h_65.3mm_25yr

;SCS_6h_71.9mm design storm, total rainfall = 71.9 mm, rain units = mm/hr.
SCS_6h_71.9mm_50yr

;SCS_6h_78.4mm design storm, total rainfall = 78.4 mm, rain units = mm/hr.
SCS_6h_78.4mm_100yr

[REPORT]
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS       487273.258785991 4887144.81410314 487636.044150793 4887232.29437604
UNITS            Meters
```

YONGE STREET TOWNHOUSES – SWM MODELLING – 2 YEAR DESIGN STORM EVENT

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

****
Element Count
****
Number of rain gages 5
Number of subcatchments ... 4
Number of nodes 5
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
SCS_6h_38.8mm_2yr	SCS_6h_38.8mm_2yr	INTENSITY	5 min.
SCS_6h_49.4mm_5yr	SCS_6h_49.4mm_5yr	INTENSITY	5 min.
SCS_6h_65.3mm_25yr	SCS_6h_65.3mm_25yr	INTENSITY	5 min.
SCS_6h_71.9mm_50yr	SCS_6h_71.9mm_50yr	INTENSITY	5 min.
SCS_6h_78.4mm_100yr	SCS_6h_78.4mm_100yr	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.10	42.00	1.80	4.0000	SCS_6h_38.8mm_2yr	Pre_Yonge
102	0.58	88.00	0.00	40.0000	SCS_6h_38.8mm_2yr	Pre_Trees
201	0.19	125.00	75.00	4.0000	SCS_6h_38.8mm_2yr	SU1
202	0.49	88.00	10.60	33.0000	SCS_6h_38.8mm_2yr	Post_Trees

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Post_Trees	OUTFALL	0.00	0.00	0.0	
Post_Yonge	OUTFALL	257.73	0.00	0.0	
Pre_Trees	OUTFALL	0.00	0.00	0.0	
Pre_Yonge	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	257.58	2.02	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
OR1	SU1	Post_Yonge	ORIFICE			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

YONGE STREET TOWNHOUSES – SWM MODELLING – 2 YEAR DESIGN STORM EVENT

```
****************
Analysis Options
****************
Flow Units ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 07/09/2021 00:00:00
Ending Date .............. 07/10/2021 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001524 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         0.053        38.807
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.033        24.542
Surface Runoff ...........         0.019        14.208
Final Storage ............         0.000         0.065
Continuity Error (%) .....        -0.021


*************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.019         0.194
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.018         0.182
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.001         0.011
Continuity Error (%) .....         0.000


**************************
Time-Step Critical Elements
**************************
None


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00
Percent Not Converging      :     0.00
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
101	38.81	0.00	0.00	25.21	13.54	0.01	2.31	0.349
102	38.81	0.00	0.00	29.06	9.68	0.06	7.42	0.249
201	38.81	0.00	0.00	6.42	32.37	0.06	12.89	0.834
202	38.81	0.00	0.00	25.98	12.77	0.06	8.77	0.329

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Post_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Post_Yonge	OUTFALL	0.00	0.00	257.73	0 00:00	0.00
Pre_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Pre_Yonge	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.19	0.34	257.92	0 03:56	0.34

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
Post_Trees	OUTFALL	8.77	8.77	0 02:30	0.0631	0.0631	0.000
Post_Yonge	OUTFALL	0.00	2.29	0 03:56	0	0.0493	0.000
Pre_Trees	OUTFALL	7.42	7.42	0 02:30	0.0559	0.0559	0.000
Pre_Yonge	OUTFALL	2.31	2.31	0 02:30	0.0141	0.0141	0.000
SU1	STORAGE	12.89	12.89	0 02:25	0.0606	0.0606	0.002

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
SU1	0.016	15	0	0	0.036	33	0 03:56	2.29

YONGE STREET TOWNHOUSES – SWM MODELLING – 2 YEAR DESIGN STORM EVENT

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
Post_Trees	45.81	1.59	8.77	0.063
Post_Yonge	65.30	0.87	2.29	0.049
Pre_Trees	45.97	1.40	7.42	0.056
Pre_Yonge	29.38	0.54	2.31	0.014
System	46.61	4.39	20.48	0.182

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
OR1	ORIFICE	2.29	0 03:56			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Oct 06 21:16:46 2021
Analysis ended on: Wed Oct 06 21:16:46 2021
Total elapsed time: < 1 sec

YONGE STREET TOWNHOUSES – SWM MODELLING – 5 YEAR DESIGN STORM EVENT

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

****
Element Count
****
Number of rain gages 5
Number of subcatchments ... 4
Number of nodes 5
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
SCS_6h_38.8mm_2yr	SCS_6h_38.8mm_2yr	INTENSITY	5 min.
SCS_6h_49.4mm_5yr	SCS_6h_49.4mm_5yr	INTENSITY	5 min.
SCS_6h_65.3mm_25yr	SCS_6h_65.3mm_25yr	INTENSITY	5 min.
SCS_6h_71.9mm_50yr	SCS_6h_71.9mm_50yr	INTENSITY	5 min.
SCS_6h_78.4mm_100yr	SCS_6h_78.4mm_100yr	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.10	42.00	1.80	4.0000	SCS_6h_49.4mm_5yr	Pre_Yonge
102	0.58	88.00	0.00	40.0000	SCS_6h_49.4mm_5yr	Pre_Trees
201	0.19	125.00	75.00	4.0000	SCS_6h_49.4mm_5yr	SU1
202	0.49	88.00	10.60	33.0000	SCS_6h_49.4mm_5yr	Post_Trees

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Post_Trees	OUTFALL	0.00	0.00	0.0	
Post_Yonge	OUTFALL	257.73	0.00	0.0	
Pre_Trees	OUTFALL	0.00	0.00	0.0	
Pre_Yonge	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	257.58	2.02	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
OR1	SU1	Post_Yonge	ORIFICE			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

YONGE STREET TOWNHOUSES – SWM MODELLING – 5 YEAR DESIGN STORM EVENT

```
****************
Analysis Options
****************
Flow Units ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 07/09/2021 00:00:00
Ending Date .............. 07/10/2021 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001524 m


**************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
**************************     ---------       -------
Total Precipitation ......         0.067        49.408
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.040        29.211
Surface Runoff ...........         0.027        20.143
Final Storage ............         0.000         0.066
Continuity Error (%) .....        -0.024


**************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.027         0.274
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.026         0.263
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.001         0.011
Continuity Error (%) .....         0.000


***************************
Time-Step Critical Elements
***************************
None


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00
Percent Not Converging      :     0.00
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
101	49.41	0.00	0.00	29.45	19.91	0.02	3.72	0.403
102	49.41	0.00	0.00	34.72	14.63	0.08	12.97	0.296
201	49.41	0.00	0.00	7.48	41.91	0.08	16.75	0.848
202	49.41	0.00	0.00	30.95	18.40	0.09	13.90	0.372

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Post_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Post_Yonge	OUTFALL	0.00	0.00	257.73	0 00:00	0.00
Pre_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Pre_Yonge	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.21	0.42	258.00	0 03:57	0.42

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
Post_Trees	OUTFALL	13.90	13.90	0 02:30	0.0909	0.0909	0.000
Post_Yonge	OUTFALL	0.00	2.82	0 03:57	0	0.0671	0.000
Pre_Trees	OUTFALL	12.97	12.97	0 02:30	0.0844	0.0844	0.000
Pre_Yonge	OUTFALL	3.72	3.72	0 02:30	0.0207	0.0207	0.000
SU1	STORAGE	16.75	16.75	0 02:25	0.0784	0.0784	0.002

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
SU1	0.019	18	0	0	0.047	43	0 03:57	2.82

YONGE STREET TOWNHOUSES – SWM MODELLING – 5 YEAR DESIGN STORM EVENT

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
Post_Trees	46.61	2.25	13.90	0.091
Post_Yonge	71.36	1.08	2.82	0.067
Pre_Trees	47.36	2.05	12.97	0.084
Pre_Yonge	31.25	0.76	3.72	0.021
System	49.15	6.14	33.06	0.263

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
OR1	ORIFICE	2.82	0 03:57			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Oct 06 21:17:41 2021
Analysis ended on: Wed Oct 06 21:17:41 2021
Total elapsed time: < 1 sec

YONGE STREET TOWNHOUSES – SWM MODELLING – 25 YEAR DESIGN STORM EVENT

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

****
Element Count
****
Number of rain gages 5
Number of subcatchments ... 4
Number of nodes 5
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
SCS_6h_38.8mm_2yr	SCS_6h_38.8mm_2yr	INTENSITY	5 min.
SCS_6h_49.4mm_5yr	SCS_6h_49.4mm_5yr	INTENSITY	5 min.
SCS_6h_65.3mm_25yr	SCS_6h_65.3mm_25yr	INTENSITY	5 min.
SCS_6h_71.9mm_50yr	SCS_6h_71.9mm_50yr	INTENSITY	5 min.
SCS_6h_78.4mm_100yr	SCS_6h_78.4mm_100yr	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.10	42.00	1.80	4.0000	SCS_6h_65.3mm_25yr	Pre_Yonge
102	0.58	88.00	0.00	40.0000	SCS_6h_65.3mm_25yr	Pre_Trees
201	0.19	125.00	75.00	4.0000	SCS_6h_65.3mm_25yr	SU1
202	0.49	88.00	10.60	33.0000	SCS_6h_65.3mm_25yr	Post_Trees

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Post_Trees	OUTFALL	0.00	0.00	0.0	
Post_Yonge	OUTFALL	257.73	0.00	0.0	
Pre_Trees	OUTFALL	0.00	0.00	0.0	
Pre_Yonge	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	257.58	2.02	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
OR1	SU1	Post_Yonge	ORIFICE			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

YONGE STREET TOWNHOUSES – SWM MODELLING – 25 YEAR DESIGN STORM EVENT

```
****************
Analysis Options
****************
Flow Units ..... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 07/09/2021 00:00:00
Ending Date .............. 07/10/2021 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001524 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         0.089        65.310
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.048        35.189
Surface Runoff ...........         0.041        30.075
Final Storage ............         0.000         0.066
Continuity Error (%) .....        -0.030


*************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.041         0.410
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.040         0.398
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.001         0.011
Continuity Error (%) .....         0.000


**************************
Time-Step Critical Elements
**************************
None


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00
Percent Not Converging      :     0.00
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
101	65.31	0.00	0.00	34.61	30.67	0.03	6.16	0.470
102	65.31	0.00	0.00	41.95	23.31	0.13	23.45	0.357
201	65.31	0.00	0.00	8.77	56.52	0.11	22.70	0.865
202	65.31	0.00	0.00	37.41	27.85	0.14	23.45	0.426

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Post_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Post_Yonge	OUTFALL	0.00	0.00	257.73	0 00:00	0.00
Pre_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Pre_Yonge	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.25	0.57	258.15	0 03:58	0.57

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
Post_Trees	OUTFALL	23.45	23.45	0 02:30	0.138	0.138	0.000
Post_Yonge	OUTFALL	0.00	3.54	0 03:58	0	0.0944	0.000
Pre_Trees	OUTFALL	23.45	23.45	0 02:30	0.134	0.134	0.000
Pre_Yonge	OUTFALL	6.16	6.16	0 02:30	0.0319	0.0319	0.000
SU1	STORAGE	22.70	22.70	0 02:25	0.106	0.106	0.001

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
SU1	0.025	23	0	0	0.064	59	0 03:58	3.54

YONGE STREET TOWNHOUSES – SWM MODELLING – 25 YEAR DESIGN STORM EVENT

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
Post_Trees	47.13	3.37	23.45	0.138
Post_Yonge	79.10	1.38	3.54	0.094
Pre_Trees	48.79	3.18	23.45	0.134
Pre_Yonge	32.34	1.13	6.16	0.032
System	51.84	9.06	56.12	0.398

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
OR1	ORIFICE	3.54	0 03:58			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Oct 06 21:20:24 2021
Analysis ended on: Wed Oct 06 21:20:24 2021
Total elapsed time: < 1 sec

YONGE STREET TOWNHOUSES – SWM MODELLING – 50 YEAR DESIGN STORM EVENT

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

****
Element Count
****
Number of rain gages 5
Number of subcatchments ... 4
Number of nodes 5
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
SCS_6h_38.8mm_2yr	SCS_6h_38.8mm_2yr	INTENSITY	5 min.
SCS_6h_49.4mm_5yr	SCS_6h_49.4mm_5yr	INTENSITY	5 min.
SCS_6h_65.3mm_25yr	SCS_6h_65.3mm_25yr	INTENSITY	5 min.
SCS_6h_71.9mm_50yr	SCS_6h_71.9mm_50yr	INTENSITY	5 min.
SCS_6h_78.4mm_100yr	SCS_6h_78.4mm_100yr	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.10	42.00	1.80	4.0000	SCS_6h_71.9mm_50yr	Pre_Yonge
102	0.58	88.00	0.00	40.0000	SCS_6h_71.9mm_50yr	Pre_Trees
201	0.19	125.00	75.00	4.0000	SCS_6h_71.9mm_50yr	SU1
202	0.49	88.00	10.60	33.0000	SCS_6h_71.9mm_50yr	Post_Trees

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Post_Trees	OUTFALL	0.00	0.00	0.0	
Post_Yonge	OUTFALL	257.73	0.00	0.0	
Pre_Trees	OUTFALL	0.00	0.00	0.0	
Pre_Yonge	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	257.58	2.02	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
OR1	SU1	Post_Yonge	ORIFICE			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

YONGE STREET TOWNHOUSES – SWM MODELLING – 50 YEAR DESIGN STORM EVENT

```
****************
Analysis Options
****************
Flow Units ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 07/09/2021 00:00:00
Ending Date .............. 07/10/2021 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001524 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         0.098        71.911
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.051        37.414
Surface Runoff ...........         0.047        34.454
Final Storage ............         0.000         0.066
Continuity Error (%) .....        -0.032


*************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.047         0.469
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.046         0.458
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.001         0.011
Continuity Error (%) .....         0.000


***************************
Time-Step Critical Elements
***************************
None


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00
Percent Not Converging      :     0.00
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
101	71.91	0.00	0.00	36.39	35.48	0.04	7.32	0.493
102	71.91	0.00	0.00	44.66	27.20	0.16	28.38	0.378
201	71.91	0.00	0.00	9.23	62.66	0.12	25.20	0.871
202	71.91	0.00	0.00	39.83	32.03	0.16	27.95	0.445

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Post_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Post_Yonge	OUTFALL	0.00	0.00	257.73	0 00:00	0.00
Pre_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Pre_Yonge	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.27	0.63	258.21	0 03:59	0.63

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
Post_Trees	OUTFALL	27.95	27.95	0 02:30	0.158	0.158	0.000
Post_Yonge	OUTFALL	0.00	3.81	0 03:59	0	0.106	0.000
Pre_Trees	OUTFALL	28.38	28.38	0 02:30	0.157	0.157	0.000
Pre_Yonge	OUTFALL	7.32	7.32	0 02:25	0.0369	0.0369	0.000
SU1	STORAGE	25.20	25.20	0 02:25	0.117	0.117	0.001

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
SU1	0.027	25	0	0	0.072	66	0 03:59	3.81

YONGE STREET TOWNHOUSES – SWM MODELLING – 50 YEAR DESIGN STORM EVENT

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
Post_Trees	47.08	3.88	27.95	0.158
Post_Yonge	81.92	1.49	3.81	0.106
Pre_Trees	48.96	3.70	28.38	0.157
Pre_Yonge	32.64	1.30	7.32	0.037
System	52.65	10.37	66.88	0.458

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
OR1	ORIFICE	3.81	0 03:59			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Oct 06 21:19:45 2021
Analysis ended on: Wed Oct 06 21:19:45 2021
Total elapsed time: < 1 sec

YONGE STREET TOWNHOUSES – SWM MODELLING – 100 YEAR DESIGN STORM EVENT

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

****
Element Count
****
Number of rain gages 5
Number of subcatchments ... 4
Number of nodes 5
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
SCS_6h_38.8mm_2yr	SCS_6h_38.8mm_2yr	INTENSITY	5 min.
SCS_6h_49.4mm_5yr	SCS_6h_49.4mm_5yr	INTENSITY	5 min.
SCS_6h_65.3mm_25yr	SCS_6h_65.3mm_25yr	INTENSITY	5 min.
SCS_6h_71.9mm_50yr	SCS_6h_71.9mm_50yr	INTENSITY	5 min.
SCS_6h_78.4mm_100yr	SCS_6h_78.4mm_100yr	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.10	42.00	1.80	4.0000	SCS_6h_78.4mm_100yr	Pre_Yonge
102	0.58	88.00	0.00	40.0000	SCS_6h_78.4mm_100yr	Pre_Trees
201	0.19	125.00	75.00	4.0000	SCS_6h_78.4mm_100yr	SU1
202	0.49	88.00	10.60	33.0000	SCS_6h_78.4mm_100yr	Post_Trees

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Post_Trees	OUTFALL	0.00	0.00	0.0	
Post_Yonge	OUTFALL	257.73	0.00	0.0	
Pre_Trees	OUTFALL	0.00	0.00	0.0	
Pre_Yonge	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	257.58	2.02	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
OR1	SU1	Post_Yonge	ORIFICE			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

YONGE STREET TOWNHOUSES – SWM MODELLING – 100 YEAR DESIGN STORM EVENT

```
****************
Analysis Options
****************
Flow Units ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 07/09/2021 00:00:00
Ending Date .............. 07/10/2021 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001524 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         0.107        78.413
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.054        39.391
Surface Runoff ...........         0.053        38.983
Final Storage ............         0.000         0.066
Continuity Error (%) .....        -0.034


*************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.053         0.531
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.052         0.520
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.001         0.011
Continuity Error (%) .....         0.000


**************************
Time-Step Critical Elements
**************************
None


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00
Percent Not Converging      :     0.00
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
101	78.41	0.00	0.00	38.08	40.31	0.04	8.53	0.514
102	78.41	0.00	0.00	47.06	31.31	0.18	33.52	0.399
201	78.41	0.00	0.00	9.64	68.76	0.13	27.69	0.877
202	78.41	0.00	0.00	41.97	36.40	0.18	32.64	0.464

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Post_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Post_Yonge	OUTFALL	0.00	0.00	257.73	0 00:00	0.00
Pre_Trees	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Pre_Yonge	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.29	0.70	258.28	0 03:59	0.70

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
Post_Trees	OUTFALL	32.64	32.64	0 02:30	0.18	0.18	0.000
Post_Yonge	OUTFALL	0.00	4.09	0 03:59	0	0.117	0.000
Pre_Trees	OUTFALL	33.52	33.52	0 02:30	0.181	0.181	0.000
Pre_Yonge	OUTFALL	8.53	8.53	0 02:25	0.0419	0.0419	0.000
SU1	STORAGE	27.69	27.69	0 02:25	0.129	0.129	0.001

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
SU1	0.029	27	0	0	0.079	72	0 03:59	4.09

YONGE STREET TOWNHOUSES – SWM MODELLING – 100 YEAR DESIGN STORM EVENT

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
Post_Trees	47.31	4.39	32.64	0.180
Post_Yonge	84.50	1.60	4.09	0.117
Pre_Trees	49.45	4.22	33.52	0.181
Pre_Yonge	33.21	1.45	8.53	0.042
System	53.62	11.66	78.03	0.520

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
OR1	ORIFICE	4.09	0 03:59			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Oct 06 21:20:56 2021
Analysis ended on: Wed Oct 06 21:20:56 2021
Total elapsed time: < 1 sec