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

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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.

H:\Con Ex\01892 - 37 Yonge Street Townhouses\Reports\2021-07-12 Yonge St FSR 01892.docx

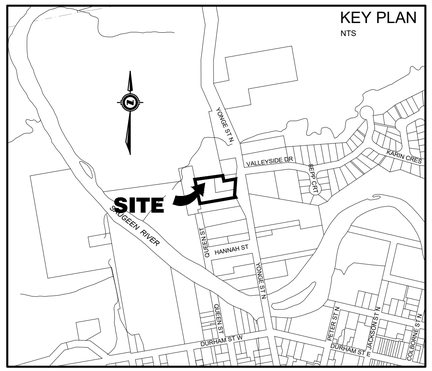
Appendix A

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
- EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A — PROPOSED ELEVATION
- 486.21 — EXISTING ELEVATION

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)
DEVELOPMENT SITE PLAN

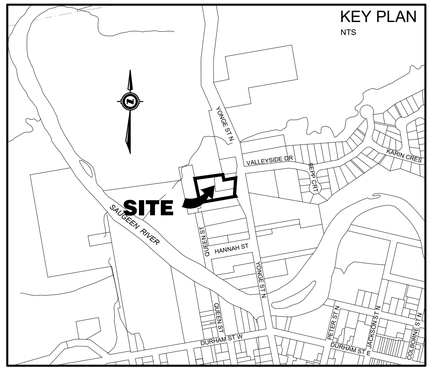
Client:
CON EX CANADA INC.

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

DRAWING No. 01892-SP1

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

KEY PLAN
NTS



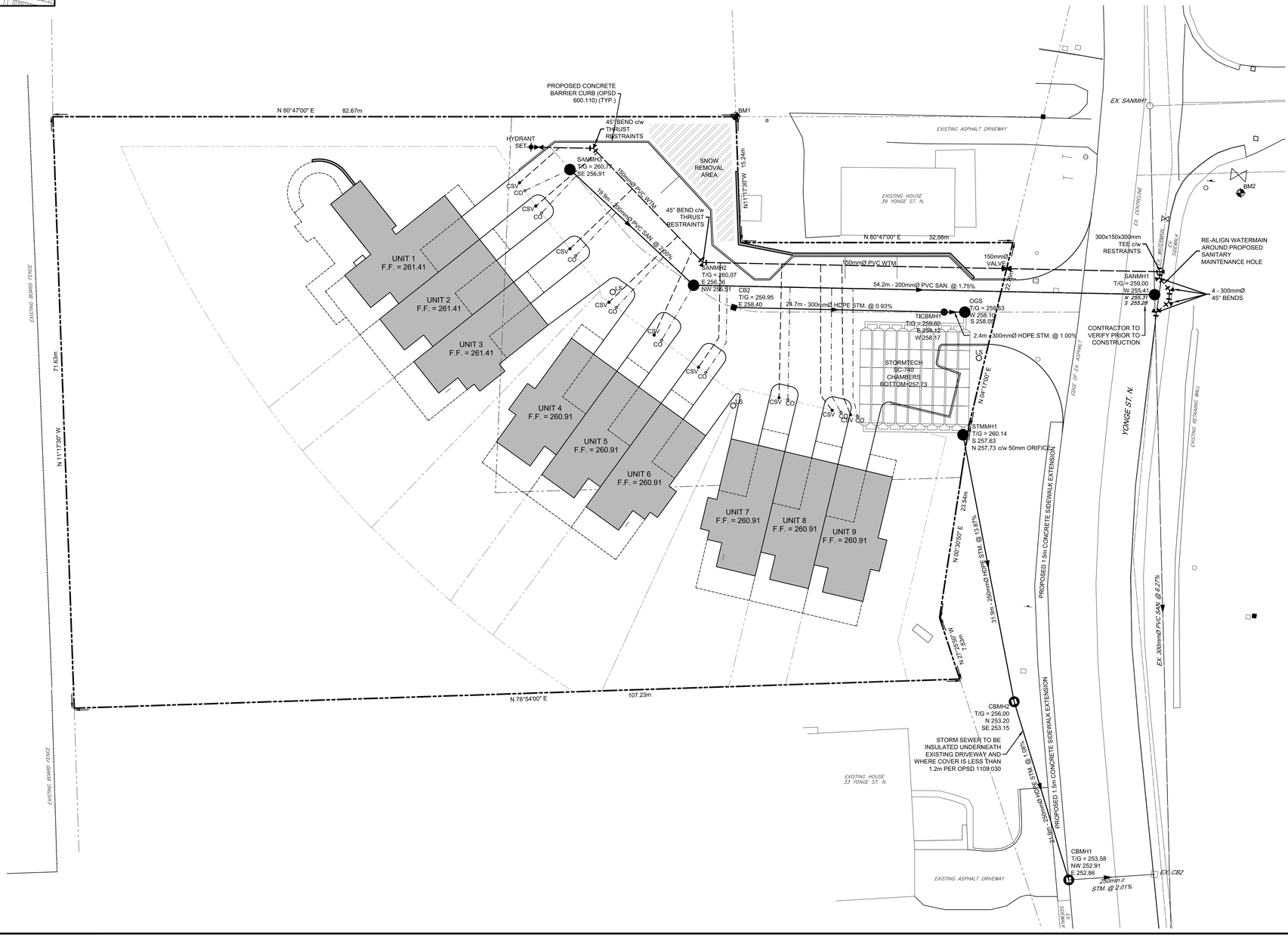
MAINTAIN MIN. 2.5m HORIZONTAL SEPARATION DISTANCE AND 0.5m VERTICAL SEPARATION DISTANCE BETWEEN WATERMAIN AND SANITARY/STORM SEWERS INCLUDING ALL CATCHBASIN LEADS EQUAL TO OR GREATER THAN 250mm IN DIAMETER

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



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
T. L. BURNSIDE
100199868
2/16/2022
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

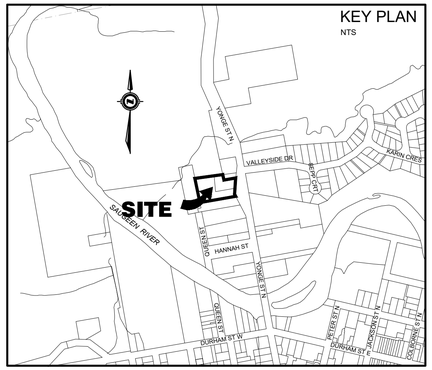
MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
SITE SERVICING PLAN

Client: CON EX CANADA INC.

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

DRAWING No. 01892-SS1

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



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
- 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 486.21 / 486.27 — PROPOSED ELEVATION / EXISTING ELEVATION

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

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

Title: RIVER BREEZE TOWNHOUSES
PROPOSED DEVELOPMENT

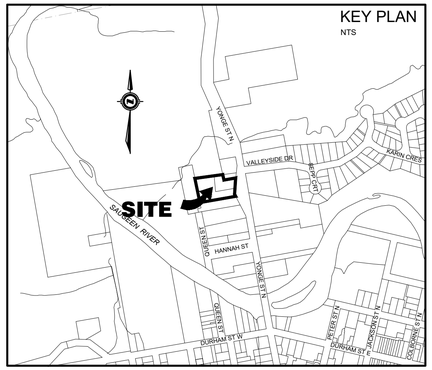
MUNICIPALITY OF BROCKTON
(FORMERLY TOWN OF WALKERTON)
PRE-DEVELOPMENT CATCHMENT AREAS

Client: CON EX CANADA INC.

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

DRAWING No. 01892-SWM1

H:\Con Ex\01892 - 37 Yonge Street Townhouses\Drawings\Submissions\2021-09-29 Second Submission\01892_37 Yonge - Base 2021-09-29.dwg



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
- PHYD — PROPOSED HYDRANT SET
- HYD — EXISTING FIRE HYDRANT
- PGV — PROPOSED GATE VALVE
- GV — EXISTING GATE VALVE
- BM — BENCHMARK
- 1600A 486.21 — PROPOSED ELEVATION / EXISTING ELEVATION

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
21/5/2022
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)
POST-DEVELOPMENT CATCHMENT AREAS

Client: CON EX CANADA INC.

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

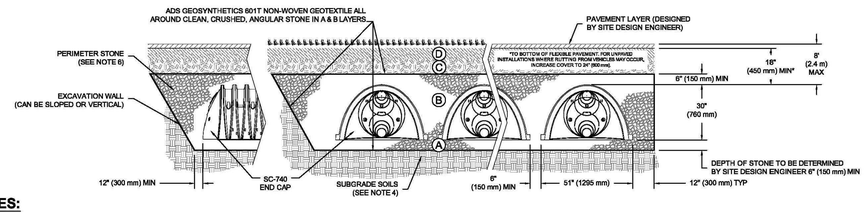
DRAWING No. 01892-SWM2

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

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* A-1, A-2-4, A-3 OR AASHTO M43* 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* 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* 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. * *

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.



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.	DRWN	CHK	DESCRIPTION
3	MAY	JLM	UPDATE

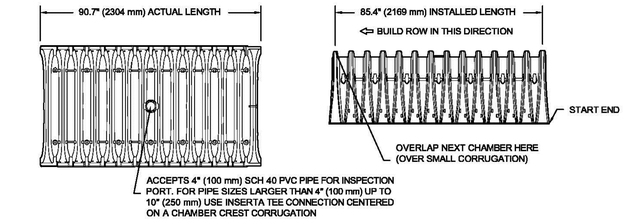
StormTech — 70 WOODED ROAD, SUITE 3 | ROCKY HILL, CT | 06067 — PH: (860) 529-8188 | FAX: (860) 529-8040

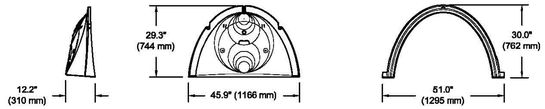
4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS WITHIN THE DIRECTION OF OTHER PROJECT PROFESSIONALS. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCTS DEPICTED ARE SUITABLE FOR THE INTENDED USE AND CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. ADS ASSUMES NO RESPONSIBILITY FOR ENGINEERING DESIGN DECISIONS BASED ON THIS DRAWING.

SHEET 1 OF 1

SC-740 TECHNICAL SPECIFICATION
NTS

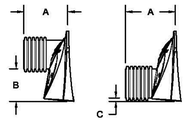




NOMINAL CHAMBER SPECIFICATIONS

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.

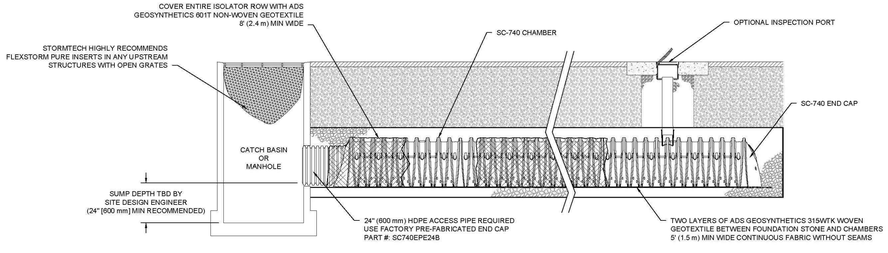
*** FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.**

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.



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.

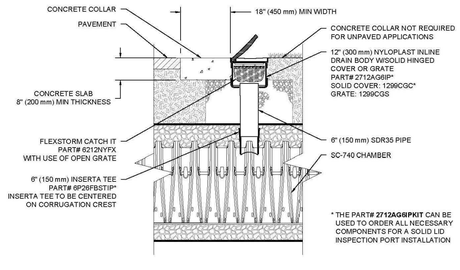
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

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.



SC-740 6" INSPECTION PORT DETAIL
NTS

ISOLATOR ROW DETAILS SC-740

DATE: 03/08/17 | DRAWN: JLM | CHECKED: | PROJECT #:

REV.	DRWN	CHK	DESCRIPTION

StormTech — 70 WOODED ROAD, SUITE 3 | ROCKY HILL, CT | 06067 — PH: (860) 529-8188 | FAX: (860) 529-8040

4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS WITHIN THE DIRECTION OF OTHER PROJECT PROFESSIONALS. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCTS DEPICTED ARE SUITABLE FOR THE INTENDED USE AND CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. ADS ASSUMES NO RESPONSIBILITY FOR ENGINEERING DESIGN DECISIONS BASED ON THIS DRAWING.

SHEET 1 OF 1

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 — T. L. BURNSIDE — 100199868 — PROVINCE OF ONTARIO — 4/5/2022

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)
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

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

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

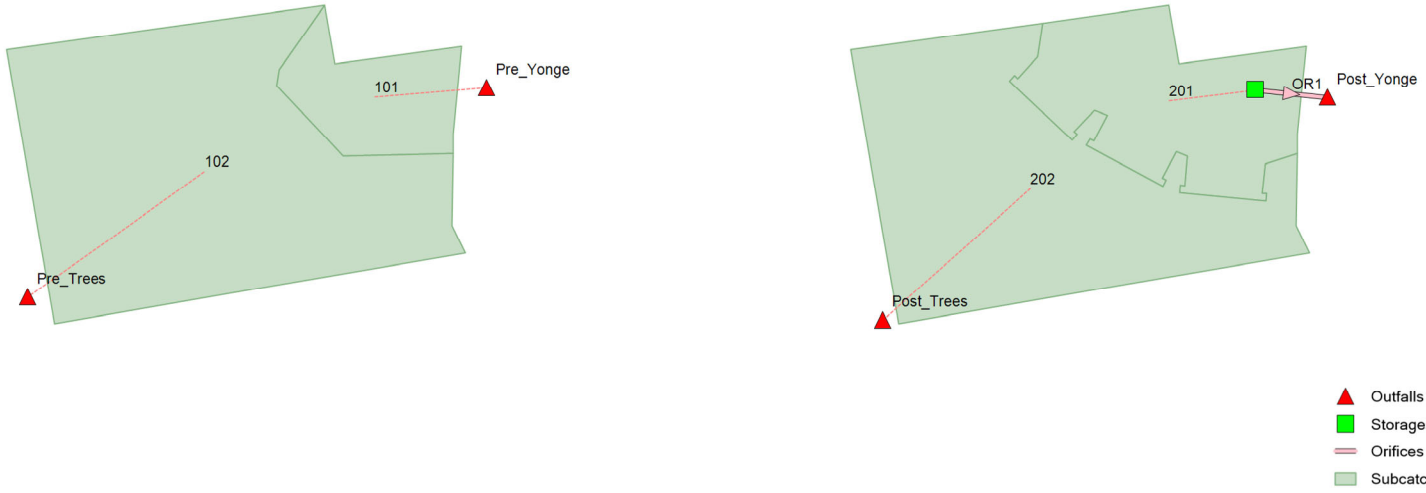
Proposed Conditions

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
****************
                                                 Data       Recording
Name                 Data Source                 Type       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
************
                                      Invert      Max.    Ponded    External
Name                 Type              Elev.     Depth      Area    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
********************
                                    Full     Full     Hyd.     Max.   No. of     Full
Conduit          Shape             Depth     Area     Rad.    Width  Barrels     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
****************
                                                 Data       Recording
Name                 Data Source                 Type       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
************
                                      Invert      Max.    Ponded    External
Name                 Type              Elev.     Depth      Area    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
********************
                                    Full     Full     Hyd.     Max.   No. of     Full
Conduit          Shape             Depth     Area     Rad.    Width  Barrels     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
****************
                                                 Data       Recording
Name                 Data Source                 Type       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
************
                                      Invert      Max.    Ponded    External
Name                 Type               Elev.     Depth      Area    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
********************
                                    Full     Full     Hyd.     Max.   No. of     Full
Conduit          Shape             Depth     Area     Rad.    Width  Barrels     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