

FUNCTIONAL SERVICING REPORT

Water, Wastewater, and Stormwater Management

PROPOSED 2-STOREY DATA CENTER

3110 SOUTH SERVICE ROAD
CITY OF BURLINGTON

OUR FILE: 1898

PREPARED FOR CUADRO ARCH LTD.

JUNE 2026

Functional Servicing Report
Proposed Data Center
3110 South Service Road

Our File: 1898

REVISION HISTORY

DATE	REVISION	SUBMISSION
2026-06-10	1	Issued for 1 st SPA

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1.0 INTRODUCTION

1.1 Scope of Functional Servicing Report

This report has been prepared in support of the Site Plan Application for a two-storey data center located at 3310 South Service Road in the City of Burlington, henceforth referred to as the 'subject lands'. This report discusses how the subject lands can be serviced for water, wastewater, and stormwater. This report may be updated and refined as the project moves through the Site Plan Application approval process to support the Building Permit stages. A copy of the Site Plan is included in Appendix 'A' for reference.

For the purpose of this report, north is defined as running parallel to Guelph Line.

1.2 Existing Condition

The subject lands are located at 3110 South Service Road across from the QEW close to the major intersection of Guelph Line and Harvester Road. The subject lands are currently surrounded by commercial developments including restaurants to the east and south, and a hotel to the west.

The subject lands are 0.79 ha and are currently occupied by a 1-storey restaurant with a paved parking lot. Attached in Appendix 'A' is the topographic survey of the property completed by J.H. Gelbloom Surveying Ltd. There are two driveway entrances to South Service Road and a private driveway entrance to the restaurant to the south.

The subject lands are currently noted as being within the floodplain of Roseland Creek. Revised floodplain mapping has been completed to determine the limit of the floodline and associated setback. The revised floodline and associated setbacks were approved by Conservation Halton through the rezoning application of these lands in 2022. The approved floodline and setback area included on the grading plan.

1.3 Proposed Condition

The Site Plan (prepared by Cuadro Arch Ltd.) proposes a two-storey data centre with one level of underground parking and parking at grade. The location of the proposed driveway entrances remain the same as the existing driveway locations, but will be reconstructed to meet current standards. The ramp to the underground parking is located on the southwest corner of the building.

The site will connect the municipal water, sanitary and storm in the same general locations as existing conditions.

2.0 MUNICIPAL WATER AND WASTEWATER

The location of existing services was determined through the review of record drawings provided by the City of Burlington, Region of Halton, and a topographic survey completed by J.H Gelbloom Ltd.

All proposed services must be in accordance with the National Building code, City of Burlington, and Region of Halton standards and requirements. Proposed servicing can be found on the Servicing drawing, S1, included in Appendix 'E'. Existing and proposed servicing is discussed in further detail in the following sections.

2.1 Water

Plans obtained from the Region of Halton indicate that there is an existing 200 mm diameter watermain located on the south side of South Service Road. The site is currently serviced from the 200 mm diameter watermain by a 50 mm diameter domestic water service and 150 mm diameter fire service.

It should be noted there is a municipal fire hydrant along South Service Road in front of the subject lands. The proposed fire department connection is located within 45.0 m of the fire hydrant.

The existing watermain service (domestic and fire) will be removed and a new 200 mm diameter fire service and 100 mm diameter domestic service will be installed to the existing 200 mm diameter watermain per region of Halton standards RH 409.010. Sizing to be confirmed by the mechanical engineer at the detailed design stage.

Water demand calculations were undertaken based on the Region's Water and Wastewater Linear Design Manual with a population density of 37.4 m² per employee and a demand of 190.0 L/employee/day for light commercial. The daily demand plus fire flow is summarized below.

Table 1: Estimated Water Demands (L/min)

Average Daily Demand	18
Minimum Hourly Demand	18
Maximum Hourly Demand	55
Maximum Daily Demand	35
Estimated Fire Demand (FUS 1999)	8000
Maximum Daily Plus Fire Demand	8035

The fire flow was estimated for demand purposes only using the Fire Underwriters Survey methodology. Fire flows should be confirmed at the building permit stage by the sprinkler consultant.

A fire flow test is required to confirm there is sufficient fire fighting flow and pressure within the municipal watermain. Flow test results were not available at the time of writing but will be included in this report once made available.

2.2 Wastewater

Plans obtained from the City of Burlington and Halton region indicate that there is an existing 375 mm diameter wastewater sewer within a 30 ft (9.14 m) easement along the east property boundary of the subject lands. The wastewater sewer is located generally along the edge of the existing parking lot and was measured to be approximately 3.0 m below grade. The wastewater sewer drains south from South Service Road to Harvester Road. As previously mentioned, CCTV was reviewed to verify the location, condition, and connectivity of the existing wastewater infrastructure.

As part of the development of the subject lands the existing wastewater service will be removed and a new wastewater service will be installed in the same location. A 200 mm diameter wastewater service lateral will be constructed. The proposed and existing wastewater sewers are shown on the Servicing Plan.

Wastewater demand calculations were undertaken based on the Region's Water and Wastewater Linear Design Manual with a population density of 37.4 m² per employee and a demand of 185.0 L/employee/day for light commercial and are summarized below. Supporting calculations can be found in Appendix 'C'

Table 2: Estimated Wastewater Flow (L/s)

Average Daily Dry Weather Flow	0.52
ICI Peaking Factor	4.20
Infiltration Allowance (0.28 L/s-ha)	0.22
Peak Flow	1.46

3.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

The development of the subject property will require adequately sized storm sewers that comply with the National Building Code and the City of Burlington standards for site servicing.

3.1 Existing Storm Drainage

Under existing conditions, the subject lands generally slopes from north to south with minor system drainage captured and conveyed to a 375 mm diameter storm sewer within the 30 ft (9.14 m) easement along the east property boundary. The storm sewer drains south to Harvester Road. Major system drainage is conveyed to the adjacent property to the south through the existing driveway connection.

The subject lands have a pre-development imperviousness of approximately 82% and a runoff coefficient of C=0.82. The City of Burlington requires a maximum pre-development runoff coefficient of C=0.50 for the purpose of calculating pre-development flows. Refer to Table 3 below for a summary of the pre-development flows calculated using the modified rational method and a runoff coefficient of C=0.50. Refer to the Pre-Development Drainage Area Plan and Pre-Development Rational Flow Calculations in Appendix 'D' for supporting calculations.

Table 3: Pre-Development Flow Summary

Return	Pre-Dev Peak Flow (L/s)
5-yr	112
10-yr	128
25-yr	164
50-yr	198
100-yr	225

3.1.1 Groundwater and Soil Conditions.

A geotechnical investigation was prepared by Soil-Mat Engineers and Consultants LTD. dated 2022. This report discovered groundwater depths varied from approximately 3.5 to 4.1 m. The investigation revealed the soils to consist predominately of clay and silt with estimated infiltration rates of <10 mm/hr.

3.2 Proposed Storm Drainage

Under proposed conditions the site generally slopes from north to southwest, with minor system drainage captured and conveyed to the 375 mm diameter storm sewer in the same location as existing conditions. The minor system will be sized to capture and convey the 100-year storm. Roof drainage will be controlled through roof controls while the majority of surface drainage will be captured and conveyed to a stormwater management system underneath the parking lot. A small portion of the subject lands will flow uncontrolled to South Service Road. Stormwater management requirements are discussed further in Section 3.3 below.

An overland flow route to South Service Road through the west driveway is provided. The spill elevation for the internal catchbasins is 105.70 m. At this elevation any ponding stormwater will flow overland to South Service Road at the west driveway entrance instead of the private driveway to the south. There is no ponding during the regulatory storm events (up to and including the 100-year storm). Ponding will only occur during emergency (full blockage) conditions.

The subject lands have a post-development imperviousness of approximately 79%.

3.3 Stormwater Management

3.3.1 Stormwater Quantity Control (Peak Flow Control)

The City of Burlington generally requires developments to manage their drainage to lesser of the pre-development levels for each event up to the 100-year storm, or the receiving system's capacity. In this case, to prevent the increased possibility of surcharging downstream systems, we propose to control runoff from all events under post-development conditions, to the 5-year pre-development rate. This is consistent with developments of this type.

To address the stormwater management requirements for the subject lands, the site is designed with roof controls to manage roof drainage and a buried stormwater management system to control surface drainage. Surface drainage outflows are controlled by way of an orifice tube. The stormwater management system will be comprised of ACO Stormbrixx 900SD modules and will be located underneath the parking lot outside of the fire route.

The post-development storm system was modeled in HydroCAD using the SCS Curve Number Method. The roof is entirely impervious with an SCS curve number of CN=98. The controlled surface drainage has a weighted SCS curve number of CN=91, calculated by taking the impervious areas as CN = 98 (paved parking) and the pervious areas as CN = 74 (>75% Grass Cover, HSG,C). The uncontrolled area of the site has a weighted SCS curve number of CN = 84, calculated using the same methodology as above. The time of concentration was set to the Town of Burlington's minimum allowable of $T_c = 10$ minutes.

Refer to the HydroCAD results and Post-Development Storm Drainage Plan (F2) in Appendix 'D' for more details.

Using the SCS Runoff Method and the City of Burlington IDF data, pre- and post-development peak flows and storage requirements for the roof and surface storage systems are estimated and summarized in Tables 4 and 5 below.

Table 4: Roof Flow and Storage Summary

Return	Roof Inflow (L/s)	Roof Outflow (L/s)	Roof Storage Required (m ³)
5-yr	66.8	7.6	66.0
10-yr	77.0	8.1	79.0
25-yr	90.0	8.6	96.1
50-yr	99.4	9.0	109.0
100-yr	108.8	9.3	121.9

Table 5: Controlled Surface Flow and Storage Summary

Return	Underground Storage Inflow (L/s)	Underground Storage Outflow (L/s)	Underground Storage Required (m ³)
5-yr	107.5	70.4	16.3
10-yr	129.1	75.8	26.9
25-yr	156.5	82.6	41.2
50-yr	176.6	87.7	52.5
100-yr	196.4	92.6	64.2

The peak outflow from the two storage systems combined with the uncontrolled flow cannot exceed the pre-development 5-year peak flow rate of 112 L/s. Refer to Table 6 below for a summary of the total post-development peak flow rates.

Table 6: Post-Development Peak Flow Summary

Return	Uncontrolled Flow (L/s)	Roof Outflow (L/s)	Underground Storage Outflow (L/s)	Total Peak Flow (L/s)
5-yr	5.5	7.6	70.4	81.2
10-yr	6.8	8.1	75.8	87.6
25-yr	8.5	8.6	82.6	95.8
50-yr	9.8	9.0	87.7	101.6
100-yr	11.0	9.3	92.6	107.3

To control the post-development peak flow rate to the pre-development 5-year flow rate of 112 L/s, approximately 186.1 m³ of storage is required (121.9 m³ of roof storage and 64.2 m³ of underground storage).

The buildings roof will have a total of 5 roof drains spaced per NBC requirements each providing 5 USGPM per inch of head (0.315 L/s per 0.0254 m) each. With 5 drains the peak depth on the roof is 0.150 m and peak outflow is 9.3 L/s. The maximum allowable roof ponding is 0.152 m for a total available storage of 129 m³. Regardless of the provision of control-flow drains, the building mechanical must design the internal plumbing to suit uncontrolled drainage per NPC at the detailed design stage.

The underground storage system will be an ACO Stormbrixx SD System with a plan area of approximately 137 m² providing 64.4 m³ of total storage. In order to limit the outflows, a 2.0 m, 200 mm diameter orifice tube with an outlet invert of 103.89 m will be installed between STM MH 1 and STM MH 2. The 100-year peak water elevation is 104.96 m, resulting in 1.07 m of head and a peak outflow of 92.6 L/s. The orifice tube sizing calculations are included in Appendix 'D' for reference.

The roof drainage will join the surface drainage downstream of the orifice tube at STM MH 1. The storm system will connect to the existing 375 mm diameter storm sewer within the easement along the east property boundary using a 300 mm diameter PVC storm service connection.

Emergency overflow from the ACO system will be by way of the southernmost catchbasin in the parking lot. Stormwater will overflow from the catchbasin and flow overland down the driveway to South Service Road.

3.3.2 Water Budget

As per City of Burlington Guidelines, it is recommended to infiltrate or re-use the first 5 mm of rainfall, this results in approximately 39.5 m³ of water to be infiltrated. As stated in Section 3.1.1 the geotechnical investigation performed by SoilMat indicated the soil conditions are not suitable for infiltration. Should more favourable soil conditions for infiltration be discovered during construction the stormwater management design may be refined to include an infiltration feature.

3.3.3 Stormwater Quality Control

The City of Burlington requires a long-term average removal of 80% of total suspended solids (TSS) from runoff leaving a proposed development.

A HydroDome OGS unit (HD 6) is to be installed downstream of the proposed orifice tube to treat all the runoff from the surface parking area in order meet TSS removal requirements. The unit is designed to treat surface runoff from the at grade parking areas, while clean water from the roof drains is to bypass the OGS. This process provides 80% long term TSS removal, meeting the MECP requirements enhanced water quality and City of Burlington water quality requirements. Refer to the HydroDome sizing report and ETV verification in Appendix 'D' for more information.

4.0 MTO DRAINAGE REQUIRMENTS

Due to the subject lands proximity to the QEW, the MTO's drainage requirements must be met. The MTO requires that post-development peak flow does not exceed pre-development peak flow rates to ensure there is no impact on the MTO's drainage system. The MTO will not credit any rooftop or unconventional underground storage.

The pre-development peak flows to meet MTO criteria are calculated using the modified rational method using a weighted runoff coefficient of $C=0.78$. The post-development peak flows to meet MTO criteria are calculated using a weighted runoff coefficient of $C=0.76$ (refer to Appendix 'D' for supporting calculations). The pre-and post-development peak flow rates without the controls are summarized in Table 7 below:

Table 7: Pre-Post Development Peak Flow Summary (MTO Criteria)

Return	Pre-Dev Peak Flow (L/s)	Post-Dev Peak Flow (L/s)	Difference (L/s)
5-yr	175	171	-4
10-yr	201	197	-4
25-yr	257	252	-5
50-yr	309	303	-6
100-yr	352	345	-7

The post-development peak flow rates are less than the pre-development peak flow rates as a result of the decrease in impervious area under post-development conditions. Therefore, there is no impact to the MTO's drainage system and the MTO's drainage criteria is satisfied.

5.0 GRADING

The proposed grading for the development of the subject lands has been designed to account for the existing boundary conditions. The subject lands has two driveway entrances on South Service Road which are being maintained. The existing private driveway to the south is also maintained and will match the existing grades.

To the west of the subject property, along South Service Road, there is an existing flood limit and associated setback. The grades along the west property boundary shall be maintained.

Overland drainage will be conveyed to the west driveway entrance on South Service Road. Refer to the Grading Plan for the proposed grading design. There is no ponding within the fire route under normal operating conditions.

6.0 EROSION AND SEDIMENT CONTROL

Per City of Burlington Stormwater Management Design guidelines, temporary erosion and sediment controls must be provided and maintained on-site.

Erosion and sediment controls must be installed prior to the commencement of any construction. The erosion and sediment control devices should follow the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority. Erosion and sediment control measures may be implemented as follows:

- **Double Wrapped Catchbasins:** The proposed storm sewer catchbasins and catchbasin manholes located within the subject site and adjacent municipal roads shall be double-wrapped in a woven geotextile material. Woven geotextile material is to be replaced periodically when accumulated sediments interfere with drainage. The abutting streets should be monitored and if required, swept to mitigate the accumulation of tracked material on the roads on a routine basis in keeping with good construction housekeeping practices.
- **Stone Access Pad:** A stone access mat will be installed at the entrance to the construction zone to prevent mud tracking from the site to the municipal roads.
- **Silt Fencing:** Silt fence will be installed along the property line to intercept sheet flow.
- **Street Sweeping:** The abutting streets should be monitored and if required, the owner shall ensure that streets shall be swept to mitigate the accumulation of tracked material on the roads on a routine basis in keeping with good construction housekeeping practices.

7.0 SUMMARY

The information presented in this Functional Servicing Report demonstrates that the proposed development can be serviced by the existing infrastructure for water, wastewater, and stormwater and can meet the City of Burlington stormwater management criteria. The following is a summary of the report findings:

- Water servicing will be by a 200 mm diameter fire service with an 'h' connection for a 100 mm diameter domestic service. The service connection will be to the existing 200 mm diameter watermain on South Service Road.
- Sanitary servicing will be by a 200 mm diameter sanitary lateral to the existing 375 mm diameter sanitary sewer within the easement along the east property boundary.

- 100-year post-development peak discharge is to be controlled to the 5-year pre-development peak rate. Runoff from the roof is controlled using roof drains while surface runoff is stored within an ACO stormwater storage system below the parking lot and released through a 2.0 m, 200 mm diameter orifice tube. The combined release from the uncontrolled drainage, the roof discharge, and the underground discharge does not exceed the 5-year pre-development flow rate.
- The storm service connection is by way of a 300 mm diameter PVC storm lateral connected to the existing 375 mm diameter storm sewer within the easement along the east property boundary.
- The stormwater storage system provides the required storage of 186.1 m³ with a total volume of 193.4 m³.
- No infiltration is proposed at this time as a result of the soil conditions.
- MECP enhanced treatment and 80% long term TSS removal is achieved through a HydroDome HD6.
- The grading of the site is designed to ensure the 100-year storm event is captured while providing an emergency overland flow route.
- Erosion and sediment controls will be implemented during construction in accordance with the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority.

Based on the above, we support the proposed development for a Site Plan Application from a civil engineering perspective.

Should you have any questions, do not hesitate to contact the undersigned.

PREPARED BY TRAFALGAR ENGINEERING LTD.



M. Wallace, EIT
Senior Designer



N. Sylvester, P.Eng.
Principal

Appendix 'A'

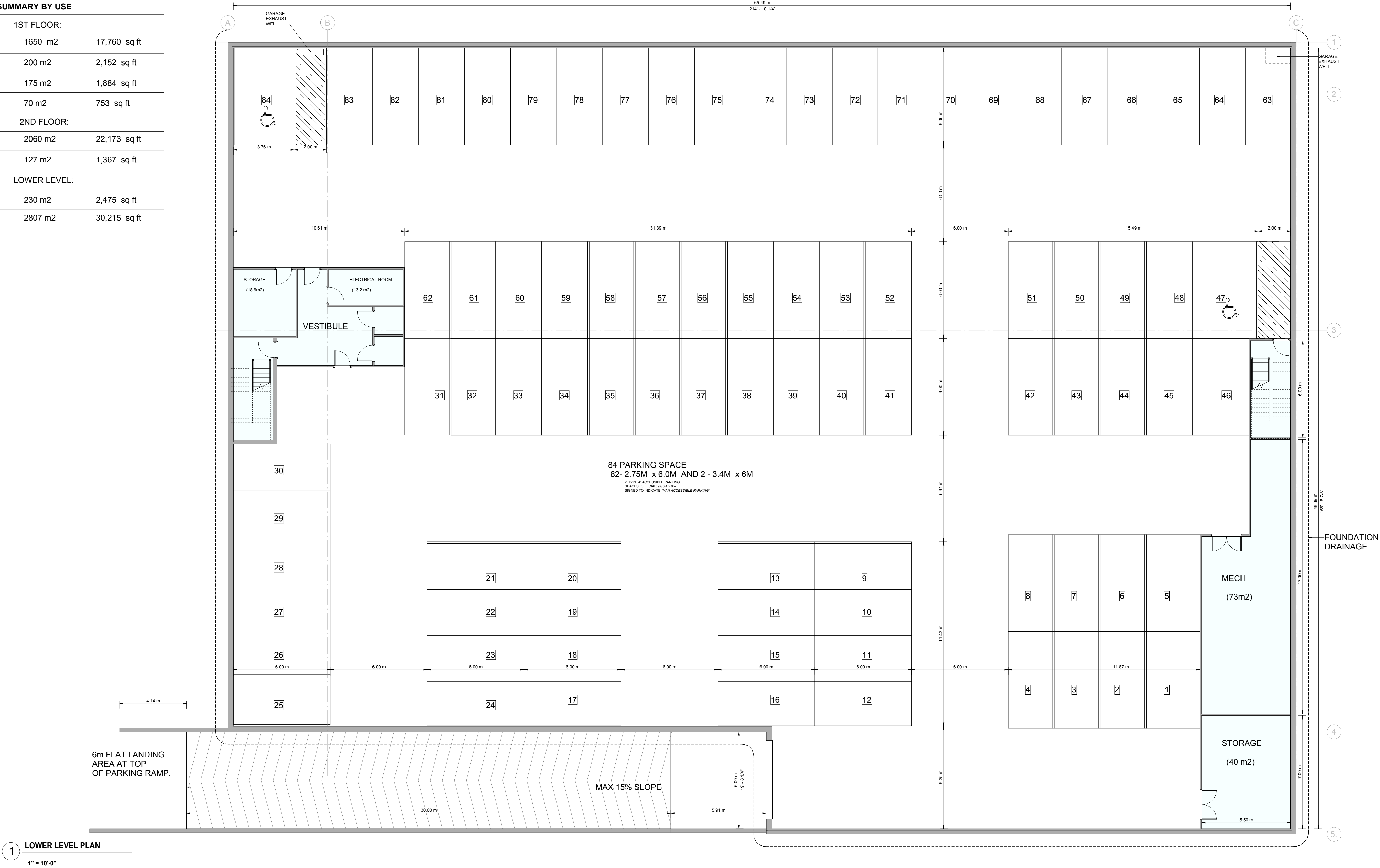
Topographic Survey (J.H. Gelbloom LTD.)

Site Plan (Cuadro Arch Ltd.)

BUILDING AREA		
1ST FLOOR:	2525 m2	27,178 sq ft
2ND FLOOR:	2438 m2	26,242 sq ft
LOWER LEVEL:	200 m2	2,152 sq ft

BUILDING AREA SUMMARY BY USE

1ST FLOOR:		
DATA HALL	1650 m2	17,760 sq ft
OFFICE	200 m2	2,152 sq ft
SERVICE AREA	175 m2	1,884 sq ft
LOBBY	70 m2	753 sq ft
2ND FLOOR:		
DATA HALL	2060 m2	22,173 sq ft
SERVICE AREA	127 m2	1,367 sq ft
LOWER LEVEL:		
SERVICE AREA	230 m2	2,475 sq ft
PARKING	2807 m2	30,215 sq ft



12 MADISON AVE. TORONTO, M5R 2S1, ON
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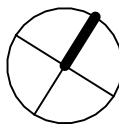
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• ARCHITECTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH PROJECT MANUALS AND SPECIFICATIONS AND THE STRUCTURAL, MECHANICAL, ELECTRICAL AND LANDSCAPE DRAWINGS & SPECIFICATIONS. IN CASES OF DISCREPANCIES BETWEEN CONSULTANTS' DOCUMENTS WITH RESPECT TO QUALITY, SIZES OF SCOPE OF WORK, THE CREATOR SHALL APPLY.

PROJECT TITLE:
Two storey Data Center

3110 S Service Rd, Burlington, ON L7N 3J3

STAMP:



NOTES:

DRAWING NAME:

LOWER LEVEL

SCALE:	AS NOTED
DRAWN BY:	SR
CHECKED BY:	EG
DATE:	2026-05-19 10:37:35 AM
SHEET SIZE:	24" x 36"

A-02-1

Appendix 'B'

Estimated Water Demand

TRAFALGAR ENGINEERING LTD.

ESTIMATED WATER DEMAND

Project: 3110 South Service Road
Desc: 1st Submission SPA

Project No.: 1898
Prepared By: MW
Checked By: NAS

Occupancy Data						Peaking Factors			Demand Flow		
Land Use / Occupancy Type	GFA (m ²)	Population Density (m ² /employee)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Commercial	5163	37	139	190	18	1.00	3.00	1.90	18	55	35
*Per Cap. Demand based on O.B.C. Table 8.2.1.3.B. – 5 L/1.0m ² Stores											
TOTAL	5163		139		18				18	55	35

Fire Flow
Using Fire Underwriters Survey Methodology:

Average Daily Demand: 18 (L/min)
Minimum Hourly Demand: 18 (L/min)
Maximum Hourly Demand: 55 (L/min)
Maximum Daily Demand: 35 (L/min)
Max. Daily Plus Fire: 8035 (L/min)

- An estimate of the fire flow is given by the formula** $F = 220C\sqrt{A}$

Where:
 F = The required fire flow in litres per minute
 C = Coefficient related to the type of construction
 A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: **Non-Combustible** Coefficient: 0.80 Total Floor Area: **5163** (m²)

F = 13000 (L/min) Adequately Protected Vertical Openings: **No**

- Adjust the value in No. 1 for occupancy surcharge/reduction**

Occupancy Contents: **Non-Combustible** Factor: -25%

F = 9750 (L/min)

- Adjust the value in No. 2 for sprinkler**

NFPA 13 Sprinkler:	Yes	Reduction:	20%
Standard Water Supply:	Yes	Reduction:	10%
Fully Supervised:	Yes	Reduction:	10%
Total Reduction:		40%	
Sprinkler Reduction:		3900 (L/min)	

- Adjust the value in No. 2 for exposure**

Separation (m)	Charge
North	160 0%
East	23 10%
South	27 10%
West	90 0%
Total Charge:	20%
Exposure Charge:	1950 (L/min)

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

- Estimated Fire Flow is value in No. 2 less Sprinkler Reduction plus Exposure Charge, rounded to the nearest 1000**

F = 8000 (L/min)

Appendix 'C'

Estimated Sanitary Flow

TRAFALGAR ENGINEERING LTD.

ESTIMATED SANITARY FLOW

Project: 3110 South Service Road
Desc: 1st Submission SPA

Project No.: 1898
Prepared By: MW
Checked By: NAS

Residential

Land Use / Occupancy Type	Unit Count	Population Density (pers/unit)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
TOTAL	0		0		0.0

Industrial / Commercial / Institutional

Land Use / Occupancy Type	GFA	Population Density (m2/emp)	Eq. Population (cap.)	Per Cap. Demand (L/emp/day)	Average Daily Dry Weather Flow (L/s)
Commercial	5163	37.4	138	185	0.3
TOTAL	5163		138		0.3

Residential Peaking Factor: 4.50
ICI Peaking Factor: 4.20
Include ICI Peaking? **Yes**
Tributary Area: **0.79** (ha)
Infiltration Allowance: **0.28** (L/s ha)
Foundation Drain Allowance: **0.00** (L/s ha)

Residential Average Flow: 0.00 (L/s)
ICI Average Flow: 0.30 (L/s)
Infiltration Allowance : 0.22 (L/s)
Total Average Flow: 0.52 (L/s)

Residential Peak Flow: 0.00 (L/s)
ICI Peak Flow: 1.24 (L/s)
Infiltration Allowance : 0.22 (L/s)
Total Peak Flow: 1.46 (L/s)

Appendix 'D'

Rational Method Runoff Coefficient Calculations

Pre-Development Rational Flow (City of Burlington Criteria)

Pre-and Post-Development Rational Flow (MTO Criteria)

HydroCAD Summaries and Results

Pre-Development Drainage Plan (F1)

Post Development Drainage Plan (F2)

Post Development Drainage Plan MTO Criteria (F3)

Orifice Tube Sizing Calculations

HydroDome HD6 Sizing Report

HydroDome HD6 ETV Verification

ACO Stormbrixx 900SD Sizing Report

TRAFALGAR ENGINEERING LTD.

COMPOSITE RUNOFF COEFFICIENT

Project: 3110 South Service Road
Desc: Proposed 3-Storey Commercial

Project No.: 1898
Prepared By: MW
Checked By: NAS

Pre-Development Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Impervious	6505	0.90	5855	100%	6505
Pervious	1439	0.25	360	0%	-
			-		-
Totals	7944		6214		6505
$C = 'AC'/'A' = 0.78$ $\%I = 'AI'/'A' = 82\%$ $MAX\ C = 0.50$					

External Drainage Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
			-		-
Totals	-		-		-
$C = 'AC'/'A' = -$ $\%I = 'AI'/'A' = -$					

Post-Development Controlled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Pervious	1639	0.25	410	0%	-
Impervious	6305	0.90	5675	100%	6305
			-		-
Totals	7944		6084		6305
$C = 'AC'/'A' = 0.77$ $\%I = 'AI'/'A' = 79\%$					

Post-Development Uncontrolled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
			-		-
Totals	-		-		-
$C = 'AC'/'A' = -$ $\%I = 'AI'/'A' = -$					

TRAFALGAR ENGINEERING LTD.

PRE-DEVELOPMENT RATIONAL METHOD FLOWS

Based on City of Burlington IDF Data & a Max Runoff Coefficient of C=0.50

Project: 3110 South Service Road
Desc: Proposed 3-Storey Commercial

Project No.: 1898
Prepared By: MW
Checked By: NAS

Pre-Development Parameters

	Site	External	Total
'C'	0.500	0.000	0.500
'A' (ha)	0.794	0.000	0.794
'AC'	0.397	0.000	0.397

Pre-Development Flow

	Intensity (mm/hr)	Site Flow (L/s)	External Flow (L/s)	Total Flow (L/s)
Return				
2-yr	78.4	86	0	86
5-yr	101.3	112	0	112
10-yr	116.3	128	0	128
25-yr	135.4	164	0	164
50-yr	149.3	198	0	198
100-yr	163.2	225	0	225

Flows have been adjusted using 25-, 50-, and 100-yr factors of 1.1, 1.2, and 1.25 (To a maximum C of 1.0)

P:\1898 3110 South Service\01-Calculations\01-SWM\[1898 Rational Flow.xlsm]1.1B RC

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TRAFALGAR ENGINEERING LTD.

PRE- AND POST-DEVELOPMENT RATIONAL METHOD FLOWS

Based on City of Burlington IDF Data to Satisfy MTO Drainage Criteria

Project: 3110 South Service Road
Desc: Proposed 3-Storey Commercial

Project No.: 1898
Prepared By: MW
Checked By: NAS

Pre-Development Parameters

	Site	External	Total
'C'	0.782	0.000	0.782
'A' (ha)	0.794	0.000	0.794
'AC'	0.621	0.000	0.621

Pre-Development Flow

Return	Intensity (mm/hr)	Site Flow (L/s)	External Flow (L/s)	Total Flow (L/s)
2-yr	78.4	135	0	135
5-yr	101.3	175	0	175
10-yr	116.3	201	0	201
25-yr	135.4	257	0	257
50-yr	149.3	309	0	309
100-yr	163.2	352	0	352

Flows have been adjusted using 25-, 50-, and 100-yr factors of 1.1, 1.2, and 1.25 (To a maximum C of 1.0)

Post-Development Parameters

	Controlled	Uncontrolled	External	Total
'C'	0.766	0.000	0.000	0.766
'A' (ha)	0.794	0.000	0.000	0.794
'AC'	0.608	0.000	0.000	0.608

Post-Development Flow

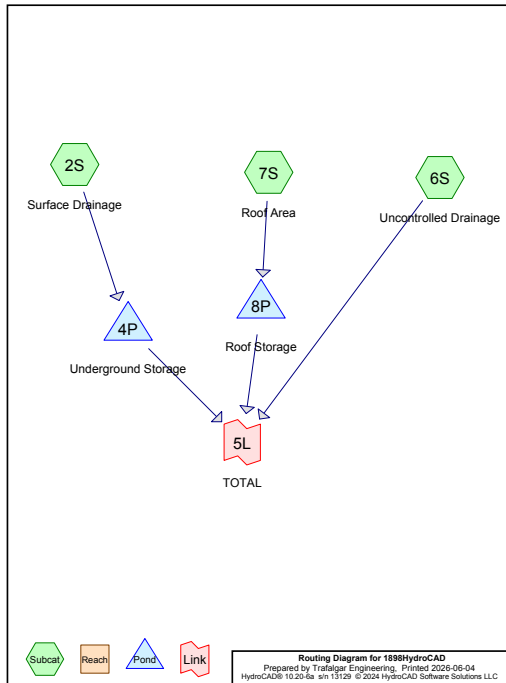
Return	Intensity (mm/hr)	Uncontrolled Flow (L/s)	Peak Rooftop Flow (L/s)	External Flow (L/s)	Total Flow (L/s)
2-yr	78.4	132	0	0	132
5-yr	101.3	171	0	0	171
10-yr	116.3	197	0	0	197
25-yr	135.4	252	0	0	252
50-yr	149.3	303	0	0	303
100-yr	163.2	345	0	0	345

Flows have been adjusted using 25-, 50-, and 100-yr factors of 1.1, 1.2, and 1.25 (To a maximum C of 1.0)

Post-to-Pre Comparison*

Return	Pre-Dev Total (L/s)	Post-Dev Total (L/s)	Percent Change
2-yr	135	132	-2%
5-yr	175	171	-2%
10-yr	201	197	-2%
25-yr	257	252	-2%
50-yr	309	303	-2%
100-yr	352	345	-2%

*Storage may be required, refer to Modified Rational Method Storage Calculation and Summary sheets if applicable



Area Listing (all nodes)

Area (hectares)	CN	Description (subcatchment-numbers)
0.2525	98	(7S)
0.1639	74	>75% Grass cover, Good, HSG C (2S, 6S)
0.3780	98	Paved parking, HSG C (2S, 6S)
0.7944	93	TOTAL AREA

Summary for Subcatchment 2S: Surface Drainage

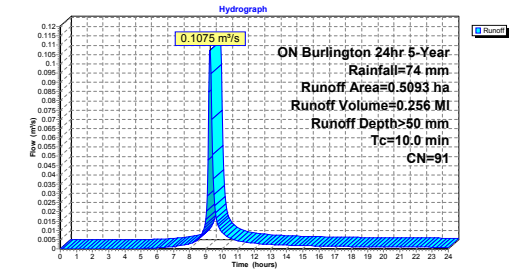
Runoff = 0.1075 m³/s @ 9.26 hrs, Volume= 0.256 MI, Depth= 50 mm
Routed to Pond 4P : Underground Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 5-Year Rainfall=74 mm

Area (ha)	CN	Description
0.1471	74	>75% Grass cover, Good, HSG C
0.3622	98	Paved parking, HSG C
0.5093	91	Weighted Average
0.1471		28.88% Pervious Area
0.3622		71.12% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 2S: Surface Drainage



Hydrograph for Subcatchment 2S: Surface Drainage

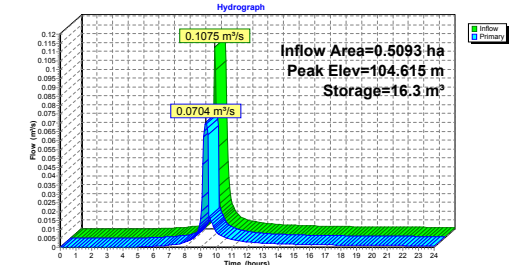
Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m ³ /s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m ³ /s)
0.00	0	0	0.0000	13.25	63	41	0.0022
0.25	0	0	0.0000	13.50	64	41	0.0021
0.50	0	0	0.0000	13.75	64	42	0.0020
0.75	1	0	0.0000	14.00	72	42	0.0020
1.00	1	0	0.0000	14.25	65	42	0.0019
1.25	1	0	0.0000	14.50	65	43	0.0018
1.50	1	0	0.0000	14.75	66	43	0.0018
1.75	2	0	0.0000	15.00	66	43	0.0017
2.00	2	0	0.0000	15.25	66	43	0.0016
2.25	2	0	0.0000	15.50	67	44	0.0016
2.50	3	0	0.0000	15.75	67	44	0.0015
2.75	3	0	0.0000	16.00	67	44	0.0015
3.00	3	0	0.0000	16.25	67	45	0.0015
3.25	3	0	0.0000	16.50	68	45	0.0014
3.50	4	0	0.0000	16.75	68	45	0.0014
3.75	4	0	0.0000	17.00	68	45	0.0013
4.00	5	0	0.0000	17.25	69	45	0.0013
4.25	5	0	0.0000	17.50	69	46	0.0013
4.50	5	0	0.0000	17.75	69	46	0.0013
4.75	6	0	0.0001	18.00	69	46	0.0012
5.00	6	0	0.0001	18.25	69	46	0.0012
5.25	6	0	0.0002	18.50	70	47	0.0012
5.50	7	0	0.0003	18.75	70	47	0.0012
5.75	7	0	0.0004	19.00	70	47	0.0011
6.00	8	0	0.0005	19.25	70	47	0.0011
6.25	8	0	0.0006	19.50	71	47	0.0011
6.50	9	1	0.0008	19.75	71	48	0.0011
6.75	10	1	0.0010	20.00	71	48	0.0011
7.00	10	1	0.0012	20.25	71	48	0.0010
7.25	11	1	0.0014	20.50	71	48	0.0010
7.50	12	2	0.0017	20.75	72	48	0.0010
7.75	13	2	0.0021	21.00	72	48	0.0010
8.00	14	2	0.0027	21.25	72	49	0.0010
8.25	15	3	0.0035	21.50	72	49	0.0010
8.50	17	4	0.0049	21.75	72	49	0.0009
8.75	20	5	0.0076	22.00	72	49	0.0009
9.00	25	9	0.0160	22.25	73	49	0.0009
9.25	45	25	0.1071	22.50	73	49	0.0009
9.50	50	29	0.0292	22.75	73	50	0.0009
9.75	52	31	0.0130	23.00	73	50	0.0009
10.00	54	32	0.0089	23.25	73	50	0.0009
10.25	55	34	0.0069	23.50	73	50	0.0008
10.50	57	35	0.0057	23.75	74	50	0.0008
10.75	58	35	0.0049	24.00	74	50	0.0008
11.00	58	36	0.0043				
11.25	59	37	0.0039				
11.50	60	38	0.0035				
11.75	60	38	0.0032				
12.00	61	39	0.0030				
12.25	62	39	0.0028				
12.50	62	40	0.0026				
12.75	63	40	0.0025				
13.00	63	40	0.0024				

Summary for Pond 4P: Underground Storage

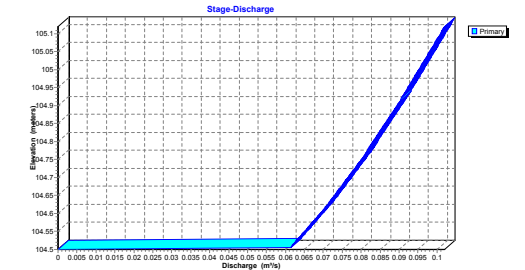
Inflow Area =	0.5093 ha, 71.12% Impervious,	Inflow Depth >	50 mm	for 5-Year event
Inflow =	0.1075 m ³ /s @ 9.26 hrs,	Volume=	0.256 MI	
Outflow =	0.0704 m ³ /s @ 9.35 hrs,	Volume=	0.252 MI,	Atten= 35%, Lag= 5.8 min
Primary =	0.0704 m ³ /s @ 9.35 hrs,	Volume=	0.252 MI	
Routed to Link 5L : TOTAL				
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2				
Peak Elev= 104.615 m @ 9.35 hrs Surf.Area= 145.2 m ² Storage= 16.3 m ³				
Plug-Flow detention time= 13.8 min calculated for 0.252 MI (98% of inflow)				
Center-of-Mass det. time= 2.5 min (672.4 - 670.0)				
Volume	Invert	Avail Storage	Storage Description	
#1	104.500 m	64.4 m ³	ACO StormBrixx SD 0.5 x 200	
Inside= 603 mmW x 457 mmH => 0.267 m ³ x 1.21 mL = 0.32 m ³				
Outside= 603 mmW x 457 mmH => 0.275 m ³ x 1.21 mL = 0.33 m ³				
Device	Routing	Invert	Outlet Devices	
#1	Primary	103.990 m	Special & User-Defined	
Elev. (meters) 103.990 104.150 104.200 104.240 104.300				
104.380 104.490 104.610 104.750 104.910 105.120				
Disch. (m ³ /s) 0.00000 0.01000 0.02000 0.03000 0.04000 0.05000				
0.06000 0.07000 0.08000 0.09000 0.10200				

Primary OutFlow Max=0.0703 m³/s @ 9.35 hrs HW=104.615 m (Free Discharge)
Special & User-Defined (Custom Controls 0.0703 m³/s)

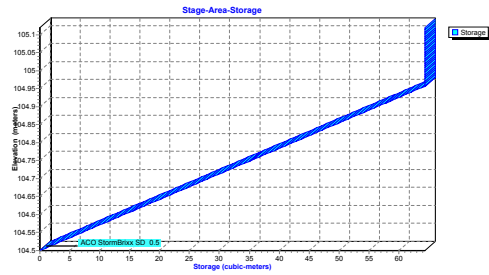
Pond 4P: Underground Storage



Pond 4P: Underground Storage



Pond 4P: Underground Storage



Hydrograph for Pond 4P: Underground Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	104.500	0.0000
0.50	0.0000	0.0	104.500	0.0000
1.00	0.0000	0.0	104.500	0.0000
1.50	0.0000	0.0	104.500	0.0000
2.00	0.0000	0.0	104.500	0.0000
2.50	0.0000	0.0	104.500	0.0000
3.00	0.0000	0.0	104.500	0.0000
3.50	0.0000	0.0	104.500	0.0000
4.00	0.0000	0.0	104.500	0.0000
4.50	0.0000	0.0	104.500	0.0000
5.00	0.0001	0.0	104.500	0.0001
5.50	0.0003	0.0	104.500	0.0003
6.00	0.0005	0.0	104.500	0.0005
6.50	0.0008	0.0	104.500	0.0008
7.00	0.0012	0.0	104.500	0.0012
7.50	0.0017	0.0	104.500	0.0017
8.00	0.0027	0.0	104.500	0.0027
8.50	0.0049	0.1	104.500	0.0049
9.00	0.0160	0.2	104.502	0.0158
9.50	0.0292	4.5	104.532	0.0635
10.00	0.0089	0.1	104.501	0.0089
10.50	0.0057	0.1	104.501	0.0057
11.00	0.0043	0.1	104.500	0.0043
11.50	0.0035	0.1	104.500	0.0035
12.00	0.0030	0.0	104.500	0.0030
12.50	0.0026	0.0	104.500	0.0026
13.00	0.0024	0.0	104.500	0.0024
13.50	0.0021	0.0	104.500	0.0021
14.00	0.0020	0.0	104.500	0.0020
14.50	0.0018	0.0	104.500	0.0018
15.00	0.0017	0.0	104.500	0.0017
15.50	0.0016	0.0	104.500	0.0016
16.00	0.0015	0.0	104.500	0.0015
16.50	0.0014	0.0	104.500	0.0014
17.00	0.0013	0.0	104.500	0.0013
17.50	0.0013	0.0	104.500	0.0013
18.00	0.0012	0.0	104.500	0.0012
18.50	0.0012	0.0	104.500	0.0012
19.00	0.0011	0.0	104.500	0.0011
19.50	0.0011	0.0	104.500	0.0011
20.00	0.0011	0.0	104.500	0.0011
20.50	0.0010	0.0	104.500	0.0010
21.00	0.0010	0.0	104.500	0.0010
21.50	0.0010	0.0	104.500	0.0010
22.00	0.0009	0.0	104.500	0.0009
22.50	0.0009	0.0	104.500	0.0009
23.00	0.0009	0.0	104.500	0.0009
23.50	0.0008	0.0	104.500	0.0008
24.00	0.0008	0.0	104.500	0.0008

Stage-Discharge for Pond 4P: Underground Storage

Elevation (meters)	Primary (m³/s)	Primary (meters)	Elevation (meters)	Primary (m³/s)
104.500	0.0000	104.765	0.0000	105.030
104.505	0.0612	104.770	0.0812	105.035
104.510	0.0617	104.775	0.0816	105.040
104.515	0.0621	104.780	0.0819	105.045
104.520	0.0625	104.785	0.0822	105.050
104.525	0.0629	104.790	0.0825	105.055
104.530	0.0633	104.795	0.0828	105.060
104.535	0.0638	104.800	0.0831	105.065
104.540	0.0642	104.805	0.0834	105.070
104.545	0.0646	104.810	0.0838	105.075
104.550	0.0650	104.815	0.0841	105.080
104.555	0.0654	104.820	0.0844	105.085
104.560	0.0658	104.825	0.0847	105.090
104.565	0.0663	104.830	0.0850	105.095
104.570	0.0667	104.835	0.0853	105.100
104.575	0.0671	104.840	0.0856	105.105
104.580	0.0675	104.845	0.0859	105.110
104.585	0.0679	104.850	0.0862	105.115
104.590	0.0683	104.855	0.0866	105.120
104.595	0.0688	104.860	0.0869	
104.600	0.0692	104.865	0.0872	
104.605	0.0696	104.870	0.0875	
104.610	0.0700	104.875	0.0878	
104.615	0.0704	104.880	0.0881	
104.620	0.0707	104.885	0.0884	
104.625	0.0711	104.890	0.0888	
104.630	0.0714	104.895	0.0891	
104.635	0.0718	104.900	0.0894	
104.640	0.0721	104.905	0.0897	
104.645	0.0725	104.910	0.0900	
104.650	0.0729	104.915	0.0903	
104.655	0.0733	104.920	0.0906	
104.660	0.0736	104.925	0.0909	
104.665	0.0739	104.930	0.0911	
104.670	0.0743	104.935	0.0914	
104.675	0.0746	104.940	0.0917	
104.680	0.0750	104.945	0.0920	
104.685	0.0754	104.950	0.0923	
104.690	0.0757	104.955	0.0926	
104.695	0.0761	104.960	0.0929	
104.700	0.0764	104.965	0.0931	
104.705	0.0768	104.970	0.0934	
104.710	0.0771	104.975	0.0937	
104.715	0.0775	104.980	0.0940	
104.720	0.0779	104.985	0.0943	
104.725	0.0782	104.990	0.0946	
104.730	0.0786	104.995	0.0949	
104.735	0.0789	105.000	0.0951	
104.740	0.0793	105.005	0.0954	
104.745	0.0796	105.010	0.0957	
104.750	0.0800	105.015	0.0960	
104.755	0.0803	105.020	0.0963	
104.760	0.0806	105.025	0.0966	

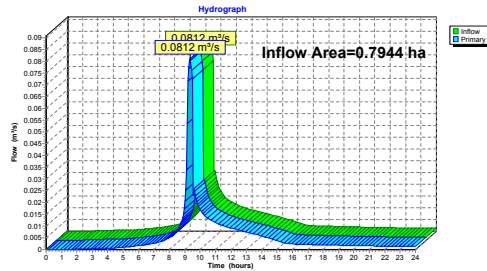
Stage-Area-Storage for Pond 4P: Underground Storage

Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)
104.500	0.0	104.765	37.3	105.030	64.4
104.505	0.7	104.770	38.0	105.035	64.4
104.510	1.4	104.775	38.7	105.040	64.4
104.515	2.1	104.780	39.4	105.045	64.4
104.520	2.8	104.785	40.1	105.050	64.4
104.525	3.5	104.790	40.8	105.055	64.4
104.530	4.2	104.795	41.5	105.060	64.4
104.535	4.9	104.800	42.3	105.065	64.4
104.540	5.6	104.805	43.0	105.070	64.4
104.545	6.3	104.810	43.7	105.075	64.4
104.550	7.0	104.815	44.4	105.080	64.4
104.555	7.7	104.820	45.1	105.085	64.4
104.560	8.5	104.825	45.8	105.090	64.4
104.565	9.2	104.830	46.5	105.095	64.4
104.570	9.9	104.835	47.2	105.100	64.4
104.575	10.6	104.840	47.9	105.105	64.4
104.580	11.3	104.845	48.6	105.110	64.4
104.585	12.0	104.850	49.3	105.115	64.4
104.590	12.7	104.855	50.0	105.120	64.4
104.595	13.4	104.860	50.7		
104.600	14.1	104.865	51.4		
104.605	14.8	104.870	52.1		
104.610	15.5	104.875	52.8		
104.615	16.2	104.880	53.5		
104.620	16.9	104.885	54.2		
104.625	17.6	104.890	54.9		
104.630	18.3	104.895	55.6		
104.635	19.0	104.900	56.3		
104.640	19.7	104.905	57.0		
104.645	20.4	104.910	57.7		
104.650	21.1	104.915	58.5		
104.655	21.8	104.920	59.2		
104.660	22.5	104.925	59.9		
104.665	23.2	104.930	60.6		
104.670	23.9	104.935	61.3		
104.675	24.6	104.940	62.0		
104.680	25.4	104.945	62.7		
104.685	26.1	104.950	63.4		
104.690	26.8	104.955	64.1		
104.695	27.5	104.960	64.4		
104.700	28.2	104.965	64.4		
104.705	28.9	104.970	64.4		
104.710	29.6	104.975	64.4		
104.715	30.3	104.980	64.4		
104.720	31.0	104.985	64.4		
104.725	31.7	104.990	64.4		
104.730	32.4	104.995	64.4		
104.735	33.1	105.000	64.4		
104.740	33.8	105.005	64.4		
104.745	34.5	105.010	64.4		
104.750	35.2	105.015	64.4		
104.755	35.9	105.020	64.4		
104.760	36.6	105.025	64.4		

Summary for Link 5L: TOTAL

Inflow Area = 0.7944 ha, 79.37% Impervious, Inflow Depth > 55 mm for 5-Year event
Inflow = 0.0812 m³/s @ 9.34 hrs, Volume= 0.436 MI
Primary = 0.0812 m³/s @ 9.34 hrs, Volume= 0.436 MI, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 5L: TOTAL



Hydrograph for Link 5L: TOTAL

Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)	Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.000	0.0000	13.25	0.0071	0.000	0.0071
0.25	0.0000	0.000	0.0000	13.50	0.0067	0.000	0.0067
0.50	0.0000	0.000	0.0000	13.75	0.0062	0.000	0.0062
0.75	0.0000	0.000	0.0000	14.00	0.0057	0.000	0.0057
1.00	0.0000	0.000	0.0000	14.25	0.0053	0.000	0.0053
1.25	0.0000	0.000	0.0000	14.50	0.0048	0.000	0.0048
1.50	0.0001	0.000	0.0001	14.75	0.0042	0.000	0.0042
1.75	0.0001	0.000	0.0001	15.00	0.0037	0.000	0.0037
2.00	0.0002	0.000	0.0002	15.25	0.0031	0.000	0.0031
2.25	0.0002	0.000	0.0002	15.50	0.0026	0.000	0.0026
2.50	0.0003	0.000	0.0003	15.75	0.0025	0.000	0.0025
2.75	0.0003	0.000	0.0003	16.00	0.0024	0.000	0.0024
3.00	0.0004	0.000	0.0004	16.25	0.0023	0.000	0.0023
3.25	0.0004	0.000	0.0004	16.50	0.0023	0.000	0.0023
3.50	0.0005	0.000	0.0005	16.75	0.0022	0.000	0.0022
3.75	0.0005	0.000	0.0005	17.00	0.0022	0.000	0.0022
4.00	0.0006	0.000	0.0006	17.25	0.0021	0.000	0.0021
4.25	0.0007	0.000	0.0007	17.50	0.0021	0.000	0.0021
4.50	0.0007	0.000	0.0007	17.75	0.0020	0.000	0.0020
4.75	0.0008	0.000	0.0008	18.00	0.0020	0.000	0.0020

Summary for Subcatchment 6S: Uncontrolled Drainage

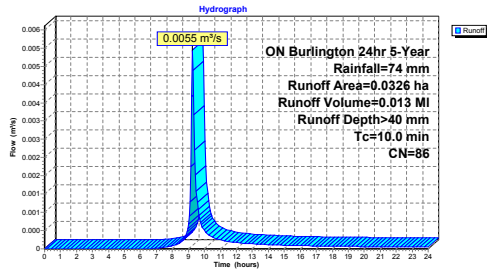
Runoff = 0.0055 m³/s @ 9.26 hrs, Volume= 0.013 MI, Depth> 40 mm
Routed to Link SL: TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 5-Year Rainfall=74 mm

Area (ha)	CN	Description
0.0158	98	Paved parking, HSG C
0.0168	74	>75% Grass cover, Good, HSG C
0.0326	86	Weighted Average
0.0168		51.53% Pervious Area
0.0168		48.47% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 6S: Uncontrolled Drainage



Hydrograph for Subcatchment 6S: Uncontrolled Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	63	32	0.0001
0.25	0	0	0.0000	13.50	64	32	0.0001
0.50	0	0	0.0000	13.75	64	32	0.0001
0.75	1	0	0.0000	14.00	65	32	0.0001
1.00	1	0	0.0000	14.25	65	33	0.0001
1.25	1	0	0.0000	14.50	65	33	0.0001
1.50	1	0	0.0000	14.75	66	33	0.0001
1.75	2	0	0.0000	15.00	66	34	0.0001
2.00	2	0	0.0000	15.25	66	34	0.0001
2.25	2	0	0.0000	15.50	67	34	0.0001
2.50	3	0	0.0000	15.75	67	34	0.0001
2.75	3	0	0.0000	16.00	67	35	0.0001
3.00	3	0	0.0000	16.25	67	35	0.0001
3.25	3	0	0.0000	16.50	68	35	0.0001
3.50	4	0	0.0000	16.75	68	35	0.0001
3.75	4	0	0.0000	17.00	68	36	0.0001
4.00	5	0	0.0000	17.25	69	36	0.0001
4.25	5	0	0.0000	17.50	69	36	0.0001
4.50	5	0	0.0000	17.75	69	36	0.0001
4.75	6	0	0.0000	18.00	69	36	0.0001
5.00	6	0	0.0000	18.25	69	37	0.0001
5.25	6	0	0.0000	18.50	70	37	0.0001
5.50	7	0	0.0000	18.75	70	37	0.0001
5.75	7	0	0.0000	19.00	70	37	0.0001
6.00	8	0	0.0000	19.25	70	37	0.0001
6.25	8	0	0.0000	19.50	71	37	0.0001
6.50	9	0	0.0000	19.75	71	38	0.0001
6.75	10	0	0.0000	20.00	71	38	0.0001
7.00	10	0	0.0000	20.25	71	38	0.0001
7.25	11	0	0.0000	20.50	71	38	0.0001
7.50	12	0	0.0000	20.75	72	38	0.0001
7.75	13	0	0.0001	21.00	72	38	0.0001
8.00	14	1	0.0001	21.25	72	39	0.0001
8.25	15	1	0.0001	21.50	72	39	0.0001
8.50	17	2	0.0002	21.75	72	39	0.0001
8.75	20	2	0.0003	22.00	72	39	0.0001
9.00	25	5	0.0007	22.25	73	39	0.0001
9.25	45	17	0.0044	22.50	73	39	0.0001
9.50	50	21	0.0016	22.75	73	39	0.0001
9.75	52	23	0.0007	23.00	73	40	0.0001
10.00	54	24	0.0005	23.25	73	40	0.0001
10.25	55	25	0.0004	23.50	73	40	0.0000
10.50	57	26	0.0003	23.75	74	40	0.0000
10.75	58	27	0.0003	24.00	74	40	0.0000
11.00	58	27	0.0002				
11.25	59	28	0.0002				
11.50	60	29	0.0002				
11.75	60	29	0.0002				
12.00	61	30	0.0002				
12.25	62	30	0.0002				
12.50	62	30	0.0002				
12.75	63	31	0.0001				
13.00	63	31	0.0001				

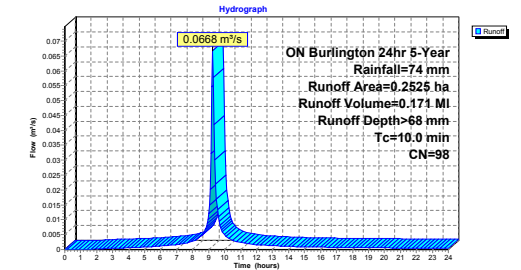
Summary for Subcatchment 7S: Roof Area

Runoff = 0.0668 m³/s @ 9.25 hrs, Volume= 0.171 MI, Depth> 68 mm
Routed to Pond 8P: Roof Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 5-Year Rainfall=74 mm

Area (ha)	CN	Description			
0.2525	98				
0.2525		100.00% Impervious Area			
Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

Subcatchment 7S: Roof Area



Hydrograph for Subcatchment 7S: Roof Area

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	63	58	0.0012
0.25	0	0	0.0000	13.50	64	58	0.0012
0.50	0	0	0.0000	13.75	64	58	0.0011
0.75	1	0	0.0000	14.00	65	59	0.0011
1.00	1	0	0.0000	14.25	65	59	0.0010
1.25	1	0	0.0000	14.50	65	59	0.0010
1.50	1	0	0.0001	14.75	66	60	0.0009
1.75	2	0	0.0001	15.00	66	60	0.0009
2.00	2	0	0.0002	15.25	66	60	0.0009
2.25	2	0	0.0002	15.50	67	61	0.0009
2.50	3	0	0.0003	15.75	67	61	0.0008
2.75	3	0	0.0004	16.00	67	61	0.0008
3.00	3	1	0.0004	16.25	67	62	0.0008
3.25	3	1	0.0005	16.50	68	62	0.0008
3.50	4	1	0.0005	16.75	68	62	0.0007
3.75	4	1	0.0006	17.00	68	62	0.0007
4.00	5	1	0.0006	17.25	69	63	0.0007
4.25	5	2	0.0007	17.50	69	63	0.0007
4.50	5	2	0.0007	17.75	69	63	0.0007
4.75	6	2	0.0008	18.00	69	63	0.0007
5.00	6	2	0.0008	18.25	69	64	0.0006
5.25	6	3	0.0009	18.50	70	64	0.0006
5.50	7	3	0.0010	18.75	70	64	0.0006
5.75	7	4	0.0011	19.00	70	64	0.0006
6.00	8	4	0.0011	19.25	70	64	0.0006
6.25	8	4	0.0012	19.50	71	65	0.0006
6.50	9	5	0.0014	19.75	71	65	0.0006
6.75	10	6	0.0017	20.00	71	65	0.0006
7.00	10	6	0.0017	20.25	71	65	0.0006
7.25	11	7	0.0018	20.50	71	65	0.0005
7.50	12	7	0.0021	20.75	72	66	0.0005
7.75	13	8	0.0024	21.00	72	66	0.0005
8.00	14	9	0.0028	21.25	72	66	0.0005
8.25	15	11	0.0034	21.50	72	66	0.0005
8.50	17	12	0.0044	21.75	72	66	0.0005
8.75	20	15	0.0063	22.00	72	67	0.0005
9.00	25	19	0.0120	22.25	73	67	0.0005
9.25	45	39	0.0667	22.50	73	67	0.0005
9.50	50	44	0.0168	22.75	73	67	0.0005
9.75	52	47	0.0073	23.00	73	67	0.0005
10.00	54	49	0.0049	23.25	73	67	0.0005
10.25	55	50	0.0038	23.50	73	68	0.0005
10.50	57	51	0.0031	23.75	74	68	0.0004
10.75	58	52	0.0027	24.00	74	68	0.0004
11.00	58	53	0.0024				
11.25	59	53	0.0021				
11.50	60	54	0.0019				
11.75	60	55	0.0018				
12.00	61	55	0.0016				
12.25	62	56	0.0015				
12.50	62	56	0.0014				
12.75	63	57	0.0014				
13.00	63	57	0.0013				

Summary for Pond 8P: Roof Storage

Inflow Area = 0.2525 ha, 100.00% Impervious, Inflow Depth > 68 mm for 5-Year event
Inflow = 0.0668 m³/s @ 9.25 hrs, Volume= 0.171 MI
Outflow = 0.0076 m³/s @ 9.74 hrs, Volume= 0.171 MI, Atten= 89%, Lag= 28.9 min
Primary = 0.0076 m³/s @ 9.74 hrs, Volume= 0.171 MI
Routed to Link SL: TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.122 m @ 9.74 hrs Surf.Area= 1,624.2 m² Storage= 66.0 m³

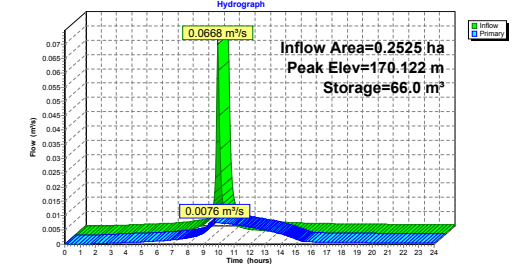
Plug-Flow detention time= 70.1 min calculated for 0.171 MI (100% of inflow)
Center-of-Mass det. time= 70.0 min (69.1 - 62.5.1)

Volume	Invert	Avail. Storage	Storage Description		
#1	170.000 m	249.1 m ³	Custom Stage Data (Pyramidal) listed below (Recalc)		
Elevation (meters)	Surf Area (sq-meters)	Inc. Store (cubic-meters)	Cum. Store (cubic-meters)	Wet Area (sq-meters)	
170.000	0.0	0.0	0.0	0.0	
170.152	2,525.0	127.9	127.9	2,525.0	
170.200	2,525.0	121.2	249.1	2,534.7	

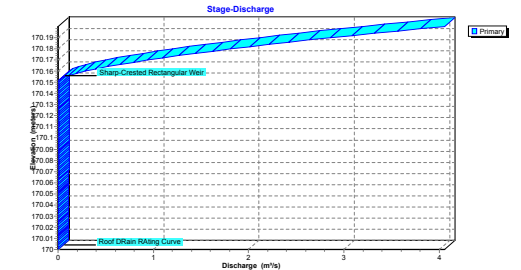
Device	Routing	Invert	Outlet Devices
#1	Primary	170.000 m	Roof Drain Rating Curve X 5.00 Head (meters) 0.000 0.013 0.025 0.038 0.051 0.064 0.076 Disch. (m³/s) 0.00000 0.00016 0.00031 0.00047 0.00063 0.00079 0.00095 0.00110 0.00126 0.00142 0.00158 0.00174 0.00189
#2	Primary	170.152 m	213.00 m long Sharp-Crested Rectangular Weir 0 End Contraction(s)

Primary OutFlow Max=0.0076 m³/s @ 9.74 hrs HW=170.122 m (Free Discharge)
1=Roof Drain Rating Curve (Custom Controls 0.0076 m³/s)
2=Sharp-Crested Rectangular Weir (Controls 0.0000 m³/s)

Pond 8P: Roof Storage

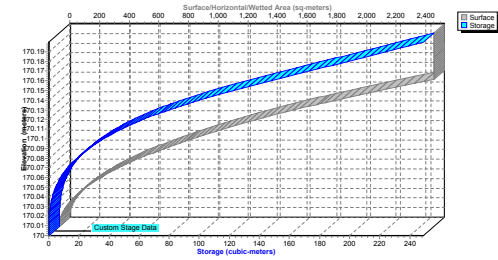


Pond 8P: Roof Storage



Pond 8P: Roof Storage

Stage-Area-Storage



Hydrograph for Pond 8P: Roof Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	170.000	0.0000
0.50	0.0000	0.0	170.000	0.0000
1.00	0.0000	0.0	170.000	0.0000
1.50	0.0001	0.0	170.001	0.0001
2.00	0.0002	0.0	170.003	0.0002
2.50	0.0003	0.0	170.005	0.0003
3.00	0.0004	0.0	170.006	0.0004
3.50	0.0005	0.0	170.008	0.0005
4.00	0.0006	0.0	170.010	0.0006
4.50	0.0007	0.1	170.011	0.0007
5.00	0.0008	0.1	170.013	0.0008
5.50	0.0010	0.1	170.015	0.0010
6.00	0.0011	0.2	170.018	0.0011
6.50	0.0014	0.3	170.021	0.0013
7.00	0.0017	0.5	170.024	0.0015
7.50	0.0021	0.9	170.029	0.0018
8.00	0.0028	1.6	170.036	0.0022
8.50	0.0044	3.4	170.045	0.0028
9.00	0.0120	9.8	170.065	0.0040
9.50	0.0168	63.1	170.120	0.0075
10.00	0.0049	64.6	170.121	0.0075
10.50	0.0031	50.2	170.117	0.0073
11.00	0.0024	50.3	170.111	0.0069
11.50	0.0019	42.1	170.105	0.0065
12.00	0.0016	34.0	170.098	0.0060
12.50	0.0014	26.3	170.090	0.0055
13.00	0.0013	19.2	170.081	0.0050
13.50	0.0012	12.9	170.071	0.0044
14.00	0.0011	7.6	170.059	0.0037
14.50	0.0010	3.6	170.046	0.0029
15.00	0.0009	1.0	170.030	0.0019
15.50	0.0008	0.1	170.016	0.0010
16.00	0.0008	0.1	170.013	0.0008
16.50	0.0008	0.1	170.012	0.0008
17.00	0.0007	0.1	170.012	0.0007
17.50	0.0007	0.1	170.011	0.0007
18.00	0.0007	0.0	170.011	0.0007
18.50	0.0006	0.0	170.010	0.0006
19.00	0.0006	0.0	170.010	0.0006
19.50	0.0006	0.0	170.009	0.0006
20.00	0.0006	0.0	170.009	0.0006
20.50	0.0005	0.0	170.009	0.0005
21.00	0.0005	0.0	170.009	0.0005
21.50	0.0005	0.0	170.008	0.0005
22.00	0.0005	0.0	170.008	0.0005
22.50	0.0005	0.0	170.008	0.0005
23.00	0.0005	0.0	170.007	0.0005
23.50	0.0005	0.0	170.007	0.0005
24.00	0.0004	0.0	170.007	0.0004

Stage-Discharge for Pond 8P: Roof Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
170.000	0.0000	170.053	0.0033	170.106	0.0066	170.159	0.2348
170.001	0.0001	170.054	0.0033	170.107	0.0066	170.160	0.2848
170.002	0.0001	170.055	0.0034	170.108	0.0067	170.161	0.3380
170.003	0.0002	170.056	0.0035	170.109	0.0068	170.162	0.3943
170.004	0.0002	170.057	0.0035	170.110	0.0068	170.163	0.4534
170.005	0.0003	170.058	0.0036	170.111	0.0069	170.164	0.5153
170.006	0.0004	170.059	0.0036	170.112	0.0070	170.165	0.5798
170.007	0.0004	170.060	0.0037	170.113	0.0070	170.166	0.6469
170.008	0.0005	170.061	0.0038	170.114	0.0071	170.167	0.7164
170.009	0.0006	170.062	0.0038	170.115	0.0072	170.168	0.7883
170.010	0.0006	170.063	0.0039	170.116	0.0072	170.169	0.8624
170.011	0.0007	170.064	0.0039	170.117	0.0073	170.170	0.9398
170.012	0.0007	170.065	0.0040	170.118	0.0073	170.171	1.0173
170.013	0.0008	170.066	0.0041	170.119	0.0074	170.172	1.0979
170.014	0.0009	170.067	0.0042	170.120	0.0075	170.173	1.1805
170.015	0.0009	170.068	0.0042	170.121	0.0075	170.174	1.2651
170.016	0.0010	170.069	0.0043	170.122	0.0076	170.175	1.3517
170.017	0.0010	170.070	0.0043	170.123	0.0077	170.176	1.4402
170.018	0.0011	170.071	0.0044	170.124	0.0077	170.177	1.5306
170.019	0.0012	170.072	0.0045	170.125	0.0078	170.178	1.6227
170.020	0.0012	170.073	0.0046	170.126	0.0078	170.179	1.7167
170.021	0.0013	170.074	0.0046	170.127	0.0079	170.180	1.8124
170.022	0.0014	170.075	0.0047	170.128	0.0080	170.181	1.9099
170.023	0.0014	170.076	0.0047	170.129	0.0080	170.182	2.0090
170.024	0.0015	170.077	0.0048	170.130	0.0081	170.183	2.1098
170.025	0.0016	170.078	0.0049	170.131	0.0081	170.184	2.2122
170.026	0.0016	170.079	0.0049	170.132	0.0082	170.185	2.3163
170.027	0.0017	170.080	0.0050	170.133	0.0083	170.186	2.4219
170.028	0.0017	170.081	0.0050	170.134	0.0083	170.187	2.5292
170.029	0.0018	170.082	0.0051	170.135	0.0084	170.188	2.6379
170.030	0.0019	170.083	0.0052	170.136	0.0085	170.189	2.7482
170.031	0.0019	170.084	0.0052	170.137	0.0085	170.190	2.8600
170.032	0.0020	170.085	0.0053	170.138	0.0086	170.191	2.9732
170.033	0.0020	170.086	0.0053	170.139	0.0086	170.192	3.0879
170.034	0.0021	170.087	0.0054	170.140	0.0087	170.193	3.2041
170.035	0.0022	170.088	0.0054	170.141	0.0088	170.194	3.3217
170.036	0.0022	170.089	0.0055	170.142	0.0088	170.195	3.4407
170.037	0.0023	170.090	0.0056	170.143	0.0089	170.196	3.5611
170.038	0.0024	170.091	0.0056	170.144	0.0090	170.197	3.6828
170.039	0.0024	170.092	0.0057	170.145	0.0090	170.198	3.8060
170.040	0.0025	170.093	0.0057	170.146	0.0091	170.199	3.9304
170.041	0.0025	170.094	0.0058	170.147	0.0091	170.200	4.0562
170.042	0.0026	170.095	0.0059	170.148	0.0092		
170.043	0.0027	170.096	0.0059	170.149	0.0093		
170.044	0.0027	170.097	0.0060	170.150	0.0093		
170.045	0.0028	170.098	0.0061	170.151	0.0094		
170.046	0.0028	170.099	0.0061	170.152	0.0094		
170.047	0.0029	170.100	0.0062	170.153	0.0094		
170.048	0.0030	170.101	0.0062	170.154	0.0094		
170.049	0.0030	170.102	0.0063	170.155	0.0094		
170.050	0.0031	170.103	0.0064	170.156	0.0094		
170.051	0.0031	170.104	0.0064	170.157	0.0094		
170.052	0.0032	170.105	0.0065	170.158	0.0094		

Stage-Area-Storage for Pond 8P: Roof Storage

Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)	Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)
170.000	0.0	0.0	170.106	1,228.0	43.4
170.002	0.4	0.0	170.108	1,274.7	45.9
170.004	1.7	0.0	170.110	1,322.4	48.5
170.006	4.3	0.0	170.112	1,370.9	51.2
170.008	7.0	0.0	170.114	1,420.3	54.0
170.010	10.9	0.0	170.116	1,470.6	56.9
170.012	15.7	0.1	170.118	1,521.7	59.9
170.014	21.4	0.1	170.120	1,573.8	63.0
170.016	28.0	0.1	170.122	1,626.8	66.2
170.018	35.4	0.2	170.124	1,680.4	69.5
170.020	43.7	0.3	170.126	1,735.1	72.9
170.022	52.9	0.4	170.128	1,790.6	76.4
170.024	63.0	0.5	170.130	1,847.0	80.0
170.026	73.9	0.6	170.132	1,904.2	83.8
170.028	85.7	0.8	170.134	1,962.4	87.7
170.030	98.4	1.0	170.136	2,021.4	91.6
170.032	111.9	1.2	170.138	2,081.3	95.7
170.034	126.3	1.4	170.140	2,142.1	100.0
170.036	141.6	1.7	170.142	2,203.7	104.3
170.038	157.8	2.0	170.144	2,266.2	108.8
170.040	174.9	2.3	170.146	2,329.6	113.4
170.042	192.8	2.7	170.148	2,393.9	118.1
170.044	211.6	3.1	170.150	2,459.0	122.9
170.046	231.3	3.5	170.152	2,525.0	127.9
170.048	251.8	4.0	170.154	2,592.0	133.0
170.050	273.2	4.6	170.156	2,659.0	138.0
170.052	295.5	5.1	170.158	2,725.0	143.1
170.054	318.7	5.7	170.160	2,792.0	148.3
170.056	342.7	6.4	170.162	2,859.0	153.2
170.058	367.6	7.1	170.164	2,925.0	158.2
170.060	393.4	7.9	170.166	2,992.0	163.3
170.062	420.1	8.7	170.168	3,059.0	168.3
170.064	447.6	9.5	170.170	3,125.0	173.4
170.066	476.1	10.5	170.172	3,192.0	178.4
170.068	505.3	11.5	170.174	3,259.0	183.5
170.070	535.5	12.5	170.176	3,325.0	188.5
170.072	566.6	13.6	170.178	3,392.0	193.6
170.074	598.5	14.8	170.180	3,459.0	198.6
170.076	631.3	16.0	170.182	3,525.0	203.7
170.078	664.9	17.3	170.184	3,592.0	208.7
170.080	699.4	18.7	170.186	3,659.0	213.8
170.082	734.9	20.1	170.188	3,725.0	218.8
170.084	771.1	21.6	170.190	3,792.0	223.9
170.086	808.3	23.2	170.192	3,859.0	228.9
170.088	846.3	24.8	170.194	3,925.0	234.0
170.090	885.2	26.6	170.196	3,992.0	239.1
170.092	925.0	28.4	170.198	4,059.0	244.1
170.094	965.7	30.3	170.200	4,125.0	249.1
170.096	1,007.2	32.2			
170.098	1,049.6	34.3			
170.100	1,092.9	36.4			
170.102	1,137.0	38.7			
170.104	1,182.1	41.0			

Summary for Subcatchment 2S: Surface Drainage</

Summary for Pond 4P: Underground Storage

Inflow Area = 0.5093 ha, 71.12% Impervious, Inflow Depth > 61 mm for 10-Year event
Inflow = 0.1291 m³/s @ 9.26 hrs, Volume= 0.310 MI
Outflow = 0.0758 m³/s @ 9.37 hrs, Volume= 0.310 MI, Atten= 41%, Lag= 6.7 min
Primary = 0.0758 m³/s @ 9.37 hrs, Volume= 0.310 MI
Routed to Link 5L : TOTAL

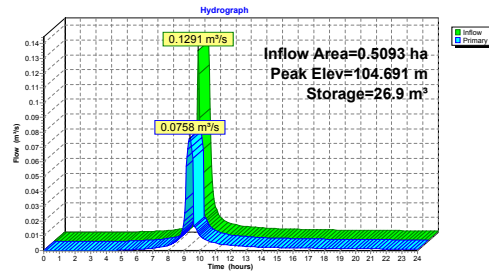
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev=104.691 m @ 9.37 hrs Surf.Area= 145.2 m² Storage= 26.9 m³

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.4 min (666.3 - 664.9)

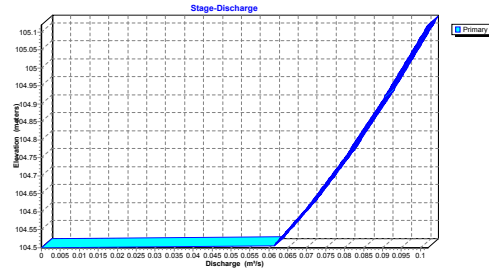
Volume	Invert	Avail.Storage	Storage Description
#1 104.500 m	64.4 m	ACO StormBrix SD 0.5 x 200	
Inside= 603 mmW x 457 mmH => 0.267 m³ x 1.21 mL = 0.32 m³			
Outside= 603 mmW x 457 mmH => 0.275 m³ x 1.21 mL = 0.33 m³			
Device	Routing	Invert	Outlet Devices
#1 Primary	103.990 m	Special & User-Defined	
Elev. (meters) 103.990 104.150 104.200 104.240 104.300			
104.380 104.490 104.610 104.750 104.910 105.120			
Disch. (m³/s) 0.00000 0.01000 0.02000 0.03000 0.04000 0.05000			
0.06000 0.07000 0.08000 0.09000 0.10200			

Primary OutFlow Max=0.0755 m³/s @ 9.37 hrs HW=104.687 m (Free Discharge)
Special & User-Defined (Custom Controls 0.0755 m³/s)

Pond 4P: Underground Storage



Pond 4P: Underground Storage



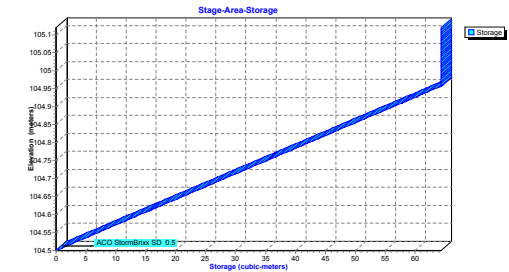
Hydrograph for Pond 4P: Underground Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	104.500	0.0000
0.50	0.0000	0.0	104.500	0.0000
1.00	0.0000	0.0	104.500	0.0000
1.50	0.0000	0.0	104.500	0.0000
2.00	0.0000	0.0	104.500	0.0000
2.50	0.0000	0.0	104.500	0.0000
3.00	0.0000	0.0	104.500	0.0000
3.50	0.0000	0.0	104.500	0.0000
4.00	0.0000	0.0	104.500	0.0000
4.50	0.0011	0.0	104.500	0.0011
5.00	0.0003	0.0	104.500	0.0003
5.50	0.0005	0.0	104.500	0.0005
6.00	0.0008	0.0	104.500	0.0008
6.50	0.0012	0.0	104.500	0.0012
7.00	0.0016	0.0	104.500	0.0016
7.50	0.0024	0.0	104.500	0.0024
8.00	0.0036	0.1	104.501	0.0036
8.50	0.0063	0.1	104.501	0.0063
9.00	0.0198	0.3	104.502	0.0197
9.50	0.0346	16.2	104.615	0.0704
10.00	0.0105	0.2	104.501	0.0105
10.50	0.0067	0.1	104.501	0.0067
11.00	0.0051	0.1	104.501	0.0051
11.50	0.0042	0.1	104.500	0.0042
12.00	0.0036	0.1	104.500	0.0036
12.50	0.0031	0.0	104.500	0.0031
13.00	0.0028	0.0	104.500	0.0028
13.50	0.0025	0.0	104.500	0.0025
14.00	0.0023	0.0	104.500	0.0023
14.50	0.0021	0.0	104.500	0.0021
15.00	0.0020	0.0	104.500	0.0020
15.50	0.0019	0.0	104.500	0.0019
16.00	0.0018	0.0	104.500	0.0018
16.50	0.0017	0.0	104.500	0.0017
17.00	0.0016	0.0	104.500	0.0016
17.50	0.0015	0.0	104.500	0.0015
18.00	0.0014	0.0	104.500	0.0014
18.50	0.0014	0.0	104.500	0.0014
19.00	0.0013	0.0	104.500	0.0013
19.50	0.0013	0.0	104.500	0.0013
20.00	0.0012	0.0	104.500	0.0012
20.50	0.0012	0.0	104.500	0.0012
21.00	0.0012	0.0	104.500	0.0012
21.50	0.0011	0.0	104.500	0.0011
22.00	0.0011	0.0	104.500	0.0011
22.50	0.0011	0.0	104.500	0.0011
23.00	0.0010	0.0	104.500	0.0010
23.50	0.0010	0.0	104.500	0.0010
24.00	0.0010	0.0	104.500	0.0010

Stage-Discharge for Pond 4P: Underground Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
104.500	0.0000	104.765	0.0809	105.030	0.0969
104.505	0.0612	104.770	0.0812	105.035	0.0971
104.510	0.0617	104.775	0.0816	105.040	0.0974
104.515	0.0621	104.780	0.0819	105.045	0.0977
104.520	0.0625	104.785	0.0822	105.050	0.0980
104.525	0.0629	104.790	0.0825	105.055	0.0983
104.530	0.0633	104.795	0.0828	105.060	0.0986
104.535	0.0638	104.800	0.0831	105.065	0.0989
104.540	0.0642	104.805	0.0834	105.070	0.0991
104.545	0.0646	104.810	0.0838	105.075	0.0994
104.550	0.0650	104.815	0.0841	105.080	0.0997
104.555	0.0654	104.820	0.0844	105.085	0.1000
104.560	0.0658	104.825	0.0847	105.090	0.1003
104.565	0.0663	104.830	0.0850	105.095	0.1006
104.570	0.0667	104.835	0.0853	105.100	0.1009
104.575	0.0671	104.840	0.0856	105.105	0.1011
104.580	0.0675	104.845	0.0859	105.110	0.1014
104.585	0.0679	104.850	0.0862	105.115	0.1017
104.590	0.0683	104.855	0.0866	105.120	0.1020
104.595	0.0688	104.860	0.0869		
104.600	0.0692	104.865	0.0872		
104.605	0.0696	104.870	0.0875		
104.610	0.0700	104.875	0.0878		
104.615	0.0704	104.880	0.0881		
104.620	0.0707	104.885	0.0884		
104.625	0.0711	104.890	0.0888		
104.630	0.0714	104.895	0.0891		
104.635	0.0718	104.900	0.0894		
104.640	0.0721	104.905	0.0897		
104.645	0.0725	104.910	0.0900		
104.650	0.0729	104.915	0.0903		
104.655	0.0732	104.920	0.0906		
104.660	0.0736	104.925	0.0909		
104.665	0.0739	104.930	0.0911		
104.670	0.0743	104.935	0.0914		
104.675	0.0746	104.940	0.0917		
104.680	0.0750	104.945	0.0920		
104.685	0.0754	104.950	0.0923		
104.690	0.0757	104.955	0.0926		
104.695	0.0761	104.960	0.0929		
104.700	0.0764	104.965	0.0931		
104.705	0.0768	104.970	0.0934		
104.710	0.0771	104.975	0.0937		
104.715	0.0775	104.980	0.0940		
104.720	0.0779	104.985	0.0943		
104.725	0.0782	104.990	0.0946		
104.730	0.0786	104.995	0.0949		
104.735	0.0789	105.000	0.0951		
104.740	0.0793	105.005	0.0954		
104.745	0.0796	105.010	0.0957		
104.750	0.0800	105.015	0.0960		
104.755	0.0803	105.020	0.0963		
104.760	0.0806	105.025	0.0966		

Pond 4P: Underground Storage



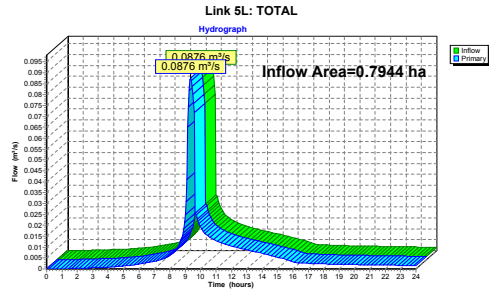
Stage-Area-Storage for Pond 4P: Underground Storage

Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)
104.500	0.0	104.765	37.3	105.030	64.4
104.505	0.7	104.770	38.0	105.035	64.4
104.510	1.4	104.775	38.7	105.040	64.4
104.515	2.1	104.780	39.4	105.045	64.4
104.520	2.8	104.785	40.1	105.050	64.4
104.525	3.5	104.790	40.8	105.055	64.4
104.530	4.2	104.795	41.5	105.060	64.4
104.535	4.9	104.800	42.3	105.065	64.4
104.540	5.6	104.805	43.0	105.070	64.4
104.545	6.3	104.810	43.7	105.075	64.4
104.550	7.0	104.815	44.4	105.080	64.4
104.555	7.7	104.820	45.1	105.085	64.4
104.560	8.5	104.825	45.8	105.090	64.4
104.565	9.2	104.830	46.5	105.095	64.4
104.570	9.9	104.835	47.2	105.100	64.4
104.575	10.6	104.840	47.9	105.105	64.4
104.580	11.3	104.845	48.6	105.110	64.4
104.585	12.0	104.850	49.3	105.115	64.4
104.590	12.7	104.855	50.0	105.120	64.4
104.595	13.4	104.860	50.7		
104.600	14.1	104.865	51.4		
104.605	14.8	104.870	52.1		
104.610	15.5	104.875	52.8		
104.615	16.2	104.880	53.5		
104.620	16.9	104.885	54.2		
104.625	17.6	104.890	54.9		
104.630	18.3	104.895	55.6		
104.635	19.0	104.900	56.3		
104.640	19.7	104.905	57.0		
104.645	20.4	104.910	57.7		
104.650	21.1	104.915	58.5		
104.655	21.8	104.920	59.2		
104.660	22.5	104.925	59.9		
104.665	23.2	104.930	60.6		
104.670	23.9	104.935	61.3		
104.675	24.6	104.940	62.0		
104.680	25.4	104.945	62.7		
104.685	26.1	104.950	63.4		
104.690	26.8	104.955	64.1		
104.695	27.5	104.960	64.4		
104.700	28.2	104.965	64.4		
104.705	28.9	104.970	64.4		
104.710	29.6	104.975	64.4		
104.715	30.3	104.980	64.4		
104.720	31.0	104.985	64.4		
104.725	31.7	104.990	64.4		
104.730	32.4	104.995	64.4		
104.735	33.1	105.000	64.4		
104.740	33.8	105.005	64.4		
104.745	34.5	105.010	64.4		
104.750	35.2	105.015	64.4		
104.755	35.9	105.020	64.4		
104.760	36.6	105.025	64.4		

Summary for Link 5L: TOTAL

Inflow Area = 0.7944 ha, 79.37% Impervious, Inflow Depth > 66 mm for 10-Year event
Inflow = 0.0876 m³/s @ 9.35 hrs, Volume= 0.526 MI
Primary = 0.0876 m³/s @ 9.35 hrs, Volume= 0.526 MI, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Hydrograph for Link 5L: TOTAL

Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)	Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0000	0.0000	13.25	0.0083	0.0000	0.0083
0.25	0.0000	0.0000	0.0000	13.50	0.0079	0.0000	0.0079
0.50	0.0000	0.0000	0.0000	13.75	0.0076	0.0000	0.0076
0.75	0.0000	0.0000	0.0000	14.00	0.0072	0.0000	0.0072
1.00	0.0000	0.0000	0.0000	14.25	0.0067	0.0000	0.0067
1.25	0.0001	0.0000	0.0001	14.50	0.0063	0.0000	0.0063
1.50	0.0001	0.0000	0.0001	14.75	0.0058	0.0000	0.0058
1.75	0.0002	0.0000	0.0002	15.00	0.0054	0.0000	0.0054
2.00	0.0003	0.0000	0.0003	15.25	0.0049	0.0000	0.0049
2.25	0.0003	0.0000	0.0003	15.50	0.0044	0.0000	0.0044
2.50	0.0004	0.0000	0.0004	15.75	0.0038	0.0000	0.0038
2.75	0.0005	0.0000	0.0005	16.00	0.0033	0.0000	0.0033
3.00	0.0005	0.0000	0.0005	16.25	0.0029	0.0000	0.0029
3.25	0.0006	0.0000	0.0006	16.50	0.0027	0.0000	0.0027
3.50	0.0006	0.0000	0.0006	16.75	0.0026	0.0000	0.0026
3.75	0.0007	0.0000	0.0007	17.00	0.0025	0.0000	0.0025
4.00	0.0008	0.0000	0.0008	17.25	0.0025	0.0000	0.0025
4.25	0.0009	0.0000	0.0009	17.50	0.0024	0.0000	0.0024
4.50	0.0010	0.0000	0.0010	17.75	0.0024	0.0000	0.0024
4.75	0.0012	0.0000	0.0012	18.00	0.0023	0.0000	0.0023
5.00	0.0013	0.0000	0.0013	18.25	0.0023	0.0000	0.0023
5.25	0.0015	0.0000	0.0015	18.50	0.0022	0.0000	0.0022
5.50	0.0017	0.0000	0.0017	18.75	0.0022	0.0000	0.0022
5.75	0.0019	0.0000	0.0019	19.00	0.0021	0.0000	0.0021
6.00	0.0021	0.0000	0.0021	19.25	0.0021	0.0000	0.0021
6.25	0.0024	0.0000	0.0024	19.50	0.0020	0.0000	0.0020
6.50	0.0027	0.0000	0.0027	19.75	0.0020	0.0000	0.0020
6.75	0.0030	0.0000	0.0030	20.00	0.0020	0.0000	0.0020
7.00	0.0034	0.0000	0.0034	20.25	0.0019	0.0000	0.0019
7.25	0.0039	0.0000	0.0039	20.50	0.0019	0.0000	0.0019
7.50	0.0045	0.0000	0.0045	20.75	0.0019	0.0000	0.0019
7.75	0.0052	0.0000	0.0052	21.00	0.0018	0.0000	0.0018
8.00	0.0062	0.0000	0.0062	21.25	0.0018	0.0000	0.0018
8.25	0.0075	0.0000	0.0075	21.50	0.0018	0.0000	0.0018
8.50	0.0097	0.0000	0.0097	21.75	0.0018	0.0000	0.0018
8.75	0.0136	0.0000	0.0136	22.00	0.0017	0.0000	0.0017
9.00	0.0250	0.0000	0.0250	22.25	0.0017	0.0000	0.0017
9.25	0.0819	0.0000	0.0819	22.50	0.0017	0.0000	0.0017
9.50	0.0802	0.0000	0.0802	22.75	0.0017	0.0000	0.0017
9.75	0.0242	0.0000	0.0242	23.00	0.0016	0.0000	0.0016
10.00	0.0192	0.0000	0.0192	23.25	0.0016	0.0000	0.0016
10.25	0.0166	0.0000	0.0166	23.50	0.0016	0.0000	0.0016
10.50	0.0149	0.0000	0.0149	23.75	0.0016	0.0000	0.0016
10.75	0.0138	0.0000	0.0138	24.00	0.0015	0.0000	0.0015
11.00	0.0129	0.0000	0.0129				
11.25	0.0122	0.0000	0.0122				
11.50	0.0116	0.0000	0.0116				
11.75	0.0110	0.0000	0.0110				
12.00	0.0105	0.0000	0.0105				
12.25	0.0100	0.0000	0.0100				
12.50	0.0096	0.0000	0.0096				
12.75	0.0091	0.0000	0.0091				
13.00	0.0087	0.0000	0.0087				

Summary for Subcatchment 6S: Uncontrolled Drainage

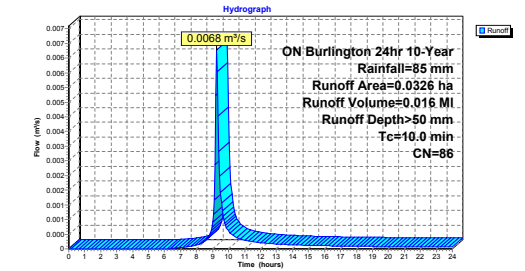
Runoff = 0.0068 m³/s @ 9.26 hrs, Volume= 0.016 MI, Depth= 50 mm
Routed to Link 5L: TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 10-Year Rainfall=85 mm

Area (ha)	CN	Description
0.0158	98	Paved parking, HSG C
0.0168	74	>75% Grass cover, Good, HSG C
0.0326	86	Weighted Average
0.0168		51.53% Pervious Area
0.0158		48.47% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

Subcatchment 6S: Uncontrolled Drainage



Hydrograph for Subcatchment 6S: Uncontrolled Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	73	40	0.0002
0.25	0	0	0.0000	13.50	74	40	0.0001
0.50	1	0	0.0000	13.75	74	40	0.0001
0.75	1	0	0.0000	14.00	74	41	0.0001
1.00	1	0	0.0000	14.25	75	41	0.0001
1.25	1	0	0.0000	14.50	75	41	0.0001
1.50	2	0	0.0000	14.75	76	42	0.0001
1.75	2	0	0.0000	15.00	76	42	0.0001
2.00	2	0	0.0000	15.25	76	42	0.0001
2.25	3	0	0.0000	15.50	77	43	0.0001
2.50	3	0	0.0000	15.75	77	43	0.0001
2.75	3	0	0.0000	16.00	77	43	0.0001
3.00	4	0	0.0000	16.25	78	44	0.0001
3.25	4	0	0.0000	16.50	78	44	0.0001
3.50	4	0	0.0000	16.75	78	44	0.0001
3.75	5	0	0.0000	17.00	79	44	0.0001
4.00	5	0	0.0000	17.25	79	45	0.0001
4.25	6	0	0.0000	17.50	79	45	0.0001
4.50	6	0	0.0000	17.75	80	45	0.0001
4.75	7	0	0.0000	18.00	80	45	0.0001
5.00	7	0	0.0000	18.25	80	46	0.0001
5.25	8	0	0.0000	18.50	80	46	0.0001
5.50	8	0	0.0000	18.75	81	46	0.0001
5.75	9	0	0.0000	19.00	81	46	0.0001
6.00	9	0	0.0000	19.25	81	46	0.0001
6.25	10	0	0.0000	19.50	81	47	0.0001
6.50	11	0	0.0000	19.75	82	47	0.0001
6.75	11	0	0.0000	20.00	82	47	0.0001
7.00	12	0	0.0000	20.25	82	47	0.0001
7.25	13	0	0.0001	20.50	82	47	0.0001
7.50	14	1	0.0001	20.75	83	48	0.0001
7.75	15	1	0.0001	21.00	83	48	0.0001
8.00	16	1	0.0001	21.25	83	48	0.0001
8.25	18	2	0.0002	21.50	83	48	0.0001
8.50	20	3	0.0003	21.75	83	48	0.0001
8.75	23	4	0.0004	22.00	84	49	0.0001
9.00	29	7	0.0009	22.25	84	49	0.0001
9.25	52	22	0.0067	22.50	84	49	0.0001
9.50	58	27	0.0019	22.75	84	49	0.0001
9.75	60	29	0.0009	23.00	84	49	0.0001
10.00	62	31	0.0006	23.25	85	49	0.0001
10.25	64	32	0.0005	23.50	85	50	0.0001
10.50	65	33	0.0004	23.75	85	50	0.0001
10.75	66	34	0.0003	24.00	85	50	0.0001
11.00	67	35	0.0003				
11.25	68	35	0.0003				
11.50	69	36	0.0002				
11.75	70	37	0.0002				
12.00	70	37	0.0002				
12.25	71	38	0.0002				
12.50	72	38	0.0002				
12.75	72	39	0.0002				
13.00	73	39	0.0002				

Summary for Subcatchment 7S: Roof Area

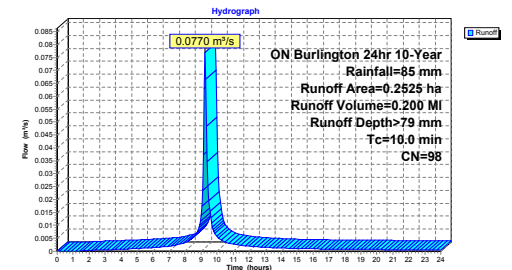
Runoff = 0.0770 m³/s @ 9.25 hrs, Volume= 0.200 MI, Depth= 79 mm
Routed to Pond 8P: Roof Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 10-Year Rainfall=85 mm

Area (ha)	CN	Description
0.2525	98	100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

Subcatchment 7S: Roof Area



Hydrograph for Subcatchment 7S: Roof Area

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	73	67	0.0014
0.25	0	0	0.0000	13.50	74	68	0.0013
0.50	1	0	0.0000	13.75	74	68	0.0013
0.75	1	0	0.0000	14.00	74	69	0.0012
1.00	1	0	0.0000	14.25	75	69	0.0012
1.25	1	0	0.0001	14.50	75	69	0.0011
1.50	2	0	0.0001	14.75	76	70	0.0011
1.75	2	0	0.0002	15.00	76	70	0.0011
2.00	2	0	0.0003	15.25	76	71	0.0010
2.25	3	0	0.0003	15.50	77	71	0.0010
2.50	3	1	0.0004	15.75	77	71	0.0010
2.75	3	1	0.0005	16.00	77	72	0.0009
3.00	4	1	0.0006	16.25	78	72	0.0009
3.25	4	1	0.0006	16.50	78	72	0.0009
3.50	4	1	0.0006	16.75	78	73	0.0009
3.75	5	2	0.0007	17.00	79	73	0.0008
4.00	5	2	0.0008	17.25	79	73	0.0008
4.25	6	2	0.0008	17.50	79	73	0.0008
4.50	6	2	0.0009	17.75	80	74	0.0008
4.75	7	3	0.0010	18.00	80	74	0.0008
5.00	7	3	0.0010	18.25	80	74	0.0007
5.25	8	4	0.0011	18.50	80	74	0.0007
5.50	8	4	0.0012	18.75	81	75	0.0007
5.75	9	4	0.0013	19.00	81	75	0.0007
6.00	9	5	0.0014	19.25	81	75	0.0007
6.25	10	6	0.0015	19.50	81	75	0.0007
6.50	11	6	0.0016	19.75	82	76	0.0007
6.75	11	7	0.0018	20.00	82	76	0.0007
7.00	12	7	0.0020	20.25	82	76	0.0006
7.25	13	8	0.0022	20.50	83	77	0.0006
7.50	14	9	0.0025	20.75	83	77	0.0006
7.75	15	10	0.0028	21.00	83	77	0.0006
8.00	16	11	0.0033	21.25	83	77	0.0006
8.25	18	13	0.0040	21.50	83	77	0.0006
8.50	20	15	0.0051	21.75	83	77	0.0006
8.75	23	17	0.0073	22.00	84	78	0.0006
9.00	29	23	0.0139	22.25	84	78	0.0006
9.25	52	46	0.0770	22.50	84	78	0.0006
9.50	58	52	0.1094	22.75	84	78	0.0005
9.75	60	55	0.0085	23.00	84	78	0.0005
10.00	62	57	0.0057	23.25	85	79	0.0005
10.25	64	58	0.0044	23.50	85	79	0.0005
10.50	65	59	0.0036	23.75	85	79	0.0005
10.75	66	60	0.0031	24.00	85	79	0.0005
11.00	67	61	0.0027				
11.25	68	62	0.0025				
11.50	69	63	0.0022				
11.75	70	64	0.0021				
12.00	70	64	0.0019				
12.25	71	65	0.0018				
12.50	72	66	0.0017				
12.75	72	66	0.0016				
13.00	73	67	0.0015				

Summary for Pond 8P: Roof Storage

Inflow Area = 0.2525 ha, 100.00% Impervious, Inflow Depth > 79 mm for 10-Year event
Inflow = 0.0770 m³/s @ 9.25 hrs, Volume= 0.200 MI
Outflow = 0.0081 m³/s @ 9.78 hrs, Volume= 0.200 MI, Atten= 90%, Lag= 31.3 min
Primary = 0.0081 m³/s @ 9.78 hrs, Volume= 0.200 MI
Routed to Link 5L : TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.129 m @ 9.78 hrs Surf.Area= 1,831.2 m² Storage= 79.0 m³

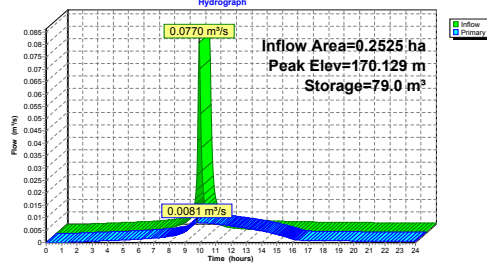
Plug-Flow detention time= 80.7 min calculated for 0.199 MI (100% of inflow)
Center-of-Mass det. time= 80.4 min (703.1 - 622.6)

Volume	Invert	Avail. Storage	Storage Description		
#1	170.000 m	249.1 m³	Custom Stage Data (Pyramidal), Listed below (Recalc.)		
Elevation (meters)	Surf. Area (sq-meters)	Inc. Store (cubic-meters)	Cum. Store (cubic-meters)	Wet Area (sq-meters)	
170.000	0.0	0.0	0.0	0.0	
170.152	2,525.0	127.9	127.9	2,525.0	
170.200	2,525.0	121.2	249.1	2,534.7	

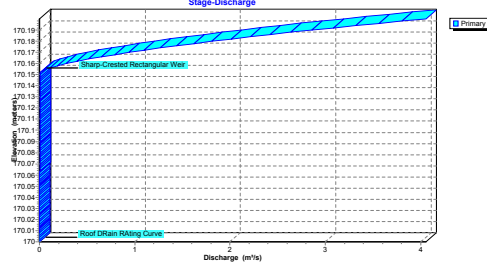
Device	Routing	Invert	Outlet Devices
#1	Primary	170.000 m	Roof Drain Rating Curve X 5.00 Head (meters) 0.000 0.013 0.025 0.038 0.051 0.064 0.076 0.089 0.102 0.114 0.127 0.140 0.152 Disch. (m³/s) 0.00000 0.00016 0.00031 0.00047 0.00063 0.00079 0.00095 0.00110 0.00128 0.00142 0.00158 0.00174 0.00189 213.00 m long Sharp-Crested Rectangular Weir 0 End Contraction(s)
#2	Primary	170.152 m	

Primary OutFlow Max=0.0080 m³/s @ 9.78 hrs HW=170.129 m (Free Discharge)
1=Roof Drain Rating Curve (Custom Controls 0.0080 m³/s)
2=Sharp-Crested Rectangular Weir (Controls 0.0000 m³/s)

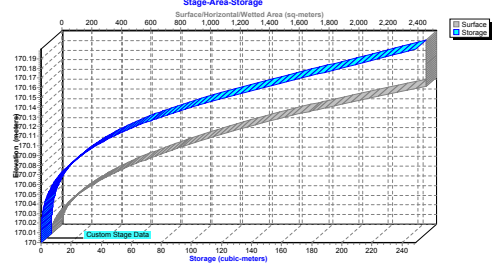
Pond 8P: Roof Storage



Pond 8P: Roof Storage



Pond 8P: Roof Storage



Hydrograph for Pond 8P: Roof Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	170.000	0.0000
0.50	0.0000	0.0	170.000	0.0000
1.00	0.0000	0.0	170.000	0.0000
1.50	0.0001	0.0	170.002	0.0001
2.00	0.0003	0.0	170.004	0.0003
2.50	0.0004	0.0	170.007	0.0004
3.00	0.0005	0.0	170.008	0.0005
3.50	0.0006	0.0	170.010	0.0006
4.00	0.0008	0.1	170.012	0.0007
4.50	0.0009	0.1	170.014	0.0009
5.00	0.0010	0.2	170.016	0.0010
5.50	0.0012	0.2	170.018	0.0011
6.00	0.0014	0.3	170.021	0.0013
6.50	0.0016	0.5	170.024	0.0015
7.00	0.0020	0.8	170.028	0.0018
7.50	0.0025	1.4	170.033	0.0021
8.00	0.0033	2.4	170.040	0.0025
8.50	0.0051	4.7	170.051	0.0031
9.00	0.0194	12.6	170.070	0.0040
9.50	0.0194	75.0	170.127	0.0079
10.00	0.0057	78.0	170.129	0.0080
10.50	0.0038	71.9	170.125	0.0078
11.00	0.0027	63.7	170.120	0.0075
11.50	0.0022	55.0	170.115	0.0071
12.00	0.0019	46.2	170.108	0.0067
12.50	0.0017	37.7	170.101	0.0062
13.00	0.0015	29.7	170.093	0.0058
13.50	0.0013	22.3	170.085	0.0054
14.00	0.0012	15.6	170.075	0.0047
14.50	0.0011	9.9	170.065	0.0040
15.00	0.0011	5.3	170.053	0.0033
15.50	0.0010	2.1	170.039	0.0024
16.00	0.0009	0.4	170.020	0.0014
16.50	0.0009	0.1	170.015	0.0009
17.00	0.0008	0.1	170.014	0.0008
17.50	0.0008	0.1	170.013	0.0008
18.00	0.0008	0.1	170.012	0.0008
18.50	0.0007	0.1	170.012	0.0007
19.00	0.0007	0.1	170.011	0.0007
19.50	0.0007	0.1	170.011	0.0007
20.00	0.0007	0.0	170.010	0.0007
20.50	0.0006	0.0	170.010	0.0006
21.00	0.0006	0.0	170.010	0.0006
21.50	0.0006	0.0	170.010	0.0006
22.00	0.0006	0.0	170.009	0.0006
22.50	0.0006	0.0	170.009	0.0006
23.00	0.0005	0.0	170.009	0.0005
23.50	0.0005	0.0	170.009	0.0005
24.00	0.0005	0.0	170.008	0.0005

Stage-Discharge for Pond 8P: Roof Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
170.000	0.0000	170.053	0.0033	170.106	0.0066	170.159	0.0238
170.001	0.0001	170.054	0.0033	170.107	0.0066	170.160	0.0248
170.002	0.0001	170.055	0.0034	170.108	0.0067	170.161	0.0380
170.003	0.0002	170.056	0.0035	170.109	0.0069	170.162	0.0393
170.004	0.0002	170.057	0.0035	170.110	0.0068	170.163	0.04534
170.005	0.0003	170.058	0.0036	170.111	0.0069	170.164	0.05153
170.006	0.0004	170.059	0.0036	170.112	0.0070	170.165	0.05798
170.007	0.0004	170.060	0.0037	170.113	0.0070	170.166	0.06469
170.008	0.0005	170.061	0.0038	170.114	0.0071	170.167	0.07164
170.009	0.0006	170.062	0.0038	170.115	0.0072	170.168	0.07883
170.010	0.0006	170.063	0.0039	170.116	0.0072	170.169	0.08624
170.011	0.0007	170.064	0.0039	170.117	0.0073	170.170	0.09388
170.012	0.0007	170.065	0.0040	170.118	0.0073	170.171	0.10173
170.013	0.0008	170.066	0.0041	170.119	0.0074	170.172	0.10979
170.014	0.0009	170.067	0.0042	170.120	0.0075	170.173	0.11805
170.015	0.0009	170.068	0.0042	170.121	0.0075	170.174	0.12651
170.016	0.0010	170.069	0.0043	170.122	0.0076	170.175	0.13517
170.017	0.0010	170.070	0.0043	170.123	0.0077	170.176	0.14402
170.018	0.0011	170.071	0.0044	170.124	0.0077	170.177	0.15306
170.019	0.0012	170.072	0.0045	170.125	0.0078	170.178	0.16227
170.020	0.0012	170.073	0.0046	170.126	0.0078	170.179	0.17167
170.021	0.0013	170.074	0.0046	170.127	0.0079	170.180	0.18124
170.022	0.0014	170.075	0.0047	170.128	0.0080	170.181	0.19099
170.023	0.0014	170.076	0.0047	170.129	0.0080	170.182	0.20090
170.024	0.0015	170.077	0.0048	170.130	0.0081	170.183	0.21098
170.025	0.0016	170.078	0.0049	170.131	0.0081	170.184	0.22122
170.026	0.0016	170.079	0.0049	170.132	0.0082	170.185	0.23163
170.027	0.0017	170.080	0.0050	170.133	0.0082	170.186	0.24224
170.028	0.0017	170.081	0.0050	170.134	0.0083	170.187	0.25292
170.029	0.0018	170.082	0.0051	170.135	0.0084	170.188	0.26379
170.030	0.0019	170.083	0.0052	170.136	0.0085	170.189	0.27482
170.031	0.0019	170.084	0.0052	170.137	0.0086	170.190	0.28600
170.032	0.0020	170.085	0.0053	170.138	0.0086	170.191	0.29732
170.033	0.0020	170.086	0.0053	170.139	0.0086	170.192	0.30879
170.034	0.0021	170.087	0.0054	170.140	0.0087	170.193	0.32041
170.035	0.0022	170.088	0.0054	170.141	0.0088	170.194	0.33217
170.036	0.0022	170.089	0.0055	170.142	0.0088	170.195	0.34407
170.037	0.0023	170.090	0.0056	170.143	0.0089	170.196	0.35611
170.038	0.0024	170.091	0.0056	170.144	0.0090	170.197	0.36828
170.039	0.0024	170.092	0.0057	170.145	0.0090	170.198	0.38060
170.040	0.0025	170.093	0.0057	170.146	0.0091	170.199	0.39304
170.041	0.0025	170.094	0.0058	170.147	0.0091	170.200	0.40562
170.042	0.0026	170.095	0.0059	170.148	0.0092		
170.043	0.0027	170.096	0.0059	170.149	0.0093		
170.044	0.0027	170.097	0.0060	170.150	0.0093		
170.045	0.0028	170.098	0.0061	170.151	0.0094		
170.046	0.0028	170.099	0.0061	170.152	0.0095		
170.047	0.0029	170.100	0.0062	170.153	0.0095		
170.048	0.0030	170.101	0.0062	170.154	0.0096		
170.049	0.0030	170.102	0.0063	170.155	0.0096		
170.050	0.0031	170.103	0.0064	170.156	0.0096		
170.051	0.0031	170.104	0.0064	170.157	0.0097		
170.052	0.0032	170.105	0.0065	170.158	0.0098		

Stage-Area-Storage for Pond 8P: Roof Storage

Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)	Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)
170.000	0.0	0.0	170.106	1,228.0	43.4
170.002	0.4	0.0	170.108	1,274.7	45.9
170.004	1.7	0.0	170.110	1,322.4	48.5
170.006	3.9	0.0	170.112	1,370.9	51.2
170.008	7.0	0.0	170.114	1,420.3	54.0
170.010	10.9	0.0	170.116	1,470.6	56.9
170.012	15.7	0.1	170.118	1,521.7	59.8
170.014	21.4	0.1	170.120	1,573.8	63.0
170.016	28.0	0.1	170.122	1,626.6	66.2
170.018	35.4	0.2	170.124	1,680.4	69.5
170.020	43.7	0.3	170.126	1,735.1	72.9
170.022	52.9	0.4	170.128	1,790.6	76.4
170.024	63.0	0.5	170.130	1,847.0	80.0
170.026	73.9	0.6	170.132	1,904.2	83.8
170.028	85.7	0.8	170.134	1,962.4	87.7
170.030	98.4	1.0	170.136	2,021.4	91.6
170.032	111.9	1.2	170.138	2,081.3	95.7
170.034	126.3	1.4	170.140	2,142.1	100.0
170.036	141.6	1.7	170.142	2,203.7	104.3
170.038	157.8	2.0	170.144	2,266.2	108.8
170.040	174.9	2.3	170.146	2,329.6	113.4
170.042	192.8	2.7	170.148	2,393.9	118.1
170.044	211.6	3.1	170.150	2,459.0	122.9
170.046	231.3	3.5	170.152	2,525.0	127.9
170.048	251.8	4.0	170.154	2,592.0	133.0
170.050	273.2	4.6	170.156	2,659.0	138.0
170.052	295.5	5.2	170.158	2,726.0	143.0
170.054	318.7	5.7	170.160	2,793.0	148.1
170.056	342.7	6.4	170.162	2,859.0	153.2
170.058	367.6	7.1	170.164	2,926.0	158.3
170.060	393.4	7.9	170.166	2,992.0	163.3
170.062	420.1	8.7	170.168	3,058.0	168.3
170.064	447.6	9.6	170.170	3,125.0	173.4
170.066	476.1	10.5	170.172	3,192.0	178.4
170.068	505.5	11.4	170.174	3,259.0	183.5
170.070	535.3	12.5	170.176	3,325.0	188.5
170.072	566.6	13.6	170.178	3,392.0	193.6
170.074	598.5	14.8	170.180	3,458.0	198.6
170.076	631.5	16.0	170.182	3,525.0	203.7
170.078	664.9	17.3	170.184	3,592.0	208.7
170.080	698.8	18.7	170.186	3,658.0	213.8
170.082	734.9	20.1	170.188	3,725.0	218.8
170.084	771.1	21.6	170.190	3,792.0	223.9
170.086	808.3	23.2	170.192	3,858.0	228.9
170.088	846.3	24.8	170.194	3,925.0	234.0
170.090	885.2	26.6	170.196	3,992.0	239.0
170.092	925.0	28.4	170.198	4,058.0	244.1
170.094	965.7	30.3	170.200	2,525.0	249.1
170.096	1,007.2	32.2			
170.100	1,092.9	36.4			
170.102	1,181.0	38.7			
170.104	1,182.9	41.0			

Summary for Subcatchment 2S: Surface Drainage

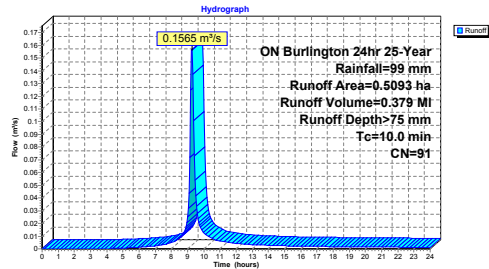
Runoff = 0.1565 m³/s @ 9.26 hrs, Volume= 0.379 MI, Depth> 75 mm
Routed to Pond 4P : Underground Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 25-Year Rainfall=99 mm

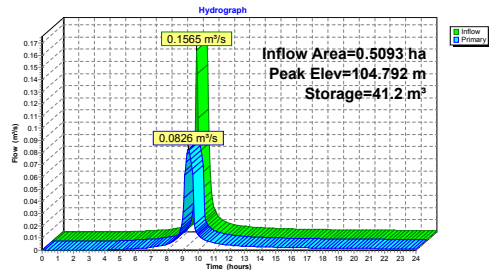
Area (ha)	CN	Description
0.1471	74	>75% Grass cover, Good, HSG C
0.3622	98	Paved parking, HSG C
0.5093	91	Weighted Average
0.1471		28.88% Pervious Area
0.3622		71.12% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

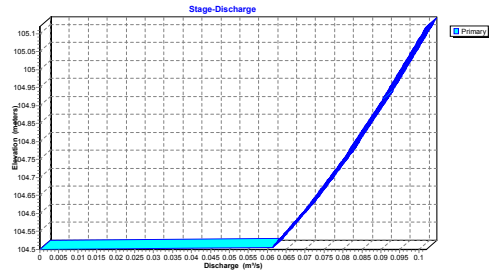
Subcatchment 2S: Surface Drainage



Pond 4P: Underground Storage



Pond 4P: Underground Storage



Hydrograph for Subcatchment 2S: Surface Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	85	61	0.0032
0.25	0	0	0.0000	13.50	86	62	0.0030
0.50	1	0	0.0000	13.75	87	62	0.0029
0.75	1	0	0.0000	14.00	87	63	0.0028
1.00	1	0	0.0000	14.25	88	63	0.0027
1.25	2	0	0.0000	14.50	88	64	0.0026
1.50	2	0	0.0000	14.75	88	64	0.0025
1.75	2	0	0.0000	15.00	89	65	0.0024
2.00	3	0	0.0000	15.25	89	65	0.0023
2.25	3	0	0.0000	15.50	90	65	0.0022
2.50	3	0	0.0000	15.75	90	66	0.0022
2.75	4	0	0.0000	16.00	91	66	0.0021
3.00	4	0	0.0000	16.25	91	66	0.0020
3.25	5	0	0.0000	16.50	91	67	0.0020
3.50	5	0	0.0000	16.75	92	67	0.0019
3.75	6	0	0.0001	17.00	92	67	0.0019
4.00	6	0	0.0002	17.25	92	68	0.0018
4.25	7	0	0.0003	17.50	93	68	0.0018
4.50	7	0	0.0004	17.75	93	68	0.0018
4.75	8	0	0.0005	18.00	93	69	0.0017
5.00	8	0	0.0006	18.25	94	69	0.0017
5.25	9	0	0.0007	18.50	94	69	0.0017
5.50	9	1	0.0009	18.75	94	70	0.0016
5.75	10	1	0.0011	19.00	95	70	0.0016
6.00	11	1	0.0012	19.25	95	70	0.0016
6.25	12	1	0.0015	19.50	95	70	0.0015
6.50	12	2	0.0017	19.75	95	71	0.0015
6.75	13	2	0.0020	20.00	96	71	0.0015
7.00	14	2	0.0023	20.25	96	71	0.0014
7.25	15	3	0.0027	20.50	96	71	0.0014
7.50	16	3	0.0032	20.75	96	72	0.0014
7.75	18	4	0.0039	21.00	97	72	0.0014
8.00	19	5	0.0048	21.25	97	72	0.0014
8.25	21	6	0.0061	21.50	97	72	0.0013
8.50	23	8	0.0082	21.75	97	73	0.0013
8.75	27	10	0.0124	22.00	98	73	0.0013
9.00	33	15	0.0250	22.25	98	73	0.0013
9.25	61	38	0.1562	22.50	98	73	0.0013
9.50	67	44	0.0416	22.75	98	74	0.0012
9.75	70	47	0.0184	23.00	99	74	0.0012
10.00	73	49	0.0125	23.25	99	74	0.0012
10.25	75	51	0.0097	23.50	99	74	0.0012
10.50	76	53	0.0081	23.75	99	74	0.0012
10.75	77	54	0.0069	24.00	99	75	0.0012
11.00	79	55	0.0061				
11.25	80	56	0.0055				
11.50	80	57	0.0050				
11.75	81	57	0.0046				
12.00	82	58	0.0042				
12.25	83	59	0.0040				
12.50	84	60	0.0037				
12.75	84	60	0.0035				
13.00	85	61	0.0033				

Summary for Pond 4P: Underground Storage

Inflow Area = 0.5093 ha, 71.12% Impervious, Inflow Depth > 75 mm for 25-Year event
Inflow = 0.1565 m³/s @ 9.26 hrs, Volume= 0.379 MI
Outflow = 0.0826 m³/s @ 9.38 hrs, Volume= 0.382 MI, Atten= 47%, Lag= 7.7 min
Primary = 0.0826 m³/s @ 9.38 hrs, Volume= 0.382 MI
Routed to Link 5L : TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 104.792 m @ 9.38 hrs Surf.Area= 145.2 m² Storage= 41.2 m³

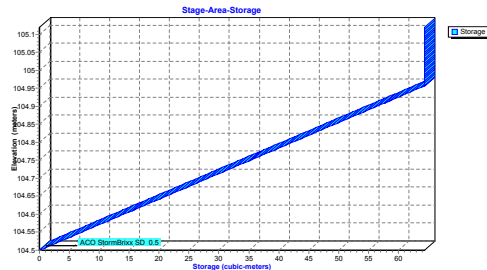
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.7 min (861.4 - 659.7)

Volume	Invert	Avail. Storage	Storage Description
#1	104.500 m	64.4 m³	ACO StormBrixx SD 0.5 x 200
			Inside= 603 mmW x 457 mmH => 0.267 m³ x 1.21 mL = 0.32 m³
			Outside= 603 mmW x 457 mmH => 0.275 m³ x 1.21 mL = 0.33 m³

Device	Routing	Invert	Outlet Devices
#1	Primary	103.990 m	Special & User-Defined
			Elev. (meters) 103.990 104.150 104.200 104.240 104.300
			104.380 104.490 104.610 104.750 104.910 105.120
			Disch. (m³/s) 0.00000 0.01000 0.02000 0.03000 0.04000 0.05000
			0.06000 0.07000 0.08000 0.09000 0.10200

Primary OutFlow Max=0.0825 m³/s @ 9.38 hrs HW=104.789 m (Free Discharge)
1=Special & User-Defined (Custom Controls 0.0825 m³/s)

Pond 4P: Underground Storage



Hydrograph for Pond 4P: Underground Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	104.500	0.0000
0.50	0.0000	0.0	104.500	0.0000
1.00	0.0000	0.0	104.500	0.0000
1.50	0.0000	0.0	104.500	0.0000
2.00	0.0000	0.0	104.500	0.0000
2.50	0.0000	0.0	104.500	0.0000
3.00	0.0000	0.0	104.500	0.0000
3.50	0.0000	0.0	104.500	0.0000
4.00	0.0002	0.0	104.500	0.0002
4.50	0.0004	0.0	104.500	0.0004
5.00	0.0006	0.0	104.500	0.0006
5.50	0.0009	0.0	104.500	0.0009
6.00	0.0012	0.0	104.500	0.0012
6.50	0.0017	0.0	104.500	0.0017
7.00	0.0023	0.0	104.500	0.0023
7.50	0.0032	0.0	104.500	0.0032
8.00	0.0048	0.0	104.500	0.0047
8.50	0.0082	0.1	104.501	0.0081
9.00	0.0250	0.4	104.503	0.0247
9.50	0.0416	31.9	104.727	0.0783
10.00	0.0125	0.2	104.501	0.0126
10.50	0.0081	0.1	104.501	0.0081
11.00	0.0061	0.1	104.501	0.0061
11.50	0.0050	0.1	104.501	0.0050
12.00	0.0042	0.1	104.500	0.0042
12.50	0.0037	0.1	104.500	0.0037
13.00	0.0033	0.0	104.500	0.0033
13.50	0.0030	0.0	104.500	0.0030
14.00	0.0028	0.0	104.500	0.0028
14.50	0.0026	0.0	104.500	0.0026
15.00	0.0024	0.0	104.500	0.0024
15.50	0.0022	0.0	104.500	0.0022
16.00	0.0021	0.0	104.500	0.0021
16.50	0.0020	0.0	104.500	0.0020
17.00	0.0019	0.0	104.500	0.0019
17.50	0.0018	0.0	104.500	0.0018
18.00	0.0017	0.0	104.500	0.0017
18.50	0.0017	0.0	104.500	0.0017
19.00	0.0016	0.0	104.500	0.0016
19.50	0.0015	0.0	104.500	0.0015
20.00	0.0015	0.0	104.500	0.0015
20.50	0.0014	0.0	104.500	0.0014
21.00	0.0014	0.0	104.500	0.0014
21.50	0.0013	0.0	104.500	0.0013
22.00	0.0013	0.0	104.500	0.0013
22.50	0.0013	0.0	104.500	0.0013
23.00	0.0012	0.0	104.500	0.0012
23.50	0.0012	0.0	104.500	0.0012
24.00	0.0012	0.0	104.500	0.0012

Stage-Discharge for Pond 4P: Underground Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
104.500	0.0000	104.785	0.0809	105.030	0.0869
104.505	0.0612	104.770	0.0812	105.035	0.0971
104.510	0.0617	104.775	0.0816	105.040	0.0974
104.515	0.0621	104.780	0.0819	105.045	0.0977
104.520	0.0625	104.785	0.0822	105.050	0.0980
104.525	0.0629	104.790	0.0825	105.055	0.0983
104.530	0.0633	104.795	0.0828	105.060	0.0986
104.535	0.0638	104.800	0.0831	105.065	0.0989
104.540	0.0642	104.805	0.0834	105.070	0.0991
104.545	0.0646	104.810	0.0837	105.075	0.0994
104.550	0.0650	104.815	0.0841	105.080	0.0997
104.555	0.0654	104.820	0.0844	105.085	0.1000
104.560	0.0658	104.825	0.0847	105.090	0.1003
104.565	0.0663	104.830	0.0850	105.095	0.1006
104.570	0.0667	104.835	0.0853	105.100	0.1009
104.575	0.0671	104.840	0.0856	105.105	0.1011
104.580	0.0675	104.845	0.0859	105.110	0.1014
104.585	0.0679	104.850	0.0862	105.115	0.1017
104.590	0.0683	104.855	0.0866	105.120	0.1020
104.595	0.0688	104.860	0.0869		
104.600	0.0692	104.865	0.0872		
104.605	0.0696	104.870	0.0875		
104.610	0.0700	104.875	0.0878		
104.615	0.0704	104.880	0.0881		
104.620	0.0707	104.885	0.0884		
104.625	0.0711	104.890	0.0888		
104.630	0.0714	104.895	0.0891		
104.635	0.0718	104.900	0.0894		
104.640	0.0721	104.905	0.0897		
104.645	0.0725	104.910	0.0900		
104.650	0.0729	104.915	0.0903		
104.655	0.0732	104.920	0.0906		
104.660	0.0736	104.925	0.0909		
104.665	0.0739	104.930	0.0911		
104.670	0.0743	104.935	0.0914		
104.675	0.0746	104.940	0.0917		
104.680	0.0750	104.945	0.0920		
104.685	0.0754	104.950	0.0923		
104.690	0.0757	104.955	0.0926		
104.695	0.0761	104.960	0.0929		
104.700	0.0764	104.965	0.0931		
104.705	0.0768	104.970	0.0934		
104.710	0.0771	104.975	0.0937		
104.715	0.0775	104.980	0.0940		
104.720	0.0779	104.985	0.0943		
104.725	0.0782	104.990	0.0946		
104.730	0.0786	104.995	0.0949		
104.735	0.0789	105.000	0.0951		
104.740	0.0793	105.005	0.0954		
104.745	0.0796	105.010	0.0957		
104.750	0.0800	105.015	0.0960		
104.755	0.0803	105.020	0.0963		
104.760	0.0806	105.025	0.0966		

Stage-Area-Storage for Pond 4P: Underground Storage

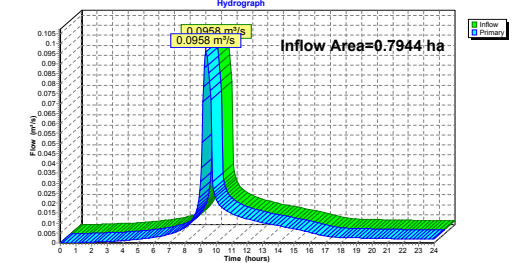
Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)
104.500	0.0	104.785	37.3	105.030	64.4
104.505	0.7	104.770	38.0	105.035	64.4
104.510	1.4	104.775	38.7	105.040	64.4
104.515	2.1	104.780	39.4	105.045	64.4
104.520	2.8	104.785	40.1	105.050	64.4
104.525	3.5	104.790	40.8	105.055	64.4
104.530	4.2	104.795	41.5	105.060	64.4
104.535	4.9	104.800	42.3	105.065	64.4
104.540	5.6	104.805	43.0	105.070	64.4
104.545	6.3	104.810	43.7	105.075	64.4
104.550	7.0	104.815	44.4	105.080	64.4
104.555	7.7	104.820	45.1	105.085	64.4
104.560	8.5	104.825	45.8	105.090	64.4
104.565	9.2	104.830	46.5	105.095	64.4
104.570	9.9	104.835	47.2	105.100	64.4
104.575	10.6	104.840	47.9	105.105	64.4
104.580	11.3	104.845	48.6	105.110	64.4
104.585	12.0	104.850	49.3	105.115	64.4
104.590	12.7	104.855	50.0	105.120	64.4
104.595	13.4	104.860	50.7		
104.600	14.1	104.865	51.4		
104.605	14.8	104.870	52.1		
104.610	15.5	104.875	52.8		
104.615	16.2	104.880	53.5		
104.620	16.9	104.885	54.2		
104.625	17.6	104.890	54.9		
104.630	18.3	104.895	55.6		
104.635	19.0	104.900	56.3		
104.640	19.7	104.905	57.0		
104.645	20.4	104.910	57.7		
104.650	21.1	104.915	58.5		
104.655	21.8	104.920	59.2		
104.660	22.5	104.925	59.9		
104.665	23.2	104.930	60.6		
104.670	23.9	104.935	61.3		
104.675	24.6	104.940	62.0		
104.680	25.4	104.945	62.7		
104.685	26.1	104.950	63.4		
104.690	26.8	104.955	64.1		
104.695	27.5	104.960	64.4		
104.700	28.2	104.965	64.4		
104.705	28.9	104.970	64.4		
104.710	29.6	104.975	64.4		
104.715	30.3	104.980	64.4		
104.720	31.0	104.985	64.4		
104.725	31.7	104.990	64.4		
104.730	32.4	104.995	64.4		
104.735	33.1	105.000	64.4		
104.740	33.8	105.005	64.4		
104.745	34.5	105.010	64.4		
104.750	35.2	105.015	64.4		
104.755	35.9	105.020	64.4		
104.760	36.6	105.025	64.4		

Summary for Link SL: TOTAL

Inflow Area = 0.7944 ha, 79.37% Impervious, Inflow Depth > 80 mm for 25-Year event
Inflow = 0.0958 m³/s @ 9.36 hrs, Volume= 0.638 Ml
Primary = 0.0958 m³/s @ 9.36 hrs, Volume= 0.638 Ml, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link SL: TOTAL



Hydrograph for Link SL: TOTAL

Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)	Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0000	0.0000	13.25	0.0097	0.0000	0.0097
0.25	0.0000	0.0000	0.0000	13.50	0.0093	0.0000	0.0093
0.50	0.0000	0.0000	0.0000	13.75	0.0090	0.0000	0.0090
0.75	0.0000	0.0000	0.0000	14.00	0.0086	0.0000	0.0086
1.00	0.0000	0.0000	0.0000	14.25	0.0082	0.0000	0.0082
1.25	0.0001	0.0000	0.0001	14.50	0.0079	0.0000	0.0079
1.50	0.0002	0.0000	0.0002	14.75	0.0075	0.0000	0.0075
1.75	0.0003	0.0000	0.0003	15.00	0.0071	0.0000	0.0071
2.00	0.0004	0.0000	0.0004	15.25	0.0067	0.0000	0.0067
2.25	0.0005	0.0000	0.0005	15.50	0.0062	0.0000	0.0062
2.50	0.0005	0.0000	0.0005	15.75	0.0058	0.0000	0.0058
2.75	0.0006	0.0000	0.0006	16.00	0.0053	0.0000	0.0053
3.00	0.0007	0.0000	0.0007	16.25	0.0049	0.0000	0.0049
3.25	0.0007	0.0000	0.0007	16.50	0.0044	0.0000	0.0044
3.50	0.0008	0.0000	0.0008	16.75	0.0038	0.0000	0.0038
3.75	0.0009	0.0000	0.0009	17.00	0.0033	0.0000	0.0033
4.00	0.0011	0.0000	0.0011	17.25	0.0030	0.0000	0.0030
4.25	0.0013	0.0000	0.0013	17.50	0.0029	0.0000	0.0029
4.50	0.0014	0.0000	0.0014	17.75	0.0028	0.0000	0.0028
4.75	0.0016	0.0000	0.0016	18.00	0.0027	0.0000	0.0027
5.00	0.0018	0.0000	0.0018	18.25	0.0027	0.0000	0.0027
5.25	0.0020	0.0000	0.0020	18.50	0.0026	0.0000	0.0026
5.50	0.0023	0.0000	0.0023	18.75	0.0026	0.0000	0.0026
5.75	0.0025	0.0000	0.0025	19.00	0.0025	0.0000	0.0025
6.00	0.0028	0.0000	0.0028	19.25	0.0025	0.0000	0.0025
6.25	0.0031	0.0000	0.0031	19.50	0.0024	0.0000	0.0024
6.50	0.0035	0.0000	0.0035	19.75	0.0024	0.0000	0.0024
6.75	0.0039	0.0000	0.0039	20.00	0.0023	0.0000	0.0023
7.00	0.0044	0.0000	0.0044	20.25	0.0023	0.0000	0.0023
7.25	0.0050	0.0000	0.0050	20.50	0.0023	0.0000	0.0023
7.50	0.0057	0.0000	0.0057	20.75	0.0022	0.0000	0.0022
7.75	0.0066	0.0000	0.0066	21.00	0.0022	0.0000	0.0022
8.00	0.0078	0.0000	0.0078	21.25	0.0021	0.0000	0.0021
8.25	0.0094	0.0000	0.0094	21.50	0.0021	0.0000	0.0021
8.50	0.0120	0.0000	0.0120	21.75	0.0021	0.0000	0.0021
8.75	0.0168	0.0000	0.0168	22.00	0.0020	0.0000	0.0020
9.00	0.0307	0.0000	0.0307	22.25	0.0020	0.0000	0.0020
9.25	0.0880	0.0000	0.0880	22.50	0.0020	0.0000	0.0020
9.50	0.0891	0.0000	0.0891	22.75	0.0020	0.0000	0.0020
9.75	0.0304	0.0000	0.0304	23.00	0.0019	0.0000	0.0019
10.00	0.0219	0.0000	0.0219	23.25	0.0019	0.0000	0.0019
10.25	0.0188	0.0000	0.0188	23.50	0.0019	0.0000	0.0019
10.50	0.0169	0.0000	0.0169	23.75	0.0019	0.0000	0.0019
10.75	0.0156	0.0000	0.0156	24.00	0.0018	0.0000	0.0018
11.00	0.0146	0.0000	0.0146				
11.25	0.0138	0.0000	0.0138				
11.50	0.0131	0.0000	0.0131				
11.75	0.0125	0.0000	0.0125				
12.00	0.0120	0.0000	0.0120				
12.25	0.0115	0.0000	0.0115				
12.50	0.0110	0.0000	0.0110				
12.75	0.0106	0.0000	0.0106				
13.00	0.0101	0.0000	0.0101				

Summary for Subcatchment 7S: Roof Area

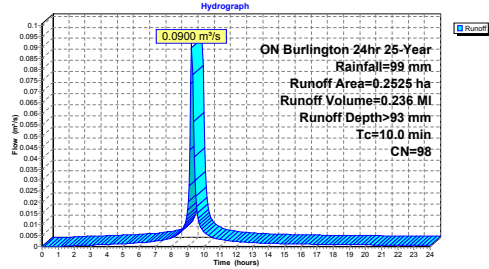
Runoff = 0.0900 m³/s @ 9.25 hrs, Volume= 0.236 MI, Depth> 93 mm
Routed to Pond 8P: Roof Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 25-Year Rainfall=99 mm

Area (ha)	CN	Description
0.2525	98	
0.2525	100.00%	Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 7S: Roof Area



Hydrograph for Subcatchment 7S: Roof Area

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m ³ /s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m ³ /s)
0.00	0	0	0.0000	13.25	85	80	0.0017
0.25	0	0	0.0000	13.50	86	80	0.0016
0.50	1	0	0.0000	13.75	87	81	0.0015
0.75	1	0	0.0000	14.00	87	81	0.0014
1.00	1	0	0.0000	14.25	88	82	0.0014
1.25	2	0	0.0001	14.50	88	82	0.0013
1.50	2	0	0.0002	14.75	88	83	0.0013
1.75	2	0	0.0003	15.00	89	83	0.0012
2.00	3	0	0.0004	15.25	89	83	0.0012
2.25	3	1	0.0005	15.50	90	84	0.0012
2.50	3	1	0.0006	15.75	90	84	0.0011
2.75	4	1	0.0006	16.00	91	85	0.0011
3.00	4	1	0.0007	16.25	91	85	0.0011
3.25	5	2	0.0008	16.50	91	85	0.0010
3.50	5	2	0.0008	16.75	92	86	0.0010
3.75	6	2	0.0009	17.00	92	86	0.0010
4.00	6	3	0.0010	17.25	92	86	0.0010
4.25	7	3	0.0010	17.50	93	87	0.0009
4.50	7	3	0.0011	17.75	93	87	0.0009
4.75	8	4	0.0012	18.00	93	87	0.0009
5.00	8	4	0.0013	18.25	94	88	0.0009
5.25	9	5	0.0014	18.50	94	88	0.0009
5.50	9	5	0.0015	18.75	94	88	0.0008
5.75	10	6	0.0016	19.00	95	89	0.0008
6.00	11	6	0.0017	19.25	95	89	0.0008
6.25	12	7	0.0018	19.50	95	89	0.0008
6.50	12	8	0.0020	19.75	95	89	0.0008
6.75	13	9	0.0022	20.00	96	90	0.0008
7.00	14	9	0.0024	20.25	96	90	0.0008
7.25	15	10	0.0026	20.50	96	90	0.0007
7.50	16	11	0.0029	20.75	96	90	0.0007
7.75	18	13	0.0034	21.00	97	91	0.0007
8.00	19	14	0.0039	21.25	97	91	0.0007
8.25	21	16	0.0048	21.50	97	91	0.0007
8.50	23	18	0.0061	21.75	97	91	0.0007
8.75	27	21	0.0087	22.00	98	92	0.0007
9.00	33	28	0.0164	22.25	98	92	0.0007
9.25	61	55	0.0889	22.50	98	92	0.0007
9.50	67	61	0.0227	22.75	98	92	0.0006
9.75	70	65	0.0099	23.00	99	93	0.0006
10.00	73	67	0.0067	23.25	99	93	0.0006
10.25	75	69	0.0052	23.50	99	93	0.0006
10.50	76	70	0.0043	23.75	99	93	0.0006
10.75	77	72	0.0037	24.00	99	94	0.0006
11.00	79	73	0.0032				
11.25	80	74	0.0029				
11.50	80	75	0.0026				
11.75	81	75	0.0024				
12.00	82	76	0.0022				
12.25	83	77	0.0021				
12.50	84	78	0.0020				
12.75	84	78	0.0018				
13.00	85	79	0.0017				

Summary for Pond 8P: Roof Storage

Inflow Area = 0.2525 ha, 100.00% Impervious, Inflow Depth > 93 mm for 25-Year event
Inflow = 0.0900 m³/s @ 9.25 hrs, Volume= 0.236 MI
Outflow = 0.0086 m³/s @ 9.83 hrs, Volume= 0.236 MI, Atten= 90%, Lag= 34.5 min
Primary = 0.0086 m³/s @ 9.83 hrs, Volume= 0.236 MI
Routed to Link 5L: TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.138 m @ 9.83 hrs Surf.Area= 2,086.5 m² Storage= 96.1 m³

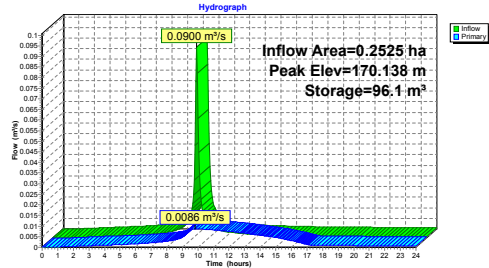
Plug-Flow detention time= 93.8 min calculated for 0.236 MI (100% of inflow)
Center-of-Mass det. time= 93.7 min (713.8 - 620.1)

Volume	Invert	Avail Storage	Storage Description		
#1	170.000 m	249.1 m ³	Custom Stage Data (Pyramidal), listed below (Recalc)		
Elevation (meters)	Surf Area (sq-meters)	Inc. Store (cubic-meters)	Cum. Store (cubic-meters)	Wet Area (sq-meters)	
170.000	0.0	0.0	0.0	0.0	
170.152	2,525.0	127.9	127.9	2,525.0	
170.200	2,525.0	121.2	249.1	2,534.7	

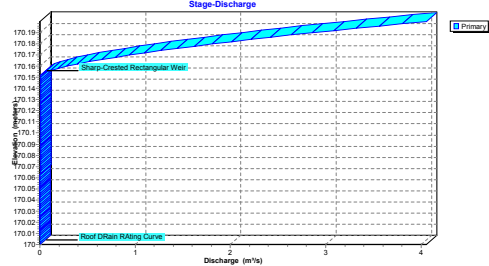
Device	Routing	Invert	Outlet Devices
#1	Primary	170.000 m	Roof Drain Rating Curve X 5.00 Head (meters) 0.000 0.013 0.025 0.038 0.051 0.064 0.076 0.089 0.102 0.114 0.127 0.140 0.152 Disch. (m ³ /s) 0.00000 0.00016 0.00031 0.00047 0.00063 0.00079 0.00095 0.00110 0.00128 0.00142 0.00158 0.00174 0.00189 213.00 m long Sharp-Crested Rectangular Weir End Contraction(s)
#2	Primary	170.152 m	

Primary OutFlow Max=0.0086 m³/s @ 9.83 hrs HW=170.138 m (Free Discharge)
1=Roof Drain Rating Curve (Custom Controls 0.0086 m³/s)
2=Sharp-Crested Rectangular Weir (Controls 0.0000 m³/s)

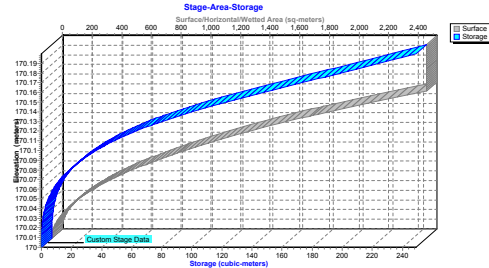
Pond 8P: Roof Storage



Pond 8P: Roof Storage



Pond 8P: Roof Storage



Hydrograph for Pond 8P: Roof Storage

Time (hours)	Inflow (m ³ /s)	Storage (cubic-meters)	Elevation (meters)	Primary (m ³ /s)
0.00	0.0000	0.0	170.000	0.0000
0.50	0.0000	0.0	170.000	0.0000
1.00	0.0000	0.0	170.000	0.0000
1.50	0.0002	0.0	170.004	0.0002
2.00	0.0004	0.0	170.006	0.0004
2.50	0.0006	0.0	170.009	0.0005
3.00	0.0007	0.1	170.011	0.0007
3.50	0.0008	0.1	170.013	0.0008
4.00	0.0010	0.1	170.015	0.0009
4.50	0.0011	0.2	170.017	0.0011
5.00	0.0013	0.3	170.020	0.0012
5.50	0.0015	0.4	170.022	0.0014
6.00	0.0017	0.6	170.025	0.0016
6.50	0.0020	0.9	170.029	0.0018
7.00	0.0024	1.3	170.033	0.0020
7.50	0.0029	2.1	170.039	0.0024
8.00	0.0039	3.5	170.046	0.0028
8.50	0.0061	6.6	170.056	0.0035
9.00	0.0164	16.3	170.077	0.0048
9.50	0.0227	90.4	170.135	0.0084
10.00	0.0067	95.5	170.138	0.0086
10.50	0.0043	89.7	170.135	0.0084
11.00	0.0032	81.4	170.131	0.0081
11.50	0.0026	72.3	170.126	0.0078
12.00	0.0022	62.9	170.120	0.0075
12.50	0.0020	53.5	170.114	0.0071
13.00	0.0017	44.5	170.107	0.0066
13.50	0.0016	36.0	170.100	0.0062
14.00	0.0014	28.1	170.092	0.0057
14.50	0.0013	20.8	170.083	0.0052
15.00	0.0012	14.4	170.073	0.0046
15.50	0.0012	8.9	170.063	0.0039
16.00	0.0011	4.7	170.050	0.0031
16.50	0.0010	1.8	170.036	0.0022
17.00	0.0010	0.4	170.022	0.0013
17.50	0.0009	0.1	170.016	0.0010
18.00	0.0009	0.1	170.015	0.0009
18.50	0.0009	0.1	170.014	0.0009
19.00	0.0008	0.1	170.013	0.0008
19.50	0.0008	0.1	170.013	0.0008
20.00	0.0008	0.1	170.013	0.0008
20.50	0.0007	0.1	170.012	0.0007
21.00	0.0007	0.1	170.012	0.0007
21.50	0.0007	0.1	170.011	0.0007
22.00	0.0007	0.0	170.011	0.0007
22.50	0.0007	0.0	170.011	0.0007
23.00	0.0006	0.0	170.010	0.0006
23.50	0.0006	0.0	170.010	0.0006
24.00	0.0006	0.0	170.010	0.0006

Stage-Discharge for Pond 8P: Roof Storage

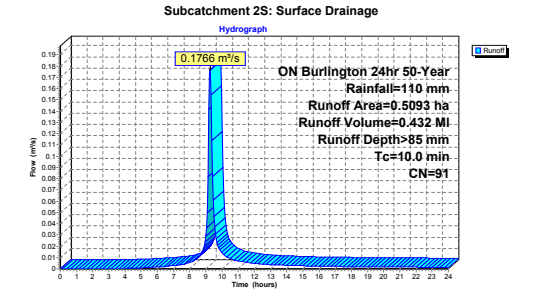
Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
170.000	0.0000	170.053	0.0033	170.105	0.0066	170.159	0.2248
170.001	0.0001	170.054	0.0033	170.107	0.0066	170.160	0.2848
170.002	0.0001	170.055	0.0034	170.108	0.0067	170.161	0.3380
170.003	0.0002	170.056	0.0035	170.109	0.0068	170.162	0.3943
170.004	0.0002	170.057	0.0035	170.110	0.0068	170.163	0.4534
170.005	0.0003	170.058	0.0036	170.111	0.0069	170.164	0.5153
170.006	0.0004	170.059	0.0037	170.112	0.0070	170.165	0.5798
170.007	0.0004	170.060	0.0037	170.113	0.0070	170.166	0.6469
170.008	0.0005	170.061	0.0038	170.114	0.0071	170.167	0.7164
170.009	0.0006	170.062	0.0038	170.115	0.0072	170.168	0.7883
170.010	0.0006	170.063	0.0039	170.116	0.0072	170.169	0.8624
170.011	0.0007	170.064	0.0039	170.117	0.0073	170.170	0.9388
170.012	0.0007	170.065	0.0040	170.118	0.0073	170.171	1.0173
170.013	0.0008	170.066	0.0041	170.119	0.0074	170.172	1.0979
170.014	0.0009	170.067	0.0042	170.120	0.0075	170.173	1.1805
170.015	0.0009	170.068	0.0042	170.121	0.0075	170.174	1.2651
170.016	0.0010	170.069	0.0043	170.122	0.0076	170.175	1.3517
170.017	0.0010	170.070	0.0043	170.123	0.0077	170.176	1.4402
170.018	0.0011	170.071	0.0044	170.124	0.0077	170.177	1.5306
170.019	0.0012	170.072	0.0045	170.125	0.0078	170.178	1.6227
170.020	0.0012	170.073	0.0046	170.126	0.0078	170.179	1.7167
170.021	0.0013	170.074	0.0046	170.127	0.0079	170.180	1.8124
170.022	0.0014	170.075	0.0047	170.128	0.0080	170.181	1.9099
170.023	0.0014	170.076	0.0047	170.129	0.0080	170.182	2.0090
170.024	0.0015	170.077	0.0048	170.130	0.0081	170.183	2.1098
170.025	0.0016	170.078	0.0049	170.131	0.0081	170.184	2.2122
170.026	0.0016	170.079	0.0049	170.132	0.0082	170.185	2.3163
170.027	0.0017	170.080	0.0050	170.133	0.0083	170.186	2.4219
170.028	0.0017	170.081	0.0050	170.134	0.0083	170.187	2.5292
170.029	0.0018	170.082	0.0051	170.135	0.0084	170.188	2.6379
170.030	0.0019	170.083	0.0052	170.136	0.0085	170.189	2.7482
170.031	0.0019	170.084	0.0052	170.137	0.0085	170.190	2.8600
170.032	0.0020	170.085	0.0053	170.138	0.0086	170.191	2.9732
170.033	0.0020	170.086	0.0053	170.139	0.0086	170.192	3.0879
170.034	0.0021	170.087	0.0054	170.140	0.0087	170.193	3.2041
170.035	0.0022	170.088	0.0054	170.141	0.0088	170.194	3.3217
170.036	0.0022	170.089	0.0055	170.142	0.0088	170.195	3.4407
170.037	0.0023	170.090	0.0056	170.143	0.0089	170.196	3.5611
170.038	0.0024	170.091	0.0056	170.144	0.0090	170.197	3.6828
170.039	0.0024	170.092	0.0057	170.145	0.0090	170.198	3.8060
170.040	0.0025	170.093	0.0057	170.146	0.0091	170.199	3.9304
170.041	0.0025	170.094	0.0058	170.147	0.0091	170.200	4.0562
170.042	0.0026	170.095	0.0059	170.148	0.0092		
170.043	0.0027	170.096	0.0059	170.149	0.0093		
170.044	0.0027	170.097	0.0060	170.150	0.0093		
170.045	0.0028	170.098	0.0061	170.151	0.0094		
170.046	0.0028	170.099	0.0061	170.152	0.0094		
170.047	0.0029	170.100	0.0062	170.153	0.0094		
170.048	0.0030	170.101	0.0062	170.154	0.0094		
170.049	0.0030	170.102	0.0063	170.155	0.0094		
170.050	0.0031	170.103	0.0064	170.156	0.0094		
170.051	0.0031	170.104	0.0064	170.157	0.0094		
170.052	0.0032	170.105	0.0065	170.158	0.0094		

Stage-Area-Storage for Pond 8P: Roof Storage

Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)	Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)
170.000	0.0	0.0	170.105	1.228.0	43.4
170.002	0.4	0.0	170.108	1.274.7	45.9
170.004	1.7	0.0	170.110	1.322.4	48.5
170.006	3.9	0.0	170.112	1.370.9	51.2
170.008	7.0	0.0	170.114	1.420.3	54.0
170.010	10.9	0.0	170.116	1.470.6	56.9
170.012	15.7	0.1	170.118	1.521.7	59.9
170.014	21.4	0.1	170.120	1.573.8	63.0
170.016	28.0	0.1	170.122	1.626.6	66.2
170.018	35.4	0.2	170.124	1.680.4	69.5
170.020	43.7	0.3	170.126	1.735.1	72.9
170.022	52.9	0.4	170.128	1.790.6	76.4
170.024	63.0	0.5	170.130	1.847.0	80.0
170.026	73.9	0.6	170.132	1.904.2	83.8
170.028	85.7	0.8	170.134	1.962.4	87.7
170.030	98.4	1.0	170.136	2.021.4	91.6
170.032	111.9	1.2	170.138	2.081.3	95.7
170.034	126.3	1.4	170.140	2.142.1	100.0
170.036	141.6	1.7	170.142	2.203.7	104.3
170.038	157.8	2.0	170.144	2.266.2	108.8
170.040	174.9	2.3	170.146	2.329.6	113.4
170.042	192.9	2.7	170.148	2.393.9	118.1
170.044	211.6	3.1	170.150	2.459.0	122.9
170.046	231.3	3.5	170.152	2.525.0	127.9
170.048	251.8	4.0	170.154	2.592.0	133.0
170.050	273.2	4.6	170.156	2.659.0	138.0
170.052	295.5	5.1	170.158	2.725.0	143.1
170.054	318.7	5.7	170.160	2.792.0	148.1
170.056	342.7	6.4	170.162	2.858.0	153.2
170.058	367.6	7.1	170.164	2.925.0	158.2
170.060	393.4	7.9	170.166	2.992.0	163.3
170.062	420.1	8.7	170.168	3.058.0	168.3
170.064	447.6	9.5	170.170	3.125.0	173.4
170.066	476.1	10.5	170.172	3.192.0	178.4
170.068	505.3	11.4	170.174	3.258.0	183.5
170.070	535.5	12.5	170.176	3.325.0	188.5
170.072	566.6	13.6	170.178	3.392.0	193.6
170.074	598.6	14.8	170.180	3.458.0	198.6
170.076	631.3	16.0	170.182	3.525.0	203.7
170.078	664.9	17.3	170.184	3.592.0	208.7
170.080	699.4	18.7	170.186	3.658.0	213.8
170.082	734.9	20.1	170.188	3.725.0	218.8
170.084	771.1	21.6	170.190	3.792.0	223.9
170.086	808.3	23.2	170.192	3.858.0	229.0
170.088	846.3	24.8	170.194	3.925.0	234.0
170.090	885.2	26.6	170.196	4.000.0	239.0
170.092	924.9	28.4	170.198	4.075.0	244.1
170.094	965.7	30.3	170.200	4.150.0	249.1
170.096	1,007.2	32.2			
170.098	1,048.6	34.3			
170.100	1,090.9	36.4			
170.102	1,137.0	38.7			
170.104	1,182.1	41.0			

Summary for Subcatchment 2S: Surface Drainage

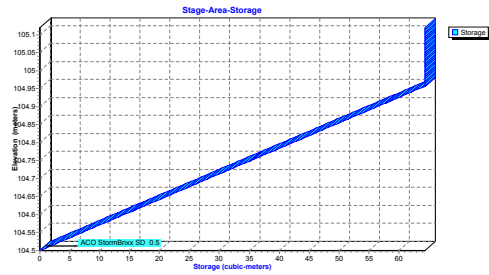
Runoff	=	0.1766 m³/s @ 9.26 hrs, Volume= 0.432 MI, Depth= 85 mm
Routed to Pond 4P: Underground Storage		
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs		
ON Burlington 24hr 50-Year Rainfall=110 mm		
Area (ha)	CN	Description
0.1471	74	>75% Grass cover, Good, HSG C
0.3622	98	Paved parking, HSG C
0.5093	91	Weighted Average
0.1471		28.88% Pervious Area
0.3622		71.12% Impervious Area
Tc (min)	Length (meters)	Slope (m/m)
10.0		
Velocity (m/sec)		Capacity (m³/s)
Direct Entry,		



Hydrograph for Subcatchment 2S: Surface Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	95	70	0.0035
0.25	0	0	0.0000	13.50	95	71	0.0034
0.50	1	0	0.0000	13.75	96	71	0.0032
0.75	1	0	0.0000	14.00	96	72	0.0031
1.00	1	0	0.0000	14.25	97	72	0.0030
1.25	2	0	0.0000	14.50	97	73	0.0029
1.50	2	0	0.0000	14.75	98	73	0.0028
1.75	3	0	0.0000	15.00	98	74	0.0027
2.00	3	0	0.0000	15.25	99	74	0.0026
2.25	3	0	0.0000	15.50	99	75	0.0025
2.50	4	0	0.0000	15.75	100	75	0.0024
2.75	4	0	0.0000	16.00	100	75	0.0024
3.00	5	0	0.0000	16.25	101	76	0.0023
3.25	5	0	0.0000	16.50	101	76	0.0022
3.50	6	0	0.0001	16.75	101	77	0.0022
3.75	6	0	0.0002	17.00	102	77	0.0021
4.00	7	0	0.0003	17.25	102	77	0.0021
4.25	7	0	0.0004	17.50	103	78	0.0020
4.50	8	0	0.0005	17.75	103	78	0.0020
4.75	9	0	0.0007	18.00	103	78	0.0019
5.00	9	1	0.0009	18.25	104	79	0.0019
5.25	10	1	0.0010	18.50	104	79	0.0019
5.50	10	1	0.0012	18.75	104	79	0.0018
5.75	11	1	0.0014	19.00	105	80	0.0018
6.00	12	2	0.0016	19.25	105	80	0.0017
6.25	13	2	0.0018	19.50	105	80	0.0017
6.50	14	2	0.0021	19.75	106	81	0.0017
6.75	15	3	0.0024	20.00	106	81	0.0017
7.00	16	3	0.0028	20.25	106	81	0.0016
7.25	17	4	0.0033	20.50	107	81	0.0016
7.50	18	4	0.0039	20.75	107	82	0.

Pond 4P: Underground Storage



Hydrograph for Pond 4P: Underground Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	104.500	0.0000
0.50	0.0000	0.0	104.500	0.0000
1.00	0.0000	0.0	104.500	0.0000
1.50	0.0000	0.0	104.500	0.0000
2.00	0.0000	0.0	104.500	0.0000
2.50	0.0000	0.0	104.500	0.0000
3.00	0.0000	0.0	104.500	0.0000
3.50	0.0001	0.0	104.500	0.0001
4.00	0.0003	0.0	104.500	0.0003
4.50	0.0006	0.0	104.500	0.0006
5.00	0.0009	0.0	104.500	0.0008
5.50	0.0012	0.0	104.500	0.0012
6.00	0.0016	0.0	104.500	0.0016
6.50	0.0021	0.0	104.500	0.0021
7.00	0.0028	0.0	104.500	0.0028
7.50	0.0039	0.1	104.500	0.0039
8.00	0.0057	0.1	104.501	0.0057
8.50	0.0096	0.1	104.501	0.0096
9.00	0.0289	0.4	104.503	0.0285
9.50	0.0467	43.9	104.812	0.0839
10.00	0.0141	0.2	104.501	0.0141
10.50	0.0090	0.1	104.501	0.0091
11.00	0.0068	0.1	104.501	0.0068
11.50	0.0056	0.1	104.501	0.0056
12.00	0.0048	0.1	104.500	0.0048
12.50	0.0042	0.1	104.500	0.0042
13.00	0.0037	0.1	104.500	0.0037
13.50	0.0034	0.0	104.500	0.0034
14.00	0.0031	0.0	104.500	0.0031
14.50	0.0029	0.0	104.500	0.0029
15.00	0.0027	0.0	104.500	0.0027
15.50	0.0025	0.0	104.500	0.0025
16.00	0.0024	0.0	104.500	0.0024
16.50	0.0022	0.0	104.500	0.0022
17.00	0.0021	0.0	104.500	0.0021
17.50	0.0020	0.0	104.500	0.0020
18.00	0.0019	0.0	104.500	0.0019
18.50	0.0019	0.0	104.500	0.0019
19.00	0.0018	0.0	104.500	0.0018
19.50	0.0017	0.0	104.500	0.0017
20.00	0.0017	0.0	104.500	0.0017
20.50	0.0016	0.0	104.500	0.0016
21.00	0.0015	0.0	104.500	0.0015
21.50	0.0015	0.0	104.500	0.0015
22.00	0.0015	0.0	104.500	0.0015
22.50	0.0014	0.0	104.500	0.0014
23.00	0.0014	0.0	104.500	0.0014
23.50	0.0013	0.0	104.500	0.0013
24.00	0.0013	0.0	104.500	0.0013

Stage-Discharge for Pond 4P: Underground Storage

Elevation (meters)	Primary (m³/s)	Primary (meters)	Elevation (meters)	Primary (m³/s)
104.500	0.0000	104.765	0.0000	105.030
104.505	0.0012	104.770	0.0012	105.035
104.510	0.0017	104.775	0.0016	105.040
104.515	0.0021	104.780	0.0019	105.045
104.520	0.0025	104.785	0.0022	105.050
104.525	0.0029	104.790	0.0025	105.055
104.530	0.0033	104.795	0.0028	105.060
104.535	0.0038	104.800	0.0031	105.065
104.540	0.0042	104.805	0.0034	105.070
104.545	0.0046	104.810	0.0038	105.075
104.550	0.0050	104.815	0.0041	105.080
104.555	0.0054	104.820	0.0044	105.085
104.560	0.0058	104.825	0.0047	105.090
104.565	0.0063	104.830	0.0050	105.095
104.570	0.0067	104.835	0.0053	105.100
104.575	0.0071	104.840	0.0056	105.105
104.580	0.0075	104.845	0.0059	105.110
104.585	0.0079	104.850	0.0062	105.115
104.590	0.0083	104.855	0.0066	105.120
104.595	0.0088	104.860	0.0069	
104.600	0.0092	104.865	0.0072	
104.605	0.0096	104.870	0.0075	
104.610	0.0100	104.875	0.0078	
104.615	0.0104	104.880	0.0081	
104.620	0.0107	104.885	0.0084	
104.625	0.0111	104.890	0.0088	
104.630	0.0114	104.895	0.0091	
104.635	0.0118	104.900	0.0094	
104.640	0.0121	104.905	0.0097	
104.645	0.0125	104.910	0.0100	
104.650	0.0129	104.915	0.0103	
104.655	0.0132	104.920	0.0106	
104.660	0.0136	104.925	0.0109	
104.665	0.0139	104.930	0.0111	
104.670	0.0143	104.935	0.0114	
104.675	0.0146	104.940	0.0117	
104.680	0.0150	104.945	0.0120	
104.685	0.0154	104.950	0.0123	
104.690	0.0157	104.955	0.0126	
104.695	0.0161	104.960	0.0129	
104.700	0.0164	104.965	0.0131	
104.705	0.0168	104.970	0.0134	
104.710	0.0171	104.975	0.0137	
104.715	0.0175	104.980	0.0140	
104.720	0.0179	104.985	0.0143	
104.725	0.0182	104.990	0.0146	
104.730	0.0186	104.995	0.0149	
104.735	0.0189	105.000	0.0151	
104.740	0.0193	105.005	0.0154	
104.745	0.0196	105.010	0.0157	
104.750	0.0199	105.015	0.0160	
104.755	0.0203	105.020	0.0163	
104.760	0.0206	105.025	0.0166	

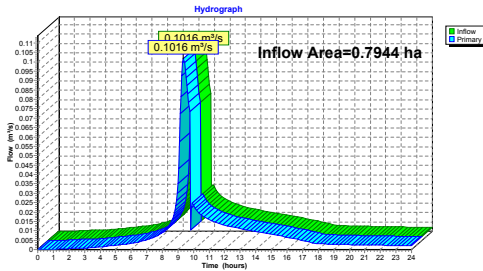
Stage-Area-Storage for Pond 4P: Underground Storage

Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)
104.500	0.0	104.765	37.3	105.030	64.4
104.505	0.7	104.770	38.0	105.035	64.4
104.510	1.4	104.775	38.7	105.040	64.4
104.515	2.1	104.780	39.4	105.045	64.4
104.520	2.8	104.785	40.1	105.050	64.4
104.525	3.5	104.790	40.8	105.055	64.4
104.530	4.2	104.795	41.5	105.060	64.4
104.535	4.9	104.800	42.3	105.065	64.4
104.540	5.6	104.805	43.0	105.070	64.4
104.545	6.3	104.810	43.7	105.075	64.4
104.550	7.0	104.815	44.4	105.080	64.4
104.555	7.7	104.820	45.1	105.085	64.4
104.560	8.5	104.825	45.8	105.090	64.4
104.565	9.2	104.830	46.5	105.095	64.4
104.570	9.9	104.835	47.2	105.100	64.4
104.575	10.6	104.840	47.9	105.105	64.4
104.580	11.3	104.845	48.6	105.110	64.4
104.585	12.0	104.850	49.3	105.115	64.4
104.590	12.7	104.855	50.0	105.120	64.4
104.595	13.4	104.860	50.7		
104.600	14.1	104.865	51.4		
104.605	14.8	104.870	52.1		
104.610	15.5	104.875	52.8		
104.615	16.2	104.880	53.5		
104.620	16.9	104.885	54.2		
104.625	17.6	104.890	54.9		
104.630	18.3	104.895	55.6		
104.635	19.0	104.900	56.3		
104.640	19.7	104.905	57.0		
104.645	20.4	104.910	57.7		
104.650	21.1	104.915	58.5		
104.655	21.8	104.920	59.2		
104.660	22.5	104.925	59.9		
104.665	23.2	104.930	60.6		
104.670	23.9	104.935	61.3		
104.675	24.6	104.940	62.0		
104.680	25.4	104.945	62.7		
104.685	26.1	104.950	63.4		
104.690	26.8	104.955	64.1		
104.695	27.5	104.960	64.4		
104.700	28.2	104.965	64.4		
104.705	28.9	104.970	64.4		
104.710	29.6	104.975	64.4		
104.715	30.3	104.980	64.4		
104.720	31.0	104.985	64.4		
104.725	31.7	104.990	64.4		
104.730	32.4	104.995	64.4		
104.735	33.1	105.000	64.4		
104.740	33.8	105.005	64.4		
104.745	34.5	105.010	64.4		
104.750	35.2	105.015	64.4		
104.755	35.9	105.020	64.4		
104.760	36.6	105.025	64.4		

Summary for Link 5L: TOTAL

Inflow Area = 0.7944 ha, 79.37% Impervious, Inflow Depth > 90 mm for 50-Year event
Inflow = 0.1016 m³/s @ 9.36 hrs, Volume = 0.713 MI, Atten= 0%, Lag= 0.0 min
Primary = 0.1016 m³/s @ 9.36 hrs, Volume = 0.713 MI, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 5L: TOTAL



Hydrograph for Link 5L: TOTAL

Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)	Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.000	0.0000	13.25	0.0107	0.000	0.0107
0.25	0.0000	0.000	0.0000	13.50	0.0103	0.000	0.0103
0.50	0.0000	0.000	0.0000	13.75	0.0100	0.000	0.0100
0.75	0.0000	0.000	0.0000	14.00	0.0096	0.000	0.0096
1.00	0.0001	0.000	0.0001	14.25	0.0092	0.000	0.0092
1.25	0.0002	0.000	0.0002	14.50	0.0088	0.000	0.0088
1.50	0.0003	0.000	0.0003	14.75	0.0085	0.000	0.0085
1.75	0.0004	0.000	0.0004	15.00	0.0081	0.000	0.0081
2.00	0.0005	0.000	0.0005	15.25	0.0078	0.000	0.0078
2.25	0.0006	0.000	0.0006	15.50	0.0074	0.000	0.0074
2.50	0.0007	0.000	0.0007	15.75	0.0070	0.000	0.0070
2.75	0.0007	0.000	0.0007	16.00	0.0066	0.000	0.0066
3.00	0.0008	0.000	0.0008	16.25	0.0062	0.000	0.0062
3.25	0.0009	0.000	0.0009	16.50	0.0057	0.000	0.0057
3.50	0.0010	0.000	0.0010	16.75	0.0053	0.000	0.0053
3.75	0.0012	0.000	0.0012	17.00	0.0048	0.000	0.0048
4.00	0.0014	0.000	0.0014	17.25	0.0043	0.000	0.0043
4.25	0.0016	0.000	0.0016	17.50	0.0038	0.000	0.0038
4.50	0.0018	0.000	0.0018	17.75	0.0034	0.000	0.0034
4.75	0.0020	0.000	0.0020	18.00	0.0031	0.000	0.0031
5.00	0.0022	0.000	0.0022	18.25	0.0029	0.000	0.0029
5.25	0.0025	0.000	0.0025	18.50	0.0029	0.000	0.0029
5.50	0.0028	0.000	0.0028	18.75	0.0029	0.000	0.0029
5.75	0.0031	0.000	0.0031	19.00	0.0028	0.000	0.0028
6.00	0.0034	0.000	0.0034	19.25	0.0028	0.000	0.0028
6.25	0.0037	0.000	0.0037	19.50	0.0027	0.000	0.0027
6.50	0.0042	0.000	0.0042	19.75	0.0027	0.000	0.0027
6.75	0.0046	0.000	0.0046	20.00	0.0026	0.000	0.0026
7.00	0.0052	0.000	0.0052	20.25	0.0026	0.000	0.0026
7.25	0.0058	0.000	0.0058	20.50	0.0025	0.000	0.0025
7.50	0.0066	0.000	0.0066	20.75	0.0024	0.000	0.0024
7.75	0.0076	0.000	0.0076	21.00	0.0024	0.000	0.0024
8.00	0.0090	0.000	0.0090	21.25	0.0024	0.000	0.0024
8.25	0.0108	0.000	0.0108	21.50	0.0024	0.000	0.0024
8.50	0.0137	0.000	0.0137	21.75	0.0023	0.000	0.0023
8.75	0.0162	0.000	0.0162	22.00	0.0023	0.000	0.0023
9.00	0.0350	0.000	0.0350	22.25	0.0023	0.000	0.0023
9.25	0.0925	0.000	0.0925	22.50	0.0022	0.000	0.0022
9.50	0.0953	0.000	0.0953	22.75	0.0022	0.000	0.0022
9.75	0.0736	0.000	0.0736	23.00	0.0022	0.000	0.0022
10.00	0.0238	0.000	0.0238	23.25	0.0021	0.000	0.0021
10.25	0.0205	0.000	0.0205	23.50	0.0021	0.000	0.0021
10.50	0.0184	0.000	0.0184	23.75	0.0021	0.000	0.0021
10.75	0.0169	0.000	0.0169	24.00	0.0020	0.000	0.0020
11.00	0.0158	0.000	0.0158				
11.25	0.0149	0.000	0.0149				
11.50	0.0142	0.000	0.0142				
11.75	0.0135	0.000	0.0135				
12.00	0.0130	0.000	0.0130				
12.25	0.0125	0.000	0.0125				
12.50	0.0120	0.000	0.0120				
12.75	0.0116	0.000	0.0116				
13.00	0.0112	0.000	0.0112				

Summary for Subcatchment 6S: Uncontrolled Drainage

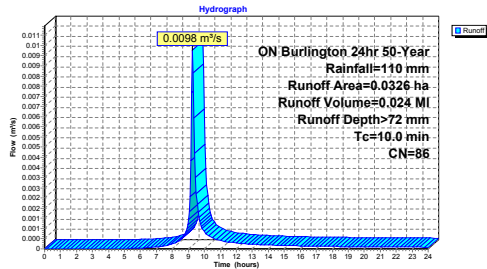
Runoff = 0.0098 m³/s @ 9.26 hrs, Volume= 0.024 MI, Depth> 72 mm
Routed to Link SL: TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 50-Year Rainfall=110 mm

Area (ha)	CN	Description
0.0158	98	Paved parking, HSG C
0.0168	74	>75% Grass cover, Good, HSG C
0.0326	86	Weighted Average
0.0168		51.53% Pervious Area
0.0168		48.47% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

Subcatchment 6S: Uncontrolled Drainage



Hydrograph for Subcatchment 6S: Uncontrolled Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	95	58	0.0002
0.25	0	0	0.0000	13.50	95	59	0.0002
0.50	1	0	0.0000	13.75	96	59	0.0002
0.75	1	0	0.0000	14.00	96	60	0.0002
1.00	1	0	0.0000	14.25	97	60	0.0002
1.25	2	0	0.0000	14.50	97	61	0.0002
1.50	2	0	0.0000	14.75	98	61	0.0002
1.75	3	0	0.0000	15.00	98	62	0.0002
2.00	3	0	0.0000	15.25	99	62	0.0002
2.25	3	0	0.0000	15.50	99	63	0.0002
2.50	4	0	0.0000	15.75	100	63	0.0001
2.75	4	0	0.0000	16.00	100	63	0.0001
3.00	5	0	0.0000	16.25	101	64	0.0001
3.25	5	0	0.0000	16.50	101	64	0.0001
3.50	6	0	0.0000	16.75	101	65	0.0001
3.75	6	0	0.0000	17.00	102	65	0.0001
4.00	7	0	0.0000	17.25	102	65	0.0001
4.25	7	0	0.0000	17.50	103	66	0.0001
4.50	8	0	0.0000	17.75	103	66	0.0001
4.75	9	0	0.0000	18.00	103	66	0.0001
5.00	9	0	0.0000	18.25	104	67	0.0001
5.25	10	0	0.0000	18.50	104	67	0.0001
5.50	10	0	0.0000	18.75	104	67	0.0001
5.75	11	0	0.0000	19.00	105	68	0.0001
6.00	12	0	0.0000	19.25	105	68	0.0001
6.25	13	0	0.0001	19.50	105	68	0.0001
6.50	14	1	0.0001	19.75	106	68	0.0001
6.75	15	1	0.0001	20.00	106	69	0.0001
7.00	16	1	0.0001	20.25	106	69	0.0001
7.25	17	1	0.0001	20.50	107	69	0.0001
7.50	18	2	0.0001	20.75	107	69	0.0001
7.75	20	2	0.0002	21.00	107	70	0.0001
8.00	21	3	0.0002	21.25	107	70	0.0001
8.25	23	4	0.0003	21.50	108	70	0.0001
8.50	26	5	0.0004	21.75	108	70	0.0001
8.75	30	7	0.0007	22.00	108	71	0.0001
9.00	37	12	0.0014	22.25	108	71	0.0001
9.25	67	35	0.0087	22.50	109	71	0.0001
9.50	74	41	0.0027	22.75	109	71	0.0001
9.75	78	44	0.0012	23.00	109	72	0.0001
10.00	81	46	0.0006	23.25	109	72	0.0001
10.25	83	48	0.0006	23.50	110	72	0.0001
10.50	84	49	0.0005	23.75	110	72	0.0001
10.75	86	50	0.0005	24.00	110	73	0.0001
11.00	87	52	0.0004				
11.25	88	53	0.0004				
11.50	89	53	0.0003				
11.75	90	54	0.0003				
12.00	91	55	0.0003				
12.25	92	56	0.0003				
12.50	93	57	0.0003				
12.75	93	57	0.0002				
13.00	94	58	0.0002				

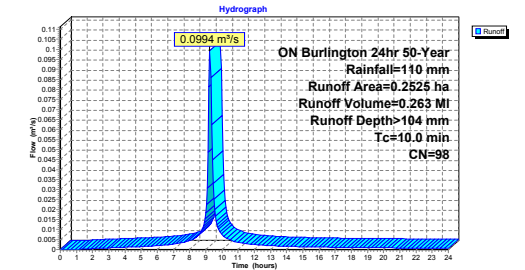
Summary for Subcatchment 7S: Roof Area

Runoff = 0.0994 m³/s @ 9.25 hrs, Volume= 0.263 MI, Depth> 104 mm
Routed to Pond 8P: Roof Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 50-Year Rainfall=110 mm

Area (ha)	CN	Description			
0.2525	98				
0.2525		100.00% Impervious Area			
Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,

Subcatchment 7S: Roof Area



Hydrograph for Subcatchment 7S: Roof Area

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	95	89	0.0018
0.25	0	0	0.0000	13.50	95	89	0.0018
0.50	1	0	0.0000	13.75	96	90	0.0017
0.75	1	0	0.0000	14.00	96	90	0.0016
1.00	1	0	0.0001	14.25	97	91	0.0015
1.25	2	0	0.0002	14.50	97	91	0.0015
1.50	2	0	0.0003	14.75	98	92	0.0014
1.75	3	0	0.0004	15.00	98	92	0.0014
2.00	3	1	0.0005	15.25	99	93	0.0013
2.25	3	1	0.0006	15.50	99	93	0.0013
2.50	4	1	0.0007	15.75	100	94	0.0013
2.75	4	1	0.0008	16.00	100	94	0.0012
3.00	5	2	0.0008	16.25	101	95	0.0012
3.25	5	2	0.0009	16.50	101	95	0.0012
3.50	6	2	0.0010	16.75	101	96	0.0011
3.75	6	3	0.0011	17.00	102	96	0.0011
4.00	7	3	0.0011	17.25	102	96	0.0011
4.25	7	3	0.0012	17.50	103	97	0.0010
4.50	8	4	0.0013	17.75	103	97	0.0010
4.75	9	4	0.0014	18.00	103	97	0.0010
5.00	9	5	0.0015	18.25	104	98	0.0010
5.25	10	6	0.0016	18.50	104	98	0.0010
5.50	10	6	0.0017	18.75	104	98	0.0009
5.75	11	7	0.0018	19.00	105	99	0.0009
6.00	12	7	0.0019	19.25	105	99	0.0009
6.25	13	8	0.0021	19.50	105	99	0.0009
6.50	14	9	0.0022	19.75	106	100	0.0009
6.75	15	10	0.0024	20.00	106	100	0.0009
7.00	16	11	0.0027	20.25	106	100	0.0008
7.25	17	12	0.0029	20.50	107	101	0.0008
7.50	18	13	0.0033	20.75	107	101	0.0008
7.75	20	14	0.0038	21.00	107	101	0.0008
8.00	21	16	0.0044	21.25	107	101	0.0008
8.25	23	18	0.0053	21.50	108	102	0.0008
8.50	26	20	0.0068	21.75	108	102	0.0008
8.75	30	24	0.0097	22.00	108	102	0.0007
9.00	37	32	0.0162	22.25	108	102	0.0007
9.25	67	61	0.0893	22.50	109	103	0.0007
9.50	74	68	0.0251	22.75	109	103	0.0007
9.75	78	72	0.0110	23.00	109	103	0.0007
10.00	81	75	0.0074	23.25	109	104	0.0007
10.25	83	77	0.0057	23.50	110	104	0.0007
10.50	84	78	0.0047	23.75	110	104	0.0007
10.75	86	80	0.0041	24.00	110	104	0.0007
11.00	87	81	0.0036				
11.25	88	82	0.0032				
11.50	89	83	0.0029				
11.75	90	84	0.0027				
12.00	91	85	0.0025				
12.25	92	86	0.0023				
12.50	93	87	0.0022				
12.75	93	87	0.0020				
13.00	94	88	0.0019				

Summary for Pond 8P: Roof Storage

Inflow Area = 0.2525 ha, 100.00% Impervious, Inflow Depth > 104 mm for 50-Year event
Inflow = 0.0994 m³/s @ 9.25 hrs, Volume= 0.263 MI
Outflow = 0.0090 m³/s @ 9.87 hrs, Volume= 0.263 MI, Atten= 91%, Lag= 36.8 min
Primary = 0.0090 m³/s @ 9.87 hrs, Volume= 0.263 MI
Routed to Link SL: TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.144 m @ 9.87 hrs Surf.Area= 2,269.4 m² Storage= 109.0 m³

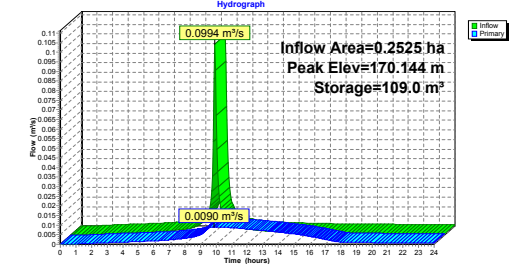
Plug-Flow detention time= 103.8 min calculated for 0.262 MI (100% of inflow)
Center-of-Mass det. time= 103.4 min (722.1 - 618.7)

Volume	Invert	Avail Storage	Storage Description		
#1	170.000 m	249.1 m³	Custom Stage Data (Pyramidal) Listed below (Recalc)		
Elevation (meters)	Surf.Area (sq-meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)	Wet.Area (sq-meters)	
170.000	0.0	0.0	0.0	0.0	
170.152	2,525.0	127.9	127.9	2,525.0	
170.200	2,525.0	121.2	249.1	2,534.7	

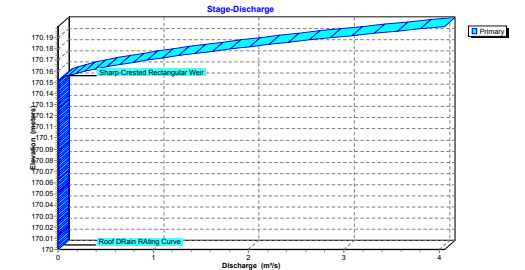
Device	Routing	Invert	Outlet Devices
#1	Primary	170.000 m	Road Drain Rating Curve X 5.00 Head (meters) 0.000 0.013 0.025 0.038 0.051 0.064 0.076 Disch. (m³/s) 0.00000 0.00016 0.00031 0.00047 0.00063 0.00079 0.00095 0.00110 0.00126 0.00142 0.00158 0.00174 0.00189
#2	Primary	170.152 m	213.00 m long Sharp-Crested Rectangular Weir 0 End Contraction(s)

Primary OutFlow Max=0.0090 m³/s @ 9.87 hrs HW=170.144 m (Free Discharge)
1=Road Drain Rating Curve (Custom Controls 0.0090 m³/s)
2=Sharp-Crested Rectangular Weir (Controls 0.0000 m³/s)

Pond 8P: Roof Storage

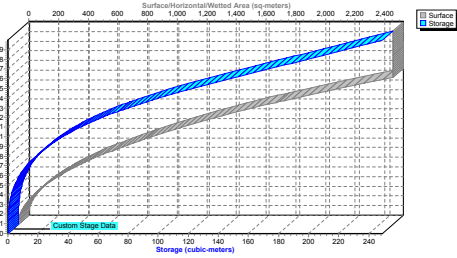


Pond 8P: Roof Storage



Pond 8P: Roof Storage

Stage-Area-Storage



Hydrograph for Pond 8P: Roof Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	170.000	0.0000
0.50	0.0000	0.0	170.000	0.0000
1.00	0.0001	0.0	170.001	0.0001
1.50	0.0003	0.0	170.005	0.0003
2.00	0.0005	0.0	170.008	0.0005
2.50	0.0007	0.0	170.011	0.0007
3.00	0.0008	0.1	170.013	0.0008
3.50	0.0010	0.1	170.015	0.0009
4.00	0.0011	0.2	170.018	0.0011
4.50	0.0013	0.3	170.020	0.0012
5.00	0.0015	0.4	170.022	0.0014
5.50	0.0017	0.6	170.025	0.0016
6.00	0.0019	0.8	170.028	0.0017
6.50	0.0022	1.2	170.032	0.0020
7.00	0.0027	1.8	170.036	0.0023
7.50	0.0033	2.7	170.042	0.0028
8.00	0.0044	4.5	170.050	0.0031
8.50	0.0068	8.1	170.061	0.0037
9.00	0.0182	19.3	170.081	0.0050
9.50	0.0251	102.0	170.141	0.0088
10.00	0.0074	108.6	170.144	0.0089
10.50	0.0047	103.2	170.141	0.0086
11.00	0.0036	94.9	170.138	0.0086
11.50	0.0029	85.6	170.133	0.0083
12.00	0.0025	75.8	170.128	0.0079
12.50	0.0022	66.0	170.122	0.0075
13.00	0.0019	56.4	170.116	0.0072
13.50	0.0018	47.1	170.109	0.0068
14.00	0.0016	38.4	170.102	0.0063
14.50	0.0015	30.3	170.094	0.0058
15.00	0.0014	22.9	170.086	0.0053
15.50	0.0013	16.2	170.076	0.0048
16.00	0.0012	10.5	170.066	0.0041
16.50	0.0012	5.9	170.055	0.0034
17.00	0.0011	1.6	170.041	0.0024
17.50	0.0010	0.7	170.027	0.0017
18.00	0.0010	0.2	170.017	0.0011
18.50	0.0010	0.1	170.016	0.0009
19.00	0.0009	0.1	170.015	0.0009
19.50	0.0009	0.1	170.014	0.0009
20.00	0.0009	0.1	170.014	0.0009
20.50	0.0008	0.1	170.013	0.0008
21.00	0.0008	0.1	170.013	0.0008
21.50	0.0008	0.1	170.013	0.0008
22.00	0.0007	0.1	170.012	0.0007
22.50	0.0007	0.1	170.012	0.0007
23.00	0.0007	0.1	170.011	0.0007
23.50	0.0007	0.1	170.011	0.0007
24.00	0.0007	0.0	170.011	0.0007

Stage-Discharge for Pond 8P: Roof Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
170.000	0.0000	170.053	0.0033	170.106	0.0066	170.159	0.2348
170.001	0.0001	170.054	0.0033	170.107	0.0066	170.160	0.2848
170.002	0.0001	170.055	0.0034	170.108	0.0067	170.161	0.3380
170.003	0.0002	170.056	0.0035	170.109	0.0068	170.162	0.3943
170.004	0.0002	170.057	0.0035	170.110	0.0068	170.163	0.4534
170.005	0.0003	170.058	0.0036	170.111	0.0069	170.164	0.5153
170.006	0.0004	170.059	0.0036	170.112	0.0070	170.165	0.5798
170.007	0.0004	170.060	0.0037	170.113	0.0070	170.166	0.6469
170.008	0.0005	170.061	0.0038	170.114	0.0071	170.167	0.7164
170.009	0.0006	170.062	0.0038	170.115	0.0072	170.168	0.7883
170.010	0.0006	170.063	0.0039	170.116	0.0072	170.169	0.8624
170.011	0.0007	170.064	0.0039	170.117	0.0073	170.170	0.9398
170.012	0.0007	170.065	0.0040	170.118	0.0073	170.171	1.0173
170.013	0.0008	170.066	0.0041	170.119	0.0074	170.172	1.0979
170.014	0.0009	170.067	0.0042	170.120	0.0075	170.173	1.1805
170.015	0.0009	170.068	0.0042	170.121	0.0075	170.174	1.2651
170.016	0.0010	170.069	0.0043	170.122	0.0076	170.175	1.3517
170.017	0.0010	170.070	0.0043	170.123	0.0077	170.176	1.4402
170.018	0.0011	170.071	0.0044	170.124	0.0077	170.177	1.5306
170.019	0.0012	170.072	0.0045	170.125	0.0078	170.178	1.6227
170.020	0.0012	170.073	0.0046	170.126	0.0078	170.179	1.7167
170.021	0.0013	170.074	0.0046	170.127	0.0079	170.180	1.8122
170.022	0.0014	170.075	0.0047	170.128	0.0080	170.181	1.9099
170.023	0.0014	170.076	0.0047	170.129	0.0080	170.182	2.0090
170.024	0.0015	170.077	0.0048	170.130	0.0081	170.183	2.1098
170.025	0.0016	170.078	0.0049	170.131	0.0081	170.184	2.2122
170.026	0.0016	170.079	0.0049	170.132	0.0082	170.185	2.3163
170.027	0.0017	170.080	0.0050	170.133	0.0083	170.186	2.4219
170.028	0.0017	170.081	0.0050	170.134	0.0083	170.187	2.5292
170.029	0.0018	170.082	0.0051	170.135	0.0084	170.188	2.6379
170.030	0.0019	170.083	0.0052	170.136	0.0085	170.189	2.7482
170.031	0.0019	170.084	0.0052	170.137	0.0085	170.190	2.8600
170.032	0.0020	170.085	0.0053	170.138	0.0086	170.191	2.9732
170.033	0.0020	170.086	0.0053	170.139	0.0086	170.192	3.0879
170.034	0.0021	170.087	0.0054	170.140	0.0087	170.193	3.2041
170.035	0.0022	170.088	0.0054	170.141	0.0088	170.194	3.3217
170.036	0.0022	170.089	0.0055	170.142	0.0088	170.195	3.4407
170.037	0.0023	170.090	0.0056	170.143	0.0089	170.196	3.5611
170.038	0.0024	170.091	0.0056	170.144	0.0090	170.197	3.6828
170.039	0.0024	170.092	0.0057	170.145	0.0090	170.198	3.8060
170.040	0.0025	170.093	0.0057	170.146	0.0091	170.199	3.9304
170.041	0.0025	170.094	0.0058	170.147	0.0091	170.200	4.0562
170.042	0.0026	170.095	0.0059	170.148	0.0092		
170.043	0.0027	170.096	0.0059	170.149	0.0093		
170.044	0.0027	170.097	0.0060	170.150	0.0093		
170.045	0.0028	170.098	0.0061	170.151	0.0094		
170.046	0.0028	170.099	0.0061	170.152	0.0094		
170.047	0.0029	170.100	0.0062	170.153	0.0094		
170.048	0.0030	170.101	0.0062	170.154	0.0094		
170.049	0.0030	170.102	0.0063	170.155	0.0094		
170.050	0.0031	170.103	0.0064	170.156	0.0094		
170.051	0.0031	170.104	0.0064	170.157	0.0094		
170.052	0.0032	170.105	0.0065	170.158	0.0094		

Stage-Area-Storage for Pond 8P: Roof Storage

Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)	Elevation (meters)	Surface (sq-meters)	Storage (cubic-meters)
170.000	0.0	0.0	170.106	1,228.0	43.4
170.002	0.4	0.0	170.108	1,274.7	45.9
170.004	1.7	0.0	170.110	1,322.4	48.5
170.006	4.3	0.0	170.112	1,370.9	51.2
170.008	7.0	0.0	170.114	1,420.3	54.0
170.010	10.9	0.0	170.116	1,470.6	56.9
170.012	15.7	0.1	170.118	1,521.7	59.9
170.014	21.4	0.1	170.120	1,573.8	63.0
170.016	28.0	0.1	170.122	1,628.6	66.2
170.018	35.4	0.2	170.124	1,680.4	69.5
170.020	43.7	0.3	170.126	1,735.1	72.9
170.022	52.9	0.4	170.128	1,790.6	76.4
170.024	63.0	0.5	170.130	1,847.0	80.0
170.026	73.9	0.6	170.132	1,904.2	83.8
170.028	85.7	0.8	170.134	1,962.4	87.7
170.030	98.4	1.0	170.136	2,021.4	91.6
170.032	111.9	1.2	170.138	2,081.3	95.7
170.034	126.3	1.4	170.140	2,142.1	100.0
170.036	141.6	1.7	170.142	2,203.7	104.3
170.038	157.8	2.0	170.144	2,266.2	108.8
170.040	174.9	2.3	170.146	2,329.6	113.4
170.042	192.8	2.7	170.148	2,393.9	118.1
170.044	211.6	3.1	170.150	2,459.0	122.9
170.046	231.3	3.5	170.152	2,525.0	127.9
170.048	251.8	4.0	170.154	2,525.0	133.0
170.050	273.2	4.6	170.156	2,525.0	138.0
170.052	295.5	5.1	170.158	2,525.0	143.1
170.054	318.7	5.7	170.160	2,525.0	148.1
170.056	342.7	6.4	170.162	2,525.0	153.2
170.058	367.6	7.1	170.164	2,525.0	158.2
170.060	393.4	7.9	170.166	2,525.0	163.3
170.062	420.1	8.7	170.168	2,525.0	168.3
170.064	447.6	9.5	170.170	2,525.0	173.4
170.066	476.1	10.5	170.172	2,525.0	178.4
170.068	505.3	11.5	170.174	2,525.0	183.5
170.070	535.5	12.5	170.176	2,525.0	188.5
170.072	566.6	13.6	170.178	2,525.0	193.6
170.074	598.5	14.8	170.180	2,525.0	198.6
170.076	631.3	16.0	170.182	2,525.0	203.7
170.078	664.9	17.3	170.184	2,525.0	208.7
170.080	699.4	18.7	170.186	2,525.0	213.8
170.082	734.9	20.1	170.188	2,525.0	218.8
170.084	771.1	21.6	170.190	2,525.0	223.9
170.086	808.3	23.2	170.192	2,525.0	228.9
170.088	846.3	24.8	170.194	2,525.0	234.0
170.090	885.2	26.6	170.196	2,525.0	239.0
170.092	925.0	28.4	170.198	2,525.0	244.1
170.094	965.7	30.3	170.200	2,525.0	249.1
170.096	1,007.2	32.2			
170.098	1,049.6	34.3			
170.100	1,092.9	36.4			
170.102	1,137.0	38.7			
170.104	1,182.1	41.0			

Summary for Pond 4P: Underground Storage

Inflow Area = 0.5093 ha, 71.12% Impervious, Inflow Depth > 95 mm for 100-Year event
Inflow = 0.1964 m³/s @ 9.26 hrs, Volume= 0.482 MI
Outflow = 0.0926 m³/s @ 9.40 hrs, Volume= 0.481 MI, Atten= 53%, Lag= 8.8 min
Primary = 0.0926 m³/s @ 9.40 hrs, Volume= 0.481 MI
Routed to Link 5L : TOTAL

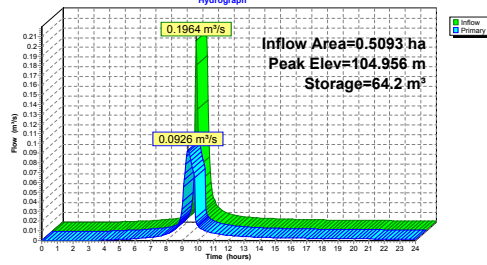
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev=104.956 m @ 9.40 hrs Surf.Area= 145.2 m² Storage= 64.2 m³

Plug-Flow detention time= 5.6 min calculated for 0.480 MI (100% of inflow)
Center-of-Mass det. time= 3.5 min (657.1 - 653.6)

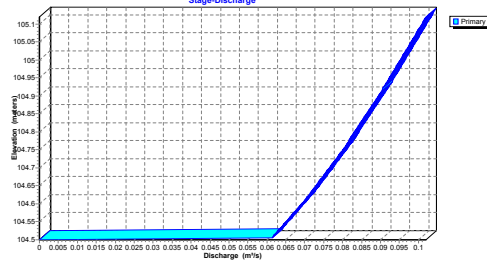
Volume	Invert	Avail.Storage	Storage Description
#1 104.500 m	64.4 m³	ACO StormBrix SD 0.5 x 200	
Inside= 603 mmW x 457 mmH => 0.267 m³ x 1.21 mL = 0.32 m³			
Outside= 603 mmW x 457 mmH => 0.275 m³ x 1.21 mL = 0.33 m³			
Device	Routing	Invert	Outlet Devices
#1 Primary	103.990 m	Special & User-Defined	
Elev. (meters) 103.990 104.150 104.200 104.240 104.300			
104.380 104.490 104.610 104.750 104.910 105.120			
Disch. (m³/s) 0.00000 0.01000 0.02000 0.03000 0.04000 0.05000			
0.06000 0.07000 0.08000 0.09000 0.10200			

Primary OutFlow Max=0.0926 m³/s @ 9.40 hrs HW=104.955 m (Free Discharge)
└─Special & User-Defined (Custom Controls 0.0926 m³/s)

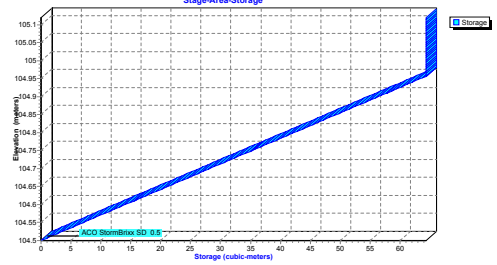
Pond 4P: Underground Storage



Pond 4P: Underground Storage



Pond 4P: Underground Storage



Hydrograph for Pond 4P: Underground Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	104.500	0.0000
0.50	0.0000	0.0	104.500	0.0000
1.00	0.0000	0.0	104.500	0.0000
1.50	0.0000	0.0	104.500	0.0000
2.00	0.0000	0.0	104.500	0.0000
2.50	0.0000	0.0	104.500	0.0000
3.00	0.0000	0.0	104.500	0.0000
3.50	0.0002	0.0	104.500	0.0002
4.00	0.0005	0.0	104.500	0.0005
4.50	0.0008	0.0	104.500	0.0008
5.00	0.0011	0.0	104.500	0.0011
5.50	0.0015	0.0	104.500	0.0015
6.00	0.0019	0.0	104.500	0.0019
6.50	0.0025	0.0	104.500	0.0025
7.00	0.0033	0.0	104.500	0.0033
7.50	0.0045	0.1	104.500	0.0045
8.00	0.0065	0.1	104.501	0.0065
8.50	0.0110	0.2	104.501	0.0109
9.00	0.0236	0.5	104.503	0.0222
9.50	0.0516	56.2	104.899	0.0893
10.00	0.0155	0.2	104.502	0.0157
10.50	0.0100	0.1	104.501	0.0085
11.00	0.0075	0.1	104.501	0.0075
11.50	0.0061	0.1	104.501	0.0062
12.00	0.0052	0.1	104.501	0.0052
12.50	0.0046	0.1	104.500	0.0046
13.00	0.0041	0.1	104.500	0.0041
13.50	0.0037	0.0	104.500	0.0037
14.00	0.0034	0.0	104.500	0.0034
14.50	0.0032	0.0	104.500	0.0032
15.00	0.0029	0.0	104.500	0.0029
15.50	0.0028	0.0	104.500	0.0028
16.00	0.0028	0.0	104.500	0.0028
16.50	0.0025	0.0	104.500	0.0025
17.00	0.0023	0.0	104.500	0.0023
17.50	0.0022	0.0	104.500	0.0022
18.00	0.0021	0.0	104.500	0.0021
18.50	0.0020	0.0	104.500	0.0020
19.00	0.0020	0.0	104.500	0.0020
19.50	0.0019	0.0	104.500	0.0019
20.00	0.0018	0.0	104.500	0.0018
20.50	0.0018	0.0	104.500	0.0018
21.00	0.0017	0.0	104.500	0.0017
21.50	0.0016	0.0	104.500	0.0016
22.00	0.0016	0.0	104.500	0.0016
22.50	0.0015	0.0	104.500	0.0015
23.00	0.0015	0.0	104.500	0.0015
23.50	0.0015	0.0	104.500	0.0015
24.00	0.0014	0.0	104.500	0.0014

Stage-Discharge for Pond 4P: Underground Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
104.500	0.0000	104.765	0.0809	105.030	0.0969
104.505	0.0612	104.770	0.0812	105.035	0.0971
104.510	0.0617	104.775	0.0816	105.040	0.0974
104.515	0.0621	104.780	0.0819	105.045	0.0977
104.520	0.0625	104.785	0.0822	105.050	0.0980
104.525	0.0629	104.790	0.0825	105.055	0.0983
104.530	0.0633	104.795	0.0828	105.060	0.0986
104.535	0.0638	104.800	0.0831	105.065	0.0989
104.540	0.0642	104.805	0.0834	105.070	0.0991
104.545	0.0646	104.810	0.0838	105.075	0.0994
104.550	0.0650	104.815	0.0841	105.080	0.0997
104.555	0.0654	104.820	0.0844	105.085	0.1000
104.560	0.0658	104.825	0.0847	105.090	0.1003
104.565	0.0663	104.830	0.0850	105.095	0.1006
104.570	0.0667	104.835	0.0853	105.100	0.1009
104.575	0.0671	104.840	0.0856	105.105	0.1011
104.580	0.0675	104.845	0.0859	105.110	0.1014
104.585	0.0679	104.850	0.0862	105.115	0.1017
104.590	0.0683	104.855	0.0866	105.120	0.1020
104.595	0.0688	104.860	0.0869		
104.600	0.0692	104.865	0.0872		
104.605	0.0696	104.870	0.0875		
104.610	0.0700	104.875	0.0878		
104.615	0.0704	104.880	0.0881		
104.620	0.0707	104.885	0.0884		
104.625	0.0711	104.890	0.0888		
104.630	0.0714	104.895	0.0891		
104.635	0.0718	104.900	0.0894		
104.640	0.0721	104.905	0.0897		
104.645	0.0725	104.910	0.0900		
104.650	0.0729	104.915	0.0903		
104.655	0.0732	104.920	0.0906		
104.660	0.0736	104.925	0.0909		
104.665	0.0739	104.930	0.0911		
104.670	0.0743	104.935	0.0914		
104.675	0.0746	104.940	0.0917		
104.680	0.0750	104.945	0.0920		
104.685	0.0754	104.950	0.0923		
104.690	0.0757	104.955	0.0926		
104.695	0.0761	104.960	0.0929		
104.700	0.0764	104.965	0.0931		
104.705	0.0768	104.970	0.0934		
104.710	0.0771	104.975	0.0937		
104.715	0.0775	104.980	0.0940		
104.720	0.0779	104.985	0.0943		
104.725	0.0782	104.990	0.0946		
104.730	0.0786	104.995	0.0949		
104.735	0.0789	105.000	0.0951		
104.740	0.0793	105.005	0.0954		
104.745	0.0796	105.010	0.0957		
104.750	0.0800	105.015	0.0960		
104.755	0.0803	105.020	0.0963		
104.760	0.0806	105.025	0.0966		

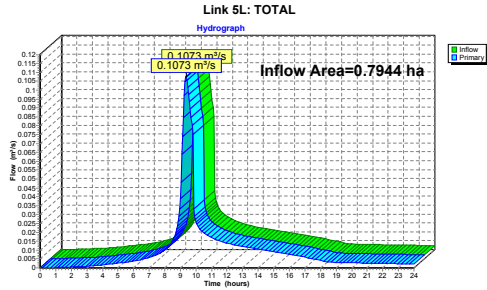
Stage-Area-Storage for Pond 4P: Underground Storage

Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)	Elevation (meters)	Storage (cubic-meters)
104.500	0.0	104.765	37.3	105.030	64.4
104.505	0.7	104.770	38.0	105.035	64.4
104.510	1.4	104.775	38.7	105.040	64.4
104.515	2.1	104.780	39.4	105.045	64.4
104.520	2.8	104.785	40.1	105.050	64.4
104.525	3.5	104.790	40.8	105.055	64.4
104.530	4.2	104.795	41.5	105.060	64.4
104.535	4.9	104.800	42.3	105.065	64.4
104.540	5.6	104.805	43.0	105.070	64.4
104.545	6.3	104.810	43.7	105.075	64.4
104.550	7.0	104.815	44.4	105.080	64.4
104.555	7.7	104.820	45.1	105.085	64.4
104.560	8.5	104.825	45.8	105.090	64.4
104.565	9.2	104.830	46.5	105.095	64.4
104.570	9.9	104.835	47.2	105.100	64.4
104.575	10.6	104.840	47.9	105.105	64.4
104.580	11.3	104.845	48.6	105.110	64.4
104.585	12.0	104.850	49.3	105.115	64.4
104.590	12.7	104.855	50.0	105.120	64.4
104.595	13.4	104.860	50.7		
104.600	14.1	104.865	51.4		
104.605	14.8	104.870	52.1		
104.610	15.5	104.875	52.8		
104.615	16.2	104.880	53.5		
104.620	16.9	104.885	54.2		
104.625	17.6	104.890	54.9		
104.630	18.3	104.895	55.6		
104.635	19.0	104.900	56.3		
104.640	19.7	104.905	57.0		
104.645	20.4	104.910	57.7		
104.650	21.1	104.915	58.5		
104.655	21.8	104.920	59.2		
104.660	22.5	104.925	59.9		
104.665	23.2	104.930	60.6		
104.670	23.9	104.935	61.3		
104.675	24.6	104.940	62.0		
104.680	25.4	104.945	62.7		
104.685	26.1	104.950	63.4		
104.690	26.8	104.955	64.1		
104.695	27.5	104.960	64.4		
104.700	28.2	104.965	64.4		
104.705	28.9	104.970	64.4		
104.710	29.6	104.975	64.4		
104.715	30.3	104.980	64.4		
104.720	31.0	104.985	64.4		
104.725	31.7	104.990	64.4		
104.730	32.4	104.995	64.4		
104.735	33.1	105.000	64.4		
104.740	33.8	105.005	64.4		
104.745	34.5	105.010	64.4		
104.750	35.2	105.015	64.4		
104.755	35.9	105.020	64.4		
104.760	36.6	105.025	64.4		

Summary for Link 5L: TOTAL

Inflow Area = 0.7944 ha, 79.37% Impervious, Inflow Depth > 100 mm for 100-Year event
Inflow = 0.1073 m³/s @ 9.37 hrs, Volume= 0.796 MI
Primary = 0.1073 m³/s @ 9.37 hrs, Volume= 0.796 MI, Atten=0%, Lag=0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Hydrograph for Link 5L: TOTAL

Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)	Time (hours)	Inflow (m³/s)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0000	0.0000	13.25	0.0116	0.000	0.0116
0.25	0.0000	0.000	0.0000	13.50	0.0112	0.000	0.0112
0.50	0.0000	0.000	0.0000	13.75	0.0109	0.000	0.0109
0.75	0.0000	0.000	0.0000	14.00	0.0105	0.000	0.0105
1.00	0.0001	0.000	0.0001	14.25	0.0101	0.000	0.0101
1.25	0.0003	0.000	0.0003	14.50	0.0097	0.000	0.0097
1.50	0.0004	0.000	0.0004	14.75	0.0094	0.000	0.0094
1.75	0.0005	0.000	0.0005	15.00	0.0090	0.000	0.0090
2.00	0.0006	0.000	0.0006	15.25	0.0087	0.000	0.0087
2.25	0.0007	0.000	0.0007	15.50	0.0083	0.000	0.0083
2.50	0.0008	0.000	0.0008	15.75	0.0080	0.000	0.0080
2.75	0.0008	0.000	0.0008	16.00	0.0076	0.000	0.0076
3.00	0.0009	0.000	0.0009	16.25	0.0073	0.000	0.0073
3.25	0.0011	0.000	0.0011	16.50	0.0069	0.000	0.0069
3.50	0.0013	0.000	0.0013	16.75	0.0064	0.000	0.0064
3.75	0.0015	0.000	0.0015	17.00	0.0060	0.000	0.0060
4.00	0.0017	0.000	0.0017	17.25	0.0056	0.000	0.0056
4.25	0.0019	0.000	0.0019	17.50	0.0051	0.000	0.0051
4.50	0.0021	0.000	0.0021	17.75	0.0047	0.000	0.0047
4.75	0.0024	0.000	0.0024	18.00	0.0042	0.000	0.0042
5.00	0.0026	0.000	0.0026	18.25	0.0037	0.000	0.0037
5.25	0.0029	0.000	0.0029	18.50	0.0034	0.000	0.0034
5.50	0.0032	0.000	0.0032	18.75	0.0032	0.000	0.0032
5.75	0.0035	0.000	0.0035	19.00	0.0031	0.000	0.0031
6.00	0.0039	0.000	0.0039	19.25	0.0030	0.000	0.0030
6.25	0.0043	0.000	0.0043	19.50	0.0030	0.000	0.0030
6.50	0.0048	0.000	0.0048	19.75	0.0029	0.000	0.0029
6.75	0.0053	0.000	0.0053	20.00	0.0029	0.000	0.0029
7.00	0.0059	0.000	0.0059	20.25	0.0028	0.000	0.0028
7.25	0.0066	0.000	0.0066	20.50	0.0028	0.000	0.0028
7.50	0.0075	0.000	0.0075	20.75	0.0027	0.000	0.0027
7.75	0.0086	0.000	0.0086	21.00	0.0027	0.000	0.0027
8.00	0.0101	0.000	0.0101	21.25	0.0026	0.000	0.0026
8.25	0.0122	0.000	0.0122	21.50	0.0026	0.000	0.0026
8.50	0.0154	0.000	0.0154	21.75	0.0026	0.000	0.0026
8.75	0.0215	0.000	0.0215	22.00	0.0025	0.000	0.0025
9.00	0.0391	0.000	0.0391	22.25	0.0025	0.000	0.0025
9.25	0.0972	0.000	0.0972	22.50	0.0024	0.000	0.0024
9.50	0.1014	0.000	0.1014	22.75	0.0024	0.000	0.0024
9.75	0.0800	0.000	0.0800	23.00	0.0024	0.000	0.0024
10.00	0.0259	0.000	0.0259	23.25	0.0023	0.000	0.0023
10.25	0.0221	0.000	0.0221	23.50	0.0023	0.000	0.0023
10.50	0.0197	0.000	0.0197	23.75	0.0023	0.000	0.0023
10.75	0.0181	0.000	0.0181	24.00	0.0022	0.000	0.0022
11.00	0.0169	0.000	0.0169				
11.25	0.0160	0.000	0.0160				
11.50	0.0152	0.000	0.0152				
11.75	0.0145	0.000	0.0145				
12.00	0.0139	0.000	0.0139				
12.25	0.0134	0.000	0.0134				
12.50	0.0129	0.000	0.0129				
12.75	0.0125	0.000	0.0125				
13.00	0.0120	0.000	0.0120				

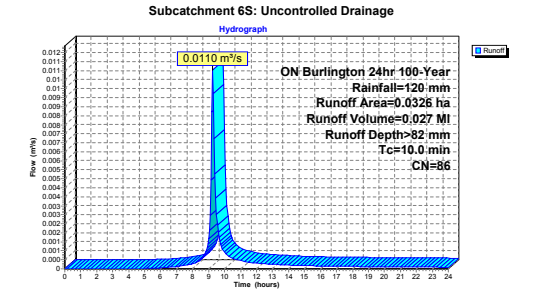
Summary for Subcatchment 6S: Uncontrolled Drainage

Runoff = 0.0110 m³/s @ 9.26 hrs, Volume= 0.027 MI, Depth= 82 mm
Routed to Link 5L: TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 100-Year Rainfall=120 mm

Area (ha)	CN	Description
0.0158	98	Paved parking, HSG C
0.0168	74	>75% Grass cover, Good, HSG C
0.0326	86	Weighted Average
0.0168		51.53% Pervious Area
0.0158		48.47% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,



Hydrograph for Subcatchment 6S: Uncontrolled Drainage

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	103	66	0.0002
0.25	0	0	0.0000	13.50	104	67	0.0002
0.50	1	0	0.0000	13.75	105	67	0.0002
0.75	1	0	0.0000	14.00	105	68	0.0002
1.00	2	0	0.0000	14.25	106	69	0.0002
1.25	2	0	0.0000	14.50	107	69	0.0002
1.50	2	0	0.0000	14.75	107	70	0.0002
1.75	3	0	0.0000	15.00	108	70	0.0002
2.00	3	0	0.0000	15.25	108	71	0.0002
2.25	4	0	0.0000	15.50	109	71	0.0002
2.50	4	0	0.0000	15.75	109	72	0.0002
2.75	5	0	0.0000	16.00	110	72	0.0002
3.00	5	0	0.0000	16.25	110	72	0.0002
3.25	6	0	0.0000	16.50	110	73	0.0001
3.50	6	0	0.0000	16.75	111	73	0.0001
3.75	7	0	0.0000	17.00	111	74	0.0001
4.00	7	0	0.0000	17.25	112	74	0.0001
4.25	8	0	0.0000	17.50	112	74	0.0001
4.50	9	0	0.0000	17.75	113	75	0.0001
4.75	9	0	0.0000	18.00	113	75	0.0001
5.00	10	0	0.0000	18.25	113	75	0.0001
5.25	11	0	0.0000	18.50	114	76	0.0001
5.50	11	0	0.0000	18.75	114	76	0.0001
5.75	12	0	0.0000	19.00	114	76	0.0001
6.00	13	0	0.0001	19.25	115	77	0.0001
6.25	14	1	0.0001	19.50	115	77	0.0001
6.50	15	1	0.0001	19.75	115	77	0.0001
6.75	16	1	0.0001	20.00	116	78	0.0001
7.00	17	2	0.0001	20.25	116	78	0.0001
7.25	18	2	0.0001	20.50	116	78	0.0001
7.50	20	2	0.0002	20.75	117	79	0.0001
7.75	21	3	0.0002	21.00	117	79	0.0001
8.00	23	4	0.0003	21.25	117	79	0.0001
8.25	25	5	0.0004	21.50	118	79	0.0001
8.50	28	6	0.0005	21.75	118	80	0.0001
8.75	32	9	0.0008	22.00	118	80	0.0001
9.00	41	14	0.0017	22.25	119	80	0.0001
9.25	73	40	0.0110	22.50	119	80	0.0001
9.50	81	47	0.0030	22.75	119	81	0.0001
9.75	85	50	0.0014	23.00	119	81	0.0001
10.00	88	53	0.0008	23.25	120	81	0.0001
10.25	90	54	0.0007	23.50	120	81	0.0001
10.50	92	56	0.0006	23.75	120	82	0.0001
10.75	94	58	0.0005	24.00	120	82	0.0001
11.00	95	59	0.0005				
11.25	96	60	0.0004				
11.50	97	61	0.0004				
11.75	98	62	0.0003				
12.00	99	63	0.0003				
12.25	100	63	0.0003				
12.50	101	64	0.0003				
12.75	102	65	0.0003				
13.00	103	66	0.0002				

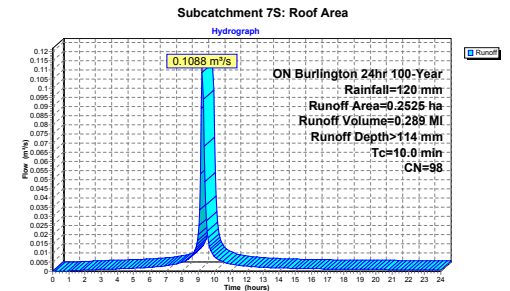
Summary for Subcatchment 7S: Roof Area

Runoff = 0.1088 m³/s @ 9.25 hrs, Volume= 0.289 MI, Depth= 114 mm
Routed to Pond 8P: Roof Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
ON Burlington 24hr 100-Year Rainfall=120 mm

Area (ha)	CN	Description
0.2525	98	100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					Direct Entry,



Hydrograph for Subcatchment 7S: Roof Area

Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)	Time (hours)	Precip. (mm)	Excess (mm)	Runoff (m³/s)
0.00	0	0	0.0000	13.25	103	97	0.0020
0.25	0	0	0.0000	13.50	104	98	0.0019
0.50	1	0	0.0000	13.75	105	99	0.0018
0.75	1	0	0.0000	14.00	105	99	0.0018
1.00	2	0	0.0001	14.25	106	100	0.0017
1.25	2	0	0.0003	14.50	107	101	0.0016
1.50	2	0	0.0004	14.75	107	101	0.0016
1.75	3	0	0.0005	15.00	108	102	0.0015
2.00	3	1	0.0006	15.25	108	102	0.0015
2.25	4	1	0.0007	15.50	109	103	0.0014
2.50	4	1	0.0008	15.75	109	103	0.0014
2.75	5	2	0.0009	16.00	110	104	0.0013
3.00	5	2	0.0010	16.25	110	104	0.0013
3.25	6	2	0.0010	16.50	110	105	0.0013
3.50	6	3	0.0011	16.75	111	105	0.0012
3.75	7	3	0.0012	17.00	111	105	0.0012
4.00	7	4	0.0013	17.25	112	106	0.0012
4.25	8	5	0.0014	17.50	112	106	0.0012
4.50	9	5	0.0014	17.75	113	107	0.0011
4.75	9	5	0.0015	18.00	113	107	0.0011
5.00	10	6	0.0016	18.25	113	107	0.0011
5.25	11	7	0.0017	18.50	114	108	0.0010
5.50	11	7	0.0019	18.75	114	108	0.0010
5.75	12	8	0.0020	19.00	115	109	0.0010
6.00	13	8	0.0021	19.25	115	109	0.0010
6.25	14	9	0.0022	19.50	115	109	0.0010
6.50	15	10	0.0023	19.75	115	109	0.0010
6.75	16	11	0.0027	20.00	116	110	0.0009
7.00	17	12	0.0029	20.25	116	110	0.0009
7.25	18	13	0.0033	20.50	116	110	0.0009
7.50	20	15	0.0036	20.75	117	111	0.0009
7.75	21	16	0.0037	21.00	117	111	0.0009
8.00	23	18	0.0048	21.25	117	111	0.0009
8.25	25	20	0.0058	21.50	118	112	0.0008
8.50	26	21	0.0061	21.75	118	112	0.0008
8.75	32	27	0.0106	22.00	118	112	0.0008
9.00	41	35	0.0200	22.25	119	113	0.0008
9.25	47	41	0.0367	22.50	119	113	0.0008
9.50	85	75	0.0275	22.75	119	113	0.0008
9.75	81	79	0.0230	23.00	119	113	0.0008
10.00	80	78	0.0081	23.25	120	114	0.0007
10.25	90	84	0.0063	23.50	120	114	0.0007
10.50	92	86	0.0042	23.75	120	114	0.0007
10.75	95	89	0.0044	24.00	120	114	0.0007
11.00	95	89	0.0039				
11.25	96	90	0.0035				
11.50	97	91	0.0032				
11.75	98	92	0.0029				
12.00	98	93	0.0027				
12.25	100	84	0.0025				
12.50	101	95	0.0024				
12.75	101	95	0.0022				
13.00	103	97	0.0021				

Summary for Pond 8P: Roof Storage

Inflow Area = 0.2525 ha, 100.00% Impervious, Inflow Depth > 114 mm for 100-Year event
Inflow = 0.1088 m³/s @ 9.25 hrs, Volume= 0.289 MI
Outflow = 0.0093 m³/s @ 9.90 hrs, Volume= 0.289 MI, Atten= 91%, Lag= 38.9 min
Primary = 0.0093 m³/s @ 9.90 hrs, Volume= 0.289 MI
Routed to Link 5L : TOTAL

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.150 m @ 9.90 hrs Surf.Area= 2,444.4 m² Storage= 121.9 m³

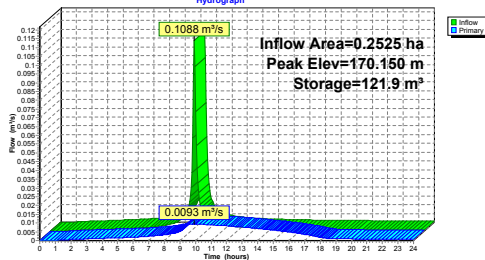
Plug-Flow detention time= 113.3 min calculated for 0.288 MI (100% of inflow)
Center-of-Mass det. time= 112.9 min (730.2 - 617.3)

Volume	Invert	Avail. Storage	Storage Description			
#1	170.000 m	249.1 m³	Custom Stage Data (Pyramidal), Listed below (Recalc)			
Elevation (meters)	Surf. Area (sq-meters)	Inc. Store (cubic-meters)	Cum. Store (cubic-meters)	Wet Area (sq-meters)		
170.000	0.0	0.0	0.0	0.0		
170.152	2,525.0	127.9	127.9	2,525.0		
170.200	2,525.0	121.2	249.1	2,534.7		

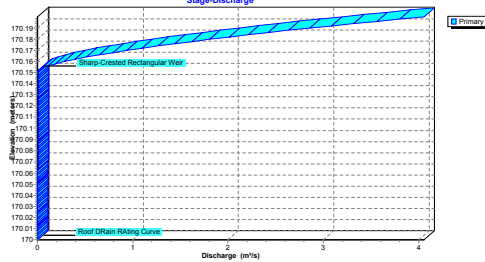
Device	Routing	Invert	Outlet Devices
#1	Primary	170.000 m	Roof Drain Rating Curve X 5.00 Head (meters) 0.000 0.013 0.025 0.038 0.051 0.064 0.076 0.089 0.102 0.114 0.127 0.140 0.152 Disch. (m³/s) 0.00000 0.00016 0.00031 0.00047 0.00063 0.00079 0.00095 0.00110 0.00128 0.00142 0.00158 0.00174 0.00189 213.00 m long Sharp-Crested Rectangular Weir 0 End Contraction(s)
#2	Primary	170.152 m	

Primary OutFlow Max=0.0093 m³/s @ 9.90 hrs HW=170.150 m (Free Discharge)
1=Roof Drain Rating Curve (Custom Controls 0.0093 m³/s)
2=Sharp-Crested Rectangular Weir (Controls 0.0000 m³/s)

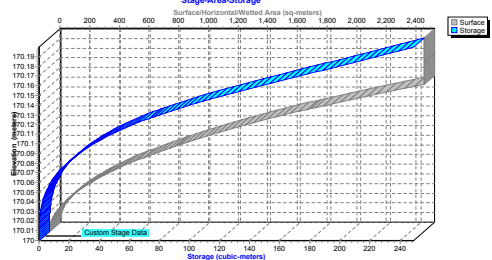
Pond 8P: Roof Storage



Pond 8P: Roof Storage



Pond 8P: Roof Storage



Hydrograph for Pond 8P: Roof Storage

Time (hours)	Inflow (m³/s)	Storage (cubic-meters)	Elevation (meters)	Primary (m³/s)
0.00	0.0000	0.0	170.000	0.0000
0.50	0.0000	0.0	170.000	0.0000
1.00	0.0001	0.0	170.002	0.0001
1.50	0.0004	0.0	170.006	0.0004
2.00	0.0006	0.0	170.010	0.0006
2.50	0.0008	0.1	170.012	0.0008
3.00	0.0010	0.1	170.015	0.0009
3.50	0.0011	0.2	170.017	0.0011
4.00	0.0013	0.3	170.020	0.0012
4.50	0.0014	0.4	170.022	0.0014
5.00	0.0016	0.5	170.025	0.0015
5.50	0.0019	0.8	170.028	0.0017
6.00	0.0021	1.1	170.031	0.0019
6.50	0.0025	1.5	170.035	0.0022
7.00	0.0029	2.3	170.040	0.0024
7.50	0.0036	3.4	170.045	0.0028
8.00	0.0048	5.5	170.053	0.0033
8.50	0.0075	9.7	170.064	0.0040
9.00	0.0206	22.3	170.085	0.0053
9.50	0.0275	113.5	170.146	0.0091
10.00	0.0081	121.6	170.149	0.0093
10.50	0.0052	116.6	170.147	0.0092
11.00	0.0039	108.3	170.144	0.0089
11.50	0.0032	98.8	170.139	0.0087
12.00	0.0027	88.8	170.135	0.0082
12.50	0.0024	78.6	170.129	0.0080
13.00	0.0021	68.4	170.123	0.0077
13.50	0.0019	58.6	170.117	0.0075
14.00	0.0018	49.1	170.110	0.0069
14.50	0.0016	40.2	170.103	0.0064
15.00	0.0015	32.0	170.096	0.0059
15.50	0.0014	24.4	170.088	0.0054
16.00	0.0013	17.6	170.078	0.0049
16.50	0.0013	11.7	170.068	0.0042
17.00	0.0012	6.9	170.057	0.0035
17.50	0.0011	3.3	170.045	0.0028
18.00	0.0011	1.1	170.031	0.0019
18.50	0.0010	0.3	170.019	0.0012
19.00	0.0010	0.2	170.017	0.0010
19.50	0.0010	0.1	170.016	0.0010
20.00	0.0009	0.1	170.015	0.0009
20.50	0.0009	0.1	170.015	0.0009
21.00	0.0009	0.1	170.014	0.0009
21.50	0.0008	0.1	170.014	0.0008
22.00	0.0008	0.1	170.013	0.0008
22.50	0.0008	0.1	170.013	0.0008
23.00	0.0008	0.1	170.012	0.0008
23.50	0.0007	0.1	170.012	0.0008
24.00	0.0007	0.1	170.012	0.0007

Stage-Discharge for Pond 8P: Roof Storage

Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)	Elevation (meters)	Primary (m³/s)
170.000	0.0000	170.053	0.0033	170.106	0.0066	170.159	0.0238
170.001	0.0001	170.054	0.0033	170.107	0.0066	170.160	0.0248
170.002	0.0001	170.055	0.0034	170.108	0.0067	170.161	0.0380
170.003	0.0002	170.056	0.0035	170.109	0.0069	170.162	0.0393
170.004	0.0002	170.057	0.0035	170.110	0.0068	170.163	0.0453
170.005	0.0003	170.058	0.0036	170.111	0.0069	170.164	0.0513
170.006	0.0004	170.059	0.0036	170.112	0.0070	170.165	0.0578
170.007	0.0004	170.060	0.0037	170.113	0.0070	170.166	0.0649
170.008	0.0005	170.061	0.0038	170.114	0.0071	170.167	0.0716
170.009	0.0006	170.062	0.0038	170.115	0.0072	170.168	0.0783
170.010	0.0006	170.063	0.0039	170.116	0.0072	170.169	0.0824
170.011	0.0007	170.064	0.0039	170.117	0.0073	170.170	0.0938
170.012	0.0007	170.065	0.0040	170.118	0.0073	170.171	0.1073
170.013	0.0008	170.066	0.0041	170.119	0.0074	170.172	0.1097
170.014	0.0009	170.067	0.0042	170.120	0.0075	170.173	0.1805
170.015	0.0009	170.068	0.0042	170.121	0.0075	170.174	0.2051
170.016	0.0010	170.069	0.0043	170.122	0.0076	170.175	0.3517
170.017	0.0010	170.070	0.0043	170.123	0.0077	170.176	0.4402
170.018	0.0011	170.071	0.0044	170.124	0.0077	170.177	0.5306
170.019	0.0012	170.072	0.0045	170.125	0.0078	170.178	0.6227
170.020	0.0012	170.073	0.0046	170.126	0.0078	170.179	0.7167
170.021	0.0013	170.074	0.0046	170.127	0.0079	170.180	0.8124
170.022	0.0014	170.075	0.0047	170.128	0.0080	170.181	0.9099
170.023	0.0014	170.076	0.0047	170.129	0.0080	170.182	2.0090
170.024	0.0015	170.077	0.0048	170.130	0.0081	170.183	2.1098
170.025	0.0016	170.078	0.0049	170.131	0.0081	170.184	2.2122
170.026	0.0016	170.079	0.0049	170.132	0.0082	170.185	2.3163
170.027	0.0017	170.080	0.0050	170.133	0.0081	170.186	2.4241
170.028	0.0017	170.081	0.0050	170.134	0.0083	170.187	2.5292
170.029	0.0018	170.082	0.0051	170.135	0.0084	170.188	2.6379
170.030	0.0019	170.083	0.0052	170.136	0.0085	170.189	2.7462
170.031	0.0019	170.084	0.0052	170.137	0.0086	170.190	2.8604
170.032	0.0020	170.085	0.0053	170.138	0.0086	170.191	2.9732
170.033	0.0020	170.086	0.0053	170.139	0.0086	170.192	3.0879
170.034	0.0021	170.087	0.0054	170.140	0.0087	170.193	3.2041
170.035	0.0022	170.088	0.0054	170.141	0.0088	170.194	3.3217
170.036	0.0022	170.089	0.0055	170.142	0.0088	170.195	3.4407
170.037	0.0023	170.090	0.0056	170.143	0.0089	170.196	3.5611
170.038	0.0024	170.091	0.0056	170.144	0.0090	170.197	3.6828
170.039	0.0024	170.092	0.0057	170.145	0.0090	170.198	3.8060
170.040	0.0025	170.093	0.0057	170.146	0.0091	170.199	3.9304
170.041	0.0025	170.094	0.0058	170.147	0.0091	170.200	4.0562
170.042	0.0026	170.095	0.0059	170.148	0.0092		
170.043	0.0027	170.096	0.0059	170.149	0.0093		
170.044	0.0027	170.097	0.0060	170.150	0.0093		
170.045	0.0028	170.098	0.0061	170.151	0.0094		
170.046	0.0028	170.099	0.0061	170.152	0.0094		
170.047	0.0029	170.100	0.0062	170.153	0.0094		
170.048	0.0030	170.101	0.0062	170.154	0.0094		
170.049	0.0030	170.102	0.0063	170.155	0.0094		
170.050	0.0031	170.103	0.0064	170.156	0.0094		
170.051	0.0031	170.104	0.0064	170.157	0.0094		
170.052	0.0032	170.105	0.0065	170.158	0.0095		

Stage-Area-Storage for Pond 8P: Roof Storage

Elevation	Surface	Storage	Elevation	Surface	Storage
(meters)	(sq-meters)	(cubic-meters)	(meters)	(sq-meters)	(cubic-meters)
170.000	0.0	0.0	170.106	1,228.0	43.4
170.002	0.4	0.0	170.108	1,274.7	45.9
170.004	1.7	0.0	170.110	1,322.4	48.5
170.006	3.9	0.0	170.112	1,370.9	51.2
170.008	7.0	0.0	170.114	1,420.3	54.0
170.010	10.9	0.0	170.116	1,470.6	56.9
170.012	15.7	0.1	170.118	1,521.7	59.9
170.014	21.4	0.1	170.120	1,573.8	63.0
170.016	28.0	0.1	170.122	1,626.6	66.2
170.018	35.4	0.2	170.124	1,680.4	69.5
170.020	43.7	0.3	170.126	1,735.1	72.9
170.022	52.9	0.4	170.128	1,790.6	76.4
170.024	63.0	0.5	170.130	1,847.0	80.0
170.026	73.9	0.6	170.132	1,904.2	83.8
170.028	85.7	0.8	170.134	1,962.4	87.7
170.030	98.4	1.0	170.136	2,021.4	91.6
170.032	111.9	1.2	170.138	2,081.3	95.7
170.034	126.3	1.4	170.140	2,142.1	100.0
170.036	141.6	1.7	170.142	2,203.9	104.3
170.038	157.8	2.0	170.144	2,266.2	108.8
170.040	174.9	2.3	170.146	2,329.6	113.4
170.042	192.8	2.7	170.148	2,393.9	118.1
170.044	211.6	3.1	170.150	2,459.0	122.9
170.046	231.3	3.5	170.152	2,525.0	127.9
170.048	251.8	4.0	170.154	2,525.0	133.0
170.050	273.0	4.5	170.156	2,525.0	138.0
170.052	295.5	5.1	170.158	2,525.0	143.1
170.054	318.7	5.7	170.160	2,525.0	148.1
170.056	342.7	6.4	170.162	2,525.0	153.2
170.058	367.6	7.1	170.164	2,525.0	158.2
170.060	393.4	7.9	170.166	2,525.0	163.3
170.062	420.2	8.7	170.168	2,525.0	168.4
170.064	447.6	9.5	170.170	2,525.0	173.4
170.066	476.1	10.5	170.172	2,525.0	178.4
170.068	505.8	11.5	170.174	2,525.0	183.5
170.070	535.5	12.5	170.176	2,525.0	188.5
170.072	566.6	13.6	170.178	2,525.0	193.6
170.074	598.4	14.8	170.180	2,525.0	198.7
170.076	631.3	16.0	170.182	2,525.0	203.7
170.078	664.9	17.3	170.184	2,525.0	208.8
170.080	698.9	18.6	170.186	2,525.0	213.8
170.082	734.9	20.1	170.188	2,525.0	218.8
170.084	771.9	21.6	170.190	2,525.0	223.9
170.086	808.3	23.2	170.192	2,525.0	228.9
170.088	846.3	24.8	170.194	2,525.0	234.0
170.090	884.9	26.5	170.196	2,525.0	239.0
170.092	925.0	28.4	170.198	2,525.0	244.1
170.094	965.7	30.3	170.200	2,525.0	249.1
170.096	1,007.2	32.2			
170.098	1,049.6	34.3			
170.100	1,092.9	36.4			
170.102	1,137.0	38.7			
170.104	1,182.1	41.0			

Events for Subcatchment 2S: Surface Drainage

Event	Rainfall (mm)	Runoff (m³/s)	Volume (Mega-liters)	Depth (mm)
5-Year	74	0.1075	0.256	50
10-Year	85	0.1291	0.310	61
25-Year	99	0.1565	0.379	75
50-Year	110	0.1766	0.432	85
100-Year	120	0.1964	0.482	95

Events for Pond 4P: Underground Storage

Event	Inflow (m³/s)	Primary (m³/s)	Elevation (meters)	Storage (cubic-meters)
5-Year	0.1075	0.0704	104.615	16.3
10-Year	0.1291	0.0758	104.591	26.9
25-Year	0.1565	0.0826	104.792	41.2
50-Year	0.1766	0.0877	104.873	52.5
100-Year	0.1964	0.0926	104.956	64.2

Events for Link 5L: TOTAL

Event	Inflow (m³/s)	Primary (m³/s)	Elevation (meters)
5-Year	0.0812	0.0812	0.000
10-Year	0.0876	0.0876	0.000
25-Year	0.0958	0.0958	0.000
50-Year	0.1016	0.1016	0.000
100-Year	0.1073	0.1073	0.000

Events for Subcatchment 6S: Uncontrolled Drainage

Event	Rainfall (mm)	Runoff (m³/s)	Volume (Mega-liters)	Depth (mm)
5-Year	74	0.0055	0.013	40
10-Year	85	0.0068	0.016	50
25-Year	99	0.0085	0.020	63
50-Year	110	0.0098	0.024	72
100-Year	120	0.0110	0.027	82

Events for Subcatchment 7S: Roof Area

Event	Rainfall (mm)	Runoff (m³/s)	Volume (Mega-liters)	Depth (mm)
5-Year	74	0.0668	0.171	68
10-Year	85	0.0770	0.200	79
25-Year	99	0.0900	0.236	93
50-Year	110	0.0994	0.263	104
100-Year	120	0.1088	0.289	114

Events for Pond 8P: Roof Storage

Event	Inflow (m³/s)	Primary (m³/s)	Elevation (meters)	Storage (cubic-meters)
5-Year	0.0668	0.0076	170.122	66.0
10-Year	0.0770	0.0081	170.129	79.0
25-Year	0.0900	0.0086	170.138	96.1
50-Year	0.0994	0.0090	170.144	109.0
100-Year	0.1088	0.0093	170.150	121.9

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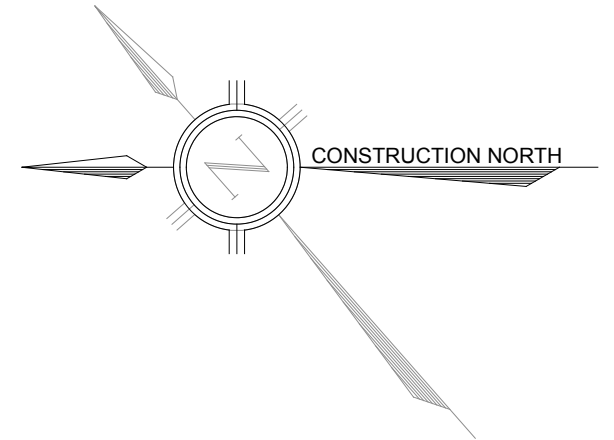
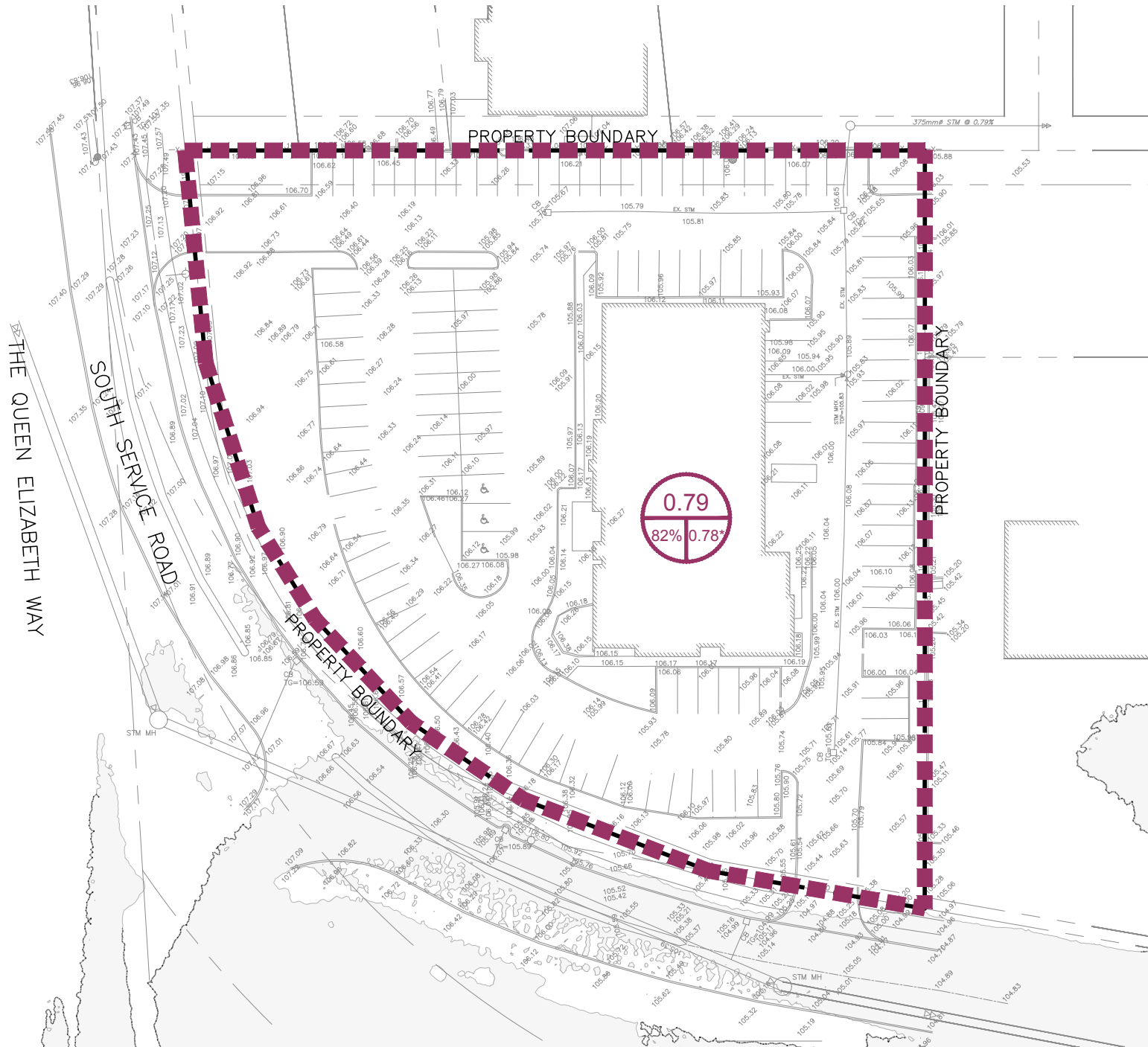


- DRAINAGE AREA IN HECTARES
- RUN-OFF COEFFICIENT
- PERCENT IMPERVIOUSNESS



DRAINAGE AREA BOUNDARY

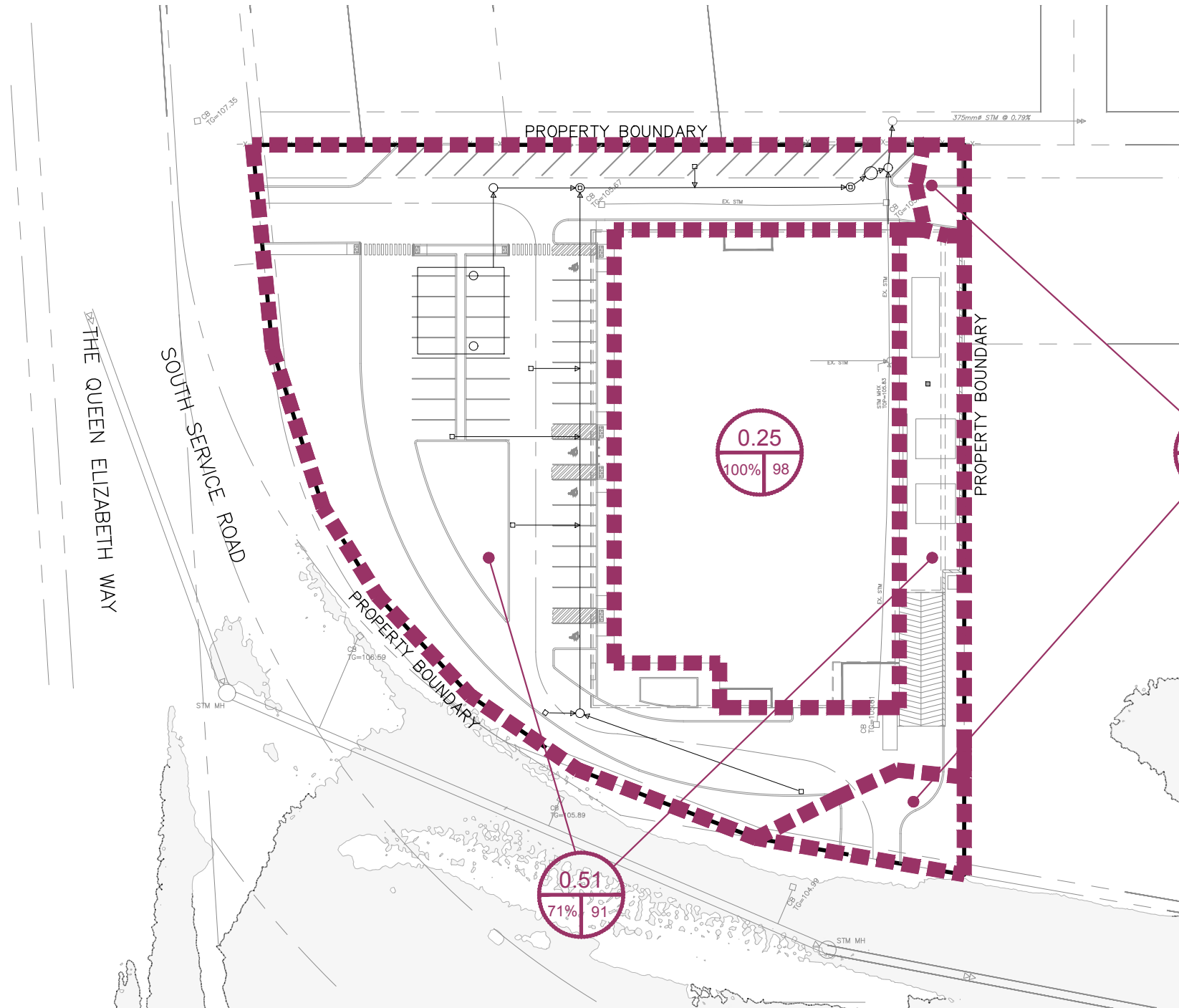
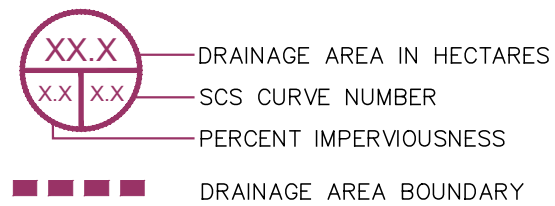
* PRE-DEVELOPMENT RUNOFF COEFFICIENT TAKEN AS C=0.50 PER THE CITY OF BURLINGTON DESIGN GUIDELINES FOR THE PURPOSE OF CALCULATING PRE-DEVELOPMENT FLOW RATES.



PROJECT TITLE		TRAFALGAR ENGINEERING #201-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com				
DATA CENTRE 3110 SOUTH SERVICE ROAD, BURLINGTON, ON						
DRAWING TITLE		DESIGN BY	MW	SCALE	1: 750	DRAWING No. FIG 1
PRE-DEVELOPMENT STORM DRAINAGE PLAN		DRAWN BY	NH	DATE	2026/06/10	

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PROJECT TITLE DATA CENTRE 3110 SOUTH SERVICE ROAD, BURLINGTON, ON		 #201-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com		
DRAWING TITLE POST-DEVELOPMENT STORM DRAINAGE PLAN (CITY OF BURLINGTON)		DESIGN BY MW	SCALE 1:750	DRAWING No. FIG 2
		DRAWN BY NH	DATE 2026/06/10	

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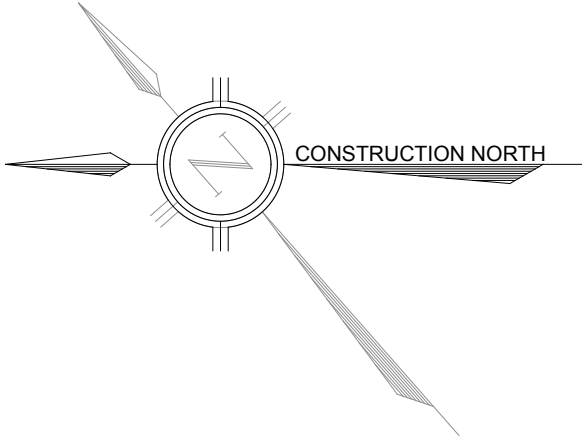
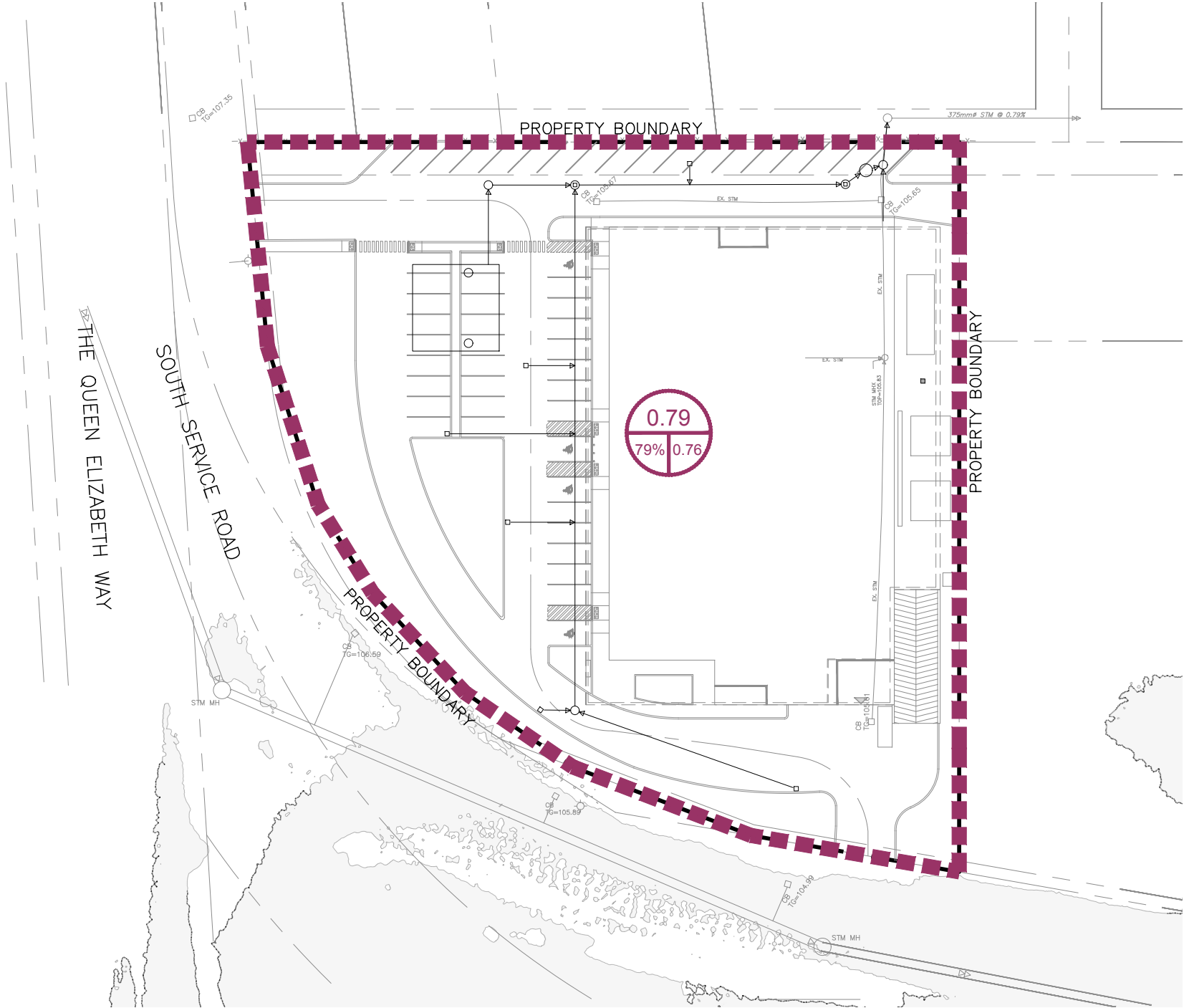
DRAINAGE AREA IN HECTARES

RUN-OFF COEFFICIENT

PERCENT IMPERVIOUS

■■■■

DRAINAGE AREA BOUNDARY



PROJECT TITLE	DATA CENTRE 3110 SOUTH SERVICE ROAD, BURLINGTON, ON		
DRAWING TITLE	POST-DEVELOPMENT STORM DRAINAGE PLAN (MTO)		

 #201-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com			
DESIGN BY	MW	SCALE	1:750
DRAWN BY	NH	DATE	2026/06/10
DRAWING No.		FIG 3	

TRAFALGAR ENGINEERING LTD.

ORIFICE TUBE SIZING DESIGN SHEET - INLET CONTROL

Project: 3110 South Service Road
Desc: 1st Submission SPA

Project No.: 1898
Prepared By: MW
Checked By: NAS

Orifice Tube Geometric Information

Orifice Tube Dia. 200 (mm) (Calculation based on Imperial ID)

Pipe Material Circular
 Inlet Configuration Beveled

K	0.0018
M	2.5
C	0.03
Y	0.74
K _s	0.7

Where Unsubmerged:

$$\frac{HW}{D} = \frac{H_c}{D} + K + \left[\frac{K_u Q}{AD^{0.5}} \right]^M + K_s S$$

Where Submerged:

$$\frac{HW}{D} = C \left[\frac{K_u Q}{AD^{0.5}} \right]^2 + Y + K_s S$$

HDS-5 METHODOLOGY - INLET CONTROL "HAND CALCULATIONS"

Inlet Control Headwater Elevation	Tube Discharge, Q (cms)	Critical Flow Area, A (m ²)	Critical Velocity, V _c (m/s)	Specific Head, H _c (m)	Unsubm. HW/D	Subm. HW/D	Unsubm. HW (m)	Subm. HW (m)	Q/AD ^{0.5}	Outlet Control Headwater Elevation	Control Type	Governing Headwater Elevation
104.12	0.010	0.013	0.789	0.116	0.571	0.790	0.120	0.160	0.684	104.15	Outlet	104.15
104.19	0.020	0.020	0.254	0.124	0.915	0.928	0.190	0.190	1.368	104.20	Outlet	104.20
104.24	0.030	0.025	0.248	0.152	1.151	1.158	0.230	0.240	2.052	104.24	Outlet	104.24
104.30	0.040	0.029	0.232	0.173	1.359	1.480	0.280	0.300	2.736	104.30	Outlet	104.30
104.38	0.050	0.031	0.209	0.187	1.539	1.895	0.310	0.380	3.420	104.37	Inlet	104.38
104.49	0.060	0.032	0.181	0.195	1.699	2.401	0.350	0.490	4.104	104.46	Inlet	104.49
104.61	0.070	0.032	0.152	0.199	1.857	3.000	0.380	0.610	4.788	104.56	Inlet	104.61
104.75	0.080	0.032	0.126	0.201	2.031	3.690	0.410	0.750	5.473	104.67	Inlet	104.75
104.91	0.090	0.032	0.103	0.202	2.230	4.473	0.450	0.910	6.157	104.80	Inlet	104.91
105.12	0.102	0.032	0.085	0.202	2.510	5.534	0.510	1.120	6.978	104.97	Inlet	105.12

TRAFALGAR ENGINEERING LTD.

ORIFICE TUBE SIZING DESIGN SHEET - OUTLET CONTROL

Project: 3110 South Service Road
Desc: 1st Submission SPA

Project No.: 1898
Prepared By: MW
Checked By: NAS

Orifice Tube Geometric Information

Orifice Tube Dia. **200** (mm) (Calculation based on Imperial ID)
 Orifice Tube Length **2.00** (m)
 Orifice Tube Slope **0.005** (m/m)

Note: It is recommended that the orifice tube length is between two and three diameters. Based on the selection above, a range of 400mm to 600mm in length is recommended for true orifice flow. Lengths exceeding the recommended range for true orifice flow are culvert flow.

Orifice Tube Properties

Entrance Loss Coeff. **0.2**
 Exit/Transition Loss Coeff. **1.00**
 Orifice Tube Manning's 'n' **0.013**
 Gravitational Constant **9.81** (m/s²)

Maximum Allowable Q **0.102** (cms)
 Tube D/S Invert **103.99** (m)

STAGE-DISCHARGE AND HYDRAULIC PROPERTIES TABLE - OUTLET CONTROL

Outlet Control Headwater Elevation	Tube Discharge, Q (cms)	Flow Area, A (m ²)	Friction Loss, H _f (m)	Inlet Velocity, V ₁ (m/s)	Outlet Velocity, V ₂ (m/s)	Entrance Loss, H _e (m)	Exit Loss, H _t (m)	Total Headloss, H _L (cms)	Critical Depth, d _c (m)	Tailwater Elevation (D+d _c)/2 (m)
104.15	0.010	0.014	0.01	0.71	0.42	0.01	0.01	0.02	0.08	104.13
104.20	0.020	0.024	0.01	0.83	0.73	0.01	0.04	0.05	0.12	104.15
104.24	0.030	0.032	0.02	0.93	0.99	0.01	0.04	0.07	0.15	104.17
104.30	0.040	0.032	0.03	1.23	1.27	0.02	0.08	0.12	0.17	104.18
104.37	0.050	0.032	0.04	1.54	1.59	0.02	0.12	0.19	0.18	104.18
104.46	0.060	0.032	0.06	1.85	1.86	0.03	0.17	0.27	0.19	104.19
104.56	0.070	0.032	0.08	2.16	2.17	0.05	0.24	0.37	0.20	104.19
104.67	0.080	0.032	0.11	2.47	2.48	0.06	0.31	0.48	0.20	104.19
104.80	0.090	0.032	0.14	2.78	2.79	0.08	0.39	0.61	0.20	104.19
104.97	0.102	0.032	0.18	3.15	3.16	0.10	0.50	0.78	0.20	104.19



Hydroworks Sizing Summary

3110 South Service Road

06-03-2026

Recommended Size: HydroDome HD 6

Hydroworks Sizing Program Version 5.8.5

A HydroDome HD 6 is recommended to provide 80 % annual TSS removal based on a drainage area of 0.5093 (ha) with an imperviousness of 71 % and Toronto Central, Ontario rainfall for the ETV particle size distribution.

The recommended HydroDome HD 6 treats 100 % of the annual runoff and provides 83 % annual TSS removal for the Toronto Central rainfall records and ETV particle size distribution.

The HydroDome has a siphon which creates a discontinuity in headloss. The given peak flow of .11 (m³/s) is greater than the full pipe flow of .1 (m³/s) indicating the pipe will be surcharged during the peak flow. Full pipe flow was assumed for the headloss calculations. The pressure head in the pipe was not evaluated since this would require a hydraulic gradeline analysis. The headloss was calculated to be 284 (mm) above the crown of the 300 (mm) outlet pipe.

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroDome .

TSS Removal Sizing Summary

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main Dimensions Rainfall Site TSS PSD TSS Load Site Storage By-Pass Custom CAD Video Other

Site Parameters
 Area (ha) 0.5093
 Imperviousness (%) 71

Units
☐ U.S.
☒ Metric

Rainfall Station
 Toronto Central Ontario
 1982 To 1999 Rainfall Timestep = 15 min.

Project Title 3110 South Service Road
 (2 lines)

ETV Lab Testing Results ☐ Post Treatment Recharge

Outlet Pipe
 Diam. (mm) 300 Peak Design Flow (m3/s) .1088
 Slope (%) 1

HydroDome Annual Sizing Results

Model #	Qlow (m3/s)	Qtot (m3/s)	Flow Capture (%)	TSS Removal (%)
Unavailable	.109	.109	100 %	67 %
HD 4	.109	.109	100 %	74 %
HD 5	.109	.109	100 %	79 %
HD 6	.109	.109	100 %	83 %
Unavailable	.109	.109	100 %	86 %
HD 8	.109	.109	100 %	89 %
HD 10	.109	.109	100 %	93 %
HD 12	.109	.109	100 %	96 %

Particle Size Distribution

Size (um)	%	SG
1	5	2.65
4	5	2.65
6	5	2.65
7	5	2.65
18	15	2.65
45	10	2.65
70	5	2.65
90	10	2.65
125	15	2.65
200	15	2.65

Note: Results vary significantly based on particle size distribution

Simulate

TSS Particle Size Distribution

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main Dimensions Rainfall Site TSS PSD TSS Load Site Storage By-Pass Custom CAD Video Other

TSS Particle Size Distribution

Size (um)	%	SG
1	5	2.65
4	5	2.65
6	5	2.65
7	5	2.65
18	15	2.65
45	10	2.65
70	5	2.65
90	10	2.65
125	15	2.65
200	15	2.65
400	5	2.65
850	5	2.65
*		

Notes:

1. To change data just click a cell and type in the new value(s)
2. To add a row just go to the bottom of the table and start typing.
3. To delete a row, select the row by clicking on the first pointer column, then press delete
4. To sort the table click on one of the column headings

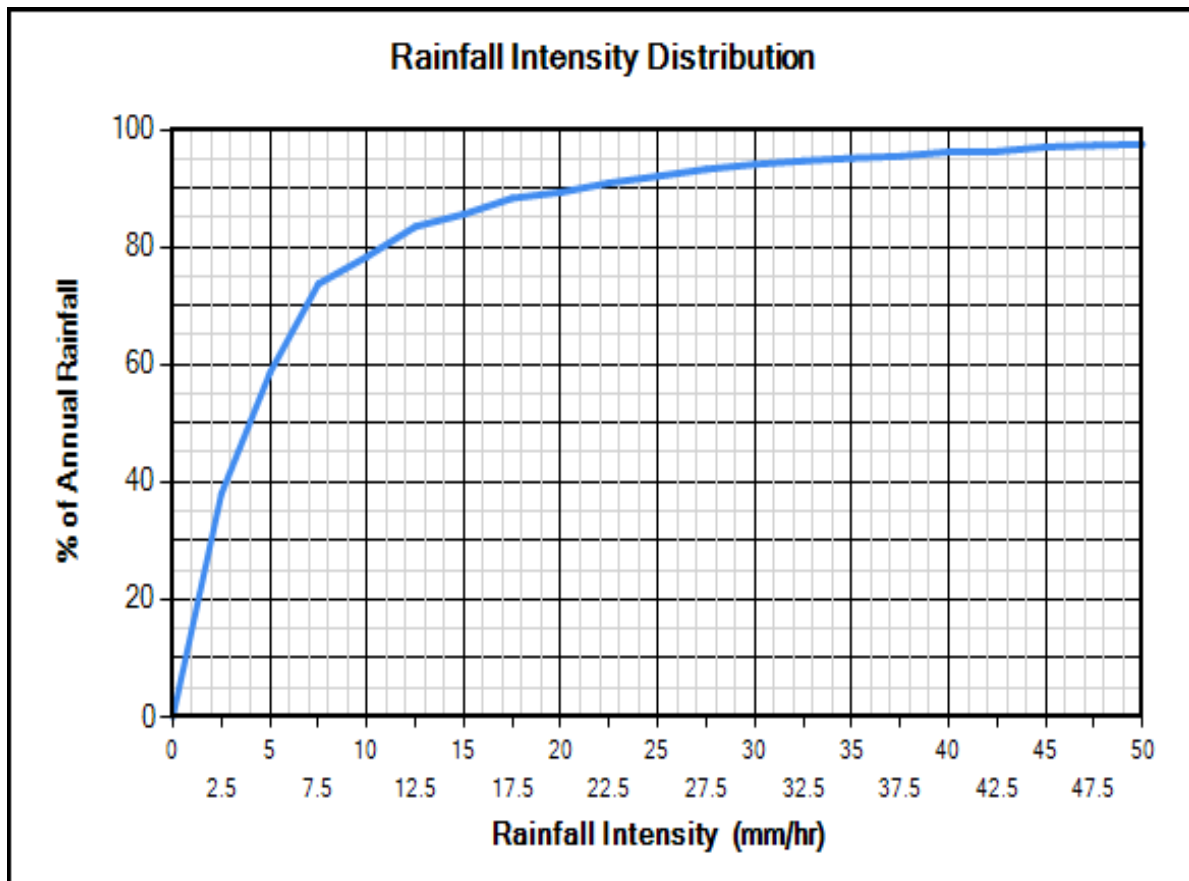
TSS Distributions

- ☒ ETV Canada
- ☐ Standard HDS Design
- ☐ Alden Laboratory
- ☐ OK110
- ☐ Toronto
- ☐ Ontario Fine
- ☐ ETV Canada (Calgary)
- ☐ Calgary Forebay
- ☐ Kitchener
- ☐ User Defined

Clear

You must select a particle size distribution for TSS to simulate TSS removal

Water Temp (C) 20



Site Physical Characteristics

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main Dimensions Rainfall Site TSS PSD TSS Load Site Storage By-Pass Custom CAD Video Other

Catchment Parameters

Width (m) Imperv. Mannings n Maintenance Frequency (months)

Default Width Perv Mannings n

Slope (%) Imp. Depress. Storage (mm)

Perv. Depress. Storage (mm)

Daily Evaporation (mm/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	2.54	2.54	3.81	3.81	3.81	2.54	2.54	0	0

Infiltration

Max. Infiltration Rate (mm/hr)

Min. Infiltration Rate (mm/hr)

Infiltration Decay Rate (1/s)

Infiltration Regen. Rate (1/s)

Catch Basins

of Catch basins

Constant Baseflow

Roof Runoff (m3/s)

Resets all parameters excluding input catchment width.

Default Values

Dimensions And Capacities

Hydroworks Siphon Separator Sizing Program - HydroDome

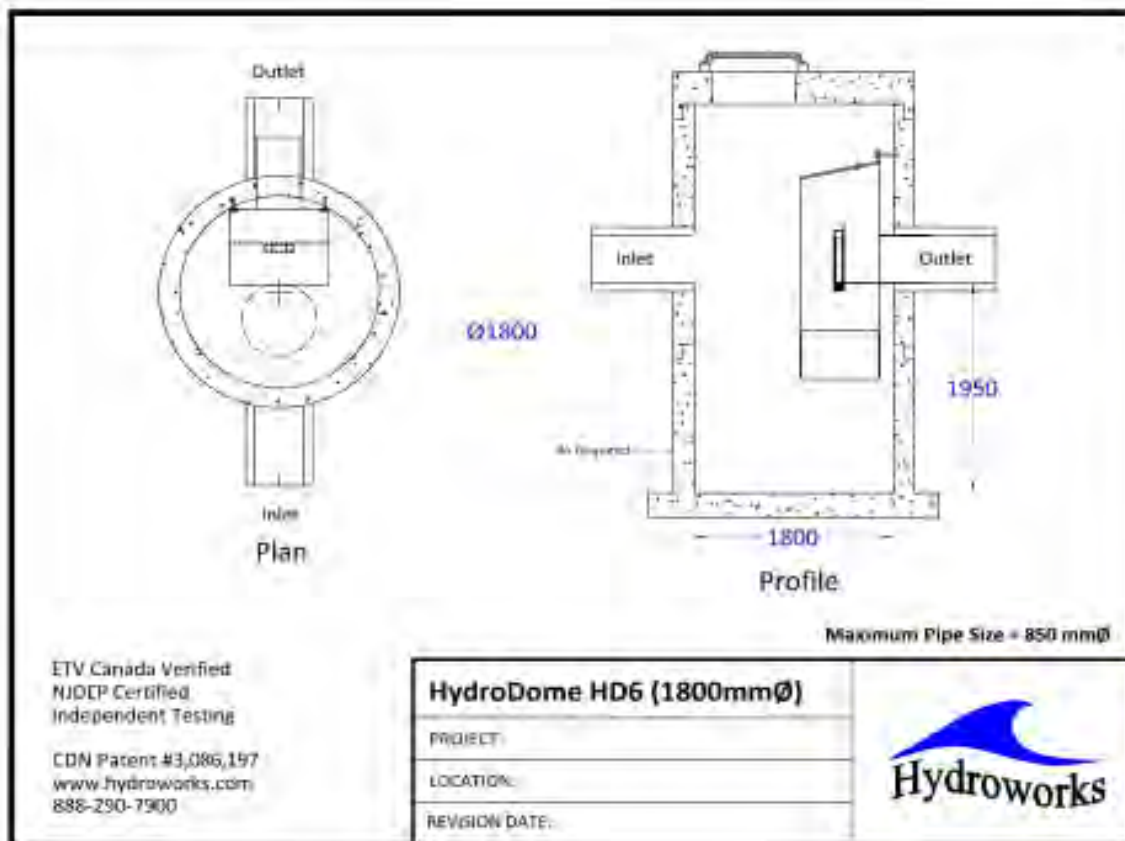
File Product Units CAD Video Help

Main Dimensions Rainfall Site TSS PSD TSS Load Site Storage By-Pass Custom CAD Video Other

Dimensions and Capacities					
Model	Diam. (m)	Depth (m)	Float. Vol. (L)	Sediment Vol. (m3)	Total Vol. (m3)
HD 3	0.91	1.22	123	0.5	0.8
HD 4	1.22	1.37	266	0.9	1.6
HD 5	1.52	1.68	483	1.7	3.1
HD 6	1.83	1.98	803	2.9	5.2
HD 7	2.13	2.29	1226	4.6	8.2
HD 8	2.44	2.59	1863	6.8	12.1
HD 10	3.05	3.2	3617	13	23.3
HD 12	3.66	3.81	6224	22.2	40

Depth = Depth from outlet invert to inside bottom of tank

Generic HD 6 CAD Drawing



TSS Buildup And Washoff

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main | Dimensions | Rainfall | Site | TSS PSD | TSS Load | Site Storage | By-Pass | Custom | CAD | Video | Other

TSS Buildup

☐ Power Linear
☒ Exponential
☐ Michaelis-Menton
☐ No Buildup Required

TSS Washoff

☒ Power-Exponential
☐ Rating Curve (no upper limit)
☐ Rating Curve (limited to buildup)
☐ Event Mean Concentration

Street Sweeping
 Efficiency (%) 30
 Start Month May
 Stop Month Sep
 Frequency (days) 30
 Available Fraction .3

Soil Erosion
☐ Add Erosion to TSS

Reset to Default Values

TSS Buildup Parameters

Limit (kg/ha) 28.02
 Coeff (kg/ha) 67.25
 Exponent .5

TSS Washoff Parameters

Coefficient .0855
 Exponent 1.1

TSS Buildup

☒ Based on Area
☐ Based on Curb Length

Upstream Quantity Storage

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main | Dimensions | Rainfall | Site | TSS PSD | TSS Load | Site Storage | By-Pass | Custom | CAD | Video | Other

Quantity Control Storage

	Storage (m3)	Discharge (m3/s)
▶	0	0
*		

Clear

Other Parameters

Hydroworks Siphon Separator Sizing Program - HydroDome

File Product Units CAD Video Help

Main Dimensions Rainfall Site TSS PSD TSS Load Site Storage By-Pass Custom CAD Video Other

Scaling Law

- ☐ Peclet Scaling based on diameter x depth
- ☒ Peclet Scaling based on surface area (diameter x diameter)

TSS Removal Extrapolation

- ☒ Extrapolate TSS Removal for flows lower than tested
- ☐ No TSS Removal extrapolation for flows lower than tested
- ☐ No TSS Removal extrapolation for lower flows or inter-event periods

Lab Testing

- ☐ Use NJDEP Lab Testing Results
- ☒ Use ETV Canada Lab Testing Results

HydroDome Design

- ☒ High Flow Weir
- ☐ Flow Control (parking lot storage)
Must add Quantity Storage Table

HD Hydraulics

HD Model HD 6

- ☐ Custom Insert Size

TSS Removal Results

☒ Required TSS Removal ☐ Choose Model #

TSS Removal Required

TSS Removal (%) 80.0 Enter required TSS Removal (%)

Flagged Issues

If there is underground detention storage upstream of the HydroDome please contact Hydroworks to ensure it has been modeled correctly.

Hydroworks Sizing Program - Version 5.8.5

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1-800-290-7900

www.hydroworks.com

Verification Statement



Hydroworks HydroDome HD3 Oil-Grit Separator

Registration number: (V-2021-09-02)

Date of issue: 2021-October-04

Technology type	Oil-Grit Separator		
Application	Technology to remove oil, sediment, trash and debris from storm-water and snowmelt runoff as well as other pollutants that attach to sediment particles, such as nutrients and metals.		
Company	Hydroworks, LLC.		
Address	257 Cox St., Roselle, NJ 07203 USA	Phone	+1-888-290-7900
Website	https://hydroworks.com	E-mail	gbryant@hydroworks.com

Verified Performance Claims

The Hydroworks HydroDome HD3 Oil-Grit Separator (OGS) was tested by Alden Research Laboratory, Holden, Massachusetts, USA in 2021. The performance test results were verified by 'The Sir Sandford Fleming College of Applied Arts and Technology's Centre for Advancement of Water and Wastewater Technologies' (CAWT) following the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. The following performance claims were verified:

Sediment removal test: The Hydroworks HydroDome HD3 OGS device, with a false floor set to 50% of the manufacturer's recommended maximum sediment storage depth and a constant influent test sediment concentration of 200 mg/L and particle size distribution of 1-1000 µm, removed 83.9, 77.6, 68.4, 66.9, 59.4, 52.4, and 46.0 percent of influent sediment by mass at surface loading rates of 40, 80, 200, 400, 600, 1000, and 1400 L/min/m² respectively.

Scour test: The Hydroworks HydroDome HD3 OGS device with 15.2 cm (6 inch) of test sediment preloaded onto a false floor reaching 50% of the manufacturer's recommended maximum sediment sump storage depth, generated corrected effluent sediment concentrations on average of 0.54, 0.70, 0.0, 0.0, and 0.11 mg/L at 5-min duration surface loading rates of 200, 800, 1400, 2000, and 2600 L/min/m², respectively.

Light liquid re-entrainment test: The Hydroworks HydroDome HD3 OGS with surrogate low-density polyethylene beads preloaded within the inner chamber, representing a floating light-liquid volume equal to a depth of 50.8 mm (2 inch) over the sedimentation area, retained 100, 100, 100, 100, and 99.7 percent of loaded beads by mass during the 5-minute duration surface loading rates of 200, 800, 1400, 2000, and 2600 L/min/m², respectively.

The above verified claims can be applied to other units smaller or larger than the tested unit, provided that the untested units meet the scaling rule specified in the Procedure for Laboratory Testing of Oil Grit Separators (Version 3.0, June 2014)

Hydroworks HydroDome HD3 Oil Grit Separator Verification Statement

Technology Application

HydroDome is a hydrodynamic separator that provides benefits for both water quality and water quantity (i.e., flow control). HydroDome combines the function of separator, hood, and flow control with active storage to provide a multi-purpose stormwater management solution in one structure. HydroDome also functions as an oil separator due to the submerged inlet design and the fact that the design raises the water level with flow to maximize the distance between any floatables (oil, trash) and the discharge entrance to the HydroDome.

Technology Description

HydroDome comes complete and slides into the outlet pipe from a drainage structure and is secured to the wall with anchor bolts. It consists of a siphon with flow control, that regulates the water level in the structure and the flow rate in the outflow, and an optional high flow weir. A schematic of the Hydroworks HydroDome OGS is shown in Figure 1.

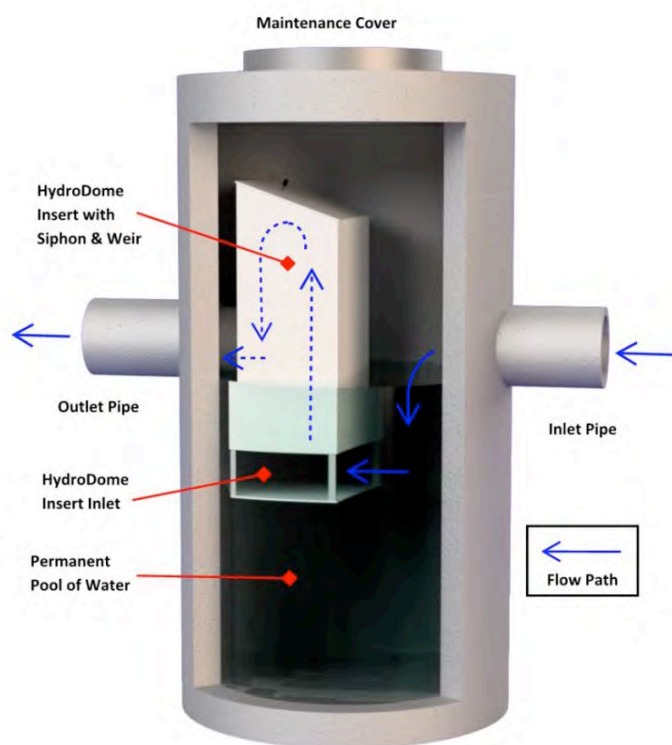


Figure 1: Schematic of the Hydroworks HydroDome Oil-Grit Separator

The siphon raises the water level to a pre-determined level without allowing water to exit the structure. The raised water level provides:

- Greater time for initial total suspended solids (TSS) removal and for floatables to prevent re-entrainment in the flow,
- Additional dilution to reduce effluent concentrations of any pollutants, and
- A greater volume, or buffer, of water to prevent scour of previously settled solids.

Water flows into the device through horizontal openings at the bottom of the HydroDome. Water then must travel upwards through the siphon. A foam filter is located at the entrance to the siphon inlet to provide secondary protection from its clogging (the outer housing of the HydroDome and submerged inlet provide primary protection). Once the water level reaches a pre-determined height, the siphon begins to engage, and water flows out of the structure downstream. The siphon flow is controlled by an orifice, whose size can be changed to provide the desired flow control. The water level continues to rise or begins to lower depending on the rate of flow from the orifice compared to the inflow of water to the structure.

Hydroworks HydroDome HD3 Oil Grit Separator Verification Statement

An optional weir above the siphon provides a high flow path to prevent the system from surcharging. In cases where parking lot storage is desired, there would not be a high flow weir. A scour protection plate minimizes scour by preventing upward velocities/flow from the structure floor during periods of peak flow. Therefore, HydroDome combines the function of separator, hood, and flow control with active storage to provide a multi-purpose stormwater management solution in one structure.

Description of Test Procedure

For the purposes of this verification, a Hydroworks HydroDome 3-ft diameter (HD3) stormwater treatment unit was tested. The HD3 test unit was a full-scale 3 ft (0.91 m) diameter tank with an internal treatment hood that included a high flow weir. The test tank was fabricated from plastic and included 18-inch (457 mm) diameter inlet and outlet pipes, oriented along the center-line of the tank. The pipe inverts were located 48 inches (1.22 m) above the sump floor and were set with 1% slopes. The 100% and 50% sediment sump storage depths were 12 inches (0.305 m) and 6 inches (0.152 m), respectively. The effective treatment sedimentation area was 7.07 ft² (0.656 m²).

The test data and results for this verification were obtained from independent testing conducted at Alden Research Laboratory in accordance with the *Procedure for Laboratory Testing of Oil-Grit Separators (Version 3.0, June 2014)*¹. Use of this procedure is intended to ensure that technologies in this category are subjected to stringent requirements in generating verifiable performance test data.

The verification plan was followed with one minor variance from the *Procedure*. This variance includes the required minimum amount of test sediment to be fed into the test unit for each tested surface loading rate (SLR). Although the *Procedure* requires a minimum of 11.3 kg of test sediment, during the 40 L/min/m² SLR test, only 6.45 kg was fed into the unit, which is 4.85 kg less than the specified minimum. This variance to the *Procedure* was agreed to by Toronto and Region Conservation Authority (TRCA), the author of the *Procedure*, based on previous conversations with Alden Labs, noting that the length of time to conduct the test with 11.3 kg of sediment at 40 L/min/m² would be over 36 hours.

Verification Results

CAWT verified the performance test data and other information pertaining to the HydroDome HD3 Oil-Grit Separator. A Verification Plan was prepared to guide the verification process based on the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol.

The test sediment consisted of ground silica (1 – 1000 micron) with a specific gravity of 2.65, uniformly mixed to meet the particle size distribution specified in the testing procedure.

The “*Procedure for Laboratory Testing of Oil Grit Separators*” (TRCA, 2014) requires that the three-sample average of the test sediment particle size distribution (PSD) meet the specified PSD. The allowable tolerance of 6% variation from the specified PSD curve was met at each discrete particle size tested and the d50 was finer than 75 µm.

Comparison of the individual sample and average test sediment PSD to the specified PSD is shown in Figure 2. This figure indicates that the test sediment used for the removal and scour tests met the above-mentioned criteria. The median particle size was 64 µm.

Samples from test sediment batches used for each run met the specified PSD within the required tolerance thresholds.

The capacity of the HydroDome HD3 device to retain sediment was determined at seven surface loading rates using the modified mass balance method. This method involved measuring the mass and particle size distribution of the injected and retained sediment for each test run.

¹ The *Procedure for Laboratory Testing of Oil-Grit Separators (Version 3.0, June 2014)* was originally prepared by the Toronto and Region Conservation Authority (TRCA) in association with a 31 member advisory committee from various stakeholder groups.

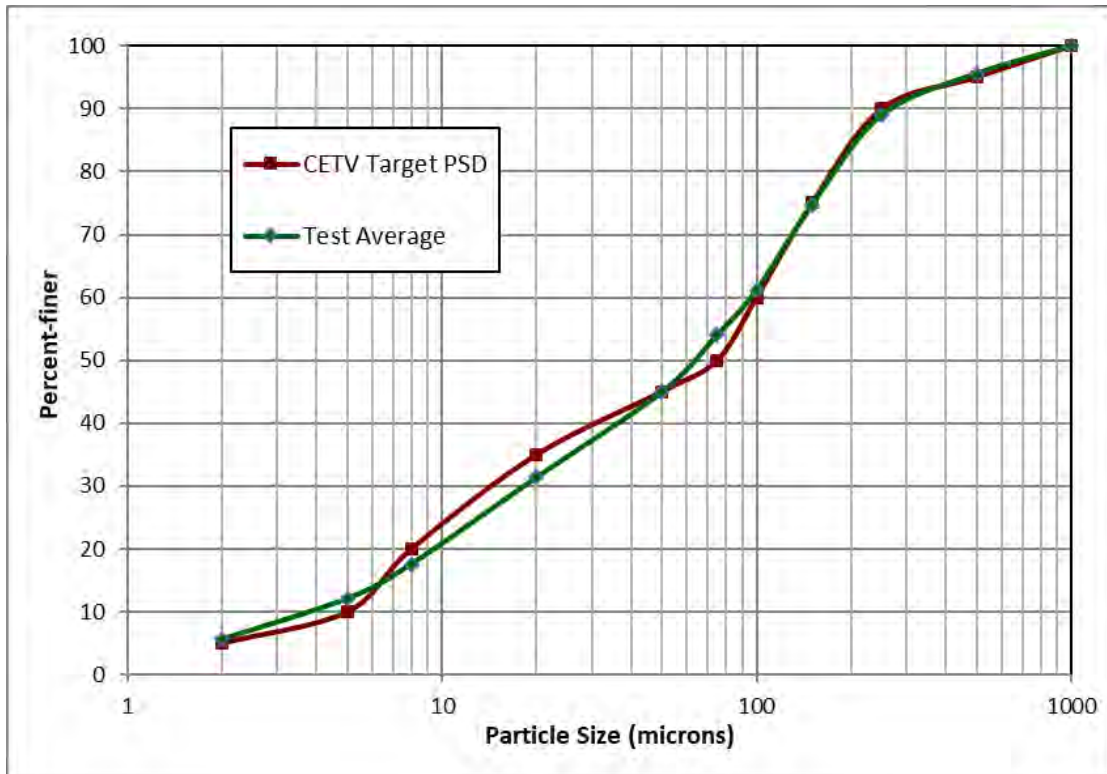


Figure 2 - Average particle size distribution (PSD) of the test sediment used for the sediment removal and scour test compared to the specified PSD

Performance was evaluated with a false floor simulating the technology filled to 50% of the manufacturer's recommended maximum sediment storage depth. The test was carried out with clean water that maintained a sediment concentration below 20 mg/L. Based on these conditions, removal efficiencies for individual particle size classes and for the test sediment, as a whole, were determined for each of the tested surface loading rates (Table 1).

In some instances, the removal efficiencies were above 100% for certain particle size fractions. These discrepancies are not unique to any one test laboratory and are attributed to errors relating to the blending of sediment, collection of representative samples for laboratory submission, and laboratory analysis of PSD. Due to these errors, caution should be exercised in applying the removal efficiencies by particle size fraction for the purposes of sizing the tested device (see Bulletin # CETV 2016-11-0001).

Particle Range (μm)	40 L/min/m ²	80 L/min/m ²	200 L/min/m ²	400 L/min/m ²	600 L/min/m ²	1000 L/min/m ²	1400 L/min/m ²	Average
>500	100%	125%	140%	140%	200%	200%	180%	155%
250-500	114%	129%	150%	143%	143%	183%	217%	154%
150-250	150%	136%	157%	153%	179%	221%	220%	174%
100-150	116%	126%	129%	148%	157%	162%	139%	140%
75-100	136%	155%	178%	190%	180%	170%	133%	163%
50-75	91%	100%	128%	270%	126%	82%	75%	125%
20-50	111%	97%	93%	51%	58%	42%	73%	75%
8-20	75%	79%	38%	34%	29%	17%	26%	42%
5-8	53%	34%	16%	7%	0%	0%	23%	19%
2-5	37%	29%	14%	0%	0%	0%	1%	12%

Table 1 - Removal efficiencies (%) of the HydroDome HD3 Oil-Grit Separator for individual particle size classes at specified surface loading rates

Hydroworks HydroDome HD3 Oil Grit Separator Verification Statement

Figure 3 compares the particle size distribution (PSD) of the three-sample average of the test sediment to the PSD of the sediment retained by the HydroDome HD3 OGS device at each of the tested surface loading rates. As expected, the capture efficiency for fine particles was generally found to decrease as surface loading rates increased, particularly in the 400 to 1400 L/min/m² range.

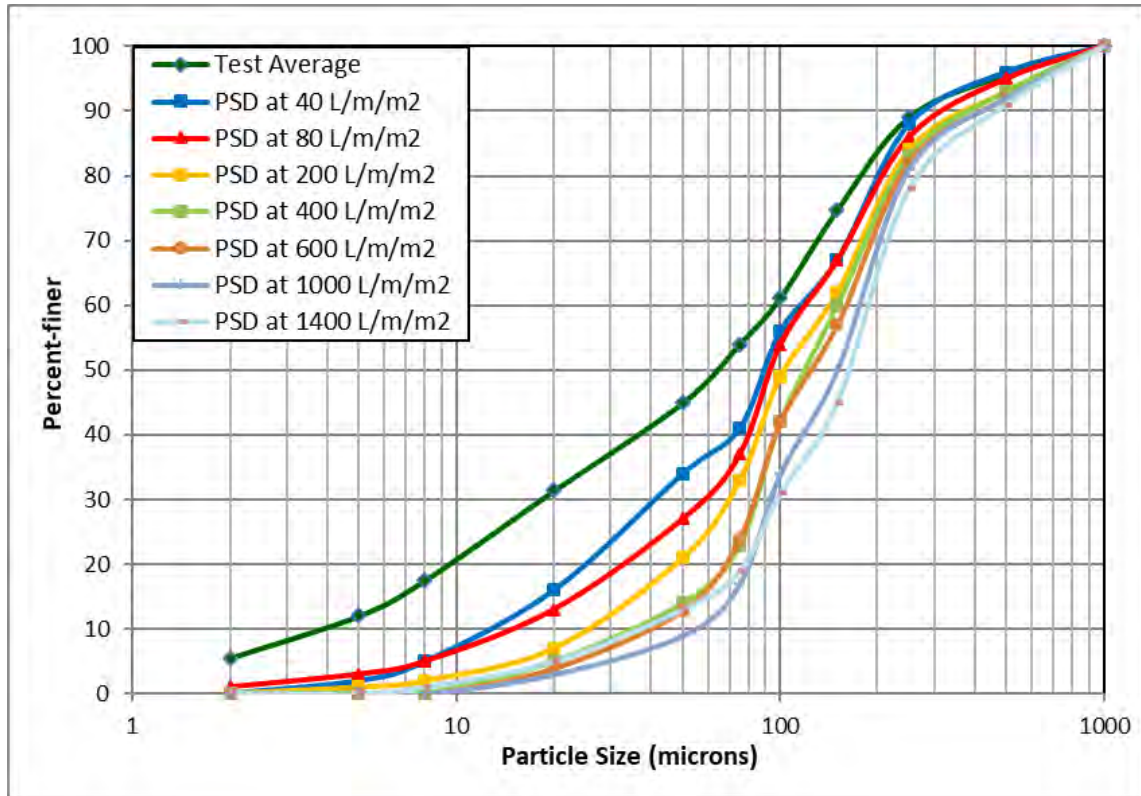


Figure 3 - Particle size distribution of sediment retained in the HydroDome HD3 Oil-Grit Separator in relation to the injected test sediment average

Table 2 shows the results of the sediment scour and re-suspension test for the HydroDome HD3 Oil-Grit Separator unit. The scour test involved preloading 15.2 cm (6 inches) of fresh test sediment into the sedimentation sump of the device. The sediment was placed on a false floor to mimic a device filled to 50% of the maximum recommended sediment storage depth.

Measured Concentration at Each surface Loading Rate					
Effluent Sample No.	200 L/min/m ²	800 L/min/m ²	1400 L/min/m ²	2000 L/min/m ²	2600 L/min/m ²
1	1.2	0.3	0.0	0.0	0.0
2	0.7	0.0	0.0	0.0	0.0
3	0.5	0.0	0.0	0.0	0.5
4	0.1	3.2	0.0	0.0	0.0
5	0.3	0.0	0.0	0.0	0.0
Average	0.5	0.7	0.0	0.0	0.1

Table 2 - Scour test adjusted effluent sediment concentration at each surface loading rate

Hydroworks HydroDome HD3 Oil Grit Separator Verification Statement

Clean water was run through the device at five surface loading rates over a 30-minute period. Each flow rate was maintained for 5 minutes with a one-minute transition time between flow rates. Effluent samples were collected at one minute sampling intervals and analyzed for suspended solids concentration (SSC) and PSD by recognized methods. The effluent samples were subsequently adjusted based on the background concentration of the influent water.

Results showed average adjusted effluent sediment concentrations below 0.7 mg/L at all surface loading rates. The magnitude of scour is dependent on the internal flow patterns (velocity and turbulence) and water volume within the unit, which is related to the depth below the inlet and outlet. The HD3 possessed a large water volume in the sump and consequently, low velocity, which prevented incipient motion of the sediment of sufficient magnitude for scour to occur.

The average measured effluent scour sediment concentrations (adjusted for background) for each tested SLR were not adjusted for particle size based on the D5 of particles captured for the 40 L/min/m² removal efficiency test since there was negligible scour.

The capacity of the device to retain light liquid was determined at five surface loading rates in a range between 200 and 2600 L/min/m² using low-density polyethylene beads, Dow Chemical Dowlex™ 2517, with a density of 0.917 g/cm³. This material was specified as the acceptable surrogate to represent floating liquid for a qualitative assessment of liquid behaviour during operation.

Performance was evaluated with a total of 32.8 litres (18.94 kg) of pellets preloaded into the treatment vault by introducing them into the crown of the influent pipe, to a volume equal to a depth of 50.8 mm (2 inch) over the sedimentation area of 0.66 m². The effluent was collected in flow-designated nets to allow for quantification of any re-entrained pellets for each test SLR. The collected pellets were dried and the mass of collected pellets was quantified for each SLR, as well as the overall test.

The recorded average flow data, as well as quantified volume and mass of collected pellets for each target SLR and overall test, is shown in Table 3. The maximum re-entrainment of 0.3% occurred at 2600 L/min/m². The total retention rate was 99.7%.

Light-liquid Re-Suspension Data				Starting Volume	(Liters)	Starting Mass	(grams)
					32.8		18938
Action	Time Stamp (minutes)	Meter	Target Flow (L/min/m ²)	Recorded Flow (L/min/m ²)	COV	Collected Mass (grams)	Retained Mass
Start D.A. Recording	0.0						
Flow set	1.0	4"	200	207	0.057	0	100.0%
Stop Collection	6.0			3.4%			
Flow set	7.0	4"	800	826	0.008	0	100.0%
Stop Collection	12.0			3.2%			
Flow set	13.0	6"	1400	1407	0.009	0	100.0%
Stop Collection	18.0			0.5%			
Flow set	19.0	6"	2000	2022	0.004	0.3	100.0%
Stop Collection	24.0			1.1%			
Flow set	25.0	6"	2600	2599	0.003	54.9	99.7%
Stop Collection	30.0			-0.1%			
Hydroworks HD 3				Interim Collection Net		1.3	
				Total		56.5	99.7%

Table 3 - Light-liquid recorded flow and re-entrainment data

Quality assurance

Performance testing and verification of the HydroDome HD3 Oil Grit Separator were performed in accordance with the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. The verifier, CAWT, has confirmed that quality assurance requirements were addressed throughout the performance testing process and in the generation of performance test results. This includes reviewing all data sheets and data downloads, as well as overall management of the test system, quality control and data integrity.

In addition, QA/QC measures are documented in the “*Procedure for Laboratory Testing of Oil-Grit Separators*” (TRCA, 2014) to ensure results are accurate and precise, and that testing conducted by multiple vendors of the same category of technology are employing the same test method. The QA/QC measures include the use of certified laboratories, established test methods, calibration of equipment, tolerance limits for results variation, data checks during testing, and stringent documentation requirements.

Table 4 provides a summary of the acceptance criteria for particle size distribution, solids concentration in test water, water temperature, flow measurement equipment, flow rate variation, sediment feed, sediment moisture content, and sample analysis.

QC Parameter	Acceptance Criteria
Particle Size Distribution	Analyzed by a certified laboratory in accordance with ASTM D422-63(2007)e1. Percentages for size ranges vary by <6%, median < 75 um. PSD in water determined by ASTM D422-63(2007)e1 upon prior drying in designated pre-weighed nonferrous trays in compliance with ASTM D4959-07.
Solids concentration in test water	Suspended solids concentration (SSC) concentration of test water of less than 20 mg/L.
Water temperature	Temperature of water less than 25°C.
Flow measurement equipment	Equipment calibration reports submitted to confirm that reported flow rate match actual flow rate. Flow rates from calibrated flow instruments recorded at no longer than 30 second intervals over the duration of the test.
Flow rate variation	Flow rates have COV < 0.04; maintained with $\pm 10\%$ of target flow rate.
Sediment feed	TSS concentration target = 200 mg/L with a tolerance limit of ± 25 mg/L. Injection location is 5 pipe diameters upstream of the inlet to the device, as per the <i>Procedure</i> . Six calibration samples taken over duration of each test run. The allowed Coefficient of Variance (COV) for the measured samples was 0.10.
Sediment moisture content	Determined by ASTM D4959-07 “Standard Test Method for Determination of Water (Moisture) Content of Soil By Direct Heating”.
Sample analysis	Conducted by qualified laboratories using standard methods and meeting the requirements of ISO.

Table 4. Validation of QA/QC procedures

Summary of Verification Results and Verified Performance Claim for Hydroworks HydroDome HD3 Oil-Grit Separator (OGS)

In summary, the HydroDome HD3 Oil Grit Separator is designed to remove oil, sediment, trash and debris from stormwater and snowmelt runoff as well as other pollutants that attach to sediment particles, such as nutrients and metals. Verification of performance claims for the Hydroworks HydroDome HD3 Oil Grit Separator was conducted by CAWT based on independent third-party performance test results provided by Alden Research Laboratory, as well as additional information provided by Hydroworks.

Table 5 summarizes the verification results in relation to the technology performance parameters that were identified to determine the efficacy of the HydroDome HD3 Oil Grit Separator. The claims stated in Table 5 were verified using the modified mass balance method for sediment removal by measuring the total mass of sediment entering the unit and retained by the unit at prescribed surface loading rates. Effluent sampling was conducted every minute over a 30-minute duration for the scour test, using approved sampling methods as per the verification procedure. The light liquid re-entrainment test was conducted using a mass balance methodology which accounted for all the beads input, captured, and scoured from the separator.

Parameters	Verified Claims	Accuracy
Sediment Removal	During the sediment removal test, the Hydroworks HydroDome HD3 OGS device, with a false floor set to 50% of the manufacturer's recommended maximum sediment storage depth and a constant influent test sediment concentration of 200 mg/L and particle size distribution of 1-1000 μm , removed 83.9, 77.6, 68.4, 66.9, 59.4, 52.4, and 46.0 percent of influent sediment by mass at surface loading rates of 40, 80, 200, 400, 600, 1000, and 1400 L/min/m ² respectively	The sediment removal characteristics were quantified at various surface loading rates (SLRs), including particle size fractions, using a modified mass balance methodology. Performance results are presented as the true values.
Sediment Scour	During the scour test, the Hydroworks HydroDome HD3 OGS device with 15.2 cm (6 inch) of test sediment preloaded onto a false floor reaching 50% of the manufacturer's recommended maximum sediment sump storage depth, generated corrected effluent sediment concentrations on average of 0.54, 0.70, 0.0, 0.0, and 0.11 mg/L at 5-min duration surface loading rates of 200, 800, 1400, 2000, and 2600 L/min/m ² , respectively.	5 samples analyzed for sediment (n=5) at each flow rate There was negligible scour once corrected for background concentrations.
Light Liquid Re-entrainment	During the light-liquid re-entrainment test, the Hydroworks HydroDome HD3 OGS with surrogate low-density polyethylene beads preloaded within the inner chamber, representing a floating light-liquid volume equal to a depth of 50.8 mm (2 inch) over the sedimentation area, retained 100, 100, 100, 100, and 99.7 percent of loaded beads by mass during the 5-minute duration surface loading rates of 200, 800, 1400, 2000, and 2600 L/min/m ² , respectively.	Performance results are presented as the true values. Under the "Procedure for Laboratory Testing of Oil-Grit Separators" (TRCA, 2014), the light-liquid re-entrainment test is also not amenable to statistical analysis as the tests were only conducted once at various flow rates following a mass balance procedure.

Table 5. Verified performance claims

Hydroworks HydroDome HD3 Oil Grit Separator Verification Statement

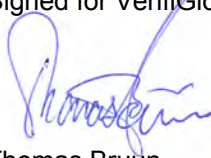


What is ISO 14034?

The purpose of environmental technology verification is to provide a credible and impartial account of the performance of environmental technologies. Environmental technology verification is based on a number of principles to ensure that verifications are performed and reported accurately, clearly, unambiguously and objectively. The International Organization for Standardization (ISO) standard for environmental technology verification (ETV) is ISO 14034, which was published in November 2016.

Benefits of ETV

ETV contributes to protection and conservation of the environment by promoting and facilitating market uptake of innovative environmental technologies, especially those that perform better than relevant alternatives. ETV is particularly applicable to those environmental technologies whose innovative features or performance cannot be fully assessed using existing standards. Through the provision of objective evidence, ETV provides an independent and impartial confirmation of the performance of an environmental technology based on reliable test data. ETV aims to strengthen the credibility of new, innovative technologies by supporting informed decision-making among interested parties.

For more information on the HydroDome Oil Grit Separator, contact:	For more information on VerifiGlobal, contact:
Hydroworks LLC. 257 Cox St., Roselle, NJ 07203 USA T: +1-888-290-7900 E: gbryant@hydroworks.com W: https://hydroworks.com	VerifiGlobal c/o ETA-Danmark A/S Göteborg Plads 1, DK-2150 Nordhaven T: +45 7224 5900 E: info@verifiglobal.com W: www.verifiglobal.com
Signed for Hydroworks:  Graham Bryant Owner	Signed for VerifiGlobal:  Thomas Bruun Managing Director  John Neate Managing Director

NOTICE: Verifications are based on an evaluation of technology performance under specific, predetermined operational conditions and parameters and the appropriate quality assurance procedures. VerifiGlobal and the Verification Expert, CAWT, make no expressed or implied warranties as to the performance of the technology and do not certify that a technology will always operate as verified. The end user is solely responsible for complying with any and all applicable regulatory requirements. Mention of commercial product names does not imply endorsement.

VerifiGlobal and the Verification Expert, CAWT, provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.

Online Project Configuration

Project Details

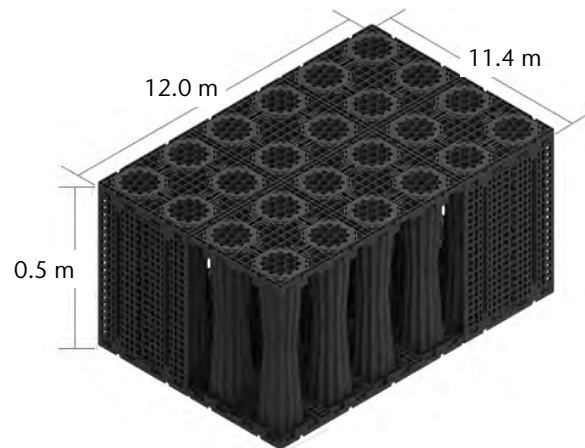
Description : 1898
Date : 06-02-2026
City : Burlington
State : Ontario
Zip Code : L7N 3J3
Country : CANADA

Customer Details

Contact : Malcolm Wallace
Email : mwallace@trafalgareng.com

Tank Configuration

Tank Function	Detention/Retention
Product	Standard Duty (900SD)
Number of Layers	0.5
Total Net Volume (m ³)	62.5 m ³
Total Gross Volume (m ³)	65.5 m ³
Length of Tank (m)	12.0 m
Width of Tank (m)	11.4 m
Depth of Tank (m)	0.5 m

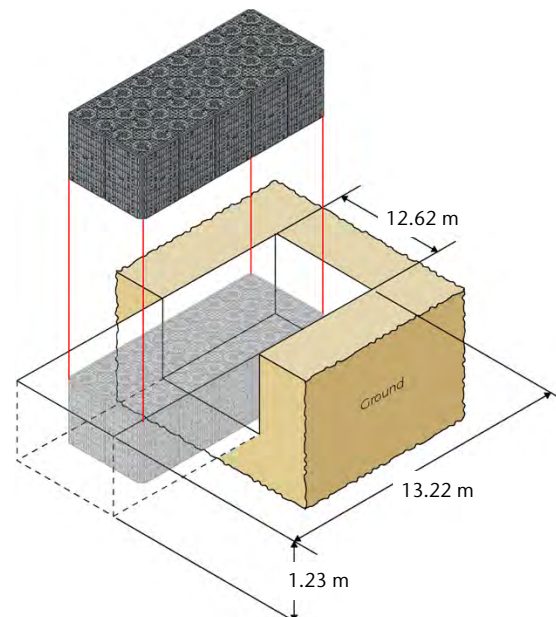


Cavity & Excavation Details

Length of Cavity (m)	13.2 m
Width of Cavity (m)	12.6 m
Depth of Cavity (m)	1.2 m
Volume of Material to be Excavated (m ³)	205.3 m ³
*Membrane Quantity (m ²)	340.4 m ²
Cover Dimension (m)	0.6 m
**Backfill Material (m ³)	139.8 m ³

* Calculation includes a 15% overlap

** Pavement not accounted for



* Diagram shows cavity size rounded to nearest foot

Project Configuration Inlets, Outlets, and Access

Inlets

		Qty
	Inlets	1
	Remote Access Unit	1
	Side Panels	0
	Horizontal Pipe Connector	0

Outlets

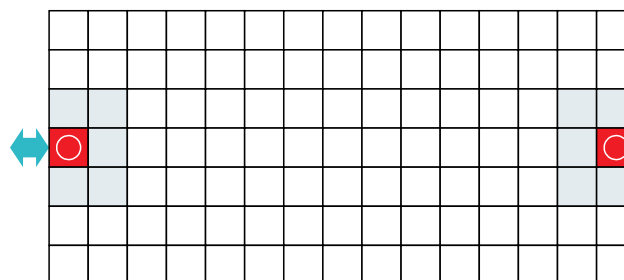
		Qty
	Outlets	1
	Remote Access Unit	0
	Side Panels	1
	Horizontal Pipe Connector	0

Access

		Qty
	Access Points	1
	Remote Access Unit	1
	Remote Access Plate	0

Grid Note

The grids below do not represent accurate dimensions or proportions they just give a general guide to both inlet / outlet and access placement on your StormBrixx scheme.



Inlet/Outlet Grid Key



Inlet/Outlet Pipe



Inlet/Outlet using Remote Access Unit

Access Grid Key



Remote Access Unit with maintenance access



Remote Access Plate with maintenance access

Bill of Materials



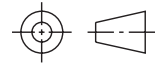
Pt No.		Description	Qty	Price Each (\$)	Extended Price (\$)	Weight Each (lbs)	Extended Weight (lbs)
138464		Half-Module 900 SD	190			23.81	4,523.9
314094		Half-Layer Top Cover Plate	190			7.70	1,463.0
138567		Half-Layer Side Panel 900 SD	78			3.37	262.9
138141		SD Remote Access Unit	2			40.00	83.7
314038		Extension Shaft	6			4.84	29.0
314133		Remote Access Vented Cover - Ductile Iron	2			83.60	167.2
Totals				Price		Weight	6,529.7

Notes:

1) These prices are the manufacturer's suggested retail price (MSRP). Please contact your local dealer or ACO Customer Service for more information.

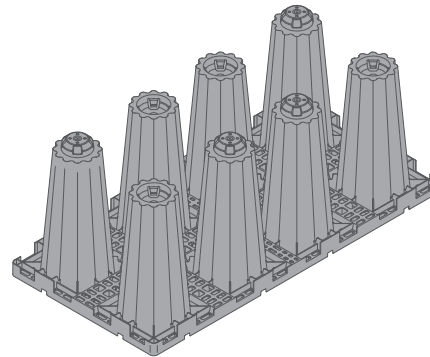
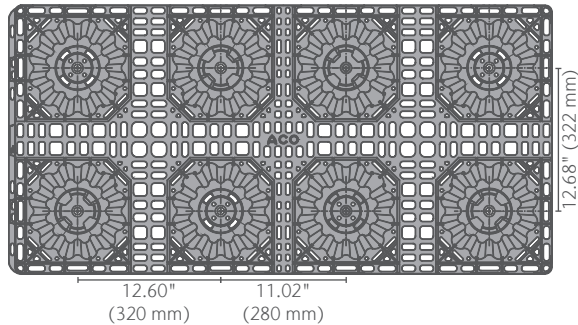
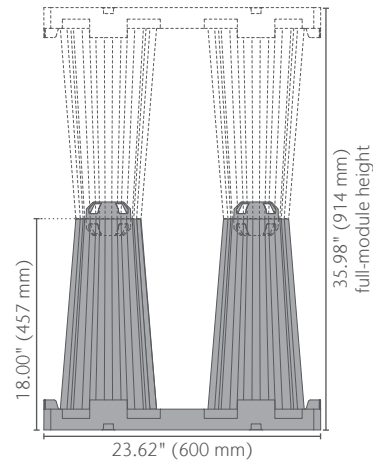
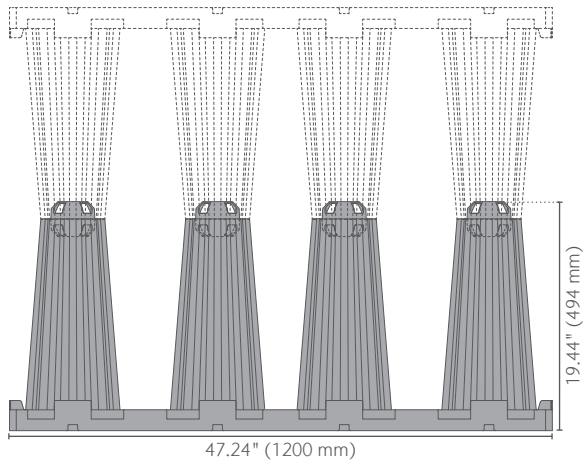
2) You should have received an email with your output results from: no-reply@acosbconfigurator.com If you do not receive the confirmation within a few minutes, please check your spam folder.

StormBrixx 900 SD



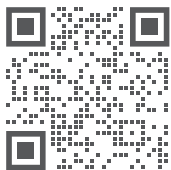
Half-Module 900 SD

part no. 138464



Note: (2) half-modules are connected to form (1) full-module. (1) side panel fits (1) full-module.

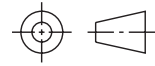
ACO Specification Information



Telephone #: 888.490.9552

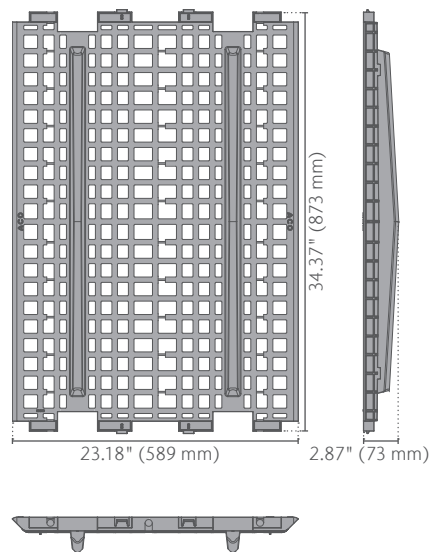


StormBrixx 900 SD



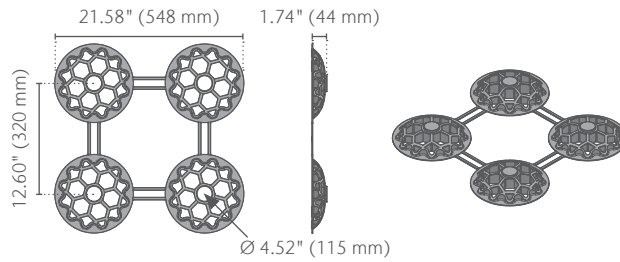
Side Panel 900 SD

part no. 138463



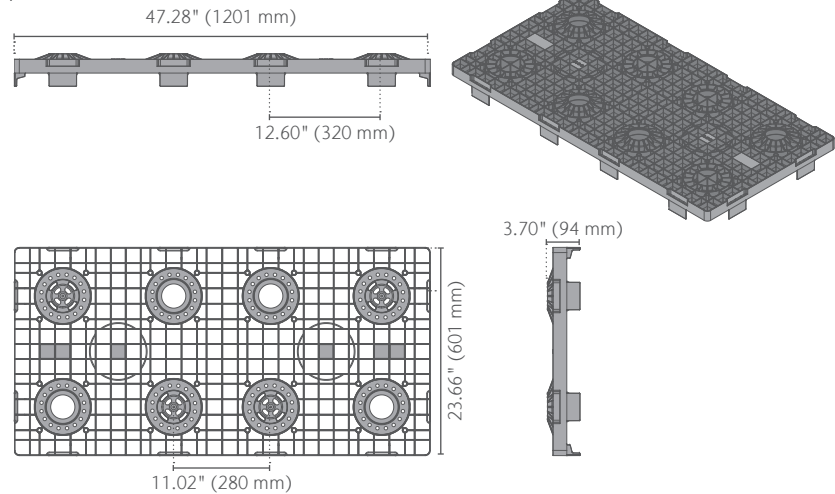
Universal Top Cover

part no. 140213



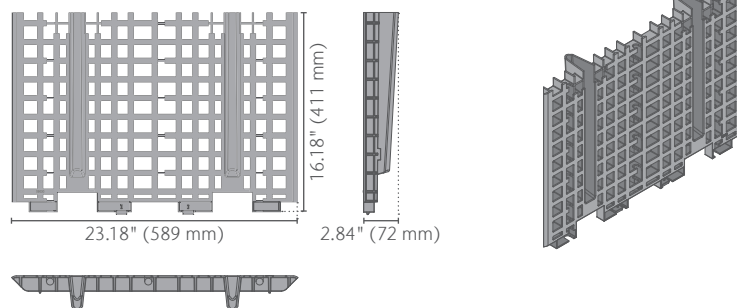
Half-Layer Top Plate

part no. 314094

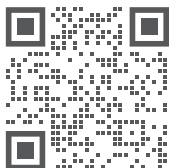


Half-Layer Side Panel 900 SD

part no. 138567



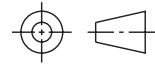
ACO Specification Information



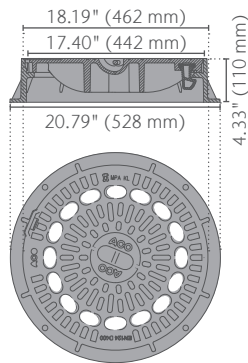
Telephone #: 888.490.9552



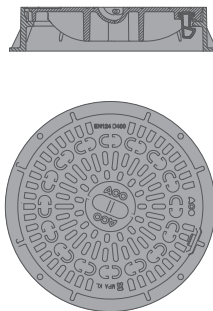
StormBrixx 900 SD

Remote Access Cover
(Vented)

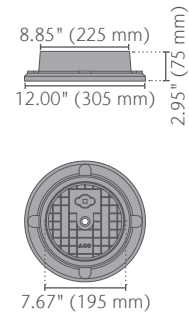
part no. 314133

Remote Access Cover
(Non-Vented)

part no. 314132

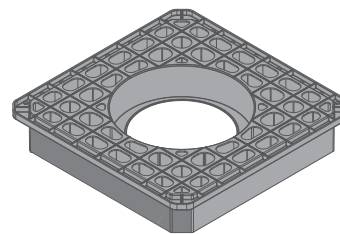
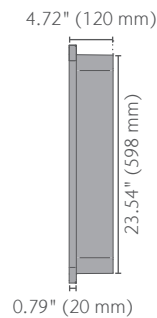
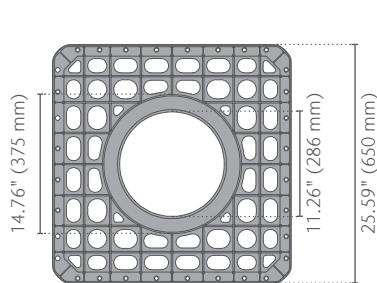
Inspection Point
Cover

part no. 314044



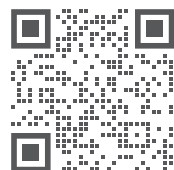
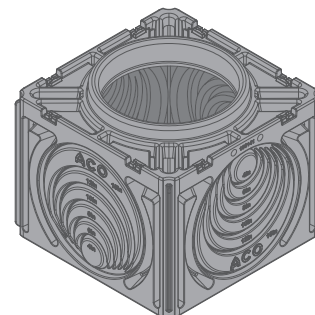
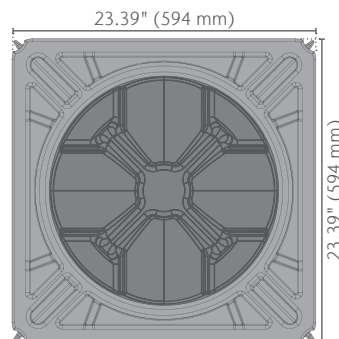
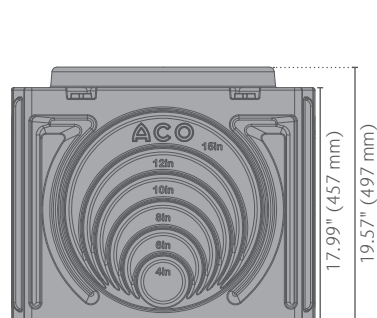
Remote Access Plate

part no. 314075



Remote Access Unit 900 SD

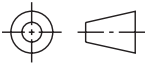
part no. 138141



Telephone #: 888.490.9552

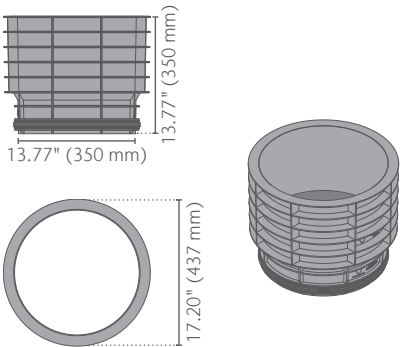


StormBrixx 900 SD



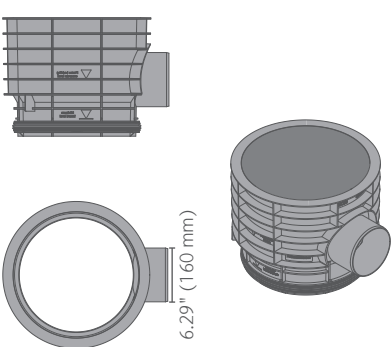
Extension Shaft

part no. 314038



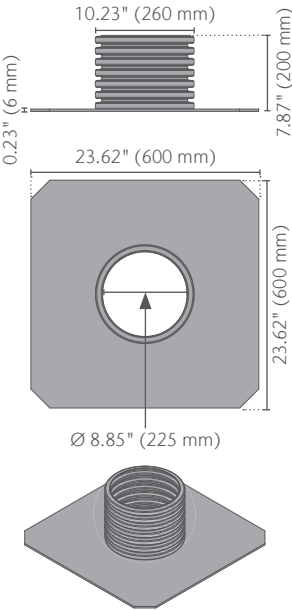
Extension Shaft with Pipe Socket

part no. 314039



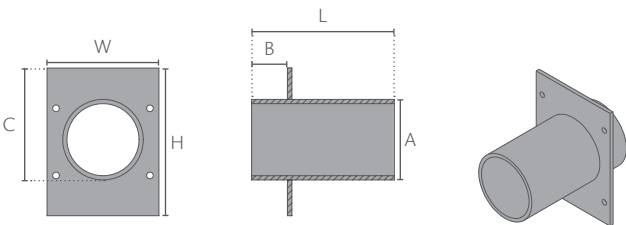
Vertical Inspection
Point Connector

part no. 27018

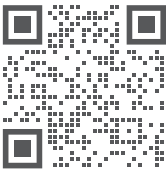


Horizontal Pipe
Connector

part no.: see chart



Part No.	A	B	C	H	W	L
93139	4" SDR 35	2.00 (51)	6.25 (158)	8.25 (209)	6.70 (170)	8.00 (203)
93145	4" SCH 40	2.00 (51)	7.47 (189)	8.29 (210)	6.70 (170)	8.00 (203)
93140	6" SDR 35	2.00 (51)	8.95 (227)	9.93 (252)	10.22 (259)	8.00 (203)
93146	6" SCH 40	2.00 (51)	9.11 (231)	9.93 (252)	10.22 (259)	8.00 (203)
93141	8" SDR 35	2.00 (51)	10.46 (265)	11.39 (289)	11.64 (295)	8.00 (203)
93147	8" SCH 40	2.00 (51)	10.57 (268)	11.39 (289)	11.64 (295)	8.00 (203)
93142	12" SDR 35	2.00 (51)	13.48 (342)	14.30 (363)	16.66 (423)	8.00 (203)
93144	15" SCH 40	2.00 (51)	17.28 (439)	19.25 (489)	19.25 (489)	8.00 (203)

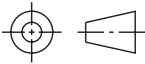


Telephone #: 888.490.9552



ACO Specification Information

StormBrixx 900 SD



Product Details

Product Name	Part No.	Length in (mm)	Width in (mm)	Depth in (mm)	Weight lbs
Half-Module 900 SD	138464	47.24 (1200)	23.62 (600)	19.44 (494)	21.6
Side Panel 900 SD	138463	34.37 (873)	23.18 (589)	2.87 (73)	6.6
Universal Top Cover	140213	21.58 (548)	21.58 (548)	1.74 (44)	1.3
Half-Layer Top Plate	314094	47.28 (1201)	23.66 (601)	3.70 (94)	7.7
Half-Layer Side Panel 900 SD	138567	23.18 (589)	16.18 (411)	2.83 (72)	3.4
Layer Connector	314093	2.11 (54)	1.75 (44)	1.05 (27)	0.1
Remote Access Cover (Vented) - Ductile Iron (Load Class D400)	314133	-	Ø 20.79 (528)	4.33 (110)	83.6
Remote Access Cover (Non-Vented) - Ductile Iron (Load Class D400)	314132	-	Ø 20.79 (528)	4.33 (110)	86.5
Inspection Point Cover - Ductile Iron (Load Class D400)	314044	-	Ø 8.85 (225)	2.95 (75)	34.5
Remote Access Plate	314075	25.59 (650)	25.59 (650)	4.72 (120)	10.8
Remote Access Unit 900 SD	138141	23.39 (594)	23.39 (594)	19.57 (497)	40.0
Extension Shaft	314038	-	Ø 17.20 (437)	13.77 (350)	4.8
Extension Shaft with Pipe Socket	314039	-	Ø 17.20 (437)	13.77 (350)	6.2
Vertical Inspection Point Connector	27018	-	Ø 8.85* (225)	7.87 (200)	5.5
4" SDR 35 Horizontal Pipe Connector	93139	8.00 (203)	6.70 (170)	8.25 (209)	1.9
4" SCH 40 Horizontal Pipe Connector	93145	8.00 (203)	6.70 (170)	8.29 (210)	1.9
6" SDR 35 Horizontal Pipe Connector	93140	8.00 (203)	10.22 (259)	9.93 (252)	3.2
6" SCH 40 Horizontal Pipe Connector	93146	8.00 (203)	10.22 (259)	9.93 (252)	3.2
8" SDR 35 Horizontal Pipe Connector	93141	8.00 (203)	11.64 (295)	11.39 (289)	5.5
8" SCH 40 Horizontal Pipe Connector	93147	8.00 (203)	11.64 (295)	11.39 (289)	5.5
12" SDR 35 Horizontal Pipe Connector	93142	8.00 (203)	16.66 (423)	14.30 (363)	5.5
15" SCH 40 Horizontal Pipe Connector	93144	8.00 (203)	19.25 (489)	19.25 (489)	5.5

* Internal width

Specification Summary

General

The StormBrixx stormwater management system shall be ACO StormBrixx 900 SD as supplied by ACO, Inc.

ACO StormBrixx 900 SD meets AASHTO HS-20 loading conditions.

Geomembranes/Geotextiles

The StormBrixx stormwater system shall be wrapped in either appropriate permeable geotextile or impermeable geomembrane (supplied and specified by others) as indicated by project design engineer.

Accessories

The StormBrixx stormwater system may be used in conjunction with one or more optional products: remote access unit, remote access plate extension shaft, and/or inspection point connector.

Installation

The StormBrixx stormwater system shall be installed in strict accordance with the manufacturer's installation instructions and recommendations.

Materials

The half-module shall be manufactured from polypropylene and have minimum properties as follows:

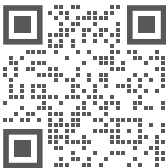
- Charpy unnotched impact strength: 1.4 ft-lb/in² (3 kJ/m²)
- Tensile strength, ultimate: 3,480 psi (23,994 kPa)
- Water absorption: 0.01%
- Frost proof: YES
- Salt proof: YES
- Fuels/oils-resistant: YES

The stormwater tank shall provide an average 97% open area, holding up to 22.42 ft³ (0.63 m³) per module (2 half-modules assembled) and offer full access to all areas and levels for maintenance. Configuration and use of side/top panels will marginally impact these figures.

ACO, Inc.

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All reasonable care has been taken in compiling the information in this document. All recommendations and suggestions on the use of ACO products are made without guarantee since the conditions of use are beyond the control of the company. It is the customer's responsibility to ensure that each product is fit for its intended purpose and that the actual conditions of use are suitable. ACO, Inc. reserves the right to change products and specifications without notice.



Telephone #: 888.490.9552



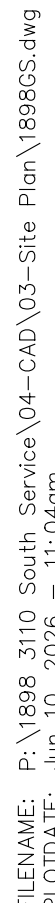
ACO Specification Information

Appendix 'E'

Grading Plan (G1)

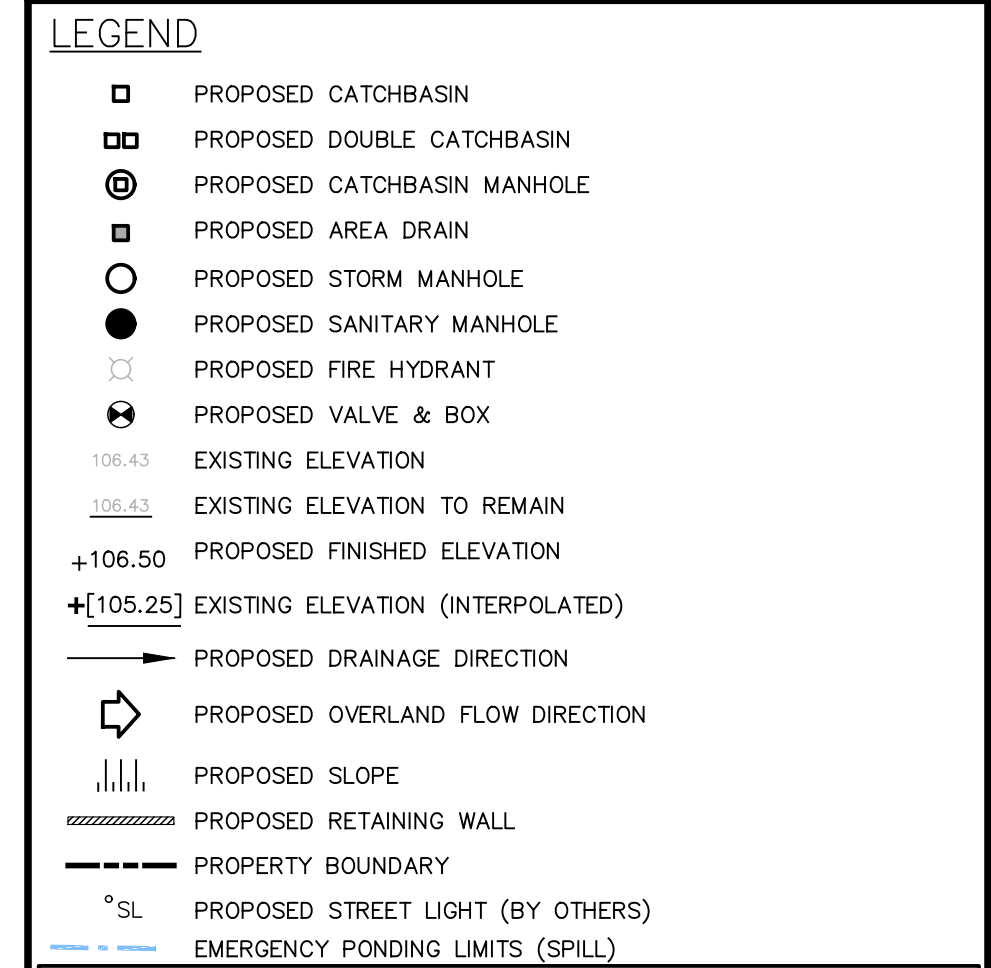
Servicing Plan (S1)

Erosion and Sediment Control and Construction and Mobility Management Plan (ECMMP1)



1. ALONG ADJOINING PROPERTIES GRADE TO MEET EXISTING OR PROPOSED ELEVATIONS WITH SLOPED SLOPES (MIN. 3H TO 1V) AND/OR RETAINING WALLS AS SPECIFIED.
2. UNLESS OTHERWISE NOTED, THE GROUND BETWEEN PROPOSED ELEVATIONS ON SIDE LOTS SHALL BE GRADED AS A STRAIGHT LINE.
3. ALL FILL PLACED ON LOTS SHALL BE COMPACTED TO A MINIMUM 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300MM.
4. IF APPLICABLE FOR DELINEATION OF TREE PROTECTION ZONES, BUFFERS, REMOVALS AND PROTECTION SCHEMATICS, ETC., REFER TO TREE PROTECTION PLAN (BY LANDSCAPE ARCHITECT).
5. LOT GRADING SHALL CONFORM STRICTLY WITH THIS PLAN, ANY CHANGES, UNLESS APPROVED PRIOR TO CONSTRUCTION BY THE CITY, SHALL RESULT IN NON ACCEPTANCE BY THE CITY.

1. REFER TO TURNER FLEISCHER ARCHITECTS INC SITE PLAN FOR DETAILS AND SPECIFICATIONS FOR WALKWAYS, SIDEWALKS, CURBS AND ISLANDS AS WELL AS LAYOUT DIMENSIONS.
2. ALL DIMENSIONS AND ELEVATIONS TO BE VERIFIED PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES FOUND PRIOR TO OR DURING CONSTRUCTION SHALL BE CLARIFIED WITH THE ENGINEER
3. THIS PLAN SHOULD BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANT'S PLANS. ANY DISCREPANCIES MUST BE CLARIFIED PRIOR TO CONSTRUCTION. INFORMATION RELATED TO DIMENSIONS FOR PRIVATE ROAD, PARKING, CURBING AND SETBACKS SHALL BE TAKEN FROM THE SITE PLAN PREPARED BY TURNER FLEISCHER ARCHITECTS INC.
4. HEIGHT OF CURB IS TO BE 150mm AS PER STANDARD DETAILS UNLESS OTHERWISE SHOWN ON GRADING PLAN
5. ALL ASPHALTIC MATERIAL FOR PAVEMENT DESIGN SHALL CONFORM WITH OPSS 1150 AND ALL GRANULAR MATERIAL FOR PAVEMENT DESIGN SHALL CONFORM WITH OPSS 1010.
6. HEAVY DUTY PAVEMENT DESIGN (FIRE/TRUCK ROUTES AND TRUCK PARKING)
 - 50mm HL3 SURFACE
 - 65mm HL8 BINDER
 - 150mm 19mm CRUSHER RUN LIMESTONE
 - 300mm 50mm CRUSHER RUN LIMESTONE
7. LIGHT DUTY PAVEMENT DESIGN (CAR PARKING AREAS)
 - 30mm HL3 SURFACE
 - 50mm HL8 BINDER
 - 150mm 19mm CRUSHER RUN LIMESTONE
 - 300mm 50mm CRUSHER RUN LIMESTONE
8. GRANULAR SUB-BASE AND BASE MATERIALS SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 100% S.P.M.D.D. IN LIFTS OF 150mm OR LESS.
9. ASPHALTIC MATERIALS SHOULD BE COMPACTED TO AT LEAST 97% MARSHALL BULK DENSITIES.
10. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT (INCLUDING ANY AMENDMENT) PREPARED FOR THIS PROJECT.
11. THE SUBGRADE SHALL BE CAREFULLY PROOF ROLLED TO A SMOOTH SURFACE AND SLOPED TOWARDS THE CATCHBASINS TO PREVENT PONDING OR ENTRAPMENT OF WATER IN THE SUB-BASE.
12. PERFORATED CONTINUOUS SUBDRAINS ARE TO BE PLACED ALONG THE SIDES OF THE HEAVY DUTY PAVEMENT TO PROMOTE DRAINAGE OF THE GRANULAR MATERIAL AND SHALL BE CONNECTED TO THE STORM SEWER SYSTEM. CONTRACTOR IS TO ENSURE POSITIVE DRAINAGE IN THE SUBDRAINS.
13. PERFORATED SUB DRAINS ARE TO BE CONNECTED TO INTERNAL CATCHBASINS IN A QUADRANT FORMATION AND SHOULD EXTEND AT LEAST 3 METERS IN ALL DIRECTIONS EXCEPT IN THE BOULEVARD AREAS.
14. ALL PERFORATED SUBDRAINS AND SUB DRAINS SHALL BE PLACED AT LEAST 300mm BELOW THE BOTTOM OF THE SUB-BASE AND CONNECTED TO THE CATCHBASINS TO PROVIDE POSITIVE DRAINAGE. SUBDRAIN PIPE TO BE 100mm PERFORATED, CORRUGATED, PLASTIC ENCASED IN FILTER FABRIC "SOCK" AS PER OPSS 405 AND 1860. BACKFILL WITH HL6 STONE.
15. ALL BOULEVARDS SHALL BE SOODED ON 150mm TOPSOIL.
16. FOR SLEEVING INFORMATION OF IRRIGATION SYSTEM REFER TO LANDSCAPE ARCHITECTS PLAN.

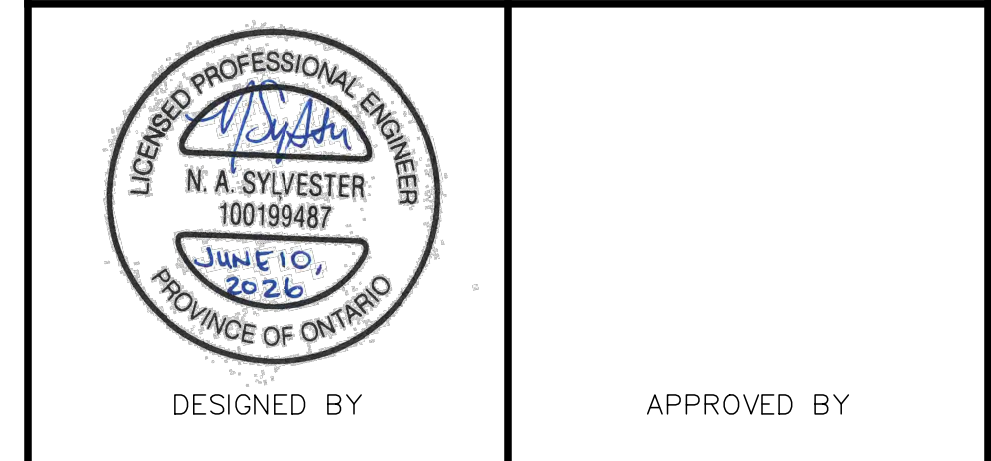


ISSUED FOR SITE PLAN APPLICATION
NOT FOR CONSTRUCTION

1	26/06/10	MW/NH	ISSUED FOR 1ST SITE PLAN APPLICATION	
NO.	DATE	BY/DRAWN	REVISIONS	
CAD FILE: 1898GS.dwg			PLOT SCALE: 1:1	PLOT DATE: Jun 10, 2026

ELEVATIONS ARE REFERRED TO THE CITY OF BURLINGTON BENCHMARK NO. 477, HAVING AN ELEVATION OF 103.576 m.

THE SURVEY WAS COMPLETED ON THE 7TH DAY OF SEPTEMBER, 2021
BY J.H. GELBLOOM SURVEYING LIMITED, ONTARIO LAND SURVEYOR.
PROJECT No. 21-265



CONSULTANT

 **TRAFALGAR
ENGINEERING**

#201-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE	DATA CENTER
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LOCATION

3110 SOUTH SERVICE ROAD
BURLINGTON, ON

DRAWING TITLE

GRADING PLAN

SCALE	1: 300	DESIGN BY	MW	PROJECT No.	1898
DRAWN BY	NH	CHECKED BY	NS	PLAN No.	G1
DATE	2026-05-13	SHEET	1 OF 1		

CONSTRUCTION MANAGEMENT AND MOBILITY PLAN NOTES

NOTE:

THIS PLAN MAY BE MODIFIED THROUGH THE SPA AND BUILDING PERMIT STAGE AS CONSTRUCTION DETAILS AND SEQUENCING IS CONFIRMED. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE AN UPDATED CMMP PRIOR TO COMPLETING ANY WORKS ON SITE.

NOTE:

1. THE CONSTRUCTION MANAGEMENT DESIGN DRAWING IS FOR PLANNING PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR SECURING THE APPROPRIATE PERMITS INCLUDING THE PREPARATION OF A MORE DETAILED CONSTRUCTION AND TRAFFIC MANAGEMENT PLAN.
2. THE CONSTRUCTION AND TRAFFIC MANAGEMENT PLAN WILL FULLY REMAIN THE RESPONSIBILITY OF THE CONTRACTOR. THIS PLAN SHOULD BE USED AS A GUIDELINE ONLY.

NOTE:

CONTRACTOR TO CONFIRM ALL CONSTRUCTION DETAILS AND NOTES ON THIS PLAN PRIOR TO CONSTRUCTION. SHOULD EDITS NEED TO BE MADE, A REVISED DRAWING IS TO BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO BEGINNING ANY WORK OUTSIDE.

NOTE:

ROAD CLOSURES (IF REQUIRED) TO BE DETERMINED PRIOR TO CONSTRUCTION. ALL ROAD CLOSURES TO BE PER OTM BOOK 7 AND ARE SUBJECT TO THE APPROVAL OF THE CITY OF BURLINGTON.

NOTE:

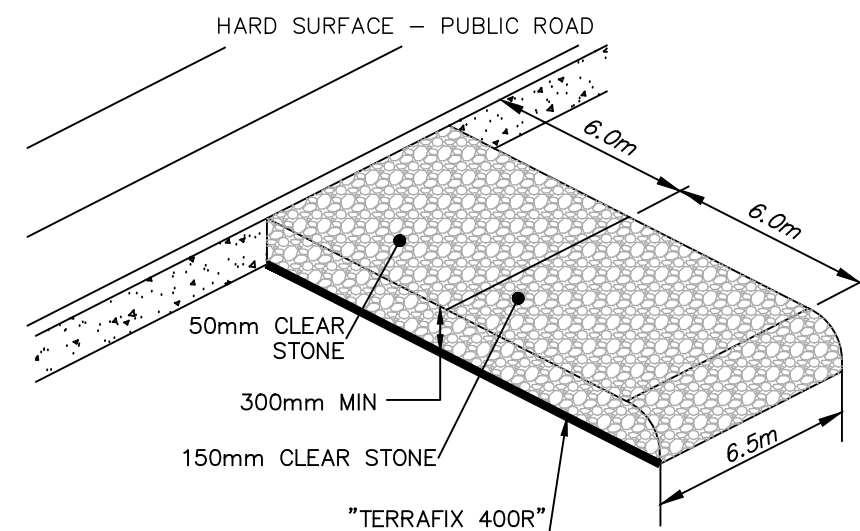
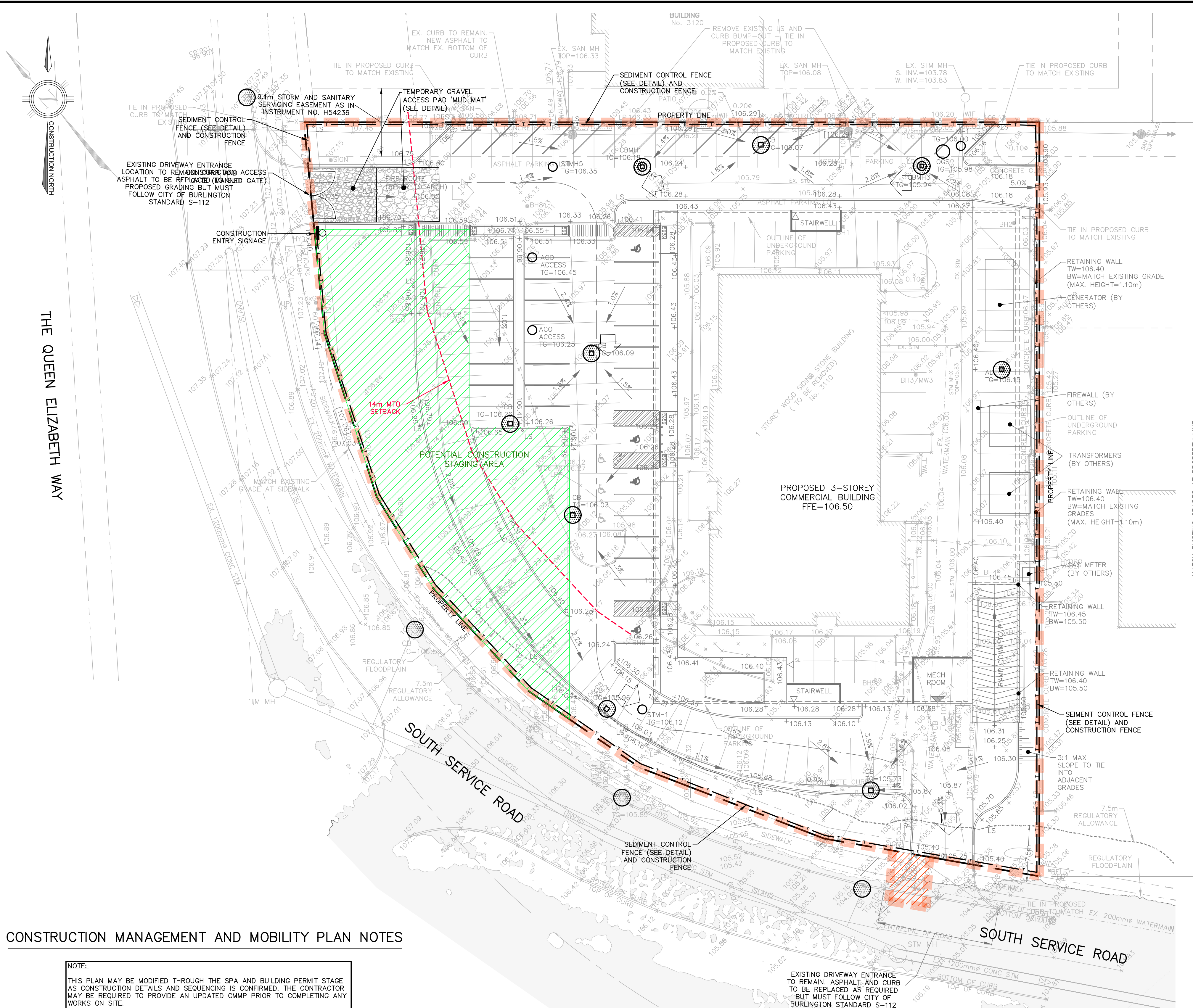
TRUCK HAULAGE ROUTE TO SITE SHALL BE FROM SOUTH SERVICE ROAD, TO HARVESTER ROAD, TO GUELPH LINE.
CONTRACTOR TO PROVIDE TO CITY TRAFFIC CONTROL PLAN (TCP) TO SHOW TRUCK MOVEMENTS, ENTRY/EXIT SIGNS, SIDEWALK DETOURS ALL TO FOLLOW OTM BOOK 7.

NOTE:

CONTRACTOR TO IDENTIFY APPROPRIATE FIRE ROUTE AND LOCATION OF SITE TRAILER AND STAGING AREA TO THE SATISFACTION OF THE MUNICIPALITY PRIOR TO COMMENCING WORKS.
CONTRACTOR TO PROVIDE SITE EMERGENCY CONTACTS.

NOTE:

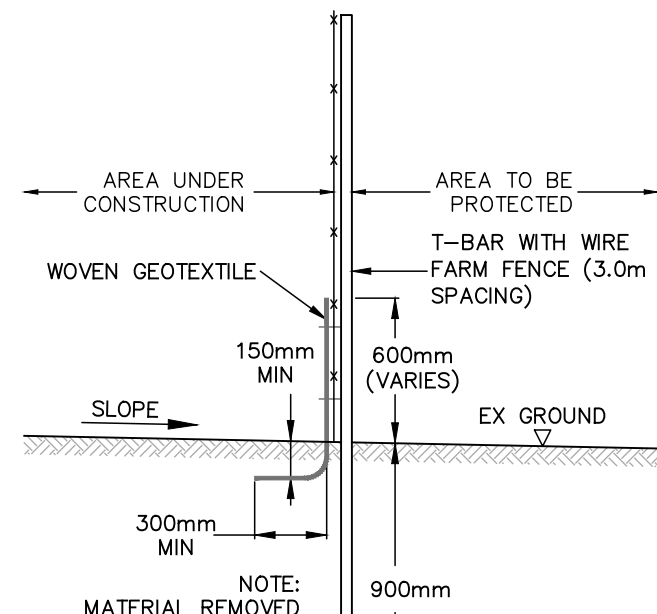
EXISTING HYDRO POLES, STREETLIGHTS AND MUNICIPAL TREES WITHIN SOUTH SERVICE ROAD ROW TO BE PROTECTED DURING CONSTRUCTION.



NOTE: LOCATION TO BE DETERMINED IN THE FIELD

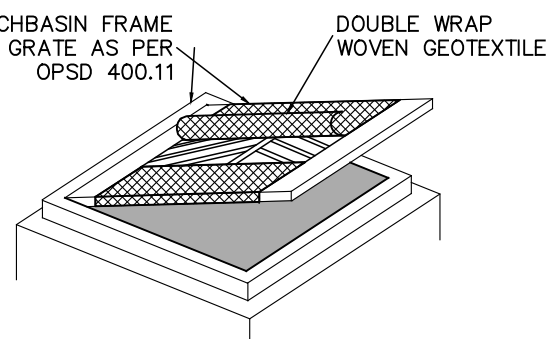
GRAVEL ACCESS PAD (MUD MAT)

NTS



SEDIMENT CONTROL FENCE

NTS



NOTE:

1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, BETWEEN APRIL AND DECEMBER
2. WOVEN GEOTEXTILE TO HAVE EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm
3. WOVEN GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE.

CATCHBASIN SEDIMENT CONTROL IN PAVED AREAS

NTS

EROSION AND SEDIMENT CONTROL NOTES

1. SEDIMENT CONTROL BARRIERS SHALL BE PLACED AS DETAILED.
2. ALL SEDIMENT CONTROL MEASURES SHALL BE CLEANED AND MAINTAINED AFTER EACH RAINFALL AS DIRECTED AND TO THE SATISFACTION OF THE CITY OF BURLINGTON.
3. ADDITIONAL SEDIMENT CONTROL LOCATIONS MAY BE REQUIRED AS DETERMINED BY THE CITY OF BURLINGTON.

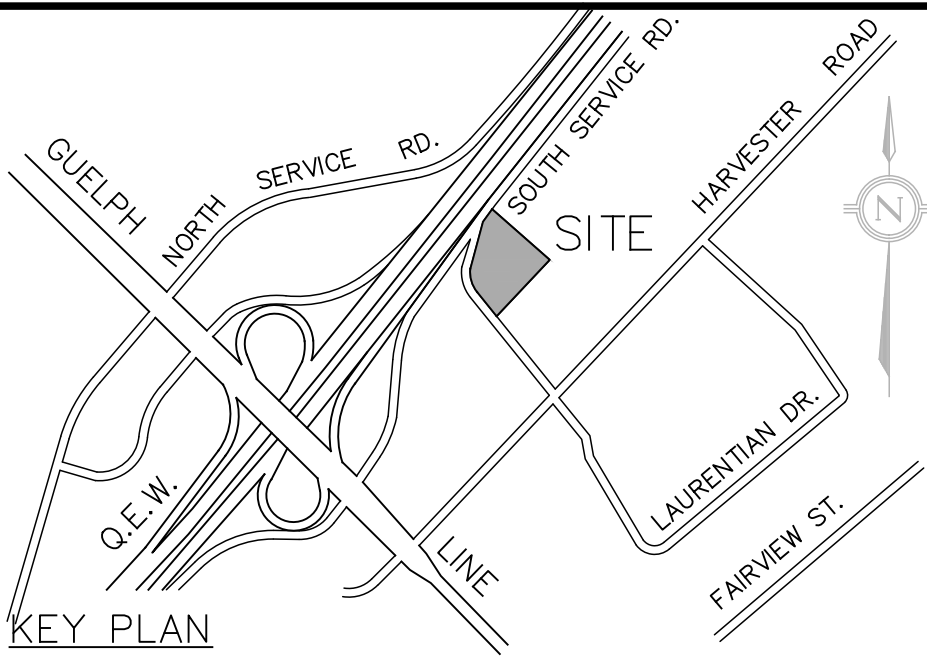
LEGEND

- SEDIMENT CONTROL IN PAVED AREAS
- SEDIMENT CONTROL CB IN LANDSCAPED AREA
- SEDIMENT CONTROL/CONSTRUCTION FENCE
- MUD MAT
- ACCESS/TRUCK ROUTE

PRIOR TO COMMENCING ANY WORK WITH THE MUNICIPAL RIGHT-OF-WAY, THE CONTRACTOR, DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE TOWN'S RIGHT-OF-WAY MANAGEMENT SECTION.

NOTE:

A SILT FENCE MUST BE PLACED AROUND THE PERIMETER OF SITE PRIOR TO START OF CONSTRUCTION. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED, REPAIRED/MAINTAINED WEEKLY AND FOLLOWING RAINFALL EVENTS THAT CREATE RUNOFF. ALL CONTROLS SHALL REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED.



LEGEND

- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED AREA DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- EXISTING ELEVATION
- EXISTING ELEVATION TO REMAIN
- PROPOSED FINISHED ELEVATION
- EXISTING ELEVATION (INTERPOLATED)
- PROPOSED DRAINAGE DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED SLOPE
- PROPOSED RETAINING WALL
- PROPOSED PRIVACY FENCE
- PROPOSED LIMIT OF CONSTRUCTION
- PROPOSED CONSTRUCTION STAGING AREA
- TEMPORARY ENCROACHMENT ON CITY'S ROW

ISSUED FOR SITE PLAN APPLICATION

NOT FOR CONSTRUCTION

NO.	DATE	BY/DRAWN	REVISIONS
1	26/06/10	MW/NH	ISSUED FOR 1st SITE PLAN APPLICATION

CAD FILE: 189805.dwg | PLOT SCALE: 1:1 | PLOT DATE: Jun 10, 2026

BENCHMARK

ELEVATIONS ARE REFERRED TO THE CITY OF BURLINGTON BENCHMARK NO. 477, HAVING AN ELEVATION OF 103.576 m.

NOTE

THE SURVEY WAS COMPLETED ON THE 7TH DAY OF SEPTEMBER, 2021 BY J.H. GELBLOOM SURVEYING LIMITED, ONTARIO LAND SURVEYOR. PROJECT NO. 21-265

SCALE 1:300 0 5 10 20m



DESIGNED BY

APPROVED BY

CONSULTANT

TRAFALGAR ENGINEERING
#201-481 MORRIS ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE

DATA CENTER

LOCATION

3110 SOUTH SERVICE ROAD BURLINGTON, ON

DRAWING TITLE

EROSION AND SEDIMENT CONTROL PLAN & CONSTRUCTION MANAGEMENT AND MOBILITY PLAN

SCALE	1:300	DESIGN BY	MW	PROJECT No.	1898
DRAWN BY	NH	CHECKED BY	NS	PLAN No.	ECMMP1
DATE	2026-05-13	SHEET	1	OF	1