Stormwater Management Report

431 Ontario Street
Condominium Development
Cobourg, Ontario

D.M. Wills Project No. 18-10839

D.M. Wills Associates Limited
Partners in Engineering, Planning &
Environmental Services
Peterborough

February 2022

Prepared for:
2020910 Ontario Ltd

Summary of Revisions

Revision No.	Revision Title	Date of Release	Summary of Revisions
1	Stormwater Management Report	February 2022	1st Submission to Town of Cobourg

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

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1.0 Purpose

D.M. Wills Associates Limited (Wills) has been retained by 2020910 Ontario Ltd. to prepare a detailed Stormwater Management Report for the development of the property located at 431 Ontario Street in Cobourg, Ontario.

The purpose of this report is to evaluate the existing drainage characteristics of the site and to advance an integrated plan for stormwater management that will permit the development to proceed with no adverse impacts to the receiving drainage system. This report has been prepared to address the requirements of the Town of Cobourg as well as Ganaraska Regional Conservation Authority (GRCA).

2.0 Site Description

The location of the site is shown on **Figure 1** and is legally described within a Legal Survey Plan prepared by Ivan B Wallace and dated January 9, 2016. The description reads: "Part of an Unnumbered Lot designated as Lots 3, 4, and 5 and Part of a Lane (Closed by By-Law 149-89, Inst. CB156017), Registered Plan 34, and Part of an Unnumbered Lot, Block A, Caddy Plan," within the County of Northumberland and Town on Cobourg. The surrounding properties include residential land in all directions.

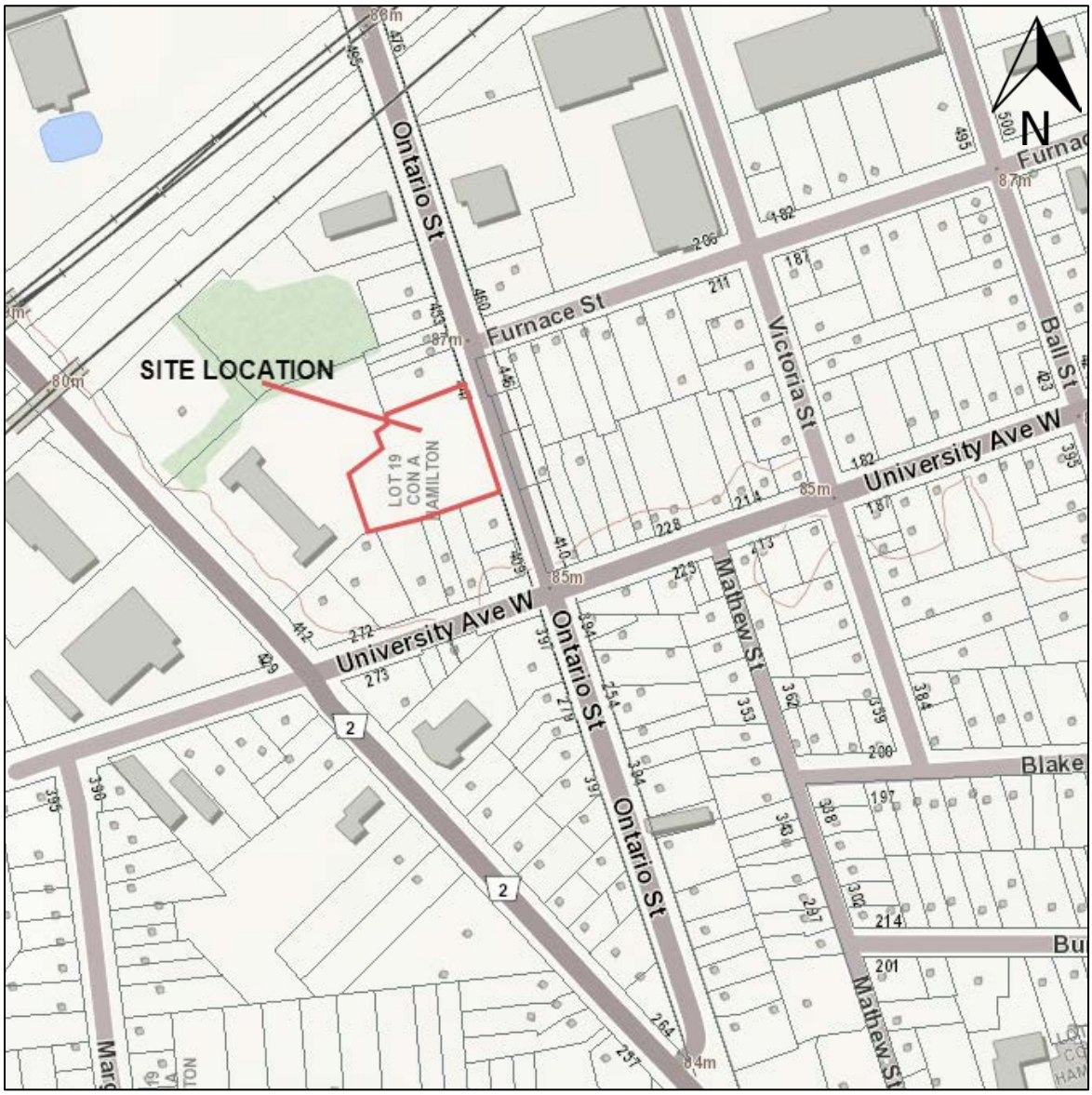
The existing site is comprised of a grass field, gravel and impervious areas. Half the site drains gradually from northwest to southeast and into the Ontario Street right-of-way, with the other half of the site draining gradually from north to south and into the existing residential property at the southern limit of the site.

The change in land use includes the removal of gravel and asphalt areas to allow for the construction of a new multi-story residential building, new asphalt parking areas and additional landscaped areas. If left unmitigated, the proposed redevelopment may alter the runoff rate leaving the site and may influence downstream stormwater quantity and quality. The proposed development will be serviced by municipal water and sanitary services.

The topographic survey of the site was completed by Ivan B. Wallace, Ontario Land Surveyor. This data was used to determine the elevations and locations of existing site features, on-site drainage patterns and establish the proposed grades.

A Soils Investigation Report was prepared by GHD on November 20, 2018. The report presents the findings of the soils investigation and groundwater observations within eleven (11) boreholes across the site. A copy of the Soils Investigation Report can be found in **Appendix E**, along with a summary of key characteristics considerations in the storm water design.

Figure 1 – Site Location



3.0 Methodology

The present hierarchy of watershed planning in Ontario can be described by the following in descending order: Watershed Plans, Sub-watershed Plans and Individual Stormwater Management Plans.

There have been several watershed studies developed by Ganaraska Conservation authority that govern development within the Town of Cobourg. The subject site is located within the Cobourg Creek Sub-Watershed and requires the application of specific flood control criteria, as defined by the Cobourg/Midtown Creek MDP and the Cobourg Creek Hydrology Update.

The limits of these studies are identified in the GRCA design guidelines and has been referenced in **Appendix A**.

3.1 Site Specific Stormwater Design Criteria

Based on the requirements of the Town of Cobourg and GRCA, the following design criteria have been established for the site:

- Provide stormwater quantity controls to reduce the 2-year post developed peak flow rate to 50% of the pre-developed flow rate.
- Provide stormwater quantity controls to reduce the post developed peak flow rates for the 5 to 100-year design storms to pre-developed flows rates.
- Provide stormwater quality controls to achieve Ministry of the Environment "Enhanced" (Level 1) protection.

3.2 Catchment Characterization

The existing condition of the site has been analyzed as two (2) catchment area as shown on **Figure 2** and is described in detail below.

- Catchment **EX-100** represents the southwestern portion of the site and is comprised of a grassed field and forested areas. The catchment slopes from north to south. Surface runoff from this catchment discharges directly to the residential properties to the south of the development. Runoff from the residential properties ultimately discharge into the storm sewer within the Ontario Street right-of-way (**Out-1**).
- Catchment **EX-101** represents the northeastern portion of the site and is comprised of grass, gravel and impervious areas. The catchment slopes from northwest to southeast. Surface runoff from this catchment discharges directly to the storm sewer network within the Ontario Street Road right-of-way (**OUT-1**).

The proposed condition has been analyzed as eight (8) catchments as shown on **Figure 3**, which are described in detail below:

- Catchment **PR-101** represents the northeastern portion of the site and includes impervious and landscaped areas, which relate to the entrance, parking area, walkway and manicured grass. Surface runoff from this catchment flows into and is controlled by the internal storm sewer network before outletting to the existing storm sewer network within Ontario Street right of way **OUT-1**.
- Catchment **PR-102** represents the southwestern portion of the site and includes impervious and landscaped areas, which relate to the parking area, walkway and manicured grass. Surface runoff from this catchment flows into and is controlled by the internal storm sewer network before outletting to the existing storm sewer network within Ontario Street right of way **OUT-1**.
- Catchment **PR-103** represents the western portion of the site and includes impervious and landscaped areas, which relate to the driveway, parking area,

walkway and manicured grass. Surface runoff from this catchment flows into and is controlled by the internal storm sewer network before outletting to the existing storm sewer network within Ontario Street right of way **OUT-1**.

- Catchment **PR-104** represents the northern portion of the site and includes impervious and landscaped areas, which relate to the driveway, parking area, walkway and manicured grass. Surface runoff from this catchment flows into and is controlled by the internal storm sewer network before outletting to the existing storm sewer network within Ontario Street right of way **OUT-1**.
- Catchment **PR-105** represents the central portion of the site and is comprised of impervious area, which relates to the proposed building. Surface runoff from this catchment flows into and is controlled by the internal storm sewer network before outletting to the existing storm sewer network within Ontario Street right of way **OUT-1**.
- Catchment **PR-106** represents the eastern portion of the site and is comprised of impervious and grassed areas. Surface runoff from this catchment discharges uncontrolled onto the Ontario Street right of way and into the existing storm sewer network **OUT-1**.
- Catchments **PR-107** represents the southern portion of the site and includes predominantly grassed areas. Surface runoff from this catchment discharges directly into the existing storm sewer network within Ontario Street right of way **OUT-1**.
- Catchment **PR-300** represents ramp into the underground parking area. Surface runoff from this catchment will be removed from the system and ultimately directed to the sanitary storm system.

The existing and proposed runoff characteristics were analyzed using individual sub-catchments. The Proposed Hydrologic Parameters were modelled using a 3% increase in impervious areas to accommodate minor adjustments through the design and construction processes. The hydrologic parameters for each catchment are summarized in **Table 1** and documented in **Appendix A**.

Table 1 – Existing and Proposed Hydrologic Parameters

Standhyd[1]							
Catchment ID	**Area (ha)**	**Impervious %**	**CN*[2]**	**Ia[3]**	**Pervious Length (m)**	**Pervious Slope (%)**	**Impervious Slope (%)**
PR-101	0.04	83	75.7	5.0	10	0.5	4.1
PR-102	0.05	96	75.7	5.0	9	0.9	2.5
PR-103	0.01	93	75.7	5.0	10	0.5	0.9
PR-104	0.04	80	75.7	5.0	10	0.5	4.1
PR-105	0.11	100	75.7	5.0	6	3.3	2.0
PR-300	0.02	100	75.7	5.0	21	15.0	15.0

Nashyd[1]					
Catchment ID	**Area (ha)**	**Impervious %**	**CN*[2]**	**Ia[3]**	**Tp[4] (hrs.)**
EX-100	0.21	0.0	76.5	6.5	0.24
EX-101	0.17	18.4	81.1	4.2	0.22
PR-106	0.03	22.6	80.6	4.3	0.11
PR-107	0.07	29.0	82.0	4.1	0.36

Notes:
1. Table headings refer to the unit hydrograph used in the VO6 hydrologic model for the respective catchment areas.
2. CN* refers to the modified CN number adjusted to Antecedent Moisture Conditions II. Excludes Impervious Area for Standhyd.
3. Ia refers to Initial Abstraction. Excludes Impervious Area for Standhyd.
4. Tp refers to Time of Peak.

EX-100 / 0.22 ha — CATCHMENT ID / CATCHMENT AREA

CATCHMENT BOUNDARY

OVERLAND FLOW DIRECTION

OUT — OUTLET LOCATION

Sketch No.

ONTARIO ST
FIGURE 2
PRE-DEVELOPMENT
DRAINAGE AREA PLAN

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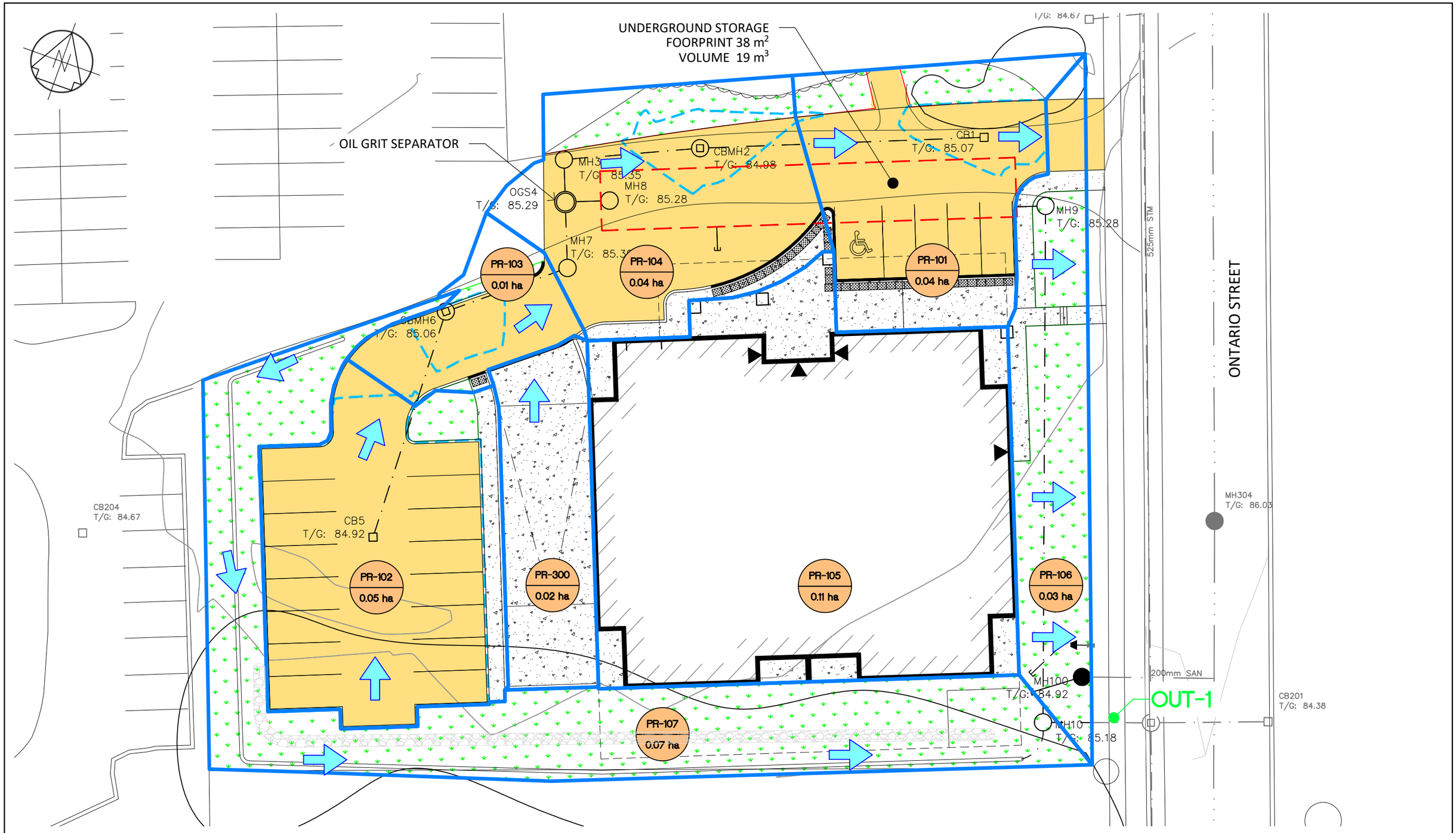
Drawn By: CS	Scale: 1:300
Designed By: CS	Plot Date: November 2021
Checked By: CPB	Project No.: 18-10839
Engineer: MH	Drawing File No.: FIGURE 2



EX-100 / 0.22 ha — CATCHMENT ID / CATCHMENT AREA

CATCHMENT BOUNDARY

OVERLAND FLOW DIRECTION

STORM SEWER FLOW DIRECTION

OUT — OUTLET LOCATION

Sketch No.

ONTARIO ST
FIGURE 3
POST DEVELOPMENT DRAINAGE AREA PLAN

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Drawn By: CS	Scale: 1:300
Designed By: CS	Plot Date: November 2021
Checked By: CPB	Project No.: 18-10839
Engineer: MH	Drawing File No.: FIGURE 3

4.0 Stormwater Management

4.1 Stormwater Quantity Control

The development of the existing site will result in increased peak flow rates and runoff volumes of stormwater leaving the site. In order to ensure that the receiving drainage system will not be adversely affected, stormwater management facilities are typically required to maintain post development peak flows to existing levels.

4.1.1 Target Flow Rates

In order to ensure that the proposed development does not increase flooding potential to adjacent properties, the proposed peak flow rates will be controlled. Target flow rates were established based on the existing condition peak flow rates calculated using the Visual Otthymo Version 6.2 (VO6) hydrologic model. GRCA guidelines requires that a range of storm events and distributions be considered in the analysis. As such, peak flow rates were calculated for the 2, 5, 10, 25, 50 and 100-year design storms for each of the 4-hour Chicago, 6-hour SCS & 1-hour AES distributions. The model schematic and detailed results have been included in **Appendix B**, peak flow rates are summarized in **Table 2** below.

Table 2 – Existing and Uncontrolled Peak Flow Summary

Return Period (yr)	Peak Flow (m^3/s)							
	4 Hour Chicago		6 Hour SCS		1 Hour AES		12 Hour SCS	
	Ex.	Unc.	Ex.	Unc.	Ex.	Unc.	Ex.	Unc.
2-Year	0.008	**0.055**	0.007	**0.033**	0.007	**0.040**	0.006	**0.028**
5-Year	0.014	**0.068**	0.013	**0.046**	0.013	**0.055**	0.012	**0.040**
10-Year	0.018	**0.079**	0.017	**0.054**	0.017	**0.063**	0.015	**0.046**
25-Year	0.030	**0.087**	0.031	**0.075**	0.030	**0.086**	0.027	**0.066**
50-Year	0.038	**0.105**	0.042	**0.092**	0.037	**0.099**	0.038	**0.081**
100-Year	0.046	**0.111**	0.053	**0.109**	0.045	**0.112**	0.048	**0.096**

Notes:
1. EX. refers to the existing conditions peak flow rates for the site area (VO6 NHYD = 10)
2. UNC. refers to the proposed condition peak flow rates for the site area without accounting for any quantity controls (VO3 NHYD = 22)

A review of **Table 2** shows that without quantity controls, the proposed development will increase peak flow rates from the existing condition.

4.1.2 Proposed Quantity Controls

A total drainage area of 0.28 ha (**PR-101, PR-102, PR-103, PR-104)** will discharge into the proposed parking lot where the stormwater will enter into the proposed storm sewer network. Stormwater will be treated by the OGS as it enters the underground storage chamber. Upon flowing out of the underground storage chamber the stormwater will flow through the Hydro International Hydro-brake as it enters the existing storm sewer network within the Ontario Street right of way.

A total drainage area of 0.10 ha (**PR-106** and **PR-107**) will discharge uncontrolled into the Ontario Street right of way. A total drainage area of 0.02 ha (**PR-300**) will be removed from the system.

The underground system is proposed to be constructed using Stormtech SC-740 chambers. A total of 45 chambers are proposed, providing a maximum storage volume of 109.2 m^3. An additional 90.7 m^3 of storage is provided in the parking areas at a ponding elevation of 85.2 m. A two-stage outlet for the underground/aboveground system is provided. A Hydro-Brake Optimum - SHE-0052-1500-1500-1500 at the outlet of the Underground system, will provide the first stage of stormwater quantity control. The second stage will be a 6 m weir at the main entrance of the site. The stage-storage-discharge characteristics for the underground chamber system and above ground parking lot are summarized in **Table 3** and detailed calculations are provided in **Appendix C**.

Table 3 – Storage Summary

Elev. (m)	Storage Depth (m)	Peak Flows (m^3/s)	Storage Volume (m^3)	Remarks
83.15	0.00	0.000	0	Bottom of underground storage Hydro-Brake Invert
83.65	0.50	0.001	59	2 Year
83.86	0.71	0.001	83	5 Year
83.99	0.84	0.001	96	10 Year
84.92	1.77	0.002	109	Lowest parking lot elevation
85.10	1.95	0.002	145	25 Year
85.14	1.99	0.002	163	50 Year
85.15	2.00	0.002	171	Overflow weir
85.17	2.02	0.007	178	100 Year

Notes: 1. Storage volumes used for each return period are based on VO6 model results for the 4 hour Chicago.

A review of **Table 3** demonstrates that the underground chamber system and above ground ponding has sufficient storage to contain the 100-year storm event.

4.1.3 Proposed Peak Flow Rates

The existing and proposed peak flow rates from the site are shown in **Table 4** for each return period and storm distribution. Output from the VO3 model is included in **Appendix B**.

Table 4 – Existing and Proposed Peak Flow Rates

Return Period (yr)	Peak Flow (m^3/s)							
	4 Hour Chicago		6 Hour SCS		1 Hour AES		12 Hour SCS	
	Ex.	Pr.	Ex.	Pr.	Ex.	Pr.	Ex.	Pr.
2-Year3	0.008	0.003	0.007	0.003	0.007	0.003	0.006	0.003
5-Year	0.014	0.005	0.013	0.004	0.013	0.005	0.012	0.004
10-Year	0.018	0.006	0.017	0.005	0.017	0.006	0.015	0.005
25-Year	0.030	0.009	0.031	0.009	0.030	0.009	0.027	0.008
50-Year	0.038	0.010	0.042	0.011	0.037	0.010	0.038	0.010
100-Year	0.046	0.012	0.053	0.014	0.045	0.012	0.048	0.013

Notes:
1. EX refers to the existing condition peak flow rates (VO3 NHYD = 10)
2. PR refers to the proposed condition peak flow rates for the site (VO6 NHYD = 122)
3. Attenuated flows = 50% of the 2 year storm in existing conditions.

A review of **Table 4** indicates that the peak flows for the 2-year to 100-year return period are less than the existing condition for all storm distributions. It is noted that the 2-year peak flow rates are re reduced by 50% for the existing condition for each storm distribution, analyzed.

4.2 Stormwater Quality Control

The proposed development may cause additional pollutants to be conveyed off-site and, therefore, water quality controls have been provided. The selection and sizing of the water quality measures have been based on the procedures set out in the *Stormwater Management Planning and Design Manual* (MOE, March 2003) for Enhanced (Level 1) protection. This level of treatment requires 80% total suspended solids (TSS) removal and treatment of 90% of the annual runoff volume.

The goal of stormwater management is to preserve the natural hydrologic cycle and mitigation measures should be assessed in the following order:

- Stormwater lot level controls.
- Stormwater conveyance controls.
- End-of-pipe stormwater management facilities.

Stormwater lot level controls represent measures that are implemented on an individual lot basis such as soak away pits, flatter grading and reduction of the impervious footprint. For the proposed development, lot level controls such as reduced grading will be used to supplement the proposed SWM strategy; however, these are not intended to become the primary means for stormwater quality control.

Stormwater conveyance controls represent the conveyance systems used to transport stormwater runoff from the lots to the receiving waters such as pervious pipes, catchbasin treatment and grassed swales. The proposed SWM strategy will include some conveyance controls to pretreat runoff; however they are not meant to be the primary means of water quality treatment for the development.

End-of-pipe stormwater management facilities represent the common urban stormwater management measures used to service numerous lots or whole subdivisions. These facilities include Wet Ponds, Wetlands, Dry Ponds, Infiltration Basins, Infiltration Trenches, Filter Strips, Sand Filters and Oil-Grit Separators. End-of-pipe SWM facilities will be considered for this development.

4.2.1 ETV Oil-Grit Separators

Oil-Grit Separator (OGS) devices have become an increasingly common method of achieving stormwater quality control requirements in the province of Ontario. However, recent studies have cast scrutiny on performance claims and sizing methodologies used for some of these technologies. In an effort to standardize the evaluation of different OGS units, the Canadian Environmental Technology Verification (ETV) Program has published a Procedure for Laboratory Testing of Oil-Grit Separators (ISO 14034). This protocol contains testing specifications for third-party laboratories, sediment removal efficiency, sediment scour, particle size distribution, oil/fuel retention and scaling of various model sizes. Technologies that have been verified are published by ETV Canada.

The following guidelines for the selection of OGS devices have been adopted by several municipalities and conservation authorities in Ontario:

1. OGS devices must have a current Canadian ETV or ISO 14034 verification.
2. OGS devices that were not tested for oil/fuel retention or do not report the results of this testing, shall not be approved for installation in sites that require oil or fuel capture.
3. OGS model sizes should be scaled according to the surface loading rate and depth as specified in the scaling provisions of ISO 14034.
4. The target total suspended solids (TSS) removal rate for OGS units is 60% of the ETV particle size distribution.
5. For sites that require 80% TSS removal, additional or alternative stormwater best management practices are required.

PCSWMM for Stormceptor recommends an EF04 Oil-Grit Separator. Based on the site characteristics, this unit will capture more than 90% of the annual runoff volume and

remove 60% total suspended solids. Under the fine particle, size distribution the proposed EF04 unit will achieve 86% removal of suspended solids, which yields better removal rates compared to the STC unit specified in previous approval submissions. Detailed information relating to the OGS with both CA-ETV and Fine PSD testing can be found in **Appendix D**.

4.2.2 Uncontrolled Catchment Areas

Catchment **PR-106** and **PR-107** will flow uncontrolled off the site. As such, this is not considered to be a significant footprint of contamination and no quality controls have been proposed.

Catchment **PR-300** will flow uncontrolled into the underground parking lot. Runoff from this area will ultimately drain into the sanity sewer connection.

5.0 Operation and Maintenance Considerations

The underground storage facility and OGS will require periodic maintenance to function properly. The following maintenance program is recommended:

- The OGS should be inspected post construction, prior to being put into service.
- Inspect the OGS every three (3) months for the first year to determine the oil and sediment accumulation rates.
- Cleaning is required once the sediment depth reaches 15% of the storage capacity, or every six (6) months, whichever comes first.
- Inspect the units immediately after an oil, fuel or chemical spill.
- A licensed waste management company should remove oil and sediment and dispose of it according to current regulations.
- At the time of OGS maintenance, inspect the internal storm sewer system and remove accumulated sediment to ensure proper maintenance of the entire drainage system.

Additional maintenance requirements and recommendations will be provided by the Manufacturer at the time of purchase/installation.

The maintenance frequency for the underground storage chamber should be in excess of 25 years if the OGS unit is properly maintained. The manufacturer will provide specific maintenance requirements and recommendations at the time of purchase/installation.

6.0 Erosion and Sediment Control

When soils are exposed during construction, there is a potential for transport of relatively large amounts of sediment off-site to downstream areas. In order to minimize the impacts associated with sediment transfer, the following measures will be completed in the order listed:

- Install silt barrier along the property limits as shown on Detailed Design Drawings and maintain as required.
- Install a mud mat at the proposed construction entrances.
- Install storm drain inlet protection on all internal catchbasin grates.
- Remove temporary erosion and sediment control devices/measures and clean out once vegetation is established.

When feasible, topsoil stripping should be limited to areas where development is to proceed in the near future. Hydro seeding should stabilize topsoil stockpiles on sloped areas. Where development is to be delayed, areas stripped of topsoil should also be hydro-seeded to minimize sediment runoff.

Regular inspection and maintenance of the silt fence will ensure continued protection to the downstream areas for the duration of the construction period. Additional information on the proposed erosion and sediment control measures are listed below:

Silt Fencing

Light duty silt fencing will be as per OPSD 219.110 (modified). The proposed silt fence shall be inspected after every rainfall to identify failed sections. Any failures shall be repaired immediately. When sediment accumulates to half the height of the geotextile, it is to be removed and disposed of in a controlled area. A supply of extra silt fence is to be kept on site to provide for quick repairs or the installation of additional fence, if required.

Mud Mat

The location of the proposed mud mat at the construction entrances is shown on the detailed design drawings. The mud mat is to be 400 mm thick and consist of 200 mm diameter angular stone. The mud mat is to be underlain with geotextile or a graded aggregate filter.

The granular material will require periodic replacement as it becomes contaminated by vehicle traffic. If sediment is tracked onto public roads, it shall be cleaned at the end of each day by shoveling or sweeping and disposed of properly in a controlled sediment disposal area.

Storm Drain Inlet Protection

Storm drain inlet protection will be provided by catchbasin filters placed on all catchbasin grates. The location of the catchbasin filters can be found on the detailed design drawings. The catchbasin filters treat runoff before it is released to the infiltration basin while permanent stabilization is taking place. The catchbasin filters will be inspected regularly and removed after the final lift of asphalt has been installed and vegetation is sufficiently established (>80%).

7.0 Conclusion

The proposed redevelopment is located at 431 Ontario Street in the Town of Cobourg. This development will alter the runoff characteristics of the site and, therefore, stormwater quantity and quality control measures have been provided to ensure that the receiving drainage system will not be adversely affected.

Water quantity control will be provided by an underground storage facility and an above ground storage. The sewer network will direct flow from the site to the existing outlet location. These controls will reduce the 2-year post developed peak flow rate to 50% of the pre-developed flow rate and reduce the post developed peak flow rates for the 5 to 100-year design storms to pre-developed flows rates.

Water quality treatment will be provided by an oil-grit separator and an infiltration facility. The OGS is sufficiently sized to meet Ministry of Environment Level 1 (Enhanced) water quality treatment.

Erosion and sediment control measures have been prepared to ensure that off-site transport of sediment is minimized through temporary measures. These include the installation of silt barriers and a mud mat.

The proper installation and ongoing maintenance of the erosion and sediment control measures outlined in this report will ensure that the development can proceed without adversely affecting downstream drainage conditions. The maintenance of the proposed measures will be carried out by the property owner.

Respectfully submitted,

Mark Hoar, P.Eng.
Water Resources Engineer

Ken Smith, P. Eng.,
Manager, Water Resources

CPB/CS/jl

Statement of Limitations

This report has been prepared by D.M. Wills Associates Limited on behalf of 2020910 Ontario Ltd.to address the requirements of the Town of Cobourg.

The conclusions and recommendations in this report are based on available background documentation and discussions with applicable agencies at the time of preparation.

The report is intended to demonstrate the means whereby stormwater runoff originating from the site will be managed with respect to both quantity and quality control. The report is applicable only to the project described in the text, constructed substantially in accordance with the plans and details accompanying this report.

Any use which a third party makes of this report other than a stormwater management report for the proposed development is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or action taken based on using this report for purposes other than a stormwater management report for the 431 Ontario, Cobourg development.

D.M. Wills Associates Limited is not responsible for any changes made to the stormwater management measures which are not in accordance with the design drawings. Any person(s) relying on the "as-constructed" stormwater measures should confirm that the field conditions are in accordance with the design drawings.

Appendix A

Rainfall Data and Hydrology Parameters

Hydrologic Parameters for EX-100

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.15	ha
Woods	0.06	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.00	ha
SUM	**0.21**	

Hydrologic Soil Group[1]	C
Soil Type	0
C	0.11
CN (Nashyd)	73.1

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.21**	ha
Impervious Area	**0.00**	ha
Percent Impervious	**0.0%**	
Connected Impervious	0.0%	

Pervious

Length	45	m
US Elev	85.2	m
DS Elev	84.8	m
Slope	1.0	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2]**, C**	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.11	n.a.
SCS Curve No.[3]**, CN**	C	82	76	74	71	50	89	98	73.1	73.1
Initial Abstraction[5]**, mm**		6.0	8.0	5.0	10.0	10.0	2.5	2.0	6.5	6.5

Time of Concentration[6]

Total Length	45	m	
Average Slope	1.0	%	
Airport	**21.7**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	3.0	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	14.6	min.	
	0.24	**hr.**	

Composite Parameters

Drainage Area	0.21 ha	
Runoff Coefficient	0.11	
SCS Curve No.	73.1	73.1
Modified Curve No.[4]**, CN***	**76.5**	76.5
Initial Abstraction.	**6.5**	6.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for EX-101

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.12	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.02	ha
Impervious	0.03	ha
SUM	**0.17**	

Hydrologic Soil Group[1]	C
Soil Type	0
C	0.34
CN (Nashyd)	80.0

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.17**	ha
Impervious Area	**0.03**	ha
Percent Impervious	**18.4%**	
Connected Impervious	18.4%	

	Pervious	Impervious	
Length	50	11	m
US Elev	85.4	85.4	m
DS Elev	84.9	85.3	m
Slope	1.1	0.4	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.34	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	80.0	75.9
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.2	4.7

Time of Concentration[6]

Total Length	61	m	
Average Slope	0.9	%	
Airport	**19.8**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	4.2	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	13.3	min.	
	0.22	**hr.**	

Composite Parameters

Drainage Area	0.17 ha	
Runoff Coefficient	0.34	
SCS Curve No.	80.0	75.9
Modified Curve No.[4], CN*	**81.1**	77.1
Initial Abstraction.	**4.2**	4.7

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for PR-101

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.01	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.03	ha
SUM	**0.04**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.76	
CN (Nashyd)	93.8	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.04**	ha	
Impervious Area	**0.03**	ha	
Percent Impervious	82.5%	Calculated	
Connected Impervious	85.0%	Modelled	
Percent Impervious	**85.0%**	**Modelled**	
	Pervious	**Impervious**	
Length	10	20	m
US Elev	85.2	85.8	m
DS Elev	85.1	85.0	m
Slope	0.5	4.1	%
	Flat	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.76	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	93.8	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.5	5.0

Time of Concentration[6]

Impervious Length	20	m	
Slope	4.1	%	
Airport	2.9	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1.2	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.04 ha	
Runoff Coefficient	0.78	
SCS Curve No.	94.4	74.0
Modified Curve No.[4], CN*	96.4	**75.7**
Initial Abstraction.	2.5	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-101

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.04**	ha
Percent Impervious	**% Imp =**	**82.5**	%
Slope	**S =**	**4.1**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.04	0.78	10	57.7	**0.005**
2	0.04	0.78	10	77.3	**0.007**
5	0.04	0.78	10	94.8	**0.008**
10	0.04	0.78	10	108.4	**0.009**
25	0.04	0.86	10	138.8	**0.013**
50	0.04	0.94	10	139.7	**0.015**
100	0.04	0.95	10	147.1	**0.016**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-101	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.004	0.004	0.005			**0.007**	
5		0.005	0.006	0.007			**0.009**	
10		0.006	0.007	0.009			**0.011**	
25		0.009	0.010	**0.012**			**0.012**	
50		0.010	0.012	0.013			**0.014**	
100		0.012	0.014	**0.015**			**0.015**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

STANDHYD	
DT (min)	5.0
Area (ha)	0.04
TIMP (0 - 0.99)	0.85
XIMP (< TIMP)	0.85
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	0.5
LGP (m)	10.0
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	4.1
LGI (m) - (Area/1.5)^0.5	20.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

Hydrologic Parameters for PR-102

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.05	ha
SUM	**0.05**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.87	
CN (Nashyd)	97.1	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.05**	ha	
Impervious Area	**0.05**	ha	
Percent Impervious	96.2%	Calculated	
Connected Impervious	99.0%	Modelled	
Percent Impervious	**99.0%**	**Modelled**	
	Pervious	**Impervious**	
Length	9	21	m
US Elev	85.1	85.5	m
DS Elev	85.0	84.9	m
Slope	0.9	2.5	%
	Flat	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.87	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	97.1	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.1	5.0

Time of Concentration[6]

Impervious Length	21	m	
Slope	2.5	%	
Airport	2.3	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1.3	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.05 ha	
Runoff Coefficient	0.89	
SCS Curve No.	97.8	74.0
Modified Curve No.[4], CN*	99.7	**75.7**
Initial Abstraction.	2.0	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-102

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.05**	ha
Percent Impervious	**% Imp =**	**96.2**	%
Slope	**S =**	**2.5**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.05	0.89	10	57.7	**0.008**
2	0.05	0.89	10	77.3	**0.010**
5	0.05	0.89	10	94.8	**0.012**
10	0.05	0.89	10	108.4	**0.014**
25	0.05	0.95	10	138.8	**0.019**
50	0.05	0.95	10	139.7	**0.020**
100	0.05	0.95	10	147.1	**0.021**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-102	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.006	0.007	0.008			**0.011**	
5		0.008	0.009	0.011			**0.014**	
10		0.009	0.010	0.013			**0.016**	
25		0.012	0.014	**0.017**			**0.017**	
50		0.015	0.017	0.019			**0.020**	
100		0.017	0.020	**0.022**			**0.022**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

STANDHYD	
DT (min)	5.0
Area (ha)	0.05
TIMP (0 - 0.99)	0.99
XIMP (< TIMP)	0.99
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	0.9
LGP (m)	8.5
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	2.5
LGI (m) - (Area/1.5)^0.5	21.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

Hydrologic Parameters for PR-103

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.01	ha
SUM	**0.01**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.85	
CN (Nashyd)	96.4	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area		**0.01**	ha
Impervious Area		**0.01**	ha
Percent Impervious		93.4%	Calculated
Connected Impervious		96.0%	Modelled
Percent Impervious		**96.0%**	**Modelled**
	Pervious	**Impervious**	
Length	10	10	m
US Elev	85.2	85.2	m
DS Elev	85.1	85.1	m
Slope	0.5	0.9	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**C**	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.85	n.a.
SCS Curve No.[3], CN	**C**	82	76	74	71	50	89	98	96.4	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.2	5.1

Time of Concentration[6]

Impervious Length	10	m	
Slope	0.9	%	
Airport	2.5	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	0.9	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.01 ha	
Runoff Coefficient	0.87	
SCS Curve No.	97.0	74.0
Modified Curve No.[4], CN*	99.1	**75.7**
Initial Abstraction.	2.1	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-103

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Drainage Area	**A =**	**0.01**	ha
Percent Impervious	**% Imp =**	**93.4**	%
Slope	**S =**	**0.9**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.01	0.87	10	57.7	**0.002**
2	0.01	0.87	10	77.3	**0.003**
5	0.01	0.87	10	94.8	**0.003**
10	0.01	0.87	10	108.4	**0.004**
25	0.01	0.95	10	138.8	**0.005**
50	0.01	0.95	10	139.7	**0.006**
100	0.01	0.95	10	147.1	**0.006**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-103	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.002	0.002	0.002			**0.003**	
5		0.002	0.002	0.003			**0.004**	
10		0.002	0.003	0.003			**0.004**	
25		0.003	0.004	**0.005**			**0.005**	
50		0.004	0.005	0.005			**0.006**	
100		0.005	**0.006**	**0.006**			**0.006**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

STANDHYD	
DT (min)	5.0
Area (ha)	0.01
TIMP (0 - 0.99)	0.96
XIMP (< TIMP)	0.96
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	0.5
LGP (m)	10.0
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	0.9
LGI (m) - (Area/1.5)^0.5	10.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

Hydrologic Parameters for PR-104

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.01	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.04	ha
SUM	**0.04**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.75	
CN (Nashyd)	93.4	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area		**0.04**	ha
Impervious Area		**0.04**	ha
Percent Impervious		81.0%	Calculated
Connected Impervious		83.0%	Modelled
Percent Impervious		**83.0%**	**Modelled**
	Pervious	**Impervious**	
Length	10	20	m
US Elev	85.2	85.8	m
DS Elev	85.1	85.0	m
Slope	0.5	4.1	%
	Flat	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.75	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	93.4	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.6	5.0

Time of Concentration[6]

Impervious Length	20	m	
Slope	4.1	%	
Airport	3.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1.2	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.04 ha	
Runoff Coefficient	0.77	
SCS Curve No.	93.9	74.0
Modified Curve No.[4], CN*	95.9	**75.7**
Initial Abstraction.	2.5	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-104

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Drainage Area	**A =**	**0.04**	ha
Percent Impervious	**% Imp =**	**81.0**	%
Slope	**S =**	**4.1**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.04	0.77	10	57.7	**0.005**
2	0.04	0.77	10	77.3	**0.007**
5	0.04	0.77	10	94.8	**0.009**
10	0.04	0.77	10	108.4	**0.010**
25	0.04	0.84	10	138.8	**0.014**
50	0.04	0.92	10	139.7	**0.016**
100	0.04	0.95	10	147.1	**0.017**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-104	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 14-Feb-22

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.004	0.005	0.006			**0.008**	
5		0.006	0.007	0.008			**0.010**	
10		0.007	0.008	0.009			**0.012**	
25		0.010	0.011	**0.013**			**0.013**	
50		0.012	0.013	0.015			**0.016**	
100		0.014	0.016	**0.017**			**0.017**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

STANDHYD	
DT (min)	5.0
Area (ha)	0.04
TIMP (0 - 0.99)	0.83
XIMP (< TIMP)	0.83
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	0.5
LGP (m)	10.0
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	4.1
LGI (m) - (Area/1.5)^0.5	20.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

Hydrologic Parameters for PR-105

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.11	ha
SUM	**0.11**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.90	
CN (Nashyd)	98.0	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.11**	ha
Impervious Area	**0.11**	ha
Percent Impervious	**100.0%**	
Connected Impervious	100.0%	

	Pervious	Impervious	
Length	6	6	m
US Elev	100.0	100.0	m
DS Elev	99.8	99.9	m
Slope	3.3	2.0	%
	Rolling	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.45	0.28	0.17	0.13	0.05	0.84	0.90	0.90	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	98.0	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.0	5.0

Time of Concentration[6]

Pervious Length	6	m	
Slope	3.3	%	
Airport	1.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	0.3	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.11 ha	
Runoff Coefficient	0.90	
SCS Curve No.	98.0	74.0
Modified Curve No.[4], CN*	99.9	**75.7**
Initial Abstraction.	2.0	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-105

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.11**	ha
Percent Impervious	**% Imp =**	**100.0**	%
Slope	**S =**	**3.3**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.11	0.90	10	57.7	**0.016**
2	0.11	0.90	10	77.3	**0.021**
5	0.11	0.90	10	94.8	**0.026**
10	0.11	0.90	10	108.4	**0.030**
25	0.11	0.95	10	138.8	**0.040**
50	0.11	0.95	10	139.7	**0.040**
100	0.11	0.95	10	147.1	**0.042**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-105	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.012	0.014	0.017			**0.023**	
5		0.016	0.019	0.023			**0.029**	
10		0.018	0.021	0.026			**0.033**	
25		0.025	0.029	**0.035**			**0.035**	
50		0.031	0.035	0.040			**0.042**	
100		0.036	0.041	**0.045**			**0.045**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

STANDHYD	
DT (min)	5.0
Area (ha)	0.11
TIMP (0 - 0.99)	0.99
XIMP (< TIMP)	1.00
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	3.3
LGP (m)	6.0
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	2.0
LGI (m) - (Area/1.5)^0.5	6.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

Hydrologic Parameters for PR-106

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.02	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.01	ha
SUM	**0.03**	

Hydrologic Soil Group[1]	C
Soil Type	0
C	0.33
CN (Nashyd)	79.4

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.03**	ha
Impervious Area	**0.01**	ha
Percent Impervious	**22.6%**	
Connected Impervious	22.6%	

Pervious		
Length	6	m
US Elev	85.4	m
DS Elev	85.0	m
Slope	6.0	%
	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.45	0.28	0.17	0.13	0.05	0.84	0.90	0.33	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	79.4	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.3	5.0

Time of Concentration[6]

Pervious Length	6	m	
Slope	6.0	%	
Airport	3.4	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	0.3	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.03 ha	
Runoff Coefficient	0.33	
SCS Curve No.	79.4	74.0
Modified Curve No.[4], CN*	**80.6**	75.7
Initial Abstraction.	**4.3**	5.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-106

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.03**	ha
Percent Impervious	**% Imp =**	**22.6**	%
Slope	**S =**	**6.0**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.03	0.33	10	57.7	**0.002**
2	0.03	0.33	10	77.3	**0.002**
5	0.03	0.33	10	94.8	**0.003**
10	0.03	0.33	10	108.4	**0.003**
25	0.03	0.37	10	138.8	**0.004**
50	0.03	0.40	10	139.7	**0.005**
100	0.03	0.42	10	147.1	**0.005**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-106	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		**0.001**	**0.001**	**0.001**			**0.001**	
5		**0.002**	**0.002**	**0.002**			**0.002**	
10		**0.002**	**0.002**	**0.002**			**0.002**	
25		**0.004**	**0.004**	0.003			**0.003**	
50		0.005	**0.006**	0.004			**0.004**	
100		0.006	**0.007**	0.005			**0.005**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

NASHYD	
DT (min)	5.0
Area (ha)	0.03
DWF (m3/s) - Default [0.0]	0.0
CN*	80.6
IA (mm)	4.3
N - Default [3.0]	3
TP (hr)	0.11

Hydrologic Parameters for PR-107

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.05	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.02	ha
SUM	**0.07**	

Hydrologic Soil Group[1]	C
Soil Type	0
C	0.35
CN (Nashyd)	81.0

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.07**	ha
Impervious Area	**0.02**	ha
Percent Impervious	**29.0%**	
Connected Impervious	29.0%	

Pervious

Length	115	m
US Elev	85.4	m
DS Elev	84.8	m
Slope	0.6	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.39	0.20	0.12	0.10	0.05	0.84	0.90	0.35	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	81.0	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of Concentration[6]

Pervious Length	115	m	
Slope	0.6	%	
Airport	**32.0**	min.	
Bransby - Williams	9.6	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Applicable Minimum[7]	10.0	min.	
Time to Peak	21.4	min.	
	0.36	**hr.**	

Composite Parameters

Drainage Area	0.07 ha	
Runoff Coefficient	0.35	
SCS Curve No.	81.0	74.0
Modified Curve No.[4], CN*	**82.0**	75.7
Initial Abstraction.	**4.1**	5.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-107

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.07**	ha
Percent Impervious	**% Imp =**	**29.0**	%
Slope	**S =**	**0.6**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.07	0.35	32	27.2	**0.002**
2	0.07	0.35	32	39.5	**0.003**
5	0.07	0.35	32	51.4	**0.003**
10	0.07	0.35	32	58.8	**0.004**
25	0.07	0.38	32	77.8	**0.006**
50	0.07	0.42	32	84.9	**0.007**
100	0.07	0.43	32	93.2	**0.008**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-107	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		**0.001**	**0.001**	**0.001**			**0.001**	
5		0.002	0.002	0.002			**0.002**	
10		0.002	**0.003**	**0.003**			**0.003**	
25		0.004	**0.005**	**0.005**			**0.005**	
50		**0.006**	**0.006**	**0.006**			**0.006**	
100		0.007	**0.008**	0.007			**0.008**	

Notes:

1. Storm used to determine peak flow values **4hr Chic**

NASHYD	
DT (min)	5.0
Area (ha)	0.07
DWF (m3/s) - Default [0.0]	0.0
CN*	82.0
IA (mm)	4.1
N - Default [3.0]	3
TP (hr)	0.36

Hydrologic Parameters for PR-300

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Land Use

Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.02	ha
SUM	**0.02**	
Hydrologic Soil Group[1]	C	
Soil Type	0	
C	0.90	
CN (Nashyd)	98.0	

Rainfall Data

Gauging Station = Ganaraska
12 hr, 100 Yr Rainfall = 89.6 mm

Drainage Area	**0.02**	ha
Impervious Area	**0.02**	ha
Percent Impervious	**99.9%**	
Connected Impervious	99.9%	

	Pervious	Impervious	
Length	21	21	m
US Elev	85.2	85.2	m
DS Elev	82.1	82.1	m
Slope	15.0	15.0	%
	Steep	Steep	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	C	0.67	0.45	0.24	0.41	0.05	0.84	0.90	0.90	n.a.
SCS Curve No.[3], CN	C	82	76	74	71	50	89	98	98.0	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.0	5.0

Time of Concentration[6]

Impervious Length	21	m	
Slope	15.0	%	
Airport	1.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1.0	min.	
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	0.02 ha	
Runoff Coefficient	0.90	
SCS Curve No.	98.0	74.0
Modified Curve No.[4], CN*	99.9	**75.7**
Initial Abstraction.	2.0	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Rational Method for PR-300

Sheet 1 of 1

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Drainage Area	**A =**	**0.02**	ha
Percent Impervious	**% Imp =**	**99.9**	%
Slope	**S =**	**15.0**	%

Gauging Station = **Ganaraska**

IDF Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1778.000	2464.000	2819.000	3886.000	4750.000	5588.000
b =	13.0	16.0	16.0	18.0	24.0	28.0
c =	1.000	1.000	1.000	1.000	1.000	1.000

Return Period (Years)	Area (ha)	C-value	Tc (min)	Int. (mm/hr)	Flow (m^3/s)
25 mm	0.02	0.90	10	57.7	**0.003**
2	0.02	0.90	10	77.3	**0.004**
5	0.02	0.90	10	94.8	**0.005**
10	0.02	0.90	10	108.4	**0.005**
25	0.02	0.95	10	138.8	**0.007**
50	0.02	0.95	10	139.7	**0.007**
100	0.02	0.95	10	147.1	**0.008**

Notes :

1. Rainfall intensity rainfall data obtained for Ganaraska
2. For storms having return period of more than 10 years the runoff coefficient was increased as follows to a maximum value of 0.95.
   - 25 yr: add 10%
   - 50 yr: add 20%
   - 100 yr: add 25%
3. IDF parameters for the 25 mm storm:
   - a: 405
   - b: 3.0
   - c: 0.76

Visual Otthymo Model for PR-300	Sheet 1 of 1

WILLS

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CPB / MJH
Date: 22-Nov-21

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2		0.002	0.002	0.003			**0.004**	
5		0.003	0.003	0.004			**0.005**	
10		0.003	0.004	0.005			**0.006**	
25		0.005	0.005	**0.006**			**0.006**	
50		0.006	0.006	0.007			**0.008**	
100		0.007	0.007	**0.008**			**0.008**	

Notes:

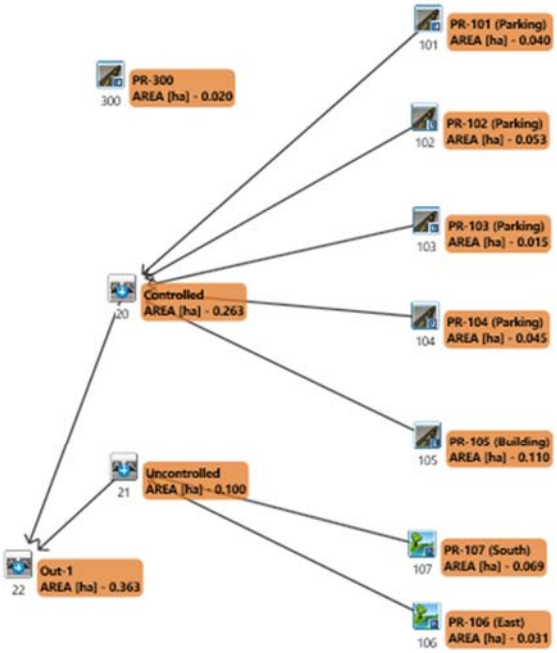
1. Storm used to determine peak flow values **4hr Chic**

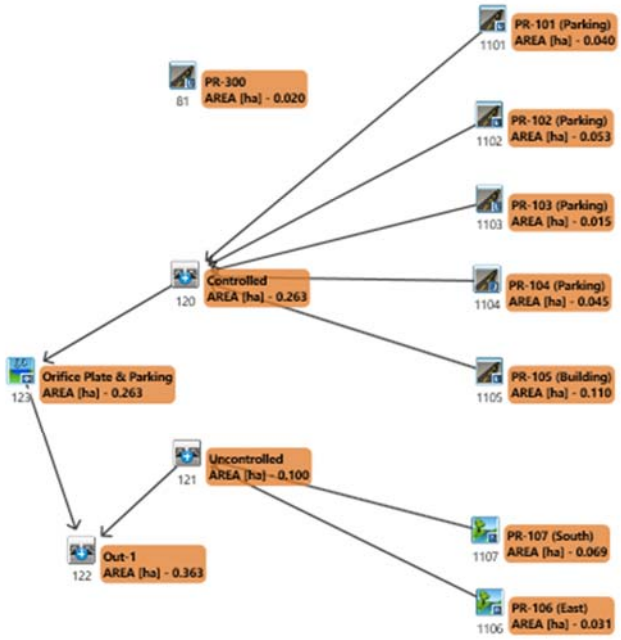
STANDHYD	
DT (min)	5.0
Area (ha)	0.02
TIMP (0 - 0.99)	0.99
XIMP (< TIMP)	1.00
DWF (m3/s) - Default [0.0]	0.0
(Loss) - CN*	75.7
(Loss) - IA (mm)	5.0
SLPP (%) - Default [2.0]	15.0
LGP (m)	21.0
MNP - Default [0.25]	0.25
SCP (hr) - Default [0.0]	0.0
DPSI (mm) - Default [1.0]	1.0
SLPI (%) - Default [1.0]	15.0
LGI (m) - (Area/1.5)^0.5	21.0
MNI - Default [0.013]	0.0
SCI (hr) - Default [0]	0.0

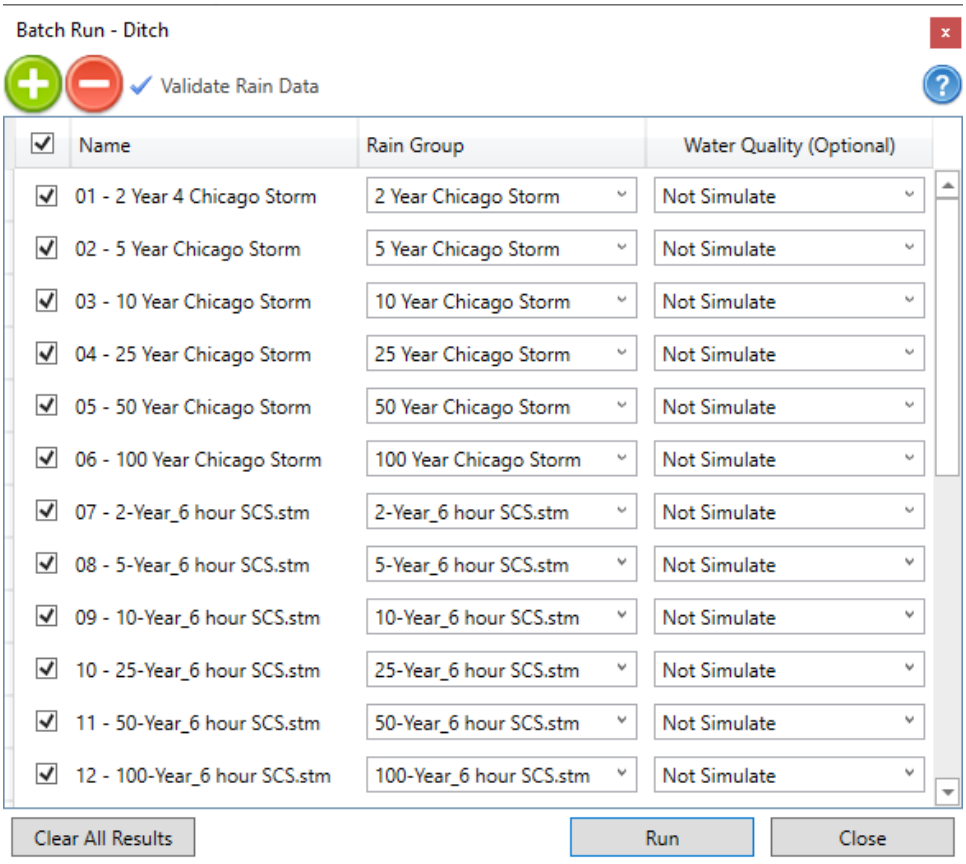
Appendix B

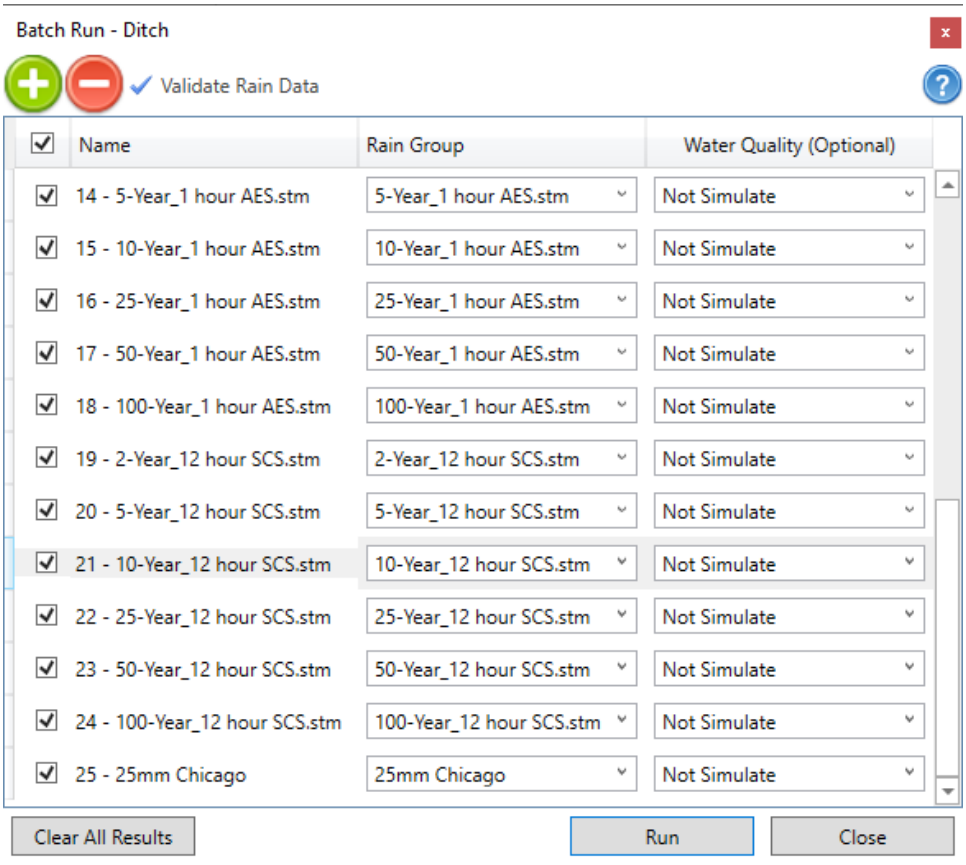
Hydrologic Modelling

Catchment Map






Batch Run - Ditch
Validate Rain Data
Name
Rain Group
Water Quality (Optional)
01 - 2 Year 4 Chicago Storm
2 Year Chicago Storm
Not Simulate
02 - 5 Year Chicago Storm
5 Year Chicago Storm
Not Simulate
03 - 10 Year Chicago Storm
10 Year Chicago Storm
Not Simulate
04 - 25 Year Chicago Storm
25 Year Chicago Storm
Not Simulate
05 - 50 Year Chicago Storm
50 Year Chicago Storm
Not Simulate
06 - 100 Year Chicago Storm
100 Year Chicago Storm
Not Simulate
07 - 2-Year_6 hour SCS.stm
2-Year_6 hour SCS.stm
Not Simulate
08 - 5-Year_6 hour SCS.stm
5-Year_6 hour SCS.stm
Not Simulate
09 - 10-Year_6 hour SCS.stm
10-Year_6 hour SCS.stm
Not Simulate
10 - 25-Year_6 hour SCS.stm
25-Year_6 hour SCS.stm
Not Simulate
11 - 50-Year_6 hour SCS.stm
50-Year_6 hour SCS.stm
Not Simulate
12 - 100-Year_6 hour SCS.stm
100-Year_6 hour SCS.stm
Not Simulate
Clear All Results
Run
Close


Batch Run - Ditch
Validate Rain Data
Name
Rain Group
Water Quality (Optional)
14 - 5-Year_1 hour AES.stm
5-Year_1 hour AES.stm
Not Simulate
15 - 10-Year_1 hour AES.stm
10-Year_1 hour AES.stm
Not Simulate
16 - 25-Year_1 hour AES.stm
25-Year_1 hour AES.stm
Not Simulate
17 - 50-Year_1 hour AES.stm
50-Year_1 hour AES.stm
Not Simulate
18 - 100-Year_1 hour AES.stm
100-Year_1 hour AES.stm
Not Simulate
19 - 2-Year_12 hour SCS.stm
2-Year_12 hour SCS.stm
Not Simulate
20 - 5-Year_12 hour SCS.stm
5-Year_12 hour SCS.stm
Not Simulate
21 - 10-Year_12 hour SCS.stm
10-Year_12 hour SCS.stm
Not Simulate
22 - 25-Year_12 hour SCS.stm
25-Year_12 hour SCS.stm
Not Simulate
23 - 50-Year_12 hour SCS.stm
50-Year_12 hour SCS.stm
Not Simulate
24 - 100-Year_12 hour SCS.stm
100-Year_12 hour SCS.stm
Not Simulate
25 - 25mm Chicago
25mm Chicago
Not Simulate
Clear All Results
Run
Close

```
================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 11/22/2021                          TIME: 09:18:08

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 01 - 2 Year 4 Chicago Storm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.00  1.58   4.74 0.17   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.00  1.58   6.87 0.24   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  1.58   5.69  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  1.75   7.21 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  1.42   6.53 0.23   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  1.58   7.00  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  1.33  26.89 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  1.33  23.20 0.83   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  1.33  26.49 0.94   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  1.33  24.62 0.88   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  1.33  22.80 0.81   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  1.33  25.07  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  1.33  25.01  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  1.33  24.36  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.05  1.33  25.41  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.05  1.33  20.34  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  1.33  25.60 0.91   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  1.75   7.21 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  1.42   6.53 0.23   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  1.58   7.00  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  1.33  24.62 0.88   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  1.33  26.49 0.94   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  1.33  26.89 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  1.33  23.20 0.83   0.000
```

```
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  1.33  22.80 0.81   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  1.33  25.07  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  1.33  25.01  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  1.33  24.36  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.05  1.33  25.41  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  2.40  24.71  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  1.58  19.83  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 28.11 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  1.33  25.60 0.91   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 11/22/2021                          TIME: 09:18:07

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 02 - 5 Year Chicago Storm     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     ---------------------
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  1.58   9.40 0.24   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  1.58  12.56 0.33   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  1.58  10.81  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  1.75  13.10 0.34   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  1.42  12.02 0.31   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  1.58  12.77  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  1.33  37.22 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  1.33  32.87 0.85   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  1.33  37.02 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  1.33  34.68 0.90   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  1.33  32.38 0.84   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  1.33  35.24  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  1.33  35.16  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.04  1.33  34.34  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.07  1.33  35.53  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.07  1.33  29.26  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  1.33  35.87 0.93   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  1.75  13.10 0.34   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 38.49 mm ]
*
```

```
 *  CALIB NASHYD        1106  1  5.0    0.03    0.00  1.42  12.02 0.31   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107] 0121  3  5.0    0.10    0.00  1.58  12.77  n/a   0.000
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      1103  1  1.0    0.01    0.00  1.33  34.68 0.90   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      1102  1  1.0    0.05    0.01  1.33  37.02 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      1105  1  5.0    0.11    0.03  1.33  37.22 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      1101  1  1.0    0.04    0.01  1.33  32.87 0.85   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      1104  1  1.0    0.05    0.01  1.33  32.38 0.84   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102] 0120  3  1.0    0.09    0.02  1.33  35.24  n/a   0.000
*
    ADD [  0120+  1103] 0120  1  1.0    0.11    0.03  1.33  35.16  n/a   0.000
*
    ADD [  0120+  1104] 0120  3  1.0    0.15    0.04  1.33  34.34  n/a   0.000
*
    ADD [  0120+  1105] 0120  1  1.0    0.26    0.07  1.33  35.53  n/a   0.000
*
 ** Reservoir
    OUTFLOW:            0123  1  1.0    0.26    0.00  2.72  34.83  n/a   0.000
    OVERFLOW:           0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123] 0122  3  1.0    0.36    0.00  1.58  28.75  n/a   0.000
*
    CHIC STORM               10.0
    [ Ptot= 38.49 mm ]
*
 *  CALIB STANDHYD      0081  1  5.0    0.02    0.01  1.33  35.87 0.93   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


      V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\67a04980-b636-4117-a0ac-fc0b775dde2f\scenar

  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\67a04980-b636-4117-a0ac-fc0b775dde2f\scenar

DATE: 11/22/2021                          TIME: 09:18:06

USER:

COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 03 - 10 Year Chicago Storm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 ** CALIB NASHYD        0001  1  5.0    0.21    0.01  1.58  12.32 0.28   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 ** CALIB NASHYD        0002  1  5.0    0.17    0.01  1.58  16.00 0.36   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002] 0010  3  5.0    0.38    0.02  1.58  13.96  n/a   0.000
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 ** CALIB NASHYD        0107  1  5.0    0.07    0.00  1.75  16.65 0.38   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 ** CALIB NASHYD        0106  1  5.0    0.03    0.00  1.42  15.35 0.35   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107] 0021  3  5.0    0.10    0.00  1.58  16.24  n/a   0.000
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD      0105  1  5.0    0.11    0.03  1.33  42.73 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD      0101  1  1.0    0.04    0.01  1.33  38.11 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD      0102  1  1.0    0.05    0.02  1.33  42.65 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD      0103  1  1.0    0.01    0.00  1.33  39.96 0.91   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM               10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD      0104  1  1.0    0.05    0.01  1.33  37.59 0.85   0.000
```

```
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  1.33  40.69  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  1.33  40.59  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.04  1.33  39.71  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.08  1.33  40.96  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.08  1.33  34.15  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  1.33  41.51 0.94   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  1.75  16.65 0.38   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  1.42  15.35 0.35   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  1.58  16.24  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  1.33  39.96 0.91   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  1.33  42.65 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  1.33  42.73 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  1.33  38.11 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  1.33  37.59 0.85   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  1.33  40.69  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  1.33  40.59  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.04  1.33  39.71  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.08  1.33  40.96  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  2.75  40.26  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  1.58  33.64  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 44.04 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  1.33  41.51 0.94   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\69fe4b1b-1735-46eb-8fbe-4164a6a005c0\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\69fe4b1b-1735-46eb-8fbe-4164a6a005c0\scenar


DATE: 11/22/2021                          TIME: 09:18:06

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 04 - 25 Year Chicago Storm    **
  ************************************************

  W/E COMMAND              HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                    min     ha   '  cms   hrs     mm          cms


      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  1.67  25.06 0.39   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  1.58  30.51 0.47   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.03  1.58  27.50  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  1.75  31.51 0.49   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  1.42  29.44 0.46   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  1.67  30.87  n/a   0.000
*
```

```
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  1.33  63.28 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  1.33  57.89 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  1.33  63.27 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  1.33  60.90 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  1.33  57.15 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  1.33  60.96  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  1.33  60.95  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.05  1.33  59.83  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.08  1.33  61.24  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.09  1.33  52.87  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  1.33  62.72 0.97   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  1.75  31.51 0.49   0.000
    [CN=82.0        ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  1.42  29.44 0.46   0.000
    [CN=80.6        ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  1.67  30.87  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  1.33  60.90 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  1.33  63.27 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  1.33  63.28 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  1.33  57.89 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  1.33  57.15 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  1.33  60.96  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  1.33  60.95  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.05  1.33  59.83  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.08  1.33  61.24  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  3.53  56.36  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  1.67  49.34  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 64.67 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  1.33  62.72 0.97   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\e7418651-e2ee-4730-b183-ca0c591ca2a8\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\e7418651-e2ee-4730-b183-ca0c591ca2a8\scenar


DATE: 11/22/2021                          TIME: 09:18:10

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 05 - 50 Year Chicago Storm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  1.58  30.10 0.42   0.000
```

```
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 ** CALIB NASHYD        0002  1  5.0    0.17    0.02  1.58  36.11 0.50   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.04  1.58  32.78  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 ** CALIB NASHYD        0107  1  5.0    0.07    0.01  1.75  37.22 0.52   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 ** CALIB NASHYD        0106  1  5.0    0.03    0.00  1.42  34.87 0.48   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  1.58  36.49  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  1.33  70.54 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  1.33  64.82 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  1.33  70.53 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.01  1.33  68.08 0.95   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.02  1.33  64.04 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  1.33  68.07  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.04  1.33  68.08  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.06  1.33  66.89  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.10  1.33  68.38  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.10  1.33  59.60  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  1.33  70.28 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  1.75  37.22 0.52   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  1.42  34.87 0.48   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  1.58  36.49  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.01  1.33  68.08 0.95   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  1.33  70.53 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  1.33  70.54 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  1.33  64.82 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.02  1.33  64.04 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  1.33  68.07  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.04  1.33  68.08  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.06  1.33  66.89  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.10  1.33  68.38  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  3.42  58.79  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  1.58  52.65  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 71.95 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  1.33  70.28 0.98   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
```

```
  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\9985f5c6-41d7-4b9f-a580-2d7c7e851711\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\9985f5c6-41d7-4b9f-a580-2d7c7e851711\scenar

DATE: 11/22/2021                          TIME: 09:18:08

USER:

COMMENTS: _____________________________________________________

  ************************************************
  ** SIMULATION : 06 - 100 Year Chicago Storm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  1.58  38.44 0.46   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  1.58  45.24 0.54   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.05  1.58  41.48  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  1.75  46.51 0.56   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.01  1.42  43.77 0.52   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  1.58  45.66  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  1.33  81.94 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.02  1.33  75.76 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  1.33  81.93 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.01  1.33  79.92 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.02  1.33  74.92 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.04  1.33  79.28  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.04  1.33  79.37  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.06  1.33  78.06  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.10  1.33  79.64  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.11  1.33  70.28  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  1.33  81.94 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  1.75  46.51 0.56   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.01  1.42  43.77 0.52   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  1.58  45.66  n/a   0.000
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.01  1.33  79.92 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  1.33  81.93 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  1.33  81.94 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.02  1.33  75.76 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.02  1.33  74.92 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.04  1.33  79.28  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.04  1.33  79.37  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.06  1.33  78.06  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.10  1.33  79.64  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.01  2.40  67.69  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  1.58  61.62  n/a   0.000
*
```

```
    CHIC STORM                10.0
    [ Ptot= 83.38 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  1.33  81.94 0.98   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\71506a40-5d97-44c7-a71b-f09968dfc74c\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\71506a40-5d97-44c7-a71b-f09968dfc74c\scenar


DATE: 11/22/2021                          TIME: 09:18:07

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 07 - 2-Year_6 hour SCS.stm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.00  3.17   4.92 0.17   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.00  3.08   7.09 0.25   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  3.08   5.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  3.25   7.44 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  3.00   6.75 0.24   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  3.08   7.23  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.01  3.00  27.33 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.00  3.00  24.17 0.85   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  3.00  27.32 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  3.00  23.67 0.83   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.00  3.00  23.75 0.83   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.01  3.00  25.96  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.01  3.00  25.64  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  3.00  25.09  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.03  3.00  26.00  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.03  3.00  20.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  3.00  25.39 0.89   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  3.25   7.44 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
```

```
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  3.00   6.75 0.24   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  3.08   7.23  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  3.00  23.67 0.83   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  3.00  27.32 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.01  3.00  27.33 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.00  3.00  24.17 0.85   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.00  3.00  23.75 0.83   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.01  3.00  25.96  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.01  3.00  25.64  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  3.00  25.09  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.03  3.00  26.00  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  4.58  25.30  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  3.08  20.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 28.55 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\63627aec-93f4-4fb4-b3c5-13cbc
    remark: 2-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  3.00  25.39 0.89   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
```

```
      O   O    T     T    H   H    Y    M   M  O   O
       OOO     T     T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\26b85e81-7cdf-4edd-a8b5-d6de389a9f34\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\26b85e81-7cdf-4edd-a8b5-d6de389a9f34\scenar


DATE: 11/22/2021                          TIME: 09:18:05

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 08 - 5-Year_6 hour SCS.stm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  3.08   9.82 0.25   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  3.08  13.06 0.33   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  3.08  11.27  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  3.25  13.62 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  3.00  12.51 0.32   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  3.00  13.27  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  3.00  38.04 0.97   0.000
```

```
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  3.00  34.09 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  3.00  38.03 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  3.00  34.53 0.88   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  3.00  33.54 0.85   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  3.00  36.33  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  3.00  36.08  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  3.00  35.33  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.04  3.00  36.43  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.05  3.00  30.05  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  3.00  36.45 0.93   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  3.25  13.62 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  3.00  12.51 0.32   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  3.00  13.27  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  3.00  34.53 0.88   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  3.00  38.03 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  3.00  38.04 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  3.00  34.09 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  3.00  33.54 0.85   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  3.00  36.33  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  3.00  36.08  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  3.00  35.33  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.04  3.00  36.43  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  5.07  35.73  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  3.07  29.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 39.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\114a5824-852b-4d81-bdc3-ed257
    remark: 5-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  3.00  36.45 0.93   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\235f87c1-7407-4fe2-a985-a3054b35a1ce\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\235f87c1-7407-4fe2-a985-a3054b35a1ce\scenar
```

DATE: 11/22/2021 TIME: 09:18:05

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 09 - 10-Year_6 hour SCS.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  3.08  12.85 0.29   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  3.08  16.62 0.37   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.02  3.08  14.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  3.25  17.29 0.38   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  3.00  15.95 0.35   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  3.00  16.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  3.00  43.69 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  3.00  39.36 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  3.00  43.69 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  3.00  40.95 0.91   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  3.00  38.76 0.86   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  3.00  41.82  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  3.00  41.70  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  3.00  40.84  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.05  3.00  41.99  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.05  3.00  35.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  3.00  41.90 0.93   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  3.25  17.29 0.38   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  3.00  15.95 0.35   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  3.00  16.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  3.00  40.95 0.91   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  3.00  43.69 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  3.00  43.69 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  3.00  39.36 0.87   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  3.00  38.76 0.86   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  3.00  41.82  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  3.00  41.70  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  3.00  40.84  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.05  3.00  41.99  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  5.08  41.30  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  3.03  34.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 45.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\0adcf0da-09d8-42c8-9ce4-d938c
    remark: 10-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  3.00  41.90 0.93   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\0e02d205-787c-4af8-8910-4eb43fd5f5f1\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\0e02d205-787c-4af8-8910-4eb43fd5f5f1\scenar


DATE: 11/22/2021                          TIME: 09:18:04

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10 - 25-Year_6 hour SCS.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
```

```
    ---------------------
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD        0001  1  5.0    0.21    0.01  3.08  23.12 0.37   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD        0002  1  5.0    0.17    0.02  3.08  28.35 0.46   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.03  3.08  25.46  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD        0107  1  5.0    0.07    0.00  3.25  29.30 0.47   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD        0106  1  5.0    0.03    0.00  3.00  27.33 0.44   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  3.00  28.69  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  3.00  55.13 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  3.00  59.16 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  3.00  54.42 0.88   0.000
    [I%=83.0:S%= 0.90]
*
```

```
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  3.00  58.13  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  3.00  58.27  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.04  3.00  57.14  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.07  3.00  58.45  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.08  3.00  50.25  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  3.25  29.30 0.47   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  3.00  27.33 0.44   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  3.00  28.69  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  3.00  59.16 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  3.00  55.13 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  3.00  54.42 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  3.00  58.13  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  3.00  58.27  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.04  3.00  57.14  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.07  3.00  58.45  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  5.98  54.42  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  3.00  47.33  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 61.77 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\17c835b4-1a88-4560-a067-8d393
    remark: 25-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  3.00  60.40 0.98   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\ab2c2443-1000-4be9-9e9a-987c0652f4f1\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\ab2c2443-1000-4be9-9e9a-987c0652f4f1\scenar


DATE: 11/22/2021                          TIME: 09:18:08

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 11 - 50-Year_6 hour SCS.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  3.08  31.75 0.43   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  3.08  37.93 0.51   0.000
    [CN=81.1         ]
```

```
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.04  3.08  34.52  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
** CALIB NASHYD         0107  1  5.0    0.07    0.01  3.25  39.08 0.53   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
** CALIB NASHYD         0106  1  5.0    0.03    0.01  3.00  36.65 0.49   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  3.00  38.33  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  3.00  72.86 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  3.00  67.05 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  3.00  72.86 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  3.00  71.52 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  3.00  66.25 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  3.00  70.36  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  3.00  70.52  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.05  3.00  69.27  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.08  3.00  70.71  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.09  3.00  61.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  3.00  72.86 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  3.25  39.08 0.53   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.01  3.00  36.65 0.49   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  3.00  38.33  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  3.00  71.52 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  3.00  72.86 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  3.00  72.86 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  3.00  67.05 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  3.00  66.25 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  3.00  70.36  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  3.00  70.52  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.05  3.00  69.27  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.08  3.00  70.71  n/a   0.000
*
** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  6.00  58.58  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  3.00  53.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 74.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d06d430d-7d34-4374-b7a8-b7b99
    remark: 50-Year, 6 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  3.00  72.86 0.98   0.000
```

```
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\3e893fd9-1153-4429-a381-0bd762ad3a64\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\3e893fd9-1153-4429-a381-0bd762ad3a64\scenar


DATE: 11/22/2021                          TIME: 09:18:06

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 12 - 100-Year_6 hour SCS.stm  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.03  3.08  40.76 0.47   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.03  3.08  47.76 0.55   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.05  3.08  43.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  3.25  49.08 0.57   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.01  3.00  46.22 0.53   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  3.00  48.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  3.00  78.73 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.01  3.00  83.60 0.97   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.02  3.00  77.87 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  3.00  82.30  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.04  3.00  82.48  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.06  3.00  81.13  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.10  3.00  82.68  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.11  3.00  73.18  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  3.25  49.08 0.57   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.01  3.00  46.22 0.53   0.000
    [CN=80.6         ]
```

```
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  3.00  48.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.01  3.00  83.60 0.97   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  3.00  78.73 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.02  3.00  77.87 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  3.00  82.30  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.04  3.00  82.48  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.06  3.00  81.13  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.10  3.00  82.68  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  4.52  67.59  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  3.00  62.25  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 86.45 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\72dfe876-bd48-4f33-a89d-4e0eb
    remark: 100-Year, 6 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  3.00  85.00 0.98   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\f49e145d-3c4e-4f22-8c96-402e9f13cbdf\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\f49e145d-3c4e-4f22-8c96-402e9f13cbdf\scenar


DATE: 11/22/2021                          TIME: 09:18:10

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 13 - 2-Year_1 hour AES.stm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.00  0.83   3.38 0.14   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.00  0.75   5.13 0.21   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  0.83   4.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  0.92   5.40 0.22   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  0.58   4.86 0.20   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  0.75   5.23  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  0.50  23.20 0.95   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 24.40 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  0.50  20.43 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  0.50  23.19 0.95   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  0.50  22.57 0.92   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  0.50  20.05 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.01  0.50  22.00  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  0.50  22.08  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  0.50  21.48  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.04  0.50  22.10  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.04  0.50  17.45  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  0.50  23.20 0.95   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  0.92   5.40 0.22   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  0.58   4.86 0.20   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  0.75   5.23  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  0.50  22.57 0.92   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  0.50  23.19 0.95   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  0.50  23.20 0.95   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  0.50  20.43 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  0.50  20.05 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.01  0.50  22.00  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  0.50  22.08  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  0.50  21.48  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.04  0.50  22.10  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.05  21.39  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  0.75  16.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 24.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e47cccf5-c664-4354-8670-b9968
    remark: 2-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  0.50  23.20 0.95   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\42a3d262-cdf1-430a-afe5-246a5cb10d95\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\42a3d262-cdf1-430a-afe5-246a5cb10d95\scenar


DATE: 11/22/2021                          TIME: 09:18:06

USER:
```

```
COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : 14 - 5-Year_1 hour AES.stm    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  0.83   6.54 0.20   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  0.75   9.10 0.28   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  0.75   7.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  0.92   9.52 0.29   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  0.58   8.68 0.27   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  0.75   9.26  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  0.50  27.73 0.86   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  0.50  30.43 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  0.50  27.25 0.84   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  0.50  29.69  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  0.50  29.79  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  0.50  29.05  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.05  0.50  29.80  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.05  0.50  24.14  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  0.92   9.52 0.29   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  0.58   8.68 0.27   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  0.75   9.26  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  0.50  30.43 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  0.50  27.73 0.86   0.000
```

```
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  0.50  27.25 0.84   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  0.50  29.69  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  0.50  29.79  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  0.50  29.05  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.05  0.50  29.80  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.07  29.10  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  0.75  23.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 32.42 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\700c3301-865f-48b6-9bf8-e9edb
    remark: 5-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gaug
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  0.50  31.18 0.96   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\22ced6aa-4261-491a-b815-7aaf92632aa9\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\22ced6aa-4261-491a-b815-7aaf92632aa9\scenar


DATE: 11/22/2021                          TIME: 09:18:05

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 15 - 10-Year_1 hour AES.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  0.83   8.71 0.23   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  0.75  11.73 0.32   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.02  0.75  10.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  0.92  12.25 0.33   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  0.58  11.23 0.30   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  0.75  11.93  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  0.50  32.02 0.86   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  0.50  35.00 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  0.50  31.50 0.85   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  0.50  34.19  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  0.50  34.30  n/a   0.000
*
```

```
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  0.50  33.48  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.06  0.50  34.31  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.06  0.50  28.14  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  0.92  12.25 0.33   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  0.58  11.23 0.30   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  0.75  11.93  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  0.50  35.00 0.94   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  0.50  32.02 0.86   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  0.50  31.50 0.85   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  0.50  34.19  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  0.50  34.30  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  0.50  33.48  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.06  0.50  34.31  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.07  33.61  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  0.75  27.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 37.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\f93e603f-a96a-44c6-ac45-e2022
    remark: 10-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  0.50  35.83 0.97   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\7ed38dfa-8e57-47fa-a7bd-ea709f2562c1\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\7ed38dfa-8e57-47fa-a7bd-ea709f2562c1\scenar


DATE: 11/22/2021                          TIME: 09:18:07

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 16 - 25-Year_1 hour AES.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  0.75  15.60 0.31   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  0.75  19.81 0.40   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.03  0.75  17.49  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  0.92  20.56 0.41   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  0.50  19.03 0.38   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  0.75  20.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  0.50  43.84 0.88   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  0.50  47.47 0.95   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  0.50  43.20 0.87   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  0.50  46.48  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  0.50  46.62  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.05  0.50  45.61  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.08  0.50  46.60  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.09  0.50  39.30  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  0.92  20.56 0.41   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  0.50  19.03 0.38   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  0.75  20.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  0.50  47.47 0.95   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  0.50  43.84 0.88   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  0.50  43.20 0.87   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  0.50  46.48  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  0.50  46.62  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.05  0.50  45.61  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.08  0.50  46.60  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.07  45.90  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  0.75  38.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 49.80 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\de7762f7-db6a-422c-bcfa-089a9
    remark: 25-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  0.50  48.47 0.97   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================
```

```
       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\f4f25c20-9707-402a-aa4d-27bd11b95bc2\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\f4f25c20-9707-402a-aa4d-27bd11b95bc2\scenar


DATE: 11/22/2021                          TIME: 09:18:11

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : 17 - 50-Year_1 hour AES.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  0.75  19.71 0.35   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  0.75  24.50 0.43   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.04  0.75  21.85  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  0.92  25.36 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  0.50  23.59 0.42   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  0.75  24.81  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  0.50  55.14 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  0.50  50.14 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  0.50  55.14 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.01  0.50  54.06 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  0.50  49.46 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  0.50  52.99  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.04  0.50  53.14  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.05  0.50  52.06  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.09  0.50  53.11  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.10  0.50  45.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  0.50  55.15 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  0.92  25.36 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  0.50  23.59 0.42   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  0.75  24.81  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.01  0.50  54.06 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  0.50  55.14 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  0.50  55.14 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  0.50  50.14 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  0.50  49.46 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  0.50  52.99  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.04  0.50  53.14  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.05  0.50  52.06  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.09  0.50  53.11  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.07  52.41  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  0.75  44.81  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 56.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\6f665782-5450-429c-a196-72042
    remark: 50-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Gau
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  0.50  55.15 0.98   0.000
    [I%=99.0:S%= 6.10]
*
 FINISH

================================================================================================================

================================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\da4ca489-753c-4731-a3aa-303339ee7b57\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\da4ca489-753c-4731-a3aa-303339ee7b57\scenar


DATE: 11/22/2021                          TIME: 09:18:10

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 18 - 100-Year_1 hour AES.stm  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  0.75  24.27 0.38   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  0.75  29.63 0.47   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.04  0.75  26.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  0.83  30.61 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.01  0.50  28.57 0.45   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  0.75  29.98  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.02  0.50  56.77 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.01  0.50  60.96 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.02  0.50  56.03 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.04  0.50  59.82  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.04  0.50  59.98  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.06  0.50  58.82  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.10  0.50  59.93  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.11  0.50  51.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  0.83  30.61 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.01  0.50  28.57 0.45   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  0.75  29.98  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.01  0.50  60.96 0.96   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.02  0.50  56.77 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.02  0.50  56.03 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.04  0.50  59.82  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.04  0.50  59.98  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.06  0.50  58.82  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.10  0.50  59.93  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  1.07  56.92  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  0.75  49.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.50 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\15a56e5c-bb22-43c4-80ed-cf8c0
    remark: 100-Year, 1 hour 30% AES, Ganaraska Region SWM Guidelines Ga
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  0.50  62.12 0.98   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\82b33f7b-37f9-4640-baad-fe44aa8bdccc\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\82b33f7b-37f9-4640-baad-fe44aa8bdccc\scenar


DATE: 11/22/2021                          TIME: 09:18:07

USER:
```

```
COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : 19 - 2-Year_12 hour SCS.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.00  6.17   5.09 0.18   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.00  6.08   7.31 0.25   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  6.08   6.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  6.25   7.67 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  6.00   6.97 0.24   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  6.00   7.45  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.01  6.00  27.77 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.00  6.00  23.48 0.81   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  6.00  26.59 0.92   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  21.31 0.73   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.00  6.00  23.08 0.80   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.01  6.00  25.25  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.01  6.00  24.70  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  6.00  24.23  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.03  6.00  25.70  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.03  6.00  20.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  6.00  22.91 0.79   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  6.25   7.67 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  6.00   6.97 0.24   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  6.00   7.45  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  21.31 0.73   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  6.00  26.59 0.92   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.01  6.00  27.77 0.96   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.00  6.00  23.48 0.81   0.000
```

```
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.00  6.00  23.08 0.80   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.01  6.00  25.25  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.01  6.00  24.70  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  6.00  24.23  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.03  6.00  25.70  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  7.15  24.99  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  6.08  20.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 29.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b8c0585f-c72f-4210-924e-99c2a
    remark: 2-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  6.00  22.91 0.79   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\c259dd8c-6455-4778-b7f5-0a9ab43a6d78\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\c259dd8c-6455-4778-b7f5-0a9ab43a6d78\scenar


DATE: 11/22/2021                          TIME: 09:18:09

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 20 - 5-Year_12 hour SCS.stm   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha    '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  6.08  10.22 0.25   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  6.08  13.53 0.34   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.01  6.08  11.70  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  6.25  14.11 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  6.00  12.97 0.32   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  6.00  13.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  6.00  38.81 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  6.00  33.35 0.83   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  6.00  38.79 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  31.38 0.78   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  6.00  32.82 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.01  6.00  36.45  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  6.00  35.74  n/a   0.000
*
```

```
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  6.00  34.88  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.04  6.00  36.51  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.04  6.00  30.24  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  6.00  34.44 0.86   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  6.25  14.11 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  6.00  12.97 0.32   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  6.00  13.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  31.38 0.78   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  6.00  38.79 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  6.00  38.81 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  6.00  33.35 0.83   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  6.00  32.82 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.01  6.00  36.45  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  6.00  35.74  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  6.00  34.88  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.04  6.00  36.51  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  8.07  35.81  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  6.00  29.73  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 40.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\201cbf1c-d585-4177-957e-fe48e
    remark: 5-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelines
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  6.00  34.44 0.86   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\09d54dde-6d8d-4a03-8ce3-47f4723b7a70\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\09d54dde-6d8d-4a03-8ce3-47f4723b7a70\scenar


DATE: 11/22/2021                          TIME: 09:18:04

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 21 - 10-Year_12 hour SCS.stm  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  6.08  13.41 0.29   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  6.08  17.27 0.38   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.02  6.08  15.14  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  6.25  17.96 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  6.00  16.59 0.36   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  6.00  17.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.02  6.00  44.69 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  6.00  38.65 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  6.00  44.67 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  38.79 0.84   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  6.00  39.66 0.86   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.01  6.00  42.08  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  6.00  41.62  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.02  6.00  41.05  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.04  6.00  42.55  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.05  6.00  35.66  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  6.00  39.71 0.86   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  6.25  17.96 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  6.00  16.59 0.36   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  6.00  17.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  38.79 0.84   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  6.00  44.67 0.97   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.02  6.00  44.69 0.97   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  6.00  38.65 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  6.00  39.66 0.86   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.01  6.00  42.08  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  6.00  41.62  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.02  6.00  41.05  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.04  6.00  42.55  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  8.07  41.85  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  6.00  35.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 46.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\9dcfe8d7-c573-4669-a348-549ad
    remark: 10-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  6.00  39.71 0.86   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================
```

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\99355b3e-75a2-4f02-a344-bfc2e9d095b5\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\99355b3e-75a2-4f02-a344-bfc2e9d095b5\scenar


DATE: 11/22/2021                          TIME: 09:18:08

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : 22 - 25-Year_12 hour SCS.stm  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.01  6.08  24.15 0.38   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.01  6.08  29.50 0.47   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.03  6.08  26.55  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  6.25  30.48 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  6.00  28.45 0.45   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  6.00  29.85  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  6.00  61.95 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  6.00  56.60 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  6.00  61.93 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  53.94 0.85   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  6.00  55.87 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  6.00  59.64  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  6.00  58.85  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  6.00  57.97  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.06  6.00  59.61  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.07  6.00  51.41  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  6.00  59.36 0.94   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  6.25  30.48 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  6.00  28.45 0.45   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  6.00  29.85  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  53.94 0.85   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  6.00  61.93 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  6.00  61.95 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  6.00  56.60 0.89   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  6.00  55.87 0.88   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  6.00  59.64  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  6.00  58.85  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  6.00  57.97  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.06  6.00  59.61  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00 10.02  52.20  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  6.00  46.04  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 63.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\b69a57d4-b302-4ca7-820a-4aa36
    remark: 25-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  6.00  59.36 0.94   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\be3688f7-a9be-4b54-8139-ab4769cfff89\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\be3688f7-a9be-4b54-8139-ab4769cfff89\scenar


DATE: 11/22/2021                          TIME: 09:18:09

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 23 - 50-Year_12 hour SCS.stm  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  6.08  33.42 0.44   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  6.08  39.76 0.52   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.04  6.08  36.25  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  6.25  40.94 0.53   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  6.00  38.42 0.50   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  6.00  40.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  6.00  75.16 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  6.00  69.23 0.90   0.000
```

```
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  6.00  75.14 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  70.88 0.93   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  6.00  68.44 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  6.00  72.60  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  6.00  72.36  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.04  6.00  71.21  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.07  6.00  72.83  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.08  6.00  63.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  6.00  72.16 0.94   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  6.25  40.94 0.53   0.000
    [CN=82.0        ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  6.00  38.42 0.50   0.000
    [CN=80.6        ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  6.00  40.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  70.88 0.93   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  6.00  75.14 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  6.00  75.16 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  6.00  69.23 0.90   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  6.00  68.44 0.89   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  6.00  72.60  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  6.00  72.36  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.04  6.00  71.21  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.07  6.00  72.83  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00 10.05  56.59  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  6.00  52.06  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\d21b6bab-5730-4c51-917a-4656e
    remark: 50-Year, 12 hour SCS Type II, Ganaraska Region SWM Guideline
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  6.00  72.16 0.94   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\c28f4b72-ffd2-4cbb-9d56-d50dde8d3cc3\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\c28f4b72-ffd2-4cbb-9d56-d50dde8d3cc3\scenar


DATE: 11/22/2021                          TIME: 09:18:09

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : 24 - 100-Year_12 hour SCS.stm **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '   cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.02  6.08  43.14 0.48   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.02  6.08  50.35 0.56   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.05  6.08  46.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.01  6.25  51.71 0.58   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.01  6.00  48.75 0.54   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.01  6.00  50.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.04  6.00  88.12 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  6.00  81.73 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.02  6.00  88.12 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  6.00  83.18 0.93   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  6.00  80.86 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.03  6.00  85.37  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.03  6.00  85.07  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.05  6.00  83.83  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.08  6.00  85.59  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.10  6.00  76.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.01  6.00  84.53 0.94   0.000
    [I%=99.0:S%= 6.10]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.01  6.25  51.71 0.58   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB NASHYD         1106  1  5.0    0.03    0.01  6.00  48.75 0.54   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.01  6.00  50.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  6.00  83.18 0.93   0.000
    [I%=96.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.02  6.00  88.12 0.98   0.000
    [I%=99.0:S%= 0.90]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.04  6.00  88.12 0.98   0.000
    [I%=99.0:S%= 3.33]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  6.00  81.73 0.91   0.000
    [I%=85.0:S%= 0.50]
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  6.00  80.86 0.90   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.03  6.00  85.37  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.03  6.00  85.07  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.05  6.00  83.83  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.08  6.00  85.59  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00 10.00  62.01  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.01  6.00  58.92  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.58 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\2251617c-b1f1-437a-8c97-63f77d8ccf5b\e713fea3-5ef2-40b0-8ce4-03e29
    remark: 100-Year, 12 hour SCS Type II, Ganaraska Region SWM Guidelin
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.01  6.00  84.53 0.94   0.000
    [I%=99.0:S%= 6.10]
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2008)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\1dfb1147-41a8-44fd-b9f4-c636c2f80d58\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\8cbca063-fc24-4d6d-a742-afd42f989b8e\1dfb1147-41a8-44fd-b9f4-c636c2f80d58\scenar


DATE: 11/22/2021                          TIME: 09:18:04

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 25 - 25mm Chicago             **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 ** CALIB NASHYD         0001  1  5.0    0.21    0.00  1.67   3.56 0.14   0.000
    [CN=76.8         ]
    [ N = 3.0:Tp 0.24]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 ** CALIB NASHYD         0002  1  5.0    0.17    0.00  1.58   5.36 0.22   0.000
    [CN=81.1         ]
    [ N = 3.0:Tp 0.22]
*
    ADD [  0001+  0002]  0010  3  5.0    0.38    0.00  1.58   4.36  n/a   0.000
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 ** CALIB NASHYD         0107  1  5.0    0.07    0.00  1.83   5.64 0.23   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 ** CALIB NASHYD         0106  1  5.0    0.03    0.00  1.42   5.09 0.20   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  0106+  0107]  0021  3  5.0    0.10    0.00  1.58   5.47  n/a   0.000
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0105  1  5.0    0.11    0.03  1.33  23.71 0.95   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0101  1  1.0    0.04    0.01  1.35  20.88 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0102  1  1.0    0.05    0.01  1.35  23.70 0.95   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0103  1  1.0    0.01    0.00  1.35  20.82 0.84   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0104  1  1.0    0.05    0.01  1.35  20.51 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  0101+  0102]  0020  3  1.0    0.09    0.02  1.35  22.49  n/a   0.000
*
    ADD [  0020+  0103]  0020  1  1.0    0.11    0.02  1.35  22.26  n/a   0.000
*
    ADD [  0020+  0104]  0020  3  1.0    0.15    0.03  1.35  21.74  n/a   0.000
*
    ADD [  0020+  0105]  0020  1  1.0    0.26    0.06  1.33  22.53  n/a   0.000
*
    ADD [  0020+  0021]  0022  3  1.0    0.36    0.06  1.33  17.83  n/a   0.000
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0300  1  5.0    0.02    0.00  1.33  22.89 0.92   0.000
    [I%=99.0:S%= 6.10]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB NASHYD         1107  1  5.0    0.07    0.00  1.83   5.64 0.23   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.36]
*
    CHIC STORM                 5.0
    [ Ptot= 24.91 mm ]
*
```

```
 *  CALIB NASHYD         1106  1  5.0    0.03    0.00  1.42   5.09 0.20   0.000
    [CN=80.6         ]
    [ N = 3.0:Tp 0.11]
*
    ADD [  1106+  1107]  0121  3  5.0    0.10    0.00  1.58   5.47  n/a   0.000
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       1103  1  1.0    0.01    0.00  1.35  20.82 0.84   0.000
    [I%=96.0:S%= 0.90]
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       1102  1  1.0    0.05    0.01  1.35  23.70 0.95   0.000
    [I%=99.0:S%= 0.90]
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       1105  1  5.0    0.11    0.03  1.33  23.71 0.95   0.000
    [I%=99.0:S%= 3.33]
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       1101  1  1.0    0.04    0.01  1.35  20.88 0.84   0.000
    [I%=85.0:S%= 0.50]
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       1104  1  1.0    0.05    0.01  1.35  20.51 0.82   0.000
    [I%=83.0:S%= 0.90]
*
    ADD [  1101+  1102]  0120  3  1.0    0.09    0.02  1.35  22.49  n/a   0.000
*
    ADD [  0120+  1103]  0120  1  1.0    0.11    0.02  1.35  22.26  n/a   0.000
*
    ADD [  0120+  1104]  0120  3  1.0    0.15    0.03  1.35  21.74  n/a   0.000
*
    ADD [  0120+  1105]  0120  1  1.0    0.26    0.06  1.33  22.53  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0123  1  1.0    0.26    0.00  3.68  21.83  n/a   0.000
    OVERFLOW:            0123  3  1.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0121+  0123]  0122  3  1.0    0.36    0.00  1.67  17.32  n/a   0.000
*
    CHIC STORM                  5.0
    [ Ptot= 24.91 mm ]
*
 *  CALIB STANDHYD       0081  1  5.0    0.02    0.00  1.33  22.89 0.92   0.000
    [I%=99.0:S%= 6.10]
*
```

Appendix C

Quantity Control

Stage-Storage-Discharge: Surface Parking and Underground

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: Cs / MH
Date: Jan 10 2019

Storage Summary		
Top of Dead Storage:	83.15	m
Dead Storage Volume:	0.0	m^3
Active Storage Volume:	202.3	m^3

Outlet Capacity Summary				
Type	Diameter	Slope	Peak Flow	% Full
PVC	250	0.005	0.002	3.2
PVC	250	0.010	0.014	18.3

Discharge Summary				
Stage	Type	Invert Elev (m)	Diameter / Width (mm)	(m)
1	Custom Discharge	83.15	Custom	
2	Custom Discharge 2	85.15	Custom	

Stage-Storage-Discharge Summary Table

Elevation	Stage	Stage 1 Custom	Stage 2 Custom					Total Storage	Total Discharge	Notes
m	m	m^3/s						ha*m	m^3/s	
83.15	0.00	0.000	0.000					**0.0000**	**0.0000**	
83.25	0.10	**0.001**	0.000					**0.0007**	**0.0010**	
83.35	0.20	**0.001**	0.000					**0.0019**	**0.0011**	
83.45	0.30	**0.001**	0.000					**0.0033**	**0.0011**	
83.55	0.40	**0.001**	0.000					**0.0047**	**0.0011**	
83.65	0.50	**0.001**	0.000					**0.0059**	**0.0011**	<= 2 Yr: 59 m^3 (83.65m)
83.75	0.60	**0.001**	0.000					**0.0072**	**0.0011**	
83.85	0.70	**0.001**	0.000					**0.0083**	**0.0011**	
83.95	0.80	**0.001**	0.000					**0.0093**	**0.0011**	<= 5 Yr: 83 m^3 (83.86m)
84.05	0.90	**0.001**	0.000					**0.0101**	**0.0012**	<= 10 Yr: 96 m^3 (83.99m)
84.15	1.00	**0.001**	0.000					**0.0108**	**0.0012**	
84.25	1.10	**0.001**	0.000					**0.0112**	**0.0013**	
84.25	1.10	**0.001**	0.000					**0.0112**	**0.001**	
84.45	1.30	**0.001**	0.000					**0.0112**	**0.001**	
84.65	1.50	**0.001**	0.000					**0.0112**	**0.001**	
84.85	1.70	**0.002**	0.000					**0.0112**	**0.002**	
85.00	1.85	**0.002**	0.000					**0.0115**	**0.002**	
85.01	1.86	**0.002**	0.000					**0.0117**	**0.002**	
85.02	1.87	**0.002**	0.000					**0.0119**	**0.002**	
85.03	1.88	**0.002**	0.000					**0.0121**	**0.002**	
85.04	1.89	**0.002**	0.000					**0.0124**	**0.002**	
85.05	1.90	**0.002**	0.000					**0.0126**	**0.002**	
85.06	1.91	**0.002**	0.000					**0.0130**	**0.002**	
85.07	1.92	**0.002**	0.000					**0.0133**	**0.002**	
85.08	1.93	**0.002**	0.000					**0.0137**	**0.002**	
85.09	1.94	**0.002**	0.000					**0.0141**	**0.002**	
85.10	1.95	**0.002**	0.000					**0.0146**	**0.002**	<= 25 Yr: 145 m^3 (85.1m)
85.11	1.96	**0.002**	0.000					**0.0150**	**0.002**	
85.12	1.97	**0.002**	0.000					**0.0155**	**0.002**	
85.13	1.98	**0.002**	0.000					**0.0160**	**0.002**	
85.14	1.99	**0.002**	0.000					**0.0166**	**0.002**	<= 50 Yr: 163 m^3 (85.14m)
85.15	2.00	**0.002**	**0.000**					**0.0171**	**0.002**	
85.16	2.01	**0.002**	**0.004**					**0.0177**	**0.006**	
85.17	2.02	**0.002**	**0.012**					**0.0183**	**0.014**	<= 100 Yr: 178 m^3 (85.17m)
85.18	2.03	**0.002**	**0.022**					**0.0190**	**0.024**	
85.19	2.04	**0.002**	**0.034**					**0.0196**	**0.036**	
85.20	2.05	**0.002**	**0.048**					**0.0202**	**0.050**	

User Inputs

Chamber Model:	SC-740
Outlet Control Structure:	Yes
Project Name:	Ontario Street
Engineer:	Mark Hoar
Project Location:	
Measurement Type:	Metric
Required Storage Volume:	120.00 cubic meters.
Stone Porosity:	40%
Stone Foundation Depth:	152 mm.
Stone Above Chambers:	152 mm.
Average Cover Over Chambers:	457 mm.
Design Constraint Dimensions:	(5.00 m. x 35.00 m.)

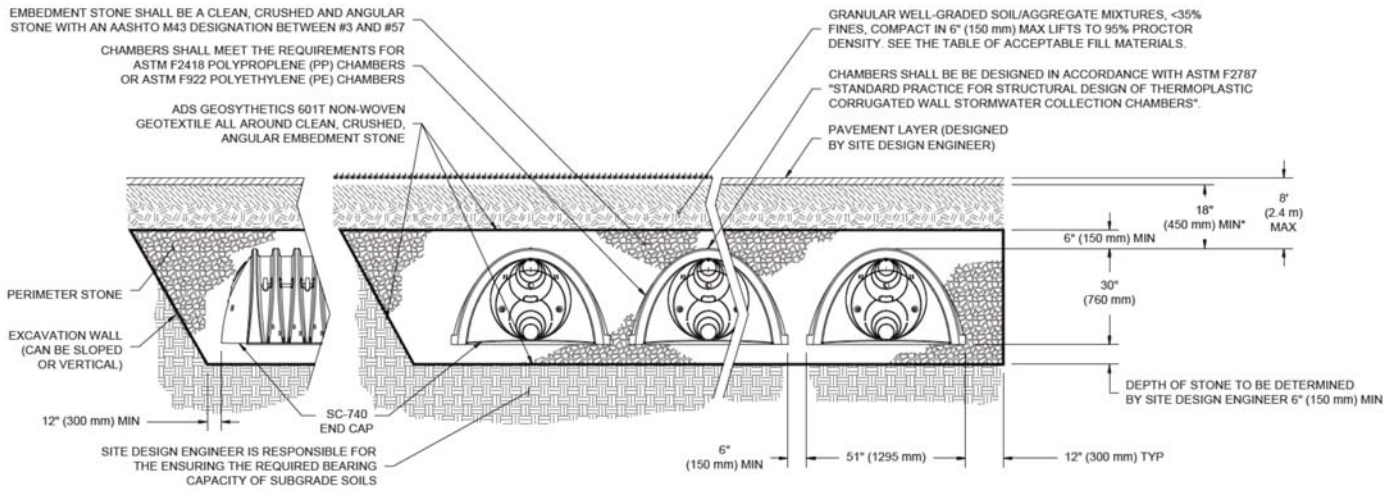
Results

System Volume and Bed Size

Installed Storage Volume:	109.17 cubic meters.
Storage Volume Per Chamber:	1.30 cubic meters.
Number Of Chambers Required:	45
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	34.83 m.
Maximum Width:	4.98 m.
Approx. Bed Size Required:	173.59 square meters.

System Components

Amount Of Stone Required:	126.69 cubic meters
Volume Of Excavation (Not Including Fill):	185.18 cubic meters
Non-woven Geotextile Required (excluding Isolator Row):	518.55 square meters
Non-woven Geotextile Required (Isolator Row):	96.63 square meters
Total Non-woven Geotextile Required:	615.19 square meters
Woven Geotextile Required (excluding Isolator Row):	13.24 square meters
Woven Geotextile Required (Isolator Row):	60.40 square meters
Total Woven Geotextile Required:	73.63 square meters



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

Matthew Lau: Why business focu | Hydro International Design Tools | ADS Design Tool | best buy - Bing | Top Deals: Weekly Flyer | Best Bu | New tab

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- Components
- Advanced settings
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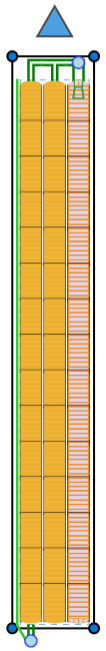
Volume (m^3)	Length (m)	Width (m)	Area (m^2)	Chambers	Caps
109.17	34.83	4.98	173.59	45	6



Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.500	1.500
Flush-Flo™	0.233	1.082
Kick-Flo®	0.469	0.891
Mean Flow		1.134

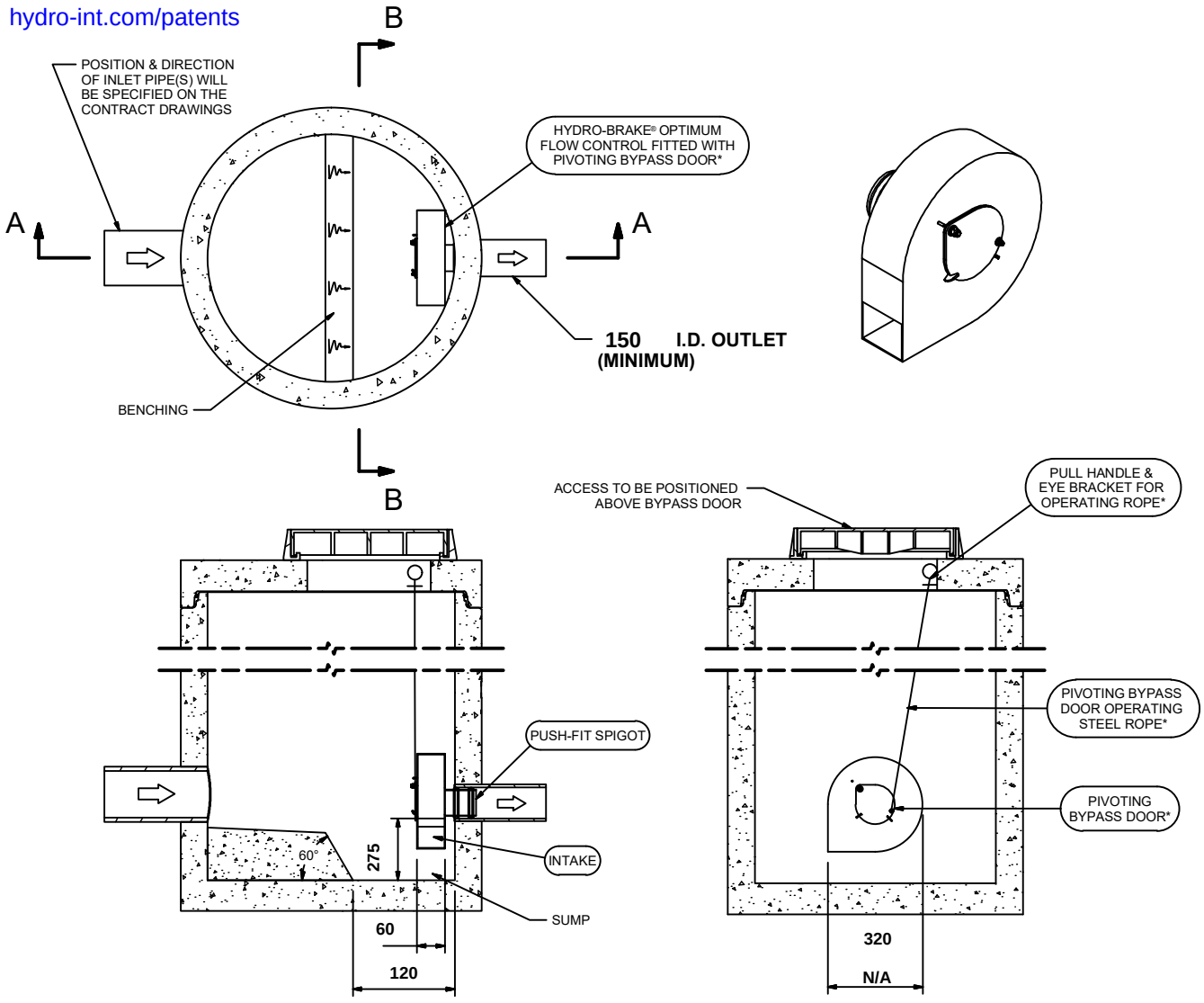
Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 08/4596

WRc Approved PT/329/0412

hydro-int.com/patents



SECTION A-A

SECTION B-B

IMPORTANT: (oval) LIMIT OF HYDRO INTERNATIONAL SUPPLY
THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
ALL CIVIL AND INSTALLATION WORK BY OTHERS
* WHERE SUPPLIED
HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE

The head/flow characteristics of this SHE-0052-1500-1500-1500 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International®

DATE	11/19/2021 6:12 PM
SITE	Ontario Stret
DESIGNER	Mark Hoar
REF	Outlet

SHE-0052-1500-1500-1500
Hydro-Brake® Optimum

mhoar@dmwills.com

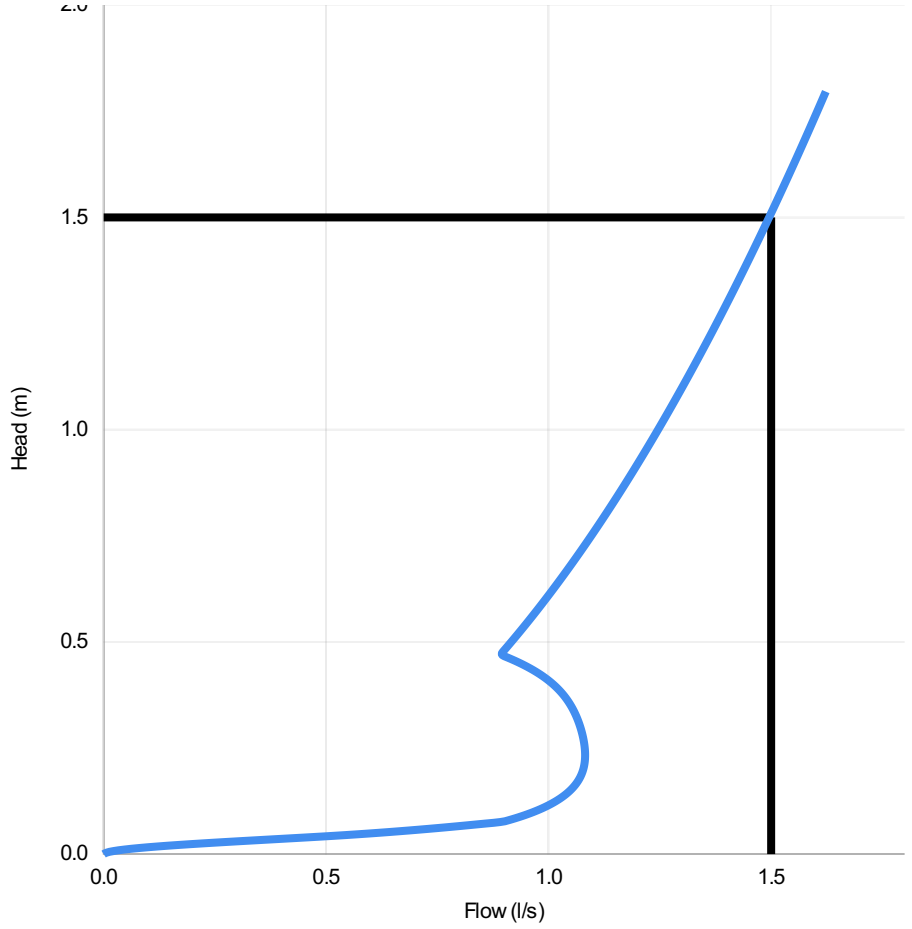
Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.500	1.500
Flush-Flo	0.233	1.082
Kick-Flo®	0.469	0.891
Mean Flow		1.134

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE No 08/4596

WRc APPROVED
PT/329/0412

hydro-int.com/patents



Head (m)	Flow (l/s)
0.000	0.000
0.052	0.638
0.103	0.976
0.155	1.053
0.207	1.079
0.259	1.080
0.310	1.068
0.362	1.042
0.414	0.994
0.466	0.902
0.517	0.930
0.569	0.970
0.621	1.008
0.672	1.044
0.724	1.079
0.776	1.112
0.828	1.145
0.879	1.176
0.931	1.207
0.983	1.236
1.034	1.265
1.086	1.293
1.138	1.320
1.190	1.347
1.241	1.373
1.293	1.398
1.345	1.423
1.397	1.448
1.448	1.472
1.500	1.495

DESIGN ADVICE

The head/flow characteristics of this SHE-0052-1500-1500-1500 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

! **The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.**

Hydro International®

DATE	19/11/2021 18:12
Site	Ontario Stret
DESIGNER	Mark Hoar
Ref	Outlet

SHE-0052-1500-1500-1500

Hydro-Brake Optimum®

Weir Report

<Name>

Compound Weir

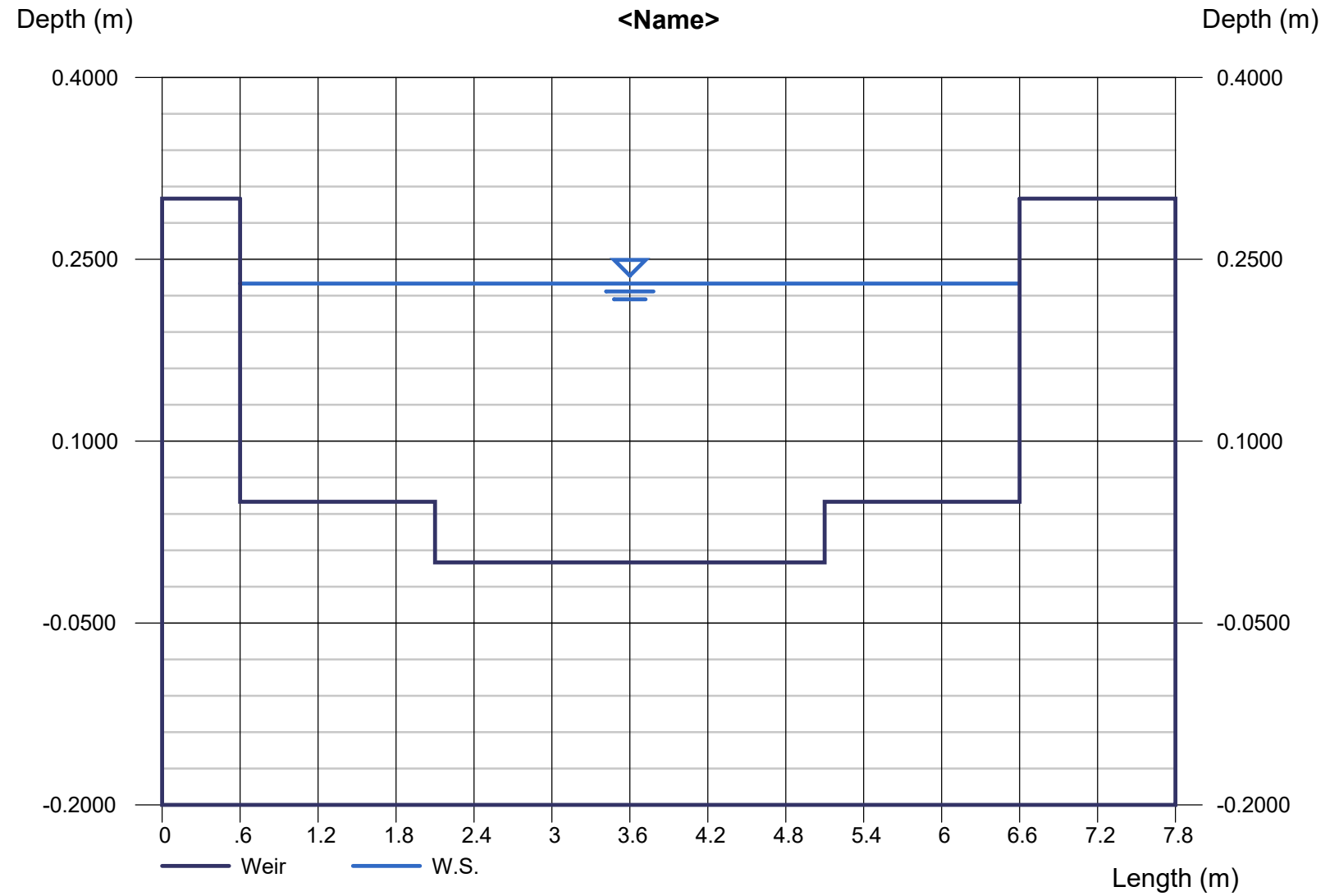
Crest	= Broad
Bottom Length (m)	= 6.0000
Total Depth (m)	= 0.3000
Length, x (m)	= 3.0000
Depth, a (m)	= 0.0500

Highlighted

Depth (m)	= 0.2300
Q (cms)	= 0.8039
Area (sqm)	= 1.2300
Velocity (m/s)	= 0.6535
Top Width (m)	= 6.0000

Calculations

Weir Coeff. Cw	= 2.6000
Compute by:	Q vs Depth
No. Increments	= 30



Depth	Q	Area
(m)	(cms)	(sqm)
0.0100	0.004	0.0300
0.0200	0.012	0.0600
0.0300	0.022	0.0900
0.0400	0.034	0.1200
0.0500	0.048	0.1500
0.0600	0.068	0.2100
0.0700	0.092	0.2700
0.0800	0.120	0.3300
0.0900	0.151	0.3900
0.1000	0.184	0.4500
0.1100	0.220	0.5100
0.1200	0.259	0.5700
0.1300	0.2993	0.6300
0.1400	0.3418	0.6900
0.1500	0.3864	0.7500
0.1600	0.4327	0.8100
0.1700	0.4809	0.8700
0.1800	0.5307	0.9300
0.1900	0.5822	0.9900
0.2000	0.6353	1.0500
0.2100	0.6900	1.1100
0.2200	0.7462	1.1700

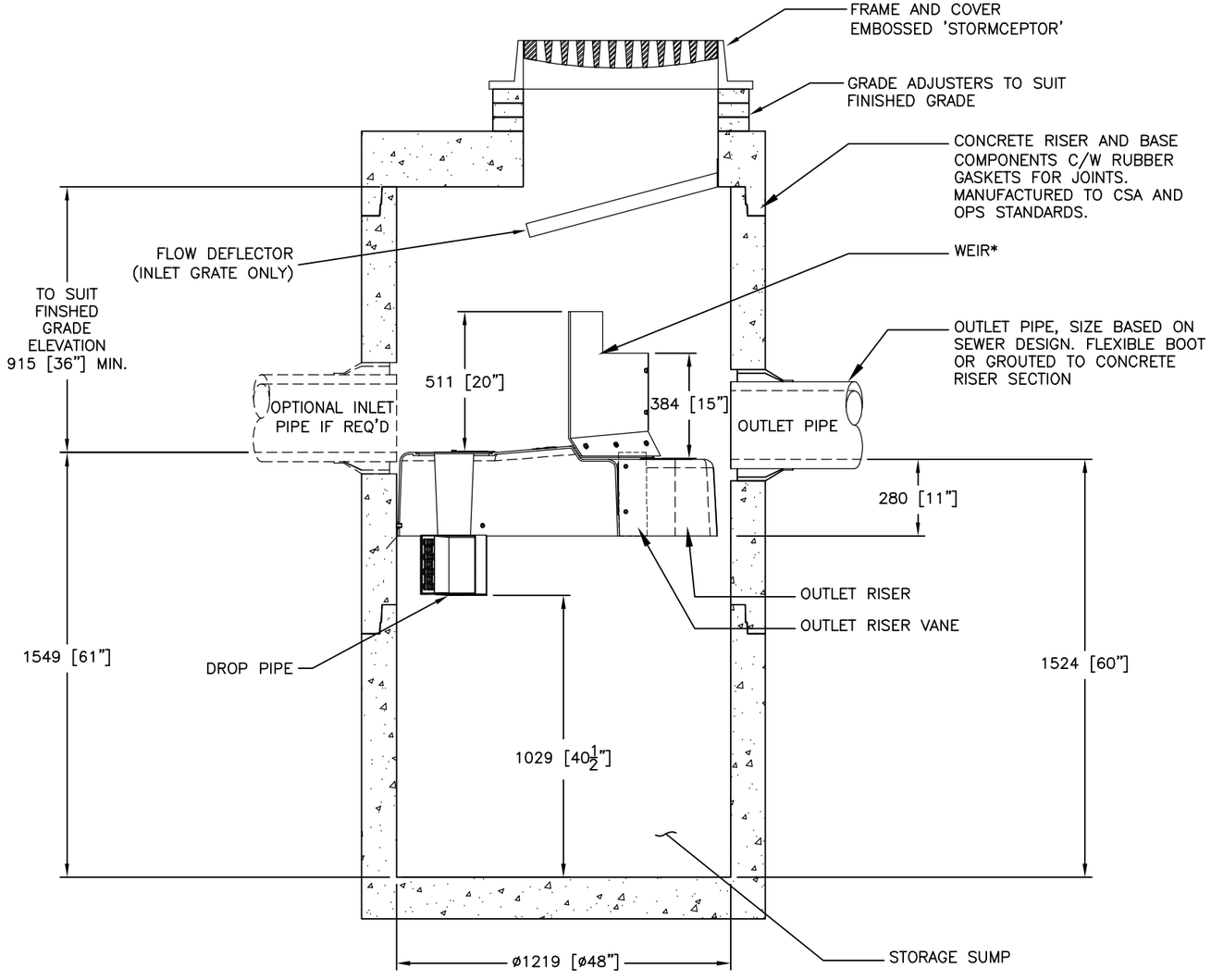
Depth	Q	Area
(m)	(cms)	(sqm)
0.2300	0.8039	1.2300
0.2400	0.8630	1.2900
0.2500	0.9235	1.3500
0.2600	0.9853	1.4100
0.2700	1.0485	1.4700
0.2800	1.1130	1.5300
0.2900	1.1788	1.5900
0.3000	1.2459	1.6500

Veloc	TopWidth	Energy
(m/s)	(m)	(m)
0.1435	3.0000	0.0111
0.2030	3.0000	0.0221
0.2486	3.0000	0.0332
0.2871	3.0000	0.0442
0.3210	3.0000	0.0553
0.3219	6.0000	0.0653
0.3405	6.0000	0.0759
0.3631	6.0000	0.0867
0.3865	6.0000	0.0976
0.4096	6.0000	0.1086
0.4321	6.0000	0.1195
0.4540	6.0000	0.1305
0.4751	6.0000	0.1415
0.4954	6.0000	0.1525
0.5151	6.0000	0.1635
0.5342	6.0000	0.1746
0.5527	6.0000	0.1856
0.5706	6.0000	0.1966
0.5881	6.0000	0.2076
0.6051	6.0000	0.2187
0.6216	6.0000	0.2297
0.6378	6.0000	0.2407

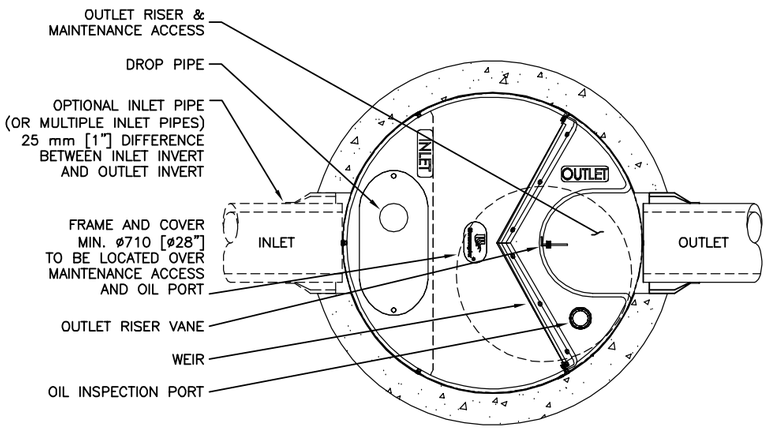
Veloc	TopWidth	Energy
(m/s)	(m)	(m)
0.6535	6.0000	0.2518
0.6690	6.0000	0.2628
0.6840	6.0000	0.2739
0.6988	6.0000	0.2849
0.7133	6.0000	0.2960
0.7275	6.0000	0.3070
0.7414	6.0000	0.3180
0.7551	6.0000	0.3291

Appendix D

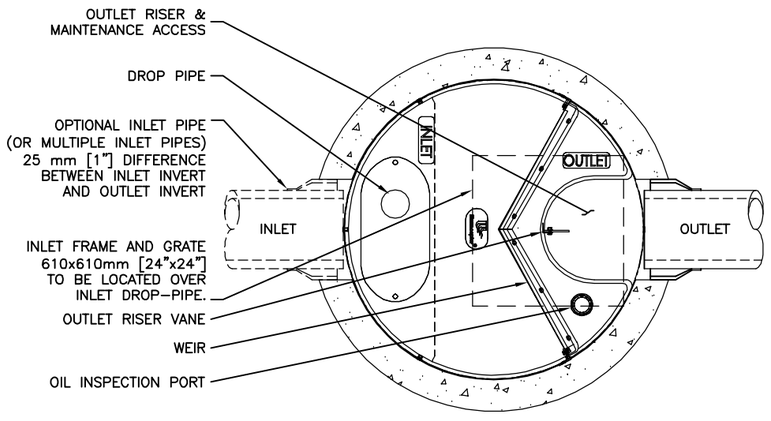
Quality Control



SECTION VIEW



PLAN VIEW (STANDARD)



PLAN VIEW (INLET TOP)

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL STORMCEPTOR REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE (IF REQUIRED).

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF4 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EFO4 (OIL CAPTURE CONFIGURATION). WEIR HEIGHT IS 150 mm (6 INCH) FOR EF04.

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

STANDARD DETAIL
NOT FOR CONSTRUCTION

SITE SPECIFIC DATA REQUIREMENTS

STORMCEPTOR MODEL	EF4
STRUCTURE ID	*
WATER QUALITY FLOW RATE (L/s)	*
PEAK FLOW RATE (L/s)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
DRAINAGE AREA (HA)	*
DRAINAGE AREA IMPERVIOUSNESS (%)	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

MARK	DATE	REVISION DESCRIPTION	BY
1	6/8/18	UPDATES	JSK
0	5/26/17	INITIAL RELEASE	JSK

Stormceptor® EF

SCALE = NTS

imbrium®
7007 RIDGE ROAD, SUITE 350, HANOVER, MD 21076
USA 888-279-9828 CA 800-388-4601 INTL +1-416-960-9900

DATE: 5/26/2017

DESIGNED:	DRAWN:
JSK	JSK
CHECKED:	APPROVED:
BSF	SP
PROJECT No.:	SEQUENCE No.:
EF4	*

SHEET: 1 OF 1

Stormceptor®

FORTERRA

Stormceptor® EF Sizing Report

STORMCEPTOR®
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

11/16/2021

Province:	Ontario
City:	Cobourg
Nearest Rainfall Station:	PETERBOROUGH
Climate Station Id:	6166456
Years of Rainfall Data:	15

Site Name:	OGS1

Drainage Area (ha):	0.26
% Imperviousness:	95.00

Runoff Coefficient 'c': 0.87

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	60.0

Project Name:	Ontario Street
Project Number:	10839
Designer Name:	Mark Hoar
Designer Company:	D.M. Wills
Designer Email:	mhoar@dmwills.com
Designer Phone:	705-742-2297
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	8.43
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Site Sediment Transport Rate (kg/ha/yr):	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	60
EFO6	66
EFO8	68
EFO10	69
EFO12	70

Recommended Stormceptor EFO Model: EFO4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 60

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

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

PERFORMANCE

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

PARTICLE SIZE DISTRIBUTION (PSD)

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

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

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Stormceptor® EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	20.8	20.8	0.63	38.0	31.0	70	14.6	14.6
2	18.4	39.2	1.26	75.0	63.0	67	12.3	27.0
3	12.3	51.5	1.89	113.0	94.0	63	7.8	34.8
4	9.4	60.9	2.52	151.0	126.0	61	5.7	40.5
5	7.3	68.2	3.14	189.0	157.0	58	4.3	44.7
6	5.2	73.4	3.77	226.0	189.0	56	2.9	47.6
7	3.3	76.7	4.40	264.0	220.0	53	1.8	49.4
8	3.1	79.8	5.03	302.0	252.0	53	1.6	51.0
9	2.2	82.1	5.66	340.0	283.0	52	1.2	52.2
10	2.8	84.8	6.29	377.0	314.0	51	1.4	53.6
11	1.0	85.8	6.92	415.0	346.0	50	0.5	54.1
12	1.6	87.4	7.55	453.0	377.0	49	0.8	54.8
13	1.7	89.1	8.17	490.0	409.0	48	0.8	55.7
14	2.2	91.3	8.80	528.0	440.0	47	1.0	56.7
15	1.6	92.9	9.43	566.0	472.0	46	0.7	57.4
16	0.6	93.5	10.06	604.0	503.0	45	0.3	57.7
17	0.4	94.0	10.69	641.0	535.0	44	0.2	57.9
18	0.9	94.9	11.32	679.0	566.0	43	0.4	58.3
19	0.7	95.6	11.95	717.0	597.0	42	0.3	58.6
20	0.8	96.4	12.58	755.0	629.0	42	0.3	58.9
21	0.6	97.0	13.21	792.0	660.0	42	0.2	59.2
22	0.3	97.3	13.83	830.0	692.0	42	0.1	59.3
23	0.0	97.3	14.46	868.0	723.0	41	0.0	59.3
24	0.6	97.9	15.09	906.0	755.0	41	0.3	59.6
25	0.0	97.9	15.72	943.0	786.0	41	0.0	59.6
30	0.8	98.7	18.87	1132.0	943.0	40	0.3	59.9
35	1.3	100.0	22.01	1321.0	1100.0	39	0.5	60.4
40	0.0	100.0	25.15	1509.0	1258.0	36	0.0	60.4
45	0.0	100.0	28.30	1698.0	1415.0	34	0.0	60.4
50	0.0	100.0	31.44	1887.0	1572.0	30	0.0	60.4
Estimated Net Annual Sediment (TSS) Load Reduction =								**60 %**

Climate Station ID: 6166456 *Years of Rainfall Data*: 15

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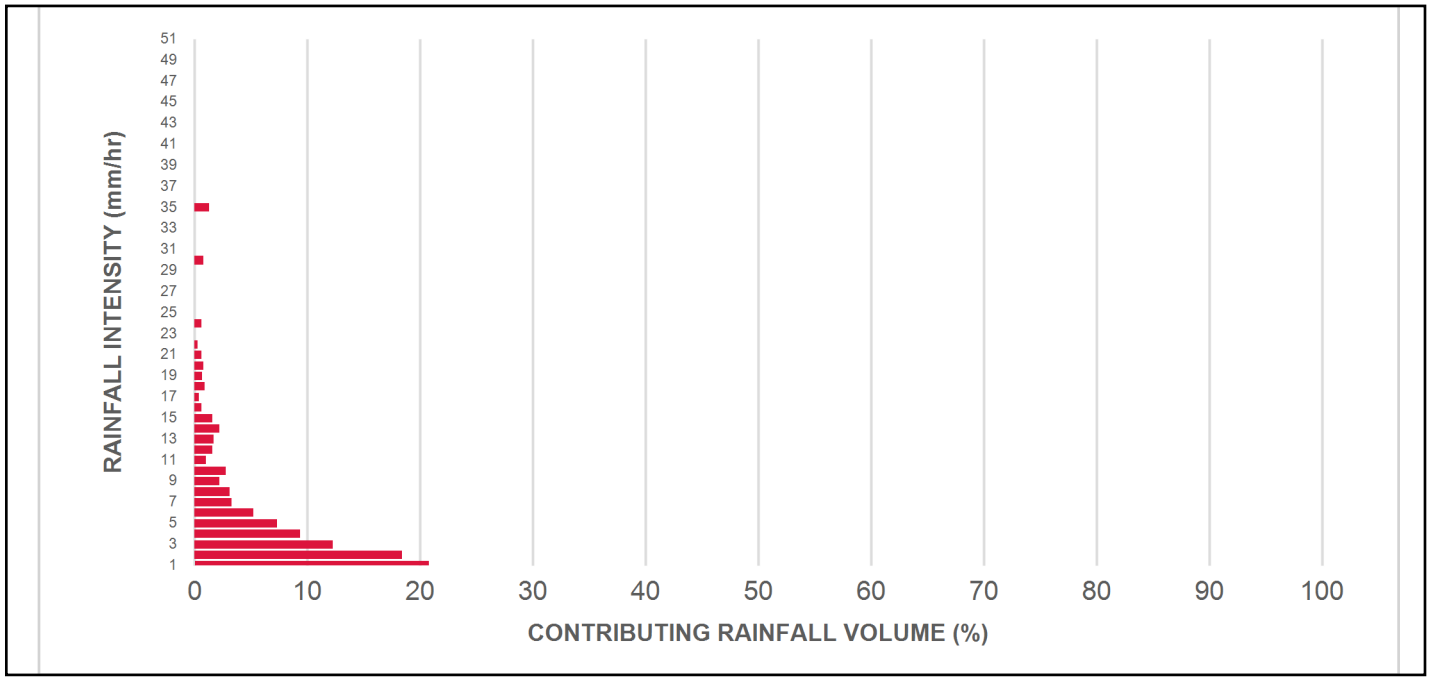
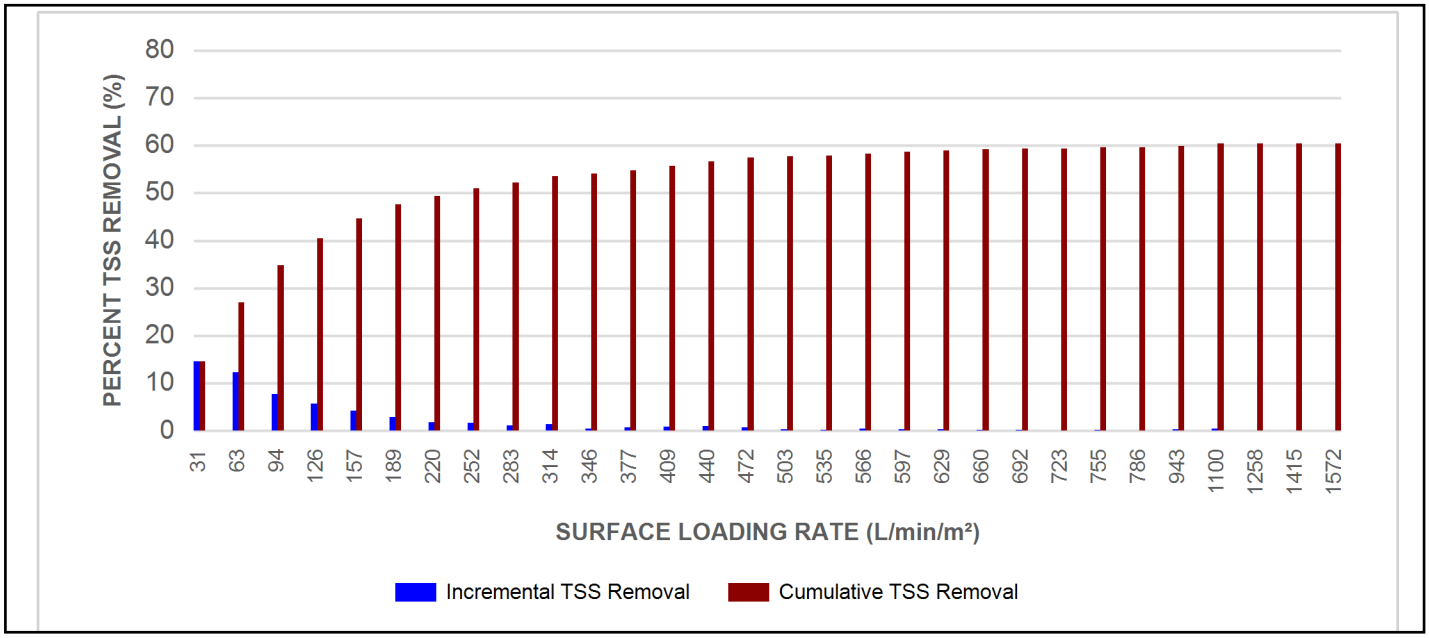
RAINFALL DATA FROM PETERBOROUGH RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



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Maximum Pipe Diameter / Peak Conveyance

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

SCOUR PREVENTION AND ONLINE CONFIGURATION

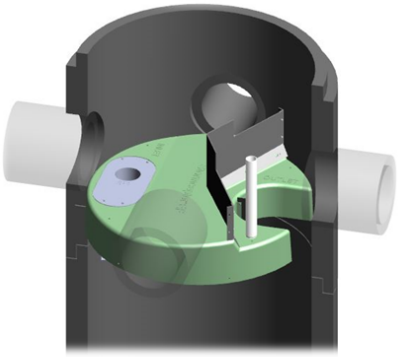
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test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

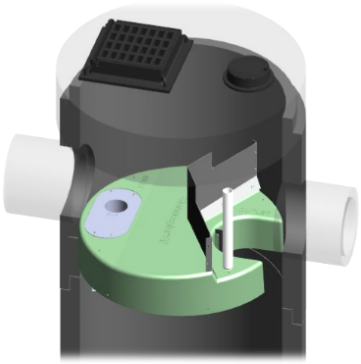
DESIGN FLEXIBILITY

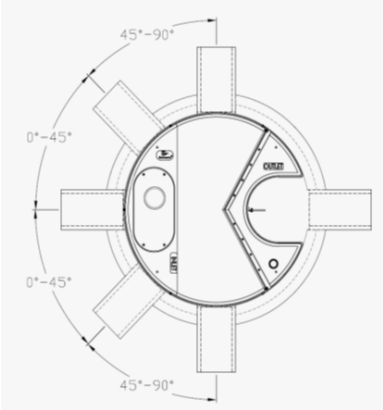
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend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

OIL CAPTURE AND RETENTION

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







INLET-TO-OUTLET DROP

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

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

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

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
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EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

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

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

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

STANDARD STORMCEPTOR EF/EFO DRAWINGS

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

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

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Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
Stormceptor® EFO

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	46	1320	48	1980	35
30	70	690	46	1350	48	2010	34
60	67	720	45	1380	49	2040	34
90	63	750	45	1410	49	2070	33
120	61	780	45	1440	48	2100	33
150	58	810	45	1470	47	2130	32
180	56	840	45	1500	46	2160	32
210	54	870	45	1530	45	2190	31
240	53	900	45	1560	44	2220	31
270	52	930	44	1590	43	2250	30
300	51	960	44	1620	42	2280	30
330	50	990	44	1650	42	2310	30
360	49	1020	44	1680	41	2340	29
390	48	1050	45	1710	40	2370	29
420	48	1080	45	1740	39	2400	29
450	48	1110	45	1770	39	2430	28
480	47	1140	46	1800	38	2460	28
510	47	1170	46	1830	37	2490	28
540	47	1200	47	1860	37	2520	27
570	46	1230	47	1890	36	2550	27
600	46	1260	47	1920	36	2580	27
630	46	1290	48	1950	35		

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

PART 1 – GENERAL

1.1 WORK INCLUDED

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

1.2 REFERENCE STANDARDS & PROCEDURES

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

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

1.3 SUBMITTALS

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

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

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

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

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

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

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

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

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing shall be determined using historical rainfall data and a sediment removal performance curve derived from the actual third-party verified laboratory testing data. The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

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

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

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

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

Stormceptor®

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Stormceptor® EF Sizing Report

STORMCEPTOR®
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

11/22/2021

Province:	Ontario
City:	Cobourg
Nearest Rainfall Station:	PETERBOROUGH
Climate Station Id:	6166456
Years of Rainfall Data:	15

Site Name:	Ontario Street
Drainage Area (ha):	0.26
% Imperviousness:	95.00

Runoff Coefficient 'c': 0.87

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	8.43
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Site Sediment Transport Rate (kg/ha/yr):	

Project Name:	Ontario Street
Project Number:	10839
Designer Name:	Mark Hoar
Designer Company:	D.M. Wills
Designer Email:	mhoar@dmwills.com
Designer Phone:	705-742-2297
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	86
EFO6	94
EFO8	97
EFO10	99
EFO12	99

Recommended Stormceptor EFO Model: EFO4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 86

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

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

PERFORMANCE

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

PARTICLE SIZE DISTRIBUTION (PSD)

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

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

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Stormceptor® EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	20.8	20.8	0.63	38.0	31.0	100	20.8	20.8
2	18.4	39.2	1.26	75.0	63.0	96	17.6	38.4
3	12.3	51.5	1.89	113.0	94.0	90	11.1	49.6
4	9.4	60.9	2.52	151.0	126.0	87	8.1	57.7
5	7.3	68.2	3.14	189.0	157.0	83	6.1	63.8
6	5.2	73.4	3.77	226.0	189.0	80	4.1	67.9
7	3.3	76.7	4.40	264.0	220.0	76	2.5	70.4
8	3.1	79.8	5.03	302.0	252.0	75	2.3	72.8
9	2.2	82.1	5.66	340.0	283.0	74	1.7	74.4
10	2.8	84.8	6.29	377.0	314.0	72	2.0	76.4
11	1.0	85.8	6.92	415.0	346.0	71	0.7	77.1
12	1.6	87.4	7.55	453.0	377.0	70	1.1	78.2
13	1.7	89.1	8.17	490.0	409.0	69	1.2	79.4
14	2.2	91.3	8.80	528.0	440.0	67	1.5	80.9
15	1.6	92.9	9.43	566.0	472.0	66	1.0	81.9
16	0.6	93.5	10.06	604.0	503.0	64	0.4	82.3
17	0.4	94.0	10.69	641.0	535.0	63	0.3	82.6
18	0.9	94.9	11.32	679.0	566.0	62	0.6	83.2
19	0.7	95.6	11.95	717.0	597.0	60	0.5	83.6
20	0.8	96.4	12.58	755.0	629.0	60	0.5	84.1
21	0.6	97.0	13.21	792.0	660.0	60	0.3	84.4
22	0.3	97.3	13.83	830.0	692.0	59	0.2	84.6
23	0.0	97.3	14.46	868.0	723.0	59	0.0	84.6
24	0.6	97.9	15.09	906.0	755.0	59	0.4	85.0
25	0.0	97.9	15.72	943.0	786.0	59	0.0	85.0
30	0.8	98.7	18.87	1132.0	943.0	58	0.4	85.4
35	1.3	100.0	22.01	1321.0	1100.0	55	0.7	86.1
40	0.0	100.0	25.15	1509.0	1258.0	52	0.0	86.1
45	0.0	100.0	28.30	1698.0	1415.0	48	0.0	86.1
50	0.0	100.0	31.44	1887.0	1572.0	43	0.0	86.1
Estimated Net Annual Sediment (TSS) Load Reduction =								**86 %**

Climate Station ID: 6166456 *Years of Rainfall Data*: 15

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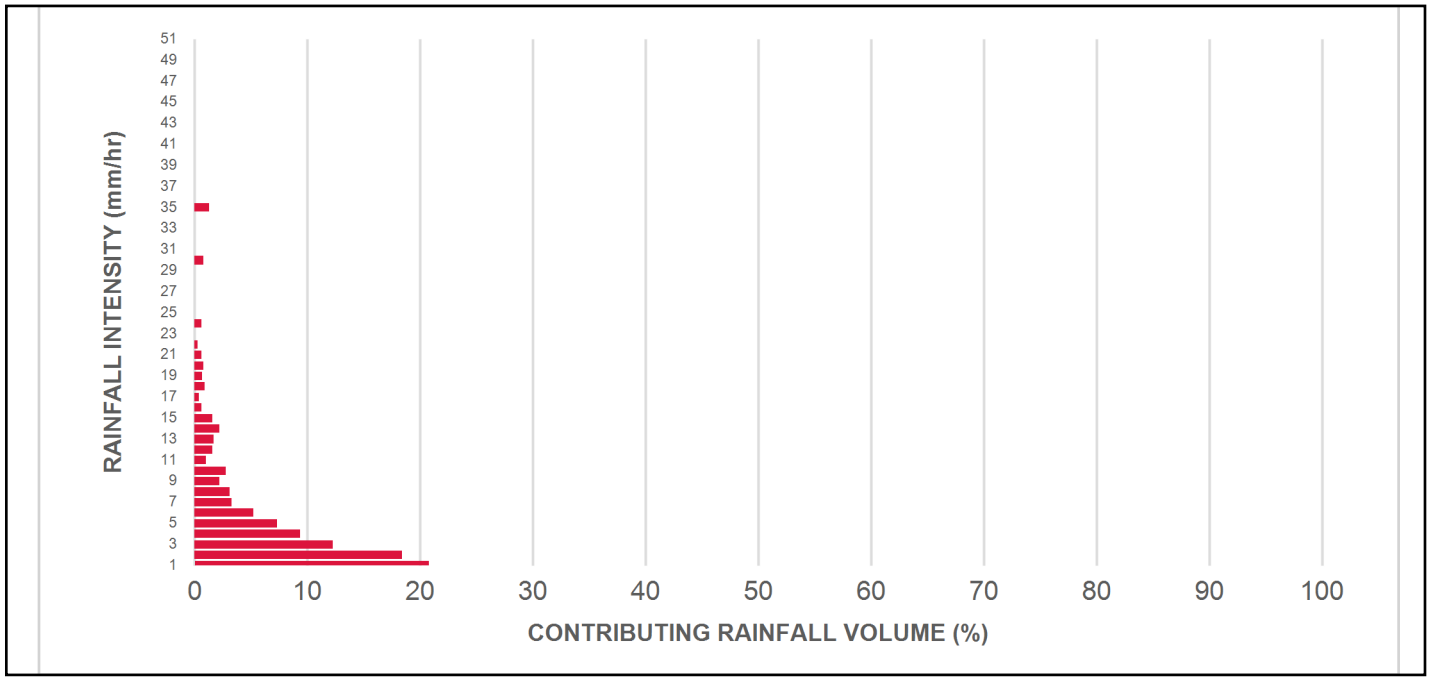
RAINFALL DATA FROM PETERBOROUGH RAINFALL STATION



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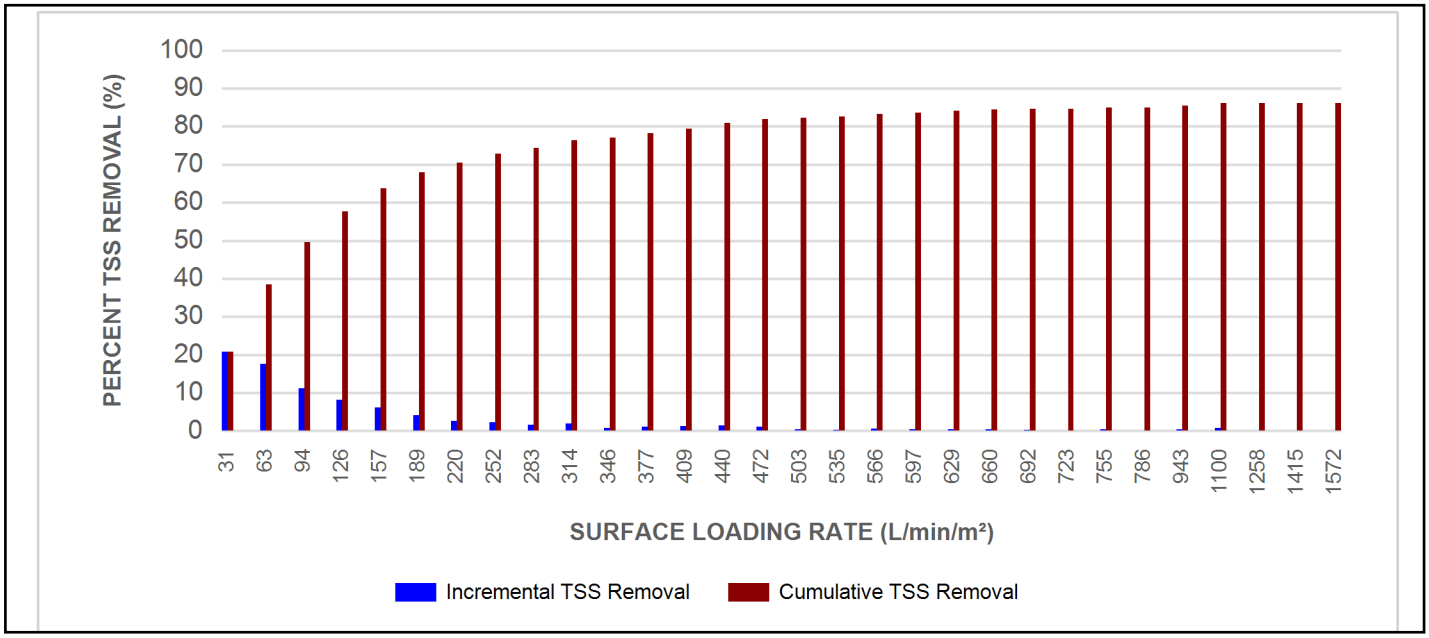

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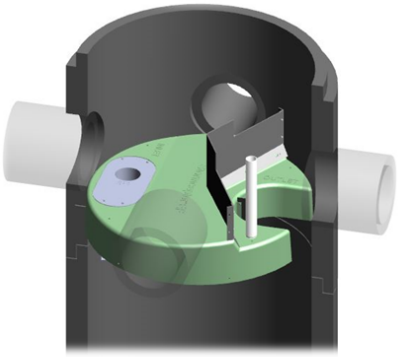

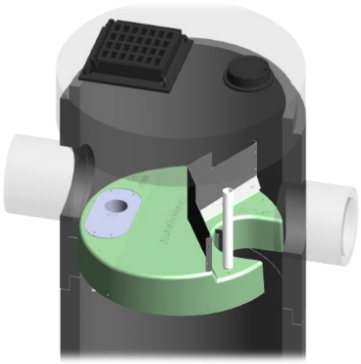

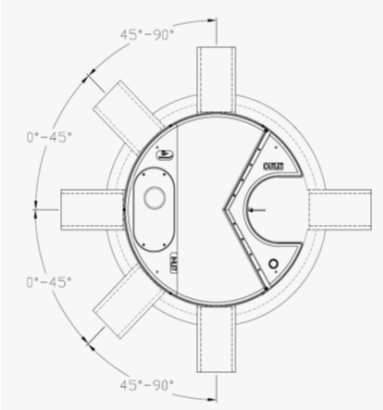

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Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

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

PART 1 – GENERAL

1.1 WORK INCLUDED

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

1.2 REFERENCE STANDARDS & PROCEDURES

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

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

1.3 SUBMITTALS

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

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

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

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

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

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

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

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

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing shall be determined using historical rainfall data and a sediment removal performance curve derived from the actual third-party verified laboratory testing data. The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

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

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

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

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

Appendix E

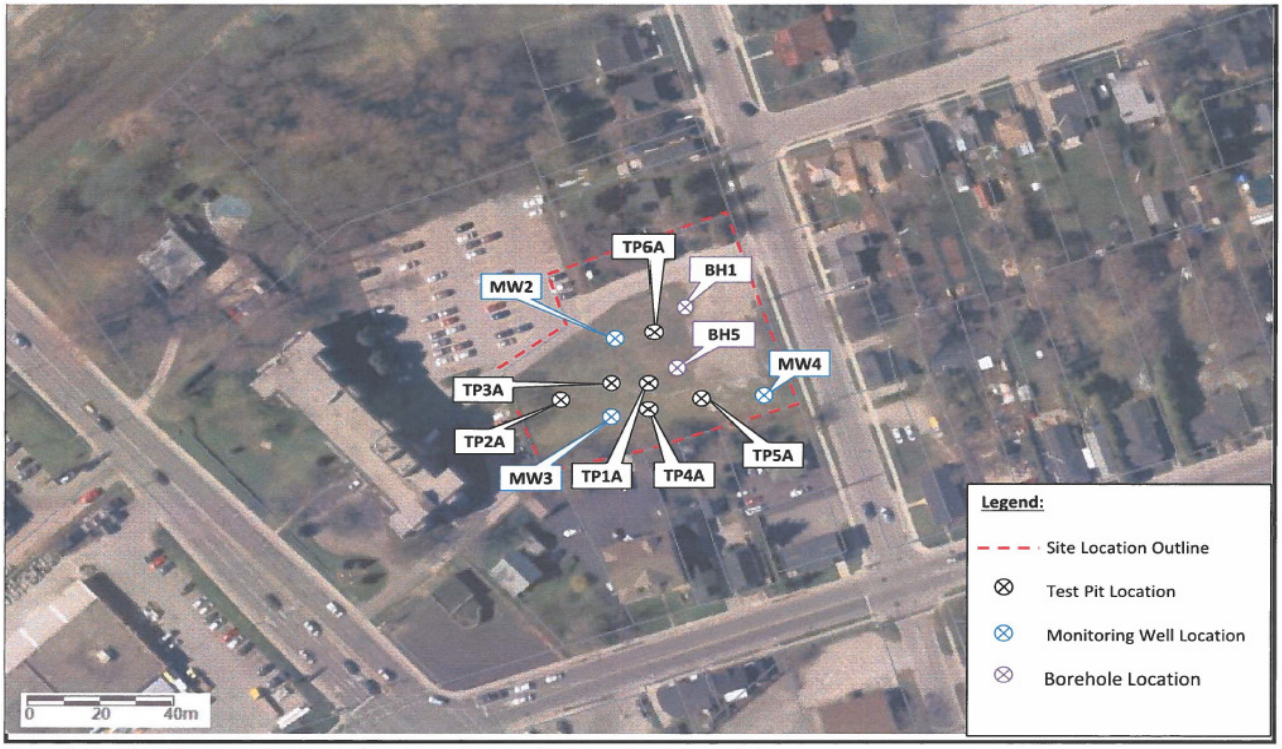
Soils Investigation Summary Report

Borehole Analysis

Assumed Benchmark:
Actual Benchmark (m):

Project No: 10839
Project Name: Ontario Street
Designed/Checked By: CS / CPB
Date: Nov 23 2018

				Actual Elevation (m)		
Borehole ID	Ground Elevation Relative (m)	Ground Water Elevation (mbeg)	Termination (mbeg)	Ground	Termination	Groundwater
TP1A			2.4		-2.4	
TP2A			1.8		-1.8	
TP3A			1.2		-1.2	
TP4A			2.0		-2.0	
TP5A			2.1		-2.1	
TP6A		1.8	3.2		-3.2	-1.8
MW-1		2.4	3.7		-3.7	-2.4
MW-2		2.1	3.7		-3.7	-2.1
MW-3		1.8	3.7		-3.7	-1.8
MW-4		1.7	3.7		-3.7	-1.7
MW-5		1.8	5.2		-5.2	-1.8



Source: Ministry of Natural Resources and Forestry, online (www.giscoeapp.lrc.gov.on.ca) © Queen's Printer for Ontario, 2014.

Scale:
Refer to Scale Bar
Coordinate System:
NAD 1983 UTM Zone 17

Leblanc Enterpises
431 Ontario Street, Cobourg, Ontario
Excess Soil Handling Options Report

Site Plan

G030232-06
September 2018

20 November 2018 Reference No. G030232 06

LeBlanc Enterprises
1035416 Ontario Ltd., P.O. Box 216
Cobourg, ON K9A 4K5

Attention: Mr. Al LeBlanc

Re: Soil Condition for Proposed Residential Condominium
431 Ontario Street, Cobourg, Ontario

1. Introduction

The soil conditions on the property were investigated by GHD Limited for Leblanc Enterprises in part to aid in the geotechnical design of the proposed residential condominium at 431 Ontario Street in Cobourg, Ontario. The subsurface investigation at the above-referenced site consisted of advancing test pits and boreholes on site and installing monitoring wells.

It is our understanding that the residential building is proposed to be four stories in height with underground parking.

The site currently consists of a grassed lot, bordering existing residential housing to the south and south, Ontario Street and residential houses to the east and the Trillium apartment building to the west. The topography of the site is generally flat lying with a very gentle slope downwards to the south west. The site previously supported a bus depot but that structure was demolished and the site was previously remediated

2. Soil Conditions

The soil conditions present on site were investigated by advancing six five exploratory test pits and five boreholes which included three monitoring wells on 21 August 2018 for the test pits and on 17 September 2018 for the boreholes. The test pits extended from a 1.2m to a 3.2 m depth while the boreholes extended from 3.7 to 5.2 m depth and the locations are shown on the appended Site Plan.

The subsurface investigation was carried out to investigate the possible presence of contaminated soil and soil impacted by hydrocarbons was encountered and will be remediated on site. With the removal of soil from some areas on site, the soil conditions currently present will change to the soil used to backfill the areas of removal. Currently the soil conditions were observed to consist of a surficial layer of topsoil added as fill ranging from 0.6 m to 0.2 m in thickness. The topsoil was underlain by a compact to loose brown to reddy brown silty sand soil, which extended to depths varying from 0.6 m to 2.7 m. Some of the sand was disturbed

and had been used to backfill the demolished structure's envelope. The N-values in the sand were found to vary from 2 to 20 blows per 0.3 m penetration indicating the very loose to compact relative density. The variance in the density is likely a reflection of the variable compactive effort given on site during the backfilling operation but in its undisturbed condition the sand was found to be loose. The moisture content in the sand varied from 10 to 13% indicating a moist to wet condition. The gradation in Borehole 2 sample 2 was 11% gravel, 65% sand, and 24% silt. Underlying the sand to the completion of the drilling was a firm to stiff clayey silt, that was hard at a 4.5 m depth. The N-values in the clayey silt were found to vary from 6 to 18 at a 3 m depth and at a 4.5 m depth there were 31 blows to the 0.3 m penetration. The moisture content measured in the clayey silt was found to be 20 and 22% indicating a wet condition. The gradation in Borehole 5 sample 4 was 2% sand, and 58% silt and 40% clay.

3. Foundations

It is expected that structural loading will be supported on spread and continuous strip footings for load bearing walls, and on column pads for column loads. With a level of underground parking possibly unheated, proposed, it is anticipated that the founding level will be at 3.0 to 4.0 m depth. The foundations would be founded on the clayey silt soil at that depth. If there are portions of the building to be founded outside the parking garage envelope, foundations higher than the base of the parking garage and located within a 1H:1V distance will possibly surcharge the parking garage wall. In addition depending on the method of excavation used in constructing the parking garage foundation and walls the backfill associated would have to be suitably engineered to act as a founding soil if spread footings are employed. Some form a deep foundation would also be possible but if required further investigation should establish the position of the limestone bedrock for the area required.

For design purposes, it is recommended that footings constructed on the native soils or on engineered fill be proportioned using the following bearing capacities:

Table 3.1 Bearing Pressures for Footing Design

Parameter	Bearing Pressure			
	Competent Undisturbed Native Soils	Engineered Fill		
		Rock-based Fill (2)	Granular Fill (3)	Earth Borrow Fill (3)
Factored Bearing Capacity at ULS (1)	200 kPa	225 kPa	200 kPa	130 kPa
Bearing Capacity at SLS	125 kPa	150 kPa	125 kPa	90 kPa

Notes:

Table 3.1 Bearing Pressures for Footing Design

Parameter	Bearing Pressure			
	Competent Undisturbed Native Soils	Engineered Fill		
		Rock-based Fill (2)	Granular Fill (3)	Earth Borrow Fill (3)

(1) Resistance factor Φ =0.5 applied to the ULS bearing pressure for design purposes.
(2) At least 0.6m of Rock-based fill. Quality of material is to be approved prior to use as engineered fill.
(3) At least 0.3m of Granular or Earth Borrow fill. Quality of material is to be approved prior to use as engineered fill

Any engineered fill upon which footings are placed must be a minimum thickness corresponding to the notes that accompany the above table. The following is recommended for the construction of any engineered fill for the footings:

1. Remove the necessary impacted soil and any additional soil if the engineered fill soil will define the bearing such that the resulting subgrade is composed of competent, undisturbed native soil.
2. The area of the engineered fill should extend beyond the outside edge of the building foundations downward at a 1:1 slope to the competent native soil.
3. The base of the engineered fill area must be approved by a member of GHD prior to placement of any fill, to ensure that the soil has not been compromised by groundwater upwelling prior to the addition of the fill.
4. The source of the engineered fill material is to be approved by GHD prior to construction of the engineered fill pad.
5. Place approved engineered fill, in maximum 300 mm lifts, compacted to 100% of its SPMDD. Any fill material placed under sufficiently wet conditions should consist of an approved, rock-based fill, with the inclusion of appropriate geotextile fabric around the rock-based fill should the rock fill contain enough voids to warrant.
6. Full time testing and inspection of the engineered fill will be required, to ensure compliance with material and compaction specifications.

All exterior footings or footings in unheated areas, should be founded at least 1.2 m below the final adjacent grade for frost protection, or be treated with an equivalent frost protection (such as suitable styrofoam insulation). Under no circumstances should the foundations be placed above organic materials, loose, frozen subgrade, construction debris, or within ponded water. Prior to forming, all foundation excavations must be inspected and approved by a member of GHD. This will ensure that the foundation bearing material has been adequately prepared at the foundation

subgrade level and that the soils exposed are similar to those encountered during this investigation.

For design purposes this site is classed as Site Class D for Seismic Site Response, in accordance with the Ontario Building Code (OBC).

For foundations constructed in accordance with the foregoing manner, total settlement is estimated to be less than 25 mm and the total differential settlement is estimated to be less than 19 mm.

In regard to the parking garage walls, trapped water and lateral water flow at the sand clayey silt boundary (at or near a 1.5 to 1.8 m depth) can be expected. In order to drain this water it is recommended that OPS 1010 Granular 'B' be utilized as the backfill for the parking garage walls. The walls should also by treated with water proofing lapping to the footing and either a weeper collection system at the base of the wall and under the floor slab should be constructed, or the walls and slab should be designed to resist the hydrostatic pressure and the waterproofing should extend to the floor slab, footings and wall.

Earth retaining walls where the drainage system has lowered the groundwater table may be designed for lateral earth pressures using the following equation:

$p = k (w h + q)$, where:

p = the lateral earth pressure in kPa acting on the subsurface wall at depth h;

ka = the coefficient of active earth pressure;
(= 0.3 for walls restrained from the bottom only);
(= 0.5 for walls restrained at the top and bottom*);

kp = the coefficient of passive earth pressure, (= 3.0);

w = the granular or native soil bulk density in kN/m^3;
(= 21.0 kN/m^3 for well compacted, OPSS-approved Granular "B");
(= 19.0 kN/m^3 for native soils);

h = the depth (in metres) below the exterior grade at which the earth pressure is being calculated; and

q = the equivalent value of any surcharge (in kN/m^3) acting on the ground surface adjacent to the walls.

(*) This value is recommended for rigid walls retaining compacted backfill.

The recommended value for the coefficient for sliding friction between the soil and the concrete is 0.4. In addition to the above, hydrostatic forces must be taken into account in the design where gravity drainage is not provided for the walls. Also, during construction of the building the placement of stockpiles, construction equipment or any other additional surcharge loading

should be avoided by the contractor if it exceeds the design surcharge load. For this purpose the compaction equipment used to compact the backfill against the wall should be limited in size.

4. Slab on Grade

The parking garage slab will be founded on a granular base over the stiff clayey silt. Due to the moisture content of the native soil it is recommended that a geotextile consisting of Terrafix 200W be used on the native subgrade prior to the addition of the granular base due to the expected instability causing difficulty in compacting the granular 'A' base. The clayey silt would have a modulus of subgrade reaction (k) of 27 MPa/m with out the Terrafix 200W and a value of k of 40 with the geotextile. In draining the slab area it is recommended that underlying the granular base subdrain pipes be placed in trenches spaced at 5 m intervals with a header properly outletted. The subdrain pipes could consist of 100 mm diameter perforated plastic pipes covered with a filter sock placed in 0.45m wide by 0.3 m deep trench surrounded by 19 mm clearstone wrapped in filter fabric. The geotextile would then overlie these trenches prior to the addition of the granular base.

5. Site Grading and Excavation

Excavations for the structure should be carried out to conform to the manner specified in Ontario Regulation 213/91 and the Occupational Health and Safety Act and Regulations for Construction Projects (OHSA). All excavations above the water table not exceeding 1.2 m in depth may be constructed with near vertical unsupported slopes. The native soils encountered during this investigation are generally classed by OHSA as Type 3. As such, unsupported / unshored excavation walls in these soils must maintain a gradient of 1 horizontal to 1 vertical (1H:1V) or flatter, for the duration of the excavation slope.

6. Sewer and Watermain Construction

The soil encountered during this investigation at the anticipated pipe inverts were assumed to be at a depth of between 2 to 4 mbeg. At this depth the very stiff clayey silt till is present. As such, a normal compacted Class "B" bedding is recommended for all underground services. Class "B" bedding is Granular "A", or 19 mm crusher run limestone, as per Ontario Provincial Standard Specifications (OPSS). The minimum recommended bedding thickness for the underground services should comply with the requirements OPSD 800 series for the type of pipe involved. All bedding, surround, and cover materials should be compacted to the requirement in the applicable OPSD specification for the type of pipe.

It is expected that with the stripping of the topsoil from the site, the excavated soils will be suitable for reuse as trench backfill, conditional upon suitable moisture content (within 2 % of optimum), Where the soil backfill is too wet in areas where pavement or other structural elements will overlie the backfill it may be necessary to thicken the granular component of the pavement or use geotextiles to strengthen the soil. Compaction of any native soil in service trenches is recommended to be a minimum of 95 % of its SPMDD. The soils present on site are likely to require processing (such as aeration) to lower their moisture content to appropriate levels prior to being considered as backfill material

We trust this letter meets with your immediate requirements. The attached Statement of Limitations is an integral part of this letter. Should you require any additional information, or have questions or concerns regarding any aspect of this document, please contact our office.

Sincerely,

GHD

Andy Fawcett, P. Eng.

Encl. Statement of Limitations (1pg)
Site Plan (1pg)
Test Pit Logs
Particle Size Analysis of Soils (5 pgs)

STATEMENT OF LIMITATIONS

This report is intended solely for Al Leblanc of Leblanc Enterprises and other parties explicitly identified in the report and is prohibited for use by others without GHD's prior written consent. This report is considered GHD's professional work product and shall remain the sole property of GHD. Any unauthorized reuse, redistribution of or reliance on the report shall be at the Client and recipient's sole risk, without liability to GHD. Client shall defend, indemnify and hold GHD harmless from any liability arising from or related to Client's unauthorized distribution of the report. No portion of this report may be used as a separate entity; it is to be read in its entirety and shall include all supporting drawings and appendices.

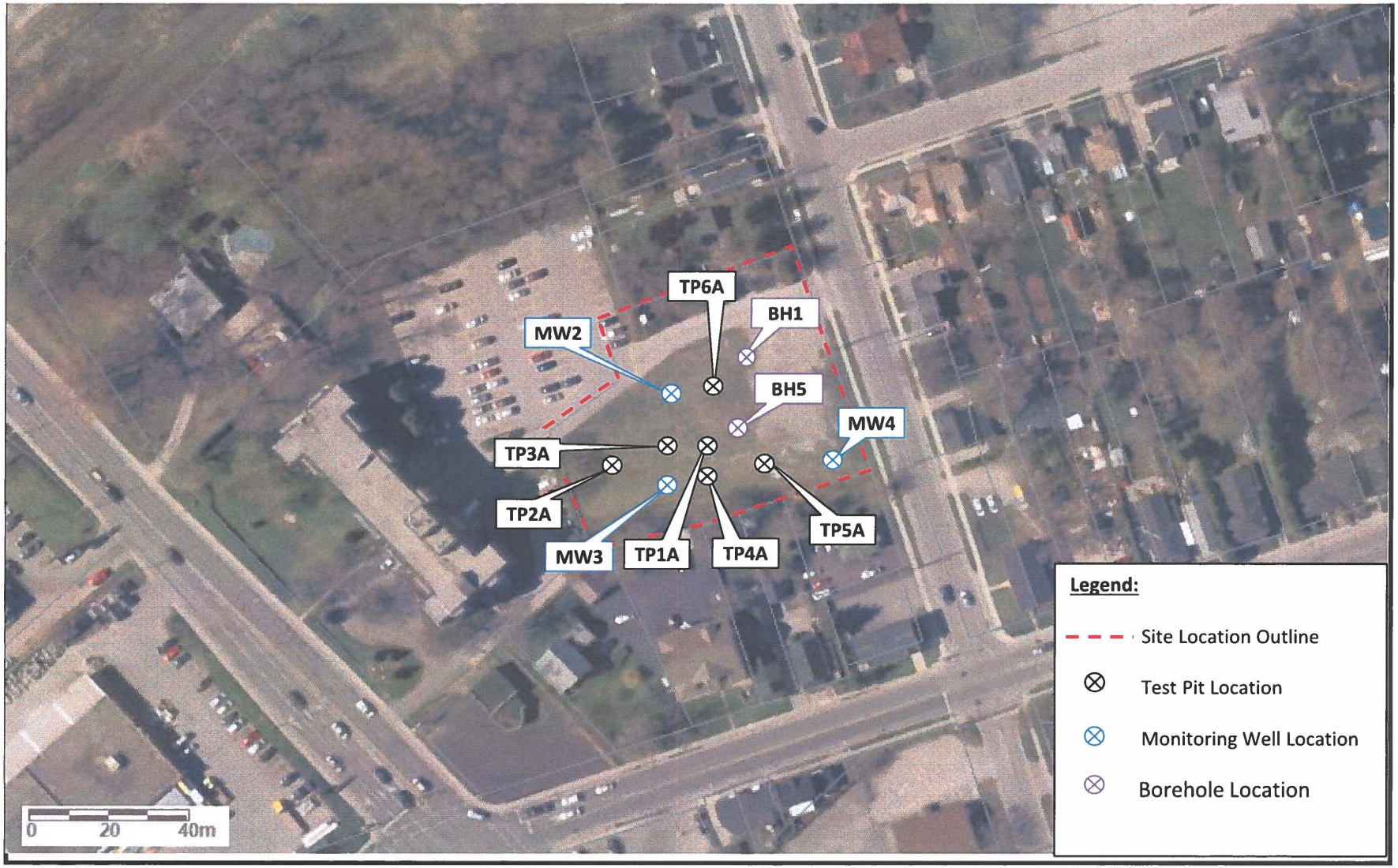
The recommendations made in this report are in accordance with our present understanding of the project, the current site use, ground surface elevations and conditions, and are based on the work scope approved by the Client and described in the report. The services were performed in a manner consistent with that level of care and skill ordinarily exercised by members of geotechnical engineering professions currently practicing under similar conditions in the same locality. No other representations, and no warranties or representations of any kind, either expressed or implied, are made. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

All details of design and construction are rarely known at the time of completion of a geotechnical study. The recommendations and comments made in the study report are based on our subsurface investigation and resulting understanding of the project, as defined at the time of the study. We should be retained to review our recommendations when the drawings and specifications are complete. Without this review, GHD will not be liable for any misunderstanding of our recommendations or their application and adaptation into the final design.

By issuing this report, GHD is the geotechnical engineer of record. It is recommended that GHD be retained during construction of all foundations and during earthwork operations to confirm the conditions of the subsoil are actually similar to those observed during our study. The intent of this requirement is to verify that conditions encountered during construction are consistent with the findings in the report and that inherent knowledge developed as part of our study is correctly carried forward to the construction phases.

It is important to emphasize that a soil investigation is, in fact, a random sampling of a site and the comments included in this report are based on the results obtained at the 6 test pit and 5 borehole locations only. The subsurface conditions confirmed at the test hole locations may vary at other locations. The subsurface conditions can also be significantly modified by construction activities on site (e.g. excavation, dewatering and drainage, blasting, pile driving, etc.). These conditions can also be modified by exposure of soils or bedrock to humidity, dry periods or frost. Soil and groundwater conditions between and beyond the test locations may differ both horizontally and vertically from those encountered at the test locations and conditions may become apparent during construction which could not be detected or anticipated at the time of our investigation. Should any conditions at the site be encountered which differ from those found at the test locations, we request that we be notified immediately in order to permit a reassessment of our recommendations. If changed conditions are identified during construction, no matter how minor, the recommendations in this report shall be considered invalid until sufficient review and written assessment of said conditions by GHD is completed.

Appendix A
Test Pit Logs



Source: Ministry of Natural Resources and Forestry, online (www.giscoeapp.lrc.gov.on.ca) © Queen's Printer for Ontario, 2014.

Scale:
Refer to Scale Bar
Coordinate System:
NAD 1983 UTM Zone 17

Leblanc Enterpises
431 Ontario Street, Cobourg, Ontario
Excess Soil Handling Options Report

Site Plan

G030232-06
September 2018

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: TP1A
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 21 August 2018
DRILLING COMPANY: METHOD:
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726391.579E 4871572.571N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S) □ Lab, ○ Water content (%), W_p W_l Atterberg limits (%), × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE — 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist							
1	0.5				1						
2		0.6		**SAND** Brown Sand with Silt, Loose, Moist							
3		0.9		**CONCRETE** Concrete Slab							
4	1.0	1.2		**SILT** Brown Silt with Sand, Loose, Moist							
5	1.5	1.5		Grey Silt, trace Sand & Clay, Compact, Moist to Wet							
6											
7	2.0				2						
8		2.4		END OF BOREHOLE							
9	2.5										
10	3.0										

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: TP2A
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 21 August 2018
DRILLING COMPANY: METHOD:
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726364.564E 4871576.611N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S), ○ Water content (%), W_p W_l Atterberg limits (%), × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE — 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist	1						
1	0.5										
2		0.6		**SAND** Brown Sand with Silt, Loose, Moist							
3	1.0										
4		1.2		**SILT** Brown Silt with Sand, loose, Moist							
5	1.5	1.5		Grey Silt, trace Sand & Clay, Compact, Moist to Wet	1						
6		1.8		END OF BOREHOLE							
7	2.0										
8	2.5										
9											
10	3.0										

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: TP3A
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 21 August 2018
DRILLING COMPANY: METHOD:
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726374.822E 4871595.586N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p, w_l) / "N" Value (blows / 0.3 m) / △ Field / □ Lab / ◆ RQD / ◎ CONE — 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist							
1		0.3		**SAND** Black Sand with Gravel & Silt, Loose, Moist	1						
	0.5										
2		0.6		**SILT** Brown Silt with Sand, Loose, Moist							
3		0.9		Light Brown Silt, trace Sand, Loose, Moist	2						
	1.0										
4		1.2		END OF BOREHOLE							
5	1.5										
6											
	2.0										
7											
8	2.5										
9											
10	3.0										

BOREHOLE LOG GEOTECH GO30232, TEST PIT LOGS, 8-21-2018, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: TP4A
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 21 August 2018
DRILLING COMPANY: METHOD:
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726401.679E 4871556.922N

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S), ○ Water content (%), W_p W_l Atterberg limits (%), × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE — 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist							
1	0.5										
2		0.6		**SAND** Black Sand with Gravel & Silt, Loose, Moist							
3		0.9		**SILT** Red-Brown Silt with Sand, Loose, Moist	1						
4	1.0	1.2		Trace Sand							
5	1.5	1.5		Grey Silt with Clay, trace Sand, Compact, Moist to Wet	2						
6		2.0		END OF BOREHOLE							
7											
8	2.5										
9											
10	3.0										

BOREHOLE LOG GEOTECH GO30232, TEST PIT LOGS, 8-21-2018, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: TP5A
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 21 August 2018
DRILLING COMPANY: METHOD:
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726424.488E 4871563.902N

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S) □ Lab, ○ Water content (%), W_p W_l Atterberg limits (%), × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE (10 20 30 40 50 60 70 80 90)	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist							
1	0.5										
2		0.6		**SAND** Dark Brown Sand with Gravel, trace Silt, Loose, Moist							
3	1.0	0.9		Red-Brown Sand with Silt, Loose, Moist							
4											
		1.4		**SILT** Brown Silt with Sand, Loose, Moist	1						
5	1.5										
6		1.8		Grey Silt, trace sand & Clay, Compact, Wet	2						
7	2.0	2.1		END OF BOREHOLE							
8	2.5										
9											
10	3.0										

BOREHOLE LOG GEOTECH GO30232, TEST PIT LOGS, 8-21-2018, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

GHD

BOREHOLE No.: TP6A

ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises

PROJECT: 431 Ontario Street, Cobourg, Ontario

LOGGED BY: SK DATE: 21 August 2018

DRILLING COMPANY: METHOD:

NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726397.528E 4871568.695N

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S), ○ Water content (%), Atterberg limits (%) w_p w_l, × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE (10 20 30 40 50 60 70 80 90)	COMMENTS
		0.0		GROUND SURFACE							
				TOPSOIL Brown Sand, trace Gravel & Silt, Loose, Moist	1						
	0.5	0.6		**SAND** Brown Sand with Silt, trace Gravel, Loose, Moist							0.6m: Depth of First Concrete Slab (1 Foot Thick)
	1.0										0.9m: Depth of Second Concrete Slab (1.5 Feet Thick)
		1.2		**SILT** Brown Silt with Sand, trace Gravel, Loose, Moist							
	1.5	1.7		Grey Silt, trace Sand, Loose, Moist to Wet							1.83m: Depth of first groundwater encounter
	2.0	2.1		Grey Silt with Clay, Compact, Moist to Wet	2						
	2.5										
	3.0	3.2		END OF BOREHOLE							

BOREHOLE LOG GEOTECH GO30232, TEST PIT LOGS, 8-21-2018, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: MW-1
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 17 September 2018
DRILLING COMPANY: G.E.T METHOD: Solid Stem Auger
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726371.273E 4871578.880N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p, w_l) / "N" Value (blows / 0.3 m) / RQD / CONE (△ Field, □ Lab) 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE							
		0.2		**TOPSOIL** Brown Sandy Topsoil with Organics, Moist, Loose				4			
1				**SAND** Brown Silty Sand, trace Gravel, Moist, Compact	SS-1	100		6 7 9	13	×	
2	0.5										
3								4 5 5			
4	1.0				SS-2	20		3	10	×	
5	1.5	1.5		**SILT** Brown Silt with Sand, Trace Clay, Moist to Wet, Loose				1 1 2			
6					SS-3	10		2	3	×	
7	2.0										
8		2.4						0 0 1			
9	2.5	2.7		**SAND** Grey Sand, trace Silt, Wet, Very Loose	SS-4	30		1	1	×	2.4m: Depth of First Groundwater Encounter
10	3.0	2.9		**SILT** Grey Silt with Clay, Wet, Very Loose Compact				6 7 8			
11					SS-5	75		9	18	×	
12	3.5	3.7		END OF BOREHOLE							
13	4.0										
14											
15	4.5										
16											
17	5.0										

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: MW-2
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 17 September 2018
DRILLING COMPANY: G.E.T METHOD: Solid Stem Auger
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 72639.316E 4871570.917N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N
		0.0		GROUND SURFACE					
		0.1		**TOPSOIL** Brown Sandy Topsoil with Organics, Moist, Loose				1	
1				**SAND** Brown Sand, trace Gravel & Silt, Moist, Very Loose	SS-1	25		1	
	0.5							2	2
2									
								4	
3		0.9						5	
	1.0			Light Bron Sand, trace Si, Moist, Compact	SS-2	75		5	
4								7	10
5	1.5	1.5		Trace Clay, Wet				10	
								8	
								8	
6					SS-3	60		5	16
	2.0								
7		2.1		**SILT** Brown Silt with Clay, Moist, Compact					
								4	
8								4	
	2.5							6	
9					SS-4	100		7	10
10	3.0	3.0		**CLAY** Brown Clay with Silt, Moist, Stiff				5	
								5	
								6	
11					SS-5	75		8	11
	3.5								
12		3.7		END OF BOREHOLE					
13	4.0								
14									
15	4.5								
16									
	5.0								
17									

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
w_p w_l Atterberg limits (%)
× "N" Value (blows / 0.3 m) ◆ RQD ◎ CONE

10 20 30 40 50 60 70 80 90

COMMENTS

0.71 m
m

2.1m: Depth of First Groundwater Encounter

WL - 2.9 m
9/17/2018

BOREHOLE LOG GEOTECH GO30232-06, 18-09-17, STRAT LOGS, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

GHD

BOREHOLE No.: MW-3

ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises

PROJECT: 431 Ontario Street, Cobourg, Ontario

LOGGED BY: SK DATE: 17 September 2018

DRILLING COMPANY: G.E.T METHOD: Solid Stem Auger

NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726412.492E 4871566.495N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N
0	0.0	0.0		GROUND SURFACE					
		0.2		**TOPSOIL** Brown Sandy Topsoil with Organics, Moist, Loose				3 4 4 7	
1				**SAND** Brown Sand, trace Gravel & Silt, Moist, Compact	SS-1	75			11
	0.5	0.6		Light Brown, Loose					
2									
3	1.0				SS-2	90		3 4 4 6	8
4									
5	1.5	1.5		Brown Sand, trace Silt, Wet, Very Loose				2 1 1 0	
6					SS-3	75			2
	2.0								
7		2.1		**CLAY** Grey Silty Clay, Moist, Stif				3 5 5 6	
8	2.5				SS-4	90			10
9									
10	3.0							4 5 6 6	
11					SS-5	75			11
	3.5								
12		3.7		END OF BOREHOLE					
13	4.0								
14									
15	4.5								
16									
	5.0								
17									

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
W_p W_l Atterberg limits (%)
× "N" Value (blows / 0.3 m) ◆ RQD ◎ CONE

10 20 30 40 50 60 70 80 90

COMMENTS

0.75 m
m

1.8m: Depth of First Groundwater Encounter

WL - 2.9 m 9/17/2018

BOREHOLE LOG GEOTECH GO30232-06, 18-09-17, STRAT LOGS, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: MW-4
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 17 September 2018
DRILLING COMPANY: G.E.T METHOD: Solid Stem Auger
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

UTM: 17T 726384.577E 4871585.937N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N
		0.0		GROUND SURFACE					
		0.2		**TOPSOIL** Brown Sandy Topsoil with Organics, Moist, Loose				2 4 4	
1				**SAND** Light Brown Sand, trace Gravel & Silt, Moist, Loose	SS-1	75		4	8
	0.5	0.5		Dark Brown Silty Sand, Moist, Loose					
2		0.8		Light Brown Sand, trace Gravel & Silt, Moist, Compact				6 10 10	
3	1.0				SS-2	75		9	20
4									
5	1.5	1.5		Brown Sand with Gravel, Moist to Wet, Compact				5 8 8	
		1.7		**SILT** Brown Silt with Sand, Wet, Compact	SS-3	75		9	16
6	2.0								
7		2.3		**CLAY** Brown Clay with Silt, Moist to Wet, Firm				3 4 3	
8	2.5				SS-4	30		3	7
9									
10	3.0							2 3 3	
11					SS-5	75		4	6
	3.5								
12		3.7		END OF BOREHOLE					
13	4.0								
14									
15	4.5								
16									
	5.0								
17									

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
W_p W_l Atterberg limits (%)
× "N" Value (blows / 0.3 m) ◆ RQD ◎ CONE

10 20 30 40 50 60 70 80 90

COMMENTS

0.75 m
m

1.7m: Depth of First Groundwater Encounter

WL - 2.7 m 9/17/2018

BOREHOLE LOG GEOTECH GO30232-06, 18-09-17, STRAT LOGS, SK.GPJ GEOLOGIC.GDT 18/9/18

REFERENCE No.: GO30232-06 ENCLOSURE No.:

BOREHOLE No.: MW-5
ELEVATION:

BOREHOLE REPORT

Page: 1 of 1

CLIENT: Leblanc Enterprises
PROJECT: 431 Ontario Street, Cobourg, Ontario
LOGGED BY: SK DATE: 17 September 2018
DRILLING COMPANY: G.E.T METHOD: Solid Stem Auger
NOTES:

LEGEND

- SS - SPLIT SPOON
- AS - AUGER SAMPLE
- ST - SHELBY TUBE
- CS - CORE SAMPLE
- ▼ - WATER LEVEL

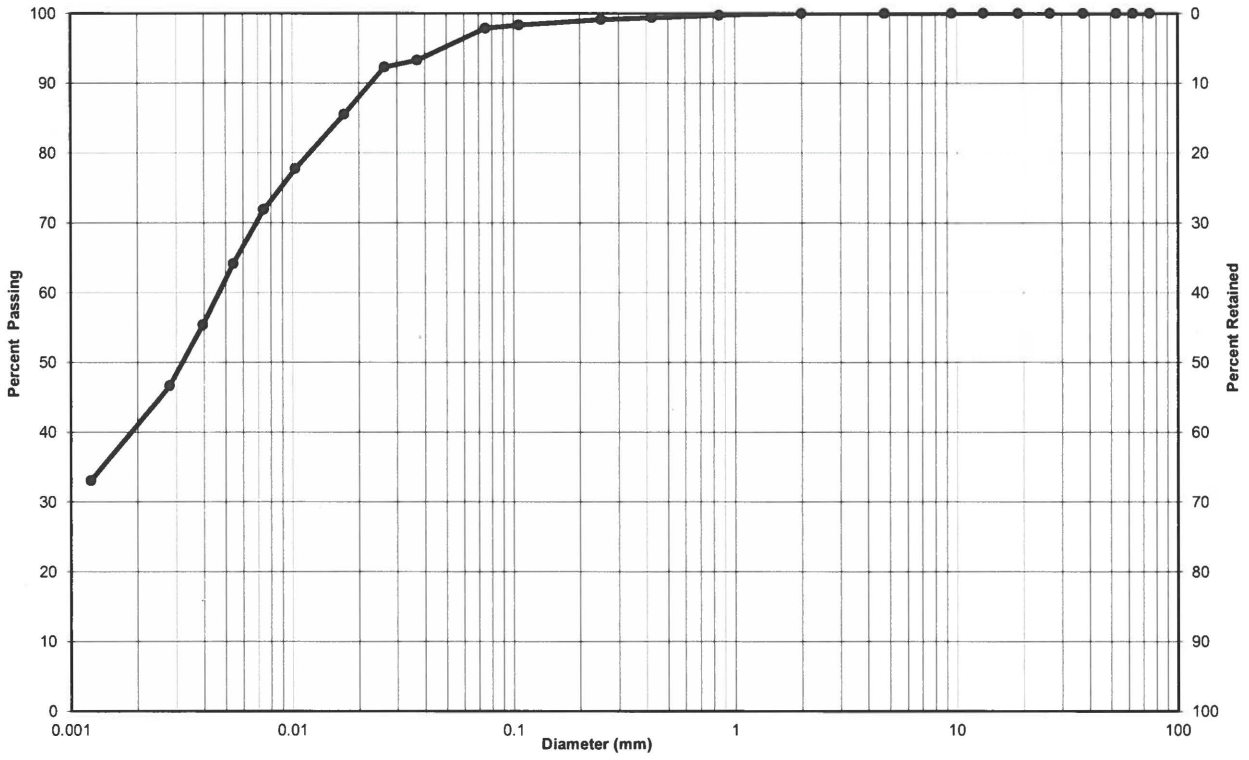
UTM: 17T 726405.341E 4871578.838N

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Recovery %	Moisture Content %	Blows per 6 in. / 15 cm	Penetration Index N	Shear test (Cu) △ Field, Sensitivity (S) □ Lab, ○ Water content (%), W_p W_l Atterberg limits (%), × "N" Value (blows / 0.3 m), ◆ RQD, ◎ CONE	COMMENTS
		0.0		GROUND SURFACE						10 20 30 40 50 60 70 80 90	
		0.1		**TOPSOIL** Brown Sandy Topsoil with Organics, Moist, Loose				15			
1				**SAND** Grey Sand with Gravel, Moist, Compact	SS-1	90		16 10 5	26	×	
	0.5										
2		0.6									
		0.7		Black Silty Sand, Moist, Compact				5			
3				Brown Sand with Silt, Moist, Compact				4 6			
	1.0	1.1		Grey	SS-2	100		11	10	×	
4											
5	1.5	1.5		**SILT** Grey Sandy Silt, Moist, Loose				6			
								3 4			
6					SS-3	100		9	7	×	1.8m: Depth of First Groundwater Encounter
	2.0	2.0		Grey Clayey Silt, Moist, Loose							
7											
		2.3		Compact				3			
8								3 8			
	2.5				SS-4	100		11	11	×	
9											
10	3.0							3			
								5			
11					SS-5	100		7 7	12	×	
	3.5										
12											
13	4.0										
14											
	4.5										
15		4.6		Dense				1			
								8			
16								23			
					SS-6	100		25	31	×	
	5.0										
17		5.2		END OF BOREHOLE							

BOREHOLE LOG GEOTECH GO30232-06, 18-09-17, STRAT LOGS, SK.GPJ GEOLOGIC.GDT 18/9/18

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	LeBlanc Enterprises	**Lab no.:**	SS-18-83
Project/Site:	431 Ontario Street, Cobourg	**Project no.:**	G030232-06
Borehole no.:	MW-5	Sample no.:	SS-5
Depth:	10-12'	Enclosure:	



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

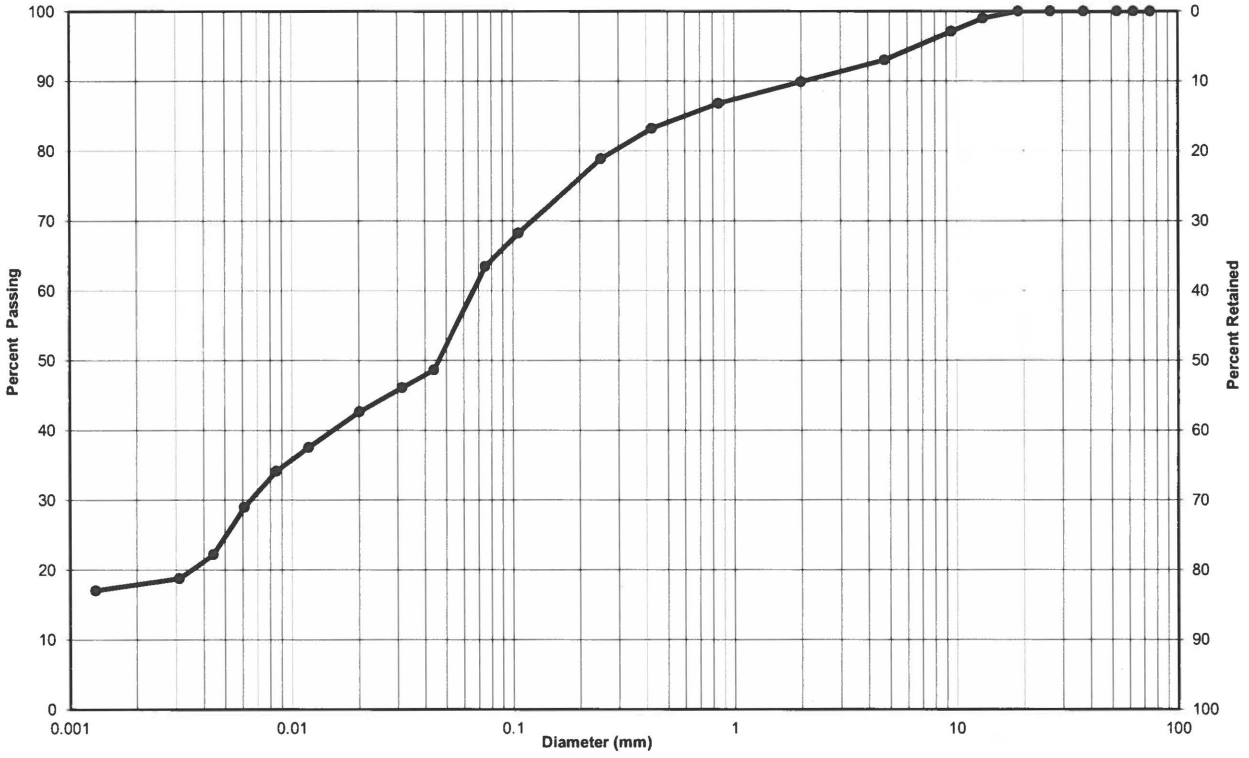
Soil Description	Gravel	Sand	Clay & Silt
	0	2	98

Remarks:

Performed by:	J. Sullivan	**Date:**	October 11, 2018
Verified by:		**Date:**	October 11, 2018

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	LeBlanc Enterprises	**Lab no.:**	SS-18-83
Project/Site:	431 Ontario Street, Cobourg	**Project no.:**	G030232-06
Borehole no.:	MW-6	Sample no.:	SS-6
Depth:	15-17'	Enclosure:	



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

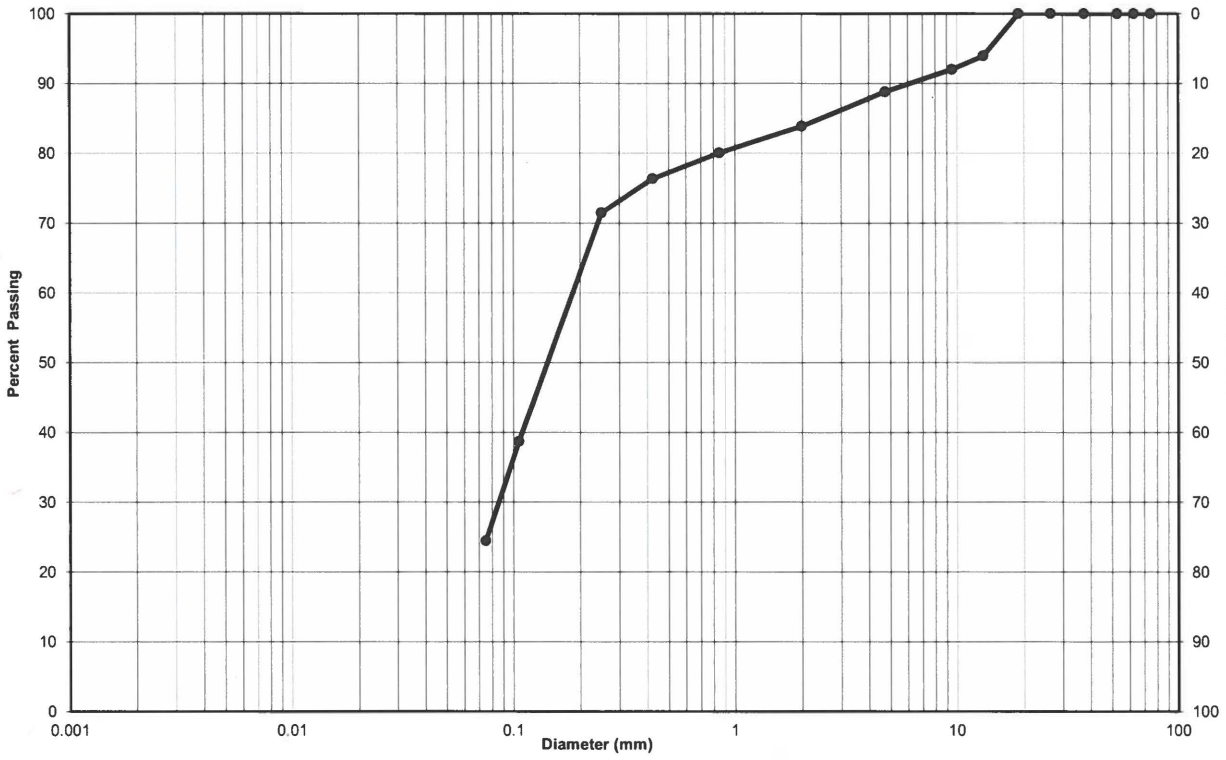
Soil Description	Gravel	Sand	Clay & Silt
	7	30	63

Remarks:

Performed by:	J. Sullivan	**Date:**	October 11, 2018
Verified by:		**Date:**	October 11, 2018

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	LeBlanc Enterprises	**Lab no.:**	SS-18-83
Project/Site:	431 Ontario Street, Cobourg	**Project no.:**	G030232-06
Borehole no.:	MW-2	Sample no.:	SS-2
Depth:	2.5-4.5'	Enclosure:	



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

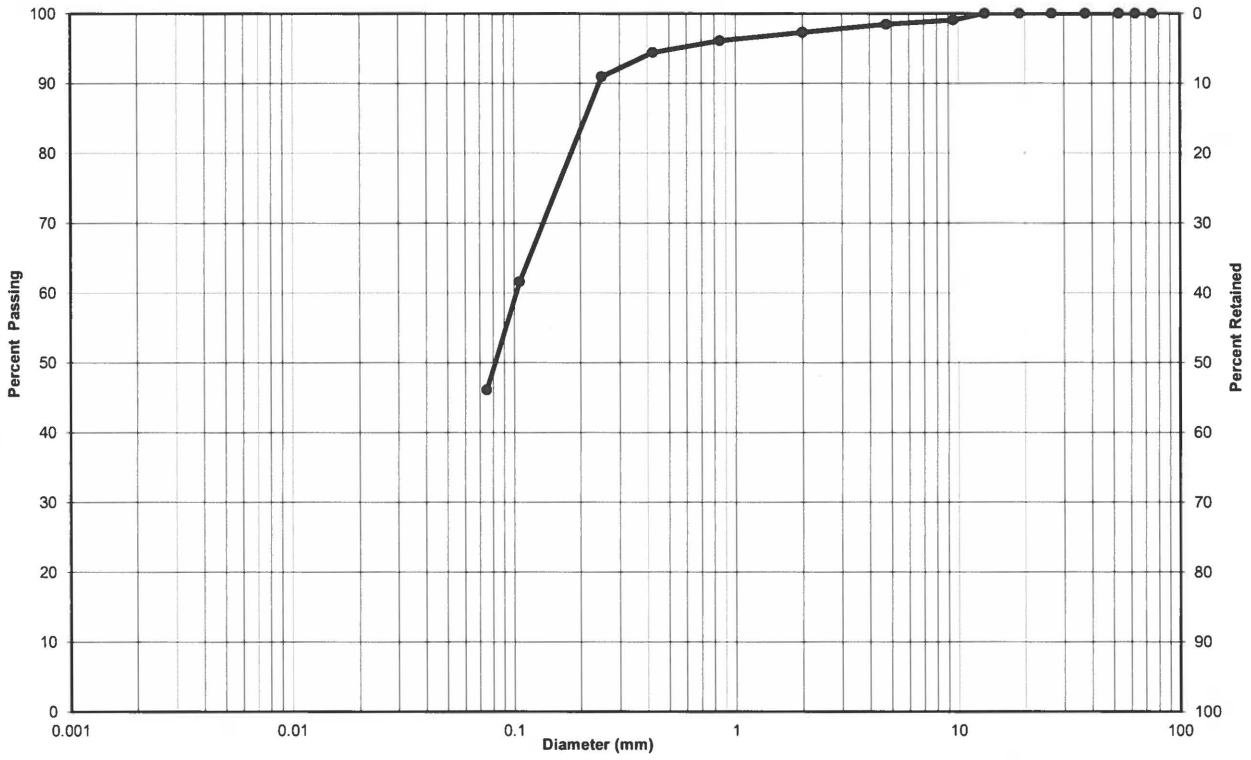
Soil Description	Gravel	Sand	Clay & Silt
	11	65	24

Remarks:

Performed by:	J. Sullivan	**Date:**	October 11, 2018
Verified by:		**Date:**	October 11, 2018

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	LeBlanc Enterprises	**Lab no.:**	SS-18-83
Project/Site:	431 Ontario Street, Cobourg	**Project no.:**	G030232-06
Borehole no.:	MW-4	Sample no.:	SS-3
Depth:	5-7'	Enclosure:	



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

Soil Description	Gravel	Sand	Clay & Silt
	2	52	46

Remarks:

Performed by:	J. Sullivan	**Date:**	October 11, 2018
Verified by:		**Date:**	October 11, 2018