SERVICING & STORMWATER MANAGEMENT IMPLEMENTATION REPORT

LORA BAY HEIGHTS RESIDENTIAL DEVELOPMENT

RICHPARK HOMES (THORNBURY) LTD. TOWN OF THE BLUE MOUNTAINS

PREPARED BY:

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OCTOBER 2018

CFCA FILE NO. 1443-4724

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 0	June 2018	Issued for First Submission
Rev. 1	October 2018	Issued for Second Submission

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Note: All drawings have been prepared at half scale

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1.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) has been retained by Richpark Homes (Thornbury) Ltd. to provide detailed engineering design in support of the Site Plan Application for the Lora Bay Heights Condominium development. The approximately 1.30 ha property is located at 188 Peel Street, south-east of the intersection of Peel Street North and High Bluff Lane, in the Town of The Blue Mountains (herein referred to as the Town). The property is legally described as Town Plot Lot 47 to 49; Arthur E/S, Town of The Blue Mountains, County of Grey. The concept plan consists of twenty-two (22) semi-detached and two (2) detached units with a private roadway. Refer to Figure 1 for the Site Location Plan.

The site is zoned residential through the Town's Zoning By-Law Amendment 2014-78, with a holding provision on the property that will be removed once the watercourse is relocated to the satisfaction of the Department of Fisheries and Oceans (DFO), the Grey Sauble Conservation Authority (GSCA), and the Town. A separate design brief for the channel realignment has been prepared and submitted to the previously mentioned Agencies.

2.0 SITE DESCRIPTION AND BACKGROUND

The Subject Site currently contains a single detached dwelling and detached garage. Historically the lands were used as an apple orchard, and an unnamed tributary of the Little Beaver Creek traverses the site. Driveway access to the existing structure is off of Peel Street. The existing topography of the site consists of rolling terrain, with a large portion of the site draining south into the tributary traversing the southern limits of the site. A smaller portion in the north east drains north into the ditch along Peel Street to the ultimate receiver of Georgian Bay, which is also the ultimate receiver for the Little Beaver Creek.

On-site soils are classified as sand of the Brighton series. This soil is generally considered as Hydrologic Soil Group A (Design Chart 1.08, MTO Drainage Design Manual, 1997).

In preparation of this report, previously completed reports were reviewed for information regarding functional servicing, stormwater management, and channel realignment details. The following is a list of the referenced reports:

- Hydrology and Hydraulics Brief (Crozier, April 2018)
- Technical Design Brief for Natural Channel Design (Geomorphix, April 2018)
- Preliminary Servicing Report (Genivar, March 2012)
- Drainage Report (Stantec, April 2009)
- Channel Realignment Report (AECOM, 2008)
- Report on Servicing Alternatives (Henderson Paddon & Associates Limited, April 2008)
- Surface Water Management Report (Gamsby and Mannerow Limited, May 2004)

3.0 ROAD STANDARD

There will be one vehicular access to the site from Peel Street. The access will be aligned with the existing intersection of Peel Street and High Bluff Lane. It is acknowledged that the Town has plans to reconstruct Peel Street to the north of the site entrance. However, no alterations are expected to affect the proposed site entrance. To verify that emergency vehicles can maneuver the Site and access all proposed buildings, a turning movement analysis for a typical fire truck has been completed. Refer to DWG 110 for fire truck turning movements.

Internal to the Site, there will be a private roadway to facilitate traffic flow and access to the residential units. The roadway will be owned and maintained by the condominium corporation. The internal 6.0 m wide roadway will be crowned with 2% cross fall from the centerline for Street 'A' and superelevated with a 2% slope for Street 'B'; both streets will be constructed with mountable concrete curb and gutter. The road structure will be constructed as per the Town of The Blue Mountains Standard and recommendations of the geotechnical consultant.

4.0 SANITARY SEWAGE SYSTEM

4.1 Existing Sanitary Sewer Infrastructure

Based on the Lora Bay & Thornbury Water and Sewer Servicing Phase 1(a) As-Constructed drawings prepared by AWS Engineers & Planners Corp. for the Town of The Blue Mountains (August 2005), there is an existing 450 mm diameter sanitary sewer located on Peel Street at the location of the proposed site entrance. This sewer network conveys the sewage to the Thornbury Waste Water Treatment Plant located at the north end of Peel Street.

4.2 Proposed Servicing Strategy

The proposed sanitary sewer system will consist of a 50 mm diameter (2 inch) HDPE low-pressure force main servicing the four (4) units upstream of a 200 mm diameter gravity sewer, which services the remaining twenty (20) units. The four units will be equipped with Environment One Grinder Pumps.

Sewage flows through the low-pressure force main were determined using the LPS Design Manual, prepared by Environment One, and is based on a daily maximum of three pump cores operating simultaneously with a flow of 11 gpm per pump at an assumed operating pressure of 40 psig. Sewage flow calculations show that the projected sewage flow for the entire site will be 3.30 L/s. Sewage demands for the site were estimated using the following criteria as specified in the Town Standards:

- Average Flow Rate – 450 L/cap/day
- Residential Peak Factor (Harmon Formula) – 4.30
- Population Density – 2.3 Persons Per Unit

Based on these values it is estimated that sanitary demands for the site are as follows:

- Average Daily Residential Flow – 0.24 L/s
- Infiltration/ Inflow Residential– 0.70 L/s
- Total Peak Daily Flow – 0.91 L/s
- Low Pressure Forcemain Flow – 2.08 L/s
- Design Sewage Flows – 2.99 L/s

Refer to Appendix A for flow calculations.

This flow can be accommodated in a 200 mm diameter sewer, and the sewer alignment will follow the internal roadway. The sanitary sewer is slightly offset from the centerline to ensure a minimum of 2.5 m horizontal separation is maintained from the watermain. The proposed sanitary sewer network will connect to the existing maintenance hole located on Peel Street at the intersection with High Bluff and the proposed site entrance. The sanitary sewer internal to the site will be privately owned by the condominium corporation. Refer to the General Servicing Plan (DWG No. 101) and the typical roadway section shown on the Detail Sheet (Drawing No. 109).

5.0 WATER SUPPLY

5.1 Existing Potable Water Supply Infrastructure

Potable water for the development will be supplied by the Town of The Blue Mountains municipal water distribution system. The existing potable water distribution network fronting the Site is a 300 mm diameter watermain within the Peel Street Right-of-Way.

5.2 Proposed Servicing Strategy

The site will be serviced via connection to the 300 mm diameter watermain located on Peel Street. The internal water distribution network will be composed of a 150 mm diameter watermain. Fire hydrants are proposed to be installed within the site, providing fire protection to all the proposed structures and to allow flushing of the mains.

Domestic water demands for the site were estimated using the following criteria as specified in the Town Standards:

- Average Flow Rate – 450 L/cap/day
- Peak Factors: Peak Day/Peak Hour – 2.0/4.5
- Population Density – 2.3 Persons Per Unit

Based on these values it is estimated that water demands for the site are as follows:

- Average Day – 0.29 L/s
- Max Day – 0.58 L/s
- Peak Hour – 1.31 L/s

Preliminary fire flows required for the development were determined to be 100 L/s per the Fire Underwriter's Survey. The total design flow for the internal water distribution system is 101.31 L/s. Refer to Appendix B for potable water servicing demand and fire flow demand calculations.

Based on the current practices in the Town, it is assumed that the municipality will assume ownership of the watermain distribution network located in the privately held portions of the development. This typically includes all mains, hydrants valves and services up to and including curb stops. An easement in the name of the Municipality along the alignment of the watermain through the privately held portions of the development will be provided.

6.0 UTILITIES

The Subject Site is proposed to be serviced with natural gas, telephone, cable TV and hydro, and these utilities are available in the area and on Peel Street. Due to the proposed configuration of the development, our office contacted the gas and hydro providers in the area to confirm their support of the proposed servicing strategy.

EPCOR confirmed their support of common meter walls located throughout the site. Service corridors for the electrical and communication systems will be within the boulevards. Union Gas was contacted to verify that they would support the gas lines being located in the rear yard. Both EPCOR and Union Gas would accept common service trenches if deemed necessary. Gas meters will be located on the rear of the units. A blanket easement will be provided to all utility providers.

7.0 PROPOSED STORMWATER MANAGEMENT AND SITE DRAINAGE

7.1 Stormwater Management Criteria

The management of stormwater and site drainage for the proposed development must comply with the policies and standards of the various agencies including the Town, GSCA, and Ministry of Environment, Conservation and Parks (MECP).

The stormwater management criteria for the Subject Development include:

- Water Quantity Control
  - Not Required due to "Beat the Peak" scenario.
- Water Quality Control
  - "Enhanced Protection" given Georgian Bay as the ultimate receiver.
- Development Standard
  - Urban cross section complete with curb and gutter;
  - Lot grading at 2% optimum grade; and,
  - Minor and major drainage system to convey runoff from frequent and infrequent rainfall events, respectively.

7.2 Existing Drainage Conditions

In order to accurately determine onsite drainage flow routes and pre-development drainage conditions, Crozier undertook on-site reconnaissance and review of topographic survey of the subject lands. Review of this survey illustrates that the site is divided by a ridge. A portion of the site (denoted as catchment 101) drains to the north. Drainage from this catchment is conveyed as sheet flow until it reaches the Peel Street ditch. The catchment to the south (102) conveys sheet flow until it reaches the unnamed tributary traversing the site. The third catchment (103) north of Georgian trail also conveys drainage to the unnamed tributary. Refer to Figure 2 for pre-development catchment areas. The tributary conveys the flow to the Little Beaver Creek which discharges directly to Georgian Bay. Runoff from all three pre-development catchments discharge to Georgian Bay, which is considered the ultimate receiver. The hydrologic parameters for these catchments are summarized in Table 1 below.

Table 1: Pre-development Hydrologic Parameters

Catchment ID	101	102	103
Scenario	Pre	Pre	Pre
Drainage Area (ha)	0.24	1.00	0.59
Total Imperviousness (%)	2.1	1.2	0.0
Directly Connected Imperviousness (%)	--	---	---
Curve Number (CN)[1]	50.0	49.6	49.0
Time to Peak (hrs)	0.07	0.15	0.17

1. Curve number presented as utilized in SWMHYMO modeling. CN reflects composite curve number for rural catchments modeled using NASHYD routine and curve number for pervious areas only for urban catchments using STANDHYD routine.

External drainage enters the site from the south, via twin 900 mm diameter CSP culverts located beneath the Georgian Trail. A detailed description of the external drainage configuration is provided in the Hydrology & Hydraulics Brief prepared by C.F. Crozier & Associates (April 2018). This report identified several external catchments located to the south and southwest of Highway 26, as well as drainage from the Trailwoods development. Spill flows between the external catchments were identified. Hydraulic modeling was performed to determine the flow which can be conveyed through the twin culverts located under the Georgian Trail, directly upstream of the Subject Site. This analysis took a conservative approach of assuming all peak flows occurred at the same time (i.e. the time to peak was the same for all catchments). The hydrologic parameters for the external catchments are summarized in Table 2 below.

Table 2: Pre-development Hydrologic Parameters for External Catchments

Catchment ID[2]	27	28	29	HB[3]
Scenario	Pre	Pre	Pre	Pre
Drainage Area (ha)	232.53	6.14	53.83	9.34
Total Imperviousness (%)	--	--	--	44.3
Directly Connected Imperviousness (%)	--	---	--	14.3
Curve Number (CN)[1]	71.0	72.0	71.0	75.0
Time to Peak (hrs)	0.71	0.50	1.16	0.5

1. Curve number presented as utilized in SWMHYMO modeling. CN reflects composite curve number for rural catchments modeled using NASHYD routine and curve number for pervious areas only for urban catchments using STANDHYD routine.
2. Catchment ID per culvert IDs in Drainage Report prepared by Stantec (April 2009).
3. Drainage from High Bluff Lane from Trailwoods development. Refer to Surface Water Management Report prepared by Gamsby and Mannerow Limited (May 2004).

Refer to Appendix C for pre-development Hydrologic Modeling.

7.3 Proposed Drainage Conditions

7.3.1 Site Grading and Drainage

The proposed site grading has been designed to mimic the existing topographic features while meeting Town Standards for road and yard grades. Walk-out and walk-up units have been incorporated to attempt to respect existing topography; however, retaining walls up to approximately 2.5 m in height are required along the northwest and northeast property lines. The site is composed of a single catchment area under post-development conditions. The catchment (200) includes all post-development elements and conveys runoff overland through a combination of sheet flow, gutter flow and open channel flow. A proposed 0.3 m deep swale has been provided in the rear of the units to the North and East of the site and discharges to the realigned channel. Refer to Appendix D for detailed calculations demonstrating that the proposed swale is sized to safely convey flows from the 100-year storm. Refer to Figure 3 for the post-development catchment area.

7.3.2 Stormwater Quantity Control

Based on our review of the previous servicing and stormwater management reports listed above and discussions with Town staff during the pre-consultation meeting, it was determined that quantity control was likely not required. To confirm this assumption, Crozier investigated a "Beat the Peak" scenario. The stormwater management hydrologic computer program SWMHYMO (Sabourin, 1998) was used to model the pre and post development site conditions and determine peak flow rates discharging into the Tributary and the time at which these flows occur. The principal hydrologic parameters used in the modeling analysis are summarized in Table 3 below and are based on supporting computations found in Appendix C. The site was modelled as one catchment under the post-development scenario since all flow is directed towards the tributary traversing the site. Routing of the external catchments was not used to simplify the modelling and to be more conservative, as routing would further delay the time to peak of the external catchments. Flow diversions, as described in the previous report prepared by Crozier, were also omitted from this analysis as these flows would have a longer travel time.

The CALIB NASHYD command was used in the model to simulate the pre-development hydrographs. This hydrograph is used to simulate runoff from rural/undeveloped areas. The CALIB STANDHYD command was applied to the post-development conditions of the subject lands. This hydrograph is used to simulate runoff from urban areas.

Hydrologic models were prepared for design storm events including the 2 year, 5 year, 25 year, 100 year and Regional storms as per the Town of The Blue Mountains Engineering Standards (April 2009). The hydrologic modeling output is provided in Appendix C.

Table 3: Post-development Hydrologic Parameters

Catchment ID	200
Scenario	Post
Drainage Area (ha)	1.83
Total Imperviousness (%)	26.2
Directly Connected Imperviousness (%)	13.1
Curve Number (CN)[1]	49.0

1. Curve number presented as utilized in SWMHYMO modeling. CN reflects composite curve number for rural catchments modeled using NASHYD routine and curve number for pervious areas only for urban catchments using STANDHYD routine.

Modeling Results

Based on the modeling for the whole watershed, the pre-development and post-development (uncontrolled) peak flow rates generated are summarized in Table 4. It is evident that left unattenuated, post-development peak flows from the Subject Site would increase. However, it is noted that the peak flows in the tributary would essentially remain unchanged. This is a result of the different time to peaks of the proposed development and the upstream drainage network. Based on this analysis, it was determined that attenuation of peak flows would not be required for the Site.

Rainfall was simulated using the 24-hour SCS Type II, 4-hour Chicago, and Regional (Timmins) rainfall distributions. Rainfall depths and intensities were based on the Town Standards. Refer to Appendix C for the Hydrologic modeling parameters and SWMHYMO modeling files.

Table 4: Overall Pre-Development and Post-Development Conditions Peak Flows

	Return Period	Total Pre-Dev Peak Flow (m^3/s)	Pre-Dev Time to Peak (hrs)	Total Post-Dev Peak Flow (m^3/s)	Post-Dev Time to Peak (hrs)
4 Hour Chicago	2 Year	2.60	2.37	2.60	2.37
	5 Year	4.46	2.33	4.46	2.33
	25 Year	7.85	2.28	7.86	2.28
	100 Year	11.10	2.27	11.10	2.27
24 Hour SCS	2 Year	4.91	12.90	4.91	12.90
	5 Year	8.20	12.88	8.20	12.88
	25 Year	13.96	12.87	13.96	12.87
	100 Year	19.17	12.87	19.17	12.87
Regional		19.37	7.43	19.38	7.43

Peak flows for pre and post-development scenarios for the Subject Site are summarized in Table 5 below. Although the peak flows for the Site are shown to increase, the site specific peak flows were determined to be well below the 2.52 m^3/s used to design the channel realignment. The peak flows for the entire watershed and the site occur between 0.41 hours (Regional Event) to 1.04 hours (2-Year Event) apart.

Table 5: Site Specific Pre-Development and Post-Development Conditions Peak Flows

	Return Period	Pre-Dev Peak Flow (m^3/s)	Pre-Dev Time to Peak (hrs)	Post-Dev Peak Flow (m^3/s)	Post-Dev Time to Peak (hrs)
4 Hour Chicago	2 Year	0.02	1.53	0.07	1.33
	5 Year	0.03	1.53	0.10	1.35
	25 Year	0.07	1.52	0.17	1.35
	100 Year	0.10	2.27	0.23	1.35
24 Hour SCS	2 Year	0.04	12.25	0.09	12.20
	5 Year	0.07	12.25	0.14	12.20
	25 Year	0.13	12.25	0.24	12.20
	100 Year	0.19	12.25	0.33	12.20
Regional		0.11	7.0	0.13	7.00

7.3.3 Stormwater Quality Control for Site Runoff

Per the Town Standards, on-site stormwater quality control is required for the site. Water quality treatment is based on providing "enhanced level" treatment criteria per the Ministry of Environment (MOE) Stormwater Management Planning & Design Manual (2003).

A preliminary screening of the most practical stormwater quality measures to implement on-site was undertaken. The use of two oil/grit separators is the most practical quality control measure due to the nature of the expected runoff on the site. The oil/grit separators will be located at the downstream limits of each storm sewer system in order to ensure all stormwater from the impervious areas of the site is routed through the treatment unit prior to outletting into the proposed tributary. Additionally, all catch basins will be constructed with minimum 0.3 m sumps to further enhance sediment removal. Refer to Appendix E for the Storm Sewer Design Sheet.

To achieve an "enhanced" treatment level for an oil/grit separator, the units are required to provide an annual total suspended solids (TSS) removal of 80% or greater and treat 90% of the total annual runoff volume. Based on our evaluation of Stormceptor units, which is a highly recognized oil/grit separator manufactured by Forterra, the Stormceptor STC-300 will provide the necessary water quality treatment for the site. Refer to Table 6 included below for a detailed breakdown of proposed oil/grit separator performance. Refer to Appendix F for the detailed sizing calculations of the proposed Stormceptor water quality treatment unit provided by Forterra.

Table 6: Stormceptor Oil/Grit Sizing Criteria

Catchment	Contributing Drainage Area (ha)*	Stormceptor Oil/Grit Separator Unit	Total Suspended Solids Removal (%)	Total Annual Runoff Volume Treated (%)
East Internal Sewer	0.17	STC-300	84	98
West Internal Sewer	0.11	STC-300	87	99

The oil/grit separators will be owned by the condominium corporation. Once the oil/grit separators are installed and operating accordingly to manufacturer's specifications, the Owner will be required to inspect and service the unit on a regular basis to ensure long term efficiency. At a minimum, the unit should be inspected at least once every six months to measure the sediment depth and oil/floatable level. Once the sediment reaches a certain depth (as specified by the manufacturer) the unit shall be serviced by a vacuum truck company licensed to dispose of solid waste. If any large presence of oil / floatable materials is evident, the material should be removed and disposed. The Owner's Manual is provided in Appendix G.

8.0 TRIBUTARY OF THE LITTLE BEAVER CREEK REALIGNMENT

Per the Town's Zoning By-Law, a holding provision has been placed on the site which is subject to the realignment of the tributary. A submission has been made to the Department of Fisheries and Oceans (DFO) for the realignment of the Tributary, the documents prepared were circulated to the Town and Conservation Authority. A detailed Hydrologic and hydraulic analysis was prepared by Crozier to determine the sizing required to safely convey the Regional Storm flows. Geo Morphix was retained by the Owner to prepare detailed geomorphologic design of the realignment and provide input regarding low flow channel sizing. Refer to Appendix H for the Letter of Advice received from the DFO.

The analysis completed in support of the channel realignment discovered spill flows reaching the twin culverts upstream of the Subject Site and that the majority of the external flows would by-pass the Site within a separate tributary of the Little Beaver Creek. The channel corridor has been sized to safely convey a flow of 2.52 m^3/. An additional 0.3 m of freeboard has been included in the channel design. Refer to the Hydrologic & Hydraulic Brief prepared by Crozier (April 2018) for further detail.

9.0 EROSION AND SEDIMENT CONTROLS

Erosion and sediment controls will be implemented prior to the commencement of any site servicing works and maintained throughout construction until the site is stabilized or as directed by the Engineer, GSCA and/or Town. Controls are to be inspected regularly, after each significant rainfall, and maintained in proper working condition. The proposed erosion and sediment controls include flow check dams, silt fencing, Terrafix® Silt Sock, dust suppression, and mud mats. The need for additional controls will be based on the field conditions, at the discretion of the Engineer and implemented as necessary.

- Silt fencing

  Silt fence will be constructed in accordance with Heavy Duty Silt/Sediment Fence Detail (OPSD 219.130). It should be noted that additional silt fence may be added based on field decisions by the Engineer and Owner prior to, during and following the earth works.

- Flow Check Dams

  Temporary straw bale and rock check dams will be utilized on-site in order to prevent any silt mitigation off site during and after construction activities. These dams will promote settling of suspended solids, and will reduce flow velocities. Sediment accumulation will be monitored and removed as necessary. The temporary rock check dams will be constructed in accordance with Rock Check Dam Erosion Control Device (OPSD 219.210 & 219.211).

- Mud Mat

  A mud mat will be maintained at the site entrance until base asphalt is placed to limit mud tracking from the site onto Main Street West and the surrounding municipal roadway network. The Contractor shall ensure mud mat maintenance (cleaning / additional stone) is completed on an as needed basis to ensure proper operation.

- Dust Suppression

  The Contractor will be responsible for ensuring dust suppression is maintained by the use of water or calcium chloride, or other methods approved by the Engineer.

10.0 CONCLUSIONS & RECOMMENDATIONS

Based on the foregoing we conclude that the proposed Lora Bay Heights Development can be adequately serviced.

1. Access to the site will be provided by connection to Peel Street at the intersection with High Bluff Lane.

2. Existing sanitary sewer is fronting the site, and gravity sewer services can be provided to the majority of the units. The remaining four units will be serviced via grinder pumps and a low pressure forcemain.

3. Existing watermain fronts the site located within the Peel Street Right-of-Way. A 150 mm diameter watermain is proposed internal to the site with individual laterals provided to the units.

4. Existing utility plants are located in proximity to the site and utility providers have been contacted to discuss servicing strategies to effectively service the site.

5. Stormwater quality objectives will be met using two oil/grit separators to achieve 80% TSS removal to provide 'Enhanced Level Protection'.

6. Stormwater quantity control is not required due to the timing of peak flows from the larger external catchments.

7. The channel realignment has been designed to convey the Regional Flow of 2.52 m^3/s as determined in the Hydrology and Hydraulics Brief Prepared by Crozier (April 2018).

8. Erosion and sediment controls will be implemented prior to construction to minimize the disturbance of adjacent lands and watercourse caused by construction activities.

Therefore, we recommend approval of the Site Plan Application for the subject lands from the perspective of engineering servicing requirements.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Kevin Morris, P.Eng.
Partner

C.F. CROZIER & ASSOCIATES INC.

Mathew Lemieux, E.I.T

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APPENDIX A

Sanitary Sewer Design Sheet & LPSS Design Tables

CROZIER
CONSULTING ENGINEERS

PROJECT: Lora Bay Heights
PROJECT No.: 1443-4724
FILE: Sanitary Sewer Design

LORA BAY HEIGHTS

SANITARY SEWER DESIGN MODEL

DESIGN: JM
CHECK: ML
UPDATED: October 10, 2018
ISSUED FOR: Second Submission

N = 0.013
Population= 2.3 p.p.u.

Peak Factor (M) = 1+(14/4+(P/1000)^0.5)
Avg. Daily/Capita Flow = 450 L/cap.d
Q infiltration = 0.23 L/ha.s

Catchment Area	FROM MH	TO MH	Length (m)	Inc. Area (Ha)	Cum. Area (Ha)	Units	Inc. Pop	TOTAL trib pop	Peak Factor	Avg. Flow (l/s)	Max Flow (l/s)	Infilt. (l/s)	Total Infil. (l/s)	Combined (l/s)	Pipe Diam (mm)	Drop (m)	Upper Inv. El.	Lower Inv. El.	Slope (%)	Cap. (l/s)	Vel. (m/s)	Ground Upper	Ground Lower	Cover Upper	Cover Lower
	GP	MH7A	N/A	0.00	0.00		0.0	0.0	N/A	N/A	2.08	N/A	N/A	**2.08**	51	**LOW PRESSURE FORCE MAIN**				**--**	1.09	N/A	N/A	N/A	N/A
SAN-7	MH7A	MH6A	34.1	0.21	0.21	7	16.1	16.1	3.80	0.08	0.32	0.05	0.05	**2.45**	200	0.03	192.72	192.38	1.00%	**32.80**	1.04	195.66	196.37	2.74	3.79
SAN-6	MH6A	MH5A	23.9	0.14	0.35	8	18.4	34.5	3.80	0.18	0.68	0.08	0.13	**2.84**	200	0.05	192.33	192.21	0.50%	**23.19**	0.74	196.37	196.45	3.84	4.04
SAN-5	MH5A	MH4A	26.4	0.07	0.42	3	6.9	41.4	3.80	0.22	0.82	0.10	0.23	**3.00**	200	0.05	192.16	192.03	0.50%	**23.19**	0.74	196.45	196.24	4.09	4.01
SAN-4	MH4A	MH3A	14.1	0.04	0.46	2	4.6	46.0	3.80	0.24	0.91	0.11	0.33	**3.10**	200	0.05	191.98	191.91	0.50%	**23.19**	0.74	196.24	195.83	4.06	3.72
SAN-3	MH3A	MH2A	28.8	0.05	0.51	0	0.0	46.0	3.80	0.24	0.91	0.12	0.45	**3.11**	200	0.05	191.86	191.73	0.50%	**23.19**	0.74	195.83	194.87	3.77	2.94
SAN-2	MH2A	MH1A	18.2	0.02	0.53	0	0.0	46.0	3.80	0.24	0.91	0.12	0.57	**3.11**	200	0.08	191.68	191.57	0.60%	**25.41**	0.81	194.87	194.69	2.99	2.92
SAN-1	MH1A	EXMH1	14.5	0.01	0.54	0	0.0	46.0	3.80	0.24	0.91	0.12	0.69	**3.11**	200	0.05	191.49	191.42	0.50%	**23.19**	0.74	194.69	194.79	3.00	3.17

Note: The maximum flow for the grinder pumps connecting via a force main to MH7A was determined based on pumps with a flow of 11 gpm each, and 3 of the 4 total proposed units running simultaneously as per the E/ONE Low Pressure Sewer Systems Design Manual (2012). Detauiled design for E/ONE grinder pumps to be provided by the Supplier.

Table 3
MAXIMUM NUMBER OF GRINDER PUMP CORES OPERATING DAILY

Number of Grinder Pump Cores Connected	Maximum Daily Number of Grinder Pump Cores Operating Simultaneously
1	1
2–3	2
4–9	3
10–18	4
19–30	5
31–50	6
51–80	7
81–113	8
114–146	9
147–179	10
180–212	11
213–245	12
246–278	13
279–311	14
312–344	15
345–377	16
378–410	17
411–443	18
444–476	19
477–509	20
510–542	21
543–575	22
576–608	23
609–641	24
642–674	25
675–707	26
708–740	27
741–773	28
774–806	29
807–839	30
840–872	31
873–905	32
906–938	33
939–971	34
972–1,004	35

Figure 1

Grinder Pump Performance Characteristics

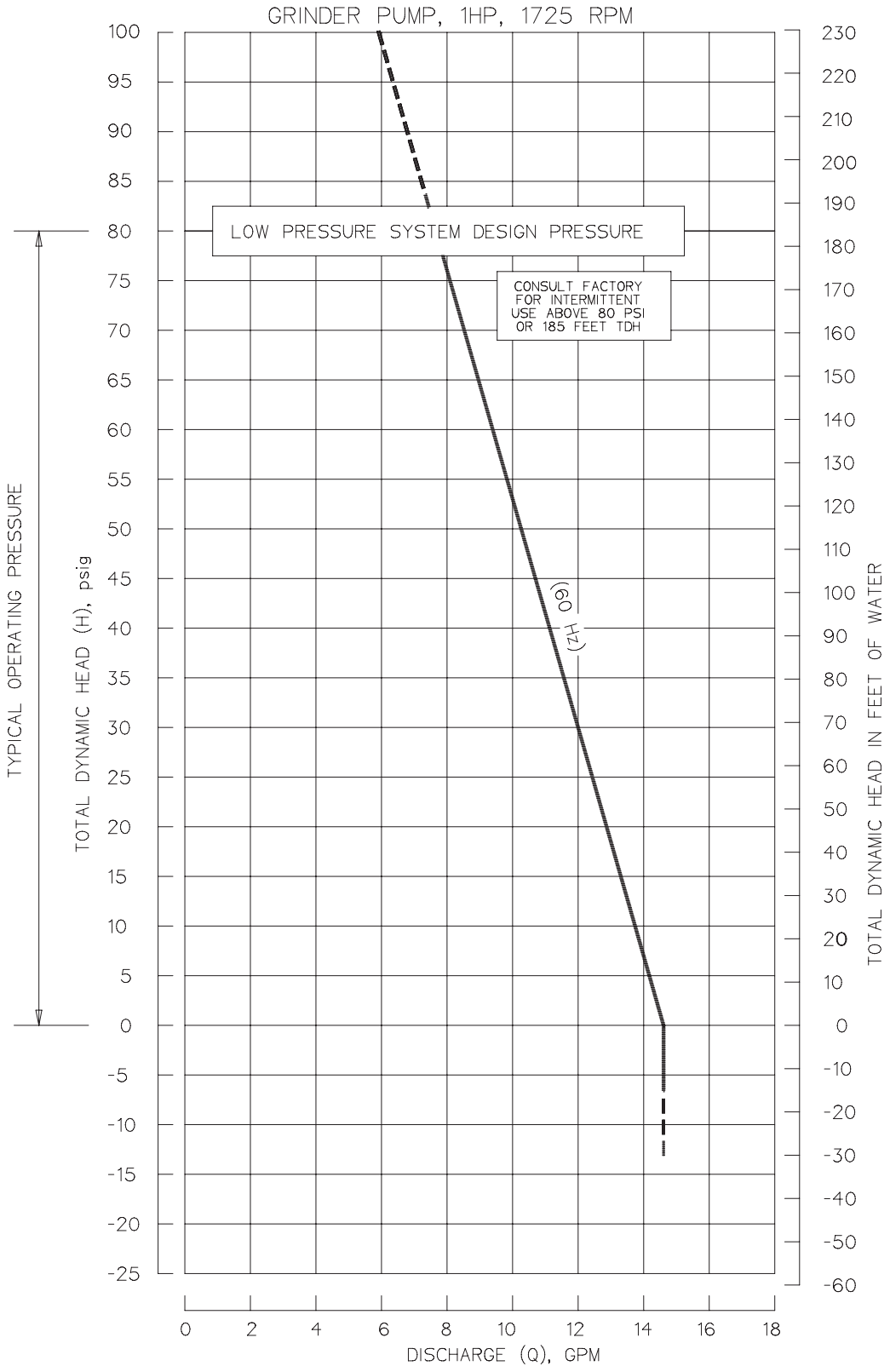

Table 7
SDR 11 HDPE PIPE

Flow Velocity and Friction Head Loss *vs* Pumps in Simultaneous Operation (C = 155)

	1 1/4 in.		1 1/2 in.		2 in.		3 in.		4 in.		5 in.		6 in.		8 in.		
N	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**V**	**H_F**	**N**
1	2.47	**1.84**	1.86	**0.92**													**1**
2	4.95	**6.63**	3.72	**3.32**	2.38	**1.12**											**2**
3	7.42	**14.04**	5.58	**7.03**	3.57	**2.37**	1.64	**0.36**									**3**
4			7.44	**11.98**	4.76	**4.04**	2.19	**0.61**									**4**
5					5.95	**6.11**	2.74	**0.92**									**5**
6					7.14	**8.56**	3.29	**1.30**	1.99	**0.38**							**6**
7							3.83	**1.72**	2.32	**0.51**							**7**
8							4.38	**2.21**	2.65	**0.65**							**8**
9							4.93	**2.75**	2.98	**0.81**	1.95	**0.29**					**9**
10							5.48	**3.34**	3.31	**0.98**	2.17	**0.35**					**10**
11							6.03	**3.98**	3.65	**1.17**	2.39	**0.42**					**11**
12									3.98	**1.38**	2.60	**0.49**					**12**
13									4.31	**1.60**	2.82	**0.57**	1.99	**0.24**			**13**
14									4.64	**1.83**	3.04	**0.65**	2.14	**0.28**			**14**
15									4.97	**2.08**	3.25	**0.74**	2.29	**0.32**			**15**
16									5.30	**2.35**	3.47	**0.84**	2.45	**0.36**			**16**
17									5.63	**2.63**	3.69	**0.94**	2.60	**0.40**			**17**
18									5.97	**2.92**	3.90	**1.04**	2.75	**0.44**			**18**
19									6.30	**3.23**	4.12	**1.15**	2.90	**0.49**			**19**
20											4.34	**1.27**	3.06	**0.54**			**20**
21											4.56	**1.39**	3.21	**0.59**			**21**
22											4.77	**1.51**	3.36	**0.64**	1.98	**0.18**	**22**
23											4.99	**1.64**	3.52	**0.70**	2.08	**0.19**	**23**
24											5.21	**1.77**	3.67	**0.76**	2.17	**0.21**	**24**
25											5.42	**1.91**	3.82	**0.82**	2.26	**0.23**	**25**
26											5.64	**2.06**	3.98	**0.88**	2.35	**0.24**	**26**
27											5.86	**2.21**	4.13	**0.94**	2.44	**0.26**	**27**
28											6.07	**2.36**	4.28	**1.01**	2.53	**0.28**	**28**
29													4.43	**1.08**	2.62	**0.30**	**29**
30													4.59	**1.15**	2.71	**0.32**	**30**
31													4.74	**1.22**	2.80	**0.34**	**31**
32													4.89	**1.29**	2.89	**0.36**	**32**
33													5.05	**1.37**	2.98	**0.38**	**33**
34													5.20	**1.44**	3.07	**0.40**	**34**
35													5.35	**1.52**	3.16	**0.42**	**35**
36													5.50	**1.60**	3.25	**0.44**	**36**
37													5.66	**1.69**	3.34	**0.47**	**37**
38													5.81	**1.77**	3.43	**0.49**	**38**
39													5.96	**1.86**	3.52	**0.52**	**39**
40													6.12	**1.95**	3.61	**0.54**	**40**
41															3.70	**0.57**	**41**
42															3.79	**0.59**	**42**
43															3.88	**0.62**	**43**
44															3.97	**0.65**	**44**
45															4.06	**0.67**	**45**
46															4.15	**0.70**	**46**
47															4.24	**0.73**	**47**
48															4.33	**0.76**	**48**
49															4.42	**0.79**	**49**
50															4.51	**0.82**	**50**

Head Loss Calculations
From Modified Hazen - Williams Formula

$$H_F = .2083 \left[\left(\frac{100}{C}\right)^{1.852} \times \frac{q^{1.852}}{d^{4.8655}} \right]$$

$$V = .3208 \frac{q}{A}$$

$A = \frac{d^2\pi}{4}$ = cross-sectional flow, sq. in.

C = 150

q = flow in gallons per minute

d = I.D. of pipe in inches =
[average O.D. - (2 x min. wall thickness]

N = Number of pumps operating at 11 gpm

V = Flow velocity in ft/sec

H_F = Friction head loss in ft/100 ft of pipe

APPENDIX B

Potable Water Demand Calculations & Fire Flow Calculations

CROZIER CONSULTING ENGINEERS

File: 1443-4724
Date: 2018.06.05
By: JM
Check By: KM

Lora Bay Heights Water Demand

Developed Site Area	1.30	ha
Number of Residential Units		
1) Single Residential	**2**	**Units**
2) Semi-Detached Residential	**22**	**Units**
Person Per Residential Unit		
1) Single Residential (per TOBM Engineering Standards, 2009)	2.3	persons/unit
2) Semi-Detached (per TOBM Engineering Standards, 2009)	2.3	persons/unit
Total Residential Population	56	Persons
Domestic Water Design Flows		
Residential (Per TOBM Engineering Standards, 2009)	450	L/C-day
Total Domestic Water Design Flows		
Average Residential Daily Flow	0.29	L/sec
Max Day Peak Factor (Per TOBM Engineering Standards, 2009)	2.00	
Max Day Demand Flow	**0.58**	L/sec
Peak Hour Factor (Per TOBM Engineering Standards, 2009)	4.50	
Peak Hour Flow	**1.31**	L/sec

Block 75
Fire Protection Volume Calculation
CFCA File: 1443-4724

5-Jun-18

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

1. An estimate of fire flow required for a given area may be determined by the formula:

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

where

F = the required fire flow in litres per minute

C = coefficient related to the type of construction
- = 1.5 for wood frame construction (structure essentially all combustible)
- = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- = 0.8 for non-combustible construction (unprotected metal structural components)
- = 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

Proposed Buildings		Ordinary Construction
2	number of floors	1.0 C
121	sq.m. floor area	242 sq.m. total floor area
100%	Floor 1	
100%	Floor 2	
0%	Floor 3	
0%	Floor 4	
242	sq.m. total floor area	

Therefore F= 3,000 L/min (rounded to nearest 1000 L/min)

Fire flow determined above shall not exceed:
- 30,000 L/min for wood frame construction
- 30,000 L/min for ordinary construction
- 25,000 L/min for non-combustible construction
- 25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Buring	25%
Combustible	No Charge		

Low fire Hazard occupancy for dwellings	-15% reduction

-450 L/min reduction

Therefore UPDATED F= 3,000 L/min (rounded to nearest 1000 L/min)

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

Sprinkler System Assume 0% reduction

0 L/min reduction

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	30.1 to 45 m	5%
10.1 to 20 m	15%		

Exposed buildings

Name	**Distance**		
Front	16.5	15%	450
Back	15	15%	450
Left	0	25%	750
Right	0.8	25%	750
			2,400 L/min Surcharge

Determine Required Fire Flow

No.1	3,000		
No. 2	-450	reduction	
No. 3	0	reduction	
No. 4	2,400	surcharge	
Required Flow:	**5,850 L/min**		
Rounded to nearest 1000l/min:	**6,000 L/min**	or	100.0 L/s
			1,585 USGPM

Determine Required Fire Storage Volume

Flow from above 6,000 L/min

Required duration 2.00 hours

Therefore: 720,000 Litres or
720 cu.m. is the required fire storage volume.

Required Duration of Fire Flow

Flow Required L/min	Duration (hours)
2,000 or less	1.0
3,000	1.25
4,000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32,000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

Fire Protection Water Supply Guideline
Part 3 of the Ontario Building Code (2006)

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
S_{TOT} = total of spatial coefficient values from property line exposures on all sides

K =	23.0	Group C building with combustible construction (Table 1)
V =	1331	242 sqm total floor area by 5.5m height
S_{TOT} =	2	S_{TOT} Need Not Exceed 2.0

Q = 61226 L

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2,700 L/min**

45 L/s

APPENDIX C

Hydrologic Parameters & SWMHYMO Modeling

CROZIER CONSULTING ENGINEERS

Project Name:	Lora Bay Heights	**D.A. NAME**	**101**
Project Number:	1443-4724	**D.A. AREA (ha)**	**0.24**
Date:	9/18/2018		
By:	NC		

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 101

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Brighton	BRs	A	100	0.24
				0
				0
				0
Total Area				0.24

Impervious Landuses Present:

		Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils		Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs		0	98	0	98	0.002	98	0.003	98	0	98	0.005	0.49
	0	0	98	0	98	0	98	0	98	0	98	0	0
	0	0	98	0	98	0	98	0	98	0	98	0	0
	0	0	98	0	98	0	98	0	98	0	98	0	0
Subtotal		0		0		0.002		0.003		0			

Pervious Landuses Present:

		Woodland		Meadow		Wetland		Lawn/Pasture		Cultivated		Subtotals	
Soils		Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs		0	32	0	38	0	50	0.235	49	0	62	0.24	11.52
	0	0	60	0	65	0	50	0	69	0	74	0.00	0.00
	0	0	46	0	51	0	50	0	59	0	68	0.00	0.00
	0	0	67	0	71	0	50	0	74	0	78	0.00	0.00
Subtotal		0		0		0		0.24		0			

	Composite Area Calculations	Total Pervious Area	0.235
		Total Impervious Area	0.005
		% Impervious	2%
		Composite Curve Number	50.0
		Total Area Check	0.24

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Brighton		0		0		0		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn/Pastur	5	0.235	1.18	0.15	0.24		0		0		0	0.035
Cultivated	7	0	0		0		0		0		0	0
Impervious	2	0.005	0.01	0.90	0.01		0		0		0	0.005
Composite		0.2	4.94	Composite Runoff Coefficient								0.17

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Sheet Flow	30	5.2	17.33%	2.3	0.96	0.01	0.01	0.01	0.02	0.01	0.11	0.07
Concentrat	0	0	0.00%	0	0.00	0.00	0.00	0.00				

Appropriate calculated time to peak:	0.07	Appropriate Method:	Airport

CROZIER CONSULTING ENGINEERS

Project Name:	Lora Bay Heights	**D.A. NAME**	**102**
Project Number:	1443-4724	**D.A. AREA (ha)**	**1.00**
Date:	9/18/2018		
By:	NC		

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 102

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Brighton	BRs	A	100	1
				0
				0
				0
Total Area				1.0

Impervious Landuses Present:

	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs	0	98	0	98	0	98	0.012	98	0	98	0.012	1.1466
0	0	98	0	98	0	98	0	98	0	98	0	0
0	0	98	0	98	0	98	0	98	0	98	0	0
0	0	98	0	98	0	98	0	98	0	98	0	0
Subtotal	0		0		0		0.0117		0			

Pervious Landuses Present:

	Woodland		Meadow		Wetland		Lawn/Pasture		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs	0	32	0	38	0	50	0.988	49	0	62	0.988	48.43
0	0	60	0	65	0	50	0	69	0	74	0.00	0.00
0	0	46	0	51	0	50	0	59	0	68	0.00	0.00
0	0	67	0	71	0	50	0	74	0	78	0.00	0.00
Subtotal	0		0		0		0.988		0			

Composite Area Calculations		
	Total Pervious Area	0.988
	Total Impervious Area	0.012
	% Impervious	1%
	Composite Curve Number	49.6
	Total Area Check	1

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
				Brighton		0		0		0		
Landuse	IA (mm)	Area (ha)	A * IA	RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn/Pastur	5	0.988	4.94	0.15	0.99		0		0		0	0.148
Cultivated	7	0	0		0		0		0		0	0
Impervious	2	0.012	0.02	0.90	0.01		0		0		0	0.011
Composite		1.0	4.96	Composite Runoff Coefficient								0.16

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Sheet Flow	75	5.5	7.33%	2.3	0.62	0.03	0.02	0.02	0.05	0.03	0.23	0.15
Concentrat	0	0	0.00%	0	0.00	0.00	0.00	0.02				

Appropriate calculated time to peak:	0.15	Appropriate Method:	Airport

CROZIER CONSULTING ENGINEERS

Project Name:	Lora Bay Heights	**D.A. NAME**	**103**
Project Number:	1443-4724	**D.A. AREA (ha)**	**0.59**
Date:	9/18/2018		
By:	NC		

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 103

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Brighton	BRs	A	100	0.59
				0
				0
				0
Total Area				0.59

Impervious Landuses Present:

		Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils		Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs		0	98	0	98	0	98	0	98	0	98	0	0
	0	0	98	0	98	0	98	0	98	0	98	0	0
	0	0	98	0	98	0	98	0	98	0	98	0	0
	0	0	98	0	98	0	98	0	98	0	98	0	0
Subtotal		0		0		0		0		0			

Pervious Landuses Present:

		Woodland		Meadow		Wetland		Lawn/Pasture		Cultivated		Subtotals	
Soils		Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs		0	32	0	38	0	50	0.590	49	0	62	0.59	28.91
	0	0	60	0	65	0	50	0	69	0	74	0.00	0.00
	0	0	46	0	51	0	50	0	59	0	68	0.00	0.00
	0	0	67	0	71	0	50	0	74	0	78	0.00	0.00
Subtotal		0		0		0		0.590		0			

Composite Area Calculations	Total Pervious Area	0.59	
	Total Impervious Area	0	
	% Impervious	0%	
	Composite Curve Number	49.0	
	Total Area Check	0.59	

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Brighton RC	Brighton Area	0 RC	0 Area	0 RC	0 Area	0 RC	0 Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn/Pastur	5	0.590	2.95	0.15	0.59		0		0		0	0.089
Cultivated	7	0	0		0		0		0		0	0
Impervious	2	0.000	0.00	0.90	0.00		0		0		0	0.000
Composite		0.6	5.00	Composite Runoff Coefficient								0.15

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Sheet Flow	55	2	3.64%	2.3	0.44	0.03	0.02	0.02	0.04	0.03	0.25	0.17
Concentrat	0	0	0.00%	0	0.00	0.00	0.00	0.02				

Appropriate calculated time to peak:	0.17	Appropriate Method:	Airport

```
2     Metric units
*#**************************************************************************
*#  Project Name: [Lora Bay Heights]    Project Number: [1443-4724]
*#  Date        : September 11, 2018
*#  Modeller    : [J.Martin, NC edited]
*#  Company     : C.F. Crozier & Associates Inc.
*#  License #   :  3737016
*#**************************************************************************
*#  Filename    :  PRE-DEV
*#  Lora Bay Heights - Flows to Little Beaver Creek Tributary - SCS & CHI Storms
*#**************************************************************************

*#**************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
*%                   [  ] <--storm filename, one per line for NSTORM time
*#**************************************************************************
*%-----------------|-------------------------------------------------------|
*#-----------------|---------- LORA BAY HEIGHTS DRAINAGE MODEL ---------------|
*#**************************************************************************


*#**************************************************************************
*#**************************************************************************
*#                            2 Year Event (4-hour Chicago)
*#**************************************************************************
*%-----------------|-------------------------------------------------------|
CHICAGO STORM       IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                    ICASEcs=[1],
                     A=[854.100],  B=[7.781], and C=[0.830],
*%-----------------|-------------------------------------------------------|
*#-----------------|--------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                    DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                    DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                    N=[3], TP=[0.5]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                    XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                    LOSS=[2] SCS Procedure: CN=[ 49  ],
                    Pervious   areas:
                    IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                    MNP=[ 0.25 ], SCP=[0.0](min),
                    Impervious areas:
                    IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                    MNI=[ 0.015 ], SCI=[0.0](min),
                    RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                    DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                    N=[3], TP=[1.16]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD        ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                    DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                    N=[3], TP=[0.07]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                    DWF=[0](cms), CN=[49.6],
                    IA=[5](mm), N=[3], TP[0.15](hrs),
                    RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                    DWF=[0](cms), CN=[49.0],
                    IA=[5](mm), N=[3], TP[0.17](hrs),
                    RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                            5 Year Event (4-hour Chicago)
*#**************************************************************************
*%-----------------|-------------------------------------------------------|
CHICAGO STORM       IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                    ICASEcs=[1],
                     A=[1234.576],  B=[8.297], and C=[0.851],
*%-----------------|-------------------------------------------------------|
*#-----------------|--------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                    DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                    DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                    N=[3], TP=[0.5]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                    XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                    LOSS=[2] SCS Procedure: CN=[ 49  ],
                    Pervious   areas:
                    IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                    MNP=[ 0.25 ], SCP=[0.0](min),
                    Impervious areas:
                    IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                    MNI=[ 0.015 ], SCI=[0.0](min),
                    RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                    DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                    N=[3], TP=[1.16]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD        ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                    DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                    N=[3], TP=[0.07]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                    DWF=[0](cms), CN=[49.6],
                    IA=[5](mm), N=[3], TP[0.15](hrs),
                    RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                    DWF=[0](cms), CN=[49.0],
                    IA=[5](mm), N=[3], TP[0.17](hrs),
                    RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                           100 Year Event (4-hour Chicago)
*#**************************************************************************
*%-----------------|-------------------------------------------------------|
CHICAGO STORM       IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                    ICASEcs=[1],
                     A=[2171.754],  B=[8.303], and C=[0.867],
*%-----------------|-------------------------------------------------------|
*#-----------------|--------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                    DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                    DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                    N=[3], TP=[0.5]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                    XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                    LOSS=[2] SCS Procedure: CN=[ 49  ],
                    Pervious   areas:
                    IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                    MNP=[ 0.25 ], SCP=[0.0](min),
                    Impervious areas:
                    IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                    MNI=[ 0.015 ], SCI=[0.0](min),
                    RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                    DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                    N=[3], TP=[1.16]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD        ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                    DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                    N=[3], TP=[0.07]hrs,
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                    DWF=[0](cms), CN=[49.6],
                    IA=[5](mm), N=[3], TP[0.15](hrs),
                    RAINFALL[ , , ], END=-1
```

```
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                   DWF=[0](cms), CN=[49.0],
                   IA=[5](mm), N=[3], TP[0.17](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
*%-----------------|-------------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                          2yr SCS Storm (24hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM         PTOTAL=[57.0](mm), CSDT=[1](min),
                   CURVE_FILENAME=["SCS24HII.mst"]
*#*************************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|---------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                   DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                   N=[3], TP=[0.71]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                   DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                   N=[3], TP=[0.5]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD     ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                   XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                   LOSS=[2] SCS Procedure: CN=[ 49  ],
                   Pervious   areas:
                   IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                   MNP=[ 0.25 ], SCP=[0.0](min),
                   Impervious areas:
                   IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                   MNI=[ 0.015 ], SCI=[0.0](min),
                   RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                   DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                   N=[3], TP=[1.16]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD       ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                   DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                   N=[3], TP=[0.07]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                   DWF=[0](cms), CN=[49.6],
                   IA=[5](mm), N=[3], TP[0.15](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                   DWF=[0](cms), CN=[49.0],
                   IA=[5](mm), N=[3], TP[0.17](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
*%-----------------|-------------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                          5yr SCS Storm (24hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM         PTOTAL=[75.7](mm), CSDT=[1](min),
                   CURVE_FILENAME=["SCS24HII.mst"]
*#*************************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|---------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                   DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                   N=[3], TP=[0.71]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                   DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                   N=[3], TP=[0.5]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD     ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                   XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                   LOSS=[2] SCS Procedure: CN=[ 49  ],
                   Pervious   areas:
                   IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                   MNP=[ 0.25 ], SCP=[0.0](min),
                   Impervious areas:
                   IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                   MNI=[ 0.015 ], SCI=[0.0](min),
                   RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                   DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                   N=[3], TP=[1.16]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD       ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                   DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                   N=[3], TP=[0.07]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                   DWF=[0](cms), CN=[49.6],
                   IA=[5](mm), N=[3], TP[0.15](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                   DWF=[0](cms), CN=[49.0],
                   IA=[5](mm), N=[3], TP[0.17](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
*%-----------------|-------------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                          10yr SCS Storm (24hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM         PTOTAL=[103.9](mm), CSDT=[1](min),
                   CURVE_FILENAME=["SCS24HII.mst"]
*#*************************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|---------------------External-Catchments-----------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                   DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                   N=[3], TP=[0.71]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                   DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                   N=[3], TP=[0.5]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD     ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                   XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                   LOSS=[2] SCS Procedure: CN=[ 49  ],
                   Pervious   areas:
                   IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                   MNP=[ 0.25 ], SCP=[0.0](min),
                   Impervious areas:
                   IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                   MNI=[ 0.015 ], SCI=[0.0](min),
                   RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                   DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                   N=[3], TP=[1.16]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-------------------------------------------------------------|
*#-----------------|----------------------Pre-development----------------------|
CALIB NASHYD       ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
                   DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
                   N=[3], TP=[0.07]hrs,
                   RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
                   DWF=[0](cms), CN=[49.6],
                   IA=[5](mm), N=[3], TP[0.15](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD       ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
                   DWF=[0](cms), CN=[49.0],
                   IA=[5](mm), N=[3], TP[0.17](hrs),
                   RAINFALL[ , , ], END=-1
*#-----------------|-------------------------------------------------------------|
ADD HYD            IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
```

```
00541> *%-----------------|-------------------------------------------------------|
00542> ADD HYD             IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
00543> *%-----------------|-------------------------------------------------------|
00544>
00545>
00546> *#*************************************************************************
00547> *#*************************************************************************
00548> *#                          Timmins Event (Regional)
00549> *#*************************************************************************
00550> *%-----------------|-------------------------------------------------------|
00551> READ STORM          STORM_FILENAME=["tim.stm"]
00552> *#*************************************************************************
00553> *%-----------------|-------------------------------------------------------|
00554> *#*************************************************************************
00555> *#-----------------|-------------------------------------------------------|
00556> *#-----------------|--------------------External-Catchments-----------------|
00557> *%-----------------|-------------------------------------------------------|
00558> CALIB NASHYD        ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
00559>                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
00560>                     N=[3], TP=[0.71]hrs,
00561>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00562> *%-----------------|-------------------------------------------------------|
00563> CALIB NASHYD        ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00564>                     DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00565>                     N=[3], TP=[0.5]hrs,
00566>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00567> *%-----------------|-------------------------------------------------------|
00568> ADD HYD             IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00569> *%-----------------|-------------------------------------------------------|
00570> CALIB STANDHYD      ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00571>                     XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00572>                     LOSS=[2] SCS Procedure: CN=[ 49  ],
00573>                     Pervious   areas:
00574>                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00575>                     MNP=[ 0.25 ], SCP=[0.0](min),
00576>                     Impervious areas:
00577>                     IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00578>                     MNI=[ 0.015 ], SCI=[0.0](min),
00579>                     RAINFALL=[ ,  ,  -1](mm/hr)
00580> *%-----------------|-------------------------------------------------------|
00581> ADD HYD             IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00582> *%-----------------|-------------------------------------------------------|
00583> CALIB NASHYD        ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00584>                     DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00585>                     N=[3], TP=[1.16]hrs,
00586>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00587> *%-----------------|-------------------------------------------------------|
00588> ADD HYD             IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00589> *%-----------------|-------------------------------------------------------|
00590> *#-----------------|----------------------Pre-development----------------------|
00591> CALIB NASHYD        ID=[8], NHYD=["101"], DT=[1]min, AREA=[0.24](ha),
00592>                     DWF=[0](cms),  CN/C=[50.0], IA=[5](mm),
00593>                     N=[3], TP=[0.07]hrs,
00594>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00595> *#-----------------|-------------------------------------------------------|
00596> CALIB NASHYD        ID=[9], NHYD=["102"], DT[1](min), AREA=[1.00](ha),
00597>                     DWF=[0](cms), CN=[49.6],
00598>                     IA=[5](mm), N=[3], TP[0.15](hrs),
00599>                     RAINFALL[ , , ], END=-1
00600> *#-----------------|-------------------------------------------------------|
00601> CALIB NASHYD        ID=[10], NHYD=["103"], DT[1](min), AREA=[0.59](ha),
00602>                     DWF=[0](cms), CN=[49.0],
00603>                     IA=[5](mm), N=[3], TP[0.17](hrs),
00604>                     RAINFALL[ , , ], END=-1
00605> *#-----------------|-------------------------------------------------------|
00606> ADD HYD             IDsum=[1], NHYD=["Site"], IDs to add=[8+9+10]
00607> *%-----------------|-------------------------------------------------------|
00608> ADD HYD             IDsum=[2], NHYD=["Channel"], IDs to add=[7+1]
00609> *%-----------------|-------------------------------------------------------|
00610>
00611>
00612>
00613> FINISH
00614>
00615>
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00633>
00634>
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO          222     000    11
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O          2    0   0  11
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O          2    0   0  11
00006>      S    W W    M   M   H   H     Y     M   M   O   O        222    0   0  11
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO        2      0   0  11
00008>                                                              2      0   0  11
00009>         StormWater Management HYdrologic Model                222     000    11
00010>
00011>  ********************************************************************************
00012>  **********************************  SWMHYMO Ver4.05.0  **********************
00013>  *****************  A single event and continuous hydrologic simulation model
00014>  *****************     based on the principles of HYMO and its successors
00015>  *****************                OTTHYMO-83 and OTTHYMO-89.
00016>  ********************************************************************************
00017>  ***************** Distributed by:  J.F. Sabourin and Associates Inc.
00018>  *****************                 Ottawa,  Ontario: (613) 836-3884
00019>  *****************                 Gatineau, Quebec: (819) 243-6858
00020>  *****************                 E-Mail: swmhymo@jfsa.com
00021>  ********************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.
00025>  ++++++++++++++++++                Collingwood          SERIAL#:3737016
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************
00029>  *****************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00030>  *****************           Maximum value for ID numbers  :     11
00031>  *****************           Max. number of rainfall points: 105408
00032>  *****************           Max. number of flow points    : 105408
00033>  ********************************************************************************
00034>
00035>  ********************************************************************************
00036>  **********************************  SWMHYMO Ver4.05.0  **********************
00037>  *****************  A single event and continuous hydrologic simulation model
00038>  *****************     based on the principles of HYMO and its successors
00039>  *****************                OTTHYMO-83 and OTTHYMO-89.
00040>  ********************************************************************************
00041>  ***************** Distributed by:  J.F. Sabourin and Associates Inc.
00042>  *****************                 Ottawa,  Ontario: (613) 836-3884
00043>  *****************                 Gatineau, Quebec: (819) 243-6858
00044>  *****************                 E-Mail: swmhymo@jfsa.com
00045>  ********************************************************************************
00046>
00047>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00048>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.
00049>  ++++++++++++++++++                Collingwood          SERIAL#:3737016
00050>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00051>
00052>  ********************************************************************************
00053>  *****************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00054>  *****************           Maximum value for ID numbers  :     11
00055>  *****************           Max. number of rainfall points: 105408
00056>  *****************           Max. number of flow points    : 105408
00057>  ********************************************************************************
00058>
00059>
00060>  ******************************   D E T A I L E D   O U T P U T   ************
00061>  ********************************************************************************
00062>  *                RUN DATE: 2018-09-18     TIME: 17:06:54     RUN COUNTER: 0000
00063>  ********************************************************************************
00064>  * Input   file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00065>  *              018.09.11 SWMHYMO\SWMHYMO\PRE.dat
00066>  * Output  file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00067>  *              018.09.11 SWMHYMO\SWMHYMO\PRE.out
00068>  * Summary file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00069>  *              018.09.11 SWMHYMO\SWMHYMO\PRE.sum
00070>  * User comments:
00071>  * 1:_____________________________________________________________________________
00072>  * 2:_____________________________________________________________________________
00073>  * 3:_____________________________________________________________________________
00074>  ********************************************************************************
00075>
00076>  --------------------------------------------------------------------------------
00077> R0001:C00001------------------------------------------------------------------
00078>  *#*****************************************************************************
00079>  *#  Project Name: [Lora Bay Heights]    Project Number: [1443-4724]
00080>  *#  Date        : September 11, 2018
00081>  *#  Modeller    : [J.Martin, NC edited]
00082>  *#  Company     : C.F. Crozier & Associates Inc.
00083>  *#  License #   :  3737016
00084>  *#*****************************************************************************
00085>  *#  Filename    :  PRE-DEV
00086>  *#  Lora Bay Heights - Flows to Little Beaver Creek Tributary - SCS & CHI Storms
00087>  *#*****************************************************************************
00088>  *#*****************************************************************************
00089>  --------------------
00090>  | START           | Project  dir.:J:\1400\1443-Richpark Homes (Thornbury)\4724-
00091>  -------------------- Rainfall dir.:J:\1400\1443-Richpark Homes (Thornbury)\4724-
00092>      TZERO =    .00 hrs on      0
00093>      METOUT=   2 (output = METRIC)
00094>      NRUN  = 0001
00095>      NSTORM=   0
00096>  --------------------------------------------------------------------------------
00097> R0001:C00002------------------------------------------------------------------
00098>  *#*****************************************************************************
00099>  *#-----------------|---------- LORA BAY HEIGHTS DRAINAGE MODEL ---------------|
00100>  *#*****************************************************************************
00101>  *#*****************************************************************************
00102>  *#*****************************************************************************
00103>  *#                        2 Year Event (4-hour Chicago)
00104>  *#*****************************************************************************
00105>  --------------------
00106>  | CHICAGO STORM    |    IDF curve parameters: A= 854.100
00107>  | Ptotal= 35.19 mm |                          B=   7.781
00108>  --------------------                          C=    .830
00109>                         used in:   INTENSITY =  A / (t + B)^C
00110>
00111>                         Duration of storm  =  4.00 hrs
00112>                         Storm time step    =  5.00 min
00113>                         Time to peak ratio =   .33
00114>
00115>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00116>       hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00117>        0:05   1.851|   0:45   3.941|   1:25  48.383|   2:05   5.944|   2:45   3.1
00118>        0:10   1.977|   0:50   4.633|   1:30  27.198|   2:10   5.337|   2:50   2.9
00119>        0:15   2.122|   0:55   5.632|   1:35  18.416|   2:15   4.843|   2:55   2.8
00120>        0:20   2.294|   1:00   7.198|   1:40  13.763|   2:20   4.436|   3:00   2.6
00121>        0:25   2.497|   1:05   9.973|   1:45  10.931|   2:25   4.093|   3:05   2.5
00122>        0:30   2.744|   1:10  16.069|   1:50   9.044|   2:30   3.801|   3:10   2.4
00123>        0:35   3.049|   1:15  37.766|   1:55   7.706|   2:35   3.550|   3:15   2.3
00124>        0:40   3.435|   1:20 103.053|   2:00   6.711|   2:40   3.330|   3:20   2.2
00125>
00126>  --------------------------------------------------------------------------------
00127> R0001:C00003------------------------------------------------------------------
00128>  *#-----------------|----------------------External-Catchments-----------------|
00129>  -------------------------
00130>  | CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00131>  | 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00132>  -------------------------   U.H. Tp(hrs)=     .710
00133>
00134>      Unit Hyd Qpeak  (cms)=   12.509
00135>
00136>      PEAK FLOW       (cms)=    2.127 (i)
00137>      TIME TO PEAK    (hrs)=    2.333
00138>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00139>      AVERAGE FLOW    (cms)=     .513
00140>      RUNOFF VOLUME    (mm)=   6.806
00141>      TOTAL RAINFALL   (mm)=  35.193
00142>      RUNOFF COEFFICIENT   =     .193
00143>
00144>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00145>
00146>  --------------------------------------------------------------------------------
00147> R0001:C00004------------------------------------------------------------------
00148>  -------------------------
00149>  | CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00150>  | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00151>  -------------------------   U.H. Tp(hrs)=     .500
00152>
00153>      Unit Hyd Qpeak  (cms)=     .469
00154>
00155>      PEAK FLOW       (cms)=     .074 (i)
00156>      TIME TO PEAK    (hrs)=    2.050
00157>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00158>      AVERAGE FLOW    (cms)=     .016
00159>      RUNOFF VOLUME    (mm)=    7.068
00160>      TOTAL RAINFALL   (mm)=  35.193
00161>      RUNOFF COEFFICIENT   =     .201
00162>
00163>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00164>
00165>  --------------------------------------------------------------------------------
00166> R0001:C00005------------------------------------------------------------------
00167>  -------------------------
00168>  | ADD HYD             |
00169>  | 03:Ditch            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00170>  -------------------------                      (ha)     (cms)    (hrs)      (mm)
00171>                         ID 1 01:27          232.530     2.127    2.333     6.806
00172>                        +ID 2 02:28            6.140      .074    2.050     7.068
00173>                        ==========================================================
00174>                        SUM   03:Ditch        238.670     2.193    2.317     6.813
00175>
00176>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00177>
00178>  --------------------------------------------------------------------------------
00179> R0001:C00006------------------------------------------------------------------
00180>  -------------------------
00181>  | CALIB STANDHYD        |   Area    (ha)=    9.34
00182>  | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00183>  -------------------------
00184>                                IMPERVIOUS    PERVIOUS (i)
00185>      Surface Area     (ha)=       4.14         5.20
00186>      Dep. Storage     (mm)=       2.00         5.00
00187>      Average Slope     (%)=       2.00         2.00
00188>      Length            (m)=     250.00        30.00
00189>      Mannings n            =       .015         .250
00190>
00191>      Max.eff.Inten.(mm/hr)=     103.05        11.19
00192>                 over (min)=       4.00        18.00
00193>      Storage Coeff.  (min)=       3.87 (ii)   18.13 (ii)
00194>      Unit Hyd. Tpeak (min)=       4.00        18.00
00195>      Unit Hyd. peak  (cms)=        .29          .06
00196>                                                          *TOTALS*
00197>      PEAK FLOW       (cms)=        .29          .09          .303 (iii)
00198>      TIME TO PEAK    (hrs)=       1.37         1.70         1.367
00199>      RUNOFF VOLUME    (mm)=      33.19         5.01         9.038
00200>      TOTAL RAINFALL   (mm)=      35.19        35.19        35.193
00201>      RUNOFF COEFFICIENT   =        .94          .14          .257
00202>
00203>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00204>            CN* =  49.0   Ia = Dep. Storage  (Above)
00205>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00206>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00207>
00208>  --------------------------------------------------------------------------------
00209> R0001:C00007------------------------------------------------------------------
00210>  -------------------------
00211>  | ADD HYD             |
00212>  | 05:Ditch 2          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00213>  -------------------------                      (ha)     (cms)    (hrs)      (mm)
00214>                         ID 1 03:Ditch       238.670     2.193    2.317     6.813
00215>                        +ID 2 04:HB            9.340      .303    1.367     9.038
00216>                        ==========================================================
00217>                        SUM   05:Ditch 2      248.010     2.258    2.300     6.897
00218>
00219>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00220>
00221>  --------------------------------------------------------------------------------
00222> R0001:C00008------------------------------------------------------------------
00223>  -------------------------
00224>  | CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
00225>  | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00226>  -------------------------   U.H. Tp(hrs)=    1.160
00227>
00228>      Unit Hyd Qpeak  (cms)=    1.772
00229>
00230>      PEAK FLOW       (cms)=     .411 (i)
00231>      TIME TO PEAK    (hrs)=    2.933
00232>      DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
00233>      AVERAGE FLOW    (cms)=     .107
00234>      RUNOFF VOLUME    (mm)=    7.937
00235>      TOTAL RAINFALL   (mm)=  35.193
00236>      RUNOFF COEFFICIENT   =     .226
00237>
00238>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00239>
00240>  --------------------------------------------------------------------------------
00241> R0001:C00009------------------------------------------------------------------
00242>  -------------------------
00243>  | ADD HYD             |
00244>  | 07:Crk Inlet        |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00245>  -------------------------                      (ha)     (cms)    (hrs)      (mm)
00246>                         ID 1 05:Ditch 2     248.010     2.258    2.300     6.897
00247>                        +ID 2 06:29           53.830      .411    2.933     7.937
00248>                        ==========================================================
00249>                        SUM   07:Crk Inlet    301.840     2.595    2.367     7.082
00250>
00251>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00252>
00253>  --------------------------------------------------------------------------------
00254> R0001:C00010------------------------------------------------------------------
00255>  *#-----------------|----------------------Pre-development---------------------|
00256>  -------------------------
00257>  | CALIB NASHYD          |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
00258>  | 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00259>  -------------------------   U.H. Tp(hrs)=     .070
00260>
00261>      Unit Hyd Qpeak  (cms)=     .131
00262>
00263>      PEAK FLOW       (cms)=     .003 (i)
00264>      TIME TO PEAK    (hrs)=    1.433
00265>      DURATION        (hrs)=    4.550, (dddd|hh:mm:)=   0|04:33
00266>      AVERAGE FLOW    (cms)=     .000
00267>      RUNOFF VOLUME    (mm)=    3.208
00268>      TOTAL RAINFALL   (mm)=  35.193
00269>      RUNOFF COEFFICIENT   =     .091
00270>
```

```
     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00011----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
| 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .150

     Unit Hyd Qpeak  (cms)=     .255

     PEAK FLOW       (cms)=     .010 (i)
     TIME TO PEAK    (hrs)=    1.550
     DURATION        (hrs)=    5.050, (dddd|hh:mm:)=   0|05:03
     AVERAGE FLOW    (cms)=     .002
     RUNOFF VOLUME    (mm)=    3.162
     TOTAL RAINFALL   (mm)=   35.193
     RUNOFF COEFFICIENT   =     .090

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00012----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
| 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .170

     Unit Hyd Qpeak  (cms)=     .133

     PEAK FLOW       (cms)=     .006 (i)
     TIME TO PEAK    (hrs)=    1.583
     DURATION        (hrs)=    5.183, (dddd|hh:mm:)=   0|05:11
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=    3.095
     TOTAL RAINFALL   (mm)=   35.193
     RUNOFF COEFFICIENT   =     .088

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00013----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
--------------------------------------------------------------------------------
| ADD HYD               |
| 01:Site               |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 08:101             .240      .003    1.433     3.208
                       +ID 2 09:102            1.000      .010    1.550     3.162
                       +ID 3 10:103             .590      .006    1.583     3.095
                       ============================================================
                       SUM   01:Site           1.830      .018    1.533     3.146

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00014----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
------------------------
| ADD HYD               |
| 02:Channel            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 07:Crk Inlet    301.840     2.595    2.367     7.082
                       +ID 2 01:Site           1.830      .018    1.533     3.146
                       ============================================================
                       SUM   02:Channel      303.670     2.600    2.367     7.059

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00015----------------------------------------------------------------------
*#*************************************************************************
*#*************************************************************************
*#                        5 Year Event (4-hour Chicago)
*#*************************************************************************
--------------------
| CHICAGO STORM   |    IDF curve parameters: A=1234.576
| Ptotal= 45.23 mm |                          B=   8.297
--------------------                          C=    .851
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .33

      TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
       0:05   2.160|   0:45   4.785|   1:25  64.501|   2:05   7.379|   2:45   3.7
       0:10   2.314|   0:50   5.674|   1:30  35.956|   2:10   6.586|   2:50   3.5
       0:15   2.494|   0:55   6.972|   1:35  24.069|   2:15   5.946|   2:55   3.3
       0:20   2.706|   1:00   9.026|   1:40  17.791|   2:20   5.420|   3:00   3.1
       0:25   2.959|   1:05  12.711|   1:45  13.989|   2:25   4.979|   3:05   3.0
       0:30   3.267|   1:10  20.902|   1:50  11.471|   2:30   4.606|   3:10   2.8
       0:35   3.650|   1:15  50.196|   1:55   9.696|   2:35   4.285|   3:15   2.7
       0:40   4.140|   1:20 136.522|   2:00   8.384|   2:40   4.007|   3:20   2.6

--------------------------------------------------------------------------------
R0001:C00016----------------------------------------------------------------------
*#-----------------|--------------------External-Catchments--------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=    3.677 (i)
     TIME TO PEAK    (hrs)=    2.300
     DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
     AVERAGE FLOW    (cms)=     .848
     RUNOFF VOLUME    (mm)=   11.241
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .249

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00017----------------------------------------------------------------------
------------------------
| CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .128 (i)
     TIME TO PEAK    (hrs)=    2.017
     DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
     AVERAGE FLOW    (cms)=     .027
     RUNOFF VOLUME    (mm)=   11.643
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .257

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00018----------------------------------------------------------------------
------------------------
| ADD HYD               |
| 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 01:27           232.530     3.677    2.300    11.241
                       +ID 2 02:28             6.140      .128    2.017    11.643
                       ============================================================
                       SUM   03:Ditch        238.670     3.792    2.283    11.251

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00019----------------------------------------------------------------------
------------------------
| CALIB STANDHYD        |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
------------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.14         5.20
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      2.00         2.00
     Length            (m)=    250.00        30.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    136.52        21.98
                   over (min)      3.00        14.00
     Storage Coeff.  (min)=      3.46 (ii)   14.35 (ii)
     Unit Hyd. Tpeak (min)=      3.00        14.00
     Unit Hyd. peak  (cms)=       .34          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .40          .19          .443 (iii)
     TIME TO PEAK    (hrs)=      1.35         1.62         1.350
     RUNOFF VOLUME    (mm)=     43.23         8.24        13.246
     TOTAL RAINFALL   (mm)=     45.23        45.23        45.230
     RUNOFF COEFFICIENT   =       .96          .18          .293

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00020----------------------------------------------------------------------
------------------------
| ADD HYD               |
| 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 03:Ditch        238.670     3.792    2.283    11.251
                       +ID 2 04:HB             9.340      .443    1.350    13.246
                       ============================================================
                       SUM   05:Ditch 2      248.010     3.885    2.267    11.326

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00021----------------------------------------------------------------------
------------------------
| CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=     .691 (i)
     TIME TO PEAK    (hrs)=    2.867
     DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
     AVERAGE FLOW    (cms)=     .174
     RUNOFF VOLUME    (mm)=   12.958
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .286

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00022----------------------------------------------------------------------
------------------------
| ADD HYD               |
| 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 05:Ditch 2      248.010     3.885    2.267    11.326
                       +ID 2 06:29            53.830      .691    2.867    12.958
                       ============================================================
                       SUM   07:Crk Inlet    301.840     4.453    2.333    11.617

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00023----------------------------------------------------------------------
*#-----------------|-----------------------Pre-development----------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=    .240   Curve Number   (CN)= 50.00
| 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .070

     Unit Hyd Qpeak  (cms)=     .131

     PEAK FLOW       (cms)=     .006 (i)
     TIME TO PEAK    (hrs)=    1.417
     DURATION        (hrs)=    4.550, (dddd|hh:mm:)=   0|04:33
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=    5.501
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .122

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00024----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
| 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=     .150

     Unit Hyd Qpeak  (cms)=     .255

     PEAK FLOW       (cms)=     .019 (i)
     TIME TO PEAK    (hrs)=    1.533
     DURATION        (hrs)=    5.050, (dddd|hh:mm:)=   0|05:03
     AVERAGE FLOW    (cms)=     .003
     RUNOFF VOLUME    (mm)=    5.425
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .120

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00025----------------------------------------------------------------------
*#-----------------|-------------------------------------------------------------|
------------------------
| CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
```

```
| 10:103       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 -------------------------   U.H. Tp(hrs)=     .170

     Unit Hyd Qpeak  (cms)=     .133

     PEAK FLOW       (cms)=     .010 (i)
     TIME TO PEAK    (hrs)=    1.567
     DURATION        (hrs)=    5.183, (dddd|hh:mm:)=   0|05:11
     AVERAGE FLOW    (cms)=     .002
     RUNOFF VOLUME    (mm)=    5.313
     TOTAL RAINFALL   (mm)=   45.230
     RUNOFF COEFFICIENT   =     .117

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00026-----------------------------------------------------------------------
*#----------------|-----------------------------------------------------------|
------------------------
| ADD HYD              |
| 01:Site              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 08:101           .240      .006    1.417     5.501
                       +ID 2 09:102          1.000      .019    1.533     5.425
                       +ID 3 10:103           .590      .010    1.567     5.313
                       ============================================================
                       SUM   01:Site          1.830      .034    1.533     5.399

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00027-----------------------------------------------------------------------
------------------------
| ADD HYD              |
| 02:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 07:Crk Inlet    301.840     4.453    2.333    11.617
                       +ID 2 01:Site          1.830      .034    1.533     5.399
                       ============================================================
                       SUM   02:Channel      303.670     4.460    2.333    11.580

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00028-----------------------------------------------------------------------
*#*************************************************************************
*#*************************************************************************
*#                          25 Year Event (4-hour Chicago)
*#*************************************************************************
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1750.276
| Ptotal= 60.35 mm |                          B=   8.303
--------------------                          C=    .862
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =   .33

     TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
      0:05   2.714|   0:45   6.135|   1:25  87.822|   2:05   9.569|   2:45   4.7
      0:10   2.913|   0:50   7.308|   1:30  48.419|   2:10   8.515|   2:50   4.5
      0:15   3.145|   0:55   9.028|   1:35  32.136|   2:15   7.667|   2:55   4.2
      0:20   3.418|   1:00  11.768|   1:40  23.588|   2:20   6.971|   3:00   4.0
      0:25   3.747|   1:05  16.718|   1:45  18.440|   2:25   6.390|   3:05   3.8
      0:30   4.147|   1:10  27.825|   1:50  15.046|   2:30   5.899|   3:10   3.6
      0:35   4.647|   1:15  68.076|   1:55  12.663|   2:35   5.478|   3:15   3.4
      0:40   5.287|   1:20 188.045|   2:00  10.909|   2:40   5.113|   3:20   3.3

R0001:C00029-----------------------------------------------------------------------
*#----------------|--------------------External-Catchments--------------------|
--------------------------
| CALIB NASHYD           |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=    6.518 (i)
     TIME TO PEAK    (hrs)=    2.267
     DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
     AVERAGE FLOW    (cms)=    1.452
     RUNOFF VOLUME    (mm)=   19.255
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .319

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00030-----------------------------------------------------------------------
--------------------------
| CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .229 (i)
     TIME TO PEAK    (hrs)=    2.000
     DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
     AVERAGE FLOW    (cms)=     .046
     RUNOFF VOLUME    (mm)=   19.876
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .329

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00031-----------------------------------------------------------------------
------------------------
| ADD HYD              |
| 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 01:27           232.530     6.518    2.267    19.255
                       +ID 2 02:28             6.140      .229    2.000    19.876
                       ============================================================
                       SUM   03:Ditch        238.670     6.722    2.250    19.271

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00032-----------------------------------------------------------------------
--------------------------
| CALIB STANDHYD         |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
--------------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.14        5.20
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=       2.00        2.00
     Length            (m)=     250.00       30.00
     Mannings n            =       .015        .250

     Max.eff.Inten.(mm/hr)=     188.05       44.41
                   over (min)       3.00       11.00
     Storage Coeff.  (min)=       3.04 (ii)  11.26 (ii)
     Unit Hyd. Tpeak (min)=       3.00       11.00
     Unit Hyd. peak  (cms)=        .37         .10
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .57         .39          .700 (iii)
     TIME TO PEAK    (hrs)=       1.35        1.55         1.367
     RUNOFF VOLUME    (mm)=      58.35       14.24        20.549
     TOTAL RAINFALL   (mm)=      60.35       60.35        60.348
     RUNOFF COEFFICIENT   =        .97         .24          .341

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00033-----------------------------------------------------------------------
------------------------
| ADD HYD              |
| 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 03:Ditch        238.670     6.722    2.250    19.271
                       +ID 2 04:HB             9.340      .700    1.367    20.549
                       ============================================================
                       SUM   05:Ditch 2      248.010     6.857    2.233    19.319

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00034-----------------------------------------------------------------------
--------------------------
| CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    1.194 (i)
     TIME TO PEAK    (hrs)=    2.817
     DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
     AVERAGE FLOW    (cms)=     .294
     RUNOFF VOLUME    (mm)=   21.879
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .363

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00035-----------------------------------------------------------------------
------------------------
| ADD HYD              |
| 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 05:Ditch 2      248.010     6.857    2.233    19.319
                       +ID 2 06:29            53.830     1.194    2.817    21.879
                       ============================================================
                       SUM   07:Crk Inlet    301.840     7.840    2.300    19.776

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00036-----------------------------------------------------------------------
*#----------------|----------------------Pre-development----------------------|
--------------------------
| CALIB NASHYD           |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
| 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .070

     Unit Hyd Qpeak  (cms)=     .131

     PEAK FLOW       (cms)=     .012 (i)
     TIME TO PEAK    (hrs)=    1.417
     DURATION        (hrs)=    4.550, (dddd|hh:mm:)=   0|04:33
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=    9.903
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .164

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00037-----------------------------------------------------------------------
*#----------------|-----------------------------------------------------------|
--------------------------
| CALIB NASHYD           |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
| 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .150

     Unit Hyd Qpeak  (cms)=     .255

     PEAK FLOW       (cms)=     .036 (i)
     TIME TO PEAK    (hrs)=    1.533
     DURATION        (hrs)=    5.050, (dddd|hh:mm:)=   0|05:03
     AVERAGE FLOW    (cms)=     .005
     RUNOFF VOLUME    (mm)=    9.773
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .162

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00038-----------------------------------------------------------------------
*#----------------|-----------------------------------------------------------|
--------------------------
| CALIB NASHYD           |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
| 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .170

     Unit Hyd Qpeak  (cms)=     .133

     PEAK FLOW       (cms)=     .020 (i)
     TIME TO PEAK    (hrs)=    1.567
     DURATION        (hrs)=    5.183, (dddd|hh:mm:)=   0|05:11
     AVERAGE FLOW    (cms)=     .003
     RUNOFF VOLUME    (mm)=    9.582
     TOTAL RAINFALL   (mm)=   60.348
     RUNOFF COEFFICIENT   =     .159

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00039-----------------------------------------------------------------------
*#----------------|-----------------------------------------------------------|
------------------------
| ADD HYD              |
| 01:Site              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 08:101             .240      .012    1.417     9.903
                       +ID 2 09:102            1.000      .036    1.533     9.773
                       +ID 3 10:103             .590      .020    1.567     9.582
                       ============================================================
                       SUM   01:Site           1.830      .065    1.517     9.728
```

```
00811>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00812>
00813> ------------------------------------------------------------------------------
00814> R0001:C00040-------------------------------------------------------------------
00815> ------------------------
00816> | ADD HYD              |
00817> | 02:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00818> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00819>                        ID 1 07:Crk Inlet    301.840     7.840    2.300    19.776
00820>                       +ID 2 01:Site           1.830      .065    1.517     9.728
00821>                        ============================================================
00822>                        SUM   02:Channel      303.670     7.854    2.283    19.715
00823>
00824>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00825>
00826> ------------------------------------------------------------------------------
00827> R0001:C00041-------------------------------------------------------------------
00828> *#*****************************************************************************
00829> *#*****************************************************************************
00830> *#                        100 Year Event (4-hour Chicago)
00831> *#*****************************************************************************
00832> --------------------
00833> | CHICAGO STORM    |    IDF curve parameters: A=2171.754
00834> | Ptotal= 72.84 mm |                          B=   8.303
00835> --------------------                          C=    .867
00836>                         used in:   INTENSITY =  A / (t + B)^C
00837>
00838>                         Duration of storm  =  4.00 hrs
00839>                         Storm time step    =  5.00 min
00840>                         Time to peak ratio =   .33
00841>
00842>      TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00843>     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00844>      0:05   3.184|   0:45   7.268|   1:25 106.986|   2:05  11.394|   2:45   5.6
00845>      0:10   3.420|   0:50   8.673|   1:30  58.682|   2:10  10.125|   2:50   5.3
00846>      0:15   3.695|   0:55  10.742|   1:35  38.793|   2:15   9.105|   2:55   5.0
00847>      0:20   4.020|   1:00  14.047|   1:40  28.382|   2:20   8.269|   3:00   4.7
00848>      0:25   4.411|   1:05  20.039|   1:45  22.127|   2:25   7.572|   3:05   4.5
00849>      0:30   4.889|   1:10  33.542|   1:50  18.013|   2:30   6.982|   3:10   4.3
00850>      0:35   5.485|   1:15  82.779|   1:55  15.129|   2:35   6.478|   3:15   4.1
00851>      0:40   6.250|   1:20 230.328|   2:00  13.010|   2:40   6.042|   3:20   3.9
00852>
00853> ------------------------------------------------------------------------------
00854> R0001:C00042-------------------------------------------------------------------
00855> *#-----------------|---------------------External-Catchments------------------|
00856> ------------------------
00857> | CALIB NASHYD         |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00858> | 01:27        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00859> ------------------------   U.H. Tp(hrs)=     .710
00860>
00861>      Unit Hyd Qpeak  (cms)=   12.509
00862>
00863>      PEAK FLOW       (cms)=    9.243 (i)
00864>      TIME TO PEAK    (hrs)=    2.250
00865>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00866>      AVERAGE FLOW    (cms)=    2.023
00867>      RUNOFF VOLUME    (mm)=   26.824
00868>      TOTAL RAINFALL   (mm)=   72.844
00869>      RUNOFF COEFFICIENT   =     .368
00870>
00871>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00872>
00873> ------------------------------------------------------------------------------
00874> R0001:C00043-------------------------------------------------------------------
00875> ------------------------
00876> | CALIB NASHYD         |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00877> | 02:28        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00878> ------------------------   U.H. Tp(hrs)=     .500
00879>
00880>      Unit Hyd Qpeak  (cms)=     .469
00881>
00882>      PEAK FLOW       (cms)=     .325 (i)
00883>      TIME TO PEAK    (hrs)=    1.983
00884>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00885>      AVERAGE FLOW    (cms)=     .064
00886>      RUNOFF VOLUME    (mm)=   27.624
00887>      TOTAL RAINFALL   (mm)=   72.844
00888>      RUNOFF COEFFICIENT   =     .379
00889>
00890>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00891>
00892> ------------------------------------------------------------------------------
00893> R0001:C00044-------------------------------------------------------------------
00894> ------------------------
00895> | ADD HYD              |
00896> | 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00897> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00898>                        ID 1 01:27          232.530     9.243    2.250    26.824
00899>                       +ID 2 02:28            6.140      .325    1.983    27.624
00900>                        ============================================================
00901>                        SUM   03:Ditch        238.670     9.532    2.233    26.845
00902>
00903>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00904>
00905> ------------------------------------------------------------------------------
00906> R0001:C00045-------------------------------------------------------------------
00907> ------------------------
00908> | CALIB STANDHYD        |   Area    (ha)=    9.34
00909> | 04:HB        DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00910> ------------------------
00911>                            IMPERVIOUS    PERVIOUS (i)
00912>      Surface Area     (ha)=       4.14         5.20
00913>      Dep. Storage     (mm)=       2.00         5.00
00914>      Average Slope     (%)=       2.00         2.00
00915>      Length            (m)=     250.00        30.00
00916>      Mannings n             =       .015         .250
00917>
00918>      Max.eff.Inten.(mm/hr)=     230.33        67.66
00919>                   over (min)       3.00        10.00
00920>      Storage Coeff.  (min)=       2.81 (ii)    9.75 (ii)
00921>      Unit Hyd. Tpeak (min)=       3.00        10.00
00922>      Unit Hyd. peak  (cms)=        .39          .12
00923>                                                      *TOTALS*
00924>      PEAK FLOW       (cms)=        .71          .60          .955 (iii)
00925>      TIME TO PEAK    (hrs)=       1.35         1.52         1.367
00926>      RUNOFF VOLUME    (mm)=      70.84        20.06        27.324
00927>      TOTAL RAINFALL   (mm)=      72.84        72.84        72.844
00928>      RUNOFF COEFFICIENT   =        .97          .28          .375
00929>
00930>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00931>            CN* =  49.0    Ia = Dep. Storage  (Above)
00932>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00933>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00934>
00935> ------------------------------------------------------------------------------
00936> R0001:C00046-------------------------------------------------------------------
00937> ------------------------
00938> | ADD HYD              |
00939> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00940> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00941>                        ID 1 03:Ditch        238.670     9.532    2.233    26.845
00942>                       +ID 2 04:HB             9.340      .955    1.367    27.324
00943>                        ============================================================
00944>                        SUM   05:Ditch 2      248.010     9.705    2.217    26.863
00945>
00946>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00947>
00948> ------------------------------------------------------------------------------
00949> R0001:C00047-------------------------------------------------------------------
00950> ------------------------
00951> | CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
00952> | 06:29        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00953> ------------------------   U.H. Tp(hrs)=    1.160
00954>
00955>      Unit Hyd Qpeak  (cms)=    1.772
00956>
00957>      PEAK FLOW       (cms)=    1.666 (i)
00958>      TIME TO PEAK    (hrs)=    2.800
00959>      DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
00960>      AVERAGE FLOW    (cms)=     .405
00961>      RUNOFF VOLUME    (mm)=   30.180
00962>      TOTAL RAINFALL   (mm)=   72.844
00963>      RUNOFF COEFFICIENT   =     .414
00964>
00965>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00966>
00967> ------------------------------------------------------------------------------
00968> R0001:C00048-------------------------------------------------------------------
00969> ------------------------
00970> | ADD HYD              |
00971> | 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00972> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00973>                        ID 1 05:Ditch 2      248.010     9.705    2.217    26.863
00974>                       +ID 2 06:29            53.830     1.666    2.800    30.180
00975>                        ============================================================
00976>                        SUM   07:Crk Inlet    301.840    11.080    2.267    27.454
00977>
00978>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00979>
00980> ------------------------------------------------------------------------------
00981> R0001:C00049-------------------------------------------------------------------
00982> *#-----------------|----------------------Pre-development----------------------|
00983> ------------------------
00984> | CALIB NASHYD          |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
00985> | 08:101       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00986> ------------------------   U.H. Tp(hrs)=     .070
00987>
00988>      Unit Hyd Qpeak  (cms)=     .131
00989>
00990>      PEAK FLOW       (cms)=     .018 (i)
00991>      TIME TO PEAK    (hrs)=    1.417
00992>      DURATION        (hrs)=    4.550, (dddd|hh:mm:)=   0|04:33
00993>      AVERAGE FLOW    (cms)=     .002
00994>      RUNOFF VOLUME    (mm)=   14.301
00995>      TOTAL RAINFALL   (mm)=   72.844
00996>      RUNOFF COEFFICIENT   =     .196
00997>
00998>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00999>
01000> ------------------------------------------------------------------------------
01001> R0001:C00050-------------------------------------------------------------------
01002> *#-----------------|----------------------------------------------------------|
01003> ------------------------
01004> | CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
01005> | 09:102       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01006> ------------------------   U.H. Tp(hrs)=     .150
01007>
01008>      Unit Hyd Qpeak  (cms)=     .255
01009>
01010>      PEAK FLOW       (cms)=     .054 (i)
01011>      TIME TO PEAK    (hrs)=    1.533
01012>      DURATION        (hrs)=    5.050, (dddd|hh:mm:)=   0|05:03
01013>      AVERAGE FLOW    (cms)=     .008
01014>      RUNOFF VOLUME    (mm)=   14.121
01015>      TOTAL RAINFALL   (mm)=   72.844
01016>      RUNOFF COEFFICIENT   =     .194
01017>
01018>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01019>
01020> ------------------------------------------------------------------------------
01021> R0001:C00051-------------------------------------------------------------------
01022> *#-----------------|----------------------------------------------------------|
01023> ------------------------
01024> | CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
01025> | 10:103       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01026> ------------------------   U.H. Tp(hrs)=     .170
01027>
01028>      Unit Hyd Qpeak  (cms)=     .133
01029>
01030>      PEAK FLOW       (cms)=     .029 (i)
01031>      TIME TO PEAK    (hrs)=    1.550
01032>      DURATION        (hrs)=    5.183, (dddd|hh:mm:)=   0|05:11
01033>      AVERAGE FLOW    (cms)=     .004
01034>      RUNOFF VOLUME    (mm)=   13.855
01035>      TOTAL RAINFALL   (mm)=   72.844
01036>      RUNOFF COEFFICIENT   =     .190
01037>
01038>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01039>
01040> ------------------------------------------------------------------------------
01041> R0001:C00052-------------------------------------------------------------------
01042> *#-----------------|----------------------------------------------------------|
01043> ------------------------
01044> | ADD HYD              |
01045> | 01:Site              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01046> ------------------------                       (ha)     (cms)    (hrs)      (mm)
01047>                        ID 1 08:101             .240      .018    1.417    14.301
01048>                       +ID 2 09:102            1.000      .054    1.533    14.121
01049>                       +ID 3 10:103             .590      .029    1.550    13.855
01050>                        ============================================================
01051>                        SUM   01:Site           1.830      .096    1.517    14.059
01052>
01053>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01054>
01055> ------------------------------------------------------------------------------
01056> R0001:C00053-------------------------------------------------------------------
01057> ------------------------
01058> | ADD HYD              |
01059> | 02:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01060> ------------------------                       (ha)     (cms)    (hrs)      (mm)
01061>                        ID 1 07:Crk Inlet    301.840    11.080    2.267    27.454
01062>                       +ID 2 01:Site           1.830      .096    1.517    14.059
01063>                        ============================================================
01064>                        SUM   02:Channel      303.670    11.099    2.267    27.374
01065>
01066>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01067>
01068> ------------------------------------------------------------------------------
01069> R0001:C00054-------------------------------------------------------------------
01070> *#*****************************************************************************
01071> *#*****************************************************************************
01072> *#                            2yr SCS Storm (24hr)
01073> *#*****************************************************************************
01074> *#*****************************************************************************
01075> --------------------
01076> | MASS STORM       |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
01077> | Ptotal= 57.00 mm |    Comments: 24 hour SCS II storm mass curve
01078> --------------------
01079>                         Duration of storm        =   24.00 hrs
01080>                         Mass curve time step     =   12.00 min
```

Selected storm time step = 1.00 min
Volume of derived storm = 57.00 mm

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RA
hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/
0:01	.000	4:01	.570	8:01	1.140	12:01	64.125	16:01	1.4
0:02	.000	4:02	.570	8:02	1.140	12:02	64.125	16:02	1.4
0:03	.000	4:03	.570	8:03	1.140	12:03	64.125	16:03	1.4
0:04	.000	4:04	.570	8:04	1.140	12:04	64.125	16:04	1.4
0:05	.000	4:05	.570	8:05	1.140	12:05	64.125	16:05	1.4
0:06	.000	4:06	.570	8:06	1.140	12:06	64.125	16:06	1.4
0:07	.000	4:07	.570	8:07	1.140	12:07	64.125	16:07	1.4
0:08	.000	4:08	.570	8:08	1.140	12:08	64.125	16:08	1.4
0:09	.000	4:09	.570	8:09	1.140	12:09	64.125	16:09	1.4
0:10	.000	4:10	.570	8:10	1.140	12:10	64.125	16:10	1.4
0:11	.000	4:11	.570	8:11	1.140	12:11	64.125	16:11	1.4
0:12	.000	4:12	.570	8:12	1.140	12:12	64.125	16:12	1.4
0:13	.570	4:13	1.140	8:13	1.710	12:13	11.400	16:13	1.4
0:14	.570	4:14	1.140	8:14	1.710	12:14	11.400	16:14	1.4
0:15	.570	4:15	1.140	8:15	1.710	12:15	11.400	16:15	1.4
0:16	.570	4:16	1.140	8:16	1.710	12:16	11.400	16:16	1.4
0:17	.570	4:17	1.140	8:17	1.710	12:17	11.400	16:17	1.4
0:18	.570	4:18	1.140	8:18	1.710	12:18	11.400	16:18	1.4
0:19	.570	4:19	1.140	8:19	1.710	12:19	11.400	16:19	1.4
0:20	.570	4:20	1.140	8:20	1.710	12:20	11.400	16:20	1.4
0:21	.570	4:21	1.140	8:21	1.710	12:21	11.400	16:21	1.4
0:22	.570	4:22	1.140	8:22	1.710	12:22	11.400	16:22	1.4
0:23	.570	4:23	1.140	8:23	1.710	12:23	11.400	16:23	1.4
0:24	.570	4:24	1.140	8:24	1.710	12:24	11.400	16:24	1.4
0:25	.570	4:25	1.140	8:25	1.710	12:25	7.125	16:25	1.4
0:26	.570	4:26	1.140	8:26	1.710	12:26	7.125	16:26	1.4
0:27	.570	4:27	1.140	8:27	1.710	12:27	7.125	16:27	1.4
0:28	.570	4:28	1.140	8:28	1.710	12:28	7.125	16:28	1.4
0:29	.570	4:29	1.140	8:29	1.710	12:29	7.125	16:29	1.4
0:30	.570	4:30	1.140	8:30	1.710	12:30	7.125	16:30	1.4
0:31	.570	4:31	1.140	8:31	1.710	12:31	7.125	16:31	1.4
0:32	.570	4:32	1.140	8:32	1.710	12:32	7.125	16:32	1.4
0:33	.570	4:33	1.140	8:33	1.710	12:33	7.125	16:33	1.4
0:34	.570	4:34	1.140	8:34	1.710	12:34	7.125	16:34	1.4
0:35	.570	4:35	1.140	8:35	1.710	12:35	7.125	16:35	1.4
0:36	.570	4:36	1.140	8:36	1.710	12:36	7.125	16:36	1.4
0:37	.570	4:37	1.140	8:37	1.710	12:37	5.130	16:37	1.4
0:38	.570	4:38	1.140	8:38	1.710	12:38	5.130	16:38	1.4
0:39	.570	4:39	1.140	8:39	1.710	12:39	5.130	16:39	1.4
0:40	.570	4:40	1.140	8:40	1.710	12:40	5.130	16:40	1.4
0:41	.570	4:41	1.140	8:41	1.710	12:41	5.130	16:41	1.4
0:42	.570	4:42	1.140	8:42	1.710	12:42	5.130	16:42	1.4
0:43	.570	4:43	1.140	8:43	1.710	12:43	5.130	16:43	1.4
0:44	.570	4:44	1.140	8:44	1.710	12:44	5.130	16:44	1.4
0:45	.570	4:45	1.140	8:45	1.710	12:45	5.130	16:45	1.4
0:46	.570	4:46	1.140	8:46	1.710	12:46	5.130	16:46	1.4
0:47	.570	4:47	1.140	8:47	1.710	12:47	5.130	16:47	1.4
0:48	.570	4:48	1.140	8:48	1.710	12:48	5.130	16:48	1.4
0:49	.570	4:49	1.140	8:49	1.710	12:49	4.845	16:49	1.4
0:50	.570	4:50	1.140	8:50	1.710	12:50	4.845	16:50	1.4
0:51	.570	4:51	1.140	8:51	1.710	12:51	4.845	16:51	1.4
0:52	.570	4:52	1.140	8:52	1.710	12:52	4.845	16:52	1.4
0:53	.570	4:53	1.140	8:53	1.710	12:53	4.845	16:53	1.4
0:54	.570	4:54	1.140	8:54	1.710	12:54	4.845	16:54	1.4
0:55	.570	4:55	1.140	8:55	1.710	12:55	4.845	16:55	1.4
0:56	.570	4:56	1.140	8:56	1.710	12:56	4.845	16:56	1.4
0:57	.570	4:57	1.140	8:57	1.710	12:57	4.845	16:57	1.4
0:58	.570	4:58	1.140	8:58	1.710	12:58	4.845	16:58	1.4
0:59	.570	4:59	1.140	8:59	1.710	12:59	4.845	16:59	1.4
1:00	.570	5:00	1.140	9:00	1.710	13:00	4.845	17:00	1.4
1:01	.570	5:01	1.140	9:01	1.710	13:01	3.420	17:01	.8
1:02	.570	5:02	1.140	9:02	1.710	13:02	3.420	17:02	.8
1:03	.570	5:03	1.140	9:03	1.710	13:03	3.420	17:03	.8
1:04	.570	5:04	1.140	9:04	1.710	13:04	3.420	17:04	.8
1:05	.570	5:05	1.140	9:05	1.710	13:05	3.420	17:05	.8
1:06	.570	5:06	1.140	9:06	1.710	13:06	3.420	17:06	.8
1:07	.570	5:07	1.140	9:07	1.710	13:07	3.420	17:07	.8
1:08	.570	5:08	1.140	9:08	1.710	13:08	3.420	17:08	.8
1:09	.570	5:09	1.140	9:09	1.710	13:09	3.420	17:09	.8
1:10	.570	5:10	1.140	9:10	1.710	13:10	3.420	17:10	.8
1:11	.570	5:11	1.140	9:11	1.710	13:11	3.420	17:11	.8
1:12	.570	5:12	1.140	9:12	1.710	13:12	3.420	17:12	.8
1:13	.570	5:13	1.140	9:13	1.710	13:13	2.850	17:13	.8
1:14	.570	5:14	1.140	9:14	1.710	13:14	2.850	17:14	.8
1:15	.570	5:15	1.140	9:15	1.710	13:15	2.850	17:15	.8
1:16	.570	5:16	1.140	9:16	1.710	13:16	2.850	17:16	.8
1:17	.570	5:17	1.140	9:17	1.710	13:17	2.850	17:17	.8
1:18	.570	5:18	1.140	9:18	1.710	13:18	2.850	17:18	.8
1:19	.570	5:19	1.140	9:19	1.710	13:19	2.850	17:19	.8
1:20	.570	5:20	1.140	9:20	1.710	13:20	2.850	17:20	.8
1:21	.570	5:21	1.140	9:21	1.710	13:21	2.850	17:21	.8
1:22	.570	5:22	1.140	9:22	1.710	13:22	2.850	17:22	.8
1:23	.570	5:23	1.140	9:23	1.710	13:23	2.850	17:23	.8
1:24	.570	5:24	1.140	9:24	1.710	13:24	2.850	17:24	.8
1:25	.570	5:25	1.140	9:25	1.710	13:25	2.850	17:25	1.1
1:26	.570	5:26	1.140	9:26	1.710	13:26	2.850	17:26	1.1
1:27	.570	5:27	1.140	9:27	1.710	13:27	2.850	17:27	1.1
1:28	.570	5:28	1.140	9:28	1.710	13:28	2.850	17:28	1.1
1:29	.570	5:29	1.140	9:29	1.710	13:29	2.850	17:29	1.1
1:30	.570	5:30	1.140	9:30	1.710	13:30	2.850	17:30	1.1
1:31	.570	5:31	1.140	9:31	1.710	13:31	2.850	17:31	1.1
1:32	.570	5:32	1.140	9:32	1.710	13:32	2.850	17:32	1.1
1:33	.570	5:33	1.140	9:33	1.710	13:33	2.850	17:33	1.1
1:34	.570	5:34	1.140	9:34	1.710	13:34	2.850	17:34	1.1
1:35	.570	5:35	1.140	9:35	1.710	13:35	2.850	17:35	1.1
1:36	.570	5:36	1.140	9:36	1.710	13:36	2.850	17:36	1.1
1:37	.570	5:37	1.140	9:37	1.710	13:37	2.850	17:37	.8
1:38	.570	5:38	1.140	9:38	1.710	13:38	2.850	17:38	.8
1:39	.570	5:39	1.140	9:39	1.710	13:39	2.850	17:39	.8
1:40	.570	5:40	1.140	9:40	1.710	13:40	2.850	17:40	.8
1:41	.570	5:41	1.140	9:41	1.710	13:41	2.850	17:41	.8
1:42	.570	5:42	1.140	9:42	1.710	13:42	2.850	17:42	.8
1:43	.570	5:43	1.140	9:43	1.710	13:43	2.850	17:43	.8
1:44	.570	5:44	1.140	9:44	1.710	13:44	2.850	17:44	.8
1:45	.570	5:45	1.140	9:45	1.710	13:45	2.850	17:45	.8
1:46	.570	5:46	1.140	9:46	1.710	13:46	2.850	17:46	.8
1:47	.570	5:47	1.140	9:47	1.710	13:47	2.850	17:47	.8
1:48	.570	5:48	1.140	9:48	1.710	13:48	2.850	17:48	.8
1:49	.570	5:49	1.140	9:49	1.710	13:49	2.850	17:49	1.1
1:50	.570	5:50	1.140	9:50	1.710	13:50	2.850	17:50	1.1
1:51	.570	5:51	1.140	9:51	1.710	13:51	2.850	17:51	1.1
1:52	.570	5:52	1.140	9:52	1.710	13:52	2.850	17:52	1.1
1:53	.570	5:53	1.140	9:53	1.710	13:53	2.850	17:53	1.1
1:54	.570	5:54	1.140	9:54	1.710	13:54	2.850	17:54	1.1
1:55	.570	5:55	1.140	9:55	1.710	13:55	2.850	17:55	1.1
1:56	.570	5:56	1.140	9:56	1.710	13:56	2.850	17:56	1.1
1:57	.570	5:57	1.140	9:57	1.710	13:57	2.850	17:57	1.1
1:58	.570	5:58	1.140	9:58	1.710	13:58	2.850	17:58	1.1
1:59	.570	5:59	1.140	9:59	1.710	13:59	2.850	17:59	1.1
2:00	.570	6:00	1.140	10:00	1.710	14:00	2.850	18:00	1.1
2:01	.570	6:01	1.140	10:01	1.710	14:01	2.850	18:01	.8
2:02	.570	6:02	1.140	10:02	1.710	14:02	2.850	18:02	.8
2:03	.570	6:03	1.140	10:03	1.710	14:03	2.850	18:03	.8
2:04	.570	6:04	1.140	10:04	1.710	14:04	2.850	18:04	.8
2:05	.570	6:05	1.140	10:05	1.710	14:05	2.850	18:05	.8
2:06	.570	6:06	1.140	10:06	1.710	14:06	2.850	18:06	.8
2:07	.570	6:07	1.140	10:07	1.710	14:07	2.850	18:07	.8
2:08	.570	6:08	1.140	10:08	1.710	14:08	2.850	18:08	.8
2:09	.570	6:09	1.140	10:09	1.710	14:09	2.850	18:09	.8
2:10	.570	6:10	1.140	10:10	1.710	14:10	2.850	18:10	.8
2:11	.570	6:11	1.140	10:11	1.710	14:11	2.850	18:11	.8
2:12	.570	6:12	1.140	10:12	1.710	14:12	2.850	18:12	.8
2:13	.570	6:13	1.140	10:13	3.135	14:13	1.710	18:13	.8
2:14	.570	6:14	1.140	10:14	3.135	14:14	1.710	18:14	.8
2:15	.570	6:15	1.140	10:15	3.135	14:15	1.710	18:15	.8
2:16	.570	6:16	1.140	10:16	3.135	14:16	1.710	18:16	.8
2:17	.570	6:17	1.140	10:17	3.135	14:17	1.710	18:17	.8
2:18	.570	6:18	1.140	10:18	3.135	14:18	1.710	18:18	.8
2:19	.570	6:19	1.140	10:19	3.135	14:19	1.710	18:19	.8
2:20	.570	6:20	1.140	10:20	3.135	14:20	1.710	18:20	.8
2:21	.570	6:21	1.140	10:21	3.135	14:21	1.710	18:21	.8
2:22	.570	6:22	1.140	10:22	3.135	14:22	1.710	18:22	.8
2:23	.570	6:23	1.140	10:23	3.135	14:23	1.710	18:23	.8
2:24	.570	6:24	1.140	10:24	3.135	14:24	1.710	18:24	.8
2:25	.570	6:25	1.140	10:25	3.135	14:25	1.710	18:25	.8
2:26	.570	6:26	1.140	10:26	3.135	14:26	1.710	18:26	.8
2:27	.570	6:27	1.140	10:27	3.135	14:27	1.710	18:27	.8
2:28	.570	6:28	1.140	10:28	3.135	14:28	1.710	18:28	.8
2:29	.570	6:29	1.140	10:29	3.135	14:29	1.710	18:29	.8
2:30	.570	6:30	1.140	10:30	3.135	14:30	1.710	18:30	.8
2:31	.570	6:31	1.140	10:31	3.135	14:31	1.710	18:31	.8
2:32	.570	6:32	1.140	10:32	3.135	14:32	1.710	18:32	.8
2:33	.570	6:33	1.140	10:33	3.135	14:33	1.710	18:33	.8
2:34	.570	6:34	1.140	10:34	3.135	14:34	1.710	18:34	.8
2:35	.570	6:35	1.140	10:35	3.135	14:35	1.710	18:35	.8
2:36	.570	6:36	1.140	10:36	3.135	14:36	1.710	18:36	.8
2:37	.570	6:37	1.140	10:37	3.135	14:37	1.710	18:37	1.1
2:38	.570	6:38	1.140	10:38	3.135	14:38	1.710	18:38	1.1
2:39	.570	6:39	1.140	10:39	3.135	14:39	1.710	18:39	1.1
2:40	.570	6:40	1.140	10:40	3.135	14:40	1.710	18:40	1.1
2:41	.570	6:41	1.140	10:41	3.135	14:41	1.710	18:41	1.1
2:42	.570	6:42	1.140	10:42	3.135	14:42	1.710	18:42	1.1
2:43	.570	6:43	1.140	10:43	3.135	14:43	1.710	18:43	1.1
2:44	.570	6:44	1.140	10:44	3.135	14:44	1.710	18:44	1.1
2:45	.570	6:45	1.140	10:45	3.135	14:45	1.710	18:45	1.1
2:46	.570	6:46	1.140	10:46	3.135	14:46	1.710	18:46	1.1
2:47	.570	6:47	1.140	10:47	3.135	14:47	1.710	18:47	1.1
2:48	.570	6:48	1.140	10:48	3.135	14:48	1.710	18:48	1.1
2:49	.570	6:49	1.140	10:49	3.135	14:49	1.710	18:49	.8
2:50	.570	6:50	1.140	10:50	3.135	14:50	1.710	18:50	.8
2:51	.570	6:51	1.140	10:51	3.135	14:51	1.710	18:51	.8
2:52	.570	6:52	1.140	10:52	3.135	14:52	1.710	18:52	.8
2:53	.570	6:53	1.140	10:53	3.135	14:53	1.710	18:53	.8
2:54	.570	6:54	1.140	10:54	3.135	14:54	1.710	18:54	.8
2:55	.570	6:55	1.140	10:55	3.135	14:55	1.710	18:55	.8
2:56	.570	6:56	1.140	10:56	3.135	14:56	1.710	18:56	.8
2:57	.570	6:57	1.140	10:57	3.135	14:57	1.710	18:57	.8
2:58	.570	6:58	1.140	10:58	3.135	14:58	1.710	18:58	.8
2:59	.570	6:59	1.140	10:59	3.135	14:59	1.710	18:59	.8
3:00	.570	7:00	1.140	11:00	3.135	15:00	1.710	19:00	.8
3:01	.570	7:01	1.140	11:01	3.135	15:01	1.710	19:01	.8
3:02	.570	7:02	1.140	11:02	3.135	15:02	1.710	19:02	.8
3:03	.570	7:03	1.140	11:03	3.135	15:03	1.710	19:03	.8
3:04	.570	7:04	1.140	11:04	3.135	15:04	1.710	19:04	.8
3:05	.570	7:05	1.140	11:05	3.135	15:05	1.710	19:05	.8
3:06	.570	7:06	1.140	11:06	3.135	15:06	1.710	19:06	.8
3:07	.570	7:07	1.140	11:07	3.135	15:07	1.710	19:07	.8
3:08	.570	7:08	1.140	11:08	3.135	15:08	1.710	19:08	.8
3:09	.570	7:09	1.140	11:09	3.135	15:09	1.710	19:09	.8
3:10	.570	7:10	1.140	11:10	3.135	15:10	1.710	19:10	.8
3:11	.570	7:11	1.140	11:11	3.135	15:11	1.710	19:11	.8
3:12	.570	7:12	1.140	11:12	3.135	15:12	1.710	19:12	.8
3:13	.570	7:13	1.140	11:13	4.275	15:13	1.425	19:13	1.1
3:14	.570	7:14	1.140	11:14	4.275	15:14	1.425	19:14	1.1
3:15	.570	7:15	1.140	11:15	4.275	15:15	1.425	19:15	1.1
3:16	.570	7:16	1.140	11:16	4.275	15:16	1.425	19:16	1.1
3:17	.570	7:17	1.140	11:17	4.275	15:17	1.425	19:17	1.1
3:18	.570	7:18	1.140	11:18	4.275	15:18	1.425	19:18	1.1
3:19	.570	7:19	1.140	11:19	4.275	15:19	1.425	19:19	1.1
3:20	.570	7:20	1.140	11:20	4.275	15:20	1.425	19:20	1.1
3:21	.570	7:21	1.140	11:21	4.275	15:21	1.425	19:21	1.1
3:22	.570	7:22	1.140	11:22	4.275	15:22	1.425	19:22	1.1
3:23	.570	7:23	1.140	11:23	4.275	15:23	1.425	19:23	1.1
3:24	.570	7:24	1.140	11:24	4.275	15:24	1.425	19:24	1.1
3:25	.570	7:25	1.140	11:25	6.270	15:25	1.425	19:25	.8
3:26	.570	7:26	1.140	11:26	6.270	15:26	1.425	19:26	.8
3:27	.570	7:27	1.140	11:27	6.270	15:27	1.425	19:27	.8
3:28	.570	7:28	1.140	11:28	6.270	15:28	1.425	19:28	.8
3:29	.570	7:29	1.140	11:29	6.270	15:29	1.425	19:29	.8
3:30	.570	7:30	1.140	11:30	6.270	15:30	1.425	19:30	.8
3:31	.570	7:31	1.140	11:31	6.270	15:31	1.425	19:31	.8
3:32	.570	7:32	1.140	11:32	6.270	15:32	1.425	19:32	.8
3:33	.570	7:33	1.140	11:33	6.270	15:33	1.425	19:33	.8
3:34	.570	7:34	1.140	11:34	6.270	15:34	1.425	19:34	.8
3:35	.570	7:35	1.140	11:35	6.270	15:35	1.425	19:35	.8
3:36	.570	7:36	1.140	11:36	6.270	15:36	1.425	19:36	.8
3:37	.570	7:37	1.140	11:37	15.105	15:37	1.425	19:37	1.1
3:38	.570	7:38	1.140	11:38	15.105	15:38	1.425	19:38	1.1
3:39	.570	7:39	1.140	11:39	15.105	15:39	1.425	19:39	1.1
3:40	.570	7:40	1.140	11:40	15.105	15:40	1.425	19:40	1.1
3:41	.570	7:41	1.140	11:41	15.105	15:41	1.425	19:41	1.1
3:42	.570	7:42	1.140	11:42	15.105	15:42	1.425	19:42	1.1
3:43	.570	7:43	1.140	11:43	15.105	15:43	1.425	19:43	1.1
3:44	.570	7:44	1.140	11:44	15.105	15:44	1.425	19:44	1.1
3:45	.570	7:45	1.140	11:45	15.105	15:45	1.425	19:45	1.1
3:46	.570	7:46	1.140	11:46	15.105	15:46	1.425	19:46	1.1
3:47	.570	7:47	1.140	11:47	15.105	15:47	1.425	19:47	1.1
3:48	.570	7:48	1.140	11:48	15.105	15:48	1.425	19:48	1.1
3:49	.570	7:49	1.140	11:49	31.350	15:49	1.425	19:49	.8
3:50	.570	7:50	1.140	11:50	31.350	15:50	1.425	19:50	.8
3:51	.570	7:51	1.140	11:51	31.350	15:51	1.425	19:51	.8
3:52	.570	7:52	1.140	11:52	31.350	15:52	1.425	19:52	.8
3:53	.570	7:53	1.140	11:53	31.350	15:53	1.425	19:53	.8
3:54	.570	7:54	1.140	11:54	31.350	15:54	1.425	19:54	.8
3:55	.570	7:55	1.140	11:55	31.350	15:55	1.425	19:55	.8
3:56	.570	7:56	1.140	11:56	31.350	15:56	1.425	19:56	.8
3:57	.570	7:57	1.140	11:57	31.350	15:57	1.425	19:57	.8
3:58	.570	7:58	1.140	11:58	31.350	15:58	1.425	19:58	.8
3:59	.570	7:59	1.140	11:59	31.350	15:59	1.425	19:59	.8
4:00	.570	8:00	1.140	12:00	31.350	16:00	1.425	20:00	.8

R0001:C00055

External-Catchments

CALIB NASHYD		Area	(ha)= 232.530	Curve Number	(CN)= 71.00
01:27	DT= 1.00	Ia	(mm)= 5.000	# of Linear Res.(N)=	3.00
		U.H. Tp(hrs)=	.710		

Unit Hyd Qpeak (cms)= 12.509

PEAK FLOW (cms)= 4.051 (i)
TIME TO PEAK (hrs)= 12.867
DURATION (hrs)= 28.567, (dddd|hh:mm:)= 1|04:34
AVERAGE FLOW (cms)= .393
RUNOFF VOLUME (mm)= 17.361
TOTAL RAINFALL (mm)= 57.000
RUNOFF COEFFICIENT = .305

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00056

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01351> -------------------------
01352> | CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
01353> | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01354> -------------------------   U.H. Tp(hrs)=     .500
01355>
01356>      Unit Hyd Qpeak  (cms)=     .469
01357>
01358>      PEAK FLOW       (cms)=     .143 (i)
01359>      TIME TO PEAK    (hrs)=   12.633
01360>      DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
01361>      AVERAGE FLOW    (cms)=     .011
01362>      RUNOFF VOLUME    (mm)=   17.934
01363>      TOTAL RAINFALL   (mm)=   57.000
01364>      RUNOFF COEFFICIENT   =     .315
01365>
01366>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01367>
01368> ---------------------------------------------------------------------------
01369> R0001:C00057-------------------------------------------------------------
01370> -------------------------
01371> | ADD HYD               |
01372> | 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01373> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01374>                          ID 1 01:27          232.530     4.051   12.867    17.361
01375>                         +ID 2 02:28            6.140      .143   12.633    17.934
01376>                         ============================================================
01377>                         SUM   03:Ditch       238.670     4.179   12.867    17.376
01378>
01379>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01380>
01381> ---------------------------------------------------------------------------
01382> R0001:C00058-------------------------------------------------------------
01383> -------------------------
01384> | CALIB STANDHYD         |   Area    (ha)=    9.34
01385> | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
01386> -------------------------
01387>                              IMPERVIOUS    PERVIOUS (i)
01388>      Surface Area     (ha)=      4.14         5.20
01389>      Dep. Storage     (mm)=      2.00         5.00
01390>      Average Slope     (%)=      2.00         2.00
01391>      Length            (m)=    250.00        30.00
01392>      Mannings n             =      .015         .250
01393>
01394>      Max.eff.Inten.(mm/hr)=     64.13        21.64
01395>                 over (min)=      5.00        16.00
01396>      Storage Coeff.  (min)=      4.68 (ii)   15.64 (ii)
01397>      Unit Hyd. Tpeak (min)=      5.00        16.00
01398>      Unit Hyd. peak  (cms)=       .24          .07
01399>                                                          *TOTALS*
01400>      PEAK FLOW       (cms)=       .22          .20          .368 (iii)
01401>      TIME TO PEAK    (hrs)=     12.20        12.38        12.233
01402>      RUNOFF VOLUME    (mm)=     55.00        12.81        18.841
01403>      TOTAL RAINFALL   (mm)=     57.00        57.00        57.000
01404>      RUNOFF COEFFICIENT   =       .96          .22          .331
01405>
01406>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01407>            CN* =  49.0    Ia = Dep. Storage  (Above)
01408>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
01409>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01410>
01411> ---------------------------------------------------------------------------
01412> R0001:C00059-------------------------------------------------------------
01413> -------------------------
01414> | ADD HYD               |
01415> | 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01416> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01417>                          ID 1 03:Ditch       238.670     4.179   12.867    17.376
01418>                         +ID 2 04:HB            9.340      .368   12.233    18.841
01419>                         ============================================================
01420>                         SUM   05:Ditch 2     248.010     4.278   12.850    17.431
01421>
01422>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01423>
01424> ---------------------------------------------------------------------------
01425> R0001:C00060-------------------------------------------------------------
01426> -------------------------
01427> | CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
01428> | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01429> -------------------------   U.H. Tp(hrs)=    1.160
01430>
01431>      Unit Hyd Qpeak  (cms)=    1.772
01432>
01433>      PEAK FLOW       (cms)=     .748 (i)
01434>      TIME TO PEAK    (hrs)=   13.400
01435>      DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
01436>      AVERAGE FLOW    (cms)=     .095
01437>      RUNOFF VOLUME    (mm)=   19.785
01438>      TOTAL RAINFALL   (mm)=   57.000
01439>      RUNOFF COEFFICIENT   =     .347
01440>
01441>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01442>
01443> ---------------------------------------------------------------------------
01444> R0001:C00061-------------------------------------------------------------
01445> -------------------------
01446> | ADD HYD               |
01447> | 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01448> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01449>                          ID 1 05:Ditch 2     248.010     4.278   12.850    17.431
01450>                         +ID 2 06:29           53.830      .748   13.400    19.785
01451>                         ============================================================
01452>                         SUM   07:Crk Inlet    301.840     4.902   12.900    17.851
01453>
01454>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01455>
01456> ---------------------------------------------------------------------------
01457> R0001:C00062-------------------------------------------------------------
01458> *#-----------------|--------------------Pre-development---------------------|
01459> -------------------------
01460> | CALIB NASHYD          |   Area    (ha)=    .240   Curve Number   (CN)= 50.00
01461> | 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01462> -------------------------   U.H. Tp(hrs)=    .070
01463>
01464>      Unit Hyd Qpeak  (cms)=     .131
01465>
01466>      PEAK FLOW       (cms)=     .008 (i)
01467>      TIME TO PEAK    (hrs)=   12.217
01468>      DURATION        (hrs)=   24.550, (dddd|hh:mm:)=   1|00:33
01469>      AVERAGE FLOW    (cms)=     .000
01470>      RUNOFF VOLUME    (mm)=    8.837
01471>      TOTAL RAINFALL   (mm)=   57.000
01472>      RUNOFF COEFFICIENT   =     .155
01473>
01474>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01475>
01476> ---------------------------------------------------------------------------
01477> R0001:C00063-------------------------------------------------------------
01478> *#-----------------|-------------------------------------------------------|
01479> -------------------------
01480> | CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
01481> | 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01482> -------------------------   U.H. Tp(hrs)=    .150
01483>
01484>      Unit Hyd Qpeak  (cms)=     .255
01485>
01486>      PEAK FLOW       (cms)=     .023 (i)
01487>      TIME TO PEAK    (hrs)=   12.267
01488>      DURATION        (hrs)=   25.050, (dddd|hh:mm:)=   1|01:03
01489>      AVERAGE FLOW    (cms)=     .001
01490>      RUNOFF VOLUME    (mm)=    8.720
01491>      TOTAL RAINFALL   (mm)=   57.000
01492>      RUNOFF COEFFICIENT   =     .153
01493>
01494>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01495>
01496> ---------------------------------------------------------------------------
01497> R0001:C00064-------------------------------------------------------------
01498> *#-----------------|-------------------------------------------------------|
01499> -------------------------
01500> | CALIB NASHYD          |   Area    (ha)=    .590   Curve Number   (CN)= 49.00
01501> | 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01502> -------------------------   U.H. Tp(hrs)=    .170
01503>
01504>      Unit Hyd Qpeak  (cms)=     .133
01505>
01506>      PEAK FLOW       (cms)=     .012 (i)
01507>      TIME TO PEAK    (hrs)=   12.283
01508>      DURATION        (hrs)=   25.183, (dddd|hh:mm:)=   1|01:11
01509>      AVERAGE FLOW    (cms)=     .001
01510>      RUNOFF VOLUME    (mm)=    8.547
01511>      TOTAL RAINFALL   (mm)=   57.000
01512>      RUNOFF COEFFICIENT   =     .150
01513>
01514>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01515>
01516> ---------------------------------------------------------------------------
01517> R0001:C00065-------------------------------------------------------------
01518> *#-----------------|-------------------------------------------------------|
01519> -------------------------
01520> | ADD HYD               |
01521> | 01:Site               |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01522> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01523>                          ID 1 08:101            .240      .008   12.217     8.837
01524>                         +ID 2 09:102           1.000      .023   12.267     8.720
01525>                         +ID 3 10:103            .590      .012   12.283     8.547
01526>                         ============================================================
01527>                         SUM   01:Site          1.830      .042   12.250     8.679
01528>
01529>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01530>
01531> ---------------------------------------------------------------------------
01532> R0001:C00066-------------------------------------------------------------
01533> -------------------------
01534> | ADD HYD               |
01535> | 02:Channel            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01536> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01537>                          ID 1 07:Crk Inlet    301.840     4.902   12.900    17.851
01538>                         +ID 2 01:Site          1.830      .042   12.250     8.679
01539>                         ============================================================
01540>                         SUM   02:Channel     303.670     4.909   12.900    17.796
01541>
01542>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01543>
01544> ---------------------------------------------------------------------------
01545> R0001:C00067-------------------------------------------------------------
01546> *#############################################################################
01547> *#############################################################################
01548> *#                              5yr SCS Storm (24hr)
01549> *#############################################################################
01550> *#############################################################################
01551> --------------------
01552> | MASS STORM         |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
01553> | Ptotal= 75.70 mm   |    Comments: 24 hour SCS II storm mass curve
01554> --------------------
01555>                          Duration of storm        =   24.00 hrs
01556>                          Mass curve time step     =   12.00 min
01557>                          Selected storm time step =    1.00 min
01558>                          Volume of derived storm  =   75.70 mm
01559>
01560>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
01561>      hh:mm    mm/hr|  hh:mm    mm/hr|  hh:mm    mm/hr|  hh:mm    mm/hr|  hh:mm    mm/
01562>       0:01    .000|   4:01    .757|   8:01   1.514|  12:01  85.163|  16:01   1.8
01563>       0:02    .000|   4:02    .757|   8:02   1.514|  12:02  85.163|  16:02   1.8
01564>       0:03    .000|   4:03    .757|   8:03   1.514|  12:03  85.163|  16:03   1.8
01565>       0:04    .000|   4:04    .757|   8:04   1.514|  12:04  85.163|  16:04   1.8
01566>       0:05    .000|   4:05    .757|   8:05   1.514|  12:05  85.163|  16:05   1.8
01567>       0:06    .000|   4:06    .757|   8:06   1.514|  12:06  85.163|  16:06   1.8
01568>       0:07    .000|   4:07    .757|   8:07   1.514|  12:07  85.163|  16:07   1.8
01569>       0:08    .000|   4:08    .757|   8:08   1.514|  12:08  85.163|  16:08   1.8
01570>       0:09    .000|   4:09    .757|   8:09   1.514|  12:09  85.163|  16:09   1.8
01571>       0:10    .000|   4:10    .757|   8:10   1.514|  12:10  85.163|  16:10   1.8
01572>       0:11    .000|   4:11    .757|   8:11   1.514|  12:11  85.163|  16:11   1.8
01573>       0:12    .000|   4:12    .757|   8:12   1.514|  12:12  85.163|  16:12   1.8
01574>       0:13    .757|   4:13   1.514|   8:13   2.271|  12:13  15.140|  16:13   1.8
01575>       0:14    .757|   4:14   1.514|   8:14   2.271|  12:14  15.140|  16:14   1.8
01576>       0:15    .757|   4:15   1.514|   8:15   2.271|  12:15  15.140|  16:15   1.8
01577>       0:16    .757|   4:16   1.514|   8:16   2.271|  12:16  15.140|  16:16   1.8
01578>       0:17    .757|   4:17   1.514|   8:17   2.271|  12:17  15.140|  16:17   1.8
01579>       0:18    .757|   4:18   1.514|   8:18   2.271|  12:18  15.140|  16:18   1.8
01580>       0:19    .757|   4:19   1.514|   8:19   2.271|  12:19  15.140|  16:19   1.8
01581>       0:20    .757|   4:20   1.514|   8:20   2.271|  12:20  15.140|  16:20   1.8
01582>       0:21    .757|   4:21   1.514|   8:21   2.271|  12:21  15.140|  16:21   1.8
01583>       0:22    .757|   4:22   1.514|   8:22   2.271|  12:22  15.140|  16:22   1.8
01584>       0:23    .757|   4:23   1.514|   8:23   2.271|  12:23  15.140|  16:23   1.8
01585>       0:24    .757|   4:24   1.514|   8:24   2.271|  12:24  15.140|  16:24   1.8
01586>       0:25    .757|   4:25   1.514|   8:25   2.271|  12:25   9.463|  16:25   1.8
01587>       0:26    .757|   4:26   1.514|   8:26   2.271|  12:26   9.463|  16:26   1.8
01588>       0:27    .757|   4:27   1.514|   8:27   2.271|  12:27   9.463|  16:27   1.8
01589>       0:28    .757|   4:28   1.514|   8:28   2.271|  12:28   9.463|  16:28   1.8
01590>       0:29    .757|   4:29   1.514|   8:29   2.271|  12:29   9.463|  16:29   1.8
01591>       0:30    .757|   4:30   1.514|   8:30   2.271|  12:30   9.463|  16:30   1.8
01592>       0:31    .757|   4:31   1.514|   8:31   2.271|  12:31   9.463|  16:31   1.8
01593>       0:32    .757|   4:32   1.514|   8:32   2.271|  12:32   9.463|  16:32   1.8
01594>       0:33    .757|   4:33   1.514|   8:33   2.271|  12:33   9.463|  16:33   1.8
01595>       0:34    .757|   4:34   1.514|   8:34   2.271|  12:34   9.463|  16:34   1.8
01596>       0:35    .757|   4:35   1.514|   8:35   2.271|  12:35   9.463|  16:35   1.8
01597>       0:36    .757|   4:36   1.514|   8:36   2.271|  12:36   9.463|  16:36   1.8
01598>       0:37    .757|   4:37   1.514|   8:37   2.271|  12:37   6.813|  16:37   1.8
01599>       0:38    .757|   4:38   1.514|   8:38   2.271|  12:38   6.813|  16:38   1.8
01600>       0:39    .757|   4:39   1.514|   8:39   2.271|  12:39   6.813|  16:39   1.8
01601>       0:40    .757|   4:40   1.514|   8:40   2.271|  12:40   6.813|  16:40   1.8
01602>       0:41    .757|   4:41   1.514|   8:41   2.271|  12:41   6.813|  16:41   1.8
01603>       0:42    .757|   4:42   1.514|   8:42   2.271|  12:42   6.813|  16:42   1.8
01604>       0:43    .757|   4:43   1.514|   8:43   2.271|  12:43   6.813|  16:43   1.8
01605>       0:44    .757|   4:44   1.514|   8:44   2.271|  12:44   6.813|  16:44   1.8
01606>       0:45    .757|   4:45   1.514|   8:45   2.271|  12:45   6.813|  16:45   1.8
01607>       0:46    .757|   4:46   1.514|   8:46   2.271|  12:46   6.813|  16:46   1.8
01608>       0:47    .757|   4:47   1.514|   8:47   2.271|  12:47   6.813|  16:47   1.8
01609>       0:48    .757|   4:48   1.514|   8:48   2.271|  12:48   6.813|  16:48   1.8
01610>       0:49    .757|   4:49   1.514|   8:49   2.271|  12:49   6.435|  16:49   1.8
01611>       0:50    .757|   4:50   1.514|   8:50   2.271|  12:50   6.435|  16:50   1.8
01612>       0:51    .757|   4:51   1.514|   8:51   2.271|  12:51   6.435|  16:51   1.8
01613>       0:52    .757|   4:52   1.514|   8:52   2.271|  12:52   6.435|  16:52   1.8
01614>       0:53    .757|   4:53   1.514|   8:53   2.271|  12:53   6.435|  16:53   1.8
01615>       0:54    .757|   4:54   1.514|   8:54   2.271|  12:54   6.435|  16:54   1.8
01616>       0:55    .757|   4:55   1.514|   8:55   2.271|  12:55   6.435|  16:55   1.8
01617>       0:56    .757|   4:56   1.514|   8:56   2.271|  12:56   6.435|  16:56   1.8
01618>       0:57    .757|   4:57   1.514|   8:57   2.271|  12:57   6.435|  16:57   1.8
01619>       0:58    .757|   4:58   1.514|   8:58   2.271|  12:58   6.435|  16:58   1.8
01620>       0:59    .757|   4:59   1.514|   8:59   2.271|  12:59   6.435|  16:59   1.8
```

01621>	1:00	.757	5:00	1.514	9:00	2.271	13:00	6.435	17:00	1.8	01756>	3:15	.757	7:15	1.514	11:15	5.678	15:15	1.892	19:15	1.5
01622>	1:01	.757	5:01	1.514	9:01	2.271	13:01	4.542	17:01	1.1	01757>	3:16	.757	7:16	1.514	11:16	5.678	15:16	1.892	19:16	1.5
01623>	1:02	.757	5:02	1.514	9:02	2.271	13:02	4.542	17:02	1.1	01758>	3:17	.757	7:17	1.514	11:17	5.678	15:17	1.892	19:17	1.5
01624>	1:03	.757	5:03	1.514	9:03	2.271	13:03	4.542	17:03	1.1	01759>	3:18	.757	7:18	1.514	11:18	5.678	15:18	1.892	19:18	1.5
01625>	1:04	.757	5:04	1.514	9:04	2.271	13:04	4.542	17:04	1.1	01760>	3:19	.757	7:19	1.514	11:19	5.678	15:19	1.892	19:19	1.5
01626>	1:05	.757	5:05	1.514	9:05	2.271	13:05	4.542	17:05	1.1	01761>	3:20	.757	7:20	1.514	11:20	5.678	15:20	1.892	19:20	1.5
01627>	1:06	.757	5:06	1.514	9:06	2.271	13:06	4.542	17:06	1.1	01762>	3:21	.757	7:21	1.514	11:21	5.678	15:21	1.892	19:21	1.5
01628>	1:07	.757	5:07	1.514	9:07	2.271	13:07	4.542	17:07	1.1	01763>	3:22	.757	7:22	1.514	11:22	5.678	15:22	1.892	19:22	1.5
01629>	1:08	.757	5:08	1.514	9:08	2.271	13:08	4.542	17:08	1.1	01764>	3:23	.757	7:23	1.514	11:23	5.678	15:23	1.892	19:23	1.5
01630>	1:09	.757	5:09	1.514	9:09	2.271	13:09	4.542	17:09	1.1	01765>	3:24	.757	7:24	1.514	11:24	5.678	15:24	1.892	19:24	1.5
01631>	1:10	.757	5:10	1.514	9:10	2.271	13:10	4.542	17:10	1.1	01766>	3:25	.757	7:25	1.514	11:25	8.327	15:25	1.892	19:25	1.1
01632>	1:11	.757	5:11	1.514	9:11	2.271	13:11	4.542	17:11	1.1	01767>	3:26	.757	7:26	1.514	11:26	8.327	15:26	1.892	19:26	1.1
01633>	1:12	.757	5:12	1.514	9:12	2.271	13:12	4.542	17:12	1.1	01768>	3:27	.757	7:27	1.514	11:27	8.327	15:27	1.892	19:27	1.1
01634>	1:13	.757	5:13	1.514	9:13	2.271	13:13	3.785	17:13	1.1	01769>	3:28	.757	7:28	1.514	11:28	8.327	15:28	1.892	19:28	1.1
01635>	1:14	.757	5:14	1.514	9:14	2.271	13:14	3.785	17:14	1.1	01770>	3:29	.757	7:29	1.514	11:29	8.327	15:29	1.892	19:29	1.1
01636>	1:15	.757	5:15	1.514	9:15	2.271	13:15	3.785	17:15	1.1	01771>	3:30	.757	7:30	1.514	11:30	8.327	15:30	1.892	19:30	1.1
01637>	1:16	.757	5:16	1.514	9:16	2.271	13:16	3.785	17:16	1.1	01772>	3:31	.757	7:31	1.514	11:31	8.327	15:31	1.892	19:31	1.1
01638>	1:17	.757	5:17	1.514	9:17	2.271	13:17	3.785	17:17	1.1	01773>	3:32	.757	7:32	1.514	11:32	8.327	15:32	1.892	19:32	1.1
01639>	1:18	.757	5:18	1.514	9:18	2.271	13:18	3.785	17:18	1.1	01774>	3:33	.757	7:33	1.514	11:33	8.327	15:33	1.892	19:33	1.1
01640>	1:19	.757	5:19	1.514	9:19	2.271	13:19	3.785	17:19	1.1	01775>	3:34	.757	7:34	1.514	11:34	8.327	15:34	1.892	19:34	1.1
01641>	1:20	.757	5:20	1.514	9:20	2.271	13:20	3.785	17:20	1.1	01776>	3:35	.757	7:35	1.514	11:35	8.327	15:35	1.892	19:35	1.1
01642>	1:21	.757	5:21	1.514	9:21	2.271	13:21	3.785	17:21	1.1	01777>	3:36	.757	7:36	1.514	11:36	8.327	15:36	1.892	19:36	1.1
01643>	1:22	.757	5:22	1.514	9:22	2.271	13:22	3.785	17:22	1.1	01778>	3:37	.757	7:37	1.514	11:37	20.060	15:37	1.892	19:37	1.5
01644>	1:23	.757	5:23	1.514	9:23	2.271	13:23	3.785	17:23	1.1	01779>	3:38	.757	7:38	1.514	11:38	20.060	15:38	1.892	19:38	1.5
01645>	1:24	.757	5:24	1.514	9:24	2.271	13:24	3.785	17:24	1.1	01780>	3:39	.757	7:39	1.514	11:39	20.060	15:39	1.892	19:39	1.5
01646>	1:25	.757	5:25	1.514	9:25	2.271	13:25	3.785	17:25	1.5	01781>	3:40	.757	7:40	1.514	11:40	20.060	15:40	1.892	19:40	1.5
01647>	1:26	.757	5:26	1.514	9:26	2.271	13:26	3.785	17:26	1.5	01782>	3:41	.757	7:41	1.514	11:41	20.060	15:41	1.892	19:41	1.5
01648>	1:27	.757	5:27	1.514	9:27	2.271	13:27	3.785	17:27	1.5	01783>	3:42	.757	7:42	1.514	11:42	20.060	15:42	1.892	19:42	1.5
01649>	1:28	.757	5:28	1.514	9:28	2.271	13:28	3.785	17:28	1.5	01784>	3:43	.757	7:43	1.514	11:43	20.060	15:43	1.892	19:43	1.5
01650>	1:29	.757	5:29	1.514	9:29	2.271	13:29	3.785	17:29	1.5	01785>	3:44	.757	7:44	1.514	11:44	20.060	15:44	1.892	19:44	1.5
01651>	1:30	.757	5:30	1.514	9:30	2.271	13:30	3.785	17:30	1.5	01786>	3:45	.757	7:45	1.514	11:45	20.060	15:45	1.892	19:45	1.5
01652>	1:31	.757	5:31	1.514	9:31	2.271	13:31	3.785	17:31	1.5	01787>	3:46	.757	7:46	1.514	11:46	20.060	15:46	1.892	19:46	1.5
01653>	1:32	.757	5:32	1.514	9:32	2.271	13:32	3.785	17:32	1.5	01788>	3:47	.757	7:47	1.514	11:47	20.060	15:47	1.892	19:47	1.5
01654>	1:33	.757	5:33	1.514	9:33	2.271	13:33	3.785	17:33	1.5	01789>	3:48	.757	7:48	1.514	11:48	20.060	15:48	1.892	19:48	1.5
01655>	1:34	.757	5:34	1.514	9:34	2.271	13:34	3.785	17:34	1.5	01790>	3:49	.757	7:49	1.514	11:49	41.635	15:49	1.892	19:49	1.1
01656>	1:35	.757	5:35	1.514	9:35	2.271	13:35	3.785	17:35	1.5	01791>	3:50	.757	7:50	1.514	11:50	41.635	15:50	1.892	19:50	1.1
01657>	1:36	.757	5:36	1.514	9:36	2.271	13:36	3.785	17:36	1.5	01792>	3:51	.757	7:51	1.514	11:51	41.635	15:51	1.892	19:51	1.1
01658>	1:37	.757	5:37	1.514	9:37	2.271	13:37	3.785	17:37	1.1	01793>	3:52	.757	7:52	1.514	11:52	41.635	15:52	1.892	19:52	1.1
01659>	1:38	.757	5:38	1.514	9:38	2.271	13:38	3.785	17:38	1.1	01794>	3:53	.757	7:53	1.514	11:53	41.635	15:53	1.892	19:53	1.1
01660>	1:39	.757	5:39	1.514	9:39	2.271	13:39	3.785	17:39	1.1	01795>	3:54	.757	7:54	1.514	11:54	41.635	15:54	1.892	19:54	1.1
01661>	1:40	.757	5:40	1.514	9:40	2.271	13:40	3.785	17:40	1.1	01796>	3:55	.757	7:55	1.514	11:55	41.635	15:55	1.892	19:55	1.1
01662>	1:41	.757	5:41	1.514	9:41	2.271	13:41	3.785	17:41	1.1	01797>	3:56	.757	7:56	1.514	11:56	41.635	15:56	1.892	19:56	1.1
01663>	1:42	.757	5:42	1.514	9:42	2.271	13:42	3.785	17:42	1.1	01798>	3:57	.757	7:57	1.514	11:57	41.635	15:57	1.892	19:57	1.1
01664>	1:43	.757	5:43	1.514	9:43	2.271	13:43	3.785	17:43	1.1	01799>	3:58	.757	7:58	1.514	11:58	41.635	15:58	1.892	19:58	1.1
01665>	1:44	.757	5:44	1.514	9:44	2.271	13:44	3.785	17:44	1.1	01800>	3:59	.757	7:59	1.514	11:59	41.635	15:59	1.892	19:59	1.1
01666>	1:45	.757	5:45	1.514	9:45	2.271	13:45	3.785	17:45	1.1	01801>	4:00	.757	8:00	1.514	12:00	41.635	16:00	1.892	20:00	1.1
01667>	1:46	.757	5:46	1.514	9:46	2.271	13:46	3.785	17:46	1.1	01802>										
01668>	1:47	.757	5:47	1.514	9:47	2.271	13:47	3.785	17:47	1.1	01803>	----------									
01669>	1:48	.757	5:48	1.514	9:48	2.271	13:48	3.785	17:48	1.1	01804>	R0001:C00068									
01670>	1:49	.757	5:49	1.514	9:49	2.271	13:49	3.785	17:49	1.5	01805>	***********									
01671>	1:50	.757	5:50	1.514	9:50	2.271	13:50	3.785	17:50	1.5	01806>	*#----------------|								
01672>	1:51	.757	5:51	1.514	9:51	2.271	13:51	3.785	17:51	1.5	01807>	*#----------------|----------External-Catchments----------								
01673>	1:52	.757	5:52	1.514	9:52	2.271	13:52	3.785	17:52	1.5	01808>	----------									
01674>	1:53	.757	5:53	1.514	9:53	2.271	13:53	3.785	17:53	1.5	01809>	| CALIB NASHYD | Area (ha)= 232.530 Curve Number (CN)= 71.00								
01675>	1:54	.757	5:54	1.514	9:54	2.271	13:54	3.785	17:54	1.5	01810>	| 01:27 DT= 1.00 | Ia (mm)= 5.000 # of Linear Res.(N)= 3.00								
01676>	1:55	.757	5:55	1.514	9:55	2.271	13:55	3.785	17:55	1.5	01811>	---------- U.H. Tp(hrs)= .710								
01677>	1:56	.757	5:56	1.514	9:56	2.271	13:56	3.785	17:56	1.5	01812>										
01678>	1:57	.757	5:57	1.514	9:57	2.271	13:57	3.785	17:57	1.5	01813>	Unit Hyd Qpeak (cms)= 12.509								
01679>	1:58	.757	5:58	1.514	9:58	2.271	13:58	3.785	17:58	1.5	01814>										
01680>	1:59	.757	5:59	1.514	9:59	2.271	13:59	3.785	17:59	1.5	01815>	PEAK FLOW (cms)= 6.798 (i)								
01681>	2:00	.757	6:00	1.514	10:00	2.271	14:00	3.785	18:00	1.5	01816>	TIME TO PEAK (hrs)= 12.867								
01682>	2:01	.757	6:01	1.514	10:01	2.271	14:01	3.785	18:01	1.1	01817>	DURATION (hrs)= 28.567, (dddd|hh:mm:)= 1|04:34								
01683>	2:02	.757	6:02	1.514	10:02	2.271	14:02	3.785	18:02	1.1	01818>	AVERAGE FLOW (cms)= .648								
01684>	2:03	.757	6:03	1.514	10:03	2.271	14:03	3.785	18:03	1.1	01819>	RUNOFF VOLUME (mm)= 28.653								
01685>	2:04	.757	6:04	1.514	10:04	2.271	14:04	3.785	18:04	1.1	01820>	TOTAL RAINFALL (mm)= 75.699								
01686>	2:05	.757	6:05	1.514	10:05	2.271	14:05	3.785	18:05	1.1	01821>	RUNOFF COEFFICIENT = .379								
01687>	2:06	.757	6:06	1.514	10:06	2.271	14:06	3.785	18:06	1.1	01822>										
01688>	2:07	.757	6:07	1.514	10:07	2.271	14:07	3.785	18:07	1.1	01823>	(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.								
01689>	2:08	.757	6:08	1.514	10:08	2.271	14:08	3.785	18:08	1.1	01824>										
01690>	2:09	.757	6:09	1.514	10:09	2.271	14:09	3.785	18:09	1.1	01825>	----------									
01691>	2:10	.757	6:10	1.514	10:10	2.271	14:10	3.785	18:10	1.1	01826>	R0001:C00069									
01692>	2:11	.757	6:11	1.514	10:11	2.271	14:11	3.785	18:11	1.1	01827>	----------									
01693>	2:12	.757	6:12	1.514	10:12	2.271	14:12	3.785	18:12	1.1	01828>	| CALIB NASHYD | Area (ha)= 6.140 Curve Number (CN)= 72.00								
01694>	2:13	.757	6:13	1.514	10:13	4.163	14:13	2.271	18:13	1.1	01829>	| 02:28 DT= 1.00 | Ia (mm)= 5.000 # of Linear Res.(N)= 3.00								
01695>	2:14	.757	6:14	1.514	10:14	4.163	14:14	2.271	18:14	1.1	01830>	---------- U.H. Tp(hrs)= .500								
01696>	2:15	.757	6:15	1.514	10:15	4.163	14:15	2.271	18:15	1.1	01831>										
01697>	2:16	.757	6:16	1.514	10:16	4.163	14:16	2.271	18:16	1.1	01832>	Unit Hyd Qpeak (cms)= .469								
01698>	2:17	.757	6:17	1.514	10:17	4.163	14:17	2.271	18:17	1.1	01833>										
01699>	2:18	.757	6:18	1.514	10:18	4.163	14:18	2.271	18:18	1.1	01834>	PEAK FLOW (cms)= .239 (i)								
01700>	2:19	.757	6:19	1.514	10:19	4.163	14:19	2.271	18:19	1.1	01835>	TIME TO PEAK (hrs)= 12.617								
01701>	2:20	.757	6:20	1.514	10:20	4.163	14:20	2.271	18:20	1.1	01836>	DURATION (hrs)= 27.333, (dddd|hh:mm:)= 1|03:20								
01702>	2:21	.757	6:21	1.514	10:21	4.163	14:21	2.271	18:21	1.1	01837>	AVERAGE FLOW (cms)= .018								
01703>	2:22	.757	6:22	1.514	10:22	4.163	14:22	2.271	18:22	1.1	01838>	RUNOFF VOLUME (mm)= 29.493								
01704>	2:23	.757	6:23	1.514	10:23	4.163	14:23	2.271	18:23	1.1	01839>	TOTAL RAINFALL (mm)= 75.699								
01705>	2:24	.757	6:24	1.514	10:24	4.163	14:24	2.271	18:24	1.1	01840>	RUNOFF COEFFICIENT = .390								
01706>	2:25	.757	6:25	1.514	10:25	4.164	14:25	2.271	18:25	1.1	01841>										
01707>	2:26	.757	6:26	1.514	10:26	4.164	14:26	2.271	18:26	1.1	01842>	(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.								
01708>	2:27	.757	6:27	1.514	10:27	4.164	14:27	2.271	18:27	1.1	01843>										
01709>	2:28	.757	6:28	1.514	10:28	4.164	14:28	2.271	18:28	1.1	01844>	----------									
01710>	2:29	.757	6:29	1.514	10:29	4.164	14:29	2.271	18:29	1.1	01845>	R0001:C00070									
01711>	2:30	.757	6:30	1.514	10:30	4.164	14:30	2.271	18:30	1.1	01846>	----------									
01712>	2:31	.757	6:31	1.514	10:31	4.164	14:31	2.271	18:31	1.1	01847>	| ADD HYD |								
01713>	2:32	.757	6:32	1.514	10:32	4.164	14:32	2.271	18:32	1.1	01848>	| 03:Ditch ID:NHYD AREA QPEAK TPEAK R.V.								
01714>	2:33	.757	6:33	1.514	10:33	4.164	14:33	2.271	18:33	1.1	01849>	---------- (ha) (cms) (hrs) (mm)								
01715>	2:34	.757	6:34	1.514	10:34	4.164	14:34	2.271	18:34	1.1	01850>	ID 1 01:27 232.530 6.798 12.867 28.653								
01716>	2:35	.757	6:35	1.514	10:35	4.164	14:35	2.271	18:35	1.1	01851>	+ID 2 02:28 6.140 .239 12.617 29.493								
01717>	2:36	.757	6:36	1.514	10:36	4.164	14:36	2.271	18:36	1.1	01852>	==========								
01718>	2:37	.757	6:37	1.514	10:37	4.163	14:37	2.271	18:37	1.5	01853>	SUM 03:Ditch 238.670 7.012 12.850 28.675								
01719>	2:38	.757	6:38	1.514	10:38	4.163	14:38	2.271	18:38	1.5	01854>										
01720>	2:39	.757	6:39	1.514	10:39	4.163	14:39	2.271	18:39	1.5	01855>	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.								
01721>	2:40	.757	6:40	1.514	10:40	4.163	14:40	2.271	18:40	1.5	01856>										
01722>	2:41	.757	6:41	1.514	10:41	4.163	14:41	2.271	18:41	1.5	01857>	----------									
01723>	2:42	.757	6:42	1.514	10:42	4.163	14:42	2.271	18:42	1.5	01858>	R0001:C00071									
01724>	2:43	.757	6:43	1.514	10:43	4.163	14:43	2.271	18:43	1.5	01859>	----------									
01725>	2:44	.757	6:44	1.514	10:44	4.163	14:44	2.271	18:44	1.5	01860>	| CALIB STANDHYD | Area (ha)= 9.34								
01726>	2:45	.757	6:45	1.514	10:45	4.163	14:45	2.271	18:45	1.5	01861>	| 04:HB DT= 1.00 | Total Imp(%)= 44.30 Dir. Conn.(%)= 14.30								
01727>	2:46	.757	6:46	1.514	10:46	4.163	14:46	2.271	18:46	1.5	01862>	----------									
01728>	2:47	.757	6:47	1.514	10:47	4.163	14:47	2.271	18:47	1.5	01863>	IMPERVIOUS PERVIOUS (i)								
01729>	2:48	.757	6:48	1.514	10:48	4.163	14:48	2.271	18:48	1.5	01864>	Surface Area (ha)= 4.14 5.20								
01730>	2:49	.757	6:49	1.514	10:49	4.164	14:49	2.271	18:49	1.1	01865>	Dep. Storage (mm)= 2.00 5.00								
01731>	2:50	.757	6:50	1.514	10:50	4.164	14:50	2.271	18:50	1.1	01866>	Average Slope (%)= 2.00 2.00								
01732>	2:51	.757	6:51	1.514	10:51	4.164	14:51	2.271	18:51	1.1	01867>	Length (m)= 250.00 30.00								
01733>	2:52	.757	6:52	1.514	10:52	4.164	14:52	2.271	18:52	1.1	01868>	Mannings n = .015 .250								
01734>	2:53	.757	6:53	1.514	10:53	4.164	14:53	2.271	18:53	1.1	01869>										
01735>	2:54	.757	6:54	1.514	10:54	4.164	14:54	2.271	18:54	1.1	01870>	Max.eff.Inten.(mm/hr)= 85.16 41.19								
01736>	2:55	.757	6:55	1.514	10:55	4.164	14:55	2.271	18:55	1.1	01871>	over (min) 4.00 13.00								
01737>	2:56	.757	6:56	1.514	10:56	4.164	14:56	2.271	18:56	1.1	01872>	Storage Coeff. (min)= 4.18 (ii) 12.65 (ii)								
01738>	2:57	.757	6:57	1.514	10:57	4.164	14:57	2.271	18:57	1.1	01873>	Unit Hyd. Tpeak (min)= 4.00 13.00								
01739>	2:58	.757	6:58	1.514	10:58	4.164	14:58	2.271	18:58	1.1	01874>	Unit Hyd. peak (cms)= .27 .09								
01740>	2:59	.757	6:59	1.514	10:59	4.164	14:59	2.271	18:59	1.1	01875>	*TOTALS*								
01741>	3:00	.757	7:00	1.514	11:00	4.164	15:00	2.271	19:00	1.1	01876>	PEAK FLOW (cms)= .30 .39 .615 (iii)								
01742>	3:01	.757	7:01	1.514	11:01	4.163	15:01	2.271	19:01	1.1	01877>	TIME TO PEAK (hrs)= 12.20 12.32 12.233								
01743>	3:02	.757	7:02	1.514	11:02	4.163	15:02	2.271	19:02	1.1	01878>	RUNOFF VOLUME (mm)= 73.70 21.49 28.955								
01744>	3:03	.757	7:03	1.514	11:03	4.163	15:03	2.271	19:03	1.1	01879>	TOTAL RAINFALL (mm)= 75.70 75.70 75.699								
01745>	3:04	.757	7:04	1.514	11:04	4.163	15:04	2.271	19:04	1.1	01880>	RUNOFF COEFFICIENT = .97 .28 .382								
01746>	3:05	.757	7:05	1.514	11:05	4.163	15:05	2.271	19:05	1.1	01881>										
01747>	3:06	.757	7:06	1.514	11:06	4.163	15:06	2.271	19:06	1.1	01882>	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:								
01748>	3:07	.757	7:07	1.514	11:07	4.163	15:07	2.271	19:07	1.1	01883>	CN* = 49.0 Ia = Dep. Storage (Above)								
01749>	3:08	.757	7:08	1.514	11:08	4.163	15:08	2.271	19:08	1.1	01884>	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN								
01750>	3:09	.757	7:09	1.514	11:09	4.163	15:09	2.271	19:09	1.1	01885>	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.								
01751>	3:10	.757	7:10	1.514	11:10	4.163	15:10	2.271	19:10	1.1	01886>										
01752>	3:11	.757	7:11	1.514	11:11	4.163	15:11	2.271	19:11	1.1	01887>	----------									
01753>	3:12	.757	7:12	1.514	11:12	4.163	15:12	2.271	19:12	1.1	01888>	R0001:C00072									
01754>	3:13	.757	7:13	1.514	11:13	5.678	15:13	1.892	19:13	1.5	01889>	----------									
01755>	3:14	.757	7:14	1.514	11:14	5.678	15:14	1.892	19:14	1.5	01890>	| ADD HYD |								

```
| 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 03:Ditch       238.670    7.012   12.850    28.675
                        +ID 2 04:HB            9.340     .615   12.233    28.955
                        ==========================================================
                        SUM   05:Ditch 2      248.010    7.151   12.833    28.685

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00073-----------------------------------------------------------------------
-------------------------
| CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    1.236 (i)
     TIME TO PEAK    (hrs)=   13.367
     DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
     AVERAGE FLOW    (cms)=     .155
     RUNOFF VOLUME    (mm)=   32.172
     TOTAL RAINFALL   (mm)=   75.699
     RUNOFF COEFFICIENT   =     .425

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00074-----------------------------------------------------------------------
-------------------------
| ADD HYD               |
| 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 05:Ditch 2     248.010    7.151   12.833    28.685
                        +ID 2 06:29           53.830    1.236   13.367    32.172
                        ==========================================================
                        SUM   07:Crk Inlet    301.840    8.188   12.883    29.307

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00075-----------------------------------------------------------------------
*#-----------------|--------------------Pre-development---------------------|
-------------------------
| CALIB NASHYD          |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
| 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=     .070

     Unit Hyd Qpeak  (cms)=     .131

     PEAK FLOW       (cms)=     .013 (i)
     TIME TO PEAK    (hrs)=   12.217
     DURATION        (hrs)=   24.550, (dddd|hh:mm:)=   1|00:33
     AVERAGE FLOW    (cms)=     .000
     RUNOFF VOLUME    (mm)=   15.394
     TOTAL RAINFALL   (mm)=   75.699
     RUNOFF COEFFICIENT   =     .203

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00076-----------------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
-------------------------
| CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
| 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=     .150

     Unit Hyd Qpeak  (cms)=     .255

     PEAK FLOW       (cms)=     .041 (i)
     TIME TO PEAK    (hrs)=   12.267
     DURATION        (hrs)=   25.050, (dddd|hh:mm:)=   1|01:03
     AVERAGE FLOW    (cms)=     .002
     RUNOFF VOLUME    (mm)=   15.202
     TOTAL RAINFALL   (mm)=   75.699
     RUNOFF COEFFICIENT   =     .201

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00077-----------------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
-------------------------
| CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
| 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=     .170

     Unit Hyd Qpeak  (cms)=     .133

     PEAK FLOW       (cms)=     .022 (i)
     TIME TO PEAK    (hrs)=   12.283
     DURATION        (hrs)=   25.183, (dddd|hh:mm:)=   1|01:11
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=   14.918
     TOTAL RAINFALL   (mm)=   75.699
     RUNOFF COEFFICIENT   =     .197

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00078-----------------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
-------------------------
| ADD HYD               |
| 01:Site               |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 08:101            .240      .013   12.217    15.394
                        +ID 2 09:102           1.000      .041   12.267    15.202
                        +ID 3 10:103            .590      .022   12.283    14.918
                        ==========================================================
                        SUM   01:Site          1.830      .073   12.250    15.136

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00079-----------------------------------------------------------------------
-------------------------
| ADD HYD               |
| 02:Channel            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 07:Crk Inlet   301.840    8.188   12.883    29.307
                        +ID 2 01:Site          1.830     .073   12.250    15.136
                        ==========================================================
                        SUM   02:Channel     303.670    8.200   12.883    29.222

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00080-----------------------------------------------------------------------
*#**************************************************************************
*#**************************************************************************
*#                          25yr SCS Storm (24hr)
*#**************************************************************************

*#**************************************************************************
--------------------
| MASS STORM        |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
| Ptotal=103.90 mm  |    Comments: 24 hour SCS II storm mass curve
--------------------

                          Duration of storm        =   24.00 hrs
                          Mass curve time step     =   12.00 min
                          Selected storm time step =    1.00 min
                          Volume of derived storm  =  103.90 mm

      TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
    hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
      0:01    .000|   4:01   1.039|   8:01   2.078|  12:01 116.888|  16:01   2.5
      0:02    .000|   4:02   1.039|   8:02   2.078|  12:02 116.888|  16:02   2.5
      0:03    .000|   4:03   1.039|   8:03   2.078|  12:03 116.888|  16:03   2.5
      0:04    .000|   4:04   1.039|   8:04   2.078|  12:04 116.888|  16:04   2.5
      0:05    .000|   4:05   1.039|   8:05   2.078|  12:05 116.888|  16:05   2.5
      0:06    .000|   4:06   1.039|   8:06   2.078|  12:06 116.888|  16:06   2.5
      0:07    .000|   4:07   1.039|   8:07   2.078|  12:07 116.888|  16:07   2.5
      0:08    .000|   4:08   1.039|   8:08   2.078|  12:08 116.888|  16:08   2.5
      0:09    .000|   4:09   1.039|   8:09   2.078|  12:09 116.888|  16:09   2.5
      0:10    .000|   4:10   1.039|   8:10   2.078|  12:10 116.888|  16:10   2.5
      0:11    .000|   4:11   1.039|   8:11   2.078|  12:11 116.888|  16:11   2.5
      0:12    .000|   4:12   1.039|   8:12   2.078|  12:12 116.888|  16:12   2.5
      0:13   1.039|   4:13   2.078|   8:13   3.117|  12:13  20.780|  16:13   2.5
      0:14   1.039|   4:14   2.078|   8:14   3.117|  12:14  20.780|  16:14   2.5
      0:15   1.039|   4:15   2.078|   8:15   3.117|  12:15  20.780|  16:15   2.5
      0:16   1.039|   4:16   2.078|   8:16   3.117|  12:16  20.780|  16:16   2.5
      0:17   1.039|   4:17   2.078|   8:17   3.117|  12:17  20.780|  16:17   2.5
      0:18   1.039|   4:18   2.078|   8:18   3.117|  12:18  20.780|  16:18   2.5
      0:19   1.039|   4:19   2.078|   8:19   3.117|  12:19  20.780|  16:19   2.5
      0:20   1.039|   4:20   2.078|   8:20   3.117|  12:20  20.780|  16:20   2.5
      0:21   1.039|   4:21   2.078|   8:21   3.117|  12:21  20.780|  16:21   2.5
      0:22   1.039|   4:22   2.078|   8:22   3.117|  12:22  20.780|  16:22   2.5
      0:23   1.039|   4:23   2.078|   8:23   3.117|  12:23  20.780|  16:23   2.5
      0:24   1.039|   4:24   2.078|   8:24   3.117|  12:24  20.780|  16:24   2.5
      0:25   1.039|   4:25   2.078|   8:25   3.117|  12:25  12.988|  16:25   2.5
      0:26   1.039|   4:26   2.078|   8:26   3.117|  12:26  12.988|  16:26   2.5
      0:27   1.039|   4:27   2.078|   8:27   3.117|  12:27  12.988|  16:27   2.5
      0:28   1.039|   4:28   2.078|   8:28   3.117|  12:28  12.988|  16:28   2.5
      0:29   1.039|   4:29   2.078|   8:29   3.117|  12:29  12.988|  16:29   2.5
      0:30   1.039|   4:30   2.078|   8:30   3.117|  12:30  12.988|  16:30   2.5
      0:31   1.039|   4:31   2.078|   8:31   3.117|  12:31  12.988|  16:31   2.5
      0:32   1.039|   4:32   2.078|   8:32   3.117|  12:32  12.988|  16:32   2.5
      0:33   1.039|   4:33   2.078|   8:33   3.117|  12:33  12.988|  16:33   2.5
      0:34   1.039|   4:34   2.078|   8:34   3.117|  12:34  12.988|  16:34   2.5
      0:35   1.039|   4:35   2.078|   8:35   3.117|  12:35  12.988|  16:35   2.5
      0:36   1.039|   4:36   2.078|   8:36   3.117|  12:36  12.988|  16:36   2.5
      0:37   1.039|   4:37   2.078|   8:37   3.117|  12:37   9.351|  16:37   2.5
      0:38   1.039|   4:38   2.078|   8:38   3.117|  12:38   9.351|  16:38   2.5
      0:39   1.039|   4:39   2.078|   8:39   3.117|  12:39   9.351|  16:39   2.5
      0:40   1.039|   4:40   2.078|   8:40   3.117|  12:40   9.351|  16:40   2.5
      0:41   1.039|   4:41   2.078|   8:41   3.117|  12:41   9.351|  16:41   2.5
      0:42   1.039|   4:42   2.078|   8:42   3.117|  12:42   9.351|  16:42   2.5
      0:43   1.039|   4:43   2.078|   8:43   3.117|  12:43   9.351|  16:43   2.5
      0:44   1.039|   4:44   2.078|   8:44   3.117|  12:44   9.351|  16:44   2.5
      0:45   1.039|   4:45   2.078|   8:45   3.117|  12:45   9.351|  16:45   2.5
      0:46   1.039|   4:46   2.078|   8:46   3.117|  12:46   9.351|  16:46   2.5
      0:47   1.039|   4:47   2.078|   8:47   3.117|  12:47   9.351|  16:47   2.5
      0:48   1.039|   4:48   2.078|   8:48   3.117|  12:48   9.351|  16:48   2.5
      0:49   1.039|   4:49   2.078|   8:49   3.117|  12:49   8.832|  16:49   2.5
      0:50   1.039|   4:50   2.078|   8:50   3.117|  12:50   8.832|  16:50   2.5
      0:51   1.039|   4:51   2.078|   8:51   3.117|  12:51   8.832|  16:51   2.5
      0:52   1.039|   4:52   2.078|   8:52   3.117|  12:52   8.832|  16:52   2.5
      0:53   1.039|   4:53   2.078|   8:53   3.117|  12:53   8.832|  16:53   2.5
      0:54   1.039|   4:54   2.078|   8:54   3.117|  12:54   8.832|  16:54   2.5
      0:55   1.039|   4:55   2.078|   8:55   3.117|  12:55   8.832|  16:55   2.5
      0:56   1.039|   4:56   2.078|   8:56   3.117|  12:56   8.832|  16:56   2.5
      0:57   1.039|   4:57   2.078|   8:57   3.117|  12:57   8.832|  16:57   2.5
      0:58   1.039|   4:58   2.078|   8:58   3.117|  12:58   8.832|  16:58   2.5
      0:59   1.039|   4:59   2.078|   8:59   3.117|  12:59   8.832|  16:59   2.5
      1:00   1.039|   5:00   2.078|   9:00   3.117|  13:00   8.832|  17:00   2.5
      1:01   1.039|   5:01   2.078|   9:01   3.117|  13:01   6.234|  17:01   1.5
      1:02   1.039|   5:02   2.078|   9:02   3.117|  13:02   6.234|  17:02   1.5
      1:03   1.039|   5:03   2.078|   9:03   3.117|  13:03   6.234|  17:03   1.5
      1:04   1.039|   5:04   2.078|   9:04   3.117|  13:04   6.234|  17:04   1.5
      1:05   1.039|   5:05   2.078|   9:05   3.117|  13:05   6.234|  17:05   1.5
      1:06   1.039|   5:06   2.078|   9:06   3.117|  13:06   6.234|  17:06   1.5
      1:07   1.039|   5:07   2.078|   9:07   3.117|  13:07   6.234|  17:07   1.5
      1:08   1.039|   5:08   2.078|   9:08   3.117|  13:08   6.234|  17:08   1.5
      1:09   1.039|   5:09   2.078|   9:09   3.117|  13:09   6.234|  17:09   1.5
      1:10   1.039|   5:10   2.078|   9:10   3.117|  13:10   6.234|  17:10   1.5
      1:11   1.039|   5:11   2.078|   9:11   3.117|  13:11   6.234|  17:11   1.5
      1:12   1.039|   5:12   2.078|   9:12   3.117|  13:12   6.234|  17:12   1.5
      1:13   1.039|   5:13   2.078|   9:13   3.117|  13:13   5.195|  17:13   1.5
      1:14   1.039|   5:14   2.078|   9:14   3.117|  13:14   5.195|  17:14   1.5
      1:15   1.039|   5:15   2.078|   9:15   3.117|  13:15   5.195|  17:15   1.5
      1:16   1.039|   5:16   2.078|   9:16   3.117|  13:16   5.195|  17:16   1.5
      1:17   1.039|   5:17   2.078|   9:17   3.117|  13:17   5.195|  17:17   1.5
      1:18   1.039|   5:18   2.078|   9:18   3.117|  13:18   5.195|  17:18   1.5
      1:19   1.039|   5:19   2.078|   9:19   3.117|  13:19   5.195|  17:19   1.5
      1:20   1.039|   5:20   2.078|   9:20   3.117|  13:20   5.195|  17:20   1.5
      1:21   1.039|   5:21   2.078|   9:21   3.117|  13:21   5.195|  17:21   1.5
      1:22   1.039|   5:22   2.078|   9:22   3.117|  13:22   5.195|  17:22   1.5
      1:23   1.039|   5:23   2.078|   9:23   3.117|  13:23   5.195|  17:23   1.5
      1:24   1.039|   5:24   2.078|   9:24   3.117|  13:24   5.195|  17:24   1.5
      1:25   1.039|   5:25   2.078|   9:25   3.117|  13:25   5.195|  17:25   2.0
      1:26   1.039|   5:26   2.078|   9:26   3.117|  13:26   5.195|  17:26   2.0
      1:27   1.039|   5:27   2.078|   9:27   3.117|  13:27   5.195|  17:27   2.0
      1:28   1.039|   5:28   2.078|   9:28   3.117|  13:28   5.195|  17:28   2.0
      1:29   1.039|   5:29   2.078|   9:29   3.117|  13:29   5.195|  17:29   2.0
      1:30   1.039|   5:30   2.078|   9:30   3.117|  13:30   5.195|  17:30   2.0
      1:31   1.039|   5:31   2.078|   9:31   3.117|  13:31   5.195|  17:31   2.0
      1:32   1.039|   5:32   2.078|   9:32   3.117|  13:32   5.195|  17:32   2.0
      1:33   1.039|   5:33   2.078|   9:33   3.117|  13:33   5.195|  17:33   2.0
      1:34   1.039|   5:34   2.078|   9:34   3.117|  13:34   5.195|  17:34   2.0
      1:35   1.039|   5:35   2.078|   9:35   3.117|  13:35   5.195|  17:35   2.0
      1:36   1.039|   5:36   2.078|   9:36   3.117|  13:36   5.195|  17:36   2.0
      1:37   1.039|   5:37   2.078|   9:37   3.117|  13:37   5.195|  17:37   1.5
      1:38   1.039|   5:38   2.078|   9:38   3.117|  13:38   5.195|  17:38   1.5
      1:39   1.039|   5:39   2.078|   9:39   3.117|  13:39   5.195|  17:39   1.5
      1:40   1.039|   5:40   2.078|   9:40   3.117|  13:40   5.195|  17:40   1.5
      1:41   1.039|   5:41   2.078|   9:41   3.117|  13:41   5.195|  17:41   1.5
      1:42   1.039|   5:42   2.078|   9:42   3.117|  13:42   5.195|  17:42   1.5
      1:43   1.039|   5:43   2.078|   9:43   3.117|  13:43   5.195|  17:43   1.5
      1:44   1.039|   5:44   2.078|   9:44   3.117|  13:44   5.195|  17:44   1.5
      1:45   1.039|   5:45   2.078|   9:45   3.117|  13:45   5.195|  17:45   1.5
      1:46   1.039|   5:46   2.078|   9:46   3.117|  13:46   5.195|  17:46   1.5
      1:47   1.039|   5:47   2.078|   9:47   3.117|  13:47   5.195|  17:47   1.5
      1:48   1.039|   5:48   2.078|   9:48   3.117|  13:48   5.195|  17:48   1.5
      1:49   1.039|   5:49   2.078|   9:49   3.117|  13:49   5.195|  17:49   2.0
      1:50   1.039|   5:50   2.078|   9:50   3.117|  13:50   5.195|  17:50   2.0
      1:51   1.039|   5:51   2.078|   9:51   3.117|  13:51   5.195|  17:51   2.0
      1:52   1.039|   5:52   2.078|   9:52   3.117|  13:52   5.195|  17:52   2.0
      1:53   1.039|   5:53   2.078|   9:53   3.117|  13:53   5.195|  17:53   2.0
      1:54   1.039|   5:54   2.078|   9:54   3.117|  13:54   5.195|  17:54   2.0
      1:55   1.039|   5:55   2.078|   9:55   3.117|  13:55   5.195|  17:55   2.0
      1:56   1.039|   5:56   2.078|   9:56   3.117|  13:56   5.195|  17:56   2.0
      1:57   1.039|   5:57   2.078|   9:57   3.117|  13:57   5.195|  17:57   2.0
      1:58   1.039|   5:58   2.078|   9:58   3.117|  13:58   5.195|  17:58   2.0
      1:59   1.039|   5:59   2.078|   9:59   3.117|  13:59   5.195|  17:59   2.0
      2:00   1.039|   6:00   2.078|  10:00   3.117|  14:00   5.195|  18:00   2.0
      2:01   1.039|   6:01   2.078|  10:01   3.117|  14:01   5.195|  18:01   1.5
      2:02   1.039|   6:02   2.078|  10:02   3.117|  14:02   5.195|  18:02   1.5
      2:03   1.039|   6:03   2.078|  10:03   3.117|  14:03   5.195|  18:03   1.5
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      2:04   1.039|   6:04   2.078|  10:04   3.117|  14:04   5.195|  18:04   1.5
      2:05   1.039|   6:05   2.078|  10:05   3.117|  14:05   5.195|  18:05   1.5
      2:06   1.039|   6:06   2.078|  10:06   3.117|  14:06   5.195|  18:06   1.5
      2:07   1.039|   6:07   2.078|  10:07   3.117|  14:07   5.195|  18:07   1.5
      2:08   1.039|   6:08   2.078|  10:08   3.117|  14:08   5.195|  18:08   1.5
      2:09   1.039|   6:09   2.078|  10:09   3.117|  14:09   5.195|  18:09   1.5
      2:10   1.039|   6:10   2.078|  10:10   3.117|  14:10   5.195|  18:10   1.5
      2:11   1.039|   6:11   2.078|  10:11   3.117|  14:11   5.195|  18:11   1.5
      2:12   1.039|   6:12   2.078|  10:12   3.117|  14:12   5.195|  18:12   1.5
      2:13   1.039|   6:13   2.078|  10:13   5.714|  14:13   3.117|  18:13   1.5
      2:14   1.039|   6:14   2.078|  10:14   5.714|  14:14   3.117|  18:14   1.5
      2:15   1.039|   6:15   2.078|  10:15   5.714|  14:15   3.117|  18:15   1.5
      2:16   1.039|   6:16   2.078|  10:16   5.714|  14:16   3.117|  18:16   1.5
      2:17   1.039|   6:17   2.078|  10:17   5.714|  14:17   3.117|  18:17   1.5
      2:18   1.039|   6:18   2.078|  10:18   5.714|  14:18   3.117|  18:18   1.5
      2:19   1.039|   6:19   2.078|  10:19   5.714|  14:19   3.117|  18:19   1.5
      2:20   1.039|   6:20   2.078|  10:20   5.714|  14:20   3.117|  18:20   1.5
      2:21   1.039|   6:21   2.078|  10:21   5.714|  14:21   3.117|  18:21   1.5
      2:22   1.039|   6:22   2.078|  10:22   5.714|  14:22   3.117|  18:22   1.5
      2:23   1.039|   6:23   2.078|  10:23   5.714|  14:23   3.117|  18:23   1.5
      2:24   1.039|   6:24   2.078|  10:24   5.714|  14:24   3.117|  18:24   1.5
      2:25   1.039|   6:25   2.078|  10:25   5.715|  14:25   3.117|  18:25   1.5
      2:26   1.039|   6:26   2.078|  10:26   5.715|  14:26   3.117|  18:26   1.5
      2:27   1.039|   6:27   2.078|  10:27   5.715|  14:27   3.117|  18:27   1.5
      2:28   1.039|   6:28   2.078|  10:28   5.715|  14:28   3.117|  18:28   1.5
      2:29   1.039|   6:29   2.078|  10:29   5.715|  14:29   3.117|  18:29   1.5
      2:30   1.039|   6:30   2.078|  10:30   5.715|  14:30   3.117|  18:30   1.5
      2:31   1.039|   6:31   2.078|  10:31   5.715|  14:31   3.117|  18:31   1.5
      2:32   1.039|   6:32   2.078|  10:32   5.715|  14:32   3.117|  18:32   1.5
      2:33   1.039|   6:33   2.078|  10:33   5.715|  14:33   3.117|  18:33   1.5
      2:34   1.039|   6:34   2.078|  10:34   5.715|  14:34   3.117|  18:34   1.5
      2:35   1.039|   6:35   2.078|  10:35   5.715|  14:35   3.117|  18:35   1.5
      2:36   1.039|   6:36   2.078|  10:36   5.715|  14:36   3.117|  18:36   1.5
      2:37   1.039|   6:37   2.078|  10:37   5.714|  14:37   3.117|  18:37   2.0
      2:38   1.039|   6:38   2.078|  10:38   5.714|  14:38   3.117|  18:38   2.0
      2:39   1.039|   6:39   2.078|  10:39   5.714|  14:39   3.117|  18:39   2.0
      2:40   1.039|   6:40   2.078|  10:40   5.714|  14:40   3.117|  18:40   2.0
      2:41   1.039|   6:41   2.078|  10:41   5.714|  14:41   3.117|  18:41   2.0
      2:42   1.039|   6:42   2.078|  10:42   5.714|  14:42   3.117|  18:42   2.0
      2:43   1.039|   6:43   2.078|  10:43   5.714|  14:43   3.117|  18:43   2.0
      2:44   1.039|   6:44   2.078|  10:44   5.714|  14:44   3.117|  18:44   2.0
      2:45   1.039|   6:45   2.078|  10:45   5.714|  14:45   3.117|  18:45   2.0
      2:46   1.039|   6:46   2.078|  10:46   5.714|  14:46   3.117|  18:46   2.0
      2:47   1.039|   6:47   2.078|  10:47   5.714|  14:47   3.117|  18:47   2.0
      2:48   1.039|   6:48   2.078|  10:48   5.714|  14:48   3.117|  18:48   2.0
      2:49   1.039|   6:49   2.078|  10:49   5.715|  14:49   3.117|  18:49   1.5
      2:50   1.039|   6:50   2.078|  10:50   5.715|  14:50   3.117|  18:50   1.5
      2:51   1.039|   6:51   2.078|  10:51   5.715|  14:51   3.117|  18:51   1.5
      2:52   1.039|   6:52   2.078|  10:52   5.715|  14:52   3.117|  18:52   1.5
      2:53   1.039|   6:53   2.078|  10:53   5.715|  14:53   3.117|  18:53   1.5
      2:54   1.039|   6:54   2.078|  10:54   5.715|  14:54   3.117|  18:54   1.5
      2:55   1.039|   6:55   2.078|  10:55   5.715|  14:55   3.117|  18:55   1.5
      2:56   1.039|   6:56   2.078|  10:56   5.715|  14:56   3.117|  18:56   1.5
      2:57   1.039|   6:57   2.078|  10:57   5.715|  14:57   3.117|  18:57   1.5
      2:58   1.039|   6:58   2.078|  10:58   5.715|  14:58   3.117|  18:58   1.5
      2:59   1.039|   6:59   2.078|  10:59   5.715|  14:59   3.117|  18:59   1.5
      3:00   1.039|   7:00   2.078|  11:00   5.715|  15:00   3.117|  19:00   1.5
      3:01   1.039|   7:01   2.078|  11:01   5.714|  15:01   3.117|  19:01   1.5
      3:02   1.039|   7:02   2.078|  11:02   5.714|  15:02   3.117|  19:02   1.5
      3:03   1.039|   7:03   2.078|  11:03   5.714|  15:03   3.117|  19:03   1.5
      3:04   1.039|   7:04   2.078|  11:04   5.714|  15:04   3.117|  19:04   1.5
      3:05   1.039|   7:05   2.078|  11:05   5.714|  15:05   3.117|  19:05   1.5
      3:06   1.039|   7:06   2.078|  11:06   5.714|  15:06   3.117|  19:06   1.5
      3:07   1.039|   7:07   2.078|  11:07   5.714|  15:07   3.117|  19:07   1.5
      3:08   1.039|   7:08   2.078|  11:08   5.714|  15:08   3.117|  19:08   1.5
      3:09   1.039|   7:09   2.078|  11:09   5.714|  15:09   3.117|  19:09   1.5
      3:10   1.039|   7:10   2.078|  11:10   5.714|  15:10   3.117|  19:10   1.5
      3:11   1.039|   7:11   2.078|  11:11   5.714|  15:11   3.117|  19:11   1.5
      3:12   1.039|   7:12   2.078|  11:12   5.714|  15:12   3.117|  19:12   1.5
      3:13   1.039|   7:13   2.078|  11:13   7.793|  15:13   2.597|  19:13   2.0
      3:14   1.039|   7:14   2.078|  11:14   7.793|  15:14   2.597|  19:14   2.0
      3:15   1.039|   7:15   2.078|  11:15   7.793|  15:15   2.597|  19:15   2.0
      3:16   1.039|   7:16   2.078|  11:16   7.793|  15:16   2.597|  19:16   2.0
      3:17   1.039|   7:17   2.078|  11:17   7.793|  15:17   2.597|  19:17   2.0
      3:18   1.039|   7:18   2.078|  11:18   7.793|  15:18   2.597|  19:18   2.0
      3:19   1.039|   7:19   2.078|  11:19   7.793|  15:19   2.597|  19:19   2.0
      3:20   1.039|   7:20   2.078|  11:20   7.793|  15:20   2.597|  19:20   2.0
      3:21   1.039|   7:21   2.078|  11:21   7.793|  15:21   2.597|  19:21   2.0
      3:22   1.039|   7:22   2.078|  11:22   7.793|  15:22   2.597|  19:22   2.0
      3:23   1.039|   7:23   2.078|  11:23   7.793|  15:23   2.597|  19:23   2.0
      3:24   1.039|   7:24   2.078|  11:24   7.793|  15:24   2.597|  19:24   2.0
      3:25   1.039|   7:25   2.078|  11:25  11.429|  15:25   2.597|  19:25   1.5
      3:26   1.039|   7:26   2.078|  11:26  11.429|  15:26   2.597|  19:26   1.5
      3:27   1.039|   7:27   2.078|  11:27  11.429|  15:27   2.597|  19:27   1.5
      3:28   1.039|   7:28   2.078|  11:28  11.429|  15:28   2.597|  19:28   1.5
      3:29   1.039|   7:29   2.078|  11:29  11.429|  15:29   2.597|  19:29   1.5
      3:30   1.039|   7:30   2.078|  11:30  11.429|  15:30   2.597|  19:30   1.5
      3:31   1.039|   7:31   2.078|  11:31  11.429|  15:31   2.597|  19:31   1.5
      3:32   1.039|   7:32   2.078|  11:32  11.429|  15:32   2.597|  19:32   1.5
      3:33   1.039|   7:33   2.078|  11:33  11.429|  15:33   2.597|  19:33   1.5
      3:34   1.039|   7:34   2.078|  11:34  11.429|  15:34   2.597|  19:34   1.5
      3:35   1.039|   7:35   2.078|  11:35  11.429|  15:35   2.597|  19:35   1.5
      3:36   1.039|   7:36   2.078|  11:36  11.429|  15:36   2.597|  19:36   1.5
      3:37   1.039|   7:37   2.078|  11:37  27.533|  15:37   2.597|  19:37   2.0
      3:38   1.039|   7:38   2.078|  11:38  27.533|  15:38   2.597|  19:38   2.0
      3:39   1.039|   7:39   2.078|  11:39  27.533|  15:39   2.597|  19:39   2.0
      3:40   1.039|   7:40   2.078|  11:40  27.533|  15:40   2.597|  19:40   2.0
      3:41   1.039|   7:41   2.078|  11:41  27.533|  15:41   2.597|  19:41   2.0
      3:42   1.039|   7:42   2.078|  11:42  27.533|  15:42   2.597|  19:42   2.0
      3:43   1.039|   7:43   2.078|  11:43  27.533|  15:43   2.597|  19:43   2.0
      3:44   1.039|   7:44   2.078|  11:44  27.533|  15:44   2.597|  19:44   2.0
      3:45   1.039|   7:45   2.078|  11:45  27.533|  15:45   2.597|  19:45   2.0
      3:46   1.039|   7:46   2.078|  11:46  27.533|  15:46   2.597|  19:46   2.0
      3:47   1.039|   7:47   2.078|  11:47  27.533|  15:47   2.597|  19:47   2.0
      3:48   1.039|   7:48   2.078|  11:48  27.533|  15:48   2.597|  19:48   2.0
      3:49   1.039|   7:49   2.078|  11:49  57.145|  15:49   2.597|  19:49   1.5
      3:50   1.039|   7:50   2.078|  11:50  57.145|  15:50   2.597|  19:50   1.5
      3:51   1.039|   7:51   2.078|  11:51  57.145|  15:51   2.597|  19:51   1.5
      3:52   1.039|   7:52   2.078|  11:52  57.145|  15:52   2.597|  19:52   1.5
      3:53   1.039|   7:53   2.078|  11:53  57.145|  15:53   2.597|  19:53   1.5
      3:54   1.039|   7:54   2.078|  11:54  57.145|  15:54   2.597|  19:54   1.5
      3:55   1.039|   7:55   2.078|  11:55  57.145|  15:55   2.597|  19:55   1.5
      3:56   1.039|   7:56   2.078|  11:56  57.145|  15:56   2.597|  19:56   1.5
      3:57   1.039|   7:57   2.078|  11:57  57.145|  15:57   2.597|  19:57   1.5
      3:58   1.039|   7:58   2.078|  11:58  57.145|  15:58   2.597|  19:58   1.5
      3:59   1.039|   7:59   2.078|  11:59  57.145|  15:59   2.597|  19:59   1.5
      4:00   1.039|   8:00   2.078|  12:00  57.145|  16:00   2.597|  20:00   1.5

--------------------------------------------------------------------------------
R0001:C00081------------------------------------------------------------------
*#*****************************************************************************
*#-----------------|-----------------------------------------------------------|
*#-----------------|--------------------External-Catchments--------------------|
-------------------------
| CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=   11.624 (i)
     TIME TO PEAK    (hrs)=   12.850
     DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
     AVERAGE FLOW    (cms)=    1.091
     RUNOFF VOLUME    (mm)=   48.267
     TOTAL RAINFALL   (mm)=  103.900
     RUNOFF COEFFICIENT   =     .465

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00082------------------------------------------------------------------
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| CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .407 (i)
     TIME TO PEAK    (hrs)=   12.617
     DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
     AVERAGE FLOW    (cms)=     .031
     RUNOFF VOLUME    (mm)=   49.480
     TOTAL RAINFALL   (mm)=  103.900
     RUNOFF COEFFICIENT   =     .476

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00083------------------------------------------------------------------
-------------------------
| ADD HYD               |
| 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                       ID 1 01:27          232.530   11.624   12.850    48.267
                      +ID 2 02:28            6.140     .407   12.617    49.480
                      ============================================================
                      SUM   03:Ditch       238.670   11.990   12.833    48.298

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00084------------------------------------------------------------------
-------------------------
| CALIB STANDHYD        |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
-------------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.14         5.20
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      2.00         2.00
     Length            (m)=    250.00        30.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    116.89        76.98
                   over (min)      4.00        10.00
     Storage Coeff.  (min)=      3.68 (ii)   10.28 (ii)
     Unit Hyd. Tpeak (min)=      4.00        10.00
     Unit Hyd. peak  (cms)=       .30          .11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       .42          .76          1.108 (iii)
     TIME TO PEAK    (hrs)=     12.20        12.28         12.217
     RUNOFF VOLUME    (mm)=    101.90        37.18         46.435
     TOTAL RAINFALL   (mm)=    103.90       103.90        103.900
     RUNOFF COEFFICIENT   =       .98          .36           .447

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00085------------------------------------------------------------------
-------------------------
| ADD HYD               |
| 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                       ID 1 03:Ditch        238.670   11.990   12.833    48.298
                      +ID 2 04:HB             9.340    1.108   12.217    46.435
                      ============================================================
                      SUM   05:Ditch 2      248.010   12.185   12.833    48.228

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00086------------------------------------------------------------------
-------------------------
| CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    2.076 (i)
     TIME TO PEAK    (hrs)=   13.350
     DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
     AVERAGE FLOW    (cms)=     .256
     RUNOFF VOLUME    (mm)=   53.284
     TOTAL RAINFALL   (mm)=  103.900
     RUNOFF COEFFICIENT   =     .513

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00087------------------------------------------------------------------
-------------------------
| ADD HYD               |
| 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                       ID 1 05:Ditch 2      248.010   12.185   12.833    48.228
                      +ID 2 06:29            53.830    2.076   13.350    53.284
                      ============================================================
                      SUM   07:Crk Inlet    301.840   13.939   12.867    49.130

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00088------------------------------------------------------------------
*#-----------------|-----------------------Pre-development----------------------|
-------------------------
| CALIB NASHYD          |   Area    (ha)=    .240   Curve Number   (CN)= 50.00
| 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
-------------------------   U.H. Tp(hrs)=    .070

     Unit Hyd Qpeak  (cms)=     .131

     PEAK FLOW       (cms)=     .024 (i)
     TIME TO PEAK    (hrs)=   12.217
     DURATION        (hrs)=   24.550, (dddd|hh:mm:)=   1|00:33
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=   27.717
     TOTAL RAINFALL   (mm)=  103.900
     RUNOFF COEFFICIENT   =     .267

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00089------------------------------------------------------------------
*#-----------------|-----------------------------------------------------------|
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02431> -------------------------
02432> | CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
02433> | 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
02434> -------------------------   U.H. Tp(hrs)=     .150
02435>
02436>      Unit Hyd Qpeak  (cms)=     .255
02437>
02438>      PEAK FLOW       (cms)=     .074 (i)
02439>      TIME TO PEAK    (hrs)=   12.267
02440>      DURATION        (hrs)=   25.050, (dddd|hh:mm:)=   1|01:03
02441>      AVERAGE FLOW    (cms)=     .003
02442>      RUNOFF VOLUME    (mm)=   27.398
02443>      TOTAL RAINFALL   (mm)=  103.900
02444>      RUNOFF COEFFICIENT   =     .264
02445>
02446>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02447>
02448> ------------------------------------------------------------------------------
02449> R0001:C00090------------------------------------------------------------------
02450> *#-----------------|----------------------------------------------------------|
02451> -------------------------
02452> | CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
02453> | 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
02454> -------------------------   U.H. Tp(hrs)=     .170
02455>
02456>      Unit Hyd Qpeak  (cms)=     .133
02457>
02458>      PEAK FLOW       (cms)=     .040 (i)
02459>      TIME TO PEAK    (hrs)=   12.283
02460>      DURATION        (hrs)=   25.183, (dddd|hh:mm:)=   1|01:11
02461>      AVERAGE FLOW    (cms)=     .002
02462>      RUNOFF VOLUME    (mm)=   26.926
02463>      TOTAL RAINFALL   (mm)=  103.900
02464>      RUNOFF COEFFICIENT   =     .259
02465>
02466>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02467>
02468> ------------------------------------------------------------------------------
02469> R0001:C00091------------------------------------------------------------------
02470> *#-----------------|----------------------------------------------------------|
02471> ----------------------
02472> | ADD HYD            |
02473> | 01:Site            |   ID:NHYD          AREA     QPEAK    TPEAK      R.V.
02474> ----------------------                     (ha)     (cms)    (hrs)      (mm)
02475>                       ID 1 08:101          .240      .024   12.217    27.717
02476>                      +ID 2 09:102         1.000      .074   12.267    27.398
02477>                      +ID 3 10:103          .590      .040   12.283    26.926
02478>                      ============================================================
02479>                       SUM   01:Site        1.830      .133   12.250    27.288
02480>
02481>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02482>
02483> ------------------------------------------------------------------------------
02484> R0001:C00092------------------------------------------------------------------
02485> ----------------------
02486> | ADD HYD            |
02487> | 02:Channel         |   ID:NHYD          AREA     QPEAK    TPEAK      R.V.
02488> ----------------------                     (ha)     (cms)    (hrs)      (mm)
02489>                       ID 1 07:Crk Inlet  301.840   13.939   12.867    49.130
02490>                      +ID 2 01:Site         1.830      .133   12.250    27.288
02491>                      ============================================================
02492>                       SUM   02:Channel   303.670   13.961   12.867    48.998
02493>
02494>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02495>
02496> ------------------------------------------------------------------------------
02497> R0001:C00093------------------------------------------------------------------
02498> *#*****************************************************************************
02499> *#*****************************************************************************
02500> *#                           100yr SCS Storm (24hr)
02501> *#*****************************************************************************
02502> *#*****************************************************************************
02503> -------------------
02504> | MASS STORM      |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
02505> | Ptotal=127.00 mm |    Comments: 24 hour SCS II storm mass curve
02506> -------------------
02507>                        Duration of storm       =   24.00 hrs
02508>                        Mass curve time step    =   12.00 min
02509>                        Selected storm time step =    1.00 min
02510>                        Volume of derived storm  =  127.00 mm
02511>
02512>      TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
02513>     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
02514>      0:01    .000|   4:01   1.270|   8:01   2.540|  12:01 142.875|  16:01   3.1
02515>      0:02    .000|   4:02   1.270|   8:02   2.540|  12:02 142.875|  16:02   3.1
02516>      0:03    .000|   4:03   1.270|   8:03   2.540|  12:03 142.875|  16:03   3.1
02517>      0:04    .000|   4:04   1.270|   8:04   2.540|  12:04 142.875|  16:04   3.1
02518>      0:05    .000|   4:05   1.270|   8:05   2.540|  12:05 142.875|  16:05   3.1
02519>      0:06    .000|   4:06   1.270|   8:06   2.540|  12:06 142.875|  16:06   3.1
02520>      0:07    .000|   4:07   1.270|   8:07   2.540|  12:07 142.875|  16:07   3.1
02521>      0:08    .000|   4:08   1.270|   8:08   2.540|  12:08 142.875|  16:08   3.1
02522>      0:09    .000|   4:09   1.270|   8:09   2.540|  12:09 142.875|  16:09   3.1
02523>      0:10    .000|   4:10   1.270|   8:10   2.540|  12:10 142.875|  16:10   3.1
02524>      0:11    .000|   4:11   1.270|   8:11   2.540|  12:11 142.875|  16:11   3.1
02525>      0:12    .000|   4:12   1.270|   8:12   2.540|  12:12 142.875|  16:12   3.1
02526>      0:13   1.270|   4:13   2.540|   8:13   3.810|  12:13  25.400|  16:13   3.1
02527>      0:14   1.270|   4:14   2.540|   8:14   3.810|  12:14  25.400|  16:14   3.1
02528>      0:15   1.270|   4:15   2.540|   8:15   3.810|  12:15  25.400|  16:15   3.1
02529>      0:16   1.270|   4:16   2.540|   8:16   3.810|  12:16  25.400|  16:16   3.1
02530>      0:17   1.270|   4:17   2.540|   8:17   3.810|  12:17  25.400|  16:17   3.1
02531>      0:18   1.270|   4:18   2.540|   8:18   3.810|  12:18  25.400|  16:18   3.1
02532>      0:19   1.270|   4:19   2.540|   8:19   3.810|  12:19  25.400|  16:19   3.1
02533>      0:20   1.270|   4:20   2.540|   8:20   3.810|  12:20  25.400|  16:20   3.1
02534>      0:21   1.270|   4:21   2.540|   8:21   3.810|  12:21  25.400|  16:21   3.1
02535>      0:22   1.270|   4:22   2.540|   8:22   3.810|  12:22  25.400|  16:22   3.1
02536>      0:23   1.270|   4:23   2.540|   8:23   3.810|  12:23  25.400|  16:23   3.1
02537>      0:24   1.270|   4:24   2.540|   8:24   3.810|  12:24  25.400|  16:24   3.1
02538>      0:25   1.270|   4:25   2.540|   8:25   3.810|  12:25  15.875|  16:25   3.1
02539>      0:26   1.270|   4:26   2.540|   8:26   3.810|  12:26  15.875|  16:26   3.1
02540>      0:27   1.270|   4:27   2.540|   8:27   3.810|  12:27  15.875|  16:27   3.1
02541>      0:28   1.270|   4:28   2.540|   8:28   3.810|  12:28  15.875|  16:28   3.1
02542>      0:29   1.270|   4:29   2.540|   8:29   3.810|  12:29  15.875|  16:29   3.1
02543>      0:30   1.270|   4:30   2.540|   8:30   3.810|  12:30  15.875|  16:30   3.1
02544>      0:31   1.270|   4:31   2.540|   8:31   3.810|  12:31  15.875|  16:31   3.1
02545>      0:32   1.270|   4:32   2.540|   8:32   3.810|  12:32  15.875|  16:32   3.1
02546>      0:33   1.270|   4:33   2.540|   8:33   3.810|  12:33  15.875|  16:33   3.1
02547>      0:34   1.270|   4:34   2.540|   8:34   3.810|  12:34  15.875|  16:34   3.1
02548>      0:35   1.270|   4:35   2.540|   8:35   3.810|  12:35  15.875|  16:35   3.1
02549>      0:36   1.270|   4:36   2.540|   8:36   3.810|  12:36  15.875|  16:36   3.1
02550>      0:37   1.270|   4:37   2.540|   8:37   3.810|  12:37  11.430|  16:37   3.1
02551>      0:38   1.270|   4:38   2.540|   8:38   3.810|  12:38  11.430|  16:38   3.1
02552>      0:39   1.270|   4:39   2.540|   8:39   3.810|  12:39  11.430|  16:39   3.1
02553>      0:40   1.270|   4:40   2.540|   8:40   3.810|  12:40  11.430|  16:40   3.1
02554>      0:41   1.270|   4:41   2.540|   8:41   3.810|  12:41  11.430|  16:41   3.1
02555>      0:42   1.270|   4:42   2.540|   8:42   3.810|  12:42  11.430|  16:42   3.1
02556>      0:43   1.270|   4:43   2.540|   8:43   3.810|  12:43  11.430|  16:43   3.1
02557>      0:44   1.270|   4:44   2.540|   8:44   3.810|  12:44  11.430|  16:44   3.1
02558>      0:45   1.270|   4:45   2.540|   8:45   3.810|  12:45  11.430|  16:45   3.1
02559>      0:46   1.270|   4:46   2.540|   8:46   3.810|  12:46  11.430|  16:46   3.1
02560>      0:47   1.270|   4:47   2.540|   8:47   3.810|  12:47  11.430|  16:47   3.1
02561>      0:48   1.270|   4:48   2.540|   8:48   3.810|  12:48  11.430|  16:48   3.1
02562>      0:49   1.270|   4:49   2.540|   8:49   3.810|  12:49  10.795|  16:49   3.1
02563>      0:50   1.270|   4:50   2.540|   8:50   3.810|  12:50  10.795|  16:50   3.1
02564>      0:51   1.270|   4:51   2.540|   8:51   3.810|  12:51  10.795|  16:51   3.1
02565>      0:52   1.270|   4:52   2.540|   8:52   3.810|  12:52  10.795|  16:52   3.1
02566>      0:53   1.270|   4:53   2.540|   8:53   3.810|  12:53  10.795|  16:53   3.1
02567>      0:54   1.270|   4:54   2.540|   8:54   3.810|  12:54  10.795|  16:54   3.1
02568>      0:55   1.270|   4:55   2.540|   8:55   3.810|  12:55  10.795|  16:55   3.1
02569>      0:56   1.270|   4:56   2.540|   8:56   3.810|  12:56  10.795|  16:56   3.1
02570>      0:57   1.270|   4:57   2.540|   8:57   3.810|  12:57  10.795|  16:57   3.1
02571>      0:58   1.270|   4:58   2.540|   8:58   3.810|  12:58  10.795|  16:58   3.1
02572>      0:59   1.270|   4:59   2.540|   8:59   3.810|  12:59  10.795|  16:59   3.1
02573>      1:00   1.270|   5:00   2.540|   9:00   3.810|  13:00  10.795|  17:00   3.1
02574>      1:01   1.270|   5:01   2.540|   9:01   3.810|  13:01   7.620|  17:01   1.9
02575>      1:02   1.270|   5:02   2.540|   9:02   3.810|  13:02   7.620|  17:02   1.9
02576>      1:03   1.270|   5:03   2.540|   9:03   3.810|  13:03   7.620|  17:03   1.9
02577>      1:04   1.270|   5:04   2.540|   9:04   3.810|  13:04   7.620|  17:04   1.9
02578>      1:05   1.270|   5:05   2.540|   9:05   3.810|  13:05   7.620|  17:05   1.9
02579>      1:06   1.270|   5:06   2.540|   9:06   3.810|  13:06   7.620|  17:06   1.9
02580>      1:07   1.270|   5:07   2.540|   9:07   3.810|  13:07   7.620|  17:07   1.9
02581>      1:08   1.270|   5:08   2.540|   9:08   3.810|  13:08   7.620|  17:08   1.9
02582>      1:09   1.270|   5:09   2.540|   9:09   3.810|  13:09   7.620|  17:09   1.9
02583>      1:10   1.270|   5:10   2.540|   9:10   3.810|  13:10   7.620|  17:10   1.9
02584>      1:11   1.270|   5:11   2.540|   9:11   3.810|  13:11   7.620|  17:11   1.9
02585>      1:12   1.270|   5:12   2.540|   9:12   3.810|  13:12   7.620|  17:12   1.9
02586>      1:13   1.270|   5:13   2.540|   9:13   3.810|  13:13   6.350|  17:13   1.9
02587>      1:14   1.270|   5:14   2.540|   9:14   3.810|  13:14   6.350|  17:14   1.9
02588>      1:15   1.270|   5:15   2.540|   9:15   3.810|  13:15   6.350|  17:15   1.9
02589>      1:16   1.270|   5:16   2.540|   9:16   3.810|  13:16   6.350|  17:16   1.9
02590>      1:17   1.270|   5:17   2.540|   9:17   3.810|  13:17   6.350|  17:17   1.9
02591>      1:18   1.270|   5:18   2.540|   9:18   3.810|  13:18   6.350|  17:18   1.9
02592>      1:19   1.270|   5:19   2.540|   9:19   3.810|  13:19   6.350|  17:19   1.9
02593>      1:20   1.270|   5:20   2.540|   9:20   3.810|  13:20   6.350|  17:20   1.9
02594>      1:21   1.270|   5:21   2.540|   9:21   3.810|  13:21   6.350|  17:21   1.9
02595>      1:22   1.270|   5:22   2.540|   9:22   3.810|  13:22   6.350|  17:22   1.9
02596>      1:23   1.270|   5:23   2.540|   9:23   3.810|  13:23   6.350|  17:23   1.9
02597>      1:24   1.270|   5:24   2.540|   9:24   3.810|  13:24   6.350|  17:24   1.9
02598>      1:25   1.270|   5:25   2.540|   9:25   3.810|  13:25   6.350|  17:25   2.5
02599>      1:26   1.270|   5:26   2.540|   9:26   3.810|  13:26   6.350|  17:26   2.5
02600>      1:27   1.270|   5:27   2.540|   9:27   3.810|  13:27   6.350|  17:27   2.5
02601>      1:28   1.270|   5:28   2.540|   9:28   3.810|  13:28   6.350|  17:28   2.5
02602>      1:29   1.270|   5:29   2.540|   9:29   3.810|  13:29   6.350|  17:29   2.5
02603>      1:30   1.270|   5:30   2.540|   9:30   3.810|  13:30   6.350|  17:30   2.5
02604>      1:31   1.270|   5:31   2.540|   9:31   3.810|  13:31   6.350|  17:31   2.5
02605>      1:32   1.270|   5:32   2.540|   9:32   3.810|  13:32   6.350|  17:32   2.5
02606>      1:33   1.270|   5:33   2.540|   9:33   3.810|  13:33   6.350|  17:33   2.5
02607>      1:34   1.270|   5:34   2.540|   9:34   3.810|  13:34   6.350|  17:34   2.5
02608>      1:35   1.270|   5:35   2.540|   9:35   3.810|  13:35   6.350|  17:35   2.5
02609>      1:36   1.270|   5:36   2.540|   9:36   3.810|  13:36   6.350|  17:36   2.5
02610>      1:37   1.270|   5:37   2.540|   9:37   3.810|  13:37   6.350|  17:37   1.9
02611>      1:38   1.270|   5:38   2.540|   9:38   3.810|  13:38   6.350|  17:38   1.9
02612>      1:39   1.270|   5:39   2.540|   9:39   3.810|  13:39   6.350|  17:39   1.9
02613>      1:40   1.270|   5:40   2.540|   9:40   3.810|  13:40   6.350|  17:40   1.9
02614>      1:41   1.270|   5:41   2.540|   9:41   3.810|  13:41   6.350|  17:41   1.9
02615>      1:42   1.270|   5:42   2.540|   9:42   3.810|  13:42   6.350|  17:42   1.9
02616>      1:43   1.270|   5:43   2.540|   9:43   3.810|  13:43   6.350|  17:43   1.9
02617>      1:44   1.270|   5:44   2.540|   9:44   3.810|  13:44   6.350|  17:44   1.9
02618>      1:45   1.270|   5:45   2.540|   9:45   3.810|  13:45   6.350|  17:45   1.9
02619>      1:46   1.270|   5:46   2.540|   9:46   3.810|  13:46   6.350|  17:46   1.9
02620>      1:47   1.270|   5:47   2.540|   9:47   3.810|  13:47   6.350|  17:47   1.9
02621>      1:48   1.270|   5:48   2.540|   9:48   3.810|  13:48   6.350|  17:48   1.9
02622>      1:49   1.270|   5:49   2.540|   9:49   3.810|  13:49   6.350|  17:49   2.5
02623>      1:50   1.270|   5:50   2.540|   9:50   3.810|  13:50   6.350|  17:50   2.5
02624>      1:51   1.270|   5:51   2.540|   9:51   3.810|  13:51   6.350|  17:51   2.5
02625>      1:52   1.270|   5:52   2.540|   9:52   3.810|  13:52   6.350|  17:52   2.5
02626>      1:53   1.270|   5:53   2.540|   9:53   3.810|  13:53   6.350|  17:53   2.5
02627>      1:54   1.270|   5:54   2.540|   9:54   3.810|  13:54   6.350|  17:54   2.5
02628>      1:55   1.270|   5:55   2.540|   9:55   3.810|  13:55   6.350|  17:55   2.5
02629>      1:56   1.270|   5:56   2.540|   9:56   3.810|  13:56   6.350|  17:56   2.5
02630>      1:57   1.270|   5:57   2.540|   9:57   3.810|  13:57   6.350|  17:57   2.5
02631>      1:58   1.270|   5:58   2.540|   9:58   3.810|  13:58   6.350|  17:58   2.5
02632>      1:59   1.270|   5:59   2.540|   9:59   3.810|  13:59   6.350|  17:59   2.5
02633>      2:00   1.270|   6:00   2.540|  10:00   3.810|  14:00   6.350|  18:00   2.5
02634>      2:01   1.270|   6:01   2.540|  10:01   3.810|  14:01   6.350|  18:01   1.9
02635>      2:02   1.270|   6:02   2.540|  10:02   3.810|  14:02   6.350|  18:02   1.9
02636>      2:03   1.270|   6:03   2.540|  10:03   3.810|  14:03   6.350|  18:03   1.9
02637>      2:04   1.270|   6:04   2.540|  10:04   3.810|  14:04   6.350|  18:04   1.9
02638>      2:05   1.270|   6:05   2.540|  10:05   3.810|  14:05   6.350|  18:05   1.9
02639>      2:06   1.270|   6:06   2.540|  10:06   3.810|  14:06   6.350|  18:06   1.9
02640>      2:07   1.270|   6:07   2.540|  10:07   3.810|  14:07   6.350|  18:07   1.9
02641>      2:08   1.270|   6:08   2.540|  10:08   3.810|  14:08   6.350|  18:08   1.9
02642>      2:09   1.270|   6:09   2.540|  10:09   3.810|  14:09   6.350|  18:09   1.9
02643>      2:10   1.270|   6:10   2.540|  10:10   3.810|  14:10   6.350|  18:10   1.9
02644>      2:11   1.270|   6:11   2.540|  10:11   3.810|  14:11   6.350|  18:11   1.9
02645>      2:12   1.270|   6:12   2.540|  10:12   3.810|  14:12   6.350|  18:12   1.9
02646>      2:13   1.270|   6:13   2.540|  10:13   6.985|  14:13   3.810|  18:13   1.9
02647>      2:14   1.270|   6:14   2.540|  10:14   6.985|  14:14   3.810|  18:14   1.9
02648>      2:15   1.270|   6:15   2.540|  10:15   6.985|  14:15   3.810|  18:15   1.9
02649>      2:16   1.270|   6:16   2.540|  10:16   6.985|  14:16   3.810|  18:16   1.9
02650>      2:17   1.270|   6:17   2.540|  10:17   6.985|  14:17   3.810|  18:17   1.9
02651>      2:18   1.270|   6:18   2.540|  10:18   6.985|  14:18   3.810|  18:18   1.9
02652>      2:19   1.270|   6:19   2.540|  10:19   6.985|  14:19   3.810|  18:19   1.9
02653>      2:20   1.270|   6:20   2.540|  10:20   6.985|  14:20   3.810|  18:20   1.9
02654>      2:21   1.270|   6:21   2.540|  10:21   6.985|  14:21   3.810|  18:21   1.9
02655>      2:22   1.270|   6:22   2.540|  10:22   6.985|  14:22   3.810|  18:22   1.9
02656>      2:23   1.270|   6:23   2.540|  10:23   6.985|  14:23   3.810|  18:23   1.9
02657>      2:24   1.270|   6:24   2.540|  10:24   6.985|  14:24   3.810|  18:24   1.9
02658>      2:25   1.270|   6:25   2.540|  10:25   6.985|  14:25   3.810|  18:25   1.9
02659>      2:26   1.270|   6:26   2.540|  10:26   6.985|  14:26   3.810|  18:26   1.9
02660>      2:27   1.270|   6:27   2.540|  10:27   6.985|  14:27   3.810|  18:27   1.9
02661>      2:28   1.270|   6:28   2.540|  10:28   6.985|  14:28   3.810|  18:28   1.9
02662>      2:29   1.270|   6:29   2.540|  10:29   6.985|  14:29   3.810|  18:29   1.9
02663>      2:30   1.270|   6:30   2.540|  10:30   6.985|  14:30   3.810|  18:30   1.9
02664>      2:31   1.270|   6:31   2.540|  10:31   6.985|  14:31   3.810|  18:31   1.9
02665>      2:32   1.270|   6:32   2.540|  10:32   6.985|  14:32   3.810|  18:32   1.9
02666>      2:33   1.270|   6:33   2.540|  10:33   6.985|  14:33   3.810|  18:33   1.9
02667>      2:34   1.270|   6:34   2.540|  10:34   6.985|  14:34   3.810|  18:34   1.9
02668>      2:35   1.270|   6:35   2.540|  10:35   6.985|  14:35   3.810|  18:35   1.9
02669>      2:36   1.270|   6:36   2.540|  10:36   6.985|  14:36   3.810|  18:36   1.9
02670>      2:37   1.270|   6:37   2.540|  10:37   6.985|  14:37   3.810|  18:37   2.5
02671>      2:38   1.270|   6:38   2.540|  10:38   6.985|  14:38   3.810|  18:38   2.5
02672>      2:39   1.270|   6:39   2.540|  10:39   6.985|  14:39   3.810|  18:39   2.5
02673>      2:40   1.270|   6:40   2.540|  10:40   6.985|  14:40   3.810|  18:40   2.5
02674>      2:41   1.270|   6:41   2.540|  10:41   6.985|  14:41   3.810|  18:41   2.5
02675>      2:42   1.270|   6:42   2.540|  10:42   6.985|  14:42   3.810|  18:42   2.5
02676>      2:43   1.270|   6:43   2.540|  10:43   6.985|  14:43   3.810|  18:43   2.5
02677>      2:44   1.270|   6:44   2.540|  10:44   6.985|  14:44   3.810|  18:44   2.5
02678>      2:45   1.270|   6:45   2.540|  10:45   6.985|  14:45   3.810|  18:45   2.5
02679>      2:46   1.270|   6:46   2.540|  10:46   6.985|  14:46   3.810|  18:46   2.5
02680>      2:47   1.270|   6:47   2.540|  10:47   6.985|  14:47   3.810|  18:47   2.5
02681>      2:48   1.270|   6:48   2.540|  10:48   6.985|  14:48   3.810|  18:48   2.5
02682>      2:49   1.270|   6:49   2.540|  10:49   6.985|  14:49   3.810|  18:49   1.9
02683>      2:50   1.270|   6:50   2.540|  10:50   6.985|  14:50   3.810|  18:50   1.9
02684>      2:51   1.270|   6:51   2.540|  10:51   6.985|  14:51   3.810|  18:51   1.9
02685>      2:52   1.270|   6:52   2.540|  10:52   6.985|  14:52   3.810|  18:52   1.9
02686>      2:53   1.270|   6:53   2.540|  10:53   6.985|  14:53   3.810|  18:53   1.9
02687>      2:54   1.270|   6:54   2.540|  10:54   6.985|  14:54   3.810|  18:54   1.9
02688>      2:55   1.270|   6:55   2.540|  10:55   6.985|  14:55   3.810|  18:55   1.9
02689>      2:56   1.270|   6:56   2.540|  10:56   6.985|  14:56   3.810|  18:56   1.9
02690>      2:57   1.270|   6:57   2.540|  10:57   6.985|  14:57   3.810|  18:57   1.9
02691>      2:58   1.270|   6:58   2.540|  10:58   6.985|  14:58   3.810|  18:58   1.9
02692>      2:59   1.270|   6:59   2.540|  10:59   6.985|  14:59   3.810|  18:59   1.9
02693>      3:00   1.270|   7:00   2.540|  11:00   6.985|  15:00   3.810|  19:00   1.9
02694>      3:01   1.270|   7:01   2.540|  11:01   6.985|  15:01   3.810|  19:01   1.9
02695>      3:02   1.270|   7:02   2.540|  11:02   6.985|  15:02   3.810|  19:02   1.9
02696>      3:03   1.270|   7:03   2.540|  11:03   6.985|  15:03   3.810|  19:03   1.9
02697>      3:04   1.270|   7:04   2.540|  11:04   6.985|  15:04   3.810|  19:04   1.9
02698>      3:05   1.270|   7:05   2.540|  11:05   6.985|  15:05   3.810|  19:05   1.9
02699>      3:06   1.270|   7:06   2.540|  11:06   6.985|  15:06   3.810|  19:06   1.9
02700>      3:07   1.270|   7:07   2.540|  11:07   6.985|  15:07   3.810|  19:07   1.9
```

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      3:08   1.270|   7:08   2.540|  11:08   6.985|  15:08   3.810|  19:08   1.9
      3:09   1.270|   7:09   2.540|  11:09   6.985|  15:09   3.810|  19:09   1.9
      3:10   1.270|   7:10   2.540|  11:10   6.985|  15:10   3.810|  19:10   1.9
      3:11   1.270|   7:11   2.540|  11:11   6.985|  15:11   3.810|  19:11   1.9
      3:12   1.270|   7:12   2.540|  11:12   6.985|  15:12   3.810|  19:12   1.9
      3:13   1.270|   7:13   2.540|  11:13   9.525|  15:13   3.175|  19:13   2.5
      3:14   1.270|   7:14   2.540|  11:14   9.525|  15:14   3.175|  19:14   2.5
      3:15   1.270|   7:15   2.540|  11:15   9.525|  15:15   3.175|  19:15   2.5
      3:16   1.270|   7:16   2.540|  11:16   9.525|  15:16   3.175|  19:16   2.5
      3:17   1.270|   7:17   2.540|  11:17   9.525|  15:17   3.175|  19:17   2.5
      3:18   1.270|   7:18   2.540|  11:18   9.525|  15:18   3.175|  19:18   2.5
      3:19   1.270|   7:19   2.540|  11:19   9.525|  15:19   3.175|  19:19   2.5
      3:20   1.270|   7:20   2.540|  11:20   9.525|  15:20   3.175|  19:20   2.5
      3:21   1.270|   7:21   2.540|  11:21   9.525|  15:21   3.175|  19:21   2.5
      3:22   1.270|   7:22   2.540|  11:22   9.525|  15:22   3.175|  19:22   2.5
      3:23   1.270|   7:23   2.540|  11:23   9.525|  15:23   3.175|  19:23   2.5
      3:24   1.270|   7:24   2.540|  11:24   9.525|  15:24   3.175|  19:24   2.5
      3:25   1.270|   7:25   2.540|  11:25  13.970|  15:25   3.175|  19:25   1.9
      3:26   1.270|   7:26   2.540|  11:26  13.970|  15:26   3.175|  19:26   1.9
      3:27   1.270|   7:27   2.540|  11:27  13.970|  15:27   3.175|  19:27   1.9
      3:28   1.270|   7:28   2.540|  11:28  13.970|  15:28   3.175|  19:28   1.9
      3:29   1.270|   7:29   2.540|  11:29  13.970|  15:29   3.175|  19:29   1.9
      3:30   1.270|   7:30   2.540|  11:30  13.970|  15:30   3.175|  19:30   1.9
      3:31   1.270|   7:31   2.540|  11:31  13.970|  15:31   3.175|  19:31   1.9
      3:32   1.270|   7:32   2.540|  11:32  13.970|  15:32   3.175|  19:32   1.9
      3:33   1.270|   7:33   2.540|  11:33  13.970|  15:33   3.175|  19:33   1.9
      3:34   1.270|   7:34   2.540|  11:34  13.970|  15:34   3.175|  19:34   1.9
      3:35   1.270|   7:35   2.540|  11:35  13.970|  15:35   3.175|  19:35   1.9
      3:36   1.270|   7:36   2.540|  11:36  13.970|  15:36   3.175|  19:36   1.9
      3:37   1.270|   7:37   2.540|  11:37  33.655|  15:37   3.175|  19:37   2.5
      3:38   1.270|   7:38   2.540|  11:38  33.655|  15:38   3.175|  19:38   2.5
      3:39   1.270|   7:39   2.540|  11:39  33.655|  15:39   3.175|  19:39   2.5
      3:40   1.270|   7:40   2.540|  11:40  33.655|  15:40   3.175|  19:40   2.5
      3:41   1.270|   7:41   2.540|  11:41  33.655|  15:41   3.175|  19:41   2.5
      3:42   1.270|   7:42   2.540|  11:42  33.655|  15:42   3.175|  19:42   2.5
      3:43   1.270|   7:43   2.540|  11:43  33.655|  15:43   3.175|  19:43   2.5
      3:44   1.270|   7:44   2.540|  11:44  33.655|  15:44   3.175|  19:44   2.5
      3:45   1.270|   7:45   2.540|  11:45  33.655|  15:45   3.175|  19:45   2.5
      3:46   1.270|   7:46   2.540|  11:46  33.655|  15:46   3.175|  19:46   2.5
      3:47   1.270|   7:47   2.540|  11:47  33.655|  15:47   3.175|  19:47   2.5
      3:48   1.270|   7:48   2.540|  11:48  33.655|  15:48   3.175|  19:48   2.5
      3:49   1.270|   7:49   2.540|  11:49  69.850|  15:49   3.175|  19:49   1.9
      3:50   1.270|   7:50   2.540|  11:50  69.850|  15:50   3.175|  19:50   1.9
      3:51   1.270|   7:51   2.540|  11:51  69.850|  15:51   3.175|  19:51   1.9
      3:52   1.270|   7:52   2.540|  11:52  69.850|  15:52   3.175|  19:52   1.9
      3:53   1.270|   7:53   2.540|  11:53  69.850|  15:53   3.175|  19:53   1.9
      3:54   1.270|   7:54   2.540|  11:54  69.850|  15:54   3.175|  19:54   1.9
      3:55   1.270|   7:55   2.540|  11:55  69.850|  15:55   3.175|  19:55   1.9
      3:56   1.270|   7:56   2.540|  11:56  69.850|  15:56   3.175|  19:56   1.9
      3:57   1.270|   7:57   2.540|  11:57  69.850|  15:57   3.175|  19:57   1.9
      3:58   1.270|   7:58   2.540|  11:58  69.850|  15:58   3.175|  19:58   1.9
      3:59   1.270|   7:59   2.540|  11:59  69.850|  15:59   3.175|  19:59   1.9
      4:00   1.270|   8:00   2.540|  12:00  69.850|  16:00   3.175|  20:00   1.9

---------------------------------------------------------------------------
R0001:C00094----------------------------------------------------------------
*#*************************************************************************
*#-----------------|----------------------External-Catchments-----------------|
 ------------------------
| CALIB NASHYD           |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=   15.999 (i)
     TIME TO PEAK    (hrs)=   12.833
     DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
     AVERAGE FLOW    (cms)=    1.491
     RUNOFF VOLUME    (mm)=  65.932
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .519

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00095----------------------------------------------------------------
 ------------------------
| CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .558 (i)
     TIME TO PEAK    (hrs)=   12.600
     DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
     AVERAGE FLOW    (cms)=     .042
     RUNOFF VOLUME    (mm)=   67.415
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .531

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00096----------------------------------------------------------------
 ------------------------
| ADD HYD                |
| 03:Ditch               |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 ------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 01:27          232.530    15.999   12.833    65.932
                        +ID 2 02:28            6.140      .558   12.600    67.415
                        ================================================================
                        SUM   03:Ditch        238.670    16.500   12.833    65.970

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
R0001:C00097----------------------------------------------------------------
 ------------------------
| CALIB STANDHYD         |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
 ------------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.14         5.20
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      2.00         2.00
     Length            (m)=    250.00        30.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    142.87       108.49
                over (min)       3.00         9.00
     Storage Coeff.  (min)=      3.40 (ii)    9.15 (ii)
     Unit Hyd. Tpeak (min)=      3.00         9.00
     Unit Hyd. peak  (cms)=       .35          .12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .52         1.12         1.560 (iii)
     TIME TO PEAK    (hrs)=     12.20        12.27        12.217
     RUNOFF VOLUME    (mm)=    125.00        51.80        62.277
     TOTAL RAINFALL   (mm)=    127.00       127.00       126.999
     RUNOFF COEFFICIENT   =       .98          .41          .490

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)

      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00098----------------------------------------------------------------
 ------------------------
| ADD HYD                |
| 05:Ditch 2             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 ------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 03:Ditch       238.670    16.500   12.833    65.970
                        +ID 2 04:HB            9.340     1.560   12.217    62.277
                        ================================================================
                        SUM   05:Ditch 2      248.010    16.747   12.817    65.831

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
R0001:C00099----------------------------------------------------------------
 ------------------------
| CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    2.824 (i)
     TIME TO PEAK    (hrs)=   13.333
     DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
     AVERAGE FLOW    (cms)=     .346
     RUNOFF VOLUME    (mm)=   72.019
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .567

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00100----------------------------------------------------------------
 ------------------------
| ADD HYD                |
| 07:Crk Inlet           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 ------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 05:Ditch 2     248.010    16.747   12.817    65.831
                        +ID 2 06:29           53.830     2.824   13.333    72.019
                        ================================================================
                        SUM   07:Crk Inlet    301.840    19.141   12.867    66.934

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
R0001:C00101----------------------------------------------------------------
*#-----------------|----------------------Pre-development---------------------|
 ------------------------
| CALIB NASHYD           |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
| 08:101        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .070

     Unit Hyd Qpeak  (cms)=     .131

     PEAK FLOW       (cms)=     .034 (i)
     TIME TO PEAK    (hrs)=   12.217
     DURATION        (hrs)=   24.550, (dddd|hh:mm:)=   1|00:33
     AVERAGE FLOW    (cms)=     .001
     RUNOFF VOLUME    (mm)=   39.585
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .312

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00102----------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
 ------------------------
| CALIB NASHYD           |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
| 09:102        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .150

     Unit Hyd Qpeak  (cms)=     .255

     PEAK FLOW       (cms)=     .106 (i)
     TIME TO PEAK    (hrs)=   12.267
     DURATION        (hrs)=   25.050, (dddd|hh:mm:)=   1|01:03
     AVERAGE FLOW    (cms)=     .004
     RUNOFF VOLUME    (mm)=   39.158
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .308

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00103----------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
 ------------------------
| CALIB NASHYD           |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
| 10:103        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .170

     Unit Hyd Qpeak  (cms)=     .133

     PEAK FLOW       (cms)=     .058 (i)
     TIME TO PEAK    (hrs)=   12.283
     DURATION        (hrs)=   25.183, (dddd|hh:mm:)=   1|01:11
     AVERAGE FLOW    (cms)=     .003
     RUNOFF VOLUME    (mm)=   38.522
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .303

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
R0001:C00104----------------------------------------------------------------
*#-----------------|----------------------------------------------------------|
 ------------------------
| ADD HYD                |
| 01:Site                |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 ------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 08:101            .240      .034   12.217    39.585
                        +ID 2 09:102           1.000      .106   12.267    39.158
                        +ID 3 10:103            .590      .058   12.283    38.522
                        ================================================================
                        SUM   01:Site          1.830      .192   12.250    39.009

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
R0001:C00105----------------------------------------------------------------
 ------------------------
| ADD HYD                |
| 02:Channel             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 ------------------------                       (ha)     (cms)    (hrs)      (mm)
                         ID 1 07:Crk Inlet   301.840    19.141   12.867    66.934
                        +ID 2 01:Site          1.830      .192   12.250    39.009
                        ================================================================
                        SUM   02:Channel      303.670    19.172   12.867    66.766

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
02971>
02972> ------------------------------------------------------------------------------
02973> R0001:C00106-----------------------------------------------------------------
02974> *#*****************************************************************************
02975> *#*****************************************************************************
02976> *#                          Timmins Event (Regional)
02977> *#*****************************************************************************
02978> --------------------
02979> | READ STORM      |  Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-188
02980> | Ptotal= 193.00 mm|  Comments: Timmins Storm Event
02981> --------------------
02982>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
02983>      hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
02984>       1:00  15.000|   3:00  10.000|   5:00   5.000|   7:00  43.000|   9:00  23.0
02985>       2:00  20.000|   4:00   3.000|   6:00  20.000|   8:00  20.000|  10:00  13.0
02986>
02987> ------------------------------------------------------------------------------
02988> R0001:C00107-----------------------------------------------------------------
02989> *#*****************************************************************************
02990> *#*****************************************************************************
02991> *#-----------------|-------------------------------------------------------------|
02992> *#-----------------|--------------------External-Catchments--------------------|
02993> ------------------------
02994> | CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
02995> | 01:27        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
02996> -------------------------   U.H. Tp(hrs)=     .710
02997>
02998>      Unit Hyd Qpeak  (cms)=   12.509
02999>
03000>      PEAK FLOW       (cms)=   15.589 (i)
03001>      TIME TO PEAK    (hrs)=    7.417
03002>      DURATION        (hrs)=   16.567, (dddd|hh:mm:)=   0|16:34
03003>      AVERAGE FLOW    (cms)=    4.723
03004>      RUNOFF VOLUME    (mm)=  121.146
03005>      TOTAL RAINFALL   (mm)=  193.000
03006>      RUNOFF COEFFICIENT   =     .628
03007>
03008>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03009>
03010> ------------------------------------------------------------------------------
03011> R0001:C00108-----------------------------------------------------------------
03012> ------------------------
03013> | CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
03014> | 02:28        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
03015> -------------------------   U.H. Tp(hrs)=     .500
03016>
03017>      Unit Hyd Qpeak  (cms)=     .469
03018>
03019>      PEAK FLOW       (cms)=     .475 (i)
03020>      TIME TO PEAK    (hrs)=    7.200
03021>      DURATION        (hrs)=   15.333, (dddd|hh:mm:)=   0|15:20
03022>      AVERAGE FLOW    (cms)=     .137
03023>      RUNOFF VOLUME    (mm)=  123.245
03024>      TOTAL RAINFALL   (mm)=  193.000
03025>      RUNOFF COEFFICIENT   =     .639
03026>
03027>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03028>
03029> ------------------------------------------------------------------------------
03030> R0001:C00109-----------------------------------------------------------------
03031> ------------------------
03032> | ADD HYD              |
03033> | 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
03034> ------------------------                       (ha)     (cms)    (hrs)      (mm)
03035>                        ID 1 01:27           232.530    15.589    7.417   121.146
03036>                       +ID 2 02:28             6.140      .475    7.200   123.245
03037>                       ================================================================
03038>                       SUM   03:Ditch        238.670    16.040    7.400   121.201
03039>
03040>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03041>
03042> ------------------------------------------------------------------------------
03043> R0001:C00110-----------------------------------------------------------------
03044> --------------------------
03045> | CALIB STANDHYD         |   Area    (ha)=    9.34
03046> | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
03047> --------------------------
03048>                             IMPERVIOUS    PERVIOUS (i)
03049>      Surface Area     (ha)=       4.14        5.20
03050>      Dep. Storage     (mm)=       2.00        5.00
03051>      Average Slope     (%)=       2.00        2.00
03052>      Length            (m)=     250.00       30.00
03053>      Mannings n            =       .015        .250
03054>
03055>      Max.eff.Inten.(mm/hr)=      43.00       41.16
03056>                over (min)        5.00       14.00
03057>      Storage Coeff.  (min)=       5.49 (ii)   13.96 (ii)
03058>      Unit Hyd. Tpeak (min)=       5.00       14.00
03059>      Unit Hyd. peak  (cms)=        .21         .08
03060>                                                      *TOTALS*
03061>      PEAK FLOW       (cms)=        .16         .56          .720 (iii)
03062>      TIME TO PEAK    (hrs)=       7.00        7.03         7.000
03063>      RUNOFF VOLUME    (mm)=     191.01       99.58       112.652
03064>      TOTAL RAINFALL   (mm)=     193.00      193.00       193.000
03065>      RUNOFF COEFFICIENT   =        .99         .52          .584
03066>
03067>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03068>            CN* =  49.0    Ia = Dep. Storage  (Above)
03069>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
03070>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03071>
03072> ------------------------------------------------------------------------------
03073> R0001:C00111-----------------------------------------------------------------
03074> ------------------------
03075> | ADD HYD              |
03076> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
03077> ------------------------                       (ha)     (cms)    (hrs)      (mm)
03078>                        ID 1 03:Ditch        238.670    16.040    7.400   121.201
03079>                       +ID 2 04:HB             9.340      .720    7.000   112.652
03080>                       ================================================================
03081>                       SUM   05:Ditch 2      248.010    16.496    7.383   120.878
03082>
03083>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03084>
03085> ------------------------------------------------------------------------------
03086> R0001:C00112-----------------------------------------------------------------
03087> --------------------------
03088> | CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
03089> | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
03090> --------------------------   U.H. Tp(hrs)=    1.160
03091>
03092>      Unit Hyd Qpeak  (cms)=    1.772
03093>
03094>      PEAK FLOW       (cms)=    3.158 (i)
03095>      TIME TO PEAK    (hrs)=    8.067
03096>      DURATION        (hrs)=   19.133, (dddd|hh:mm:)=   0|19:08
03097>      AVERAGE FLOW    (cms)=    1.013
03098>      RUNOFF VOLUME    (mm)=  129.624
03099>      TOTAL RAINFALL   (mm)=  193.000
03100>      RUNOFF COEFFICIENT   =     .672
03101>
03102>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03103>
03104> ------------------------------------------------------------------------------
03105> R0001:C00113-----------------------------------------------------------------
03106> ------------------------
03107> | ADD HYD              |
03108> | 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
03109> ------------------------                       (ha)     (cms)    (hrs)      (mm)
03110>                        ID 1 05:Ditch 2      248.010    16.496    7.383   120.878
03111>                       +ID 2 06:29            53.830     3.158    8.067   129.624
03112>                       ================================================================
03113>                       SUM   07:Crk Inlet    301.840    19.317    7.433   122.438
03114>
03115>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03116>
03117> ------------------------------------------------------------------------------
03118> R0001:C00114-----------------------------------------------------------------
03119> *#-----------------|---------------------Pre-development---------------------|
03120> ------------------------
03121> | CALIB NASHYD          |   Area    (ha)=     .240   Curve Number   (CN)= 50.00
03122> | 08:101       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
03123> -------------------------   U.H. Tp(hrs)=     .070
03124>
03125>      Unit Hyd Qpeak  (cms)=     .131
03126>
03127>      PEAK FLOW       (cms)=     .014 (i)
03128>      TIME TO PEAK    (hrs)=    7.000
03129>      DURATION        (hrs)=   12.550, (dddd|hh:mm:)=   0|12:33
03130>      AVERAGE FLOW    (cms)=     .004
03131>      RUNOFF VOLUME    (mm)=   79.964
03132>      TOTAL RAINFALL   (mm)=  193.000
03133>      RUNOFF COEFFICIENT   =     .414
03134>
03135>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03136>
03137> ------------------------------------------------------------------------------
03138> R0001:C00115-----------------------------------------------------------------
03139> *#-----------------|-------------------------------------------------------------|
03140> ------------------------
03141> | CALIB NASHYD          |   Area    (ha)=    1.000   Curve Number   (CN)= 49.60
03142> | 09:102       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
03143> -------------------------   U.H. Tp(hrs)=     .150
03144>
03145>      Unit Hyd Qpeak  (cms)=     .255
03146>
03147>      PEAK FLOW       (cms)=     .058 (i)
03148>      TIME TO PEAK    (hrs)=    7.017
03149>      DURATION        (hrs)=   13.050, (dddd|hh:mm:)=   0|13:03
03150>      AVERAGE FLOW    (cms)=     .017
03151>      RUNOFF VOLUME    (mm)=   79.230
03152>      TOTAL RAINFALL   (mm)=  193.000
03153>      RUNOFF COEFFICIENT   =     .411
03154>
03155>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03156>
03157> ------------------------------------------------------------------------------
03158> R0001:C00116-----------------------------------------------------------------
03159> *#-----------------|-------------------------------------------------------------|
03160> ------------------------
03161> | CALIB NASHYD          |   Area    (ha)=     .590   Curve Number   (CN)= 49.00
03162> | 10:103       DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
03163> -------------------------   U.H. Tp(hrs)=     .170
03164>
03165>      Unit Hyd Qpeak  (cms)=     .133
03166>
03167>      PEAK FLOW       (cms)=     .034 (i)
03168>      TIME TO PEAK    (hrs)=    7.017
03169>      DURATION        (hrs)=   13.183, (dddd|hh:mm:)=   0|13:11
03170>      AVERAGE FLOW    (cms)=     .010
03171>      RUNOFF VOLUME    (mm)=   78.131
03172>      TOTAL RAINFALL   (mm)=  193.000
03173>      RUNOFF COEFFICIENT   =     .405
03174>
03175>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03176>
03177> ------------------------------------------------------------------------------
03178> R0001:C00117-----------------------------------------------------------------
03179> *#-----------------|-------------------------------------------------------------|
03180> ------------------------
03181> | ADD HYD              |
03182> | 01:Site              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
03183> ------------------------                       (ha)     (cms)    (hrs)      (mm)
03184>                        ID 1 08:101            .240      .014    7.000    79.964
03185>                       +ID 2 09:102           1.000      .058    7.017    79.230
03186>                       +ID 3 10:103            .590      .034    7.017    78.131
03187>                       ================================================================
03188>                       SUM   01:Site          1.830      .106    7.000    78.972
03189>
03190>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03191>
03192> ------------------------------------------------------------------------------
03193> R0001:C00118-----------------------------------------------------------------
03194> ------------------------
03195> | ADD HYD              |
03196> | 02:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
03197> ------------------------                       (ha)     (cms)    (hrs)      (mm)
03198>                        ID 1 07:Crk Inlet    301.840    19.317    7.433   122.438
03199>                       +ID 2 01:Site          1.830      .106    7.000    78.972
03200>                       ================================================================
03201>                       SUM   02:Channel      303.670    19.374    7.433   122.176
03202>
03203>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03204>
03205> ------------------------------------------------------------------------------
03206> R0001:C00119-----------------------------------------------------------------
03207> --------------------
03208> | FINISH             |
03209> --------------------
03210> ------------------------------------------------------------------------------
03211> ******************************************************************************
03212>      WARNINGS / ERRORS / NOTES
03213>      -------------------------
03214>    Simulation ended on 2018-09-18     at 17:06:55
03215> ==============================================================================
03216>
03217>
```

CROZIER CONSULTING ENGINEERS

Project Name:	Lora Bay Heights	**D.A. NAME**	**200**
Project Number:	1443-4724	**D.A. AREA (ha)**	**1.83**
Date:	9/18/2018		
By:	NC		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 200

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Brighton	BRs	A	100	1.83
				0
				0
				0
Total Area Check				1.83

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs	0.16	98		98	0.08	98	0.24	98		98	0.48	47.04
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.16		0		0.08		0.24		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BRs	0		0		0		1.35	49	0		1.35	66.15
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		1.35		0			

Pervious Area Calculations	Total Pervious Area	1.35	
	Composite Pervious Curve Number	49.0	
Impervious Area Calculations	Total Directly Connected Area	0.24	
	Total Indirectly Connected Area	0.24	
	Total Impervious Area	0.48	
	% X imp	13.1	
	% T imp	26.2	
	Total Area Check	1.83	

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	1.35	6.75
Cultivated	7	0	0
Impervious	2	0	0
[illegible]		[illegible]	[illegible]

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	6	0.24
Impervious	2.0	1	110	0.013

[illegible]

```
2     Metric units
*#****************************************************************************
*#  Project Name: [Lora Bay Heights]    Project Number: [1443-4724]
*#  Date         : September 12, 2018
*#  Modeller     : [J.Martin, edited by NC]
*#  Company      : C.F. Crozier & Associates Inc.
*#  License #    :  3737016
*#****************************************************************************
*#  Filename     :  EXTERNAL CATCHMENTS
*#  Lora Bay Heights - Flows to Little Beaver Creek Tributary - SCS & CHI Storms
*#****************************************************************************

*#****************************************************************************
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
*%                    [  ] <--storm filename, one per line for NSTORM time
*#****************************************************************************
*%-----------------|-----------------------------------------------------------|
*#-----------------|----------- LORA BAY HEIGHTS DRAINAGE MODEL ---------------|
*#****************************************************************************


*#****************************************************************************
*#****************************************************************************
*#                              2 Year Event (4-hour Chicago)
*#****************************************************************************
*%-----------------|-----------------------------------------------------------|
CHICAGO STORM        IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                     ICASEcs=[1],
                      A=[854.100],  B=[7.781], and C=[0.830],
*%-----------------|-----------------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                     N=[3], TP=[0.71]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                     DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                     N=[3], TP=[0.5]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-----------------------------------------------------------|
CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                     XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                     MNP=[ 0.25 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                     MNI=[ 0.015 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                     DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                     N=[3], TP=[1.16]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-----------------------------------------------------------|
*#-----------------|------------------- Post Dev Site ------------------------|
CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
                     XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
                     MNP=[ 0.24 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
                     MNI=[ 0.013 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
*%-----------------|-----------------------------------------------------------|


*#****************************************************************************
*#****************************************************************************
*#                              5 Year Event (4-hour Chicago)
*#****************************************************************************
*%-----------------|-----------------------------------------------------------|
CHICAGO STORM        IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                     ICASEcs=[1],
                      A=[1234.576],  B=[8.297], and C=[0.851],
*%-----------------|-----------------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                     N=[3], TP=[0.71]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                     DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                     N=[3], TP=[0.5]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-----------------------------------------------------------|
CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                     XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                     MNP=[ 0.25 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                     MNI=[ 0.015 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                     DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                     N=[3], TP=[1.16]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-----------------------------------------------------------|
*#-----------------|------------------- Post Dev Site ------------------------|
CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
                     XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
                     MNP=[ 0.24 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
                     MNI=[ 0.013 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
*%-----------------|-----------------------------------------------------------|


*#****************************************************************************
*#****************************************************************************
*#                              25 Year Event (4-hour Chicago)
*#****************************************************************************
*%-----------------|-----------------------------------------------------------|
CHICAGO STORM        IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                     ICASEcs=[1],
                      A=[1750.276],  B=[8.303], and C=[0.862],
*%-----------------|-----------------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                     N=[3], TP=[0.71]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                     DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                     N=[3], TP=[0.5]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-----------------------------------------------------------|
CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                     XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                     MNP=[ 0.25 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                     MNI=[ 0.015 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                     DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                     N=[3], TP=[1.16]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-----------------------------------------------------------|
*#-----------------|------------------- Post Dev Site ------------------------|
CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
                     XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
                     MNP=[ 0.24 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
                     MNI=[ 0.013 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
*%-----------------|-----------------------------------------------------------|


*#****************************************************************************
*#****************************************************************************
*#                             100 Year Event (4-hour Chicago)
*#****************************************************************************
*%-----------------|-----------------------------------------------------------|
CHICAGO STORM        IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                     ICASEcs=[1],
                      A=[2171.754],  B=[8.303], and C=[0.867],
*%-----------------|-----------------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
                     N=[3], TP=[0.71]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
                     DWF=[0](cms),  CN/C=[72], IA=[5](mm),
                     N=[3], TP=[0.5]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
*%-----------------|-----------------------------------------------------------|
CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
                     XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
                     MNP=[ 0.25 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
                     MNI=[ 0.015 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
                     DWF=[0](cms),  CN/C=[75], IA=[5](mm),
                     N=[3], TP=[1.16]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
*%-----------------|-----------------------------------------------------------|
*#-----------------|------------------- Post Dev Site ------------------------|
CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
                     XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
                     LOSS=[2] SCS Procedure: CN=[ 49  ],
                     Pervious   areas:
                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
                     MNP=[ 0.24 ], SCP=[0.0](min),
                     Impervious areas:
                     IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
                     MNI=[ 0.013 ], SCI=[0.0](min),
                     RAINFALL=[ ,  ,  -1](mm/hr)
*%-----------------|-----------------------------------------------------------|
ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
*%-----------------|-----------------------------------------------------------|


*#****************************************************************************
*#****************************************************************************
*#                                 2yr SCS Storm (24hr)
*#****************************************************************************
*#****************************************************************************
MASS STORM           PTOTAL=[57.0](mm), CSDT=[1](min),
                     CURVE_FILENAME=["SCS24HII.mst"]
*#****************************************************************************
*#-----------------|-----------------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
*%-----------------|-----------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
                     DWF=[0](cms),  CN/C=[71], IA=[5](mm),
```

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00271>                      N=[3], TP=[0.71]hrs,
00272>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00273> *%------------------|---------------------------------------------------------|
00274> CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00275>                      DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00276>                      N=[3], TP=[0.5]hrs,
00277>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00278> *%------------------|---------------------------------------------------------|
00279> ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00280> *%------------------|---------------------------------------------------------|
00281> CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00282>                      XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00283>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00284>                      Pervious   areas:
00285>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00286>                      MNP=[ 0.25 ], SCP=[0.0](min),
00287>                      Impervious areas:
00288>                      IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00289>                      MNI=[ 0.015 ], SCI=[0.0](min),
00290>                      RAINFALL=[ ,  ,  -1](mm/hr)
00291> *%------------------|---------------------------------------------------------|
00292> ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00293> *%------------------|---------------------------------------------------------|
00294> CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00295>                      DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00296>                      N=[3], TP=[1.16]hrs,
00297>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00298> *%------------------|---------------------------------------------------------|
00299> ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00300> *%------------------|---------------------------------------------------------|
00301> *#-----------------|---------- Post Dev Site ----------------------------------|
00302> CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
00303>                      XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
00304>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00305>                      Pervious   areas:
00306>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
00307>                      MNP=[ 0.24 ], SCP=[0.0](min),
00308>                      Impervious areas:
00309>                      IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
00310>                      MNI=[ 0.013 ], SCI=[0.0](min),
00311>                      RAINFALL=[ ,  ,  -1](mm/hr)
00312> *%------------------|---------------------------------------------------------|
00313> ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
00314> *%------------------|---------------------------------------------------------|
00315>
00316>
00317> *#**************************************************************************
00318> *#**************************************************************************
00319> *#                            5yr SCS Storm (24hr)
00320> *#**************************************************************************
00321> *#**************************************************************************
00322> MASS STORM           PTOTAL=[75.7](mm), CSDT=[1](min),
00323>                      CURVE_FILENAME=["SCS24HII.mst"]
00324> *#**************************************************************************
00325> *#-----------------|---------------------------------------------------------|
00326> *#-----------------|----------------------External-Catchments----------------|
00327> *%-----------------|---------------------------------------------------------|
00328> CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
00329>                      DWF=[0](cms),  CN/C=[71], IA=[5](mm),
00330>                      N=[3], TP=[0.71]hrs,
00331>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00332> *%------------------|---------------------------------------------------------|
00333> CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00334>                      DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00335>                      N=[3], TP=[0.5]hrs,
00336>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00337> *%------------------|---------------------------------------------------------|
00338> ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00339> *%------------------|---------------------------------------------------------|
00340> CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00341>                      XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00342>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00343>                      Pervious   areas:
00344>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00345>                      MNP=[ 0.25 ], SCP=[0.0](min),
00346>                      Impervious areas:
00347>                      IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00348>                      MNI=[ 0.015 ], SCI=[0.0](min),
00349>                      RAINFALL=[ ,  ,  -1](mm/hr)
00350> *%------------------|---------------------------------------------------------|
00351> ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00352> *%------------------|---------------------------------------------------------|
00353> CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00354>                      DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00355>                      N=[3], TP=[1.16]hrs,
00356>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00357> *%------------------|---------------------------------------------------------|
00358> ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00359> *%------------------|---------------------------------------------------------|
00360> *#-----------------|---------- Post Dev Site ----------------------------------|
00361> CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
00362>                      XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
00363>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00364>                      Pervious   areas:
00365>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
00366>                      MNP=[ 0.24 ], SCP=[0.0](min),
00367>                      Impervious areas:
00368>                      IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
00369>                      MNI=[ 0.013 ], SCI=[0.0](min),
00370>                      RAINFALL=[ ,  ,  -1](mm/hr)
00371> *%------------------|---------------------------------------------------------|
00372> ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
00373> *%------------------|---------------------------------------------------------|
00374>
00375>
00376> *#**************************************************************************
00377> *#**************************************************************************
00378> *#                            25yr SCS Storm (24hr)
00379> *#**************************************************************************
00380> *#**************************************************************************
00381> MASS STORM           PTOTAL=[103.9](mm), CSDT=[1](min),
00382>                      CURVE_FILENAME=["SCS24HII.mst"]
00383> *#**************************************************************************
00384> *#-----------------|---------------------------------------------------------|
00385> *#-----------------|----------------------External-Catchments----------------|
00386> *%-----------------|---------------------------------------------------------|
00387> CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
00388>                      DWF=[0](cms),  CN/C=[71], IA=[5](mm),
00389>                      N=[3], TP=[0.71]hrs,
00390>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00391> *%------------------|---------------------------------------------------------|
00392> CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00393>                      DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00394>                      N=[3], TP=[0.5]hrs,
00395>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00396> *%------------------|---------------------------------------------------------|
00397> ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00398> *%------------------|---------------------------------------------------------|
00399> CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00400>                      XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00401>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00402>                      Pervious   areas:
00403>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00404>                      MNP=[ 0.25 ], SCP=[0.0](min),
00405>                      Impervious areas:
00406>                      IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00407>                      MNI=[ 0.015 ], SCI=[0.0](min),
00408>                      RAINFALL=[ ,  ,  -1](mm/hr)
00409> *%------------------|---------------------------------------------------------|
00410> ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00411> *%------------------|---------------------------------------------------------|
00412> CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00413>                      DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00414>                      N=[3], TP=[1.16]hrs,
00415>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00416> *%------------------|---------------------------------------------------------|
00417> ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00418> *%------------------|---------------------------------------------------------|
00419> *#-----------------|---------- Post Dev Site ----------------------------------|
00420> CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
00421>                      XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
00422>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00423>                      Pervious   areas:
00424>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
00425>                      MNP=[ 0.24 ], SCP=[0.0](min),
00426>                      Impervious areas:
00427>                      IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
00428>                      MNI=[ 0.013 ], SCI=[0.0](min),
00429>                      RAINFALL=[ ,  ,  -1](mm/hr)
00430> *%------------------|---------------------------------------------------------|
00431> ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
00432> *%------------------|---------------------------------------------------------|
00433>
00434>
00435>
00436> *#**************************************************************************
00437> *#**************************************************************************
00438> *#                            100yr SCS Storm (24hr)
00439> *#**************************************************************************
00440> *#**************************************************************************
00441> MASS STORM           PTOTAL=[127](mm), CSDT=[1](min),
00442>                      CURVE_FILENAME=["SCS24HII.mst"]
00443> *#**************************************************************************
00444> *#-----------------|---------------------------------------------------------|
00445> *#-----------------|----------------------External-Catchments----------------|
00446> *%-----------------|---------------------------------------------------------|
00447> CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
00448>                      DWF=[0](cms),  CN/C=[71], IA=[5](mm),
00449>                      N=[3], TP=[0.71]hrs,
00450>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00451> *%------------------|---------------------------------------------------------|
00452> CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00453>                      DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00454>                      N=[3], TP=[0.5]hrs,
00455>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00456> *%------------------|---------------------------------------------------------|
00457> ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00458> *%------------------|---------------------------------------------------------|
00459> CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00460>                      XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00461>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00462>                      Pervious   areas:
00463>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00464>                      MNP=[ 0.25 ], SCP=[0.0](min),
00465>                      Impervious areas:
00466>                      IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00467>                      MNI=[ 0.015 ], SCI=[0.0](min),
00468>                      RAINFALL=[ ,  ,  -1](mm/hr)
00469> *%------------------|---------------------------------------------------------|
00470> ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00471> *%------------------|---------------------------------------------------------|
00472> CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00473>                      DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00474>                      N=[3], TP=[1.16]hrs,
00475>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00476> *%------------------|---------------------------------------------------------|
00477> ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00478> *%------------------|---------------------------------------------------------|
00479> *#-----------------|---------- Post Dev Site ----------------------------------|
00480> CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
00481>                      XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
00482>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00483>                      Pervious   areas:
00484>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
00485>                      MNP=[ 0.24 ], SCP=[0.0](min),
00486>                      Impervious areas:
00487>                      IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
00488>                      MNI=[ 0.013 ], SCI=[0.0](min),
00489>                      RAINFALL=[ ,  ,  -1](mm/hr)
00490> *%------------------|---------------------------------------------------------|
00491> ADD HYD              IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
00492> *%------------------|---------------------------------------------------------|
00493>
00494>
00495> *#**************************************************************************
00496> *#**************************************************************************
00497> *#                            Timmins Event (Regional)
00498> *#**************************************************************************
00499> *%-----------------|---------------------------------------------------------|
00500> READ STORM           STORM_FILENAME=["tim.stm"]
00501> *#**************************************************************************
00502> *%-----------------|---------------------------------------------------------|
00503> *#**************************************************************************
00504> *#-----------------|---------------------------------------------------------|
00505> *#-----------------|----------------------External-Catchments----------------|
00506> *%-----------------|---------------------------------------------------------|
00507> CALIB NASHYD         ID=[1], NHYD=["27"], DT=[1]min, AREA=[232.53](ha),
00508>                      DWF=[0](cms),  CN/C=[71], IA=[5](mm),
00509>                      N=[3], TP=[0.71]hrs,
00510>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00511> *%------------------|---------------------------------------------------------|
00512> CALIB NASHYD         ID=[2], NHYD=["28"], DT=[1]min, AREA=[6.14](ha),
00513>                      DWF=[0](cms),  CN/C=[72], IA=[5](mm),
00514>                      N=[3], TP=[0.5]hrs,
00515>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00516> *%------------------|---------------------------------------------------------|
00517> ADD HYD              IDsum=[3], NHYD=["Ditch"], IDs to add=[1+2]
00518> *%------------------|---------------------------------------------------------|
00519> CALIB STANDHYD       ID=[4], NHYD=["HB"], DT=[ 1 ](min), AREA=[ 9.34 ](ha),
00520>                      XIMP=[ .143  ], TIMP=[ .443  ], DWF=[0](cms),
00521>                      LOSS=[2] SCS Procedure: CN=[ 49  ],
00522>                      Pervious   areas:
00523>                      IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 30  ](m),
00524>                      MNP=[ 0.25 ], SCP=[0.0](min),
00525>                      Impervious areas:
00526>                      IAimp=[ 2 ](mm), SLPI=[  2 ](%), LGI=[ 250  ](m),
00527>                      MNI=[ 0.015 ], SCI=[0.0](min),
00528>                      RAINFALL=[ ,  ,  -1](mm/hr)
00529> *%------------------|---------------------------------------------------------|
00530> ADD HYD              IDsum=[5], NHYD=["Ditch 2"], IDs to add=[3+4]
00531> *%------------------|---------------------------------------------------------|
00532> CALIB NASHYD         ID=[6], NHYD=["29"], DT=[1]min, AREA=[53.83](ha),
00533>                      DWF=[0](cms),  CN/C=[75], IA=[5](mm),
00534>                      N=[3], TP=[1.16]hrs,
00535>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00536> *%------------------|---------------------------------------------------------|
00537> ADD HYD              IDsum=[7], NHYD=["Crk Inlet"], IDs to add=[5+6]
00538> *%------------------|---------------------------------------------------------|
00539> *#-----------------|---------- Post Dev Site ----------------------------------|
00540> CALIB STANDHYD       ID=[8], NHYD=["200"], DT=[ 1 ](min), AREA=[ 1.83 ](ha),
```

```
00541>                     XIMP=[ .131  ], TIMP=[ .262  ], DWF=[0](cms),
00542>                     LOSS=[2] SCS Procedure: CN=[ 49  ],
00543>                     Pervious   areas:
00544>                     IAper=[ 5  ](mm), SLPP=[ 2  ](%), LGP=[ 6  ](m),
00545>                     MNP=[ 0.24 ], SCP=[0.0](min),
00546>                     Impervious areas:
00547>                     IAimp=[ 2 ](mm), SLPI=[  1 ](%), LGI=[ 93  ](m),
00548>                     MNI=[ 0.013 ], SCI=[0.0](min),
00549>                     RAINFALL=[ ,  ,  -1](mm/hr)
00550> *%-----------------|-------------------------------------------------------------|
00551> ADD HYD             IDsum=[9], NHYD=["Channel"], IDs to add=[7+8]
00552> *%-----------------|-------------------------------------------------------------|
00553>
00554>
00555> FINISH
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00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO          222     000    11
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O          2     0   0   11
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O          2     0   0   11
00006>      S    W W    M   M   H   H     Y     M   M   O   O        222     0   0   11
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO        2       0   0   11
00008>                                                              2       0   0   11
00009>         StormWater Management HYdrologic Model                222     000    11
00010>
00011>  ********************************************************************************
00012>  ************************************  SWMHYMO Ver4.05.0  ***********************
00013>  *****************  A single event and continuous hydrologic simulation model
00014>  *****************     based on the principles of HYMO and its successors
00015>  *****************                 OTTHYMO-83 and OTTHYMO-89.
00016>  ********************************************************************************
00017>  ***************** Distributed by:  J.F. Sabourin and Associates Inc.
00018>  *****************                 Ottawa,  Ontario: (613) 836-3884
00019>  *****************                 Gatineau, Quebec: (819) 243-6858
00020>  *****************                 E-Mail: swmhymo@jfsa.com
00021>  ********************************************************************************
00022>
00023>  ********************************************************************************
00024>  ****************** Licensed user: C.F. Crozier & Associates Inc.
00025>  ******************               Collingwood          SERIAL#:3737016
00026>  ********************************************************************************
00027>
00028>  ********************************************************************************
00029>  *****************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00030>  *****************           Maximum value for ID numbers  :     11
00031>  *****************           Max. number of rainfall points: 105408
00032>  *****************           Max. number of flow points    : 105408
00033>  ********************************************************************************
00034>
00035>  ********************************************************************************
00036>  ************************************  SWMHYMO Ver4.05.0  ***********************
00037>  *****************  A single event and continuous hydrologic simulation model
00038>  *****************     based on the principles of HYMO and its successors
00039>  *****************                 OTTHYMO-83 and OTTHYMO-89.
00040>  ********************************************************************************
00041>  ***************** Distributed by:  J.F. Sabourin and Associates Inc.
00042>  *****************                 Ottawa,  Ontario: (613) 836-3884
00043>  *****************                 Gatineau, Quebec: (819) 243-6858
00044>  *****************                 E-Mail: swmhymo@jfsa.com
00045>  ********************************************************************************
00046>
00047>  ********************************************************************************
00048>  ****************** Licensed user: C.F. Crozier & Associates Inc.
00049>  ******************               Collingwood          SERIAL#:3737016
00050>  ********************************************************************************
00051>
00052>  ********************************************************************************
00053>  *****************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00054>  *****************           Maximum value for ID numbers  :     11
00055>  *****************           Max. number of rainfall points: 105408
00056>  *****************           Max. number of flow points    : 105408
00057>  ********************************************************************************
00058>
00059>
00060>  ******************************   D E T A I L E D   O U T P U T   ***************
00061>  ********************************************************************************
00062>  *                 RUN DATE: 2018-09-18     TIME: 17:15:35     RUN COUNTER: 0000
00063>  ********************************************************************************
00064>  * Input   file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00065>  *              018.09.11 SWMHYMO\SWMHYMO\POST.dat
00066>  * Output  file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00067>  *              018.09.11 SWMHYMO\SWMHYMO\POST.out
00068>  * Summary file: J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\Design
00069>  *              018.09.11 SWMHYMO\SWMHYMO\POST.sum
00070>  * User comments:
00071>  * 1:_____________________________________________________________________________
00072>  * 2:_____________________________________________________________________________
00073>  * 3:_____________________________________________________________________________
00074>  ********************************************************************************
00075>
00076>  --------------------------------------------------------------------------------
00077>  R0001:C00001------------------------------------------------------------------
00078>  *#*****************************************************************************
00079>  *#  Project Name: [Lora Bay Heights]    Project Number: [1443-4724]
00080>  *#  Date        : September 12, 2018
00081>  *#  Modeller    : [J.Martin, edited by NC]
00082>  *#  Company     : C.F. Crozier & Associates Inc.
00083>  *#  License #   :  3737016
00084>  *#*****************************************************************************
00085>  *#  Filename    :  EXTERNAL CATCHMENTS
00086>  *#  Lora Bay Heights - Flows to Little Beaver Creek Tributary - SCS & CHI Storms
00087>  *#*****************************************************************************
00088>  *#*****************************************************************************
00089>  --------------------
00090>  | START           | Project  dir.:J:\1400\1443-Richpark Homes (Thornbury)\4724-
00091>  -------------------- Rainfall dir.:J:\1400\1443-Richpark Homes (Thornbury)\4724-
00092>      TZERO =    .00 hrs on      0
00093>      METOUT=   2 (output = METRIC)
00094>      NRUN  = 0001
00095>      NSTORM=   0
00096>  --------------------------------------------------------------------------------
00097>  R0001:C00002------------------------------------------------------------------
00098>  *#*****************************************************************************
00099>  *#-----------------|---------- LORA BAY HEIGHTS DRAINAGE MODEL ---------------|
00100>  *#*****************************************************************************
00101>  *#*****************************************************************************
00102>  *#
00103>  *#                          2 Year Event (4-hour Chicago)
00104>  *#*****************************************************************************
00105>  --------------------
00106>  | CHICAGO STORM    |    IDF curve parameters: A= 854.100
00107>  | Ptotal= 35.19 mm |                          B=   7.781
00108>  --------------------                          C=    .830
00109>                         used in:   INTENSITY =  A / (t + B)^C
00110>
00111>                         Duration of storm  =  4.00 hrs
00112>                         Storm time step    =  5.00 min
00113>                         Time to peak ratio =   .33
00114>
00115>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00116>       hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00117>        0:05   1.851|   0:45   3.941|   1:25  48.383|   2:05   5.944|   2:45   3.1
00118>        0:10   1.977|   0:50   4.633|   1:30  27.198|   2:10   5.337|   2:50   2.9
00119>        0:15   2.122|   0:55   5.632|   1:35  18.416|   2:15   4.843|   2:55   2.8
00120>        0:20   2.294|   1:00   7.198|   1:40  13.763|   2:20   4.436|   3:00   2.6
00121>        0:25   2.497|   1:05   9.973|   1:45  10.931|   2:25   4.093|   3:05   2.5
00122>        0:30   2.744|   1:10  16.069|   1:50   9.044|   2:30   3.801|   3:10   2.4
00123>        0:35   3.049|   1:15  37.766|   1:55   7.706|   2:35   3.550|   3:15   2.3
00124>        0:40   3.435|   1:20 103.053|   2:00   6.711|   2:40   3.330|   3:20   2.2
00125>
00126>  --------------------------------------------------------------------------------
00127>  R0001:C00003-------|-----------------------External-Catchments-----------------|
00128>  *#-----------------|--------------------------------------------------------------
00129>  -------------------------
00130>  | CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00131>  | 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00132>  -------------------------   U.H. Tp(hrs)=     .710
00133>
00134>      Unit Hyd Qpeak  (cms)=   12.509
00135>
00136>      PEAK FLOW       (cms)=    2.127 (i)
00137>      TIME TO PEAK    (hrs)=    2.333
00138>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00139>      AVERAGE FLOW    (cms)=     .513
00140>      RUNOFF VOLUME    (mm)=   6.806
00141>      TOTAL RAINFALL   (mm)=  35.193
00142>      RUNOFF COEFFICIENT   =     .193
00143>
00144>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00145>
00146>  --------------------------------------------------------------------------------
00147>  R0001:C00004------------------------------------------------------------------
00148>  -------------------------
00149>  | CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00150>  | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00151>  -------------------------   U.H. Tp(hrs)=     .500
00152>
00153>      Unit Hyd Qpeak  (cms)=     .469
00154>
00155>      PEAK FLOW       (cms)=     .074 (i)
00156>      TIME TO PEAK    (hrs)=    2.050
00157>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00158>      AVERAGE FLOW    (cms)=     .016
00159>      RUNOFF VOLUME    (mm)=    7.068
00160>      TOTAL RAINFALL   (mm)=  35.193
00161>      RUNOFF COEFFICIENT   =     .201
00162>
00163>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00164>
00165>  --------------------------------------------------------------------------------
00166>  R0001:C00005------------------------------------------------------------------
00167>  -------------------------
00168>  | ADD HYD               |
00169>  | 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00170>  -------------------------                       (ha)     (cms)    (hrs)      (mm)
00171>                          ID 1 01:27          232.530     2.127    2.333     6.806
00172>                         +ID 2 02:28            6.140      .074    2.050     7.068
00173>                         ==========================================================
00174>                         SUM   03:Ditch        238.670     2.193    2.317     6.813
00175>
00176>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00177>
00178>  --------------------------------------------------------------------------------
00179>  R0001:C00006------------------------------------------------------------------
00180>  -------------------------
00181>  | CALIB STANDHYD        |   Area    (ha)=    9.34
00182>  | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00183>  -------------------------
00184>                                IMPERVIOUS    PERVIOUS (i)
00185>      Surface Area     (ha)=       4.14         5.20
00186>      Dep. Storage     (mm)=       2.00         5.00
00187>      Average Slope     (%)=       2.00         2.00
00188>      Length            (m)=     250.00        30.00
00189>      Mannings n            =       .015         .250
00190>
00191>      Max.eff.Inten.(mm/hr)=     103.05        11.19
00192>                   over (min)       4.00        18.00
00193>      Storage Coeff.  (min)=       3.87 (ii)   18.13 (ii)
00194>      Unit Hyd. Tpeak (min)=       4.00        18.00
00195>      Unit Hyd. peak  (cms)=        .29          .06
00196>                                                          *TOTALS*
00197>      PEAK FLOW       (cms)=        .29          .09          .303 (iii)
00198>      TIME TO PEAK    (hrs)=       1.37         1.70         1.367
00199>      RUNOFF VOLUME    (mm)=      33.19         5.01         9.038
00200>      TOTAL RAINFALL   (mm)=      35.19        35.19        35.193
00201>      RUNOFF COEFFICIENT   =        .94          .14          .257
00202>
00203>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00204>            CN* =  49.0   Ia = Dep. Storage  (Above)
00205>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00206>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00207>
00208>  --------------------------------------------------------------------------------
00209>  R0001:C00007------------------------------------------------------------------
00210>  -------------------------
00211>  | ADD HYD               |
00212>  | 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00213>  -------------------------                       (ha)     (cms)    (hrs)      (mm)
00214>                          ID 1 03:Ditch       238.670     2.193    2.317     6.813
00215>                         +ID 2 04:HB            9.340      .303    1.367     9.038
00216>                         ==========================================================
00217>                         SUM   05:Ditch 2      248.010     2.258    2.300     6.897
00218>
00219>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00220>
00221>  --------------------------------------------------------------------------------
00222>  R0001:C00008------------------------------------------------------------------
00223>  -------------------------
00224>  | CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
00225>  | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00226>  -------------------------   U.H. Tp(hrs)=    1.160
00227>
00228>      Unit Hyd Qpeak  (cms)=    1.772
00229>
00230>      PEAK FLOW       (cms)=     .411 (i)
00231>      TIME TO PEAK    (hrs)=    2.933
00232>      DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
00233>      AVERAGE FLOW    (cms)=     .107
00234>      RUNOFF VOLUME    (mm)=    7.937
00235>      TOTAL RAINFALL   (mm)=  35.193
00236>      RUNOFF COEFFICIENT   =     .226
00237>
00238>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00239>
00240>  --------------------------------------------------------------------------------
00241>  R0001:C00009------------------------------------------------------------------
00242>  -------------------------
00243>  | ADD HYD               |
00244>  | 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00245>  -------------------------                       (ha)     (cms)    (hrs)      (mm)
00246>                          ID 1 05:Ditch 2     248.010     2.258    2.300     6.897
00247>                         +ID 2 06:29           53.830      .411    2.933     7.937
00248>                         ==========================================================
00249>                         SUM   07:Crk Inlet    301.840     2.595    2.367     7.082
00250>
00251>     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00252>
00253>  --------------------------------------------------------------------------------
00254>  R0001:C00010------------------------------------------------------------------
00255>  *#-----------------|-------------------- Post Dev Site -------------------------|
00256>  -------------------------
00257>  | CALIB STANDHYD        |   Area    (ha)=    1.83
00258>  | 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
00259>  -------------------------
00260>                                IMPERVIOUS    PERVIOUS (i)
00261>      Surface Area     (ha)=        .48         1.35
00262>      Dep. Storage     (mm)=       2.00         5.00
00263>      Average Slope     (%)=       1.00         2.00
00264>      Length            (m)=      93.00         6.00
00265>      Mannings n            =       .013         .240
00266>
00267>      Max.eff.Inten.(mm/hr)=     103.05         8.33
00268>                   over (min)       2.00         8.00
00269>      Storage Coeff.  (min)=       2.42 (ii)    8.38 (ii)
00270>      Unit Hyd. Tpeak (min)=       2.00         8.00
```

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00271>      Unit Hyd. peak  (cms)=        .49          .14
00272>                                                          *TOTALS*
00273>      PEAK FLOW       (cms)=        .06          .02          .067 (iii)
00274>      TIME TO PEAK    (hrs)=       1.33         1.52         1.333
00275>      RUNOFF VOLUME    (mm)=      33.19         3.75         7.606
00276>      TOTAL RAINFALL   (mm)=      35.19        35.19        35.193
00277>      RUNOFF COEFFICIENT   =        .94          .11          .216
00278>
00279>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00280>            CN* =  49.0    Ia = Dep. Storage  (Above)
00281>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00282>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00283>
00284> ---------------------------------------------------------------------------
00285> R0001:C00011-----------------------------------------------------------------
00286> ------------------------
00287> | ADD HYD              |
00288> | 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00289> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00290>                        ID 1 07:Crk Inlet    301.840     2.595    2.367     7.082
00291>                       +ID 2 08:200            1.830      .067    1.333     7.606
00292>                       ============================================================
00293>                       SUM   09:Channel      303.670     2.603    2.367     7.085
00294>
00295>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00296>
00297> ---------------------------------------------------------------------------
00298> R0001:C00012-----------------------------------------------------------------
00299> *#*************************************************************************
00300> *#*************************************************************************
00301> *#                        5 Year Event (4-hour Chicago)
00302> *#*************************************************************************
00303> --------------------
00304> | CHICAGO STORM    |     IDF curve parameters: A=1234.576
00305> | Ptotal= 45.23 mm |                           B=   8.297
00306> --------------------                           C=    .851
00307>                         used in:   INTENSITY =  A / (t + B)^C
00308>
00309>                         Duration of storm  =  4.00 hrs
00310>                         Storm time step    =  5.00 min
00311>                         Time to peak ratio =   .33
00312>
00313>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00314>      hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00315>       0:05   2.160|   0:45   4.785|   1:25  64.501|   2:05   7.379|   2:45   3.7
00316>       0:10   2.314|   0:50   5.674|   1:30  35.956|   2:10   6.586|   2:50   3.5
00317>       0:15   2.494|   0:55   6.972|   1:35  24.069|   2:15   5.946|   2:55   3.3
00318>       0:20   2.706|   1:00   9.026|   1:40  17.791|   2:20   5.420|   3:00   3.1
00319>       0:25   2.959|   1:05  12.711|   1:45  13.989|   2:25   4.979|   3:05   3.0
00320>       0:30   3.267|   1:10  20.902|   1:50  11.471|   2:30   4.606|   3:10   2.8
00321>       0:35   3.650|   1:15  50.196|   1:55   9.696|   2:35   4.285|   3:15   2.7
00322>       0:40   4.140|   1:20 136.522|   2:00   8.384|   2:40   4.007|   3:20   2.6
00323>
00324> ---------------------------------------------------------------------------
00325> R0001:C00013-----------------------------------------------------------------
00326> *#-----------------|---------------------External-Catchments------------------|
00327> ------------------------
00328> | CALIB NASHYD         |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00329> | 01:27        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00330> ------------------------   U.H. Tp(hrs)=     .710
00331>
00332>      Unit Hyd Qpeak  (cms)=   12.509
00333>
00334>      PEAK FLOW       (cms)=    3.677 (i)
00335>      TIME TO PEAK    (hrs)=    2.300
00336>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00337>      AVERAGE FLOW    (cms)=     .848
00338>      RUNOFF VOLUME    (mm)=   11.241
00339>      TOTAL RAINFALL   (mm)=   45.230
00340>      RUNOFF COEFFICIENT   =     .249
00341>
00342>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00343>
00344> ---------------------------------------------------------------------------
00345> R0001:C00014-----------------------------------------------------------------
00346> ------------------------
00347> | CALIB NASHYD         |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00348> | 02:28        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00349> ------------------------   U.H. Tp(hrs)=     .500
00350>
00351>      Unit Hyd Qpeak  (cms)=     .469
00352>
00353>      PEAK FLOW       (cms)=     .128 (i)
00354>      TIME TO PEAK    (hrs)=    2.017
00355>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00356>      AVERAGE FLOW    (cms)=     .027
00357>      RUNOFF VOLUME    (mm)=   11.643
00358>      TOTAL RAINFALL   (mm)=   45.230
00359>      RUNOFF COEFFICIENT   =     .257
00360>
00361>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00362>
00363> ---------------------------------------------------------------------------
00364> R0001:C00015-----------------------------------------------------------------
00365> ------------------------
00366> | ADD HYD              |
00367> | 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00368> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00369>                        ID 1 01:27           232.530     3.677    2.300    11.241
00370>                       +ID 2 02:28             6.140      .128    2.017    11.643
00371>                       ============================================================
00372>                       SUM   03:Ditch        238.670     3.792    2.283    11.251
00373>
00374>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00375>
00376> ---------------------------------------------------------------------------
00377> R0001:C00016-----------------------------------------------------------------
00378> ------------------------
00379> | CALIB STANDHYD       |   Area    (ha)=    9.34
00380> | 04:HB        DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00381> ------------------------
00382>                                IMPERVIOUS    PERVIOUS (i)
00383>      Surface Area     (ha)=       4.14         5.20
00384>      Dep. Storage     (mm)=       2.00         5.00
00385>      Average Slope     (%)=       2.00         2.00
00386>      Length            (m)=     250.00        30.00
00387>      Mannings n             =       .015         .250
00388>
00389>      Max.eff.Inten.(mm/hr)=     136.52        21.98
00390>                    over (min)        3.00        14.00
00391>      Storage Coeff.  (min)=       3.46 (ii)   14.35 (ii)
00392>      Unit Hyd. Tpeak (min)=       3.00        14.00
00393>      Unit Hyd. peak  (cms)=        .34          .08
00394>                                                          *TOTALS*
00395>      PEAK FLOW       (cms)=        .40          .19          .443 (iii)
00396>      TIME TO PEAK    (hrs)=       1.35         1.62         1.350
00397>      RUNOFF VOLUME    (mm)=      43.23         8.24        13.246
00398>      TOTAL RAINFALL   (mm)=      45.23        45.23        45.230
00399>      RUNOFF COEFFICIENT   =        .96          .18          .293
00400>
00401>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00402>            CN* =  49.0    Ia = Dep. Storage  (Above)
00403>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00404>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00405>
00406> ---------------------------------------------------------------------------
00407> R0001:C00017-----------------------------------------------------------------
00408> ------------------------
00409> | ADD HYD              |
00410> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00411> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00412>                        ID 1 03:Ditch        238.670     3.792    2.283    11.251
00413>                       +ID 2 04:HB             9.340      .443    1.350    13.246
00414>                       ============================================================
00415>                       SUM   05:Ditch 2      248.010     3.885    2.267    11.326
00416>
00417>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00418>
00419> ---------------------------------------------------------------------------
00420> R0001:C00018-----------------------------------------------------------------
00421> ------------------------
00422> | CALIB NASHYD         |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
00423> | 06:29        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00424> ------------------------   U.H. Tp(hrs)=    1.160
00425>
00426>      Unit Hyd Qpeak  (cms)=    1.772
00427>
00428>      PEAK FLOW       (cms)=     .691 (i)
00429>      TIME TO PEAK    (hrs)=    2.867
00430>      DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
00431>      AVERAGE FLOW    (cms)=     .174
00432>      RUNOFF VOLUME    (mm)=   12.958
00433>      TOTAL RAINFALL   (mm)=   45.230
00434>      RUNOFF COEFFICIENT   =     .286
00435>
00436>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00437>
00438> ---------------------------------------------------------------------------
00439> R0001:C00019-----------------------------------------------------------------
00440> ------------------------
00441> | ADD HYD              |
00442> | 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00443> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00444>                        ID 1 05:Ditch 2      248.010     3.885    2.267    11.326
00445>                       +ID 2 06:29           53.830      .691    2.867    12.958
00446>                       ============================================================
00447>                       SUM   07:Crk Inlet    301.840     4.453    2.333    11.617
00448>
00449>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00450>
00451> ---------------------------------------------------------------------------
00452> R0001:C00020-----------------------------------------------------------------
00453> *#-----------------|-------------------- Post Dev Site ----------------------|
00454> ------------------------
00455> | CALIB STANDHYD       |   Area    (ha)=    1.83
00456> | 08:200       DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
00457> ------------------------
00458>                                IMPERVIOUS    PERVIOUS (i)
00459>      Surface Area     (ha)=        .48         1.35
00460>      Dep. Storage     (mm)=       2.00         5.00
00461>      Average Slope     (%)=       1.00         2.00
00462>      Length            (m)=      93.00         6.00
00463>      Mannings n             =       .013         .240
00464>
00465>      Max.eff.Inten.(mm/hr)=     136.52        15.35
00466>                    over (min)        2.00         7.00
00467>      Storage Coeff.  (min)=       2.16 (ii)    6.83 (ii)
00468>      Unit Hyd. Tpeak (min)=       2.00         7.00
00469>      Unit Hyd. peak  (cms)=        .53          .16
00470>                                                          *TOTALS*
00471>      PEAK FLOW       (cms)=        .08          .04          .099 (iii)
00472>      TIME TO PEAK    (hrs)=       1.33         1.47         1.350
00473>      RUNOFF VOLUME    (mm)=      43.23         6.33        11.161
00474>      TOTAL RAINFALL   (mm)=      45.23        45.23        45.230
00475>      RUNOFF COEFFICIENT   =        .96          .14          .247
00476>
00477>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00478>            CN* =  49.0    Ia = Dep. Storage  (Above)
00479>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00480>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00481>
00482> ---------------------------------------------------------------------------
00483> R0001:C00021-----------------------------------------------------------------
00484> ------------------------
00485> | ADD HYD              |
00486> | 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00487> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00488>                        ID 1 07:Crk Inlet    301.840     4.453    2.333    11.617
00489>                       +ID 2 08:200            1.830      .099    1.350    11.161
00490>                       ============================================================
00491>                       SUM   09:Channel      303.670     4.463    2.333    11.615
00492>
00493>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00494>
00495> ---------------------------------------------------------------------------
00496> R0001:C00022-----------------------------------------------------------------
00497> *#*************************************************************************
00498> *#*************************************************************************
00499> *#                        25 Year Event (4-hour Chicago)
00500> *#*************************************************************************
00501> --------------------
00502> | CHICAGO STORM    |    IDF curve parameters: A=1750.276
00503> | Ptotal= 60.35 mm |                          B=   8.303
00504> --------------------                          C=    .862
00505>                         used in:   INTENSITY =  A / (t + B)^C
00506>
00507>                         Duration of storm  =  4.00 hrs
00508>                         Storm time step    =  5.00 min
00509>                         Time to peak ratio =   .33
00510>
00511>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00512>      hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00513>       0:05   2.714|   0:45   6.135|   1:25  87.822|   2:05   9.569|   2:45   4.7
00514>       0:10   2.913|   0:50   7.308|   1:30  48.419|   2:10   8.515|   2:50   4.5
00515>       0:15   3.145|   0:55   9.028|   1:35  32.136|   2:15   7.667|   2:55   4.2
00516>       0:20   3.418|   1:00  11.768|   1:40  23.588|   2:20   6.971|   3:00   4.0
00517>       0:25   3.747|   1:05  16.718|   1:45  18.440|   2:25   6.390|   3:05   3.8
00518>       0:30   4.147|   1:10  27.825|   1:50  15.046|   2:30   5.899|   3:10   3.6
00519>       0:35   4.647|   1:15  68.076|   1:55  12.663|   2:35   5.478|   3:15   3.4
00520>       0:40   5.287|   1:20 188.045|   2:00  10.909|   2:40   5.113|   3:20   3.3
00521>
00522> ---------------------------------------------------------------------------
00523> R0001:C00023-----------------------------------------------------------------
00524> *#-----------------|---------------------External-Catchments------------------|
00525> ------------------------
00526> | CALIB NASHYD         |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00527> | 01:27        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00528> ------------------------   U.H. Tp(hrs)=     .710
00529>
00530>      Unit Hyd Qpeak  (cms)=   12.509
00531>
00532>      PEAK FLOW       (cms)=    6.518 (i)
00533>      TIME TO PEAK    (hrs)=    2.267
00534>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00535>      AVERAGE FLOW    (cms)=    1.452
00536>      RUNOFF VOLUME    (mm)=   19.255
00537>      TOTAL RAINFALL   (mm)=   60.348
00538>      RUNOFF COEFFICIENT   =     .319
00539>
00540>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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00541>
00542> ------------------------------------------------------------------------------
00543> R0001:C00024-----------------------------------------------------------------
00544> --------------------------
00545> | CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00546> | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00547> ------------------------   U.H. Tp(hrs)=     .500
00548>
00549>      Unit Hyd Qpeak  (cms)=     .469
00550>
00551>      PEAK FLOW       (cms)=     .229 (i)
00552>      TIME TO PEAK    (hrs)=    2.000
00553>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00554>      AVERAGE FLOW    (cms)=     .046
00555>      RUNOFF VOLUME    (mm)=   19.876
00556>      TOTAL RAINFALL   (mm)=   60.348
00557>      RUNOFF COEFFICIENT   =     .329
00558>
00559>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00560>
00561> ------------------------------------------------------------------------------
00562> R0001:C00025-----------------------------------------------------------------
00563> --------------------------
00564> | ADD HYD              |
00565> | 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00566> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00567>                        ID 1 01:27          232.530     6.518    2.267    19.255
00568>                       +ID 2 02:28            6.140      .229    2.000    19.876
00569>                        ========================================================
00570>                        SUM   03:Ditch        238.670     6.722    2.250    19.271
00571>
00572>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00573>
00574> ------------------------------------------------------------------------------
00575> R0001:C00026-----------------------------------------------------------------
00576> --------------------------
00577> | CALIB STANDHYD         |   Area    (ha)=    9.34
00578> | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00579> --------------------------
00580>                              IMPERVIOUS    PERVIOUS (i)
00581>      Surface Area     (ha)=       4.14         5.20
00582>      Dep. Storage     (mm)=       2.00         5.00
00583>      Average Slope     (%)=       2.00         2.00
00584>      Length            (m)=     250.00        30.00
00585>      Mannings n             =       .015         .250
00586>
00587>      Max.eff.Inten.(mm/hr)=     188.05        44.41
00588>                   over (min)        3.00        11.00
00589>      Storage Coeff.  (min)=       3.04 (ii)   11.26 (ii)
00590>      Unit Hyd. Tpeak (min)=       3.00        11.00
00591>      Unit Hyd. peak  (cms)=        .37          .10
00592>                                                          *TOTALS*
00593>      PEAK FLOW       (cms)=        .57          .39          .700 (iii)
00594>      TIME TO PEAK    (hrs)=       1.35         1.55         1.367
00595>      RUNOFF VOLUME    (mm)=      58.35        14.24        20.549
00596>      TOTAL RAINFALL   (mm)=      60.35        60.35        60.348
00597>      RUNOFF COEFFICIENT   =        .97          .24          .341
00598>
00599>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00600>            CN* =  49.0    Ia = Dep. Storage  (Above)
00601>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00602>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00603>
00604> ------------------------------------------------------------------------------
00605> R0001:C00027-----------------------------------------------------------------
00606> --------------------------
00607> | ADD HYD              |
00608> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00609> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00610>                        ID 1 03:Ditch       238.670     6.722    2.250    19.271
00611>                       +ID 2 04:HB            9.340      .700    1.367    20.549
00612>                        ========================================================
00613>                        SUM   05:Ditch 2     248.010     6.857    2.233    19.319
00614>
00615>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00616>
00617> ------------------------------------------------------------------------------
00618> R0001:C00028-----------------------------------------------------------------
00619> --------------------------
00620> | CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
00621> | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00622> ------------------------   U.H. Tp(hrs)=    1.160
00623>
00624>      Unit Hyd Qpeak  (cms)=    1.772
00625>
00626>      PEAK FLOW       (cms)=    1.194 (i)
00627>      TIME TO PEAK    (hrs)=    2.817
00628>      DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
00629>      AVERAGE FLOW    (cms)=     .294
00630>      RUNOFF VOLUME    (mm)=   21.879
00631>      TOTAL RAINFALL   (mm)=   60.348
00632>      RUNOFF COEFFICIENT   =     .363
00633>
00634>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00635>
00636> ------------------------------------------------------------------------------
00637> R0001:C00029-----------------------------------------------------------------
00638> --------------------------
00639> | ADD HYD              |
00640> | 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00641> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00642>                        ID 1 05:Ditch 2     248.010     6.857    2.233    19.319
00643>                       +ID 2 06:29           53.830     1.194    2.817    21.879
00644>                        ========================================================
00645>                        SUM   07:Crk Inlet   301.840     7.840    2.300    19.776
00646>
00647>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00648>
00649> ------------------------------------------------------------------------------
00650> R0001:C00030-----------------------------------------------------------------
00651> *#-----------------|------------------- Post Dev Site -------------------------|
00652> --------------------------
00653> | CALIB STANDHYD         |   Area    (ha)=    1.83
00654> | 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
00655> --------------------------
00656>                              IMPERVIOUS    PERVIOUS (i)
00657>      Surface Area     (ha)=        .48         1.35
00658>      Dep. Storage     (mm)=       2.00         5.00
00659>      Average Slope     (%)=       1.00         2.00
00660>      Length            (m)=      93.00         6.00
00661>      Mannings n             =       .013         .240
00662>
00663>      Max.eff.Inten.(mm/hr)=     188.05        31.97
00664>                   over (min)        2.00         5.00
00665>      Storage Coeff.  (min)=       1.90 (ii)    5.38 (ii)
00666>      Unit Hyd. Tpeak (min)=       2.00         5.00
00667>      Unit Hyd. peak  (cms)=        .58          .22
00668>                                                          *TOTALS*
00669>      PEAK FLOW       (cms)=        .12          .08          .170 (iii)
00670>      TIME TO PEAK    (hrs)=       1.33         1.42         1.350
00671>      RUNOFF VOLUME    (mm)=      58.35        11.22        17.390
00672>      TOTAL RAINFALL   (mm)=      60.35        60.35        60.348
00673>      RUNOFF COEFFICIENT   =        .97          .19          .288
00674>
00675>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00676>            CN* =  49.0    Ia = Dep. Storage  (Above)
00677>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00678>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00679>
00680> ------------------------------------------------------------------------------
00681> R0001:C00031-----------------------------------------------------------------
00682> --------------------------
00683> | ADD HYD              |
00684> | 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00685> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00686>                        ID 1 07:Crk Inlet   301.840     7.840    2.300    19.776
00687>                       +ID 2 08:200           1.830      .170    1.350    17.390
00688>                        ========================================================
00689>                        SUM   09:Channel     303.670     7.857    2.283    19.761
00690>
00691>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00692>
00693> ------------------------------------------------------------------------------
00694> R0001:C00032-----------------------------------------------------------------
00695> *#**************************************************************************
00696> *#**************************************************************************
00697> *#                          100 Year Event (4-hour Chicago)
00698> *#**************************************************************************
00699> --------------------
00700> | CHICAGO STORM    |    IDF curve parameters: A=2171.754
00701> | Ptotal= 72.84 mm |                          B=   8.303
00702> --------------------                          C=    .867
00703>                          used in:   INTENSITY =  A / (t + B)^C
00704>
00705>                          Duration of storm  =  4.00 hrs
00706>                          Storm time step    =  5.00 min
00707>                          Time to peak ratio =   .33
00708>
00709>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
00710>      hh:mm    mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
00711>       0:05   3.184|   0:45   7.266|   1:25 106.986|   2:05  11.394|   2:45   5.6
00712>       0:10   3.420|   0:50   8.673|   1:30  58.682|   2:10  10.125|   2:50   5.3
00713>       0:15   3.695|   0:55  10.742|   1:35  38.793|   2:15   9.105|   2:55   5.0
00714>       0:20   4.020|   1:00  14.047|   1:40  28.382|   2:20   8.269|   3:00   4.7
00715>       0:25   4.411|   1:05  20.039|   1:45  22.127|   2:25   7.572|   3:05   4.5
00716>       0:30   4.889|   1:10  33.542|   1:50  18.013|   2:30   6.982|   3:10   4.3
00717>       0:35   5.485|   1:15  82.779|   1:55  15.129|   2:35   6.478|   3:15   4.1
00718>       0:40   6.250|   1:20 230.328|   2:00  13.010|   2:40   6.042|   3:20   3.9
00719>
00720> ------------------------------------------------------------------------------
00721> R0001:C00033-----------------------------------------------------------------
00722> *#-----------------|---------------------External-Catchments-----------------|
00723> --------------------------
00724> | CALIB NASHYD           |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
00725> | 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00726> ------------------------   U.H. Tp(hrs)=     .710
00727>
00728>      Unit Hyd Qpeak  (cms)=   12.509
00729>
00730>      PEAK FLOW       (cms)=    9.243 (i)
00731>      TIME TO PEAK    (hrs)=    2.250
00732>      DURATION        (hrs)=    8.567, (dddd|hh:mm:)=   0|08:34
00733>      AVERAGE FLOW    (cms)=    2.023
00734>      RUNOFF VOLUME    (mm)=   26.824
00735>      TOTAL RAINFALL   (mm)=   72.844
00736>      RUNOFF COEFFICIENT   =     .368
00737>
00738>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00739>
00740> ------------------------------------------------------------------------------
00741> R0001:C00034-----------------------------------------------------------------
00742> --------------------------
00743> | CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
00744> | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
00745> ------------------------   U.H. Tp(hrs)=     .500
00746>
00747>      Unit Hyd Qpeak  (cms)=     .469
00748>
00749>      PEAK FLOW       (cms)=     .325 (i)
00750>      TIME TO PEAK    (hrs)=    1.983
00751>      DURATION        (hrs)=    7.333, (dddd|hh:mm:)=   0|07:20
00752>      AVERAGE FLOW    (cms)=     .064
00753>      RUNOFF VOLUME    (mm)=   27.624
00754>      TOTAL RAINFALL   (mm)=   72.844
00755>      RUNOFF COEFFICIENT   =     .379
00756>
00757>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00758>
00759> ------------------------------------------------------------------------------
00760> R0001:C00035-----------------------------------------------------------------
00761> --------------------------
00762> | ADD HYD              |
00763> | 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00764> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00765>                        ID 1 01:27          232.530     9.243    2.250    26.824
00766>                       +ID 2 02:28            6.140      .325    1.983    27.624
00767>                        ========================================================
00768>                        SUM   03:Ditch       238.670     9.532    2.233    26.845
00769>
00770>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00771>
00772> ------------------------------------------------------------------------------
00773> R0001:C00036-----------------------------------------------------------------
00774> --------------------------
00775> | CALIB STANDHYD         |   Area    (ha)=    9.34
00776> | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
00777> --------------------------
00778>                              IMPERVIOUS    PERVIOUS (i)
00779>      Surface Area     (ha)=       4.14         5.20
00780>      Dep. Storage     (mm)=       2.00         5.00
00781>      Average Slope     (%)=       2.00         2.00
00782>      Length            (m)=     250.00        30.00
00783>      Mannings n             =       .015         .250
00784>
00785>      Max.eff.Inten.(mm/hr)=     230.33        67.66
00786>                   over (min)        3.00        10.00
00787>      Storage Coeff.  (min)=       2.81 (ii)    9.75 (ii)
00788>      Unit Hyd. Tpeak (min)=       3.00        10.00
00789>      Unit Hyd. peak  (cms)=        .39          .12
00790>                                                          *TOTALS*
00791>      PEAK FLOW       (cms)=        .71          .60          .955 (iii)
00792>      TIME TO PEAK    (hrs)=       1.35         1.52         1.367
00793>      RUNOFF VOLUME    (mm)=      70.84        20.06        27.324
00794>      TOTAL RAINFALL   (mm)=      72.84        72.84        72.844
00795>      RUNOFF COEFFICIENT   =        .97          .28          .375
00796>
00797>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00798>            CN* =  49.0    Ia = Dep. Storage  (Above)
00799>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
00800>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00801>
00802> ------------------------------------------------------------------------------
00803> R0001:C00037-----------------------------------------------------------------
00804> --------------------------
00805> | ADD HYD              |
00806> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
00807> ------------------------                       (ha)     (cms)    (hrs)      (mm)
00808>                        ID 1 03:Ditch       238.670     9.532    2.233    26.845
00809>                       +ID 2 04:HB            9.340      .955    1.367    27.324
00810>                        ========================================================
```

```
                      SUM   05:Ditch 2      248.010     9.705    2.217    26.863

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00038-------------------------------------------------------------------------------
------------------------
| CALIB NASHYD         |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    1.666 (i)
     TIME TO PEAK    (hrs)=    2.800
     DURATION        (hrs)=   11.133, (dddd|hh:mm:)=   0|11:08
     AVERAGE FLOW    (cms)=     .405
     RUNOFF VOLUME    (mm)=   30.180
     TOTAL RAINFALL   (mm)=   72.844
     RUNOFF COEFFICIENT   =     .414

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00039-------------------------------------------------------------------------------
------------------------
| ADD HYD              |
| 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 05:Ditch 2      248.010    9.705    2.217    26.863
                       +ID 2 06:29            53.830    1.666    2.800    30.180
                       ============================================================
                       SUM   07:Crk Inlet     301.840   11.080    2.267    27.454

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00040-------------------------------------------------------------------------------
*#-----------------|------------------- Post Dev Site -------------------------|
------------------------
| CALIB STANDHYD       |   Area    (ha)=    1.83
| 08:200       DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
------------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      .48         1.35
     Dep. Storage     (mm)=     2.00         5.00
     Average Slope     (%)=     1.00         2.00
     Length            (m)=    93.00         6.00
     Mannings n            =     .013         .240

     Max.eff.Inten.(mm/hr)=   230.33        47.82
                 over (min)      2.00         5.00
     Storage Coeff.  (min)=     1.75 (ii)    4.72 (ii)
     Unit Hyd. Tpeak (min)=     2.00         5.00
     Unit Hyd. peak  (cms)=      .61          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .15          .13          .233 (iii)
     TIME TO PEAK    (hrs)=     1.33         1.40         1.350
     RUNOFF VOLUME    (mm)=    70.84        16.05        23.231
     TOTAL RAINFALL   (mm)=    72.84        72.84        72.844
     RUNOFF COEFFICIENT   =     .97          .22          .319

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

R0001:C00041-------------------------------------------------------------------------------
------------------------
| ADD HYD              |
| 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 07:Crk Inlet    301.840   11.080    2.267    27.454
                       +ID 2 08:200           1.830     .233    1.350    23.231
                       ============================================================
                       SUM   09:Channel      303.670   11.102    2.267    27.429

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

R0001:C00042-------------------------------------------------------------------------------
*#*****************************************************************************
*#*****************************************************************************
*#                              2yr SCS Storm (24hr)
*#*****************************************************************************
*#*****************************************************************************
--------------------
| MASS STORM       |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
| Ptotal= 57.00 mm |    Comments: 24 hour SCS II storm mass curve
--------------------
                         Duration of storm        =   24.00 hrs
                         Mass curve time step     =   12.00 min
                         Selected storm time step =    1.00 min
                         Volume of derived storm  =   57.00 mm
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RA
hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/
0:01	.000	4:01	.570	8:01	1.140	12:01	64.125	16:01	1.4		
0:02	.000	4:02	.570	8:02	1.140	12:02	64.125	16:02	1.4		
0:03	.000	4:03	.570	8:03	1.140	12:03	64.125	16:03	1.4		
0:04	.000	4:04	.570	8:04	1.140	12:04	64.125	16:04	1.4		
0:05	.000	4:05	.570	8:05	1.140	12:05	64.125	16:05	1.4		
0:06	.000	4:06	.570	8:06	1.140	12:06	64.125	16:06	1.4		
0:07	.000	4:07	.570	8:07	1.140	12:07	64.125	16:07	1.4		
0:08	.000	4:08	.570	8:08	1.140	12:08	64.125	16:08	1.4		
0:09	.000	4:09	.570	8:09	1.140	12:09	64.125	16:09	1.4		
0:10	.000	4:10	.570	8:10	1.140	12:10	64.125	16:10	1.4		
0:11	.000	4:11	.570	8:11	1.140	12:11	64.125	16:11	1.4		
0:12	.000	4:12	.570	8:12	1.140	12:12	64.125	16:12	1.4		
0:13	.570	4:13	1.140	8:13	1.710	12:13	11.400	16:13	1.4		
0:14	.570	4:14	1.140	8:14	1.710	12:14	11.400	16:14	1.4		
0:15	.570	4:15	1.140	8:15	1.710	12:15	11.400	16:15	1.4		
0:16	.570	4:16	1.140	8:16	1.710	12:16	11.400	16:16	1.4		
0:17	.570	4:17	1.140	8:17	1.710	12:17	11.400	16:17	1.4		
0:18	.570	4:18	1.140	8:18	1.710	12:18	11.400	16:18	1.4		
0:19	.570	4:19	1.140	8:19	1.710	12:19	11.400	16:19	1.4		
0:20	.570	4:20	1.140	8:20	1.710	12:20	11.400	16:20	1.4		
0:21	.570	4:21	1.140	8:21	1.710	12:21	11.400	16:21	1.4		
0:22	.570	4:22	1.140	8:22	1.710	12:22	11.400	16:22	1.4		
0:23	.570	4:23	1.140	8:23	1.710	12:23	11.400	16:23	1.4		
0:24	.570	4:24	1.140	8:24	1.710	12:24	11.400	16:24	1.4		
0:25	.570	4:25	1.140	8:25	1.710	12:25	7.125	16:25	1.4		
0:26	.570	4:26	1.140	8:26	1.710	12:26	7.125	16:26	1.4		
0:27	.570	4:27	1.140	8:27	1.710	12:27	7.125	16:27	1.4		
0:28	.570	4:28	1.140	8:28	1.710	12:28	7.125	16:28	1.4		
0:29	.570	4:29	1.140	8:29	1.710	12:29	7.125	16:29	1.4		
0:30	.570	4:30	1.140	8:30	1.710	12:30	7.125	16:30	1.4		
0:31	.570	4:31	1.140	8:31	1.710	12:31	7.125	16:31	1.4		
0:32	.570	4:32	1.140	8:32	1.710	12:32	7.125	16:32	1.4		
0:33	.570	4:33	1.140	8:33	1.710	12:33	7.125	16:33	1.4		
0:34	.570	4:34	1.140	8:34	1.710	12:34	7.125	16:34	1.4		
0:35	.570	4:35	1.140	8:35	1.710	12:35	7.125	16:35	1.4		
0:36	.570	4:36	1.140	8:36	1.710	12:36	7.125	16:36	1.4		
0:37	.570	4:37	1.140	8:37	1.710	12:37	5.130	16:37	1.4		
0:38	.570	4:38	1.140	8:38	1.710	12:38	5.130	16:38	1.4		
0:39	.570	4:39	1.140	8:39	1.710	12:39	5.130	16:39	1.4		
0:40	.570	4:40	1.140	8:40	1.710	12:40	5.130	16:40	1.4		
0:41	.570	4:41	1.140	8:41	1.710	12:41	5.130	16:41	1.4		
0:42	.570	4:42	1.140	8:42	1.710	12:42	5.130	16:42	1.4		
0:43	.570	4:43	1.140	8:43	1.710	12:43	5.130	16:43	1.4		
0:44	.570	4:44	1.140	8:44	1.710	12:44	5.130	16:44	1.4		
0:45	.570	4:45	1.140	8:45	1.710	12:45	5.130	16:45	1.4		
0:46	.570	4:46	1.140	8:46	1.710	12:46	5.130	16:46	1.4		
0:47	.570	4:47	1.140	8:47	1.710	12:47	5.130	16:47	1.4		
0:48	.570	4:48	1.140	8:48	1.710	12:48	5.130	16:48	1.4		
0:49	.570	4:49	1.140	8:49	1.710	12:49	4.845	16:49	1.4		
0:50	.570	4:50	1.140	8:50	1.710	12:50	4.845	16:50	1.4		
0:51	.570	4:51	1.140	8:51	1.710	12:51	4.845	16:51	1.4		
0:52	.570	4:52	1.140	8:52	1.710	12:52	4.845	16:52	1.4		
0:53	.570	4:53	1.140	8:53	1.710	12:53	4.845	16:53	1.4		
0:54	.570	4:54	1.140	8:54	1.710	12:54	4.845	16:54	1.4		
0:55	.570	4:55	1.140	8:55	1.710	12:55	4.845	16:55	1.4		
0:56	.570	4:56	1.140	8:56	1.710	12:56	4.845	16:56	1.4		
0:57	.570	4:57	1.140	8:57	1.710	12:57	4.845	16:57	1.4		
0:58	.570	4:58	1.140	8:58	1.710	12:58	4.845	16:58	1.4		
0:59	.570	4:59	1.140	8:59	1.710	12:59	4.845	16:59	1.4		
1:00	.570	5:00	1.140	9:00	1.710	13:00	4.845	17:00	1.4		
1:01	.570	5:01	1.140	9:01	1.710	13:01	3.420	17:01	.8		
1:02	.570	5:02	1.140	9:02	1.710	13:02	3.420	17:02	.8		
1:03	.570	5:03	1.140	9:03	1.710	13:03	3.420	17:03	.8		
1:04	.570	5:04	1.140	9:04	1.710	13:04	3.420	17:04	.8		
1:05	.570	5:05	1.140	9:05	1.710	13:05	3.420	17:05	.8		
1:06	.570	5:06	1.140	9:06	1.710	13:06	3.420	17:06	.8		
1:07	.570	5:07	1.140	9:07	1.710	13:07	3.420	17:07	.8		
1:08	.570	5:08	1.140	9:08	1.710	13:08	3.420	17:08	.8		
1:09	.570	5:09	1.140	9:09	1.710	13:09	3.420	17:09	.8		
1:10	.570	5:10	1.140	9:10	1.710	13:10	3.420	17:10	.8		
1:11	.570	5:11	1.140	9:11	1.710	13:11	3.420	17:11	.8		
1:12	.570	5:12	1.140	9:12	1.710	13:12	3.420	17:12	.8		
1:13	.570	5:13	1.140	9:13	1.710	13:13	2.850	17:13	.8		
1:14	.570	5:14	1.140	9:14	1.710	13:14	2.850	17:14	.8		
1:15	.570	5:15	1.140	9:15	1.710	13:15	2.850	17:15	.8		
1:16	.570	5:16	1.140	9:16	1.710	13:16	2.850	17:16	.8		
1:17	.570	5:17	1.140	9:17	1.710	13:17	2.850	17:17	.8		
1:18	.570	5:18	1.140	9:18	1.710	13:18	2.850	17:18	.8		
1:19	.570	5:19	1.140	9:19	1.710	13:19	2.850	17:19	.8		
1:20	.570	5:20	1.140	9:20	1.710	13:20	2.850	17:20	.8		
1:21	.570	5:21	1.140	9:21	1.710	13:21	2.850	17:21	.8		
1:22	.570	5:22	1.140	9:22	1.710	13:22	2.850	17:22	.8		
1:23	.570	5:23	1.140	9:23	1.710	13:23	2.850	17:23	.8		
1:24	.570	5:24	1.140	9:24	1.710	13:24	2.850	17:24	.8		
1:25	.570	5:25	1.140	9:25	1.710	13:25	2.850	17:25	1.1		
1:26	.570	5:26	1.140	9:26	1.710	13:26	2.850	17:26	1.1		
1:27	.570	5:27	1.140	9:27	1.710	13:27	2.850	17:27	1.1		
1:28	.570	5:28	1.140	9:28	1.710	13:28	2.850	17:28	1.1		
1:29	.570	5:29	1.140	9:29	1.710	13:29	2.850	17:29	1.1		
1:30	.570	5:30	1.140	9:30	1.710	13:30	2.850	17:30	1.1		
1:31	.570	5:31	1.140	9:31	1.710	13:31	2.850	17:31	1.1		
1:32	.570	5:32	1.140	9:32	1.710	13:32	2.850	17:32	1.1		
1:33	.570	5:33	1.140	9:33	1.710	13:33	2.850	17:33	1.1		
1:34	.570	5:34	1.140	9:34	1.710	13:34	2.850	17:34	1.1		
1:35	.570	5:35	1.140	9:35	1.710	13:35	2.850	17:35	1.1		
1:36	.570	5:36	1.140	9:36	1.710	13:36	2.850	17:36	1.1		
1:37	.570	5:37	1.140	9:37	1.710	13:37	2.850	17:37	.8		
1:38	.570	5:38	1.140	9:38	1.710	13:38	2.850	17:38	.8		
1:39	.570	5:39	1.140	9:39	1.710	13:39	2.850	17:39	.8		
1:40	.570	5:40	1.140	9:40	1.710	13:40	2.850	17:40	.8		
1:41	.570	5:41	1.140	9:41	1.710	13:41	2.850	17:41	.8		
1:42	.570	5:42	1.140	9:42	1.710	13:42	2.850	17:42	.8		
1:43	.570	5:43	1.140	9:43	1.710	13:43	2.850	17:43	.8		
1:44	.570	5:44	1.140	9:44	1.710	13:44	2.850	17:44	.8		
1:45	.570	5:45	1.140	9:45	1.710	13:45	2.850	17:45	.8		
1:46	.570	5:46	1.140	9:46	1.710	13:46	2.850	17:46	.8		
1:47	.570	5:47	1.140	9:47	1.710	13:47	2.850	17:47	.8		
1:48	.570	5:48	1.140	9:48	1.710	13:48	2.850	17:48	.8		
1:49	.570	5:49	1.140	9:49	1.710	13:49	2.850	17:49	1.1		
1:50	.570	5:50	1.140	9:50	1.710	13:50	2.850	17:50	1.1		
1:51	.570	5:51	1.140	9:51	1.710	13:51	2.850	17:51	1.1		
1:52	.570	5:52	1.140	9:52	1.710	13:52	2.850	17:52	1.1		
1:53	.570	5:53	1.140	9:53	1.710	13:53	2.850	17:53	1.1		
1:54	.570	5:54	1.140	9:54	1.710	13:54	2.850	17:54	1.1		
1:55	.570	5:55	1.140	9:55	1.710	13:55	2.850	17:55	1.1		
1:56	.570	5:56	1.140	9:56	1.710	13:56	2.850	17:56	1.1		
1:57	.570	5:57	1.140	9:57	1.710	13:57	2.850	17:57	1.1		
1:58	.570	5:58	1.140	9:58	1.710	13:58	2.850	17:58	1.1		
1:59	.570	5:59	1.140	9:59	1.710	13:59	2.850	17:59	1.1		
2:00	.570	6:00	1.140	10:00	1.710	14:00	2.850	18:00	1.1		
2:01	.570	6:01	1.140	10:01	1.710	14:01	2.850	18:01	.8		
2:02	.570	6:02	1.140	10:02	1.710	14:02	2.850	18:02	.8		
2:03	.570	6:03	1.140	10:03	1.710	14:03	2.850	18:03	.8		
2:04	.570	6:04	1.140	10:04	1.710	14:04	2.850	18:04	.8		
2:05	.570	6:05	1.140	10:05	1.710	14:05	2.850	18:05	.8		
2:06	.570	6:06	1.140	10:06	1.710	14:06	2.850	18:06	.8		
2:07	.570	6:07	1.140	10:07	1.710	14:07	2.850	18:07	.8		
2:08	.570	6:08	1.140	10:08	1.710	14:08	2.850	18:08	.8		
2:09	.570	6:09	1.140	10:09	1.710	14:09	2.850	18:09	.8		
2:10	.570	6:10	1.140	10:10	1.710	14:10	2.850	18:10	.8		
2:11	.570	6:11	1.140	10:11	1.710	14:11	2.850	18:11	.8		
2:12	.570	6:12	1.140	10:12	1.710	14:12	2.850	18:12	.8		
2:13	.570	6:13	1.140	10:13	3.135	14:13	1.710	18:13	.8		
2:14	.570	6:14	1.140	10:14	3.135	14:14	1.710	18:14	.8		
2:15	.570	6:15	1.140	10:15	3.135	14:15	1.710	18:15	.8		
2:16	.570	6:16	1.140	10:16	3.135	14:16	1.710	18:16	.8		
2:17	.570	6:17	1.140	10:17	3.135	14:17	1.710	18:17	.8		
2:18	.570	6:18	1.140	10:18	3.135	14:18	1.710	18:18	.8		
2:19	.570	6:19	1.140	10:19	3.135	14:19	1.710	18:19	.8		
2:20	.570	6:20	1.140	10:20	3.135	14:20	1.710	18:20	.8		
2:21	.570	6:21	1.140	10:21	3.135	14:21	1.710	18:21	.8		
2:22	.570	6:22	1.140	10:22	3.135	14:22	1.710	18:22	.8		
2:23	.570	6:23	1.140	10:23	3.135	14:23	1.710	18:23	.8		
2:24	.570	6:24	1.140	10:24	3.135	14:24	1.710	18:24	.8		
2:25	.570	6:25	1.140	10:25	3.135	14:25	1.710	18:25	.8		
2:26	.570	6:26	1.140	10:26	3.135	14:26	1.710	18:26	.8		
2:27	.570	6:27	1.140	10:27	3.135	14:27	1.710	18:27	.8		
2:28	.570	6:28	1.140	10:28	3.135	14:28	1.710	18:28	.8		
2:29	.570	6:29	1.140	10:29	3.135	14:29	1.710	18:29	.8		
2:30	.570	6:30	1.140	10:30	3.135	14:30	1.710	18:30	.8		
2:31	.570	6:31	1.140	10:31	3.135	14:31	1.710	18:31	.8		
2:32	.570	6:32	1.140	10:32	3.135	14:32	1.710	18:32	.8		
2:33	.570	6:33	1.140	10:33	3.135	14:33	1.710	18:33	.8		
2:34	.570	6:34	1.140	10:34	3.135	14:34	1.710	18:34	.8		
2:35	.570	6:35	1.140	10:35	3.135	14:35	1.710	18:35	.8		
2:36	.570	6:36	1.140	10:36	3.135	14:36	1.710	18:36	.8		
2:37	.570	6:37	1.140	10:37	3.135	14:37	1.710	18:37	1.1		
2:38	.570	6:38	1.140	10:38	3.135	14:38	1.710	18:38	1.1		
2:39	.570	6:39	1.140	10:39	3.135	14:39	1.710	18:39	1.1		
2:40	.570	6:40	1.140	10:40	3.135	14:40	1.710	18:40	1.1		
2:41	.570	6:41	1.140	10:41	3.135	14:41	1.710	18:41	1.1		
2:42	.570	6:42	1.140	10:42	3.135	14:42	1.710	18:42	1.1		
2:43	.570	6:43	1.140	10:43	3.135	14:43	1.710	18:43	1.1		
2:44	.570	6:44	1.140	10:44	3.135	14:44	1.710	18:44	1.1		
2:45	.570	6:45	1.140	10:45	3.135	14:45	1.710	18:45	1.1		
2:46	.570	6:46	1.140	10:46	3.135	14:46	1.710	18:46	1.1		
2:47	.570	6:47	1.140	10:47	3.135	14:47	1.710	18:47	1.1		
2:48	.570	6:48	1.140	10:48	3.135	14:48	1.710	18:48	1.1		
2:49	.570	6:49	1.140	10:49	3.135	14:49	1.710	18:49	.8		
2:50	.570	6:50	1.140	10:50	3.135	14:50	1.710	18:50	.8		
2:51	.570	6:51	1.140	10:51	3.135	14:51	1.710	18:51	.8		
2:52	.570	6:52	1.140	10:52	3.135	14:52	1.710	18:52	.8		

```
01081>       2:53    .570|   6:53   1.140|  10:53   3.135|  14:53   1.710|  18:53    .8
01082>       2:54    .570|   6:54   1.140|  10:54   3.135|  14:54   1.710|  18:54    .8
01083>       2:55    .570|   6:55   1.140|  10:55   3.135|  14:55   1.710|  18:55    .8
01084>       2:56    .570|   6:56   1.140|  10:56   3.135|  14:56   1.710|  18:56    .8
01085>       2:57    .570|   6:57   1.140|  10:57   3.135|  14:57   1.710|  18:57    .8
01086>       2:58    .570|   6:58   1.140|  10:58   3.135|  14:58   1.710|  18:58    .8
01087>       2:59    .570|   6:59   1.140|  10:59   3.135|  14:59   1.710|  18:59    .8
01088>       3:00    .570|   7:00   1.140|  11:00   3.135|  15:00   1.710|  19:00    .8
01089>       3:01    .570|   7:01   1.140|  11:01   3.135|  15:01   1.710|  19:01    .8
01090>       3:02    .570|   7:02   1.140|  11:02   3.135|  15:02   1.710|  19:02    .8
01091>       3:03    .570|   7:03   1.140|  11:03   3.135|  15:03   1.710|  19:03    .8
01092>       3:04    .570|   7:04   1.140|  11:04   3.135|  15:04   1.710|  19:04    .8
01093>       3:05    .570|   7:05   1.140|  11:05   3.135|  15:05   1.710|  19:05    .8
01094>       3:06    .570|   7:06   1.140|  11:06   3.135|  15:06   1.710|  19:06    .8
01095>       3:07    .570|   7:07   1.140|  11:07   3.135|  15:07   1.710|  19:07    .8
01096>       3:08    .570|   7:08   1.140|  11:08   3.135|  15:08   1.710|  19:08    .8
01097>       3:09    .570|   7:09   1.140|  11:09   3.135|  15:09   1.710|  19:09    .8
01098>       3:10    .570|   7:10   1.140|  11:10   3.135|  15:10   1.710|  19:10    .8
01099>       3:11    .570|   7:11   1.140|  11:11   3.135|  15:11   1.710|  19:11    .8
01100>       3:12    .570|   7:12   1.140|  11:12   3.135|  15:12   1.710|  19:12    .8
01101>       3:13    .570|   7:13   1.140|  11:13   4.275|  15:13   1.425|  19:13   1.1
01102>       3:14    .570|   7:14   1.140|  11:14   4.275|  15:14   1.425|  19:14   1.1
01103>       3:15    .570|   7:15   1.140|  11:15   4.275|  15:15   1.425|  19:15   1.1
01104>       3:16    .570|   7:16   1.140|  11:16   4.275|  15:16   1.425|  19:16   1.1
01105>       3:17    .570|   7:17   1.140|  11:17   4.275|  15:17   1.425|  19:17   1.1
01106>       3:18    .570|   7:18   1.140|  11:18   4.275|  15:18   1.425|  19:18   1.1
01107>       3:19    .570|   7:19   1.140|  11:19   4.275|  15:19   1.425|  19:19   1.1
01108>       3:20    .570|   7:20   1.140|  11:20   4.275|  15:20   1.425|  19:20   1.1
01109>       3:21    .570|   7:21   1.140|  11:21   4.275|  15:21   1.425|  19:21   1.1
01110>       3:22    .570|   7:22   1.140|  11:22   4.275|  15:22   1.425|  19:22   1.1
01111>       3:23    .570|   7:23   1.140|  11:23   4.275|  15:23   1.425|  19:23   1.1
01112>       3:24    .570|   7:24   1.140|  11:24   4.275|  15:24   1.425|  19:24   1.1
01113>       3:25    .570|   7:25   1.140|  11:25   6.270|  15:25   1.425|  19:25    .8
01114>       3:26    .570|   7:26   1.140|  11:26   6.270|  15:26   1.425|  19:26    .8
01115>       3:27    .570|   7:27   1.140|  11:27   6.270|  15:27   1.425|  19:27    .8
01116>       3:28    .570|   7:28   1.140|  11:28   6.270|  15:28   1.425|  19:28    .8
01117>       3:29    .570|   7:29   1.140|  11:29   6.270|  15:29   1.425|  19:29    .8
01118>       3:30    .570|   7:30   1.140|  11:30   6.270|  15:30   1.425|  19:30    .8
01119>       3:31    .570|   7:31   1.140|  11:31   6.270|  15:31   1.425|  19:31    .8
01120>       3:32    .570|   7:32   1.140|  11:32   6.270|  15:32   1.425|  19:32    .8
01121>       3:33    .570|   7:33   1.140|  11:33   6.270|  15:33   1.425|  19:33    .8
01122>       3:34    .570|   7:34   1.140|  11:34   6.270|  15:34   1.425|  19:34    .8
01123>       3:35    .570|   7:35   1.140|  11:35   6.270|  15:35   1.425|  19:35    .8
01124>       3:36    .570|   7:36   1.140|  11:36   6.270|  15:36   1.425|  19:36    .8
01125>       3:37    .570|   7:37   1.140|  11:37  15.105|  15:37   1.425|  19:37   1.1
01126>       3:38    .570|   7:38   1.140|  11:38  15.105|  15:38   1.425|  19:38   1.1
01127>       3:39    .570|   7:39   1.140|  11:39  15.105|  15:39   1.425|  19:39   1.1
01128>       3:40    .570|   7:40   1.140|  11:40  15.105|  15:40   1.425|  19:40   1.1
01129>       3:41    .570|   7:41   1.140|  11:41  15.105|  15:41   1.425|  19:41   1.1
01130>       3:42    .570|   7:42   1.140|  11:42  15.105|  15:42   1.425|  19:42   1.1
01131>       3:43    .570|   7:43   1.140|  11:43  15.105|  15:43   1.425|  19:43   1.1
01132>       3:44    .570|   7:44   1.140|  11:44  15.105|  15:44   1.425|  19:44   1.1
01133>       3:45    .570|   7:45   1.140|  11:45  15.105|  15:45   1.425|  19:45   1.1
01134>       3:46    .570|   7:46   1.140|  11:46  15.105|  15:46   1.425|  19:46   1.1
01135>       3:47    .570|   7:47   1.140|  11:47  15.105|  15:47   1.425|  19:47   1.1
01136>       3:48    .570|   7:48   1.140|  11:48  15.105|  15:48   1.425|  19:48   1.1
01137>       3:49    .570|   7:49   1.140|  11:49  31.350|  15:49   1.425|  19:49    .8
01138>       3:50    .570|   7:50   1.140|  11:50  31.350|  15:50   1.425|  19:50    .8
01139>       3:51    .570|   7:51   1.140|  11:51  31.350|  15:51   1.425|  19:51    .8
01140>       3:52    .570|   7:52   1.140|  11:52  31.350|  15:52   1.425|  19:52    .8
01141>       3:53    .570|   7:53   1.140|  11:53  31.350|  15:53   1.425|  19:53    .8
01142>       3:54    .570|   7:54   1.140|  11:54  31.350|  15:54   1.425|  19:54    .8
01143>       3:55    .570|   7:55   1.140|  11:55  31.350|  15:55   1.425|  19:55    .8
01144>       3:56    .570|   7:56   1.140|  11:56  31.350|  15:56   1.425|  19:56    .8
01145>       3:57    .570|   7:57   1.140|  11:57  31.350|  15:57   1.425|  19:57    .8
01146>       3:58    .570|   7:58   1.140|  11:58  31.350|  15:58   1.425|  19:58    .8
01147>       3:59    .570|   7:59   1.140|  11:59  31.350|  15:59   1.425|  19:59    .8
01148>       4:00    .570|   8:00   1.140|  12:00  31.350|  16:00   1.425|  20:00    .8
01149>
01150> ------------------------------------------------------------------------------
01151> R0001:C00043-----------------------------------------------------------------
01152> *#*****************************************************************************
01153> *#-----------------|-----------------------------------------------------------|
01154> *#-----------------|----------------------External-Catchments------------------|
01155> -------------------------
01156> | CALIB NASHYD           |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
01157> | 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01158> -------------------------   U.H. Tp(hrs)=     .710
01159>
01160>      Unit Hyd Qpeak  (cms)=   12.509
01161>
01162>      PEAK FLOW       (cms)=    4.051 (i)
01163>      TIME TO PEAK    (hrs)=   12.867
01164>      DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
01165>      AVERAGE FLOW    (cms)=     .393
01166>      RUNOFF VOLUME    (mm)=   17.361
01167>      TOTAL RAINFALL   (mm)=   57.000
01168>      RUNOFF COEFFICIENT   =     .305
01169>
01170>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01171>
01172> ------------------------------------------------------------------------------
01173> R0001:C00044-----------------------------------------------------------------
01174> -------------------------
01175> | CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
01176> | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01177> -------------------------   U.H. Tp(hrs)=     .500
01178>
01179>      Unit Hyd Qpeak  (cms)=     .469
01180>
01181>      PEAK FLOW       (cms)=     .143 (i)
01182>      TIME TO PEAK    (hrs)=   12.633
01183>      DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
01184>      AVERAGE FLOW    (cms)=     .011
01185>      RUNOFF VOLUME    (mm)=   17.934
01186>      TOTAL RAINFALL   (mm)=   57.000
01187>      RUNOFF COEFFICIENT   =     .315
01188>
01189>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01190>
01191> ------------------------------------------------------------------------------
01192> R0001:C00045-----------------------------------------------------------------
01193> -------------------------
01194> | ADD HYD               |
01195> | 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01196> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01197>                        ID 1 01:27          232.530     4.051   12.867    17.361
01198>                       +ID 2 02:28            6.140      .143   12.633    17.934
01199>                        ==========================================================
01200>                        SUM   03:Ditch       238.670     4.179   12.867    17.376
01201>
01202>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01203>
01204> ------------------------------------------------------------------------------
01205> R0001:C00046-----------------------------------------------------------------
01206> -------------------------
01207> | CALIB STANDHYD         |   Area    (ha)=    9.34
01208> | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
01209> -------------------------
01210>                             IMPERVIOUS    PERVIOUS (i)
01211>      Surface Area     (ha)=       4.14         5.20
01212>      Dep. Storage     (mm)=       2.00         5.00
01213>      Average Slope     (%)=       2.00         2.00
01214>      Length            (m)=     250.00        30.00
01215>      Mannings n             =       .015         .250
01216>
01217>      Max.eff.Inten.(mm/hr)=      64.13        21.64
01218>                 over (min)       5.00        16.00
01219>      Storage Coeff.  (min)=       4.68 (ii)   15.64 (ii)
01220>      Unit Hyd. Tpeak (min)=       5.00        16.00
01221>      Unit Hyd. peak  (cms)=        .24          .07
01222>                                                          *TOTALS*
01223>      PEAK FLOW       (cms)=        .22          .20          .368 (iii)
01224>      TIME TO PEAK    (hrs)=      12.20        12.38        12.233
01225>      RUNOFF VOLUME    (mm)=      55.00        12.81        18.841
01226>      TOTAL RAINFALL   (mm)=      57.00        57.00        57.000
01227>      RUNOFF COEFFICIENT   =        .96          .22          .331
01228>
01229>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01230>            CN* =  49.0    Ia = Dep. Storage  (Above)
01231>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
01232>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01233>
01234> ------------------------------------------------------------------------------
01235> R0001:C00047-----------------------------------------------------------------
01236> -------------------------
01237> | ADD HYD               |
01238> | 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01239> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01240>                        ID 1 03:Ditch       238.670     4.179   12.867    17.376
01241>                       +ID 2 04:HB            9.340      .368   12.233    18.841
01242>                        ==========================================================
01243>                        SUM   05:Ditch 2     248.010     4.278   12.850    17.431
01244>
01245>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01246>
01247> ------------------------------------------------------------------------------
01248> R0001:C00048-----------------------------------------------------------------
01249> -------------------------
01250> | CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
01251> | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01252> -------------------------   U.H. Tp(hrs)=    1.160
01253>
01254>      Unit Hyd Qpeak  (cms)=    1.772
01255>
01256>      PEAK FLOW       (cms)=     .748 (i)
01257>      TIME TO PEAK    (hrs)=   13.400
01258>      DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
01259>      AVERAGE FLOW    (cms)=     .095
01260>      RUNOFF VOLUME    (mm)=   19.785
01261>      TOTAL RAINFALL   (mm)=   57.000
01262>      RUNOFF COEFFICIENT   =     .347
01263>
01264>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01265>
01266> ------------------------------------------------------------------------------
01267> R0001:C00049-----------------------------------------------------------------
01268> -------------------------
01269> | ADD HYD               |
01270> | 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01271> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01272>                        ID 1 05:Ditch 2     248.010     4.278   12.850    17.431
01273>                       +ID 2 06:29           53.830      .748   13.400    19.785
01274>                        ==========================================================
01275>                        SUM   07:Crk Inlet   301.840     4.902   12.900    17.851
01276>
01277>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01278>
01279> ------------------------------------------------------------------------------
01280> R0001:C00050-----------------------------------------------------------------
01281> *#-----------------|------------------ Post Dev Site -------------------------|
01282> -------------------------
01283> | CALIB STANDHYD         |   Area    (ha)=    1.83
01284> | 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
01285> -------------------------
01286>                             IMPERVIOUS    PERVIOUS (i)
01287>      Surface Area     (ha)=       .48         1.35
01288>      Dep. Storage     (mm)=      2.00         5.00
01289>      Average Slope     (%)=      1.00         2.00
01290>      Length            (m)=     93.00         6.00
01291>      Mannings n             =       .013         .240
01292>
01293>      Max.eff.Inten.(mm/hr)=      64.13        16.57
01294>                 over (min)       3.00         7.00
01295>      Storage Coeff.  (min)=       2.92 (ii)    7.45 (ii)
01296>      Unit Hyd. Tpeak (min)=       3.00         7.00
01297>      Unit Hyd. peak  (cms)=        .38          .16
01298>                                                          *TOTALS*
01299>      PEAK FLOW       (cms)=        .04          .05          .086 (iii)
01300>      TIME TO PEAK    (hrs)=      12.20        12.25        12.200
01301>      RUNOFF VOLUME    (mm)=      55.00        10.04        15.927
01302>      TOTAL RAINFALL   (mm)=      57.00        57.00        57.000
01303>      RUNOFF COEFFICIENT   =        .96          .18          .279
01304>
01305>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01306>            CN* =  49.0    Ia = Dep. Storage  (Above)
01307>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
01308>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01309>
01310> ------------------------------------------------------------------------------
01311> R0001:C00051-----------------------------------------------------------------
01312> -------------------------
01313> | ADD HYD               |
01314> | 09:Channel            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
01315> -------------------------                       (ha)     (cms)    (hrs)      (mm)
01316>                        ID 1 07:Crk Inlet   301.840     4.902   12.900    17.851
01317>                       +ID 2 08:200          1.830      .086   12.200    15.927
01318>                        ==========================================================
01319>                        SUM   09:Channel    303.670     4.912   12.900    17.840
01320>
01321>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01322>
01323> ------------------------------------------------------------------------------
01324> R0001:C00052-----------------------------------------------------------------
01325> *#*****************************************************************************
01326> *#*****************************************************************************
01327> *#                          5yr SCS Storm (24hr)
01328> *#*****************************************************************************
01329> *#*****************************************************************************
01330> --------------------
01331> | MASS STORM       |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
01332> | Ptotal= 75.70 mm |    Comments: 24 hour SCS II storm mass curve
01333> --------------------
01334>                             Duration of storm        =   24.00 hrs
01335>                             Mass curve time step     =   12.00 min
01336>                             Selected storm time step =    1.00 min
01337>                             Volume of derived storm  =   75.70 mm
01338>
01339>       TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
01340>      hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
01341>       0:01    .000|   4:01    .757|   8:01   1.514|  12:01  85.163|  16:01   1.8
01342>       0:02    .000|   4:02    .757|   8:02   1.514|  12:02  85.163|  16:02   1.8
01343>       0:03    .000|   4:03    .757|   8:03   1.514|  12:03  85.163|  16:03   1.8
01344>       0:04    .000|   4:04    .757|   8:04   1.514|  12:04  85.163|  16:04   1.8
01345>       0:05    .000|   4:05    .757|   8:05   1.514|  12:05  85.163|  16:05   1.8
01346>       0:06    .000|   4:06    .757|   8:06   1.514|  12:06  85.163|  16:06   1.8
01347>       0:07    .000|   4:07    .757|   8:07   1.514|  12:07  85.163|  16:07   1.8
01348>       0:08    .000|   4:08    .757|   8:08   1.514|  12:08  85.163|  16:08   1.8
01349>       0:09    .000|   4:09    .757|   8:09   1.514|  12:09  85.163|  16:09   1.8
01350>       0:10    .000|   4:10    .757|   8:10   1.514|  12:10  85.163|  16:10   1.8
```

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01351>    0:11   .000|  4:11   .757|  8:11   1.514|  12:11  85.163|  16:11  1.8 |
01352>    0:12   .000|  4:12   .757|  8:12   1.514|  12:12  85.163|  16:12  1.8 |
01353>    0:13   .757|  4:13  1.514|  8:13   2.271|  12:13  15.140|  16:13  1.8 |
01354>    0:14   .757|  4:14  1.514|  8:14   2.271|  12:14  15.140|  16:14  1.8 |
01355>    0:15   .757|  4:15  1.514|  8:15   2.271|  12:15  15.140|  16:15  1.8 |
01356>    0:16   .757|  4:16  1.514|  8:16   2.271|  12:16  15.140|  16:16  1.8 |
01357>    0:17   .757|  4:17  1.514|  8:17   2.271|  12:17  15.140|  16:17  1.8 |
01358>    0:18   .757|  4:18  1.514|  8:18   2.271|  12:18  15.140|  16:18  1.8 |
01359>    0:19   .757|  4:19  1.514|  8:19   2.271|  12:19  15.140|  16:19  1.8 |
01360>    0:20   .757|  4:20  1.514|  8:20   2.271|  12:20  15.140|  16:20  1.8 |
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01525>    3:05   .757|  7:05  1.514| 11:05   4.163|  15:05   2.271|  19:05  1.1 |
01526>    3:06   .757|  7:06  1.514| 11:06   4.163|  15:06   2.271|  19:06  1.1 |
01527>    3:07   .757|  7:07  1.514| 11:07   4.163|  15:07   2.271|  19:07  1.1 |
01528>    3:08   .757|  7:08  1.514| 11:08   4.163|  15:08   2.271|  19:08  1.1 |
01529>    3:09   .757|  7:09  1.514| 11:09   4.163|  15:09   2.271|  19:09  1.1 |
01530>    3:10   .757|  7:10  1.514| 11:10   4.163|  15:10   2.271|  19:10  1.1 |
01531>    3:11   .757|  7:11  1.514| 11:11   4.163|  15:11   2.271|  19:11  1.1 |
01532>    3:12   .757|  7:12  1.514| 11:12   4.163|  15:12   2.271|  19:12  1.1 |
01533>    3:13   .757|  7:13  1.514| 11:13   5.678|  15:13   1.892|  19:13  1.5 |
01534>    3:14   .757|  7:14  1.514| 11:14   5.678|  15:14   1.892|  19:14  1.5 |
01535>    3:15   .757|  7:15  1.514| 11:15   5.678|  15:15   1.892|  19:15  1.5 |
01536>    3:16   .757|  7:16  1.514| 11:16   5.678|  15:16   1.892|  19:16  1.5 |
01537>    3:17   .757|  7:17  1.514| 11:17   5.678|  15:17   1.892|  19:17  1.5 |
01538>    3:18   .757|  7:18  1.514| 11:18   5.678|  15:18   1.892|  19:18  1.5 |
01539>    3:19   .757|  7:19  1.514| 11:19   5.678|  15:19   1.892|  19:19  1.5 |
01540>    3:20   .757|  7:20  1.514| 11:20   5.678|  15:20   1.892|  19:20  1.5 |
01541>    3:21   .757|  7:21  1.514| 11:21   5.678|  15:21   1.892|  19:21  1.5 |
01542>    3:22   .757|  7:22  1.514| 11:22   5.678|  15:22   1.892|  19:22  1.5 |
01543>    3:23   .757|  7:23  1.514| 11:23   5.678|  15:23   1.892|  19:23  1.5 |
01544>    3:24   .757|  7:24  1.514| 11:24   5.678|  15:24   1.892|  19:24  1.5 |
01545>    3:25   .757|  7:25  1.514| 11:25   8.327|  15:25   1.892|  19:25  1.1 |
01546>    3:26   .757|  7:26  1.514| 11:26   8.327|  15:26   1.892|  19:26  1.1 |
01547>    3:27   .757|  7:27  1.514| 11:27   8.327|  15:27   1.892|  19:27  1.1 |
01548>    3:28   .757|  7:28  1.514| 11:28   8.327|  15:28   1.892|  19:28  1.1 |
01549>    3:29   .757|  7:29  1.514| 11:29   8.327|  15:29   1.892|  19:29  1.1 |
01550>    3:30   .757|  7:30  1.514| 11:30   8.327|  15:30   1.892|  19:30  1.1 |
01551>    3:31   .757|  7:31  1.514| 11:31   8.327|  15:31   1.892|  19:31  1.1 |
01552>    3:32   .757|  7:32  1.514| 11:32   8.327|  15:32   1.892|  19:32  1.1 |
01553>    3:33   .757|  7:33  1.514| 11:33   8.327|  15:33   1.892|  19:33  1.1 |
01554>    3:34   .757|  7:34  1.514| 11:34   8.327|  15:34   1.892|  19:34  1.1 |
01555>    3:35   .757|  7:35  1.514| 11:35   8.327|  15:35   1.892|  19:35  1.1 |
01556>    3:36   .757|  7:36  1.514| 11:36   8.327|  15:36   1.892|  19:36  1.1 |
01557>    3:37   .757|  7:37  1.514| 11:37  20.060|  15:37   1.892|  19:37  1.5 |
01558>    3:38   .757|  7:38  1.514| 11:38  20.060|  15:38   1.892|  19:38  1.5 |
01559>    3:39   .757|  7:39  1.514| 11:39  20.060|  15:39   1.892|  19:39  1.5 |
01560>    3:40   .757|  7:40  1.514| 11:40  20.060|  15:40   1.892|  19:40  1.5 |
01561>    3:41   .757|  7:41  1.514| 11:41  20.060|  15:41   1.892|  19:41  1.5 |
01562>    3:42   .757|  7:42  1.514| 11:42  20.060|  15:42   1.892|  19:42  1.5 |
01563>    3:43   .757|  7:43  1.514| 11:43  20.060|  15:43   1.892|  19:43  1.5 |
01564>    3:44   .757|  7:44  1.514| 11:44  20.060|  15:44   1.892|  19:44  1.5 |
01565>    3:45   .757|  7:45  1.514| 11:45  20.060|  15:45   1.892|  19:45  1.5 |
01566>    3:46   .757|  7:46  1.514| 11:46  20.060|  15:46   1.892|  19:46  1.5 |
01567>    3:47   .757|  7:47  1.514| 11:47  20.060|  15:47   1.892|  19:47  1.5 |
01568>    3:48   .757|  7:48  1.514| 11:48  20.060|  15:48   1.892|  19:48  1.5 |
01569>    3:49   .757|  7:49  1.514| 11:49  41.635|  15:49   1.892|  19:49  1.1 |
01570>    3:50   .757|  7:50  1.514| 11:50  41.635|  15:50   1.892|  19:50  1.1 |
01571>    3:51   .757|  7:51  1.514| 11:51  41.635|  15:51   1.892|  19:51  1.1 |
01572>    3:52   .757|  7:52  1.514| 11:52  41.635|  15:52   1.892|  19:52  1.1 |
01573>    3:53   .757|  7:53  1.514| 11:53  41.635|  15:53   1.892|  19:53  1.1 |
01574>    3:54   .757|  7:54  1.514| 11:54  41.635|  15:54   1.892|  19:54  1.1 |
01575>    3:55   .757|  7:55  1.514| 11:55  41.635|  15:55   1.892|  19:55  1.1 |
01576>    3:56   .757|  7:56  1.514| 11:56  41.635|  15:56   1.892|  19:56  1.1 |
01577>    3:57   .757|  7:57  1.514| 11:57  41.635|  15:57   1.892|  19:57  1.1 |
01578>    3:58   .757|  7:58  1.514| 11:58  41.635|  15:58   1.892|  19:58  1.1 |
01579>    3:59   .757|  7:59  1.514| 11:59  41.635|  15:59   1.892|  19:59  1.1 |
01580>    4:00   .757|  8:00  1.514| 12:00  41.635|  16:00   1.892|  20:00  1.1 |
01581>
01582> ----------------------------------------------------------------------------
01583> R0001:C00053-------------------------------------------------------------------
01584> *#*****************************************************************************
01585> *#-----------------|-------------------------------------------------------|
01586> *#-----------------|--------------------External-Catchments-----------------|
01587> -------------------------
01588> | CALIB NASHYD      |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
01589> | 01:27      DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01590> -------------------------   U.H. Tp(hrs)=     .710
01591>
01592>      Unit Hyd Qpeak  (cms)=   12.509
01593>
01594>      PEAK FLOW       (cms)=    6.798 (i)
01595>      TIME TO PEAK    (hrs)=   12.867
01596>      DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
01597>      AVERAGE FLOW    (cms)=     .648
01598>      RUNOFF VOLUME    (mm)=   28.653
01599>      TOTAL RAINFALL   (mm)=   75.699
01600>      RUNOFF COEFFICIENT   =     .379
01601>
01602>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01603>
01604> ----------------------------------------------------------------------------
01605> R0001:C00054-------------------------------------------------------------------
01606> -------------------------
01607> | CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
01608> | 02:28        DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
01609> -------------------------   U.H. Tp(hrs)=     .500
01610>
01611>      Unit Hyd Qpeak  (cms)=     .469
01612>
01613>      PEAK FLOW       (cms)=     .239 (i)
01614>      TIME TO PEAK    (hrs)=   12.617
01615>      DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
01616>      AVERAGE FLOW    (cms)=     .018
01617>      RUNOFF VOLUME    (mm)=   29.493
01618>      TOTAL RAINFALL   (mm)=   75.699
01619>      RUNOFF COEFFICIENT   =     .390
01620>
```

```
      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00055------------------------------------------------------------------
------------------------
| ADD HYD              |
| 03:Ditch             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 01:27          232.530     6.798   12.867    28.653
                       +ID 2 02:28            6.140      .239   12.617    29.493
                        ==========================================================
                        SUM   03:Ditch       238.670     7.012   12.850    28.675

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00056------------------------------------------------------------------
------------------------
| CALIB STANDHYD       |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
------------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.14         5.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     250.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=      85.16        41.19
                   over (min)       4.00        13.00
     Storage Coeff.  (min)=       4.18 (ii)   12.65 (ii)
     Unit Hyd. Tpeak (min)=       4.00        13.00
     Unit Hyd. peak  (cms)=        .27          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .30          .39          .615 (iii)
     TIME TO PEAK    (hrs)=      12.20        12.32        12.233
     RUNOFF VOLUME    (mm)=      73.70        21.49        28.955
     TOTAL RAINFALL   (mm)=      75.70        75.70        75.699
     RUNOFF COEFFICIENT   =        .97          .28          .382

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00057------------------------------------------------------------------
------------------------
| ADD HYD              |
| 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 03:Ditch       238.670     7.012   12.850    28.675
                       +ID 2 04:HB            9.340      .615   12.233    28.955
                        ==========================================================
                        SUM   05:Ditch 2     248.010     7.151   12.833    28.685

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00058------------------------------------------------------------------
------------------------
| CALIB NASHYD         |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    1.236 (i)
     TIME TO PEAK    (hrs)=   13.367
     DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
     AVERAGE FLOW    (cms)=     .155
     RUNOFF VOLUME    (mm)=   32.172
     TOTAL RAINFALL   (mm)=   75.699
     RUNOFF COEFFICIENT   =     .425

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00059------------------------------------------------------------------
------------------------
| ADD HYD              |
| 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 05:Ditch 2     248.010     7.151   12.833    28.685
                       +ID 2 06:29           53.830     1.236   13.367    32.172
                        ==========================================================
                        SUM   07:Crk Inlet   301.840     8.188   12.883    29.307

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00060-------|------------------- Post Dev Site -------------------------|
*#-----------------|
------------------------
| CALIB STANDHYD       |   Area    (ha)=    1.83
| 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
------------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .48         1.35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     93.00         6.00
     Mannings n            =       .013         .240

     Max.eff.Inten.(mm/hr)=      85.16        28.81
                   over (min)       3.00         6.00
     Storage Coeff.  (min)=       2.61 (ii)    6.24 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .41          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .06          .09          .139 (iii)
     TIME TO PEAK    (hrs)=      12.20        12.23        12.200
     RUNOFF VOLUME    (mm)=      73.70        17.25        24.645
     TOTAL RAINFALL   (mm)=      75.70        75.70        75.699
     RUNOFF COEFFICIENT   =        .97          .23          .326

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00061------------------------------------------------------------------
------------------------
| ADD HYD              |
| 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 07:Crk Inlet   301.840     8.188   12.883    29.307
                       +ID 2 08:200           1.830      .139   12.200    24.645
                        ==========================================================
                        SUM   09:Channel     303.670     8.203   12.883    29.279

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
```

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R0001:C00062------------------------------------------------------------------
*#*****************************************************************************
*#*****************************************************************************
*#                              25yr SCS Storm (24hr)
*#*****************************************************************************
*#*****************************************************************************
--------------------
| MASS STORM       |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
| Ptotal=103.90 mm |    Comments: 24 hour SCS II storm mass curve
--------------------

                            Duration of storm        =   24.00 hrs
                            Mass curve time step     =   12.00 min
                            Selected storm time step =    1.00 min
                            Volume of derived storm  =  103.90 mm
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RA
hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/hr	hh:mm	mm/
0:01	.000	4:01	1.039	8:01	2.078	12:01	116.888	16:01	2.5
0:02	.000	4:02	1.039	8:02	2.078	12:02	116.888	16:02	2.5
0:03	.000	4:03	1.039	8:03	2.078	12:03	116.888	16:03	2.5
0:04	.000	4:04	1.039	8:04	2.078	12:04	116.888	16:04	2.5
0:05	.000	4:05	1.039	8:05	2.078	12:05	116.888	16:05	2.5
0:06	.000	4:06	1.039	8:06	2.078	12:06	116.888	16:06	2.5
0:07	.000	4:07	1.039	8:07	2.078	12:07	116.888	16:07	2.5
0:08	.000	4:08	1.039	8:08	2.078	12:08	116.888	16:08	2.5
0:09	.000	4:09	1.039	8:09	2.078	12:09	116.888	16:09	2.5
0:10	.000	4:10	1.039	8:10	2.078	12:10	116.888	16:10	2.5
0:11	.000	4:11	1.039	8:11	2.078	12:11	116.888	16:11	2.5
0:12	.000	4:12	1.039	8:12	2.078	12:12	116.888	16:12	2.5
0:13	1.039	4:13	2.078	8:13	3.117	12:13	20.780	16:13	2.5
0:14	1.039	4:14	2.078	8:14	3.117	12:14	20.780	16:14	2.5
0:15	1.039	4:15	2.078	8:15	3.117	12:15	20.780	16:15	2.5
0:16	1.039	4:16	2.078	8:16	3.117	12:16	20.780	16:16	2.5
0:17	1.039	4:17	2.078	8:17	3.117	12:17	20.780	16:17	2.5
0:18	1.039	4:18	2.078	8:18	3.117	12:18	20.780	16:18	2.5
0:19	1.039	4:19	2.078	8:19	3.117	12:19	20.780	16:19	2.5
0:20	1.039	4:20	2.078	8:20	3.117	12:20	20.780	16:20	2.5
0:21	1.039	4:21	2.078	8:21	3.117	12:21	20.780	16:21	2.5
0:22	1.039	4:22	2.078	8:22	3.117	12:22	20.780	16:22	2.5
0:23	1.039	4:23	2.078	8:23	3.117	12:23	20.780	16:23	2.5
0:24	1.039	4:24	2.078	8:24	3.117	12:24	20.780	16:24	2.5
0:25	1.039	4:25	2.078	8:25	3.117	12:25	12.988	16:25	2.5
0:26	1.039	4:26	2.078	8:26	3.117	12:26	12.988	16:26	2.5
0:27	1.039	4:27	2.078	8:27	3.117	12:27	12.988	16:27	2.5
0:28	1.039	4:28	2.078	8:28	3.117	12:28	12.988	16:28	2.5
0:29	1.039	4:29	2.078	8:29	3.117	12:29	12.988	16:29	2.5
0:30	1.039	4:30	2.078	8:30	3.117	12:30	12.988	16:30	2.5
0:31	1.039	4:31	2.078	8:31	3.117	12:31	12.988	16:31	2.5
0:32	1.039	4:32	2.078	8:32	3.117	12:32	12.988	16:32	2.5
0:33	1.039	4:33	2.078	8:33	3.117	12:33	12.988	16:33	2.5
0:34	1.039	4:34	2.078	8:34	3.117	12:34	12.988	16:34	2.5
0:35	1.039	4:35	2.078	8:35	3.117	12:35	12.988	16:35	2.5
0:36	1.039	4:36	2.078	8:36	3.117	12:36	12.988	16:36	2.5
0:37	1.039	4:37	2.078	8:37	3.117	12:37	9.351	16:37	2.5
0:38	1.039	4:38	2.078	8:38	3.117	12:38	9.351	16:38	2.5
0:39	1.039	4:39	2.078	8:39	3.117	12:39	9.351	16:39	2.5
0:40	1.039	4:40	2.078	8:40	3.117	12:40	9.351	16:40	2.5
0:41	1.039	4:41	2.078	8:41	3.117	12:41	9.351	16:41	2.5
0:42	1.039	4:42	2.078	8:42	3.117	12:42	9.351	16:42	2.5
0:43	1.039	4:43	2.078	8:43	3.117	12:43	9.351	16:43	2.5
0:44	1.039	4:44	2.078	8:44	3.117	12:44	9.351	16:44	2.5
0:45	1.039	4:45	2.078	8:45	3.117	12:45	9.351	16:45	2.5
0:46	1.039	4:46	2.078	8:46	3.117	12:46	9.351	16:46	2.5
0:47	1.039	4:47	2.078	8:47	3.117	12:47	9.351	16:47	2.5
0:48	1.039	4:48	2.078	8:48	3.117	12:48	9.351	16:48	2.5
0:49	1.039	4:49	2.078	8:49	3.117	12:49	8.832	16:49	2.5
0:50	1.039	4:50	2.078	8:50	3.117	12:50	8.832	16:50	2.5
0:51	1.039	4:51	2.078	8:51	3.117	12:51	8.832	16:51	2.5
0:52	1.039	4:52	2.078	8:52	3.117	12:52	8.832	16:52	2.5
0:53	1.039	4:53	2.078	8:53	3.117	12:53	8.832	16:53	2.5
0:54	1.039	4:54	2.078	8:54	3.117	12:54	8.832	16:54	2.5
0:55	1.039	4:55	2.078	8:55	3.117	12:55	8.832	16:55	2.5
0:56	1.039	4:56	2.078	8:56	3.117	12:56	8.832	16:56	2.5
0:57	1.039	4:57	2.078	8:57	3.117	12:57	8.832	16:57	2.5
0:58	1.039	4:58	2.078	8:58	3.117	12:58	8.832	16:58	2.5
0:59	1.039	4:59	2.078	8:59	3.117	12:59	8.832	16:59	2.5
1:00	1.039	5:00	2.078	9:00	3.117	13:00	8.832	17:00	2.5
1:01	1.039	5:01	2.078	9:01	3.117	13:01	6.234	17:01	1.5
1:02	1.039	5:02	2.078	9:02	3.117	13:02	6.234	17:02	1.5
1:03	1.039	5:03	2.078	9:03	3.117	13:03	6.234	17:03	1.5
1:04	1.039	5:04	2.078	9:04	3.117	13:04	6.234	17:04	1.5
1:05	1.039	5:05	2.078	9:05	3.117	13:05	6.234	17:05	1.5
1:06	1.039	5:06	2.078	9:06	3.117	13:06	6.234	17:06	1.5
1:07	1.039	5:07	2.078	9:07	3.117	13:07	6.234	17:07	1.5
1:08	1.039	5:08	2.078	9:08	3.117	13:08	6.234	17:08	1.5
1:09	1.039	5:09	2.078	9:09	3.117	13:09	6.234	17:09	1.5
1:10	1.039	5:10	2.078	9:10	3.117	13:10	6.234	17:10	1.5
1:11	1.039	5:11	2.078	9:11	3.117	13:11	6.234	17:11	1.5
1:12	1.039	5:12	2.078	9:12	3.117	13:12	6.234	17:12	1.5
1:13	1.039	5:13	2.078	9:13	3.117	13:13	5.195	17:13	1.5
1:14	1.039	5:14	2.078	9:14	3.117	13:14	5.195	17:14	1.5
1:15	1.039	5:15	2.078	9:15	3.117	13:15	5.195	17:15	1.5
1:16	1.039	5:16	2.078	9:16	3.117	13:16	5.195	17:16	1.5
1:17	1.039	5:17	2.078	9:17	3.117	13:17	5.195	17:17	1.5
1:18	1.039	5:18	2.078	9:18	3.117	13:18	5.195	17:18	1.5
1:19	1.039	5:19	2.078	9:19	3.117	13:19	5.195	17:19	1.5
1:20	1.039	5:20	2.078	9:20	3.117	13:20	5.195	17:20	1.5
1:21	1.039	5:21	2.078	9:21	3.117	13:21	5.195	17:21	1.5
1:22	1.039	5:22	2.078	9:22	3.117	13:22	5.195	17:22	1.5
1:23	1.039	5:23	2.078	9:23	3.117	13:23	5.195	17:23	1.5
1:24	1.039	5:24	2.078	9:24	3.117	13:24	5.195	17:24	1.5
1:25	1.039	5:25	2.078	9:25	3.117	13:25	5.195	17:25	2.0
1:26	1.039	5:26	2.078	9:26	3.117	13:26	5.195	17:26	2.0
1:27	1.039	5:27	2.078	9:27	3.117	13:27	5.195	17:27	2.0
1:28	1.039	5:28	2.078	9:28	3.117	13:28	5.195	17:28	2.0
1:29	1.039	5:29	2.078	9:29	3.117	13:29	5.195	17:29	2.0
1:30	1.039	5:30	2.078	9:30	3.117	13:30	5.195	17:30	2.0
1:31	1.039	5:31	2.078	9:31	3.117	13:31	5.195	17:31	2.0
1:32	1.039	5:32	2.078	9:32	3.117	13:32	5.195	17:32	2.0
1:33	1.039	5:33	2.078	9:33	3.117	13:33	5.195	17:33	2.0
1:34	1.039	5:34	2.078	9:34	3.117	13:34	5.195	17:34	2.0
1:35	1.039	5:35	2.078	9:35	3.117	13:35	5.195	17:35	2.0
1:36	1.039	5:36	2.078	9:36	3.117	13:36	5.195	17:36	2.0
1:37	1.039	5:37	2.078	9:37	3.117	13:37	5.195	17:37	1.5
1:38	1.039	5:38	2.078	9:38	3.117	13:38	5.195	17:38	1.5
1:39	1.039	5:39	2.078	9:39	3.117	13:39	5.195	17:39	1.5
1:40	1.039	5:40	2.078	9:40	3.117	13:40	5.195	17:40	1.5
1:41	1.039	5:41	2.078	9:41	3.117	13:41	5.195	17:41	1.5
1:42	1.039	5:42	2.078	9:42	3.117	13:42	5.195	17:42	1.5
1:43	1.039	5:43	2.078	9:43	3.117	13:43	5.195	17:43	1.5
1:44	1.039	5:44	2.078	9:44	3.117	13:44	5.195	17:44	1.5
1:45	1.039	5:45	2.078	9:45	3.117	13:45	5.195	17:45	1.5
1:46	1.039	5:46	2.078	9:46	3.117	13:46	5.195	17:46	1.5
1:47	1.039	5:47	2.078	9:47	3.117	13:47	5.195	17:47	1.5
1:48	1.039	5:48	2.078	9:48	3.117	13:48	5.195	17:48	1.5
1:49	1.039	5:49	2.078	9:49	3.117	13:49	5.195	17:49	2.0
1:50	1.039	5:50	2.078	9:50	3.117	13:50	5.195	17:50	2.0
1:51	1.039	5:51	2.078	9:51	3.117	13:51	5.195	17:51	2.0
1:52	1.039	5:52	2.078	9:52	3.117	13:52	5.195	17:52	2.0
1:53	1.039	5:53	2.078	9:53	3.117	13:53	5.195	17:53	2.0
1:54	1.039	5:54	2.078	9:54	3.117	13:54	5.195	17:54	2.0
1:55	1.039	5:55	2.078	9:55	3.117	13:55	5.195	17:55	2.0
1:56	1.039	5:56	2.078	9:56	3.117	13:56	5.195	17:56	2.0
1:57	1.039	5:57	2.078	9:57	3.117	13:57	5.195	17:57	2.0
1:58	1.039	5:58	2.078	9:58	3.117	13:58	5.195	17:58	2.0

```
      1:59   1.039|   5:59   2.078|   9:59   3.117|  13:59   5.195|  17:59   2.0
      2:00   1.039|   6:00   2.078|  10:00   3.117|  14:00   5.195|  18:00   2.0
      2:01   1.039|   6:01   2.078|  10:01   3.117|  14:01   5.195|  18:01   1.5
      2:02   1.039|   6:02   2.078|  10:02   3.117|  14:02   5.195|  18:02   1.5
      2:03   1.039|   6:03   2.078|  10:03   3.117|  14:03   5.195|  18:03   1.5
      2:04   1.039|   6:04   2.078|  10:04   3.117|  14:04   5.195|  18:04   1.5
      2:05   1.039|   6:05   2.078|  10:05   3.117|  14:05   5.195|  18:05   1.5
      2:06   1.039|   6:06   2.078|  10:06   3.117|  14:06   5.195|  18:06   1.5
      2:07   1.039|   6:07   2.078|  10:07   3.117|  14:07   5.195|  18:07   1.5
      2:08   1.039|   6:08   2.078|  10:08   3.117|  14:08   5.195|  18:08   1.5
      2:09   1.039|   6:09   2.078|  10:09   3.117|  14:09   5.195|  18:09   1.5
      2:10   1.039|   6:10   2.078|  10:10   3.117|  14:10   5.195|  18:10   1.5
      2:11   1.039|   6:11   2.078|  10:11   3.117|  14:11   5.195|  18:11   1.5
      2:12   1.039|   6:12   2.078|  10:12   3.117|  14:12   5.195|  18:12   1.5
      2:13   1.039|   6:13   2.078|  10:13   5.714|  14:13   3.117|  18:13   1.5
      2:14   1.039|   6:14   2.078|  10:14   5.714|  14:14   3.117|  18:14   1.5
      2:15   1.039|   6:15   2.078|  10:15   5.714|  14:15   3.117|  18:15   1.5
      2:16   1.039|   6:16   2.078|  10:16   5.714|  14:16   3.117|  18:16   1.5
      2:17   1.039|   6:17   2.078|  10:17   5.714|  14:17   3.117|  18:17   1.5
      2:18   1.039|   6:18   2.078|  10:18   5.714|  14:18   3.117|  18:18   1.5
      2:19   1.039|   6:19   2.078|  10:19   5.714|  14:19   3.117|  18:19   1.5
      2:20   1.039|   6:20   2.078|  10:20   5.714|  14:20   3.117|  18:20   1.5
      2:21   1.039|   6:21   2.078|  10:21   5.714|  14:21   3.117|  18:21   1.5
      2:22   1.039|   6:22   2.078|  10:22   5.714|  14:22   3.117|  18:22   1.5
      2:23   1.039|   6:23   2.078|  10:23   5.714|  14:23   3.117|  18:23   1.5
      2:24   1.039|   6:24   2.078|  10:24   5.714|  14:24   3.117|  18:24   1.5
      2:25   1.039|   6:25   2.078|  10:25   5.715|  14:25   3.117|  18:25   1.5
      2:26   1.039|   6:26   2.078|  10:26   5.715|  14:26   3.117|  18:26   1.5
      2:27   1.039|   6:27   2.078|  10:27   5.715|  14:27   3.117|  18:27   1.5
      2:28   1.039|   6:28   2.078|  10:28   5.715|  14:28   3.117|  18:28   1.5
      2:29   1.039|   6:29   2.078|  10:29   5.715|  14:29   3.117|  18:29   1.5
      2:30   1.039|   6:30   2.078|  10:30   5.715|  14:30   3.117|  18:30   1.5
      2:31   1.039|   6:31   2.078|  10:31   5.715|  14:31   3.117|  18:31   1.5
      2:32   1.039|   6:32   2.078|  10:32   5.715|  14:32   3.117|  18:32   1.5
      2:33   1.039|   6:33   2.078|  10:33   5.715|  14:33   3.117|  18:33   1.5
      2:34   1.039|   6:34   2.078|  10:34   5.715|  14:34   3.117|  18:34   1.5
      2:35   1.039|   6:35   2.078|  10:35   5.715|  14:35   3.117|  18:35   1.5
      2:36   1.039|   6:36   2.078|  10:36   5.715|  14:36   3.117|  18:36   1.5
      2:37   1.039|   6:37   2.078|  10:37   5.714|  14:37   3.117|  18:37   2.0
      2:38   1.039|   6:38   2.078|  10:38   5.714|  14:38   3.117|  18:38   2.0
      2:39   1.039|   6:39   2.078|  10:39   5.714|  14:39   3.117|  18:39   2.0
      2:40   1.039|   6:40   2.078|  10:40   5.714|  14:40   3.117|  18:40   2.0
      2:41   1.039|   6:41   2.078|  10:41   5.714|  14:41   3.117|  18:41   2.0
      2:42   1.039|   6:42   2.078|  10:42   5.714|  14:42   3.117|  18:42   2.0
      2:43   1.039|   6:43   2.078|  10:43   5.714|  14:43   3.117|  18:43   2.0
      2:44   1.039|   6:44   2.078|  10:44   5.714|  14:44   3.117|  18:44   2.0
      2:45   1.039|   6:45   2.078|  10:45   5.714|  14:45   3.117|  18:45   2.0
      2:46   1.039|   6:46   2.078|  10:46   5.714|  14:46   3.117|  18:46   2.0
      2:47   1.039|   6:47   2.078|  10:47   5.714|  14:47   3.117|  18:47   2.0
      2:48   1.039|   6:48   2.078|  10:48   5.714|  14:48   3.117|  18:48   2.0
      2:49   1.039|   6:49   2.078|  10:49   5.715|  14:49   3.117|  18:49   1.5
      2:50   1.039|   6:50   2.078|  10:50   5.715|  14:50   3.117|  18:50   1.5
      2:51   1.039|   6:51   2.078|  10:51   5.715|  14:51   3.117|  18:51   1.5
      2:52   1.039|   6:52   2.078|  10:52   5.715|  14:52   3.117|  18:52   1.5
      2:53   1.039|   6:53   2.078|  10:53   5.715|  14:53   3.117|  18:53   1.5
      2:54   1.039|   6:54   2.078|  10:54   5.715|  14:54   3.117|  18:54   1.5
      2:55   1.039|   6:55   2.078|  10:55   5.715|  14:55   3.117|  18:55   1.5
      2:56   1.039|   6:56   2.078|  10:56   5.715|  14:56   3.117|  18:56   1.5
      2:57   1.039|   6:57   2.078|  10:57   5.715|  14:57   3.117|  18:57   1.5
      2:58   1.039|   6:58   2.078|  10:58   5.715|  14:58   3.117|  18:58   1.5
      2:59   1.039|   6:59   2.078|  10:59   5.715|  14:59   3.117|  18:59   1.5
      3:00   1.039|   7:00   2.078|  11:00   5.715|  15:00   3.117|  19:00   1.5
      3:01   1.039|   7:01   2.078|  11:01   5.714|  15:01   3.117|  19:01   1.5
      3:02   1.039|   7:02   2.078|  11:02   5.714|  15:02   3.117|  19:02   1.5
      3:03   1.039|   7:03   2.078|  11:03   5.714|  15:03   3.117|  19:03   1.5
      3:04   1.039|   7:04   2.078|  11:04   5.714|  15:04   3.117|  19:04   1.5
      3:05   1.039|   7:05   2.078|  11:05   5.714|  15:05   3.117|  19:05   1.5
      3:06   1.039|   7:06   2.078|  11:06   5.714|  15:06   3.117|  19:06   1.5
      3:07   1.039|   7:07   2.078|  11:07   5.714|  15:07   3.117|  19:07   1.5
      3:08   1.039|   7:08   2.078|  11:08   5.714|  15:08   3.117|  19:08   1.5
      3:09   1.039|   7:09   2.078|  11:09   5.714|  15:09   3.117|  19:09   1.5
      3:10   1.039|   7:10   2.078|  11:10   5.714|  15:10   3.117|  19:10   1.5
      3:11   1.039|   7:11   2.078|  11:11   5.714|  15:11   3.117|  19:11   1.5
      3:12   1.039|   7:12   2.078|  11:12   5.714|  15:12   3.117|  19:12   1.5
      3:13   1.039|   7:13   2.078|  11:13   7.793|  15:13   2.597|  19:13   2.0
      3:14   1.039|   7:14   2.078|  11:14   7.793|  15:14   2.597|  19:14   2.0
      3:15   1.039|   7:15   2.078|  11:15   7.793|  15:15   2.597|  19:15   2.0
      3:16   1.039|   7:16   2.078|  11:16   7.793|  15:16   2.597|  19:16   2.0
      3:17   1.039|   7:17   2.078|  11:17   7.793|  15:17   2.597|  19:17   2.0
      3:18   1.039|   7:18   2.078|  11:18   7.793|  15:18   2.597|  19:18   2.0
      3:19   1.039|   7:19   2.078|  11:19   7.793|  15:19   2.597|  19:19   2.0
      3:20   1.039|   7:20   2.078|  11:20   7.793|  15:20   2.597|  19:20   2.0
      3:21   1.039|   7:21   2.078|  11:21   7.793|  15:21   2.597|  19:21   2.0
      3:22   1.039|   7:22   2.078|  11:22   7.793|  15:22   2.597|  19:22   2.0
      3:23   1.039|   7:23   2.078|  11:23   7.793|  15:23   2.597|  19:23   2.0
      3:24   1.039|   7:24   2.078|  11:24   7.793|  15:24   2.597|  19:24   2.0
      3:25   1.039|   7:25   2.078|  11:25  11.429|  15:25   2.597|  19:25   1.5
      3:26   1.039|   7:26   2.078|  11:26  11.429|  15:26   2.597|  19:26   1.5
      3:27   1.039|   7:27   2.078|  11:27  11.429|  15:27   2.597|  19:27   1.5
      3:28   1.039|   7:28   2.078|  11:28  11.429|  15:28   2.597|  19:28   1.5
      3:29   1.039|   7:29   2.078|  11:29  11.429|  15:29   2.597|  19:29   1.5
      3:30   1.039|   7:30   2.078|  11:30  11.429|  15:30   2.597|  19:30   1.5
      3:31   1.039|   7:31   2.078|  11:31  11.429|  15:31   2.597|  19:31   1.5
      3:32   1.039|   7:32   2.078|  11:32  11.429|  15:32   2.597|  19:32   1.5
      3:33   1.039|   7:33   2.078|  11:33  11.429|  15:33   2.597|  19:33   1.5
      3:34   1.039|   7:34   2.078|  11:34  11.429|  15:34   2.597|  19:34   1.5
      3:35   1.039|   7:35   2.078|  11:35  11.429|  15:35   2.597|  19:35   1.5
      3:36   1.039|   7:36   2.078|  11:36  11.429|  15:36   2.597|  19:36   1.5
      3:37   1.039|   7:37   2.078|  11:37  27.533|  15:37   2.597|  19:37   2.0
      3:38   1.039|   7:38   2.078|  11:38  27.533|  15:38   2.597|  19:38   2.0
      3:39   1.039|   7:39   2.078|  11:39  27.533|  15:39   2.597|  19:39   2.0
      3:40   1.039|   7:40   2.078|  11:40  27.533|  15:40   2.597|  19:40   2.0
      3:41   1.039|   7:41   2.078|  11:41  27.533|  15:41   2.597|  19:41   2.0
      3:42   1.039|   7:42   2.078|  11:42  27.533|  15:42   2.597|  19:42   2.0
      3:43   1.039|   7:43   2.078|  11:43  27.533|  15:43   2.597|  19:43   2.0
      3:44   1.039|   7:44   2.078|  11:44  27.533|  15:44   2.597|  19:44   2.0
      3:45   1.039|   7:45   2.078|  11:45  27.533|  15:45   2.597|  19:45   2.0
      3:46   1.039|   7:46   2.078|  11:46  27.533|  15:46   2.597|  19:46   2.0
      3:47   1.039|   7:47   2.078|  11:47  27.533|  15:47   2.597|  19:47   2.0
      3:48   1.039|   7:48   2.078|  11:48  27.533|  15:48   2.597|  19:48   2.0
      3:49   1.039|   7:49   2.078|  11:49  57.145|  15:49   2.597|  19:49   1.5
      3:50   1.039|   7:50   2.078|  11:50  57.145|  15:50   2.597|  19:50   1.5
      3:51   1.039|   7:51   2.078|  11:51  57.145|  15:51   2.597|  19:51   1.5
      3:52   1.039|   7:52   2.078|  11:52  57.145|  15:52   2.597|  19:52   1.5
      3:53   1.039|   7:53   2.078|  11:53  57.145|  15:53   2.597|  19:53   1.5
      3:54   1.039|   7:54   2.078|  11:54  57.145|  15:54   2.597|  19:54   1.5
      3:55   1.039|   7:55   2.078|  11:55  57.145|  15:55   2.597|  19:55   1.5
      3:56   1.039|   7:56   2.078|  11:56  57.145|  15:56   2.597|  19:56   1.5
      3:57   1.039|   7:57   2.078|  11:57  57.145|  15:57   2.597|  19:57   1.5
      3:58   1.039|   7:58   2.078|  11:58  57.145|  15:58   2.597|  19:58   1.5
      3:59   1.039|   7:59   2.078|  11:59  57.145|  15:59   2.597|  19:59   1.5
      4:00   1.039|   8:00   2.078|  12:00  57.145|  16:00   2.597|  20:00   1.5

 ---------------------------------------------------------------------------
 R0001:C00063----------------------------------------------------------------
 *#*************************************************************************
 *#----------------|-------------------------------------------------------|
 *#----------------|-------------------External-Catchments-----------------|
 -------------------------
 | CALIB NASHYD           |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
 | 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .710

      Unit Hyd Qpeak  (cms)=   12.509


      PEAK FLOW       (cms)=   11.624 (i)
      TIME TO PEAK    (hrs)=   12.850
      DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
      AVERAGE FLOW    (cms)=    1.091
      RUNOFF VOLUME    (mm)=   48.267
      TOTAL RAINFALL   (mm)=  103.900
      RUNOFF COEFFICIENT   =     .465

      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 R0001:C00064----------------------------------------------------------------
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 | CALIB NASHYD           |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
 | 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=     .500

      Unit Hyd Qpeak  (cms)=     .469

      PEAK FLOW       (cms)=     .407 (i)
      TIME TO PEAK    (hrs)=   12.617
      DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
      AVERAGE FLOW    (cms)=     .031
      RUNOFF VOLUME    (mm)=   49.480
      TOTAL RAINFALL   (mm)=  103.900
      RUNOFF COEFFICIENT   =     .476

      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 R0001:C00065----------------------------------------------------------------
 -------------------------
 | ADD HYD                |
 | 03:Ditch               |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 -------------------------                       (ha)     (cms)    (hrs)      (mm)
                          ID 1 01:27          232.530    11.624   12.850    48.267
                         +ID 2 02:28            6.140      .407   12.617    49.480
                         ==========================================================
                         SUM   03:Ditch       238.670    11.990   12.833    48.298

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 R0001:C00066----------------------------------------------------------------
 -------------------------
 | CALIB STANDHYD         |   Area    (ha)=    9.34
 | 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
 -------------------------
                                    IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       4.14          5.20
      Dep. Storage     (mm)=       2.00          5.00
      Average Slope     (%)=       2.00          2.00
      Length            (m)=     250.00         30.00
      Mannings n           =       .015          .250

      Max.eff.Inten.(mm/hr)=     116.89         76.98
                  over (min)=       4.00         10.00
      Storage Coeff.  (min)=       3.68 (ii)    10.28 (ii)
      Unit Hyd. Tpeak (min)=       4.00         10.00
      Unit Hyd. peak  (cms)=        .30           .11
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .42           .76          1.108 (iii)
      TIME TO PEAK    (hrs)=      12.20         12.28         12.217
      RUNOFF VOLUME    (mm)=     101.90         37.18         46.435
      TOTAL RAINFALL   (mm)=     103.90        103.90        103.900
      RUNOFF COEFFICIENT   =        .98           .36           .447

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  49.0   Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 R0001:C00067----------------------------------------------------------------
 -------------------------
 | ADD HYD                |
 | 05:Ditch 2             |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 -------------------------                       (ha)     (cms)    (hrs)      (mm)
                          ID 1 03:Ditch       238.670    11.990   12.833    48.298
                         +ID 2 04:HB            9.340     1.108   12.217    46.435
                         ==========================================================
                         SUM   05:Ditch 2     248.010    12.185   12.833    48.228

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 R0001:C00068----------------------------------------------------------------
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 | CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
 | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
 ------------------------   U.H. Tp(hrs)=    1.160

      Unit Hyd Qpeak  (cms)=    1.772

      PEAK FLOW       (cms)=    2.076 (i)
      TIME TO PEAK    (hrs)=   13.350
      DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
      AVERAGE FLOW    (cms)=     .256
      RUNOFF VOLUME    (mm)=   53.284
      TOTAL RAINFALL   (mm)=  103.900
      RUNOFF COEFFICIENT   =     .513

      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 R0001:C00069----------------------------------------------------------------
 -------------------------
 | ADD HYD                |
 | 07:Crk Inlet           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
 -------------------------                       (ha)     (cms)    (hrs)      (mm)
                          ID 1 05:Ditch 2     248.010    12.185   12.833    48.228
                         +ID 2 06:29           53.830     2.076   13.350    53.284
                         ==========================================================
                         SUM   07:Crk Inlet   301.840    13.939   12.867    49.130

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 R0001:C00070----------------------------------------------------------------
 *#----------------|-------------------- Post Dev Site -------------------------|
 -------------------------
 | CALIB STANDHYD         |   Area    (ha)=    1.83
 | 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
 -------------------------
                                    IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .48           1.35
      Dep. Storage     (mm)=       2.00           5.00
      Average Slope     (%)=       1.00           2.00
      Length            (m)=      93.00           6.00
      Mannings n           =        .013          .240

      Max.eff.Inten.(mm/hr)=     116.89         51.58
                  over (min)=       2.00          5.00
      Storage Coeff.  (min)=       2.30 (ii)     5.17 (ii)
      Unit Hyd. Tpeak (min)=       2.00          5.00
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02161>      Unit Hyd. peak  (cms)=        .51          .22
02162>                                                        *TOTALS*
02163>      PEAK FLOW       (cms)=        .08          .16          .238 (iii)
02164>      TIME TO PEAK    (hrs)=      12.20        12.22        12.200
02165>      RUNOFF VOLUME    (mm)=     101.90        30.63        39.971
02166>      TOTAL RAINFALL   (mm)=     103.90       103.90       103.900
02167>      RUNOFF COEFFICIENT   =        .98          .29          .385
02168>
02169>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02170>            CN* =  49.0     Ia = Dep. Storage  (Above)
02171>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
02172>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02173>
02174> ---------------------------------------------------------------------------
02175> R0001:C00071-------------------------------------------------------------
02176> ------------------------
02177> | ADD HYD              |
02178> | 09:Channel           |    ID:NHYD            AREA     QPEAK    TPEAK      R.V.
02179> ------------------------                       (ha)     (cms)    (hrs)      (mm)
02180>                          ID 1 07:Crk Inlet    301.840   13.939   12.867    49.130
02181>                         +ID 2 08:200            1.830     .238   12.200    39.971
02182>                          ========================================================
02183>                          SUM   09:Channel     303.670   13.963   12.867    49.075
02184>
02185>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02186>
02187> ---------------------------------------------------------------------------
02188> R0001:C00072-------------------------------------------------------------
02189> *#*************************************************************************
02190> *#*************************************************************************
02191> *#                          100yr SCS Storm (24hr)
02192> *#*************************************************************************
02193> *#*************************************************************************
02194> -------------------
02195> | MASS STORM       |    Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-1
02196> | Ptotal=127.00 mm |    Comments: 24 hour SCS II storm mass curve
02197> -------------------
02198>                          Duration of storm        =   24.00 hrs
02199>                          Mass curve time step     =   12.00 min
02200>                          Selected storm time step =    1.00 min
02201>                          Volume of derived storm  =  127.00 mm
02202>
02203>      TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RAIN|   TIME    RA
02204>     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
02205>      0:01    .000|   4:01   1.270|   8:01   2.540|  12:01 142.875|  16:01   3.1
02206>      0:02    .000|   4:02   1.270|   8:02   2.540|  12:02 142.875|  16:02   3.1
02207>      0:03    .000|   4:03   1.270|   8:03   2.540|  12:03 142.875|  16:03   3.1
02208>      0:04    .000|   4:04   1.270|   8:04   2.540|  12:04 142.875|  16:04   3.1
02209>      0:05    .000|   4:05   1.270|   8:05   2.540|  12:05 142.875|  16:05   3.1
02210>      0:06    .000|   4:06   1.270|   8:06   2.540|  12:06 142.875|  16:06   3.1
02211>      0:07    .000|   4:07   1.270|   8:07   2.540|  12:07 142.875|  16:07   3.1
02212>      0:08    .000|   4:08   1.270|   8:08   2.540|  12:08 142.875|  16:08   3.1
02213>      0:09    .000|   4:09   1.270|   8:09   2.540|  12:09 142.875|  16:09   3.1
02214>      0:10    .000|   4:10   1.270|   8:10   2.540|  12:10 142.875|  16:10   3.1
02215>      0:11    .000|   4:11   1.270|   8:11   2.540|  12:11 142.875|  16:11   3.1
02216>      0:12    .000|   4:12   1.270|   8:12   2.540|  12:12 142.875|  16:12   3.1
02217>      0:13   1.270|   4:13   2.540|   8:13   3.810|  12:13  25.400|  16:13   3.1
02218>      0:14   1.270|   4:14   2.540|   8:14   3.810|  12:14  25.400|  16:14   3.1
02219>      0:15   1.270|   4:15   2.540|   8:15   3.810|  12:15  25.400|  16:15   3.1
02220>      0:16   1.270|   4:16   2.540|   8:16   3.810|  12:16  25.400|  16:16   3.1
02221>      0:17   1.270|   4:17   2.540|   8:17   3.810|  12:17  25.400|  16:17   3.1
02222>      0:18   1.270|   4:18   2.540|   8:18   3.810|  12:18  25.400|  16:18   3.1
02223>      0:19   1.270|   4:19   2.540|   8:19   3.810|  12:19  25.400|  16:19   3.1
02224>      0:20   1.270|   4:20   2.540|   8:20   3.810|  12:20  25.400|  16:20   3.1
02225>      0:21   1.270|   4:21   2.540|   8:21   3.810|  12:21  25.400|  16:21   3.1
02226>      0:22   1.270|   4:22   2.540|   8:22   3.810|  12:22  25.400|  16:22   3.1
02227>      0:23   1.270|   4:23   2.540|   8:23   3.810|  12:23  25.400|  16:23   3.1
02228>      0:24   1.270|   4:24   2.540|   8:24   3.810|  12:24  25.400|  16:24   3.1
02229>      0:25   1.270|   4:25   2.540|   8:25   3.810|  12:25  15.875|  16:25   3.1
02230>      0:26   1.270|   4:26   2.540|   8:26   3.810|  12:26  15.875|  16:26   3.1
02231>      0:27   1.270|   4:27   2.540|   8:27   3.810|  12:27  15.875|  16:27   3.1
02232>      0:28   1.270|   4:28   2.540|   8:28   3.810|  12:28  15.875|  16:28   3.1
02233>      0:29   1.270|   4:29   2.540|   8:29   3.810|  12:29  15.875|  16:29   3.1
02234>      0:30   1.270|   4:30   2.540|   8:30   3.810|  12:30  15.875|  16:30   3.1
02235>      0:31   1.270|   4:31   2.540|   8:31   3.810|  12:31  15.875|  16:31   3.1
02236>      0:32   1.270|   4:32   2.540|   8:32   3.810|  12:32  15.875|  16:32   3.1
02237>      0:33   1.270|   4:33   2.540|   8:33   3.810|  12:33  15.875|  16:33   3.1
02238>      0:34   1.270|   4:34   2.540|   8:34   3.810|  12:34  15.875|  16:34   3.1
02239>      0:35   1.270|   4:35   2.540|   8:35   3.810|  12:35  15.875|  16:35   3.1
02240>      0:36   1.270|   4:36   2.540|   8:36   3.810|  12:36  15.875|  16:36   3.1
02241>      0:37   1.270|   4:37   2.540|   8:37   3.810|  12:37  11.430|  16:37   3.1
02242>      0:38   1.270|   4:38   2.540|   8:38   3.810|  12:38  11.430|  16:38   3.1
02243>      0:39   1.270|   4:39   2.540|   8:39   3.810|  12:39  11.430|  16:39   3.1
02244>      0:40   1.270|   4:40   2.540|   8:40   3.810|  12:40  11.430|  16:40   3.1
02245>      0:41   1.270|   4:41   2.540|   8:41   3.810|  12:41  11.430|  16:41   3.1
02246>      0:42   1.270|   4:42   2.540|   8:42   3.810|  12:42  11.430|  16:42   3.1
02247>      0:43   1.270|   4:43   2.540|   8:43   3.810|  12:43  11.430|  16:43   3.1
02248>      0:44   1.270|   4:44   2.540|   8:44   3.810|  12:44  11.430|  16:44   3.1
02249>      0:45   1.270|   4:45   2.540|   8:45   3.810|  12:45  11.430|  16:45   3.1
02250>      0:46   1.270|   4:46   2.540|   8:46   3.810|  12:46  11.430|  16:46   3.1
02251>      0:47   1.270|   4:47   2.540|   8:47   3.810|  12:47  11.430|  16:47   3.1
02252>      0:48   1.270|   4:48   2.540|   8:48   3.810|  12:48  11.430|  16:48   3.1
02253>      0:49   1.270|   4:49   2.540|   8:49   3.810|  12:49  10.795|  16:49   3.1
02254>      0:50   1.270|   4:50   2.540|   8:50   3.810|  12:50  10.795|  16:50   3.1
02255>      0:51   1.270|   4:51   2.540|   8:51   3.810|  12:51  10.795|  16:51   3.1
02256>      0:52   1.270|   4:52   2.540|   8:52   3.810|  12:52  10.795|  16:52   3.1
02257>      0:53   1.270|   4:53   2.540|   8:53   3.810|  12:53  10.795|  16:53   3.1
02258>      0:54   1.270|   4:54   2.540|   8:54   3.810|  12:54  10.795|  16:54   3.1
02259>      0:55   1.270|   4:55   2.540|   8:55   3.810|  12:55  10.795|  16:55   3.1
02260>      0:56   1.270|   4:56   2.540|   8:56   3.810|  12:56  10.795|  16:56   3.1
02261>      0:57   1.270|   4:57   2.540|   8:57   3.810|  12:57  10.795|  16:57   3.1
02262>      0:58   1.270|   4:58   2.540|   8:58   3.810|  12:58  10.795|  16:58   3.1
02263>      0:59   1.270|   4:59   2.540|   8:59   3.810|  12:59  10.795|  16:59   3.1
02264>      1:00   1.270|   5:00   2.540|   9:00   3.810|  13:00  10.795|  17:00   3.1
02265>      1:01   1.270|   5:01   2.540|   9:01   3.810|  13:01   7.620|  17:01   1.9
02266>      1:02   1.270|   5:02   2.540|   9:02   3.810|  13:02   7.620|  17:02   1.9
02267>      1:03   1.270|   5:03   2.540|   9:03   3.810|  13:03   7.620|  17:03   1.9
02268>      1:04   1.270|   5:04   2.540|   9:04   3.810|  13:04   7.620|  17:04   1.9
02269>      1:05   1.270|   5:05   2.540|   9:05   3.810|  13:05   7.620|  17:05   1.9
02270>      1:06   1.270|   5:06   2.540|   9:06   3.810|  13:06   7.620|  17:06   1.9
02271>      1:07   1.270|   5:07   2.540|   9:07   3.810|  13:07   7.620|  17:07   1.9
02272>      1:08   1.270|   5:08   2.540|   9:08   3.810|  13:08   7.620|  17:08   1.9
02273>      1:09   1.270|   5:09   2.540|   9:09   3.810|  13:09   7.620|  17:09   1.9
02274>      1:10   1.270|   5:10   2.540|   9:10   3.810|  13:10   7.620|  17:10   1.9
02275>      1:11   1.270|   5:11   2.540|   9:11   3.810|  13:11   7.620|  17:11   1.9
02276>      1:12   1.270|   5:12   2.540|   9:12   3.810|  13:12   7.620|  17:12   1.9
02277>      1:13   1.270|   5:13   2.540|   9:13   3.810|  13:13   6.350|  17:13   1.9
02278>      1:14   1.270|   5:14   2.540|   9:14   3.810|  13:14   6.350|  17:14   1.9
02279>      1:15   1.270|   5:15   2.540|   9:15   3.810|  13:15   6.350|  17:15   1.9
02280>      1:16   1.270|   5:16   2.540|   9:16   3.810|  13:16   6.350|  17:16   1.9
02281>      1:17   1.270|   5:17   2.540|   9:17   3.810|  13:17   6.350|  17:17   1.9
02282>      1:18   1.270|   5:18   2.540|   9:18   3.810|  13:18   6.350|  17:18   1.9
02283>      1:19   1.270|   5:19   2.540|   9:19   3.810|  13:19   6.350|  17:19   1.9
02284>      1:20   1.270|   5:20   2.540|   9:20   3.810|  13:20   6.350|  17:20   1.9
02285>      1:21   1.270|   5:21   2.540|   9:21   3.810|  13:21   6.350|  17:21   1.9
02286>      1:22   1.270|   5:22   2.540|   9:22   3.810|  13:22   6.350|  17:22   1.9
02287>      1:23   1.270|   5:23   2.540|   9:23   3.810|  13:23   6.350|  17:23   1.9
02288>      1:24   1.270|   5:24   2.540|   9:24   3.810|  13:24   6.350|  17:24   1.9
02289>      1:25   1.270|   5:25   2.540|   9:25   3.810|  13:25   6.350|  17:25   2.5
02290>      1:26   1.270|   5:26   2.540|   9:26   3.810|  13:26   6.350|  17:26   2.5
02291>      1:27   1.270|   5:27   2.540|   9:27   3.810|  13:27   6.350|  17:27   2.5
02292>      1:28   1.270|   5:28   2.540|   9:28   3.810|  13:28   6.350|  17:28   2.5
02293>      1:29   1.270|   5:29   2.540|   9:29   3.810|  13:29   6.350|  17:29   2.5
02294>      1:30   1.270|   5:30   2.540|   9:30   3.810|  13:30   6.350|  17:30   2.5
02295>      1:31   1.270|   5:31   2.540|   9:31   3.810|  13:31   6.350|  17:31   2.5
02296>      1:32   1.270|   5:32   2.540|   9:32   3.810|  13:32   6.350|  17:32   2.5
02297>      1:33   1.270|   5:33   2.540|   9:33   3.810|  13:33   6.350|  17:33   2.5
02298>      1:34   1.270|   5:34   2.540|   9:34   3.810|  13:34   6.350|  17:34   2.5
02299>      1:35   1.270|   5:35   2.540|   9:35   3.810|  13:35   6.350|  17:35   2.5
02300>      1:36   1.270|   5:36   2.540|   9:36   3.810|  13:36   6.350|  17:36   2.5
02301>      1:37   1.270|   5:37   2.540|   9:37   3.810|  13:37   6.350|  17:37   1.9
02302>      1:38   1.270|   5:38   2.540|   9:38   3.810|  13:38   6.350|  17:38   1.9
02303>      1:39   1.270|   5:39   2.540|   9:39   3.810|  13:39   6.350|  17:39   1.9
02304>      1:40   1.270|   5:40   2.540|   9:40   3.810|  13:40   6.350|  17:40   1.9
02305>      1:41   1.270|   5:41   2.540|   9:41   3.810|  13:41   6.350|  17:41   1.9
02306>      1:42   1.270|   5:42   2.540|   9:42   3.810|  13:42   6.350|  17:42   1.9
02307>      1:43   1.270|   5:43   2.540|   9:43   3.810|  13:43   6.350|  17:43   1.9
02308>      1:44   1.270|   5:44   2.540|   9:44   3.810|  13:44   6.350|  17:44   1.9
02309>      1:45   1.270|   5:45   2.540|   9:45   3.810|  13:45   6.350|  17:45   1.9
02310>      1:46   1.270|   5:46   2.540|   9:46   3.810|  13:46   6.350|  17:46   1.9
02311>      1:47   1.270|   5:47   2.540|   9:47   3.810|  13:47   6.350|  17:47   1.9
02312>      1:48   1.270|   5:48   2.540|   9:48   3.810|  13:48   6.350|  17:48   1.9
02313>      1:49   1.270|   5:49   2.540|   9:49   3.810|  13:49   6.350|  17:49   2.5
02314>      1:50   1.270|   5:50   2.540|   9:50   3.810|  13:50   6.350|  17:50   2.5
02315>      1:51   1.270|   5:51   2.540|   9:51   3.810|  13:51   6.350|  17:51   2.5
02316>      1:52   1.270|   5:52   2.540|   9:52   3.810|  13:52   6.350|  17:52   2.5
02317>      1:53   1.270|   5:53   2.540|   9:53   3.810|  13:53   6.350|  17:53   2.5
02318>      1:54   1.270|   5:54   2.540|   9:54   3.810|  13:54   6.350|  17:54   2.5
02319>      1:55   1.270|   5:55   2.540|   9:55   3.810|  13:55   6.350|  17:55   2.5
02320>      1:56   1.270|   5:56   2.540|   9:56   3.810|  13:56   6.350|  17:56   2.5
02321>      1:57   1.270|   5:57   2.540|   9:57   3.810|  13:57   6.350|  17:57   2.5
02322>      1:58   1.270|   5:58   2.540|   9:58   3.810|  13:58   6.350|  17:58   2.5
02323>      1:59   1.270|   5:59   2.540|   9:59   3.810|  13:59   6.350|  17:59   2.5
02324>      2:00   1.270|   6:00   2.540|  10:00   3.810|  14:00   6.350|  18:00   2.5
02325>      2:01   1.270|   6:01   2.540|  10:01   3.810|  14:01   6.350|  18:01   1.9
02326>      2:02   1.270|   6:02   2.540|  10:02   3.810|  14:02   6.350|  18:02   1.9
02327>      2:03   1.270|   6:03   2.540|  10:03   3.810|  14:03   6.350|  18:03   1.9
02328>      2:04   1.270|   6:04   2.540|  10:04   3.810|  14:04   6.350|  18:04   1.9
02329>      2:05   1.270|   6:05   2.540|  10:05   3.810|  14:05   6.350|  18:05   1.9
02330>      2:06   1.270|   6:06   2.540|  10:06   3.810|  14:06   6.350|  18:06   1.9
02331>      2:07   1.270|   6:07   2.540|  10:07   3.810|  14:07   6.350|  18:07   1.9
02332>      2:08   1.270|   6:08   2.540|  10:08   3.810|  14:08   6.350|  18:08   1.9
02333>      2:09   1.270|   6:09   2.540|  10:09   3.810|  14:09   6.350|  18:09   1.9
02334>      2:10   1.270|   6:10   2.540|  10:10   3.810|  14:10   6.350|  18:10   1.9
02335>      2:11   1.270|   6:11   2.540|  10:11   3.810|  14:11   6.350|  18:11   1.9
02336>      2:12   1.270|   6:12   2.540|  10:12   3.810|  14:12   6.350|  18:12   1.9
02337>      2:13   1.270|   6:13   2.540|  10:13   6.985|  14:13   3.810|  18:13   1.9
02338>      2:14   1.270|   6:14   2.540|  10:14   6.985|  14:14   3.810|  18:14   1.9
02339>      2:15   1.270|   6:15   2.540|  10:15   6.985|  14:15   3.810|  18:15   1.9
02340>      2:16   1.270|   6:16   2.540|  10:16   6.985|  14:16   3.810|  18:16   1.9
02341>      2:17   1.270|   6:17   2.540|  10:17   6.985|  14:17   3.810|  18:17   1.9
02342>      2:18   1.270|   6:18   2.540|  10:18   6.985|  14:18   3.810|  18:18   1.9
02343>      2:19   1.270|   6:19   2.540|  10:19   6.985|  14:19   3.810|  18:19   1.9
02344>      2:20   1.270|   6:20   2.540|  10:20   6.985|  14:20   3.810|  18:20   1.9
02345>      2:21   1.270|   6:21   2.540|  10:21   6.985|  14:21   3.810|  18:21   1.9
02346>      2:22   1.270|   6:22   2.540|  10:22   6.985|  14:22   3.810|  18:22   1.9
02347>      2:23   1.270|   6:23   2.540|  10:23   6.985|  14:23   3.810|  18:23   1.9
02348>      2:24   1.270|   6:24   2.540|  10:24   6.985|  14:24   3.810|  18:24   1.9
02349>      2:25   1.270|   6:25   2.540|  10:25   6.985|  14:25   3.810|  18:25   1.9
02350>      2:26   1.270|   6:26   2.540|  10:26   6.985|  14:26   3.810|  18:26   1.9
02351>      2:27   1.270|   6:27   2.540|  10:27   6.985|  14:27   3.810|  18:27   1.9
02352>      2:28   1.270|   6:28   2.540|  10:28   6.985|  14:28   3.810|  18:28   1.9
02353>      2:29   1.270|   6:29   2.540|  10:29   6.985|  14:29   3.810|  18:29   1.9
02354>      2:30   1.270|   6:30   2.540|  10:30   6.985|  14:30   3.810|  18:30   1.9
02355>      2:31   1.270|   6:31   2.540|  10:31   6.985|  14:31   3.810|  18:31   1.9
02356>      2:32   1.270|   6:32   2.540|  10:32   6.985|  14:32   3.810|  18:32   1.9
02357>      2:33   1.270|   6:33   2.540|  10:33   6.985|  14:33   3.810|  18:33   1.9
02358>      2:34   1.270|   6:34   2.540|  10:34   6.985|  14:34   3.810|  18:34   1.9
02359>      2:35   1.270|   6:35   2.540|  10:35   6.985|  14:35   3.810|  18:35   1.9
02360>      2:36   1.270|   6:36   2.540|  10:36   6.985|  14:36   3.810|  18:36   1.9
02361>      2:37   1.270|   6:37   2.540|  10:37   6.985|  14:37   3.810|  18:37   2.5
02362>      2:38   1.270|   6:38   2.540|  10:38   6.985|  14:38   3.810|  18:38   2.5
02363>      2:39   1.270|   6:39   2.540|  10:39   6.985|  14:39   3.810|  18:39   2.5
02364>      2:40   1.270|   6:40   2.540|  10:40   6.985|  14:40   3.810|  18:40   2.5
02365>      2:41   1.270|   6:41   2.540|  10:41   6.985|  14:41   3.810|  18:41   2.5
02366>      2:42   1.270|   6:42   2.540|  10:42   6.985|  14:42   3.810|  18:42   2.5
02367>      2:43   1.270|   6:43   2.540|  10:43   6.985|  14:43   3.810|  18:43   2.5
02368>      2:44   1.270|   6:44   2.540|  10:44   6.985|  14:44   3.810|  18:44   2.5
02369>      2:45   1.270|   6:45   2.540|  10:45   6.985|  14:45   3.810|  18:45   2.5
02370>      2:46   1.270|   6:46   2.540|  10:46   6.985|  14:46   3.810|  18:46   2.5
02371>      2:47   1.270|   6:47   2.540|  10:47   6.985|  14:47   3.810|  18:47   2.5
02372>      2:48   1.270|   6:48   2.540|  10:48   6.985|  14:48   3.810|  18:48   2.5
02373>      2:49   1.270|   6:49   2.540|  10:49   6.985|  14:49   3.810|  18:49   1.9
02374>      2:50   1.270|   6:50   2.540|  10:50   6.985|  14:50   3.810|  18:50   1.9
02375>      2:51   1.270|   6:51   2.540|  10:51   6.985|  14:51   3.810|  18:51   1.9
02376>      2:52   1.270|   6:52   2.540|  10:52   6.985|  14:52   3.810|  18:52   1.9
02377>      2:53   1.270|   6:53   2.540|  10:53   6.985|  14:53   3.810|  18:53   1.9
02378>      2:54   1.270|   6:54   2.540|  10:54   6.985|  14:54   3.810|  18:54   1.9
02379>      2:55   1.270|   6:55   2.540|  10:55   6.985|  14:55   3.810|  18:55   1.9
02380>      2:56   1.270|   6:56   2.540|  10:56   6.985|  14:56   3.810|  18:56   1.9
02381>      2:57   1.270|   6:57   2.540|  10:57   6.985|  14:57   3.810|  18:57   1.9
02382>      2:58   1.270|   6:58   2.540|  10:58   6.985|  14:58   3.810|  18:58   1.9
02383>      2:59   1.270|   6:59   2.540|  10:59   6.985|  14:59   3.810|  18:59   1.9
02384>      3:00   1.270|   7:00   2.540|  11:00   6.985|  15:00   3.810|  19:00   1.9
02385>      3:01   1.270|   7:01   2.540|  11:01   6.985|  15:01   3.810|  19:01   1.9
02386>      3:02   1.270|   7:02   2.540|  11:02   6.985|  15:02   3.810|  19:02   1.9
02387>      3:03   1.270|   7:03   2.540|  11:03   6.985|  15:03   3.810|  19:03   1.9
02388>      3:04   1.270|   7:04   2.540|  11:04   6.985|  15:04   3.810|  19:04   1.9
02389>      3:05   1.270|   7:05   2.540|  11:05   6.985|  15:05   3.810|  19:05   1.9
02390>      3:06   1.270|   7:06   2.540|  11:06   6.985|  15:06   3.810|  19:06   1.9
02391>      3:07   1.270|   7:07   2.540|  11:07   6.985|  15:07   3.810|  19:07   1.9
02392>      3:08   1.270|   7:08   2.540|  11:08   6.985|  15:08   3.810|  19:08   1.9
02393>      3:09   1.270|   7:09   2.540|  11:09   6.985|  15:09   3.810|  19:09   1.9
02394>      3:10   1.270|   7:10   2.540|  11:10   6.985|  15:10   3.810|  19:10   1.9
02395>      3:11   1.270|   7:11   2.540|  11:11   6.985|  15:11   3.810|  19:11   1.9
02396>      3:12   1.270|   7:12   2.540|  11:12   6.985|  15:12   3.810|  19:12   1.9
02397>      3:13   1.270|   7:13   2.540|  11:13   9.525|  15:13   3.175|  19:13   2.5
02398>      3:14   1.270|   7:14   2.540|  11:14   9.525|  15:14   3.175|  19:14   2.5
02399>      3:15   1.270|   7:15   2.540|  11:15   9.525|  15:15   3.175|  19:15   2.5
02400>      3:16   1.270|   7:16   2.540|  11:16   9.525|  15:16   3.175|  19:16   2.5
02401>      3:17   1.270|   7:17   2.540|  11:17   9.525|  15:17   3.175|  19:17   2.5
02402>      3:18   1.270|   7:18   2.540|  11:18   9.525|  15:18   3.175|  19:18   2.5
02403>      3:19   1.270|   7:19   2.540|  11:19   9.525|  15:19   3.175|  19:19   2.5
02404>      3:20   1.270|   7:20   2.540|  11:20   9.525|  15:20   3.175|  19:20   2.5
02405>      3:21   1.270|   7:21   2.540|  11:21   9.525|  15:21   3.175|  19:21   2.5
02406>      3:22   1.270|   7:22   2.540|  11:22   9.525|  15:22   3.175|  19:22   2.5
02407>      3:23   1.270|   7:23   2.540|  11:23   9.525|  15:23   3.175|  19:23   2.5
02408>      3:24   1.270|   7:24   2.540|  11:24   9.525|  15:24   3.175|  19:24   2.5
02409>      3:25   1.270|   7:25   2.540|  11:25  13.970|  15:25   3.175|  19:25   1.9
02410>      3:26   1.270|   7:26   2.540|  11:26  13.970|  15:26   3.175|  19:26   1.9
02411>      3:27   1.270|   7:27   2.540|  11:27  13.970|  15:27   3.175|  19:27   1.9
02412>      3:28   1.270|   7:28   2.540|  11:28  13.970|  15:28   3.175|  19:28   1.9
02413>      3:29   1.270|   7:29   2.540|  11:29  13.970|  15:29   3.175|  19:29   1.9
02414>      3:30   1.270|   7:30   2.540|  11:30  13.970|  15:30   3.175|  19:30   1.9
02415>      3:31   1.270|   7:31   2.540|  11:31  13.970|  15:31   3.175|  19:31   1.9
02416>      3:32   1.270|   7:32   2.540|  11:32  13.970|  15:32   3.175|  19:32   1.9
02417>      3:33   1.270|   7:33   2.540|  11:33  13.970|  15:33   3.175|  19:33   1.9
02418>      3:34   1.270|   7:34   2.540|  11:34  13.970|  15:34   3.175|  19:34   1.9
02419>      3:35   1.270|   7:35   2.540|  11:35  13.970|  15:35   3.175|  19:35   1.9
02420>      3:36   1.270|   7:36   2.540|  11:36  13.970|  15:36   3.175|  19:36   1.9
02421>      3:37   1.270|   7:37   2.540|  11:37  33.655|  15:37   3.175|  19:37   2.5
02422>      3:38   1.270|   7:38   2.540|  11:38  33.655|  15:38   3.175|  19:38   2.5
02423>      3:39   1.270|   7:39   2.540|  11:39  33.655|  15:39   3.175|  19:39   2.5
02424>      3:40   1.270|   7:40   2.540|  11:40  33.655|  15:40   3.175|  19:40   2.5
02425>      3:41   1.270|   7:41   2.540|  11:41  33.655|  15:41   3.175|  19:41   2.5
02426>      3:42   1.270|   7:42   2.540|  11:42  33.655|  15:42   3.175|  19:42   2.5
02427>      3:43   1.270|   7:43   2.540|  11:43  33.655|  15:43   3.175|  19:43   2.5
02428>      3:44   1.270|   7:44   2.540|  11:44  33.655|  15:44   3.175|  19:44   2.5
02429>      3:45   1.270|   7:45   2.540|  11:45  33.655|  15:45   3.175|  19:45   2.5
02430>      3:46   1.270|   7:46   2.540|  11:46  33.655|  15:46   3.175|  19:46   2.5
```

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 3:47   1.270|   7:47   2.540|  11:47  33.655|  15:47   3.175|  19:47   2.5
 3:48   1.270|   7:48   2.540|  11:48  33.655|  15:48   3.175|  19:48   2.5
 3:49   1.270|   7:49   2.540|  11:49  69.850|  15:49   3.175|  19:49   1.9
 3:50   1.270|   7:50   2.540|  11:50  69.850|  15:50   3.175|  19:50   1.9
 3:51   1.270|   7:51   2.540|  11:51  69.850|  15:51   3.175|  19:51   1.9
 3:52   1.270|   7:52   2.540|  11:52  69.850|  15:52   3.175|  19:52   1.9
 3:53   1.270|   7:53   2.540|  11:53  69.850|  15:53   3.175|  19:53   1.9
 3:54   1.270|   7:54   2.540|  11:54  69.850|  15:54   3.175|  19:54   1.9
 3:55   1.270|   7:55   2.540|  11:55  69.850|  15:55   3.175|  19:55   1.9
 3:56   1.270|   7:56   2.540|  11:56  69.850|  15:56   3.175|  19:56   1.9
 3:57   1.270|   7:57   2.540|  11:57  69.850|  15:57   3.175|  19:57   1.9
 3:58   1.270|   7:58   2.540|  11:58  69.850|  15:58   3.175|  19:58   1.9
 3:59   1.270|   7:59   2.540|  11:59  69.850|  15:59   3.175|  19:59   1.9
 4:00   1.270|   8:00   2.540|  12:00  69.850|  16:00   3.175|  20:00   1.9

--------------------------------------------------------------------------------
R0001:C00073------------------------------------------------------------------
*#**********************************************************************
*#-----------------|---------------------------------------------------|
*#-----------------|--------------------External-Catchments------------------|
--------------------------
| CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=   15.999 (i)
     TIME TO PEAK    (hrs)=   12.833
     DURATION        (hrs)=   28.567, (dddd|hh:mm:)=   1|04:34
     AVERAGE FLOW    (cms)=    1.491
     RUNOFF VOLUME    (mm)=   65.932
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .519

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00074------------------------------------------------------------------
--------------------------
| CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .558 (i)
     TIME TO PEAK    (hrs)=   12.600
     DURATION        (hrs)=   27.333, (dddd|hh:mm:)=   1|03:20
     AVERAGE FLOW    (cms)=     .042
     RUNOFF VOLUME    (mm)=   67.415
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .531

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00075------------------------------------------------------------------
--------------------------
| ADD HYD               |
| 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 01:27           232.530    15.999   12.833    65.932
                       +ID 2 02:28             6.140      .558   12.600    67.415
                       ============================================================
                       SUM   03:Ditch        238.670    16.500   12.833    65.970

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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R0001:C00076------------------------------------------------------------------
--------------------------
| CALIB STANDHYD        |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
-------------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.14        5.20
     Dep. Storage     (mm)=      2.00        5.00
     Average Slope     (%)=      2.00        2.00
     Length            (m)=    250.00       30.00
     Mannings n           =      .015        .250

     Max.eff.Inten.(mm/hr)=    142.87      108.49
                 over (min)       3.00        9.00
     Storage Coeff.  (min)=      3.40 (ii)   9.15 (ii)
     Unit Hyd. Tpeak (min)=      3.00        9.00
     Unit Hyd. peak  (cms)=       .35         .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .52        1.12        1.560 (iii)
     TIME TO PEAK    (hrs)=     12.20       12.27       12.217
     RUNOFF VOLUME    (mm)=    125.00       51.80       62.277
     TOTAL RAINFALL   (mm)=    127.00      127.00      126.999
     RUNOFF COEFFICIENT   =       .98         .41         .490

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00077------------------------------------------------------------------
--------------------------
| ADD HYD               |
| 05:Ditch 2            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 03:Ditch        238.670    16.500   12.833    65.970
                       +ID 2 04:HB             9.340     1.560   12.217    62.277
                       ============================================================
                       SUM   05:Ditch 2      248.010    16.747   12.817    65.831

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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R0001:C00078------------------------------------------------------------------
--------------------------
| CALIB NASHYD          |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
| 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=    1.160

     Unit Hyd Qpeak  (cms)=    1.772

     PEAK FLOW       (cms)=    2.824 (i)
     TIME TO PEAK    (hrs)=   13.333
     DURATION        (hrs)=   31.133, (dddd|hh:mm:)=   1|07:08
     AVERAGE FLOW    (cms)=     .346
     RUNOFF VOLUME    (mm)=   72.019
     TOTAL RAINFALL   (mm)=  126.999
     RUNOFF COEFFICIENT   =     .567

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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R0001:C00079------------------------------------------------------------------
--------------------------
| ADD HYD               |
| 07:Crk Inlet          |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 05:Ditch 2      248.010    16.747   12.817    65.831
                       +ID 2 06:29            53.830     2.824   13.333    72.019
                       ============================================================
                       SUM   07:Crk Inlet    301.840    19.141   12.867    66.934

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00080------------------------------------------------------------------
*#-----------------|------------------ Post Dev Site -------------------------|
--------------------------
| CALIB STANDHYD        |   Area    (ha)=    1.83
| 08:200        DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
--------------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .48        1.35
     Dep. Storage     (mm)=      2.00        5.00
     Average Slope     (%)=      1.00        2.00
     Length            (m)=     93.00        6.00
     Mannings n           =      .013        .240

     Max.eff.Inten.(mm/hr)=    142.87       72.79
                 over (min)       2.00        5.00
     Storage Coeff.  (min)=      2.12 (ii)   4.63 (ii)
     Unit Hyd. Tpeak (min)=      2.00        5.00
     Unit Hyd. peak  (cms)=       .54         .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .09         .24          .329 (iii)
     TIME TO PEAK    (hrs)=     12.20       12.22        12.200
     RUNOFF VOLUME    (mm)=    125.00       43.39        54.083
     TOTAL RAINFALL   (mm)=    127.00      127.00       126.999
     RUNOFF COEFFICIENT   =       .98         .34          .426

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  49.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00081------------------------------------------------------------------
--------------------------
| ADD HYD               |
| 09:Channel            |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 07:Crk Inlet    301.840    19.141   12.867    66.934
                       +ID 2 08:200            1.830      .329   12.200    54.083
                       ============================================================
                       SUM   09:Channel      303.670    19.173   12.867    66.857

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00082------------------------------------------------------------------
*#**********************************************************************
*#**********************************************************************
*#                          Timmins Event (Regional)
*#**********************************************************************
--------------------
| READ STORM       |  Filename: J:\1400\1443-Richpark Homes (Thornbury)\4724-188
| Ptotal= 193.00 mm|  Comments: Timmins Storm Event
--------------------

      TIME    RAIN|  TIME    RAIN|  TIME    RAIN|  TIME    RAIN|  TIME    RA
     hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/hr|  hh:mm   mm/
      1:00  15.000|   3:00  10.000|   5:00   5.000|   7:00  43.000|   9:00  23.0
      2:00  20.000|   4:00   3.000|   6:00  20.000|   8:00  20.000|  10:00  13.0

--------------------------------------------------------------------------------
R0001:C00083------------------------------------------------------------------
*#**********************************************************************
*#**********************************************************************
*#-----------------|---------------------------------------------------|
*#-----------------|----------------------External-Catchments------------------|
--------------------------
| CALIB NASHYD          |   Area    (ha)=  232.530   Curve Number   (CN)= 71.00
| 01:27         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .710

     Unit Hyd Qpeak  (cms)=   12.509

     PEAK FLOW       (cms)=   15.589 (i)
     TIME TO PEAK    (hrs)=    7.417
     DURATION        (hrs)=   16.567, (dddd|hh:mm:)=   0|16:34
     AVERAGE FLOW    (cms)=    4.723
     RUNOFF VOLUME    (mm)=  121.146
     TOTAL RAINFALL   (mm)=  193.000
     RUNOFF COEFFICIENT   =     .628

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00084------------------------------------------------------------------
--------------------------
| CALIB NASHYD          |   Area    (ha)=    6.140   Curve Number   (CN)= 72.00
| 02:28         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
--------------------------   U.H. Tp(hrs)=     .500

     Unit Hyd Qpeak  (cms)=     .469

     PEAK FLOW       (cms)=     .475 (i)
     TIME TO PEAK    (hrs)=    7.200
     DURATION        (hrs)=   15.333, (dddd|hh:mm:)=   0|15:20
     AVERAGE FLOW    (cms)=     .137
     RUNOFF VOLUME    (mm)=  123.245
     TOTAL RAINFALL   (mm)=  193.000
     RUNOFF COEFFICIENT   =     .639

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
R0001:C00085------------------------------------------------------------------
--------------------------
| ADD HYD               |
| 03:Ditch              |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
-------------------------                       (ha)     (cms)    (hrs)      (mm)
                        ID 1 01:27           232.530    15.589    7.417   121.146
                       +ID 2 02:28             6.140      .475    7.200   123.245
                       ============================================================
                       SUM   03:Ditch        238.670    16.040    7.400   121.201

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
R0001:C00086------------------------------------------------------------------
--------------------------
| CALIB STANDHYD        |   Area    (ha)=    9.34
| 04:HB         DT= 1.00 |   Total Imp(%)=   44.30   Dir. Conn.(%)=   14.30
--------------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.14        5.20
     Dep. Storage     (mm)=      2.00        5.00
     Average Slope     (%)=      2.00        2.00
     Length            (m)=    250.00       30.00
     Mannings n           =      .015        .250
```

```
02701>
02702>     Max.eff.Inten.(mm/hr)=      43.00        41.16
02703>                 over (min)        5.00        14.00
02704>     Storage Coeff.  (min)=       5.49 (ii)   13.96 (ii)
02705>     Unit Hyd. Tpeak (min)=       5.00        14.00
02706>     Unit Hyd. peak  (cms)=        .21          .08
02707>                                                          *TOTALS*
02708>     PEAK FLOW       (cms)=        .16          .56           .720 (iii)
02709>     TIME TO PEAK    (hrs)=       7.00         7.03          7.000
02710>     RUNOFF VOLUME    (mm)=     191.01        99.58        112.652
02711>     TOTAL RAINFALL   (mm)=     193.00       193.00        193.000
02712>     RUNOFF COEFFICIENT   =        .99          .52           .584
02713>
02714>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02715>           CN* =  49.0    Ia = Dep. Storage  (Above)
02716>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
02717>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02718>
02719> ------------------------------------------------------------------------------
02720> R0001:C00087-----------------------------------------------------------------
02721> ------------------------
02722> | ADD HYD              |
02723> | 05:Ditch 2           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
02724> ------------------------                      (ha)     (cms)    (hrs)      (mm)
02725>                        ID 1 03:Ditch        238.670    16.040    7.400   121.201
02726>                       +ID 2 04:HB             9.340      .720    7.000   112.652
02727>                       ================================================================
02728>                       SUM   05:Ditch 2      248.010    16.496    7.383   120.878
02729>
02730>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02731>
02732> ------------------------------------------------------------------------------
02733> R0001:C00088-----------------------------------------------------------------
02734> --------------------------
02735> | CALIB NASHYD           |   Area    (ha)=   53.830   Curve Number   (CN)= 75.00
02736> | 06:29         DT= 1.00 |   Ia      (mm)=    5.000   # of Linear Res.(N)=  3.00
02737> --------------------------   U.H. Tp(hrs)=    1.160
02738>
02739>     Unit Hyd Qpeak  (cms)=    1.772
02740>
02741>     PEAK FLOW       (cms)=    3.158 (i)
02742>     TIME TO PEAK    (hrs)=    8.067
02743>     DURATION        (hrs)=   19.133, (dddd|hh:mm:)=   0|19:08
02744>     AVERAGE FLOW    (cms)=    1.013
02745>     RUNOFF VOLUME    (mm)=  129.624
02746>     TOTAL RAINFALL   (mm)=  193.000
02747>     RUNOFF COEFFICIENT   =     .672
02748>
02749>     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02750>
02751> ------------------------------------------------------------------------------
02752> R0001:C00089-----------------------------------------------------------------
02753> ------------------------
02754> | ADD HYD              |
02755> | 07:Crk Inlet         |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
02756> ------------------------                      (ha)     (cms)    (hrs)      (mm)
02757>                        ID 1 05:Ditch 2      248.010    16.496    7.383   120.878
02758>                       +ID 2 06:29           53.830     3.158    8.067   129.624
02759>                       ================================================================
02760>                       SUM   07:Crk Inlet    301.840    19.317    7.433   122.438
02761>
02762>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02763>
02764> ------------------------------------------------------------------------------
02765> R0001:C00090-----------------------------------------------------------------
02766> *#----------------|------------------ Post Dev Site ------------------------|
02767> --------------------------
02768> | CALIB STANDHYD         |   Area    (ha)=    1.83
02769> | 08:200         DT= 1.00 |   Total Imp(%)=   26.20   Dir. Conn.(%)=   13.10
02770> --------------------------
02771>                             IMPERVIOUS    PERVIOUS (i)
02772>     Surface Area     (ha)=        .48          1.35
02773>     Dep. Storage     (mm)=       2.00          5.00
02774>     Average Slope     (%)=       1.00          2.00
02775>     Length            (m)=      93.00          6.00
02776>     Mannings n           =       .013          .240
02777>
02778>     Max.eff.Inten.(mm/hr)=      43.00        27.72
02779>                 over (min)        3.00         7.00
02780>     Storage Coeff.  (min)=       3.43 (ii)    7.11 (ii)
02781>     Unit Hyd. Tpeak (min)=       3.00         7.00
02782>     Unit Hyd. peak  (cms)=        .34          .16
02783>                                                          *TOTALS*
02784>     PEAK FLOW       (cms)=        .03          .10           .130 (iii)
02785>     TIME TO PEAK    (hrs)=       6.97         7.00          7.000
02786>     RUNOFF VOLUME    (mm)=     191.00        86.21         99.938
02787>     TOTAL RAINFALL   (mm)=     193.00       193.00        193.000
02788>     RUNOFF COEFFICIENT   =        .99          .45           .518
02789>
02790>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02791>           CN* =  49.0    Ia = Dep. Storage  (Above)
02792>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIEN
02793>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02794>
02795> ------------------------------------------------------------------------------
02796> R0001:C00091-----------------------------------------------------------------
02797> ------------------------
02798> | ADD HYD              |
02799> | 09:Channel           |   ID:NHYD            AREA     QPEAK    TPEAK      R.V.
02800> ------------------------                      (ha)     (cms)    (hrs)      (mm)
02801>                        ID 1 07:Crk Inlet    301.840    19.317    7.433   122.438
02802>                       +ID 2 08:200           1.830      .130    7.000    99.938
02803>                       ================================================================
02804>                       SUM   09:Channel      303.670    19.382    7.433   122.303
02805>
02806>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02807>
02808> ------------------------------------------------------------------------------
02809> R0001:C00092-----------------------------------------------------------------
02810> --------------------
02811> | FINISH           |
02812> --------------------
02813> ------------------------------------------------------------------------------
02814> ******************************************************************************
02815>     WARNINGS / ERRORS / NOTES
02816>     -------------------------
02817>    Simulation ended on 2018-09-18     at 17:15:36
02818> ==============================================================================
02819>
02820>
```

APPENDIX D

Rear-Yard Swale Sizing Calculations

CROZIER
CONSULTING ENGINEERS

PROJECT: Lora Bay Heights
PROJECT No.: 1443-4724
DATE: 2018.06.03
DESIGN: ML
CHECK:

Rear Yard Swale - 100 Year Rational Method

Peak Flow

$$Q_{post} = 0.0028 \text{ ÅC}_{post} \text{ Åi}_{(Td)} \text{ ÅA}$$

Intensity

$$i_{(Td)} = A\ (T_d)^{B}$$

Rear Yard Swale			
Inputs		**Outputs**	
IDF Location	Owen Sound	Intensity (mm/hr):	132.69
Return Period	100 yr		
Time of Concentration (hr)	0.25		
Coeff A	47.7		
Coeffic B	-0.738		
Runoff Coeff (Unadjusted)	0.56	Flow (m^3/s)	0.06
Runoff Coefficient (Adjusted)	0.65		
Area (ha)	0.26		

CROZIER
CONSULTING ENGINEERS

Project: Lora Bay Heights
Project No.: 1443-4724
File: Runoff Coef.
Date: 2018.06.03
Revised:

POST-DEVELOPMENT RUNOFF COEFFICIENT

Drainage Area	Land Use	Area (ha)	Runoff Coef.	A x C	Runoff Coef. Range
Total Site					
Paved Area		0.00	0.90	0.00	0.90-0.90
Roof Area		0.12	0.90	0.11	0.90-0.90
Sodded Area Under 7% Slope		0.14	0.30	0.04	0.30 - 0.30
				Total Area (ha) =	0.26
				Runoff Coef. =	0.58

Note: 1) Runoff coefficients determined usingTown of Blue Mountains Engineering Standards, 2012

Rear Yard Swale

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.00500	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	0.06	m^3/s

Results

Normal Depth	0.23	m
Flow Area	0.17	m^2
Wetted Perimeter	1.48	m
Hydraulic Radius	0.11	m
Top Width	1.41	m
Critical Depth	0.15	m
Critical Slope	0.05028	m/m
Velocity	0.36	m/s
Velocity Head	0.01	m
Specific Energy	0.24	m
Froude Number	0.34	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.23	m
Critical Depth	0.15	m
Channel Slope	0.00500	m/m
Critical Slope	0.05028	m/m

Cross Section for Rear Yard Swale

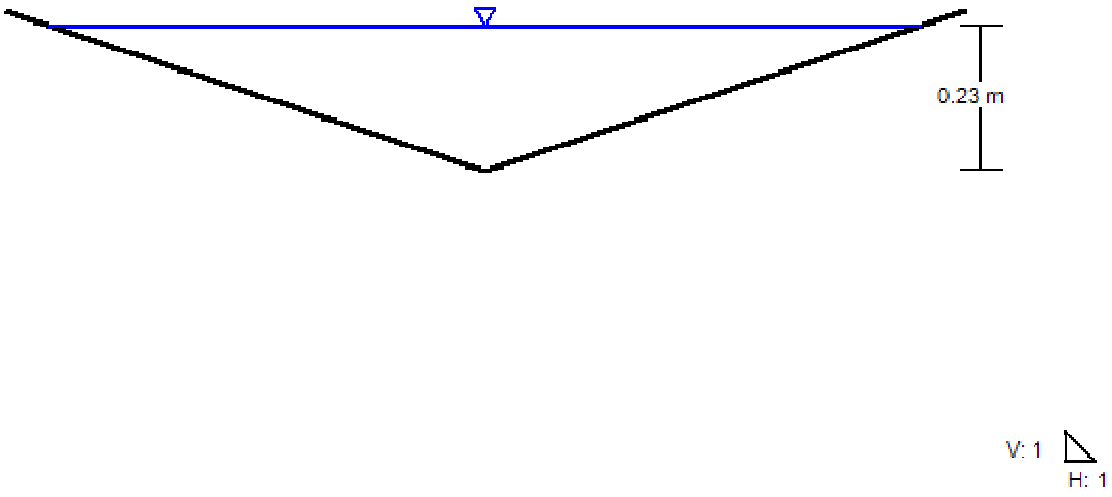
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.00500	m/m
Normal Depth	0.23	m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	0.06	m³/s

Cross Section Image



APPENDIX E

Storm Sewer Design Sheet

CROZIER CONSULTING ENGINEERS

PROJECT: Lora Bay Heights
PROJECT No.: 1443-4724
FILE: Storm Sewer Design

LORA BAY HEIGHTS
STORM SEWER DESIGN SHEET

DESIGN: JM
CHECK: ML
UPDATED: October 15, 2018
ISSUED FOR: Second Submission

FREQUENCY	Owen Sound IDF Curves, Town of The Blue Mountains Enigneering Standards (2009)			
5 YEARS	Coef. A=	29.1	Coef. B=	-0.72

TIME OF CONCENTRATION 15.00 MANNINGS "n" 0.013

CATCHMENT AREA I.D.	FR MH NO	TO MH NO	AREA (A) (Ha)	RUN-OFF COEFF (C_5)	A x C	Cummul. A x C	TIME OF CONC. (min.)	I (mm/hr)	Q (l/sec)	SLOPE (%)	PIPE DIA. (mm)	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	CAPACITY (l/sec)	FALL (m)	DROP (m)	PIPE INV ELEV. UPPER END	PIPE INV ELEV. LOWER END	GROUND ELEV. UPPER END	GROUND ELEV. LOWER END	COVER UPPER END	COVER LOWER END
STM-1	DCBMH4	CBMH3	0.02	0.90	0.02	0.02	15.00	79.39	**3.97**	0.50%	300	0.97	20.4	0.35	**68.38**	0.10	0.05	193.34	193.19	194.66	194.86	1.02	1.37
STM-3	CBMH5	CBMMH3	0.10	0.70	0.07	0.07	15.00	79.39	**15.45**	0.70%	300	1.14	25.2	0.37	**80.91**	0.18	0.08	193.46	193.27	195.26	194.65	1.50	1.08
STM-2	CBMH3	STC2	0.05	0.90	0.05	0.13	15.37	78.02	**28.85**	0.50%	300	0.97	3.4	0.06	**68.38**	0.02	0.01	193.24	193.17	194.86	195.01	1.32	1.54
	STC2	HW1	0.00	0.00	0.00	0.13	15.43	77.80	**28.77**	0.50%	300	0.97	6.8	0.12	**68.38**	0.03	-	193.16	193.31	195.01	194.05	1.55	0.44
STM-5	DCBMH9	CBMH8	0.03	0.73	0.02	0.02	15.00	79.39	**4.83**	0.50%	300	0.97	23.6	0.41	**68.38**	0.12	0.04	193.01	192.89	194.69	195.53	1.38	2.34
STM-4	CBMH8	STC7	0.07	0.70	0.05	0.07	15.41	77.87	**15.35**	0.55%	300	1.01	6.4	0.11	**71.72**	0.04	0.03	192.84	192.81	195.53	195.41	2.39	2.30
	STC7	HW6	0.00	0.00	0.00	0.07	15.51	77.49	**15.27**	0.50%	300	0.97	14.3	0.25	**68.38**	0.07	-	192.78	192.71	195.41	193.39	2.33	0.38

Note: Insulation to be provided where depth of cover is less than 1.6m, as per The Blue Mountains Engineering Standards (2009).

APPENDIX F

Stormceptor Sizing Calculations

Detailed Stormceptor Sizing Report – Stormceptor #2

Project Information & Location			
Project Name	Lora Bay Heights	**Project Number**	1443-4724
City	Thornbury	**State/ Province**	Ontario
Country	Canada	**Date**	6/1/2018
Designer Information		**EOR Information (optional)**	
Name	Rebecca Alexander	**Name**	
Company	C.F. Crozier & Associates	**Company**	
Phone #	905-875-0026	**Phone #**	
Email	ralexander@cfcrozier.ca	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	Stormceptor #2
Recommended Stormceptor Model	STC 300
Target TSS Removal (%)	80.0
TSS Removal (%) Provided	84
PSD	Fine Distribution
Rainfall Station	OWEN SOUND MOE

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary		
Stormceptor Model	**% TSS Removal Provided**	**% Runoff Volume Captured Provided**
STC 300	84	98
STC 750	90	100
STC 1000	91	100
STC 1500	92	100
STC 2000	93	100
STC 3000	94	100
STC 4000	96	100
STC 5000	96	100
STC 6000	97	100
STC 9000	98	100
STC 10000	98	100
STC 14000	98	100
StormceptorMAX	Custom	Custom

Stormceptor

The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor's patented design generates positive TSS removal for each rainfall event, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur.
Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Design Methodology

Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM's precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor's unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:

- Site parameters
- Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
- Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
- TSS load
- Detention time of the system

Hydrology Analysis

PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour).
Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station

State/Province	Ontario	**Total Number of Rainfall Events**	4492
Rainfall Station Name	OWEN SOUND MOE	**Total Rainfall (mm)**	18531.0
Station ID #	6132	**Average Annual Rainfall (mm)**	463.3
Coordinates	44°35'N, 80°56'W	**Total Evaporation (mm)**	1207.9
Elevation (ft)	580	**Total Infiltration (mm)**	5531.6
Years of Rainfall Data	40	**Total Rainfall that is Runoff (mm)**	11791.5

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Drainage Area	
Total Area (ha)	0.17
Imperviousness %	70.0

Up Stream Storage	
Storage (ha-m)	Discharge (cms)
0.000	0.000

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	90.00
Oil Spill Capture Volume (L)	
Peak Conveyed Flow Rate (L/s)	
Water Quality Flow Rate (L/s)	

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cms)	

Design Details	
Stormceptor Inlet Invert Elev (m)	
Stormceptor Outlet Invert Elev (m)	
Stormceptor Rim Elev (m)	
Normal Water Level Elevation (m)	
Pipe Diameter (mm)	
Pipe Material	
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

Particle Size Distribution (PSD)

Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.

Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name	Stormceptor #2

Site Details

Drainage Area

Total Area (ha)	0.17
Imperviousness %	70.0

Surface Characteristics

Width (m)	82.00
Slope %	2
Impervious Depression Storage (mm)	0.508
Pervious Depression Storage (mm)	5.08
Impervious Manning's n	0.015
Pervious Manning's n	0.25

Maintenance Frequency

Maintenance Frequency (months) >	12

Infiltration Parameters

Horton's equation is used to estimate infiltration

Max. Infiltration Rate (mm/hr)	61.98
Min. Infiltration Rate (mm/hr)	10.16
Decay Rate (1/sec)	0.00055
Regeneration Rate (1/sec)	0.01

Evaporation

Daily Evaporation Rate (mm/day)	2.54

Dry Weather Flow

Dry Weather Flow (lps)	0

Winter Months

Winter Infiltration	0

TSS Loading Parameters

TSS Loading Function	

Buildup/Wash-off Parameters

Target Event Mean Conc. (EMC) mg/L	
Exponential Buildup Power	
Exponential Washoff Exponent	

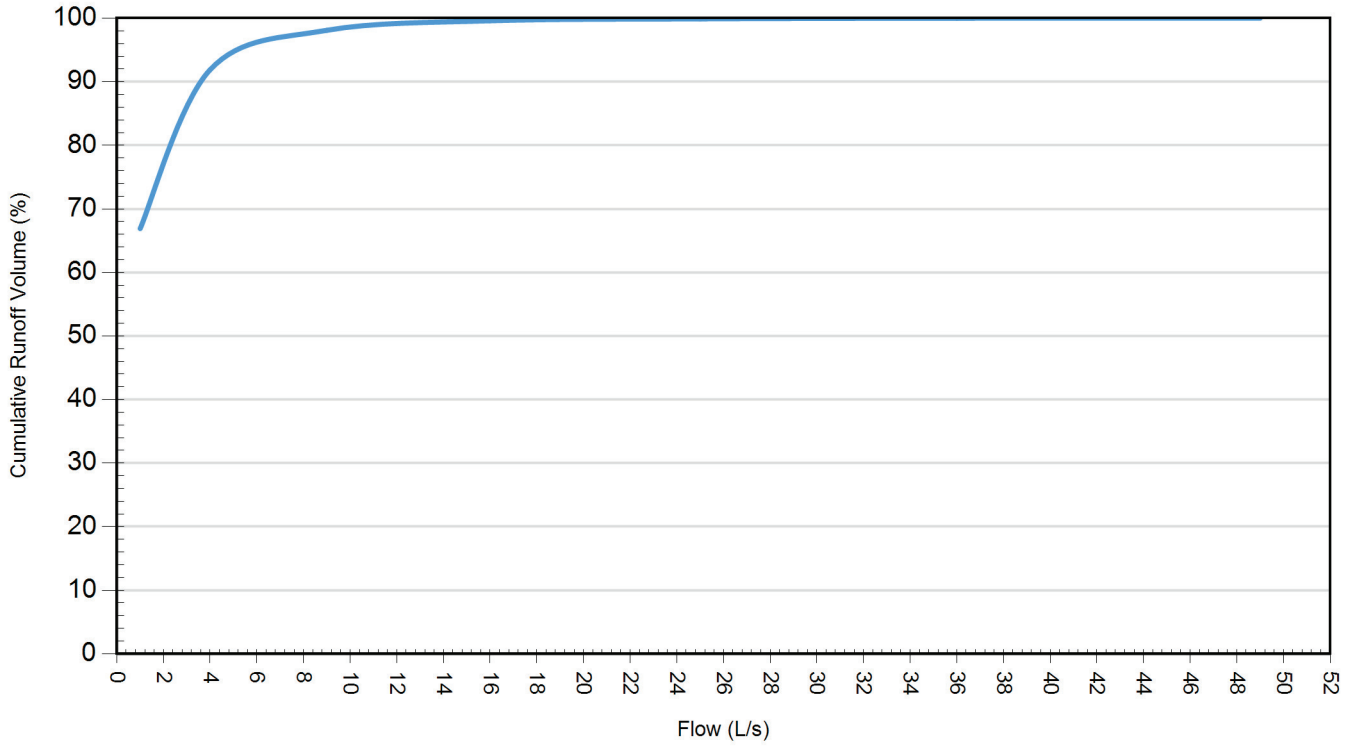
TSS Availability Parameters

Availability Constant A	
Availability Factor B	
Availability Exponent C	
Min. Particle Size Affected by Availability (micron)	

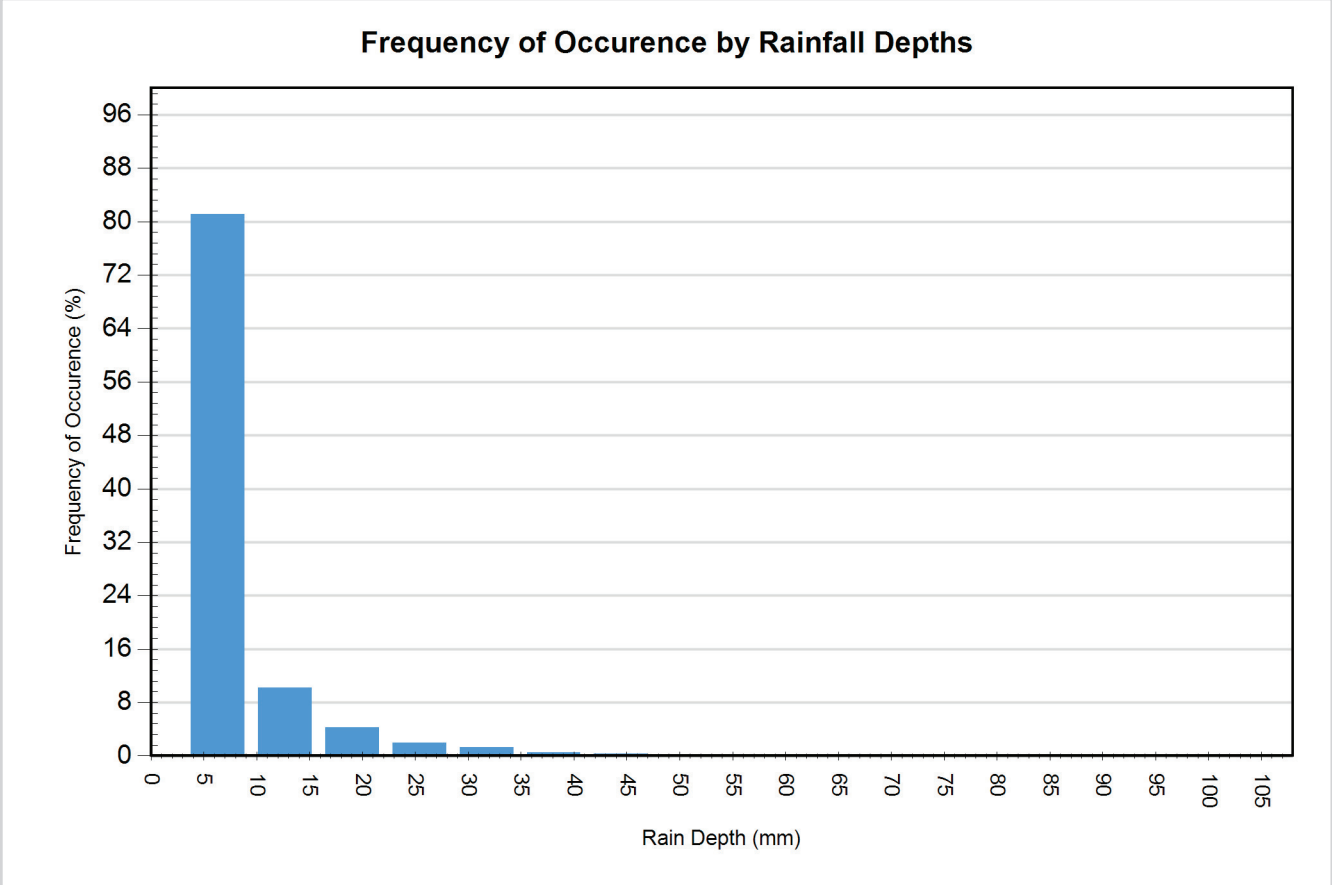
Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (L/s)	Runoff Volume (m³)	Volume Over (m³)	Cumulative Runoff Volume (%)
1	13512	6699	66.9
4	18566	1645	91.9
9	19823	388	98.1
16	20135	76	99.6
25	20200	10	99.9
36	20210	0	100.0
49	20210	0	100.0

Cumulative Runoff Volume by Runoff Rate

For area: 0.17(ha), imperviousness: 70.0%, rainfall station: OWEN SOUND MOE



Rainfall Event Analysis				
Rainfall Depth (mm)	No. of Events	Percentage of Total Events (%)	Total Volume (mm)	Percentage of Annual Volume (%)
6.35	3645	81.1	5719	30.9
12.70	458	10.2	4102	22.1
19.05	191	4.3	2957	16.0
25.40	89	2.0	1936	10.5
31.75	57	1.3	1599	8.6
38.10	23	0.5	800	4.3
44.45	12	0.3	501	2.7
50.80	10	0.2	472	2.5
57.15	4	0.1	219	1.2
63.50	1	0.0	63	0.3
69.85	0	0.0	0	0.0
76.20	0	0.0	0	0.0
82.55	1	0.0	79	0.4
88.90	1	0.0	84	0.5
95.25	0	0.0	0	0.0
101.60	0	0.0	0	0.0



For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

Detailed Stormceptor Sizing Report – Stormceptor #7

Project Information & Location			
Project Name	Lora Bay Heights	**Project Number**	1443-4724
City	Thornbury	**State/ Province**	Ontario
Country	Canada	**Date**	6/1/2018
Designer Information		**EOR Information (optional)**	
Name	Rebecca Alexander	**Name**	
Company	C.F. Crozier & Associates	**Company**	
Phone #	905-875-0026	**Phone #**	
Email	ralexander@cfcrozier.ca	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	Stormceptor #7
Recommended Stormceptor Model	STC 300
Target TSS Removal (%)	80.0
TSS Removal (%) Provided	87
PSD	Fine Distribution
Rainfall Station	OWEN SOUND MOE

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary		
Stormceptor Model	**% TSS Removal Provided**	**% Runoff Volume Captured Provided**
STC 300	87	99
STC 750	93	100
STC 1000	93	100
STC 1500	94	100
STC 2000	95	100
STC 3000	96	100
STC 4000	97	100
STC 5000	97	100
STC 6000	98	100
STC 9000	99	100
STC 10000	99	100
STC 14000	99	100
StormceptorMAX	Custom	Custom

Stormceptor
The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor's patented design generates positive TSS removal for each rainfall event, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur.
Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Design Methodology
Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM's precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor's unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:
• Site parameters
• Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
• Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
• TSS load
• Detention time of the system

Hydrology Analysis
PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour). Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station			
State/Province	Ontario	**Total Number of Rainfall Events**	4492
Rainfall Station Name	OWEN SOUND MOE	**Total Rainfall (mm)**	18531.0
Station ID #	6132	**Average Annual Rainfall (mm)**	463.3
Coordinates	44°35'N, 80°56'W	**Total Evaporation (mm)**	1191.5
Elevation (ft)	580	**Total Infiltration (mm)**	5526.0
Years of Rainfall Data	40	**Total Rainfall that is Runoff (mm)**	11813.5

Notes
• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules. • Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed. • For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Drainage Area	
Total Area (ha)	0.11
Imperviousness %	70.0

Up Stream Storage	
Storage (ha-m)	Discharge (cms)
0.000	0.000

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	90.00
Oil Spill Capture Volume (L)	
Peak Conveyed Flow Rate (L/s)	
Water Quality Flow Rate (L/s)	

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cms)	

Design Details	
Stormceptor Inlet Invert Elev (m)	
Stormceptor Outlet Invert Elev (m)	
Stormceptor Rim Elev (m)	
Normal Water Level Elevation (m)	
Pipe Diameter (mm)	
Pipe Material	
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

Particle Size Distribution (PSD)

Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.

Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name	Stormceptor #7

Site Details

Drainage Area

Total Area (ha)	0.11
Imperviousness %	70.0

Surface Characteristics

Width (m)	66.00
Slope %	2
Impervious Depression Storage (mm)	0.508
Pervious Depression Storage (mm)	5.08
Impervious Manning's n	0.015
Pervious Manning's n	0.25

Maintenance Frequency

Maintenance Frequency (months) >	12

Infiltration Parameters

Horton's equation is used to estimate infiltration

Max. Infiltration Rate (mm/hr)	61.98
Min. Infiltration Rate (mm/hr)	10.16
Decay Rate (1/sec)	0.00055
Regeneration Rate (1/sec)	0.01

Evaporation

Daily Evaporation Rate (mm/day)	2.54

Dry Weather Flow

Dry Weather Flow (lps)	0

Winter Months

Winter Infiltration	0

TSS Loading Parameters

TSS Loading Function	

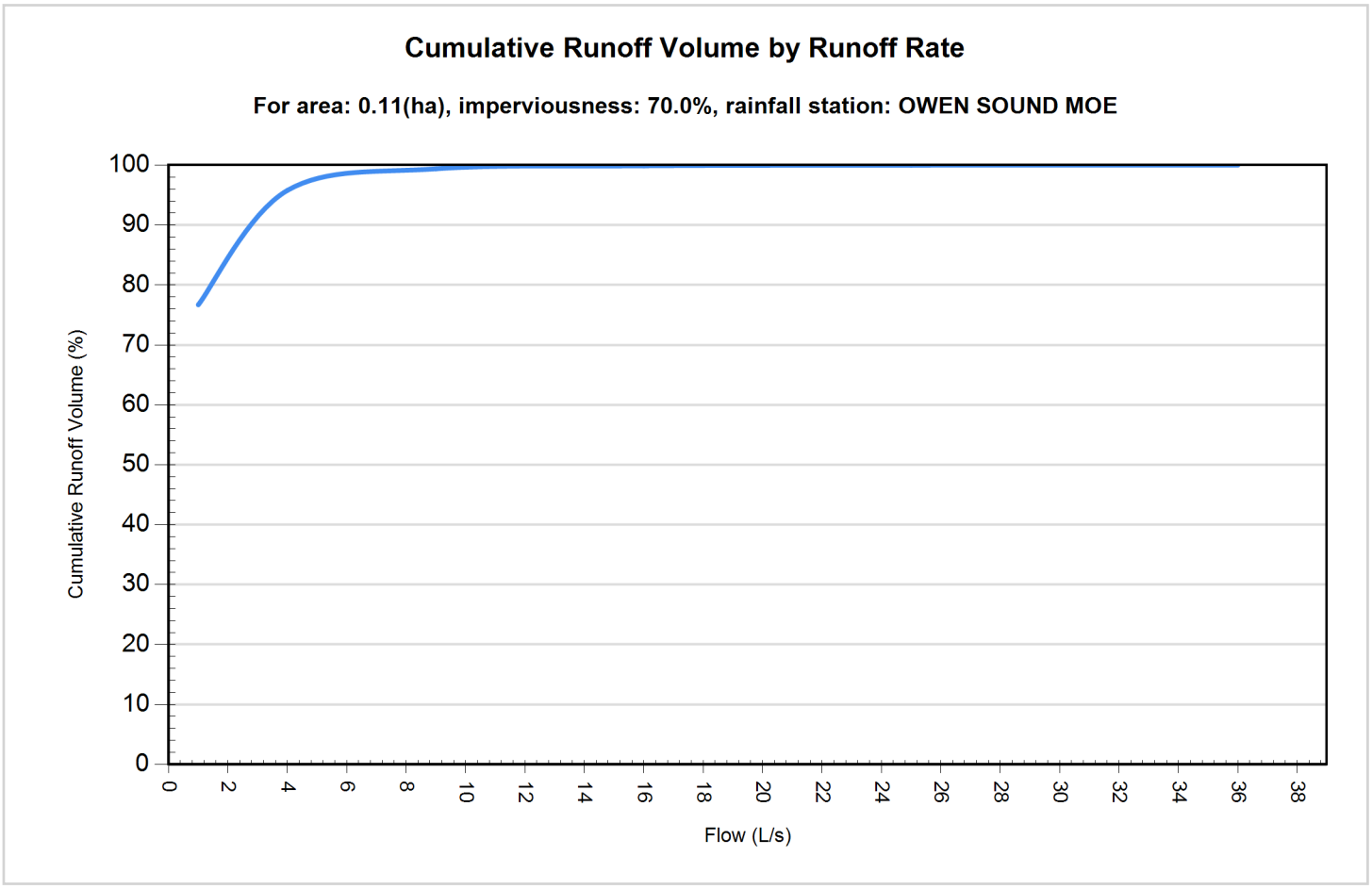
Buildup/Wash-off Parameters

Target Event Mean Conc. (EMC) mg/L	
Exponential Buildup Power	
Exponential Washoff Exponent	

TSS Availability Parameters

Availability Constant A	
Availability Factor B	
Availability Exponent C	
Min. Particle Size Affected by Availability (micron)	

Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (L/s)	Runoff Volume (m³)	Volume Over (m³)	Cumulative Runoff Volume (%)
1	10041	3055	76.7
4	12544	552	95.8
9	13017	80	99.4
16	13090	7	99.9
25	13097	0	100.0
36	13097	0	100.0



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Rainfall Depth (mm)	**No. of Events**	**Percentage of Total Events (%)**	**Total Volume (mm)**	**Percentage of Annual Volume (%)**
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38.10	23	0.5	800	4.3
44.45	12	0.3	501	2.7
50.80	10	0.2	472	2.5
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63.50	1	0.0	63	0.3
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76.20	0	0.0	0	0.0
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88.90	1	0.0	84	0.5
95.25	0	0.0	0	0.0
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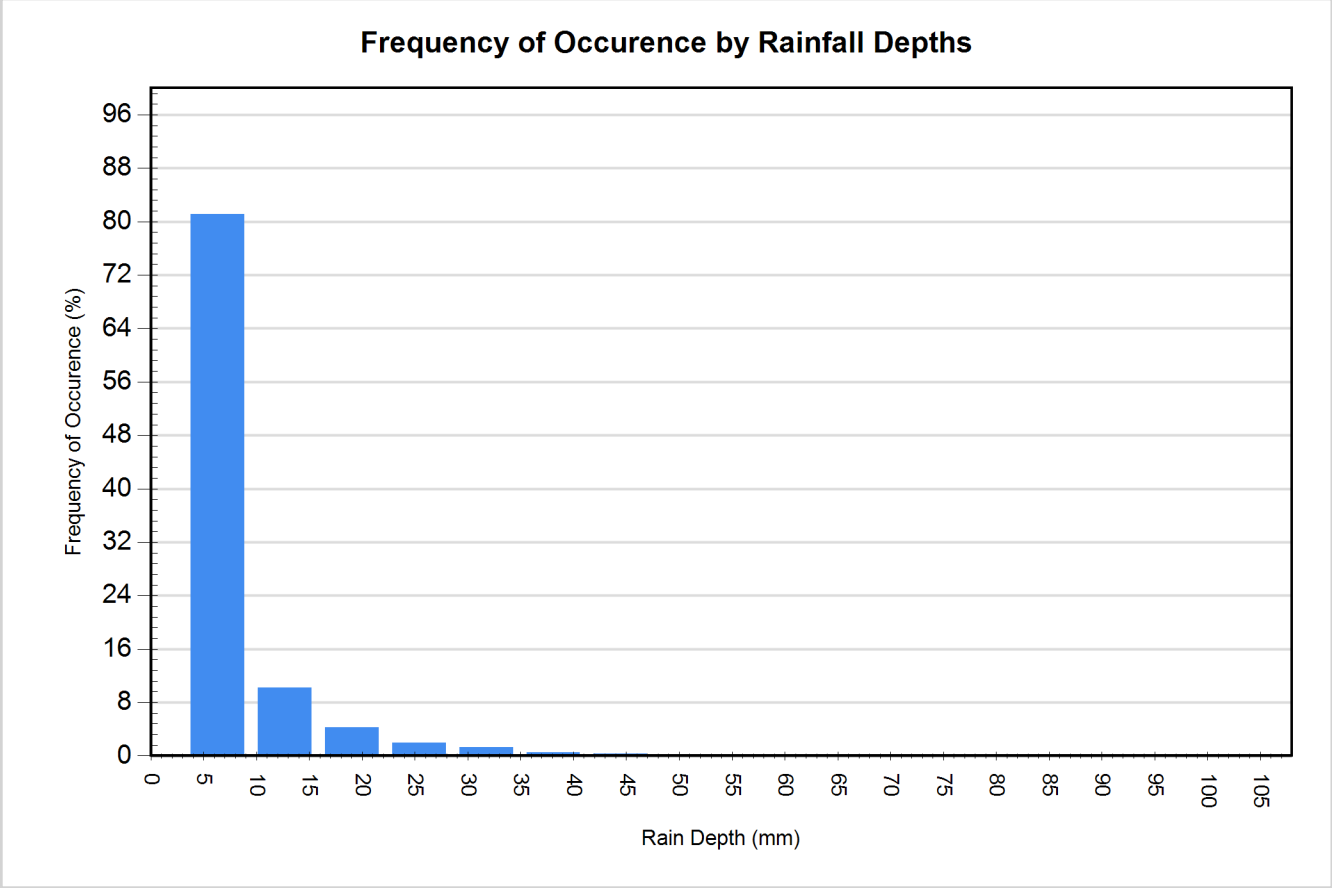


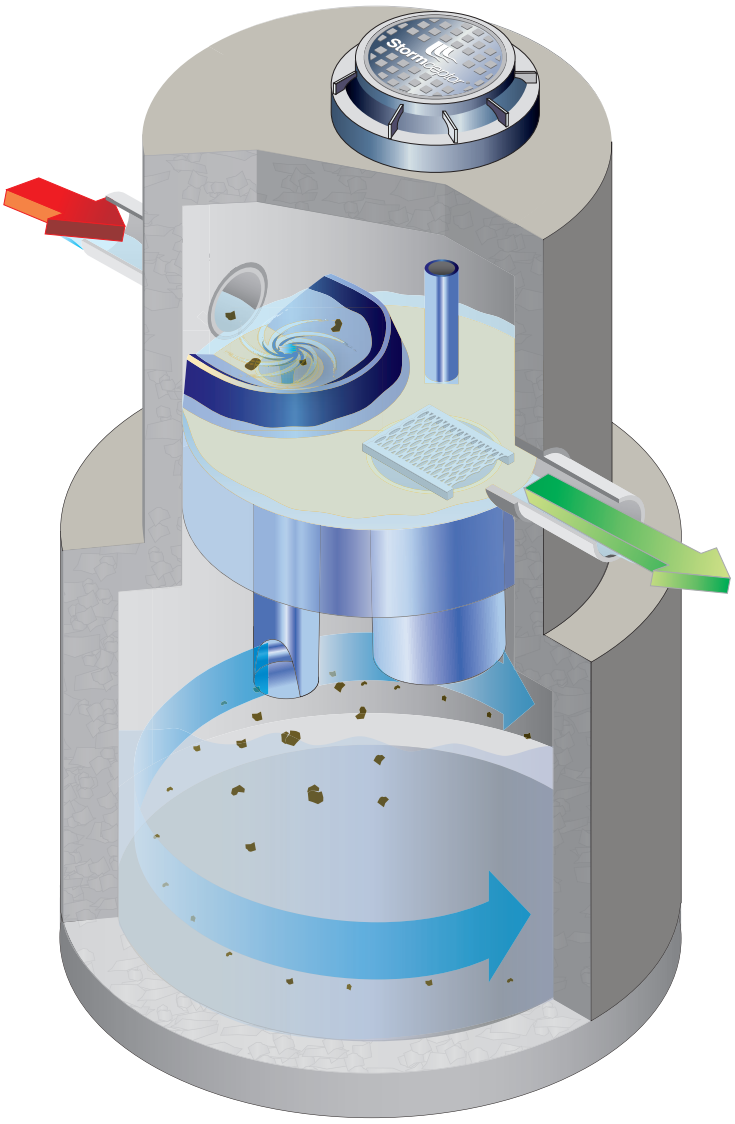
For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

APPENDIX G

Stormceptor Owner's Manual

Stormceptor®

Owner's Manual



Stormceptor is protected by one or more of the following patents:

Canadian Patent No. 2,137,942
Canadian Patent No. 2,175,277
Canadian Patent No. 2,180,305
Canadian Patent No. 2,180,338
Canadian Patent No. 2,206,338
Canadian Patent No. 2,327,768
U.S. Patent No. 5,753,115
U.S. Patent No. 5,849,181
U.S. Patent No. 6,068,765
U.S. Patent No. 6,371,690
U.S. Patent No. 7,582,216
U.S. Patent No. 7,666,303
Australia Patent No. 693.164
Australia Patent No. 707,133
Australia Patent No. 729,096
Australia Patent No. 779,401
Australia Patent No. 2008,279,378
Australia Patent No. 2008,288,900
Indonesia Patent No. 0007058
Japan Patent No. 3581233
Japan Patent No. 9-11476
Korean Patent No. 0519212
Malaysia Patent No. 118987
New Zealand Patent No. 314,646
New Zealand Patent No. 583,008
New Zealand Patent No. 583,583
South African Patent No. 2010/00682
South African Patent No. 2010/01796
Other Patents Pending

Table of Contents

Congratulations!

Your selection of a Stormceptor® means that you have chosen the most recognized and efficient stormwater oil/sediment separator available for protecting the environment. Stormceptor is a pollution control device often referred to as a “Hydrodynamic Separator (HDS)” or an “Oil Grit Separator (OGS)”, engineered to remove and retain pollutants from stormwater runoff to protect our lakes, rivers and streams from the harmful effects of non-point source pollution.

1 – Stormceptor Overview

Stormceptor is a patented stormwater quality structure most often utilized as a treatment component of the underground storm drain network for stormwater pollution prevention. Stormceptor is designed to remove sediment, total suspended solids (TSS), other pollutants attached to sediment, hydrocarbons and free oil from stormwater runoff. Collectively the Stormceptor provides spill protection and prevents non-point source pollution from entering downstream waterways.

Key benefits of Stormceptor include:

- Removes sediment, suspended solids, debris, nutrients, heavy metals, and hydrocarbons (oil and grease) from runoff and snowmelt.
- Will not scour or re-suspend trapped pollutants.
- Provides sediment and oil storage.
- Provides spill control for accidents, commercial and industrial developments.
- Easy to inspect and maintain (vacuum truck).
- “STORMCEPTOR” is *clearly* marked on the access cover (excluding inlet designs).
- Relatively small footprint.
- 3rd Party tested and independently verified.
- Dedicated team of experts available to provide support.

Model Types:

- STC (Standard)
- STF (Fiberglass)
- EOS (Extended Oil Storage)
- OSR (Oil and Sand Removal)
- MAX (Custom designed unit, specific to site)

Configuration Types:

- Inlet unit (accommodates inlet flow entry, and multi-pipe entry)
- In-Line (accommodates multi-pipe entry)
- Submerged Unit (accommodates the site’s tailwater conditions)
- Series Unit (combines treatment in two systems)

Please Maintain Your Stormceptor

To ensure long-term environmental protection through continued performance as originally designed for your site, **Stormceptor must be maintained**, as any stormwater treatment practice does. The need for maintenance is determined through inspection of the Stormceptor. Procedures for inspection are provided within this document. Maintenance of the Stormceptor is performed from the surface via vacuum truck.

If you require information about Stormceptor, or assistance in finding resources to facilitate inspections or maintenance of your Stormceptor please call your local Stormceptor Licensee or Imbrium® Systems.

2 – Stormceptor Operation & Components

Stormceptor is a flexibly designed underground stormwater quality treatment device that is unparalleled in its effectiveness for pollutant capture and retention using patented flow separation technology.

Stormceptor creates a non-turbulent treatment environment below the insert platform within the system. The insert diverts water into the lower chamber, allowing free oils and debris to rise, and sediment to settle under relatively low velocity conditions. These pollutants are trapped and stored below the insert and protected from large runoff events for later removal during the maintenance procedure.

With thousands of units operating worldwide, Stormceptor delivers reliable protection every day, in every storm. The patented Stormceptor design prohibits the scour and release of captured pollutants, ensuring superior water quality treatment and protection during even the most extreme storm events. Stormceptor's proven performance is backed by the longest record of lab and field verification in the industry.

Stormceptor Schematic and Component Functions

Below are schematics of two common Stormceptor configurations with key components identified and their functions briefly described.

Figure 1.

Inline Stormceptor

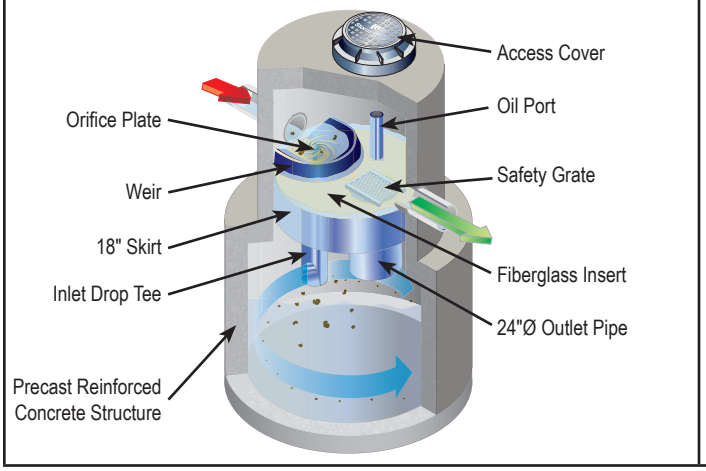
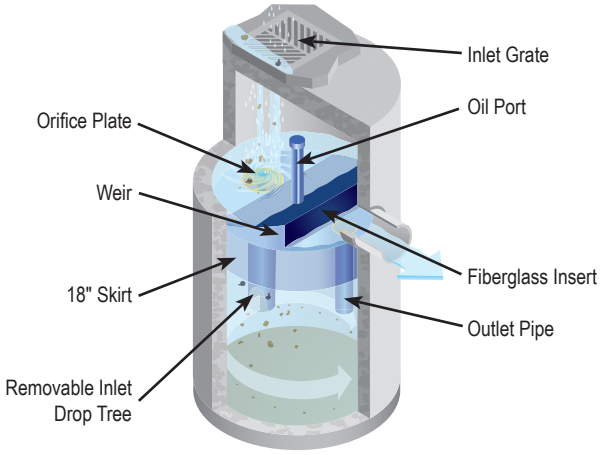


Figure 2.

Inlet Stormceptor



- **Manhole access cover** – provides access to the subsurface components
- **Precast reinforced concrete structure** – provides the vessel's watertight structural support
- **Fiberglass insert** – separates vessel into upper and lower chambers
- **Weir** – directs incoming stormwater and oil spills into the lower chamber
- **Orifice plate** – prevents scour of accumulated pollutants
- **Inlet drop tee** – conveys stormwater into the lower chamber
- **Fiberglass skirt** – provides double-wall containment of hydrocarbons
- **Outlet riser pipe** – conveys treated water to the upper chamber; primary vacuum line access port for sediment removal
- **Oil inspection port** – primary access for measuring oil depth and oil removal
- **Safety grate** – safety measure to cover riser pipe in the event of manned entry into vessel

3 – Stormceptor Identification

Stormceptor is available in both precast concrete and fiberglass vessels, with precast concrete often being the dominant material of construction.

In the Stormceptor, a patented, engineered fiberglass insert separates the structure into an upper chamber and lower chamber. The lower chamber will remain full of water, as this is where the pollutants are sequestered for later removal. Multiple Stormceptor model (STC, OSR, EOS, MAX and STF) configurations exist, each to be inspected and maintained in a similar fashion.

Each unit is easily identifiable as a Stormceptor by the trade name "Stormceptor" embossed on each access cover at the surface. To determine the location of "inlet" Stormceptor units with horizontal catch basin inlet, look down into the grate as the Stormceptor insert will be visible. The name "Stormceptor" is not embossed on inlet models due to the variability of inlet grates used/ approved across North America.

Once the location of the Stormceptor is determined, the model number may be identified by comparing the measured depth from the fiberglass insert level at the outlet pipe's invert (water level) to the bottom of the tank using **Table 1**.

In addition, starting in 1996 a metal serial number tag containing the model number has been affixed to the inside of the unit, on the fiberglass insert. If the unit does not have a serial number, or if there is any uncertainty regarding the size of the unit using depth measurements, please contact your local Stormceptor Representative for assistance.

Sizes/Models

Typical general dimensions and capacities of the standard precast STC, EOS & OSR Stormceptor models in both USA and Canada/International (excluding South East Asia and Australia) are provided in **Tables 1 and 2**. Typical rim to invert measurements are provided later in this document. The total depth for cleaning will be the sum of the depth from outlet pipe invert (generally the water level) to rim (grade) and the depth from outlet pipe invert to the precast bottom of the unit. Note that depths and capacities may vary slightly between regions.

Table 1A. (US) Stormceptor Dimensions – Insert to Base of Structure

STC Model	Insert to Base (in.)
450	60
900	55
1200	71
1800	105
2400	94
3600	134
4800	128
6000	150
7200	134
11000*	128
13000*	150
16000*	134

EOS Model	Insert to Base (in.)
4-175	60
9-365	55
12-590	71
18-1000	105
24-1400	94
36-1700	134
48-2000	128
60-2500	150
72-3400	134
110-5000*	128
130-6000*	150
160-7800*	134

OSR Model	Insert to Base (in.)
65	60
140	55
250	94
390	128
560	134
780*	128
1125*	134

Typical STF m (in.)
1.5 (60)
1.5 (61)
1.8 (73)
2.9 (115)
2.3 (89)
3.2 (127)
2.9 (113)
3.5 (138)
3.3 (128)

Notes:

1. *Depth Below Pipe Inlet Invert to the Bottom of Base Slab can vary slightly by manufacturing facility, and can be modified to accommodate specific site designs, pollutant loads or site conditions. Contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 1B. (CA & Int'l) Stormceptor Dimensions – Insert to Base of Structure

STC Model	Insert to Base (m)
300	1.5
750	1.5
1000	1.8
1500	2.8
2000	2.8
3000	3.7
4000	3.4
5000	4.0
6000	3.7
9000*	3.4
11000*	4.0
14000*	3.7

EOS Model	Insert to Base (m)
300	1.5
750	1.5
1000	1.8
2000	2.8
3000	3.7
4000	3.4
5000	4.0
6000	3.7
9000*	3.4
10000*	4.0
14000*	3.7

OSR Model	Insert to Base (m)
300	1.7
750	1.6
2000	2.6
4000	3.6
6000	3.7
9000*	3.6
14000*	3.7

Typical STF m (in.)
1.5 (60)
1.5 (61)
1.8 (73)
2.9 (115)
2.3 (89)
3.2 (127)
2.9 (113)
3.5 (138)
3.3 (128)

Notes:

1. *Depth Below Pipe Inlet Invert to the Bottom of Base Slab can vary slightly by manufacturing facility, and can be modified to accommodate specific site designs, pollutant loads or site conditions. Contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 2A. (US) Storage Capacities

STC Model	Hydrocarbon Storage Capacity gal	Sediment Capacity ft^3	**EOS Model**	Hydrocarbon Storage Capacity gal	**OSR Model**	Hydrocarbon Storage Capacity gal	Sediment Capacity ft^3
450	86	46	**4-175**	175	**065**	115	46
900	251	89	**9-365**	365	**140**	233	58
1200	251	127	**12-590**	591			
1800	251	207	**18-1000**	1198			
2400	840	205	**24-1400**	1457	**250**	792	156
3600	840	373	**36-1700**	1773			
4800	909	543	**48-2000**	2005	**390**	1233	465
6000	909	687	**60-2500**	2514			
7200	1059	839	**72-3400**	3418	**560**	1384	690
11000*	2797	1089	**110-5000***	5023	**780***	2430	930
13000*	2797	1374	**130-6000***	6041			
16000*	3055	1677	**160-7800***	7850	**1125***	2689	1378

Notes:

1. *Hydrocarbon & Sediment capacities can be modified to accommodate specific site design requirements, contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 2B. (CA & Int'l) Storage Capacities

STC Model	Hydrocarbon Storage Capacity L	Sediment Capacity L	EOS Model	Hydrocarbon Storage Capacity L	OSR Model	Hydrocarbon Storage Capacity L	Sediment Capacity L
300	300	1450	**300**	662	**300**	300	1500
750	915	3000	**750**	1380	**750**	900	3000
1000	915	3800	**1000**	2235			
1500	915	6205					
2000	2890	7700	**2000**	5515	**2000**	2790	7700
3000	2890	11965	**3000**	6710			
4000	3360	16490	**4000**	7585	**4000**	4700	22200
5000	3360	20940	**5000**	9515			
6000	3930	26945	**6000**	12940	**6000**	5200	26900
9000*	10555	32980	**9000***	19010	**9000***	9300	33000
11000*	10555	37415	**10000***	22865			
14000*	11700	53890	**14000***	29715	**14000***	10500	53900

Notes:

1. *Hydrocarbon & Sediment capacities can be modified to accommodate specific site design requirements, contact your local representative for assistance.*

**Consist of two chamber structures in series.*

4 – Stormceptor Inspection & Maintenance

Regular inspection and maintenance is a proven, cost-effective way to maximize water resource protection for all stormwater pollution control practices, and is required to insure proper functioning of the Stormceptor. Both inspection and maintenance of the Stormceptor is easily performed from the surface. Stormceptor's patented technology has no moving parts, simplifying the inspection and maintenance process.

Please refer to the following information and guidelines before conducting inspection and maintenance activities.

When is inspection needed?

- Post-construction inspection is required prior to putting the Stormceptor into service.
- Routine inspections are recommended during the first year of operation to accurately assess the sediment accumulation.
- Inspection frequency in subsequent years is based on the maintenance plan developed in the first year.
- Inspections should also be performed immediately after oil, fuel, or other chemical spills.

When is maintenance cleaning needed?

- For optimum performance, the unit should be cleaned out once the sediment depth reaches the recommended maintenance sediment depth, which is approximately 15% of the unit's total storage capacity (see **Table 2**). The frequency should be adjusted based on historical inspection results due to variable site pollutant loading.

- Sediment removal is easier when removed on a regular basis at or prior to the recommended maintenance sediment depths, as sediment build-up can compact making removal more difficult.
- The unit should be cleaned out immediately after an oil, fuel or chemical spill.

What conditions can compromise Stormceptor performance?

- If construction sediment and debris is not removed prior to activating the Stormceptor unit, maintenance frequency may be reduced.
- If the system is not maintained regularly and fills with sediment and debris beyond the capacity as indicated in **Table 2**, pollutant removal efficiency may be reduced.
- If an oil spill(s) exceeds the oil capacity of the system, subsequent spills may not be captured.
- If debris clogs the inlet of the system, removal efficiency of sediment and hydrocarbons may be reduced.
- If a downstream blockage occurs, a backwater condition may occur for the Stormceptor and removal efficiency of sediment and hydrocarbons may be reduced.

What training is required?

The Stormceptor is to be inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. For typical inspection and maintenance activities, no specific supplemental training is required for the Stormceptor. Information provided within this Manual (provided to the site owner) contains sufficient guidance to maintain the system properly.

In unusual circumstances, such as if a damaged component needs replacement or some other condition requires manned entry into the vessel, confined space entry procedures must be followed. Only professional maintenance service providers trained in these procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards.

What equipment is typically required for inspection?

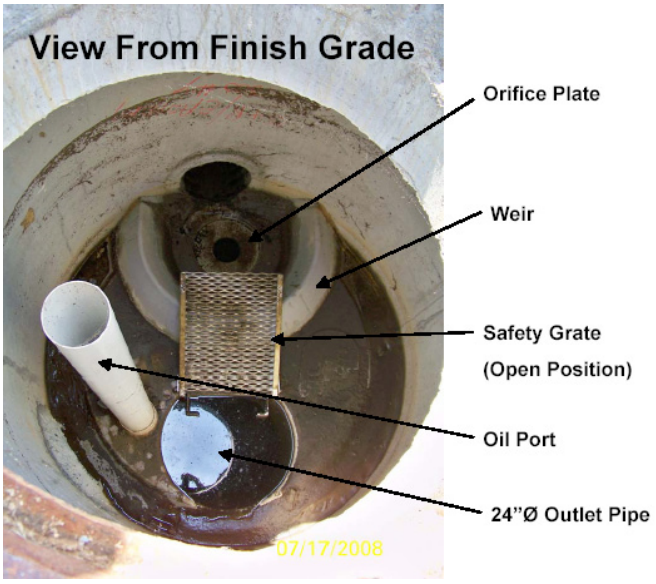
- Manhole access cover lifting tool
- Oil dipstick / Sediment probe with ball valve (typically ¾-inch to 1-inch diameter)
- Flashlight
- Camera
- Data log / Inspection Report
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

Recommended Stormceptor Inspection Procedure:

- Stormceptor is to be inspected from grade through a standard surface manhole access cover.
- Sediment and oil depth inspections are performed with a sediment probe and oil dipstick.
- Oil depth is measured through the oil inspection port, either a 4-inch (100 mm) or 6-inch (150 mm) diameter port.
- Sediment depth can be measured through the oil inspection port or the 24-inch (610 mm) diameter outlet riser pipe.
- Inspections also involve a visual inspection of the internal components of the system.

Figure 3.

Figure 4.



What equipment is typically required for maintenance?

- Vacuum truck equipped with water hose and jet nozzle
- Small pump and tubing for oil removal
- Manhole access cover lifting tool
- Oil dipstick / Sediment probe with ball valve (typically ¾-inch to 1-inch diameter)
- Flashlight
- Camera
- Data log / Inspection Report
- Safety cones
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Gas analyzer, respiratory gear, and safety harness for specially trained personnel if confined space entry is required

Recommended Stormceptor Maintenance Procedure

Maintenance of Stormceptor is performed using a vacuum truck.

No entry into the unit is required for maintenance. ***DO NOT ENTER THE STORMCEPTOR CHAMBER*** unless you have the proper personal safety equipment, have been trained and are qualified to enter a confined space, as identified by local Occupational Safety and Health Regulations (e.g. 29 CFR 1910.146 or Canada Occupational Safety and Health Regulations – SOR/86-304). Without the proper equipment, training and permit, entry into confined spaces can result in serious bodily harm and potentially death. Consult local, provincial, and/or state regulations to determine the requirements for confined space entry. Be aware, and take precaution that the Stormceptor fiberglass insert may be slippery. In addition, be aware that some units do not have a safety grate to cover the outlet riser pipe that leads to the submerged, lower chamber.

- Ideally maintenance should be conducted during dry weather conditions when no flow is entering the unit.
- Stormceptor is to be maintained through a standard surface manhole access cover.
- Insert the oil dipstick into the oil inspection port. If oil is present, pump off the oil layer into separate containment using a small pump and tubing.
- Maintenance cleaning of accumulated sediment is performed with a vacuum truck.
    - For 6-ft (1800 mm) diameter models and larger, the vacuum hose is inserted into the lower chamber via the 24-inch (610 mm) outlet riser pipe.
    - For 4-ft (1200 mm) diameter model, the removable drop tee is lifted out, and the vacuum hose is inserted into the lower chamber via the 12-inch (305 mm) drop tee hole.

Figure 5.

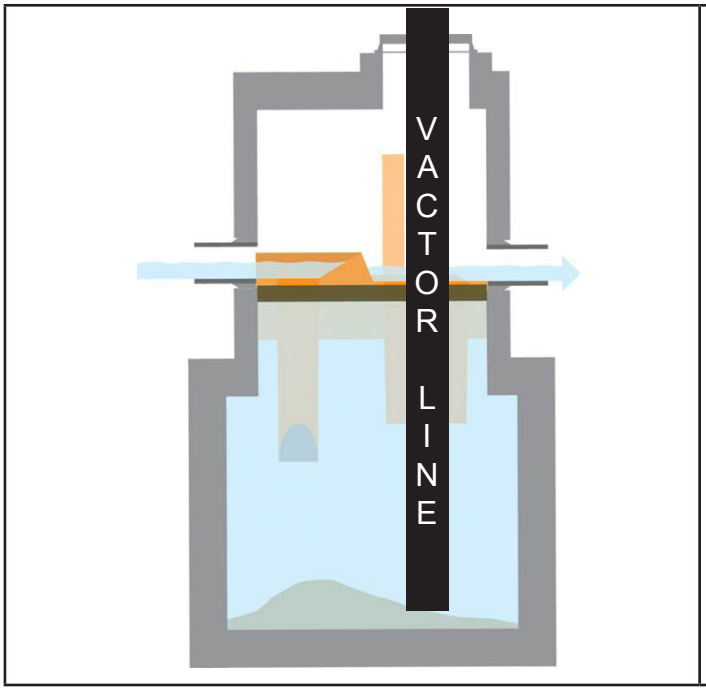
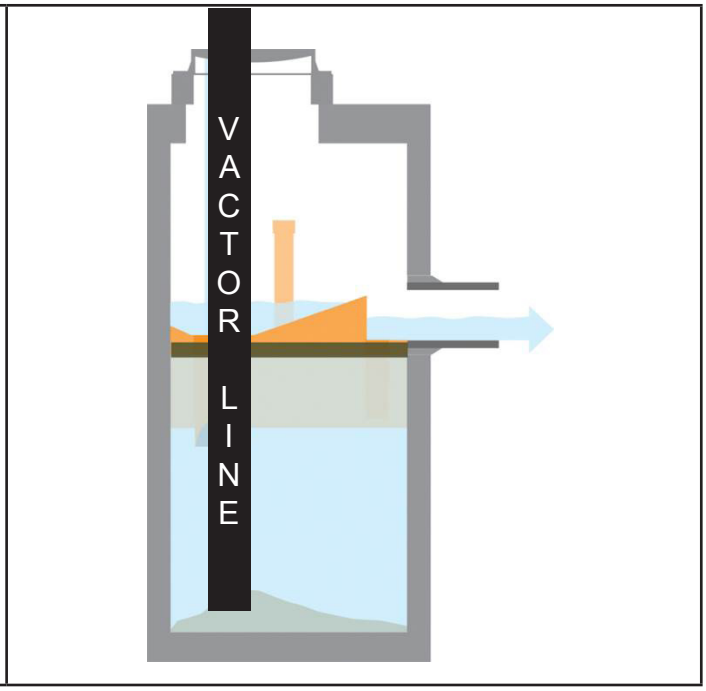


Figure 6.



- Using the vacuum hose, decant the water from the lower chamber into a separate containment tank or to the sanitary sewer, if permitted by the local regulating authority.
- Remove the sediment sludge from the bottom of the unit using the vacuum hose. For large Stormceptor units, a flexible hose is often connected to the primary vacuum line for ease of movement in the lower chamber.
- Units that have not been maintained regularly, have surpassed the maximum recommended sediment capacity, or contain damaged components may require manned entry by trained personnel using safe and proper confined space entry procedures.

Figure 7.

Figure 8.

A maintenance worker stationed at the above ground surface uses a vacuum hose to evacuate water, sediment, and debris from the system.

What is required for proper disposal?

The requirements for the disposal of material removed from Stormceptor units are similar to that of any other stormwater treatment Best Management Practices (BMP). Local guidelines should be consulted prior to disposal of the separator contents. In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste. This could be site and pollutant dependent. In some cases, approval from the disposal facility operator/agency may be required.

What about oil spills?

Stormceptor is often implemented in areas where there is high potential for oil, fuel or other hydrocarbon or chemical spills. Stormceptor units should be cleaned immediately after a spill occurs by a licensed liquid waste hauler. You should also notify the appropriate regulatory agencies as required in the event of a spill.

What if I see an oil rainbow or sheen at the Stormceptor outlet?

With a steady influx of water with high concentrations of oil, a sheen may be noticeable at the Stormceptor outlet. This may occur because a hydrocarbon rainbow or sheen can be seen at

very small oil concentrations (< 10 ppm). Stormceptor is effective at removing 95% of free oil, and the appearance of a sheen at the outlet with high influent oil concentrations does not mean that the unit is not working to this level of removal. In addition, if the influent oil is emulsified, the Stormceptor will not be able to remove it. The Stormceptor is designed for free oil removal and not emulsified or dissolved oil conditions.

What factors affect the costs involved with inspection/maintenance?
The Vacuum Service Industry for stormwater drainage and sewer systems is a well-established sector of the service industry that cleans underground tanks, sewers and catch basins. Costs to clean Stormceptor units will vary. Inspection and maintenance costs are most often based on unit size, the number of units on a site, sediment/oil/hazardous material loads, transportation distances, tipping fees, disposal requirements and other local regulations.

What factors predict maintenance frequency?
Maintenance frequency will vary with the amount of pollution on your site (number of hydrocarbon spills, amount of sediment, site activity and use, etc.). It is recommended that the frequency of maintenance be increased or reduced based on local conditions. If the sediment load is high from an unstable site or sediment loads transported from upstream catchments, maintenance may be required semi-annually. Conversely once a site has stabilized, maintenance may be required less frequently (for example: two to seven year, site and situation dependent). Maintenance should be performed immediately after an oil spill or once the sediment depth in Stormceptor reaches the value specified in **Table 3** based on the unit size.

Table 3A. (US) Recommended Sediment Depths Indicating Maintenance

STC Model	Maintenance Sediment depth (in)	EOS Model	Maintenance Sediment depth (in)	Oil Storage Depth (in)	OSR Model	Maintenance Sediment depth (in)
450	8	**4-175**	9	24	**065**	8
900	8	**9-365**	9	24	**140**	8
1200	10	**12-590**	11	39		
1800	15					
2400	12	**24-1400**	14	68	**250**	12
3600	17	**36-1700**	19	79		
4800	15	**48-2000**	16	68	**390**	17
6000	18	**60-2500**	20	79		
7200	15	**72-3400**	17	79	**560**	17
11000*	17	**110-5000***	16	68	**780***	17
13000*	20	**130-6000***	20	79		
16000*	17	**160-7800***	17	79	**1125***	17

Note:

1. *The values above are for typical standard units.*

**Per structure.*

Table 3B. (CA & Int'l) Recommended Sediment Depths Indicating Maintenance

STC Model	Maintenance Sediment depth (mm)	EOS Model	Maintenance Sediment depth (mm)	Oil Storage Depth (mm)	OSR Model	Maintenance Sediment depth (mm)
300	225	**300**	225	610	**300**	200
750	230	**750**	230	610	**750**	200
1000	275	**1000**	275	990		
1500	400					
2000	350	**2000**	350	1727	**2000**	300
3000	475	**3000**	475	2006		
4000	400	**4000**	400	1727	**4000**	375
5000	500	**5000**	500	2006		
6000	425	**6000**	425	2006	**6000**	375
9000*	400	**9000***	400	1727	**9000***	425
11000*	500	**10000***	500	2006		
14000*	425	**14000***	425	2006	**14000***	425

Note:

1. *The values above are for typical standard units.*

   **Per structure.*

Replacement parts

Since there are no moving parts during operation in a Stormceptor, broken, damaged, or worn parts are not typically encountered. Therefore, inspection and maintenance activities are generally focused on pollutant removal. However, if replacements parts are necessary, they may be purchased by contacting your local Stormceptor Representative, or Imbrium Systems.

The benefits of regular inspection and maintenance are many – from ensuring maximum operation efficiency, to keeping maintenance costs low, to the continued protection of natural waterways – and provide the key to Stormceptor's long and effective service life.

Stormceptor Inspection and Maintenance Log

Stormceptor Model No: _____

Allowable Sediment Depth: _____

Serial Number: _____

Installation Date: _____

Location Description of Unit: _____

Other Comments: _____

Contact Information

Questions regarding the Stormceptor can be addressed by contacting your area Stormceptor Licensee, Imbrium Systems, or visit our website at www.stormceptor.com.

Stormceptor Licensees:

CANADA

Lafarge Canada Inc.
www.lafargepipe.com

403-292-9502 / 1-888-422-4022	Calgary, AB
780-468-5910	Edmonton, AB
204-958-6348	Winnipeg, MB, NW. ON, SK

Langley Concrete Group
www.langleyconcretegroup.com

604-502-5236	BC

Hanson Pipe & Precast Inc.
www.hansonpipeandprecast.com

519-622-7574 / 1-888-888-3222	ON

Lécuyer et Fils Ltée.
www.lecuyerbeton.com

450-454-3928 / 1-800-561-0970	QC

Strescon Limited
www.strescon.com

902-494-7400	NS, NF
506-633-8877	NB, PE

UNITED STATES

Rinker Materials
www.rinkerstormceptor.com
1-800-909-7763

AUSTRALIA & SOUTHEAST ASIA, including New Zealand & Japan

Humes Water Solutions
www.humes.com.au
+61 7 3364 2894

Imbrium Systems Inc. & Imbrium Systems LLC

Canada	1-416-960-9900 / 1-800-565-4801
United States	1-301-279-8827 / 1-888-279-8826
International	+1-416-960-9900 / +1-301-279-8827
Email	info@imbriumsystems.com

www.imbriumsystems.com
www.stormceptor.com

APPENDIX H

Letter of Advice from DFO

Fisheries and Oceans Canada | Pêches et Océans Canada

Suite 301, 5204 50th Ave.
Yellowknife, NT
X1A 1H2

September 20, 2018

Our file Notre reference:
18-HCAA-00537

Richpark Homes (Thornbury) Ltd.
202-8920 Woodbine Ave.
Markham, Ont. L3R 9W9
416-837-1965
ron@richpark.ca

Dear Ronald Cowan:

Subject: Implementation of mitigation measures to avoid and mitigate impacts to fish and fish habitat and aquatic species at risk – Stream re-alignment of Tributary A for Lora Bay Heights Residential Development

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada received your proposal on May 2, 2018.

Your proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act*.

Your proposal has also been reviewed to determine whether it will adversely impact listed aquatic species at risk and contravene sections 32, 33 or 58 of the *Species at Risk Act* (SARA).

Our review considered the following:

- Request for Review received May 2, 2018.
- Email correspondence between Sara Eddy (DFO) and Nicole Wajmer (DFO), May 22, 2018.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), June 11, 2018.
- Conference call between Marek Janowicz and Boyan Tracz (DFO) and Mathieu Lemieux, Jacob Martin, and Kevin Morris (all C.F. Crozier & Associates Inc.), Mike Hensel (Hensel Design Group Inc.), and Christopher Wren (LRG Environmental), June 13, 2018.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), June 13, 2018.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), July 26, 2018.

- Email correspondence between Boyan Tracz (DFO) and Mathieu Lemieux (C.F. Crozier & Associates Inc.), July 27.
- Email correspondence between Boyan Tracz (DFO) and Mike Hensel (Hensel Design Group Inc.) July 27.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), August 15, 2018.
- Telephone conversation between Boyan Tracz (DFO) and Mike Hensel (Hensel Design Group Inc.), August 15, 2018.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), August 16, 2018.
- Email correspondence between Boyan Tracz (DFO) and Jacob Martin (C.F. Crozier & Associates Inc.), August 17, 2018.
- Email correspondence between Boyan Tracz (DFO) and Mike Hensel (Hensel Design Group Inc.), August 20, 2018.
- Email correspondence between Boyan Tracz (DFO) and Mike Hensel (Hensel Design Group Inc.), August 28, 2018.
- Telephone conversation between Boyan Tracz (DFO) and Mike Hensel (Hensel Design Group Inc.), August 28, 2018.
- Telephone conversation between Boyan Tracz (DFO) and Andy Sorensen (Grey Sauble Conservation Authority) August 29, 2018.
- Telephone conversation between Boyan Tracz (DFO) and Lori Cook (Grey Sauble Conservation Authority) September 19, 2018.
- Telephone conversation between Boyan Tracz (DFO) and Lori Cook (Grey Sauble Conservation Authority) September 20 2018.

We understand that you propose to:

- Realign approximately 182.4m of existing stream channel known as “Tributary A”, with a new 194m stream channel constructed immediately to the south of the existing Tributary A. Primary objectives are to: a) restore the physical form of the channel through realignment, including planform and in-channel characteristics with no obstructions to flow or fish passage, b) improve the function of the channel, as well as its interaction with the floodplain, and c) enhance aquatic habitat through the provision of a single thread, morphologically diverse channel with spatially varied flows.
- The new re-alignment will begin downstream of two culverts under the Georgian Trail and re-connect to Tributary A at the eastern boundary of the subject property. The proposed new low-flow channel has a meandering pattern with riffles and pools. Channel banks will be restored using native plant species, including appropriate species for the various seed mixes as well as woody vegetation. The plantings are intended to enhance species and habitat diversity, increase floodplain soil stability, and increase floodplain roughness and sedimentation.
- The new channel will be excavated in the dry using a high hoe, and most of the new channel can be constructed without interference to the existing watercourse. All isolated work areas will be dewatered to perform work under dry conditions. When the banks of the new channel have been stabilized with vegetation and/or erosion-resistant matting, flow may be introduced gradually. A coffer dam will be placed at the upstream point of Tributary A, and flow will be diverted into the new channel by removing the earthen plug between the two. A temporary coffer dam will also be placed at the lower point of Tributary A to maintain water in the existing channel while fish are salvaged and relocated.

.../3

Since there are no SARA species or their habitats identified in the project area, no additional approvals under SARA will be required for your proposed activities.

To avoid the potential for serious harm to fish that is prohibited under the *Fisheries Act*, the mitigation measures set out in your project plans are to be followed. Provided that you implement the required mitigation measures for your project, and follow the guidance available on the DFO website at http://www.dfo-mpo.gc.ca/pnw-ppe/measures/index-eng.html, the Program is of the view that your proposal should not result in serious harm to fish or contravene sections 32, 33 or 58 of the *Species at Risk Act*. No formal approval is required from the Program under the *Fisheries Act* or the *Species at Risk Act* in order to proceed with your proposal.

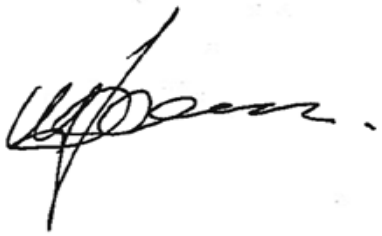
It remains your responsibility to ensure you avoid causing serious harm to fish in compliance with the *Fisheries Act*, and that you meet the requirements under the *Species at Risk Act* as it may apply to your project. If your plans have changed or if the description of your proposal is incomplete, or changes in the future, you should consult our website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) or consult with a qualified environmental consultant to determine if further review is required by the Program.

Please be advised that it is also your *Duty to Notify* DFO if you have caused, or are about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html.

A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your project.

If you have any questions, please contact Boyan Tracz at our Yellowknife office at 867-669-4928, or by email at Boyan.Tracz@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

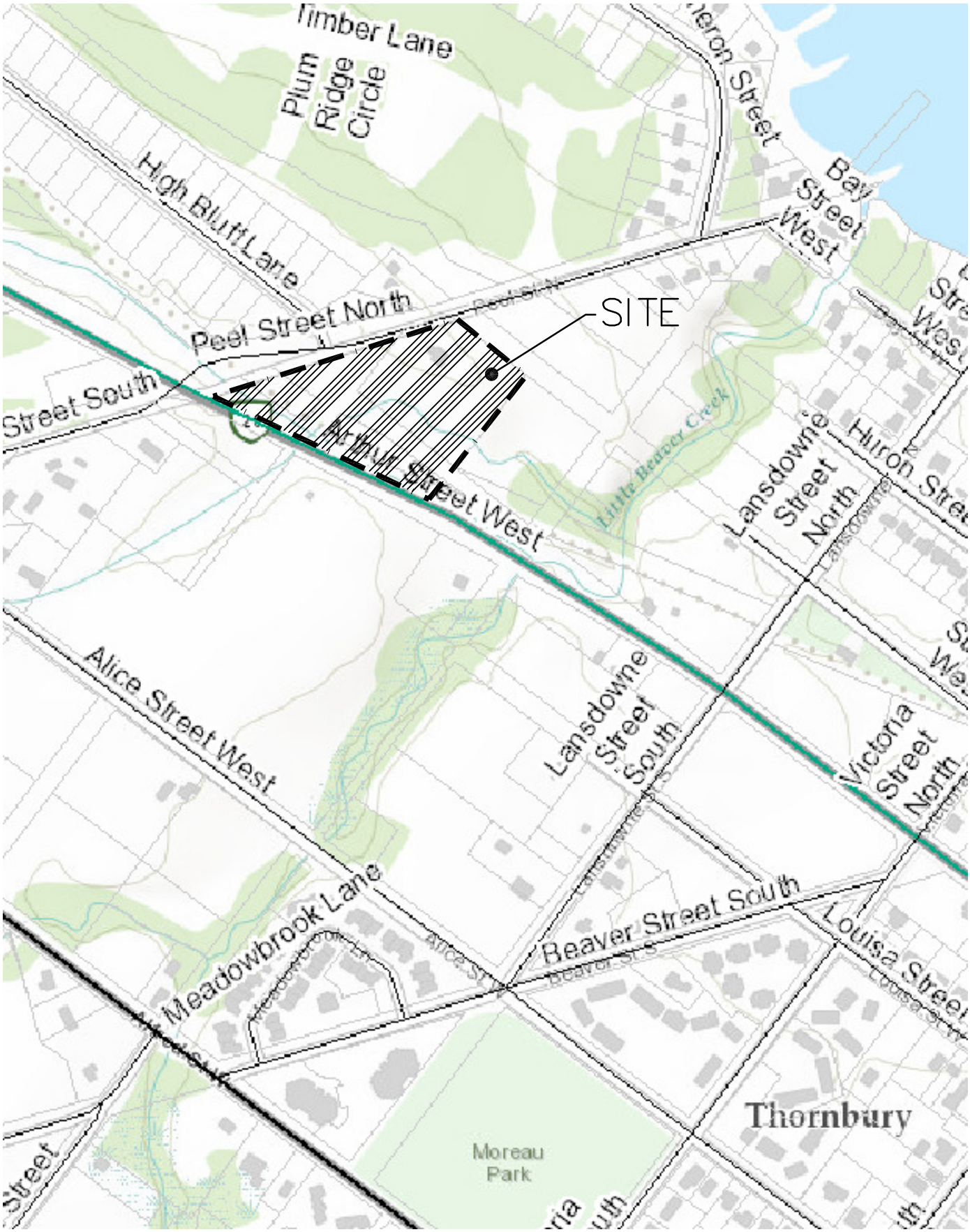
Yours sincerely,



Marek Janowicz
Senior Fisheries Protection Program Biologist
Fisheries and Oceans Canada

cc. Brandi Mogge, FPP-DFO
Boyan Tracz, FPP-DFO
Kevin Morris, C. F. Crozier and Associates Inc.

LIST OF FIGURES



Legend

= SUBJECT PROPERTY

Project

LORA BAY HEIGHTS

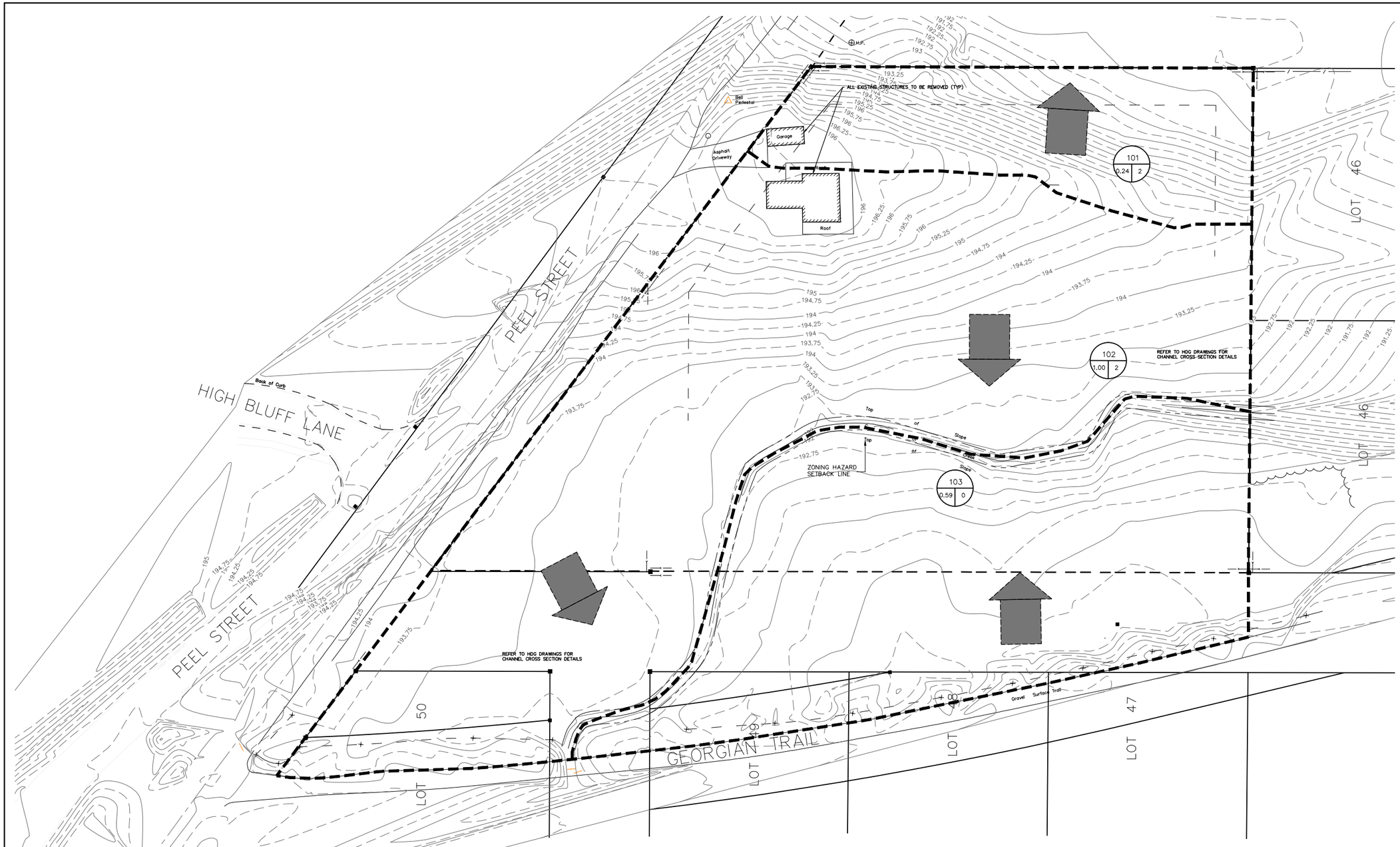
Drawing

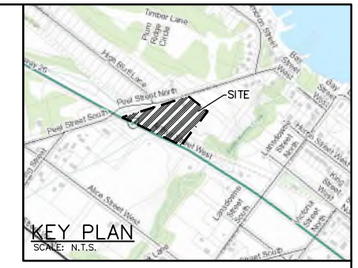
SITE LOCATION

CROZIER CONSULTING ENGINEERS
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
S.C.	S.C. / M.L.	1443-4724
N.T.S.	Date: APR/30/2018	Check By: R.A.
		Drawing: FIG. 1

J:\900\917-2157621 Ont Ltd\4367 - Lora Bay Heights\CAD\CIVIL\1SHEET\4367_C700.dwg, FIG 1, 6/8/2018 1:18:37 PM,





LEGEND

- 102 / 1.82 / 52 — CATCHMENT ID; % IMPERVIOUS; AREA (ha)
- SWALE
- OVERLAND FLOW DIRECTION
- CULVERT
- RIP-RAP
- EX. CONTOURS

Town Approval

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4. DO NOT SCALE THE DRAWINGS.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TEMPORARY BENCHMARKS

TBM#1– HORIZONTAL CONTROL MONUMENT:
00820000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121
TBM#2– HORIZONTAL CONTROL MONUMENT:
00820000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

TBM#3– VERTICAL CONTROL MONUMENT:
00119730398 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.
TBM#4– VERTICAL CONTROL MONUMENT:
00119280118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	06/08/2018
2	ISSUED FOR 2nd SUBMISSION	09/19/2018

Engineer

DRAFT
FOR DISCUSSION PURPOSES ONLY

Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Project
LORA BAY HEIGHTS
THORNBURY

Drawing
PRE DEVELOPMENT DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS
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40 Huron Street, Suite 301,
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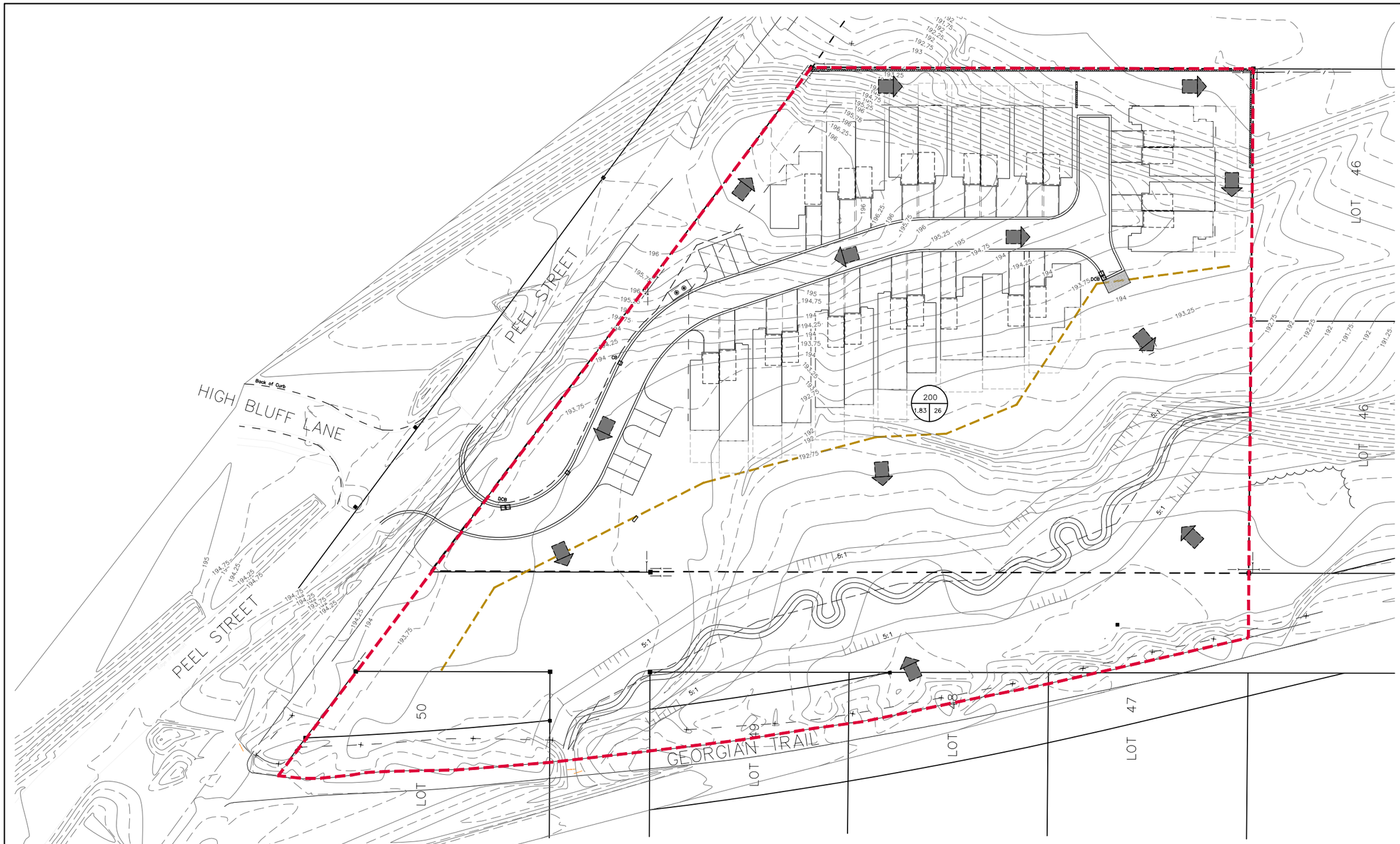
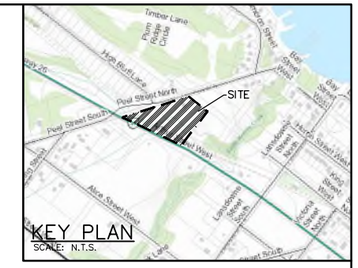
Drawn By	S.C.	Design By	S.C.	Project	1443-4724
Check By	M.L.	Check By	K.A.M	Scale 1:400	Drawing FIG 2





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FOR DISCUSSION PURPOSES ONLY

Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Project
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Drawing
POST DEVELOPMENT DRAINAGE PLAN

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Info@cfcrozier.ca

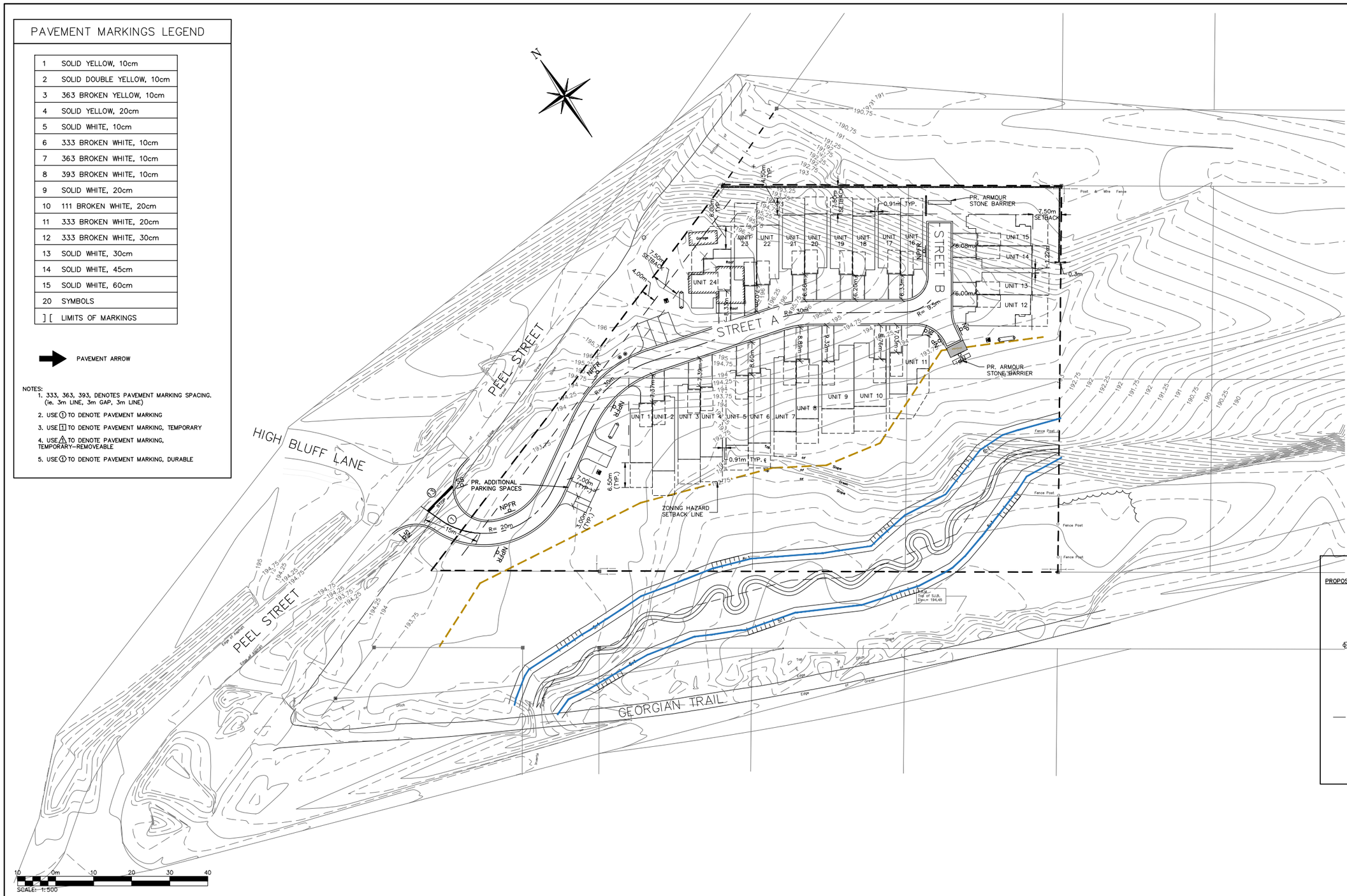
Drawn By	Design By	Project	
S.C.	S.C.		1443-4724
Check By	Check By	Scale	Drawing
M.L.	K.A.M	1: 400	FIG 3

PAVEMENT MARKINGS LEGEND

1	SOLID YELLOW, 10cm
2	SOLID DOUBLE YELLOW, 10cm
3	363 BROKEN YELLOW, 10cm
4	SOLID YELLOW, 20cm
5	SOLID WHITE, 10cm
6	333 BROKEN WHITE, 10cm
7	363 BROKEN WHITE, 10cm
8	393 BROKEN WHITE, 10cm
9	SOLID WHITE, 20cm
10	111 BROKEN WHITE, 20cm
11	333 BROKEN WHITE, 20cm
12	333 BROKEN WHITE, 30cm
13	SOLID WHITE, 30cm
14	SOLID WHITE, 45cm
15	SOLID WHITE, 60cm
20	SYMBOLS
][	LIMITS OF MARKINGS

PAVEMENT ARROW

NOTES:
1. 333, 363, 393, DENOTES PAVEMENT MARKING SPACING. (ie. 3m LINE, 3m GAP, 3m LINE)
2. USE ① TO DENOTE PAVEMENT MARKING
3. USE 1 TO DENOTE PAVEMENT MARKING, TEMPORARY
4. USE ⚠ TO DENOTE PAVEMENT MARKING, TEMPORARY-REMOVEABLE
5. USE ① TO DENOTE PAVEMENT MARKING, DURABLE



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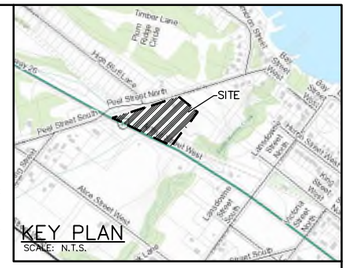
SCALE: 1:500



KEY PLAN
SCALE: N.T.S.

PLAN OF SURVEY OF
LOTS 47 & 48
SOUTHWEST OF KING STREET,
LOTS 47, 48 & 49
NORTHEAST OF ARTHUR STREET
AND PART OF MINTO STREET (PLAN 16R-11037)
TOWNPLOT OF THORNBURY
(FORMERLY TOWN OF THORNBURY)
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

R2-77 ZONING PROVISION DETAILS

	REQUIRED/PERMITTED	PROVIDED
MAX NO. UNITS	22 SEMIS 2 SINGLES	22 SEMIS 2 SINGLES
MIN FRONT YARD SETBACK	7.5 m	7.5 m
MIN REAR YARD SETBACK	7.5 m	7.6 m
MIN INTERIOR/EXTERIOR YARD SETBACK	7.5 m	7.5 m

DEVELOPMENT DETAILS

TOTAL AREA	= 12908.2m²
% LOT COVERAGE	= 18.64%
TOTAL PAVED AREA	= 1967.3m²
% PAVED AREA	= 15.24%
LANDSCAPED AREA	= 8534.9m²
% LANDSCAPED AREA	= 66.12%

RESIDENTIAL PARKING REQUIREMENTS

	REQUIRED/PERMITTED	PROVIDED
2 PARKING SPACES PER DWELLING	48 SPACES	48 SPACES
ADDITIONAL PARKING SPACES	0 SPACES	8 SPACES
TOTAL	48 SPACES	56 SPACES

LEGEND

PROPOSED FEATURES (PR.)

- PR. TRANSFORMER LOCATION
- PR. METER WALL LOCATION
- PR. MOLOK LOCATION
- PR. AMENITY SPACE
- PR. FIRE ROUTE
- NP — PR. NO PARKING SIGN
- SS — PR. STOP SIGN
- SN — PR. STREET NAME SIGN

Town Approval

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TEMPORARY BENCHMARKS

TBM#1- HORIZONTAL CONTROL MONUMENT:
00820000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 70 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121

TBM#2- HORIZONTAL CONTROL MONUMENT:
00820000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

TBM#3- VERTICAL CONTROL MONUMENT:
00119721298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL. 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.

TBM#4- VERTICAL CONTROL MONUMENT:
00119281189 – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	06/08/2018
2	ISSUED FOR 2nd SUBMISSION	10/16/2018

Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Engineer
PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Project
LORA BAY HEIGHTS
THORNBURY

Drawing
SITE PLAN

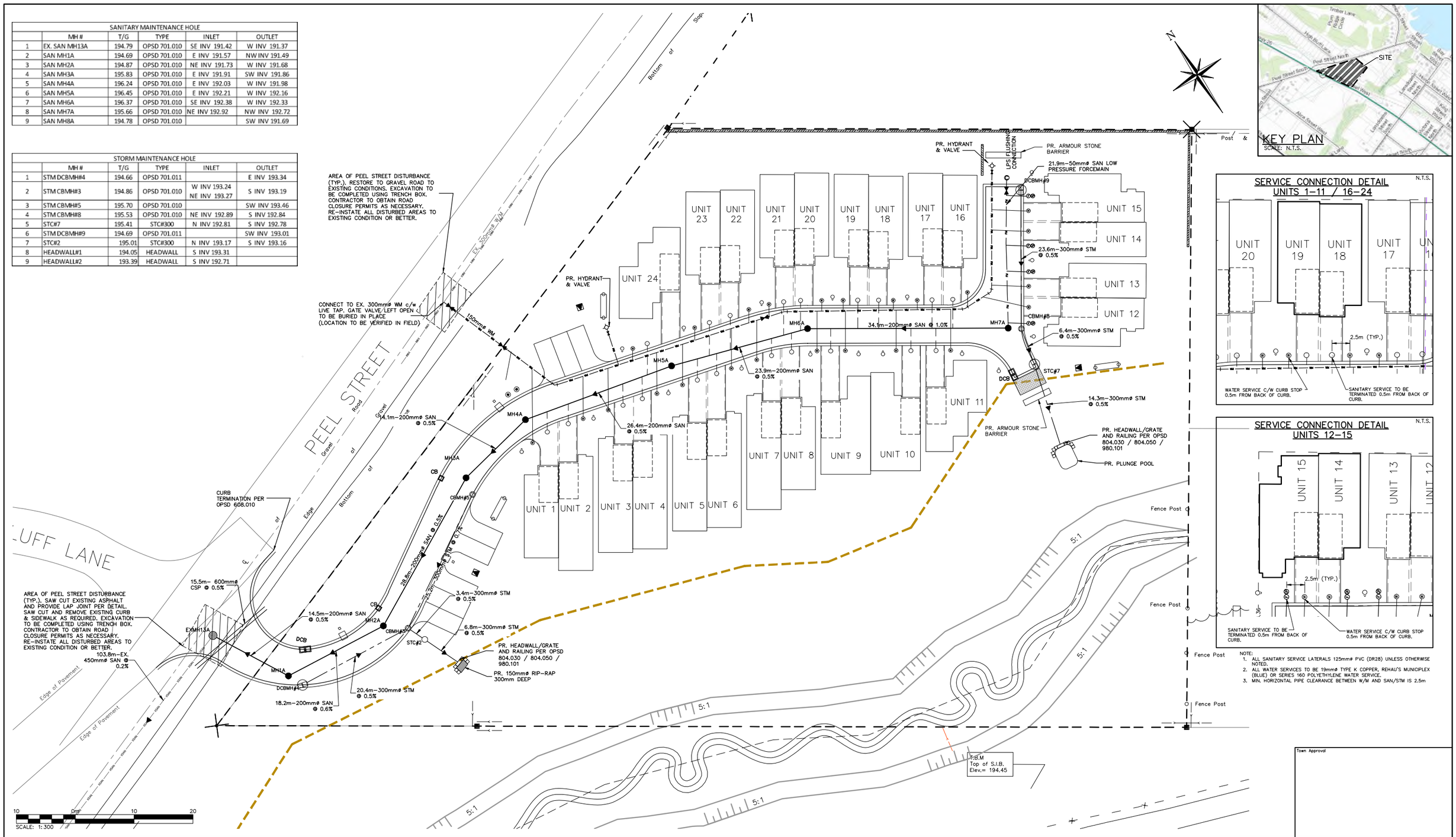
CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	S.C.	Design By	S.C.	Project	1443-4724
Check By	M.L.	Check By	K.A.M	Scale 1:500	Drawing 101

J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\CAD\Civil\1SHEET\4724_C101.dwg, 101, 10/16/2018 12:20:50 PM, scousins

SANITARY MAINTENANCE HOLE					
	MH #	T/G	TYPE	INLET	OUTLET
1	EX. SAN MH13A	194.79	OPSD 701.010	SE INV 191.42	W INV 191.37
2	SAN MH1A	194.69	OPSD 701.010	E INV 191.57	NW INV 191.49
3	SAN MH2A	194.87	OPSD 701.010	NE INV 191.73	W INV 191.68
4	SAN MH3A	195.83	OPSD 701.010	E INV 191.91	SW INV 191.86
5	SAN MH4A	196.24	OPSD 701.010	E INV 192.03	W INV 191.98
6	SAN MH5A	196.45	OPSD 701.010	E INV 192.21	W INV 192.16
7	SAN MH6A	196.37	OPSD 701.010	SE INV 192.38	W INV 192.33
8	SAN MH7A	195.66	OPSD 701.010	NE INV 192.92	NW INV 192.72
9	SAN MH8A	194.78	OPSD 701.010		SW INV 191.69

STORM MAINTENANCE HOLE					
	MH #	T/G	TYPE	INLET	OUTLET
1	STM DCBMH#4	194.66	OPSD 701.011		E INV 193.34
2	STM CBMH#3	194.86	OPSD 701.010	W INV 193.24 NE INV 193.27	S INV 193.19
3	STM CBMH#5	195.70	OPSD 701.010		SW INV 193.46
4	STM CBMH#8	195.53	OPSD 701.010	NE INV 192.89	S INV 192.84
5	STC#7	195.41	STC#300	N INV 192.81	S INV 192.78
6	STM DCBMH#9	194.69	OPSD 701.011		SW INV 193.01
7	STC#2	195.01	STC#300	N INV 193.17	S INV 193.16
8	HEADWALL#1	194.05	HEADWALL	S INV 193.31	
9	HEADWALL#2	193.39	HEADWALL	S INV 192.71	



SERVICE CONNECTION DETAIL
UNITS 1–11 / 16–24
N.T.S.

SERVICE CONNECTION DETAIL
UNITS 12–15
N.T.S.

NOTE:
1. ALL SANITARY SERVICE LATERALS 125mmø PVC (DR28) UNLESS OTHERWISE NOTED.
2. ALL WATER SERVICES TO BE 19mmø TYPE K COPPER, REHAU'S MUNICIPLEX (BLUE) OR SERIES 160 POLYETHYLENE WATER SERVICE.
3. MIN. HORIZONTAL PIPE CLEARANCE BETWEEN W/M AND SAN/STM IS 2.5m

Town Approval

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TEMPORARY BENCHMARKS

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0082000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121

TBM#2– HORIZONTAL CONTROL MONUMENT:
0082000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

TBM#3– VERTICAL CONTROL MONUMENT:
0019172U298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.

TBM#4– VERTICAL CONTROL MONUMENT:
0011928U118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

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Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

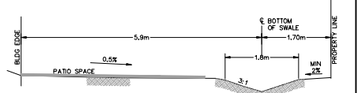
Project
LORA BAY HEIGHTS
THORNBURY

Drawing
GENERAL SITE SERVICING PLAN

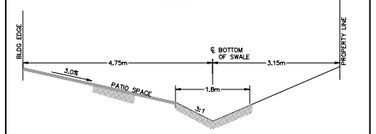
CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

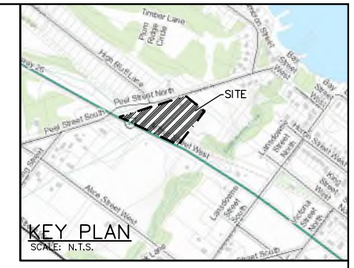
Drawn By	S.C.	Design By	S.C.	Project	1443–4724
Check By	M.L.	Check By	K.A.M	Scale	1: 300
				Drawing	102

SECTION C–C
N.T.S.



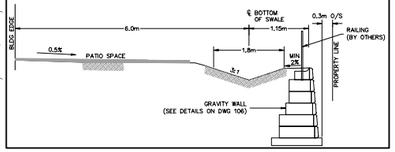
SECTION D–D
N.T.S.



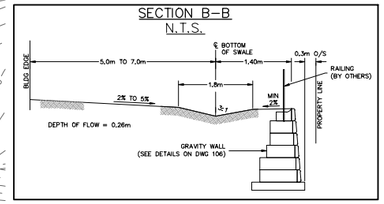


KEY PLAN
SCALE: N.T.S.

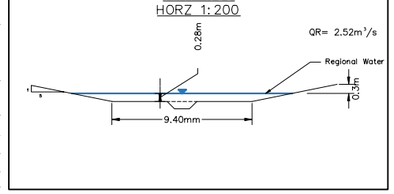
SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



SECTION 1–1
VERT 1:50
HORZ 1:200



SECTION 2–2
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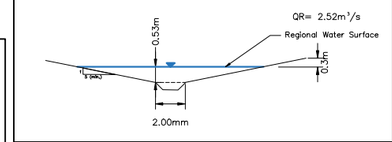
HORZ 1:200



TYPICAL ARMOUR STONE WINGWALL DETAIL
N.T.S.

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Engineer

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Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

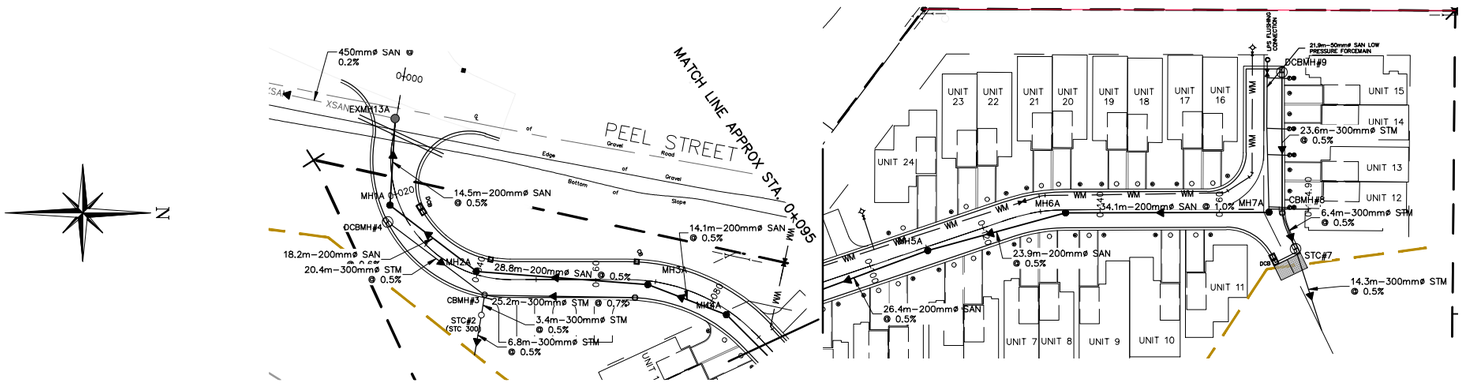
Project
LORA BAY HEIGHTS
THORNBURY

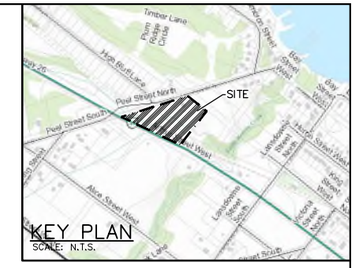
Drawing
GRADING PLAN

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

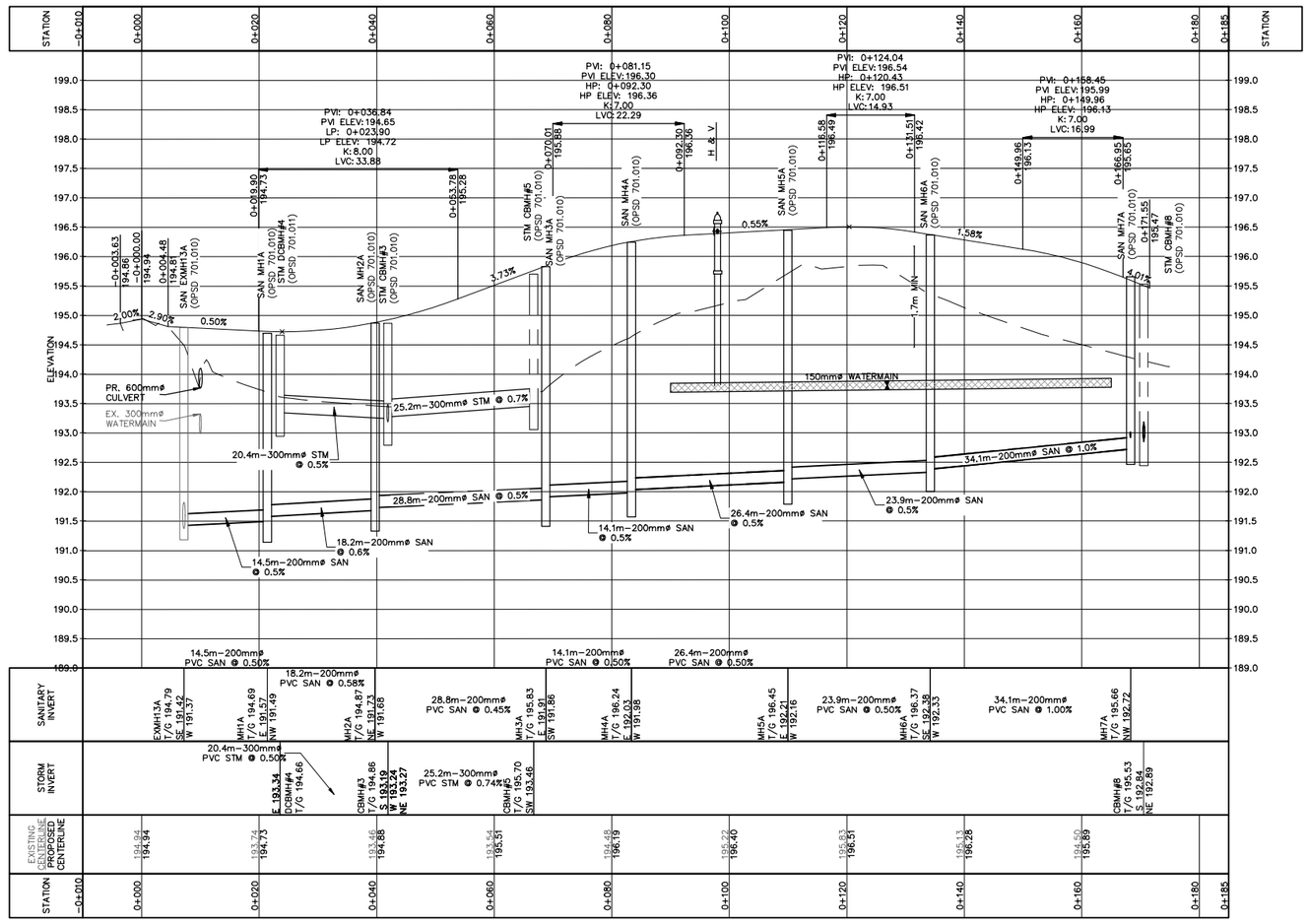
Drawn By	Design By	Project	
S.C.	S.C.		1443–4724
Check By	Check By	Scale	Drawing
M.L.	K.A.M	1:400	103

J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\CAD\Civil\1SHEET\4724_C103.dwg, 103, 10/16/2018 2:49:10 PM, scousins





STREET A



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PRELIMINARY
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Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Project

LORA BAY HEIGHTS
THORNBURY

Drawing

PLAN & PROFILE
STREET 'A' (STA 0+000 – 0+185)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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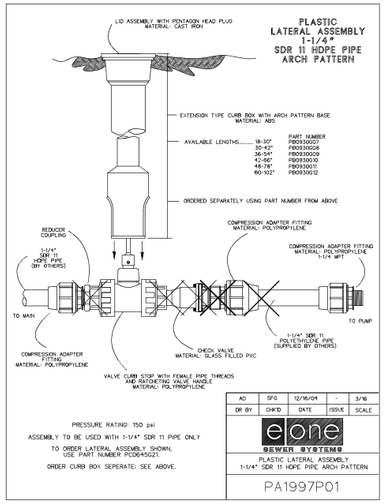
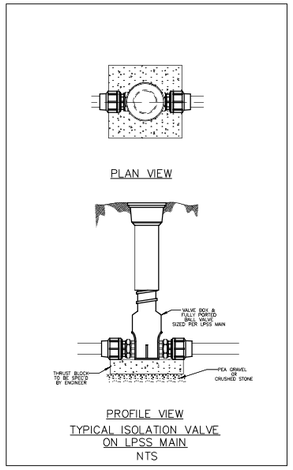
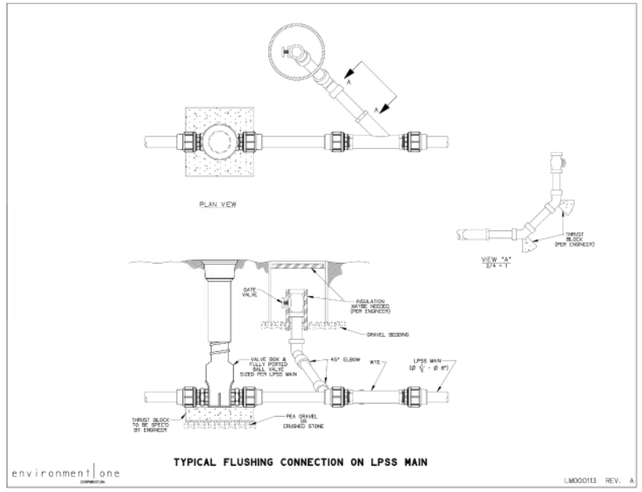
INFO@CFCROZIER.CA

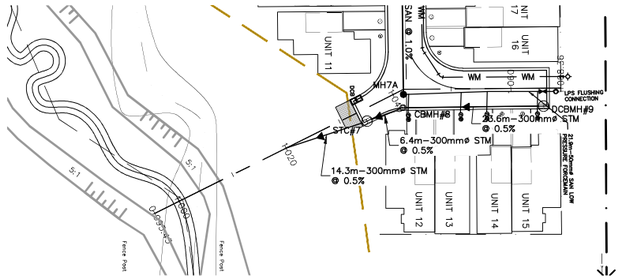
Drawn By	Design By	Project
S.C.	S.C.	1443–4724
Check By	Check By	Scale V=1:50 H=1:500 / Drawing
M.L.	K.A.M	104

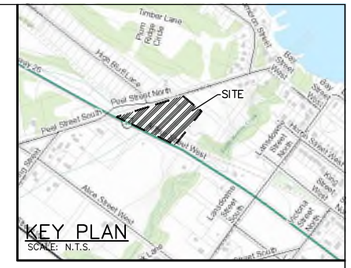




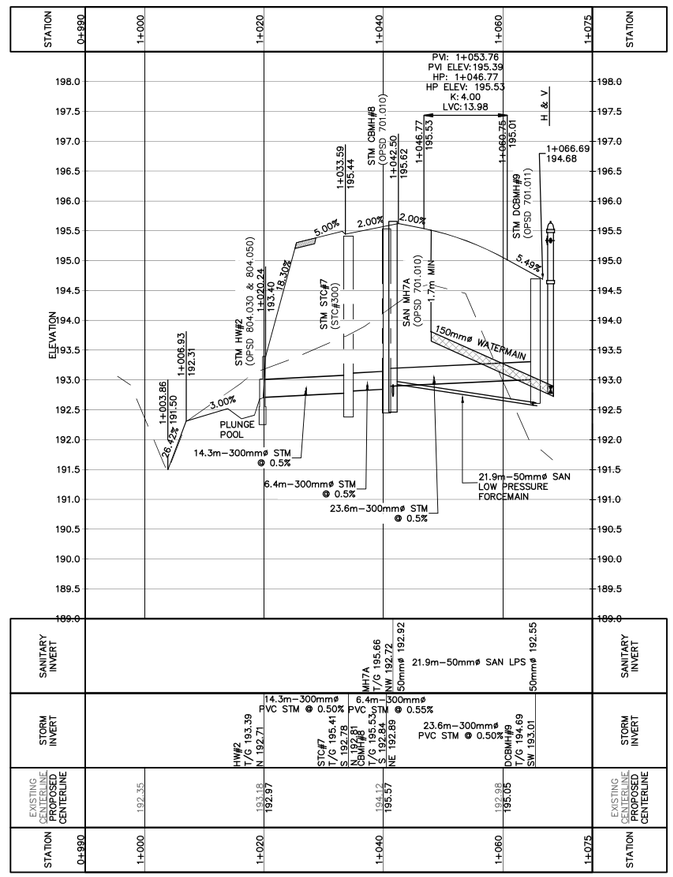
PROFILE VIEW
TYPICAL ISOLATION VALVE
ON LPSS MAIN
NTS

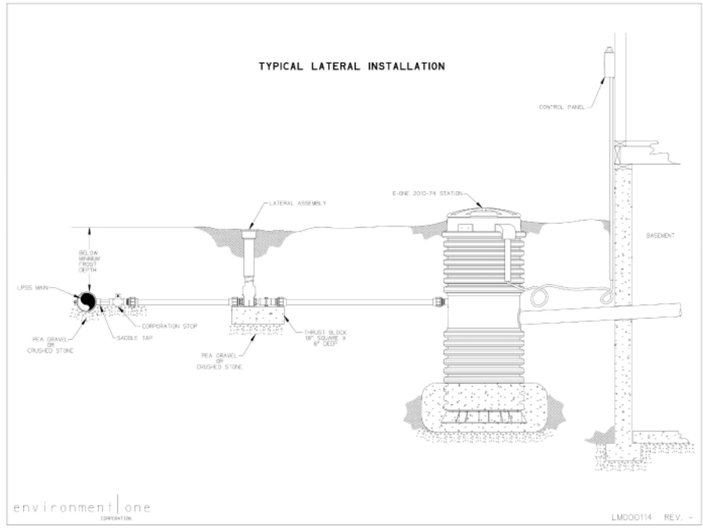






Street B





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TEMPORARY BENCHMARKS

TBM#1– HORIZONTAL CONTROL MONUMENT:
00820000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121

TBM#2– HORIZONTAL CONTROL MONUMENT:
00820000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

TBM#3– VERTICAL CONTROL MONUMENT:
0011972U298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.

TBM#4– VERTICAL CONTROL MONUMENT:
0011928U118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	06/08/2018
2	ISSUED FOR 2nd SUBMISSION	10/16/2018

Engineer

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Engineer

PROFESSIONAL ENGINEERS PROVINCE OF ONTARIO

Project
LORA BAY HEIGHTS
THORNBURY

Drawing
PLAN & PROFILE
STREET 'B' (STA 0+990 – 1+075)

Town Approval

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
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COLLINGWOOD, ON L9Y 4R3
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705 446-3520 F
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Drawn By	S.C.	Design By	S.C.	Project	1443-4724
Check By	M.L.	Check By	K.A.M.	Scale V=1:50 H=1:500	Drawing 105

GENERAL NOTES:

1. ALL CONSTRUCTION EQUIPMENT TO USE MAIN ACCESS POINT, LOCATED AT PEEL STREET, AS INDICATED ON THIS DRAWING. MUD MAT TO BE CONSTRUCTED AT ACCESS POINT.
2. ALL SEDIMENT AND EROSION CONTROL FACILITIES AND WORKS ARE TO BE CONSTRUCTED AND IN PLACE TO THE APPROVAL OF THE SITE ENGINEER PRIOR TO ANY GRADING OPERATIONS COMMENCING. TYPICAL WORKS INCLUDE SILT FENCES, INTERCEPTOR SWALES, STRAW BALE CHECK DAMS AND SEDIMENT TRAPS.
3. ALL TEMPORARY TOPSOIL STOCKPILES ARE TO BE PROVIDED WITH THE NECESSARY SEDIMENT AND EROSION CONTROL FEATURES.
4. ALL INTERCEPTOR SWALES ARE TO BE SEEDED TO STABILIZE THEIR BANKS IMMEDIATELY FOLLOWING CONSTRUCTION.
5. NO TREE CLEARING OR DISTURBANCE OF LANDS WILL OCCUR WITHIN SPECIFIED BUFFERS ALONG PROPERTY LINES AND INTERNAL TO SITE.
6. DURING EARTHWORK ACTIVITIES THE CONTRACTOR WILL ENSURE THE MEASURES FOR DUST SUPPRESSION ARE PROVIDED AS REQUIRED, SUCH AS THE APPLICATION OF WATER OR LIME.
7. NO RE-FUELLING, MAINTENANCE OR REPAIR WORK ON CONSTRUCTION EQUIPMENT IS ALLOWED WITHIN 30m OF AN EXISTING WATERCOURSE OR DITCH EXCEPT AS NOTED.
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9. MULCH SHALL BE APPLIED TO STOCKPILES AND DISTURBED AREAS WHERE WINTER STABILIZATION IS REQUIRED.

MAINTENANCE & OPERATIONS OF SEDIMENT CONTROLS

SILT FENCE
1. SILT FENCE MUST BE INSPECTED WEEKLY FOR RIPS OR TEARS, BROKEN STAKES, BLOW-OUTS AND ACCUMULATION OF SEDIMENT.
2. SILT FENCE MUST BE INSPECTED FOLLOWING ALL 15MM OR GREATER RAIN STORM EVENT OR AS DIRECTED BY SITE ENGINEER.
3. SEDIMENT MUST BE REMOVED FROM SILT FENCE WHEN ACCUMULATION REACHES 50% OF THE HEIGHT OF THE FENCE.
4. ALL SILT FENCES MUST BE REMOVED ONLY WHEN THE ENTIRE SITE IS STABILIZED AND AS DIRECTED BY THE SITE ENGINEER.

STRAW BALE / ROCK FLOW CHECK DAM
1. REMOVE ACCUMULATED SEDIMENT UP STREAM OF THE CHECK DAM IF GREATER THAN ONE HALF OF DAM HEIGHT.
2. SILT REMOVAL MUST BE UNDERTAKEN WITH CARE TO MINIMIZE DOWN STREAM SEDIMENTATION IN SWALE OR DITCH.
3. STRAW BALE / ROCK CHECK DAM AND ALL ACCUMULATED SEDIMENT MUST BE REMOVED WITH CARE ONCE THE CONSTRUCTION SITE IS STABILIZED AND AS DIRECTED BY THE SITE ENGINEER.

MUD MAT MAINTENANCE
1. INSPECT MUD MAT WEEKLY TO ASSESS CONDITION AND ENSURE OPERATION EFFICIENCY.
2. SUPPLY AND PLACE ADDITIONAL CLEAR STONE AS DIRECTED BY SITE ENGINEER.
3. MAT TO REMAIN IN PLACE UNTIL SITE IS STABILIZED OR AS DIRECTED BY SITE ENGINEER.

DECOMMISSIONING
1. FOLLOWING COMPLETION OF CONSTRUCTION AND AS DIRECTED BY SITE ENGINEER, ALL EROSION AND SEDIMENT CONTROL WORKS ARE TO BE REMOVED INCLUDING ANY ACCUMULATED SEDIMENT.
2. ALL WORKS LOCATED ON LANDS OUTSIDE THE PROPOSED DEVELOPMENT AREA ARE TO BE GRADED TO MATCH EXISTING SURROUNDING GROUND AND HYDROSEEDED.

SEQUENCING NOTES:

PHASE 1:

1. INSTALL TEMPORARY SITE ENTRANCE c/w CULVERT, MUD MAT AND ROCK CHECK DAMS.
2. INSTALL TERRAFIX® SILT SOCK OR EQUIVALENT 1 m o/s FROM EXISTING CHANNEL BANKS.
3. INSTALL TEMPORARY CROSSINGS ACROSS THE EXISTING CHANNEL.
4. CLEAR AND GRUB PROPOSED CHANNEL AREA BETWEEN THE EXISTING CHANNEL AND THE GEORGIAN TRAIL.
5. INSTALL DOUBLE ROW OF SILT FENCE C/W STRAW BALES ALONG THE NORTH BANK OF THE PROPOSED CHANNEL AND TERRAFIX® SILT SOCK OR EQUIVALENT ALONG THE SOUTH BANK OF THE EXISTING CHANNEL.
6. EXCAVATE, GRADE AND CONSTRUCT PROPOSED CHANNEL IN THE DRY.

PHASE 2:

7. INSTALL FISH SCREENS DOWNSTREAM OF THE GEORGIAN TRAIL CULVERTS AND DOWNSTREAM OF THE PORPOSED CHANNEL WORKS.
8. INSTALL COFFER DAMS AND BYPASS PUMPING SYSTEM TO DIVERT FLOW FOR UPSTREAM AND DOWNSTREAM CHANNEL CONNECTIONS.
9. REMOVE SILT SOCKS FROM EXISTING CHANNEL WITHIN THE PHASE 2A AREA.
10. CONNECT CONSTRUCTED CHANNEL TO EXISTING CHANNEL AT THE DOWNSTREAM END.
11. INSTALL DOUBLE ROW OF SILT FENCE c/w STRAW BALES ALONG THE NORTH BANK OF THE CONSTRUCTED CHANNEL.
12. REMOVE SILT SOCK FROM EXISTING CHANNEL WITHIN THE PHASE 2B AREA.
13. CONNECT CONSTRUCTED CHANNEL TO EXISTING CHANNEL AT UPSTREAM END.
14. INSTALL DOUBLE ROW OF SILT FENCE c/w STRAW BALES ANLONG THE NORTH BANK OF THE CONSTRUCTED CHANNEL AND TERRAFIX® SILT SOCK OR EQUIVALENT ALONG SOUTH BANK.
15. REMOVE COFFER DAMS AND BYPASS PUMPING SYSTEM FROM EXISTING CHANNEL ALLOWING WATER TO FLOW THROUGH CONSTRUCTED CHANNEL.

PHASE 3:

16. INSTALL TEMPORARY CROSSING ACROSS THE CONSTRUCTED CHANNEL.
17. GRADE AREA SOUTH OF CONSTRUCTED CHANNEL, FILL EXISTING CHANNEL AND REMOVE TEMPORARY CROSSINGS OF EXISTING CHANNEL.
18. REMOVE SILT SOCK AND TEMPORARY CROSSING OF THE CROSSING OF THE CONSTRUCTED CHANNEL ONCE THE WORK AREA HAS BEEN STABILIZED.

NOTE: DOUBLE ROW OF SILT FENCE c/w STRAW BALES, ROCK CHECK DAMS AND MUD MAT TO REMAIN FOR SITE SERVICING WORKS.

NOTE:
DRAWING TO BE READ IN CONJUNCTION w/ TRIBUTARY OF LITTLE BEAVER RIVER REALIGNMENT DWGS, PROVIDED BY GEOMORPHIX DATED OCTOBER 2018

KEY PLAN
SCALE: N.T.S.

NOTE:
GEOTEXTILE (TERRAFIX 270R OR APPROVED EQUAL) TO BE PLACED AS SEPARATION BARRIER BETWEEN EXISTING GROUND AND CLEAR STONE.

MUD MAT DETAIL (CONSTRUCTION ACCESS)
N.T.S.

LEGEND

- HDSF — HEAVY DUTY SILT FENCE PER OPSD 219.130
- STRAW BALE CHECK DAM
- ROCK CHECK CHECK DAM
- SF — LIGHT DUTY SILT FENCE PER OPSD 219.110
- SILT SOCK

NOTE:
SITE WORKS TO OCCUR AFTER CREEK WORKS HAVE BEEN COMPLETED. HEAVY DUTY SILT FENCE c/w STRAW BALES TO REMAIN IN PLACE FOLLOWING CREEK WORKS.

- PHASE 1
- PHASE 2A
- PHASE 2B
- PHASE 3

Town Approval

TEMPORARY BENCHMARKS

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00820000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121
TBM#2– HORIZONTAL CONTROL MONUMENT:
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TBM#4– VERTICAL CONTROL MONUMENT:
0011928U1188 – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

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Project
LORA BAY HEIGHTS
THORNBURY

Drawing
SEDIMENT AND EROSION CONTROL PLAN
CREEK WORKS

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Drawn By	S.C.	Design By	S.C.	Project	1443-4724
Check By	M.L.	Check By	K.A.M	Scale	1: 400
				Drawing	106A

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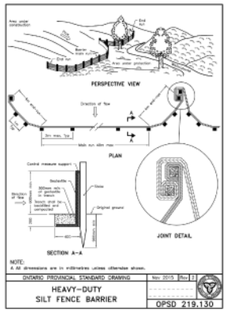
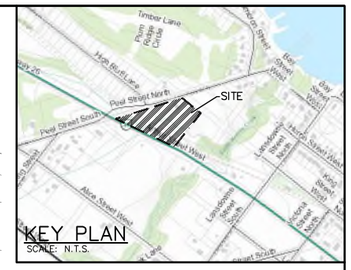
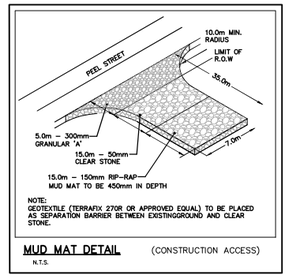


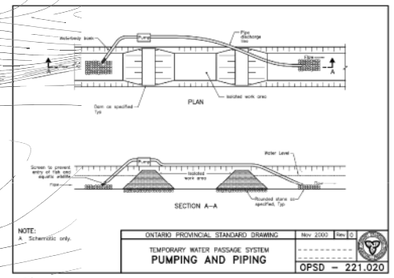


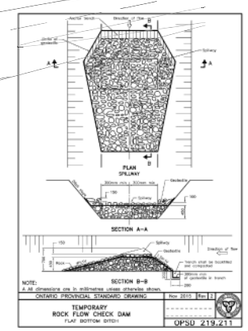


LEGEND

HDSF	HEAVY DUTY SILT FENCE PER OPSD 219.130
	STRAW BALE CHECK DAM
	ROCK CHECK CHECK DAM

NOTE:
CHANNEL REALIGNMENT TO OCCUR PRIOR TO SITE ALTERATION AND CIVIL WORKS.





Town Approval

TEMPORARY BENCHMARKS

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00119721298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.
TBM#4– VERTICAL CONTROL MONUMENT:
00119328U118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

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Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Project
LORA BAY HEIGHTS
THORNBURY

Drawing
SEDIMENT AND EROSION CONTROL PLAN
SITE WORKS

CROZIER CONSULTING ENGINEERS
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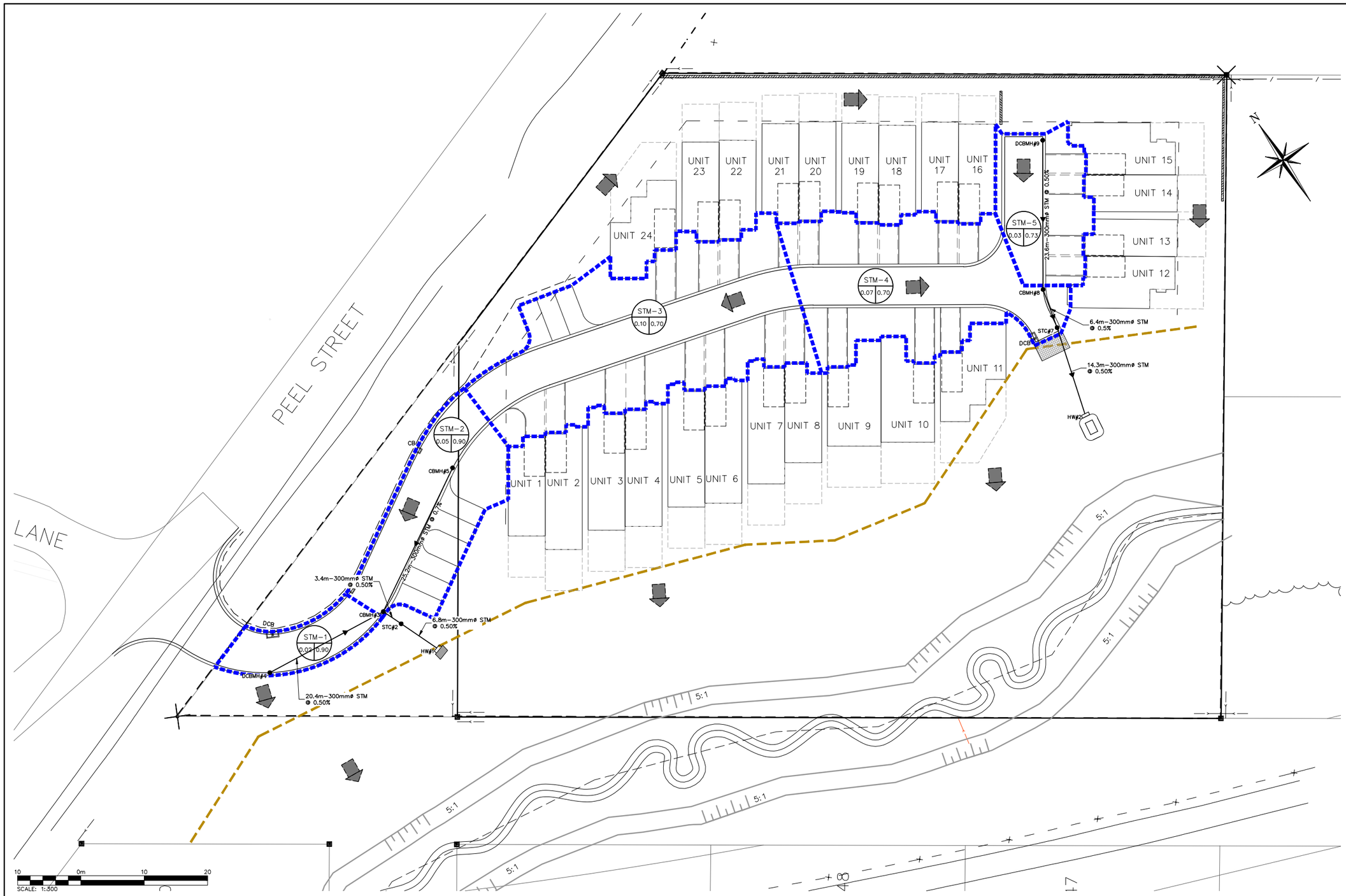
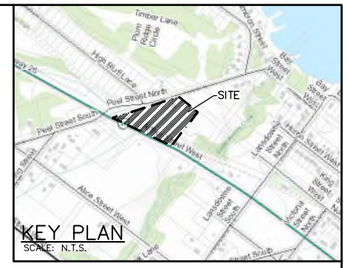
Drawn By	S.C.	Design By	S.C.	Project	1443-4724
Check By	M.L.	Check By	K.A.M	Scale 1: 400	Drawing 106B





Town Approval

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TEMPORARY BENCHMARKS

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0082000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121

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0082000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

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0011972U298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL. 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.

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LORA BAY HEIGHTS
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Drawing
STORM SEWER DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS
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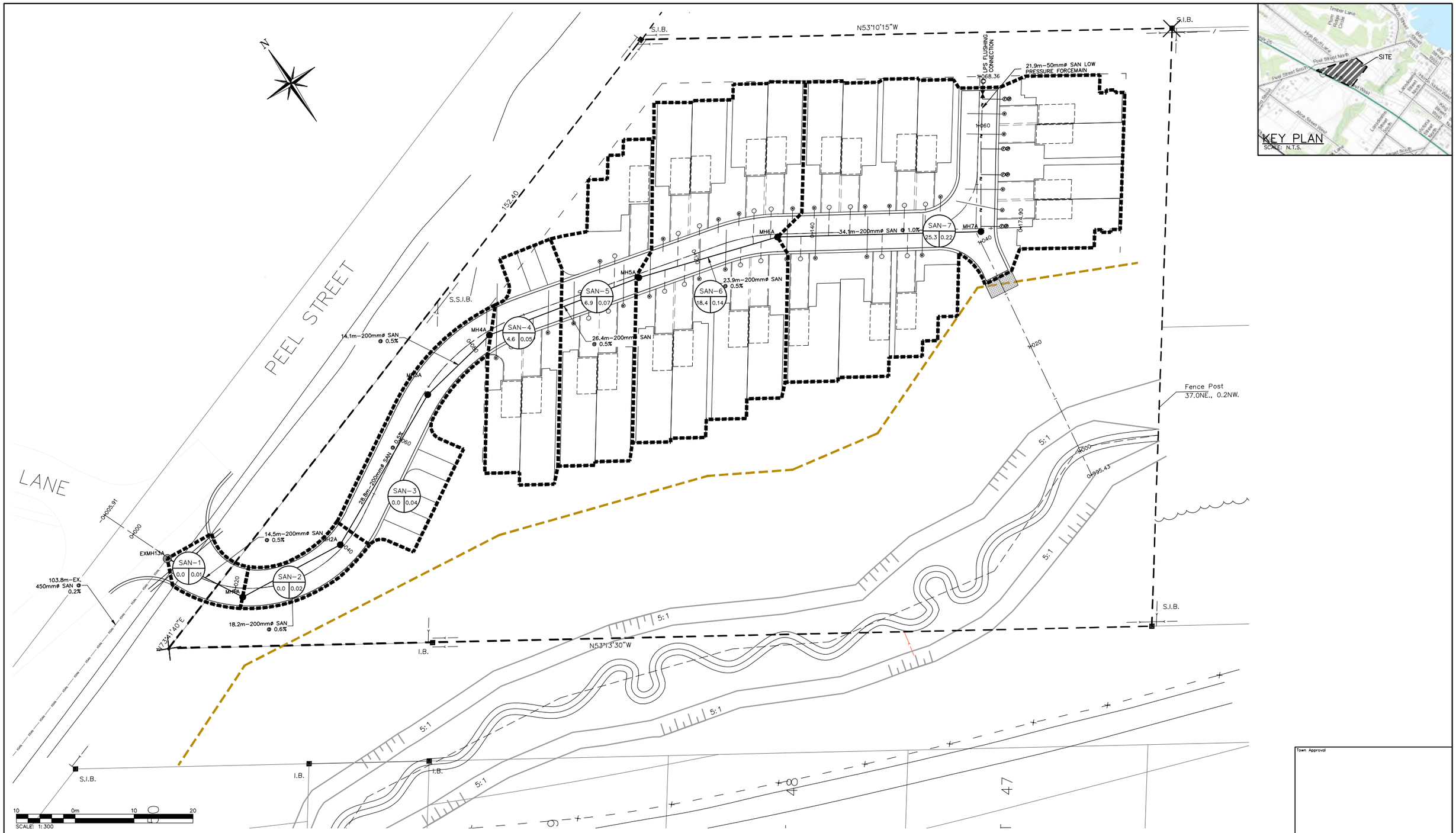
Drawn By	Design By	Project
S.C.	S.C.	1443-4724
Check By	Check By	Scale / Drawing
M.L.	K.A.M	1:300 / 107



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00119721298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.
TBM#4– VERTICAL CONTROL MONUMENT:
00119280118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	06/08/2018
2	ISSUED FOR 2nd SUBMISSION	10/16/2018

Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Engineer

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Town Approval

Project
LORA BAY HEIGHTS
THORNBURY

Drawing
SANITARY AREA DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING.
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
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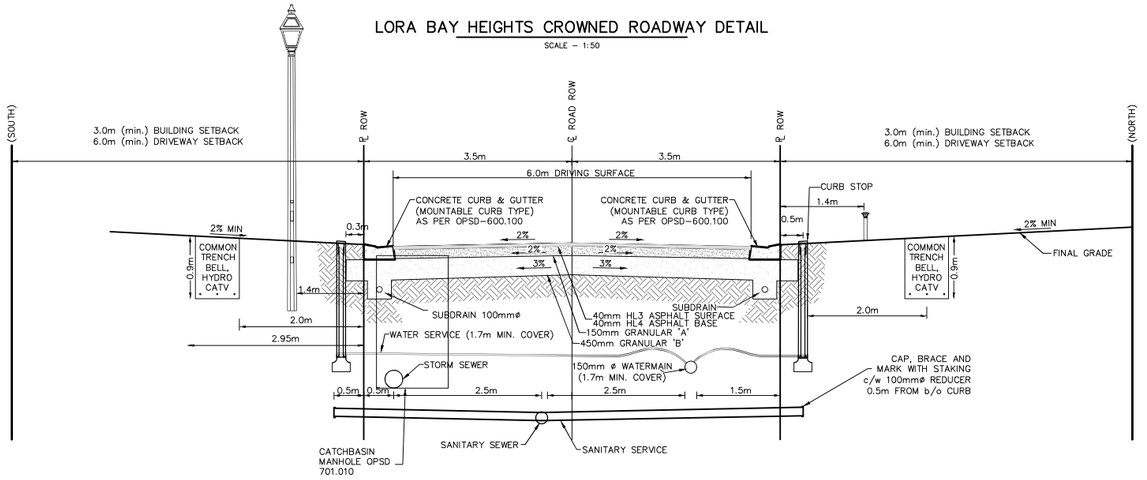
Drawn By	Design By	Project
S.C.	S.C.	1443–4724
Check By	Check By	Scale / Drawing
M.L.	K.A.M	1:300 / 108

J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\CAD\Civil\1SHEET\4724_C108.dwg, 108, 10/16/2018 1:44:55 PM, scousins

LORA BAY HEIGHTS CROWNED ROADWAY DETAIL

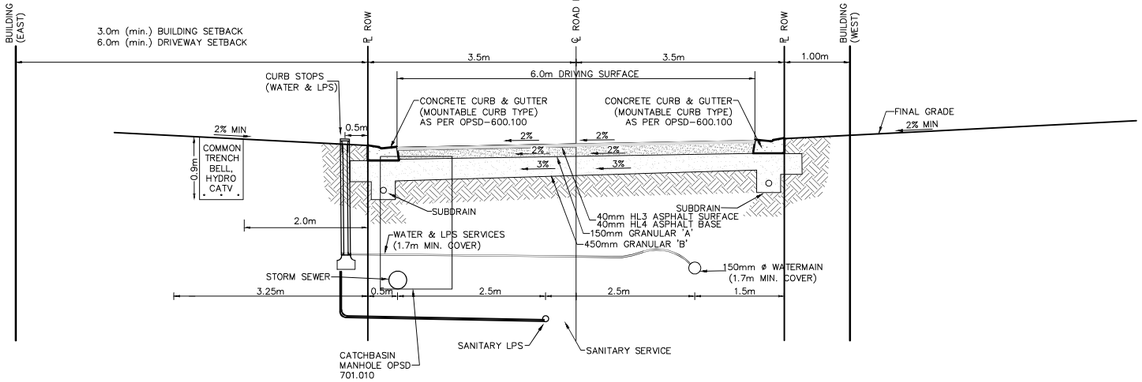
SCALE – 1:50



NOTE: GAS TO BE LOCATED IN REAR YARDS

LORA BAY HEIGHTS SUPER ELEVATED ROADWAY DETAIL

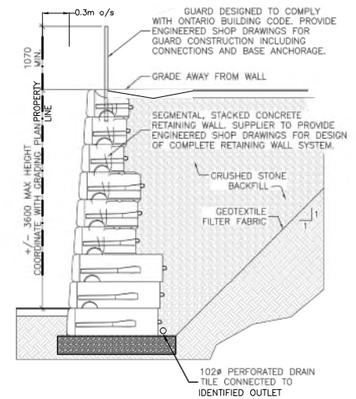
SCALE – 1:50



NOTE: GAS TO BE LOCATED IN REAR YARDS

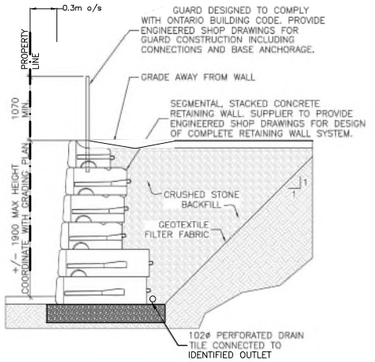
TYPICAL REDI-ROCK RETAINING WALL DETAIL – 3.6m MAX. HEIGHT

SCALE: N.T.S.



TYPICAL REDI-ROCK RETAINING WALL DETAIL – 1.9m MAX. HEIGHT

SCALE: N.T.S.



NOTES:

1. CONTRACTOR TO PROVIDE SEALED SHOP DRAWINGS FOR PROPOSED REDI-ROCK RETAINING WALL (OR ACCEPTABLE EQUIVALENT) BY APPROVED DESIGNER AND PROPOSED PEDESTRIAN BARRICADE FOR REVIEW AND ACCEPTANCE.
2. NO ENCROACHMENT IS ALLOWED ONTO ASSOCIATED PROPERTIES DURING CONSTRUCTION.
3. CONTRACTOR TO SHORE AND BRACE CUT-SLOPES DURING INSTALLATION OF RETAINING WALL.
4. INSTALLATION OF RETAINING WALL SHALL BE REVIEWED AND APPROVED BY QUALIFIED GEOTECHNICAL ENGINEER OR HIS/HER REPRESENTATIVE.
5. BASE TO BE NATIVE MATERIAL FREE OF ORGANICS AND DELETERIOUS MATERIALS AS DIRECTED BY GEOTECHNICAL ENGINEER.
6. CONTRACTOR TO LOCATE AND IDENTIFY ALL EXISTING AND PROPOSED SERVICES WITHIN THE CONSTRUCTION LIMITS PRIOR TO EXCAVATION AND NOTIFY ENGINEER OF ANY DISCREPANCIES WITH EXISTING SERVICES.
7. 2012 ONTARIO BUILDING CODE REQUIRES THAT THE CONTRACTOR RETAIN A GENERAL REVIEW ENGINEER TO ENSURE INSTALLATION IS IN COMPLIANCE WITH DESIGN AND SPECIFICATIONS (WALL AND GROUT MANUFACTURER'S SPECS).

CONSTRUCTION NOTES

GENERAL

1. ALL EXISTING UNDERGROUND UTILITIES AND SERVICES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. ANY SITE ILLUMINATION TO BE DIRECTED DOWNWARD AND INTERNAL TO SITE ONLY.
3. DETAILS ON PROPOSED PLANTING, LANDSCAPE FEATURES, SITE TREATMENTS ARE PREPARED BY LANDSCAPE ARCHITECT.
4. ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE TOWN PRIOR TO ANY WORKS COMPLETED WITHIN THE MUNICIPAL RIGHT OF WAY (ROW). CONTRACTOR IS RESPONSIBLE TO OBTAIN PERMIT.
5. ALL BOULEVARDS & DISTURBED AREAS ARE TO BE RESTORED TO EXISTING CONDITIONS OR BETTER, 100mm TOPSOIL & SOD UNLESS OTHERWISE NOTED.
6. CLEAR STONE WRAPPED IN FILTER CLOTH CAN BE SUBSTITUTED FOR BEDDING MATERIAL IF APPROVED BY THE GEOTECHNICAL ENGINEER.
7. ALL PROPERTY BARS TO BE PROTECTED DURING CONSTRUCTION. BARS ARE TO BE PLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF DAMAGED OR REMOVED.
8. DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS-517 & 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. OWNER IS RESPONSIBLE FOR OBTAINING M.E.C.P PERMIT IF REQUIRED.
9. ALL RIP-RAP/GABION MATTRESSES TO BE PLACED UPON FILTER CLOTH.

ROADS

1. ALL EXCAVATION SHALL CONFORM TO THE CURRENT ONTARIO PROVINCIAL SPECIFICATION FOR GRADING OPSS 206.
2. THE DEVELOPER SHALL RETAIN A QUALIFIED SOILS CONSULTANT TO CARRY OUT COMPACTION TESTS ON THE COMPLETED SUBGRADE AND SUBSEQUENT LIFTS OF GRANULAR BASE MATERIAL BEFORE PLACEMENT OF NEXT GRANULAR OR ASPHALT LIFT.
3. ALL VEGETATION, BOULDERS OVER 150mmø, TOPSOIL AND ORGANIC OR FROST-SUSCEPTIBLE MATERIALS, SHALL BE REMOVED FROM THE ROAD BASE TO A DEPTH OF AT LEAST 1.20m BELOW FINISHED GRADE AND REPLACED WITH SUITABLE MATERIAL.
4. ALL UNSUITABLE EXCAVATED MATERIAL SHALL BE REMOVED FROM THE ENTIRE "ROAD CORRIDOR" AND DEPOSITED OFF THE SITE TO A DISPOSAL AREA APPROVED BY THE SITE ENGINEER.
5. NATIVE SUB-GRADE TO BE GRADED, COMPACTED AND PROOF-ROLLED PRIOR TO PLACEMENT OF GRANULARS. COMPACTION TO BE MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). ALL IDENTIFIED SOFT AND WEAK SPOTS SHALL BE EXCAVATED AND BACKFILLED WITH A SUITABLE GRANULAR BASE MATERIAL.
6. THE GRANULAR BASE SHALL BE LAID ON DRY, SMOOTH, PROPERLY GRADED SUB-GRADE, AND SHALL BE SPREAD FOR THE REQUIRED WIDTH TO MEET THE EDGE OF SUB-GRADE. THE GRANULAR ROAD STRUCTURE SHALL CONSIST OF A SUB BASE OF 450mm MIN. CONSOLIDATED GRANULAR "B" MATERIAL FULL WIDTH ACROSS THE ROADWAY AND A BASE OF 150mm GRANULAR 'A' MATERIAL FULL WIDTH ACROSS THE ROADWAY AND CONFORMING IN ALL RESPECTS TO THE MINISTRY OF TRANSPORTATION ONTARIO PROVINCIAL STANDARD SPECIFICATIONS OPSS 1010.
7. THE GRANULAR MATERIAL SHALL BE SPREAD IN LAYERS OF 150mm MAXIMUM COMPACTED DEPTHS, AND EACH LAYER SHALL BE THOROUGHLY COMPACTED TO 100% SPMDD.
8. NO GRANULAR BASE SHALL BE PLACED UNTIL THE GRADE ON WHICH IT IS TO BE LAID HAS BEEN INSPECTED AND APPROVED BY THE SOILS CONSULTANT.
9. ALL GRANULAR CONSTRUCTION SHALL CONFORM IN ALL RESPECTS TO ONTARIO PROVINCIAL STANDARD SPECIFICATION OPSS 314.
10. AS SOON AS THE GRANULAR BASE HAS BEEN COMPLETED IT SHALL BE THOROUGHLY COMPACTED AND SHAPED AND THE BASE COURSE ASPHALT PLACED. THE BASE COURSE SHALL CONSIST OF 40mm MIN. THICKNESS OF HL4 BASE COURSE ASPHALT. THE SURFACE COURSE SHALL CONSIST OF 40mm MIN. THICKNESS OF HL3 SURFACE COURSE ASPHALT. ASPHALT WORK SHALL CONFORM IN ALL RESPECTS TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS OPSS 310.
11. THE ASPHALT COMPONENTS SHOULD BE COMPACTED TO 92% MAXIMUM RELATIVE DENSITY, AS PER OPSS 310.
12. JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT.
13. ALL SERVICES, MANHOLES, VALVES, ETC. ARE TO BE INSTALLED TO MATCH GRADE OF BASE COURSE OF ASPHALT AND/OR FINISHED GRADE OF LANDSCAPING. UPON PLACEMENT OF SURFACE COURSE OF ASPHALT ALL APPURTENANCES LOCATED IN ROADWAY SHALL BE RAISED TO MATCH FINISHED GRADE.
14. ALL ROAD CROSSING CULVERTS TO BE HDPE 320 kPa PIPE TO CL-625 CSA S6 UNLESS NOTED OTHERWISE. ALL CULVERTS TO BE INSTALLED WITH FROST TAPER TREATMENT PER OPSD 803.031 & RIP RAP END TREATMENT PER OPSD 810.010. MINIMUM COVER TO BE 0.3m AT ALL POINTS ALONG PIPE.

STORM SEWER

1. SEWERS SHALL BE PVC PIPE (OPSS 410) OR ADPE, MIN. PIPE STIFFNESS SHALL BE 320kPa. ALL PIPE TO BE JOINED WITH A GASKETTED BELL & SPIGOT SYSTEM.
2. MINIMUM PIPE SIZE, INCLUDING CATCHBASIN LEADS, SHALL BE 300mmø.
3. STORM SEWER EMBEDMENT SHALL CONFORM WITH OPSD 802.010 USING GRANULAR 'A'.
4. PRECAST STORM MANHOLES SHALL BE PER OPSD 701.010 (1200mmø) OR 701.012 (1800mmø) WITH FRAME AND GRATE PER OPSD 401.010 TYPE 'A' AND HOLLOW RECTANGULAR LADDER RUNGS OPSD 405.010. CATCHBASIN MANHOLE FRAME AND GRATE PER OPSD 400.020. BENCHING SHALL BE PROVIDED IN ALL MANHOLES.
5. PRECAST CATCHBASINS ARE TO BE OPSD 705.010 (SINGLE) OR 705.020 (DOUBLE) WITH FRAME AND GRATE OPSD 400.020. ALL CATCHBASINS AND CATCHBASIN MANHOLES SHALL HAVE SUMPS.
6. FROST STRAPS REQUIRED ON ALL MANHOLES AS PER OPSD 701.100.

WATERMAIN

A) PIPING

1. ALL CONSTRUCTION TO CONFORM TO AWWA C605-94 AND AWWA C600-99 STANDARDS.
2. WATERMAIN PIPE SHALL BE PVC DR18 (SIZES UP TO 300mmø), CONFORMING TO AWWA C900. A DIFFERENT PIPE STRENGTH OR TYPE MAY BE REQUIRED BY THE MUNICIPALITY FOR SPECIAL CONDITIONS.
3. WATERMAIN DEFLECTION NOT TO EXCEED MANUFACTURER'S RECOMMENDATIONS. WHERE DEFLECTION CAN NOT MEET MANUFACTURERS RECOMMENDATIONS, CONTRACTOR TO INSTALL THE REQUIRED MANUFACTURED BEND AS NECESSARY.
4. WATERMAIN SHALL BE BEDDED IN ACCORDANCE WITH OPSD 802.010 WITH GRANULAR 'A'..
5. WATERMAIN TO BE TESTED AND APPROVED PER THE TOWN OF THE BLUE MOUNTAINS – WATERMAIN COMMISSIONING PROTOCOL STANDARD (MAY 2007).
6. ALL TESTING REQUIRES NOTIFICATION IN WRITING, 48 HOURS PRIOR TO ALL TESTING.
7. ALL CONNECTIONS TO EXISTING MUNICIPAL SUPPLY MAINS MUST BE INSPECTED BY THE MUNICIPALITY OR REPRESENTATIVE AND GIVING 48 HOURS NOTICE PRIOR TO BACKFILLING OPERATIONS.
8. THE PVC PIPE INSTALLATION SHALL INCLUDE TRACER WIRE. TRACER WIRE TO BE 10 GAUGE, MULTI-STRAND SHALL BE PLACED ON TOP & ATTACHED IN TWO PLACES ON EACH LENGTH OF PVC WATERMAIN. ALL CONNECTIONS SHALL BE MADE WITH "DRYCONN WATERPROOF CONNECTORS" OR APPROVED EQUAL. MUNICIPALITY MUST BE ON SITE DURING ANY TRACER WIRE CONTINUITY TESTING.
9. THE MINIMUM COVER ON WATERMAINS SHALL BE 1.7m. WHEN COVER IS LESS THAN 1.7m, CONTRACTOR TO PROVIDE INSULATION PER DETAIL ON DWG 109.
10. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS AND PIPE AS PER OPSS 702 & TOWN STANDARD.
11. THRUST BLOCKS OR JOINT RESTRAINTS SHALL BE REQUIRED AT ALL CHANGES IN PIPE DIRECTION, TERMINATIONS AND ANY LOCATION WHERE THRUST PRESSURES MAY OCCUR. WHERE SOIL CONDITIONS ARE SUSPECT, SUCH AS IN DISTURBED SOILS OR SOILS WITH BEARING CAPACITY OF LESS THAN 200kPa, PIPE RESTRAINERS SHALL BE USED. SEE TOWN STANDARDS OF APPROPRIATE PRODUCT REQUIREMENTS. THE USE OF THREADED RODS IN JOINT RESTRAINT IS NOT PERMISSIBLE.

B) SERVICES

1. EACH HOUSING UNIT SHALL HAVE A SEPARATE 19mmø TYPE K COPPER, 25mm REHAU'S MUNICIPEX (BLUE) OR SERIES 160 POLYETHYLENE WATER SERVICE. A CURB STOP AND EXTENSION SERVICE BOX AND MAIN STOP MUST BE INSTALLED ON EACH SERVICE USING COMPRESSION JOINT FITTINGS. TRACER WIRE SHALL BE PLACED ALONG THE ENTIRE LENGTH OF EACH SERVICE LINE.
2. WATER SERVICE FITTINGS SHALL BE AS FOLLOWS:
   - MAIN STOPS ARE TO BE MUELLER H25008.
   - CURB STOPS ARE TO BE SELF DRAINING, MUELLER H25209.
   - SERVICE BOXES ARE TO BE OF ALL IRON/STEEL CONSTRUCTION AND SUPPLIED WITH STAINLESS STEEL RODS, MUELLER A-726 OR EQUIVALENT.
3. CURB STOPS SHALL BE LOCATED 0.5m FROM BACK OF CURB & SUPPLIED WITH A 89mm X 38mm MARKER FROM THE INVERT OF THE SERVICE TO 600mm ABOVE GRADE PAINTED BLUE.
4. SERVICE CONNECTIONS TO WATERMAINS SHALL BE MADE BY DIRECT TAPPING OR WITH BROAD BAND STAINLESS STEEL SADDLES. SERVICE SADDLES TO BE ROBAR 2706 DOUBLE STRAP & TAPPING SADDLE TO BE ROBAR 6906.
5. SERVICE CONNECTIONS SHALL BE LEFT WITH A TAIL ABOVE GRADE & CAPPED OR CRIMPED.
6. SERVICE CONNECTIONS WITH RESIDUAL PRESSURES EXCEEDING 550 kPa (80psi) MUST BE EQUIPPED WITH PRESSURE REDUCING DEVICES UPSTREAM OF WATER METER IN FUTURE HOMES.

SANITARY SEWERS

GRAVITY

1. MAIN SEWERS SHALL BE PVC SDR 35 WITH RUBBER GASKET CONNECTIONS AND MIN. SIZE OF 200mmø. ALL SANITARY SEWER PIPES SHALL CONFORM TO THE REQUIREMENTS OF CSA AND OPSS.
2. SANITARY SEWER EMBEDMENT SHALL CONFORM WITH OPSD 802.010 USING GRANULAR 'A'.
3. PRECAST SANITARY MANHOLES SHALL CONFORM WITH OPSD 701.010 (1200mmø) WITH HOLLOW RECTANGULAR LADDER RUNGS OPSD 405.010. BENCHING SHALL BE PROVIDED IN ALL MANHOLES.
4. MANHOLE COVERS SHALL BE CAMRON DS579 (OR APPROVED EQUAL) AND INSTALLED AS PER MUNICIPAL STANDARD.
5. HOUSE SERVICE CONNECTIONS SHALL BE PVC SDR 28 WITH RUBBER GASKET CONNECTIONS AND SHALL BE 125mmø MIN. SERVICE CONNECTIONS TO HAVE A MINIMUM 2.0% SLOPE.
6. SHOP MANUFACTURED "TEE" CONNECTIONS SHALL BE USED FOR HOUSE SERVICE CONNECTIONS ON 200mm AND 250mm SEWERS.
7. ALL 125mmø SERVICE CONNECTIONS SHALL BE TERMINATED 1.0m FROM THE PROPERTY LINE WITH A 125mmX100mm REDUCER, PLUG SUITABLY BRACED TO WITHSTAND TEST PRESSURES & 89mm X 38mm MARKER PLACED FROM THE INVERT OF THE CONNECTION TO 600mm ABOVE GRADE PAINTED GREEN.
8. CONNECTION TO MANHOLES SHALL ENTER THE MANHOLE NO HIGHER THAN 600MM ABOVE THE LOWEST INVERT EXCEPT AS OTHERWISE APPROVED BY THE TOWN.
9. FROST STRAPS REQUIRED ON ALL MANHOLES AS PER OPSD 701.100.

LOW PRESSURE

1. LPS FORCEMAIN SEWERS SHALL BE HDPE DR 11 WITH RUBBER GASKET CONNECTIONS AND MIN. SIZE OF 50 MM ø.
2. LPS FORCEMAIN SEWER BEDDING SHALL CONFORM WITH OPSD 802.010.
3. HOUSE SERVICE CONNECTIONS TO 1-1/4" HDPE DR 11-LPS. FORCEMAIN LATERALS C/W LATERAL KIT PER E-ONE. REFER TO TO LATERAL KIT DETAIL ON DRAWING 140.
4. FLUSHING CONNECTIONS TO BE INSTALLED AT ALL SHARP BENDS (INCLUDING TEE INTERSECTIONS) AND A MINIMUM 300mm SPACING. REFER TO FLUSHING CONNECTION DETAIL ON DRAWING 109.
5. ALL BENDS AND TEE CONNECTIONS TO BE FABRICATED HDPE DR 11.
6. CONTRACTOR TO ENSURE THAT EVERY LPS MAIN AND SERVICE MUST HAVE MIN. 1.7M COVER.
7. VALVE MARKER POST IS NEEDED AT ALL LPS ISOLATION VALVE BOXES NOT LOCATED IN ASPHALT PAVEMENT. THE MARKER POST MUST BE APPROVED PRIOR TO INSTALLATION.
8. INSULATION TO BE INSTALLED WITHIN FLUSHING MANHOLES, AROUND FLUSHING VALVES AND WHERE LPS COVER IS LESS THAN 1.7M.

RETAINING WALL CONSTRUCTION NOTES:

GENERAL

1. RETAINING WALL SOIL DESIGN CHARACTERISTICS TAKEN FROM SITE GEOTECHNICAL REPORT BY PETO MACCULLUM LTD. DATED MARCH 6, 2014.
2. SOIL UNITS TO UPPER 1.0m OF TILL

DESIGN PARAMETERS: $\phi_{soil}=28°$
SOIL = 20.0 kN/m³

SOIL UNITS BELOW 1.0m OF TILL

DESIGN PARAMETERS: $\phi_{soil}=30°$
SOIL = 21.0 kN/m³

MATERIALS

1. A NON-WOVEN GEOTEXTILE (TERRAFIX 270R OR APPROVED EQUIVALENT) SHALL BE PLACED BEHIND & UNDER RETAINING WALL.
2. ALL BACKFILL USED BEHIND RETAINING WALL SHALL BE FREE DRAINING GRANULAR MATERIAL AND SHALL BE PLACED AT A MINIMUM OF 300mm BEHIND THE WALL.
4. BACKFILL MATERIAL SHALL BE FREE OF EXCESS MOISTURE, ORGANIC MATERIAL, OR OTHER DELETERIOUS MATERIAL. PLACE BACKFILL IN LAYERS NOT GREATER THAN 300mm (LOOSE) AND COMPACT TO 95% SPMDD

METHODOLOGY

1. RETAINING WALL SHALL BE PLACED ON 300mm DEEP (MIN) GRANULAR FOUNDATION COMPACTED TO 95% SPMDD. ALL TOPSOIL, ORGANIC MATERIAL, OR POOR QUALITY IN-SITU MATERIAL ENCOUNTERED SHALL BE REMOVED TO COMPETENT NATIVE SUB-BASE AND REPLACED WITH COMPACTED GRANULAR BACKFILL PRIOR TO INSTALLATION OF ARMOUR STONE. THE BASE OF THE INSTALLATION IS TO BE KEPT DRY DURING INSTALLATION OF ARMOUR STONE. THE BASE IS TO BE INSPECTED & APPROVED BY THE SITE GEOTECHNICAL CONSULTANT PRIOR TO THE PLACEMENT OF ANY STONES.
2. INSTALL ARMOUR STONE PIECES IN A SAFE MANNER, IN ACCORDANCE WITH ALL M.O.L. REQUIREMENTS AND ONTARIO HEALTH & SAFETY ACT.

Town

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LORA BAY HEIGHTS
THORNBURY

Drawing
GENERAL NOTES & STANDARD DETAILS

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THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
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S.C.	S.C.	1443-4724	
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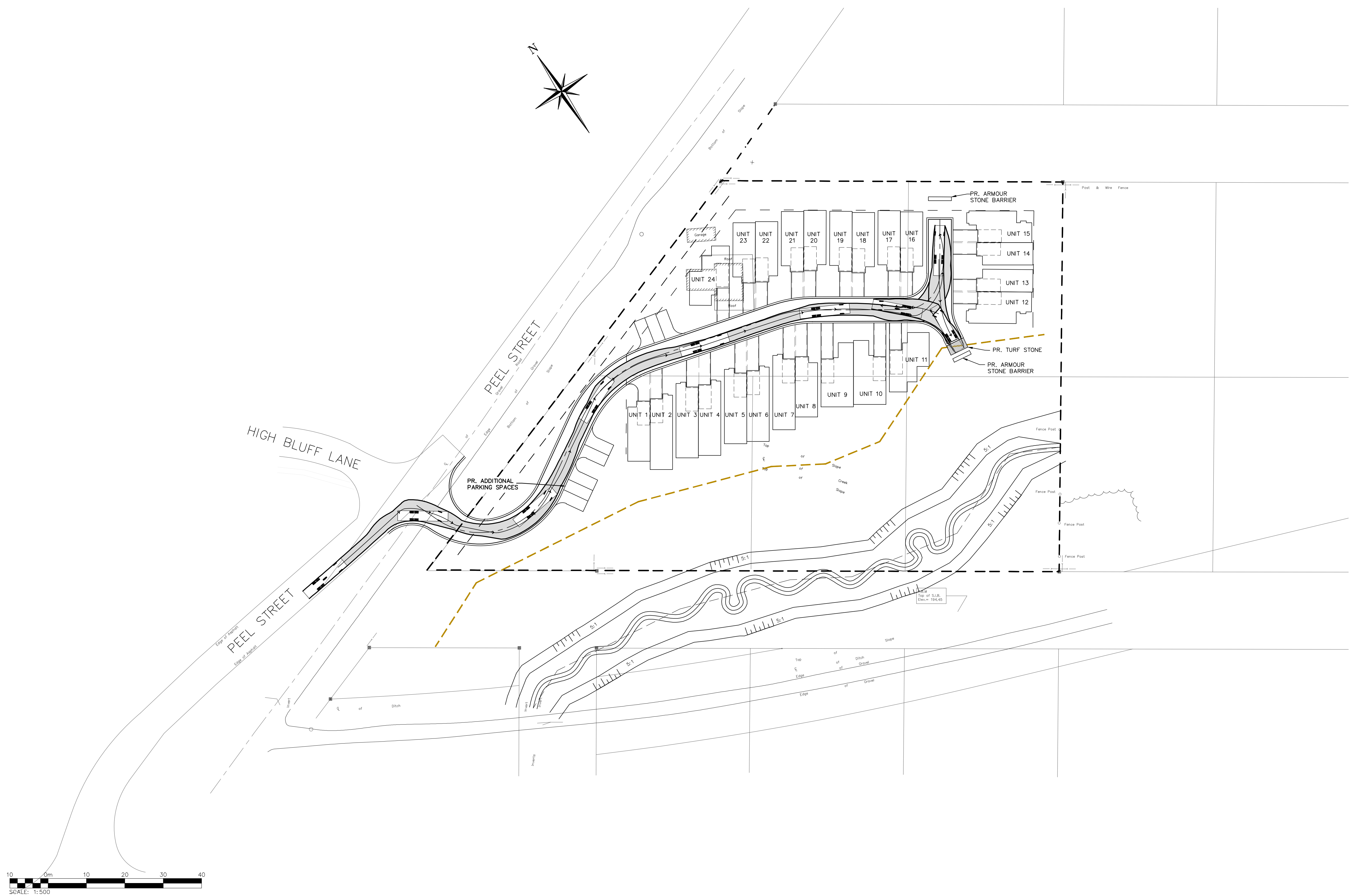
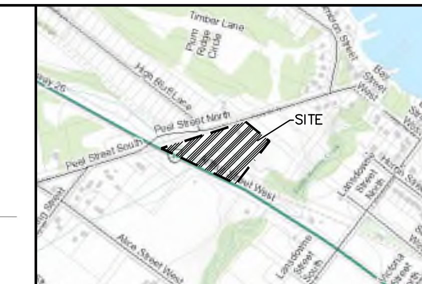
J:\1400\1443-Richpark Homes (Thornbury)\4724-188 Peel St\CAD\Civil\1SHEET\4724_C109.dwg, 109, 10/16/2018 2:28:57 PM, scousins

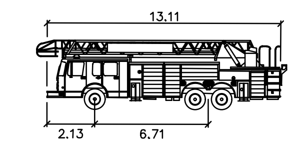




KEY PLAN

SCALE: N.T.S.

PLAN OF SURVEY OF
LOTS 47 & 48
SOUTHWEST OF KING STREET,
LOTS 47, 48 & 49
NORTHEAST OF ARTHUR STREET
AND PART OF MINTO STREET (PLAN 16R-11037)
TOWNPLOT OF THORNBURY
(FORMERLY TOWN OF THORNBURY)
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY



Aerial Fire Truck

	meters
Width	: 2.59
Track	: 2.59
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

SCALE: 1:500

1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. DO NOT SCALE THE DRAWINGS.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TEMPORARY BENCHMARKS

TBM#1– HORIZONTAL CONTROL MONUMENT:
00820000174 – CAP LOCATED APPROXIMATELY 176 M SOUTHEAST (ALONG HWY 26) OF INTERSECTION OF PEEL ST AND HWY 26, AND APPROXIMATELY 10 M NORTHEAST OF HWY 26 AT E=541696.656 AND N=4935457.121

TBM#2– HORIZONTAL CONTROL MONUMENT:
00820000175 – CAP LOCATED APPROXIMATELY 33 M NORTH OF INTERSECTION OF 10TH LINE AND HWY 26, ON THE EAST SIDE OF 10TH LINE AT E=541696.656 AND N=4935457.121

TBM#3– VERTICAL CONTROL MONUMENT:
0011972U298 – LARGE CONCRETE CULVERT UNDER HIGHWAY NO. 26, 1.0 KM NORTHWEST OF INTERSECTION OF BRUCE AND ARTHUR STREETS IN TOWN OF THORNBURY, IMMEDIATELY SOUTHWEST OF "ENJOY BLUE MOUNTAIN PARK COLLINGWOOD" SIGN, TABLET IN NORTHEAST FACE OF NORTHEAST CONCRETE ABUTMENT, 2 M BELOW ROAD LEVEL, 48 CM BELOW TOP AND 33 CM NORTHWEST OF SOUTHEAST END OF CULVERT AT AN ELEVATION OF 190.735.

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0011928U118R – THORNBURY PUBLIC AND HIGH SCHOOL, ON ELMA STREET, TABLET IN CONCRETE FOUNDATION OF FRONT WALL, MIDWAY BETWEEN THE TWO CENTRAL BASEMENT WINDOWS AND 61 CM BELOW BRICKWORK AT AN ELEVATION OF 198.217.

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Project

LORA BAY HEIGHTS
THORNBURY

Drawing

AERIAL FIRE TRUCK
TURNING MOVEMENTS PLAN

Town Approval

CROZIER
CONSULTING ENGINEERS

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