Garner Road Improvements Municipal Class Environmental Assessment

Preliminary Stormwater Management Report

Stantec

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1 Introduction

The City of Hamilton is undertaking a Schedule 'C' Municipal Class Environmental Assessment (MCEA) study to develop and assess alternative solutions to improve transportation along Garner Road from Wilson Street to the Highway 403 off-ramp (the Study Area). The study includes the assessment of options to improve traffic, active transportation, and stormwater management throughout the corridor. The improvements are required to support future growth within Hamilton, specifically within the Airport Employment Growth District (AEGD). The Study Area is shown in Figure 1.

This Stormwater Management (SWM) Report has been prepared in support of the MCEA. It provides a summary of the existing drainage conditions and the proposed SWM plan to mitigate potential impacts associated with the proposed improvements to Garner Road to receiving stormwater systems.

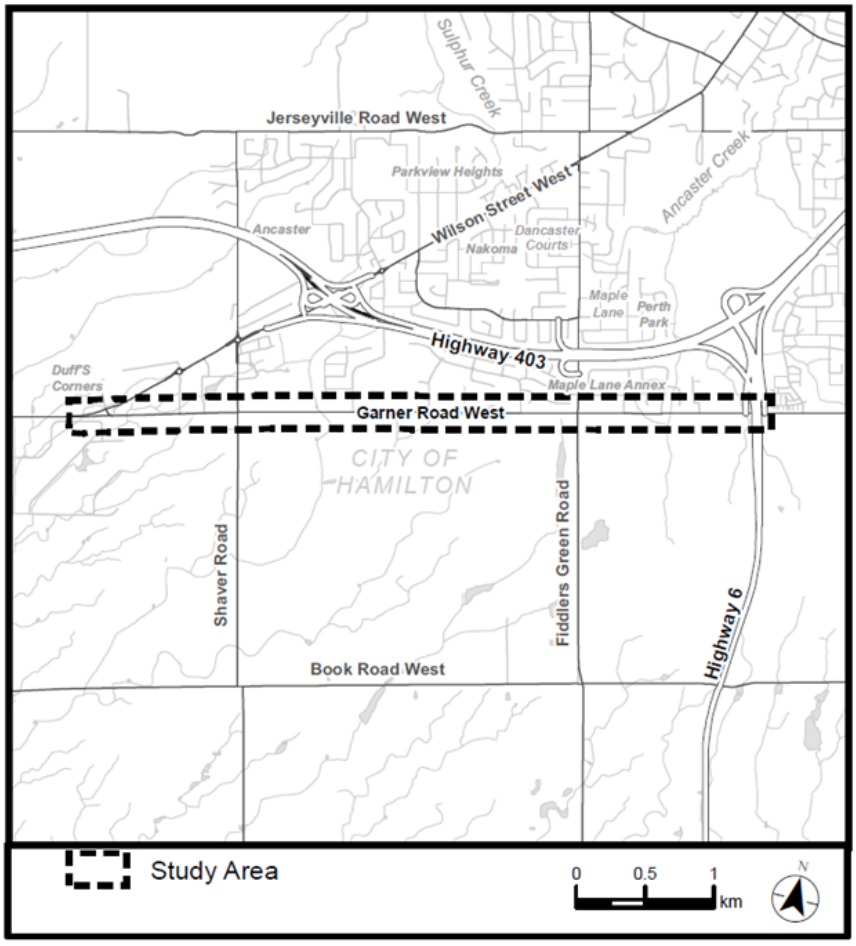


Figure 1: Study Area

2 Existing Site Conditions

Garner Road is a major arterial road which divides Urban Hamilton from Rural Hamilton and includes several intersections. A typical cross-section of Garner Rd. in the Study Area consists of one paved lane and one narrow gravel shoulder in each direction with additional turning lanes as well as roadside grassed ditches. Garner Road runs in a south-west/north-east direction and generally has a speed limit of 60 kilometres per hour. The existing right-of-way (ROW) varies between 20 to 36 metres wide. Discontinuous sidewalks are present on the north side of Garner Road between James Smith Park and Silver Maple Drive. There are no additional active transportation facilities within the Study Area.

Existing land uses adjacent to the Study Area include a mix of residential, agricultural, commercial, and institutional areas. There are five watercourse crossings within the Study Area and four wetland areas. These wetland areas do not appear to be classified as Provincially Significant Wetlands (PSW).

3 Existing Drainage Conditions

The delineation of the existing conditions drainage pattern of the Study Area and the outlet locations are provided by Figure 2 and Figures 3.1-3.4 (Appendix A). The delineation was determined through analysis of publicly available LiDAR data (2018/2021) and Land Information Ontario (LIO) data, in conjunction with existing survey information and storm sewer subcatchment areas and linework from the City of Hamilton's GIS database. Subcatchments are categorized as internal (generally a or b catchments), referring to the area where the proposed roadway ROW will be constructed, or external (generally c and d catchments), representing the external areas that drain to the proposed ROW. Drainage areas/catchments will remain the same under existing and proposed conditions.

Drainage in the Study Area is influenced by the topography of the land as well as the drainage infrastructure (storm sewers, culverts, etc.) within the Garner Road ROW and surrounding subdivisions. Drainage infrastructure within the Study Area includes municipal storm sewers, ditches, culverts, natural watercourses, with stormwater ponds / controls contained within external subdivisions. Garner Road through the area varies between an urban cross section with curb/gutter and storm sewers to a rural cross-section with roadside ditches and culverts. Flow generally crosses the existing roadway through centreline culverts, with ten centreline culverts and one centreline storm sewer within the Study Area.

There is a watershed divide within the Study Area, located approximately at the intersection of Fiddler's Green Road. The western portion of the Study Area is within the jurisdiction of the Grand River Conservation Authority (GRCA) and drains south as a part of the Big Creek Subwatershed, while the eastern portion is within the jurisdiction of the Hamilton Conservation Authority (HCA), draining north as a part of the Ancaster Creek Subwatershed. Existing flooding and erosion risk has been noted within the Ancaster Creek Subwatershed.

There are eleven (11) outlets from the development area summarized in Table 1.

Table 1. Existing Outlet/Catchment Conditions

Outlet Number	Contributing Catchment IDs	Total Area (ha)	Outlet Description
1	1a, 1b, 1c, 1d	38.6	Storm Sewer: Culvert C1 conveys flow from catchments 1a and 1c to the storm sewer to combine with flow from catchments 1b and 1d before crossing the ROW again. Flows in 1d are likely controlled in upstream private SWM measures (unconfirmed). Flow discharges through an existing storm sewer south towards a stormwater pond south of the ROW.
2b	2b	0.6	Swale / Intermittent Watercourse: Flows from 2b are conveyed in the ditch to the watercourse. Flows do not cross Garner Road. Outlet swale south is a tributary to Big Creek (GRCA).
2	2a, 2c	4.6	Ditch: Flows in the ROW and external catchment are directed to culvert C2 then enter the Garner and subsequently Shaver Road roadside ditch and are conveyed south to an existing storm sewer system, eventually outletting to a tributary of Big Creek, same as in 2b.
3	3a, 3c	199.6	Watercourse (GRCA): Flows from ROW and external catchment are directed to culvert C3 and continue downstream in a tributary to Big Creek.
4	4a, 4c	48.3	Watercourse (GRCA): Flows from ROW and external catchments are directed to culvert C4 and continue downstream in a tributary to Big Creek.
5	5a, 5c	15.6	Storm Sewer: Flows from ROW and external catchment enter storm sewer/culvert C5 and discharge to a DICB and subsequently into a pond south of the ROW, discharging from pond to a tributary of Big Creek.
6	6a, 6c	11.8	Swale / wetland: Flows from ROW and external catchment enter culvert C6 through DICB and are conveyed through a swale / wetland to a pond that eventually outlets to a tributary of Big Creek.
7	7a, 7c	1.3	Swale: Flows from ROW and external catchment enter culvert C7 in ditch and are assumed to exit the ROW, being conveyed south to the nearby tributary of Ancaster Creek (outlet 8). Whether the flow from C7 exits the ROW or is conveyed through the ditch to outlet 8 should be confirmed in further design.

Table 1. Existing Outlet/Catchment Conditions

Outlet Number	Contributing Catchment IDs	Total Area (ha)	Outlet Description
8	8a, 8c	1.9	Swale / Intermittent Watercourse: Flows from ROW and external area enter culvert C8 and discharge south into an existing low area / pond, subsequently contributing to C9 and Ancaster Creek.
9	7a, 7c, 8a, 8c, 9a, 9c	97.4	Watercourse (HCA): Flows from C7, C8, the ROW and external area enter culvert C9 and continue downstream (north) into Ancaster Creek.
10	10a, 10c	113.0	Watercourse (HCA): Flows from ROW and external area enter culvert C10 and continue downstream (north) into Ancaster Creek.

3.1 Soil and Groundwater Conditions

In accordance with Chapman and Putnam's "The Physiography of Southern Ontario" (1984), the Study Area appears to be located on the border of a Sand Plain and a Clay Plain. According to the "Surficial Geology of Southern Ontario" (Ontario Geological Survey, 2012), the Study Area is located in an area of coarse-textured glaciolacustrine deposits (sand, gravel, minor silt and clay), and is surrounded by an area of fine-textured glaciolacustrine deposits (silt and clay, minor sand and gravel). Historical geotechnical reports that were conducted in the area in the late 20th century demonstrate that the Study Area mainly consists of silty soils with groundwater elevations greater than 2 m below ground surface. A recent, detailed geotechnical investigation of the project area was not available at the time of preparing this report, however, should be completed and incorporated in future design.

4 Stormwater Management Objectives

Generally, the Study Area west of Fiddler's Green Road is within the GRCA's jurisdiction, and the Study Area east of Fiddler's Green Road is within the HCA's jurisdiction. The Big Creek Subwatershed (GRCA) flows south toward the Grand River, and the Ancaster Creek Subwatershed flows north toward Ancaster Creek.

The SWM Plan for the Garner Road Improvements has been completed in accordance with the following background documents and guidelines:

- MacLaren-Plansearch, Spencer Creek Hydrology Study (1990).
- Ministry of the Environment, Conservation and Parks (MECP), Stormwater Management Planning and Design Manual (2003).



- Aquafor Beech Limited, Stormwater Master Plan – Class Environmental Assessment Report (City-Wide) (2007).
- City of Hamilton, Criteria and Guidelines for Stormwater Infrastructure Design (2007).
- CVC, Low Impact Development Stormwater Management Planning and Design Guide (2010).
- City of Hamilton, Engineering Guidelines for Servicing Land Under Development Applications (2012).
- Aquafor Beech Limited, Airport Employment Growth District (AEGD) Subwatershed Study & Stormwater Master Plan (SWMP) (2017).
- City of Hamilton, Comprehensive Development Guidelines and Financial Policies Manual (2019).
- Ministry of Transportation Ontario (MTO), Highway Drainage Design Standards (2023).

Based on the above noted documents, the following design criteria have been applied in the development of the drainage and stormwater management strategies for this project.

Storm Sewer System

- Based on the City of Hamilton's Comprehensive Development Guidelines and Financial Policies Manual, the minor drainage system is to be sized to convey runoff from a 5-year design storm event and the major drainage system is to be sized to convey the 100-year design storm event within the ROW with a maximum depth of 0.15m (for roads not classified as arterial or emergency routes).

Culvert / Watercourse Crossings

- In the absence of municipal specific criteria for culvert crossings, MTO design criteria is used in the evaluation of existing and proposed culverts. Proposed culverts should meet design criteria outlined in Highway Drainage Design Standards (2023).

Water Quantity Control

- Big Creek and Ancaster Creek:
    - In the absence of specific water quantity control criteria in the documents listed in this section, post-development peak flow rate shall be controlled to the pre-development rates, for the 2-, 5-, 10-, 25-, 50- and 100-year design storms.

Water Quality Control

- Based on the HCA's Habitat Classification, Level 1 Enhanced treatment through removal of 80% Total Suspended Solids (TSS) is required for Ancaster Creek. This level of treatment will be targeted throughout the Study Area.

Erosion Control

- In accordance with current MOE guidelines: capture the runoff volume generated by a 25mm event and release it to the outlet over 24 hrs for any proposed SWM facilities.

Water Balance

- Best efforts to match groundwater recharge/infiltration rates per the pre-development water balance.

5 Proposed Drainage Conditions

The proposed roadway improvements as part of this project include road widening to accommodate additional travel and/or turning lanes and the implementation of active transportation facilities (i.e. sidewalks, multi-use paths) to support future needs. As part of the proposed works, existing catchbasins will require minor adjustment or relocation where curb lines are proposed to be adjusted, ditches replaced with storm sewer systems, and existing culverts may require extensions. The proposed works have an increased total pavement surface area and are therefore expected to impact the drainage of Garner Road within the Study Area due to the increased flows and pollutant runoff. The proposed roadway will drain to the same outlet locations as in existing conditions, but drainage will mainly be collected by catchbasins and conveyed through the storm sewer system to the appropriate outlet, rather than draining to roadside ditches. Major storm events will drain by overland flow along the roadway, and outlets are generally consistent with the outlets for minor flows (when the outlet is at a low point on the road). Limited information is known about the drainage in the contributing catchments, but in general flows appear to drain to watercourses before reaching the ROW or are controlled by existing SWM infrastructure. Due to the grading and significant width of the proposed ROW, flows from major storm events that reach the ROW are expected to remain within the ROW until they reach a low point in the road and drain to one of the existing (non-sewer) outlets identified in Table 1. However, the major overland flow route(s) should be confirmed during detailed design, with minor grading adjustments made as required.

A hydrologic model was prepared using SWMHYMO to compare the proposed peak flow rates to the existing peak flow rates and determine storage requirements prior to the outlet locations. The Intensity-Duration-Frequency (IDF) curves were used in accordance with the City of Hamilton's *Comprehensive Development Guidelines and Financial Policies Manual* (2019) to determine rainfall intensity. To be conservative, the 6-hour Soil Conservation Service (SCS) Type II design storms were used in the analysis because they were determined to have highest peak flows in the model. Table 2 displays the resulting 100-year peak flow rates from the model for each outlet, for both existing and proposed conditions. Details of the hydrologic analysis including model input calculations and SWMHYMO output files can be found in Appendix B.

Table 2. Existing and Proposed Catchment Conditions

Catchment ID	Total Area	Existing % Impervious (%)	Proposed % Impervious (%)	Outlet Number	Existing 100-year Outlet Peak Flow Rates (m^3/s)	Proposed 100-year Outlet Peak Flow Rates (m^3/s)	% Increase in 100-year Outlet Peak Flows (%)
1a	1.94	25	60	1	10.467	10.691	2%
1b	0.96	25	65				
1c	0.73	0	0				
1d	35.00	80	80				
2b	0.59	20	55	2b	0.099	0.154	36%
2a	1.18	33	65	2	1.345	1.500	10%
2c	3.44	80	80				
3a	2.38	25	60	3	21.917	21.923	0%
3c	197.18	40	40				
4a	1.94	25	60	4	6.331	6.375	1%
4c	46.39	30	30				
5a	2.21	25	60	5	1.873	1.975	5%
5c	13.39	25	25				
6a	2.19	30	65	6	2.161	2.456	12%
6c	9.59	50	50				
7a	0.46	20	55	7	0.152	0.218	30%
7c	0.87	40	40				
8a	0.71	25	60	8	0.203	0.260	22%
8c	1.14	15	15				
9a	1.42	28	58	9	3.430	3.436	0%
9c	95.98	10	10				
10a	3.74	25	60	10	4.692	4.705	0%
10c	109.26	10	10				

As demonstrated in Table 2, the peak flow rate under proposed conditions will increase due to the increase in impervious area. Stormwater control measures are required for most outlets, with the minor increases at outlets 1 and 4 considered negligible and no quantity controls recommended. Outlets 3, 9 and 10 show no increase in peak flows due to the large external area and difference in timing of peaks. No quantity controls are recommended at these outlet locations. The remaining outlet locations require quantity control to control proposed flows down to existing conditions. The approximate required volumes and footprints for each outlet are summarized in Table 3. The required volumes were approximated in SWMHYMO and the required footprint areas were estimated based on the StormTech MC-3500



Advanced Drainage System (ADS) Chamber dimensions. The minimum width for each storage chamber is approximately 2.6 m and the total depth of each system is 1.67 m (including stone above and below chambers). If a deeper system can be implemented, there is potential to reduce the footprint area as noted in Table 3. However, whether a deeper system can be implemented is dependent on the grading, servicing, and additional constraints in the location of the storage chambers and will be investigated in future design. The SWMHYMO output for the controlled scenario is included in Appendix B.

Table 3. Required Storage

Outlet Number	Watershed Outlet	Required Storage to meet 5-yr Existing Flow Rates (m^3)	Required Storage to meet 100-yr Existing Flow Rates (m^3)	Approximate Footprint required to meet 5-yr Existing Flow Rates (m^2)
1	Big Creek	Not required	Not required	-
2b	Big Creek	**~67**	**~123**	**67**
2	Big Creek	**~170**	**~310**	**170**
3	Big Creek	Not required	Not required	-
4	Big Creek	Not required	Not required	-
5	Big Creek	**~310**	**~550**	**310**
6	Big Creek	**~370**	**~680**	**370**
7	Ancaster Creek	**~71**	**~128**	**71**
8	Ancaster Creek	**~97**	**~186**	**97**
9	Ancaster Creek	Not required	Not required	-
10	Ancaster Creek	Not required	Not required	-

To control proposed peak flows, it is anticipated that storage volume will be provided prior to the outlet location. Although the approximate sizes in Table 3 are based on ADS chamber dimensions, alternative storage measures such as superpipes, other underground storage systems, and/or surface LID measures can also be investigated. Detailed storage and orifice sizing calculations will be completed in future design. The approximate footprints corresponding to the storage volumes required to meet the existing flow rates for the 5-year design storm event are also shown on the road plan in Appendix D.

5.1 Hydraulic Analysis

The culvert crossings through the Study Area were analyzed in accordance with MTO Highway Drainage Design Standards. All culverts should accommodate the design and check flows. The design flow is equal to flows from the 10% annual exceedance probability (AEP) event for culverts not on a watercourse, and flows from the 2% AEP event for culverts on a watercourse (HDDS, 2023). The check storm is equal to flows from the 1% AEP event for culverts not on a watercourse and flows from 130% of

the 1% AEP event for culverts on a watercourse (HDDS, 2023). The calculated peak flows (design and check) were used along with the culvert information in CulvertMaster – a software program used to determine culvert conveyance capacity. Tailwater was assumed at 60% of the culvert height (approximately equal to critical depth). Invert elevations, lengths, dimensions, and other culvert characteristics were obtained from survey drawings (2021). The headwater elevation for the culvert under both the design and check storm was calculated and used to assess the culvert against the required hydraulic criteria. To meet MTO criteria, culverts must have a depth of headwater to height of opening ratio of <1.5 for the design storm, have greater than 0.3 m (non-watercourse culverts) or 1 m (watercourse culverts) of freeboard to the spill point of the road during the design storm, and the check storm must not reach the spill point (water must not overtop the road). Details of the hydraulic analysis, including model outputs, can be found in Appendix C.

5.1.1 Existing Conditions Hydraulic Summary

Ten culverts centreline along Garner Road were identified within the Study Area. Table 4 summarizes the hydraulic performance of these culverts compared to MTO Design Criteria, for reference. More details of the hydraulic modelling, including CulvertMaster files, are included in Appendix C.

Table 4. Hydraulic Assessment of Existing Centreline Culverts

Culvert ID	Approx. Station	Shape/ Material	Dia. or Span x Rise (mm)	Drainage Area (ha)	Design Storm Free-board > 0.3 m	Design Storm Free-board > 1 m	Design Storm Depth of Headwater < 1.5 X Culvert Diameter	Check Storm Water Level < Spill Point
C1	10+307	Circular/CSP	700	2.7	Yes	N/A	Yes	Yes
C2	10+822	Circular/CSP	750	4.6	**No**	N/A	**No**	**No**
C3	11+473	Circular/CSP	1200	199.6	N/A	**No**	**No**	**No**
C4	11+987	Circular/CSP	1050	48.3	N/A	**No**	**No**	**No**
C5	12+343	Box/Concrete	1200 x 1200	15.6	Yes	N/A	Yes	Yes
C6	13+201	Circular/CSP	1000	11.8	Yes	N/A	Yes	**No**
C7	13+639	Circular/CSP	750	1.3	Yes	N/A	Yes	Yes
C8	13+799	Circular/CSP	850	1.9	N/A	Yes	Yes	Yes
C9	14+001	Circular/CSP	1200	97.4	N/A	Yes	Yes	**No**
C10	14+537	Circular/CSP	2500	113.0	N/A	Yes	Yes	Yes

Culverts C2, C3, C4, C6, and C9 do not meet MTO criteria and thus are recommended to be replaced. A condition assessment of existing culverts has not been included in this scope; however, should be completed at the detailed design stage. This assessment may result in additional culverts to be repaired or replaced due to deteriorating condition. Furthermore, existing culverts that have adequate capacity and condition may still require extensions due to road widening. Hydraulic analyses for these culverts will be presented at a future design stage.

5.1.2 Proposed Conditions Hydraulic Summary

As noted in the previous section, five centreline culverts within the study are recommended to be replaced due to inadequate capacity. Table 5 summarizes the hydraulic analysis compared to MTO criteria for the five culverts requiring larger culvert dimensions.

Table 5. Hydraulic Assessment of Proposed Centreline Culverts

Culvert ID	Approx. Station	Shape	Diameter or Span x Rise (mm)	Drainage Area (ha)	Design Storm Free-board > 0.3 m	Design Storm Free-board > 1 m	Design Storm Depth of Headwater < 1.5 X Culvert Diameter	Check Storm Water Level < Spill Point
C2	10+822	Circular	1000	4.6	Yes	N/A	Yes	Yes
C3	11+473	Box	3600 x 2400	199.6	N/A	Yes	Yes	Yes
C4	11+987	Circular	2000	48.3	N/A	Yes	Yes	Yes
C6	13+201	Circular	1200	11.8	Yes	N/A	Yes	Yes
C9	14+001	Circular	1400	97.4	N/A	Yes	Yes	Yes

The sizes outlined in Table 5 are the hydraulic opening dimensions, are preliminary in nature, and have not considered other requirements such as wildlife passage, utility conflicts, extended lengths, or other potential requirements. Depth of cover from the obvert to the existing road elevation at the culvert (not including pipe thickness) is included in Appendix C.

5.2 Storm Sewers

A preliminary storm sewer sizing assessment was conducted in the Study Area to determine the feasibility of implementing a new storm sewer system in the proposed road ROW. Drainage catchments, topographic information, existing storm sewer information from survey drawings, and the City of Hamilton's GIS database were used along with the proposed Garner Road plan and profile drawings to develop a preliminary storm sewer system throughout the road ROW.

The City of Hamilton's IDF curve for the 5-year design storm event was used with a 10-minute estimated time of concentration for the flow calculations, unless additional external area was expected to enter the

system (in which case a longer time of concentration was calculated). The Manning's Equation was used to determine the capacity within the storm sewers.

The preliminary storm sewer analysis made the following assumptions:

- Existing outlets and their elevations were assumed to be maintained in proposed conditions.
- Existing storm sewers in the ROW were not assessed; an entirely new system is proposed. Potential to use existing storm sewers may be determined in a future design stage.
- Proposed storm sewer slopes were estimated based on the proposed road slopes and the 2.75 m requirement for cover over the storm sewer pipes was met where possible.
- External areas were determined based on existing topography and drainage catchments to the road. Where flow from an external area contained unknown SWM controls and enter the Garner ROW through a storm sewer, the incoming flow was assumed as the capacity of existing pipes.
    - The pipe entering the road ROW from McClure Rd. was noted to be a 675 mm pipe, with an upstream pipe size of 900 mm. The capacity of the 900 mm pipe was used in the analysis to provide a conservative preliminary estimate, but there may be existing controls on the 675 mm pipe that would restrict the flow. This should be confirmed in detailed design.
- For estimating internal catchment boundaries, contributing road areas were estimated based on a 36 m ROW width. A runoff coefficient of 0.65 was used for these areas, which was approximated based on the impervious coverage of a typical proposed 36m proposed cross-section.
- Manholes were placed with a maximum distance of 75 m between them, according to the City of Hamilton's Comprehensive Development Guidelines (2019).
- The proposed preliminary storm sewer network / sizing only considered the main sewer line and did not include catchbasins and associated leads (i.e. design only considered flows manhole to manhole). Exact placement and location of catchbasins to be determined at detailed design.
- The purpose of this design was to conceptually layout the storm system to determine feasibility and preliminary location. Conflicts with existing or proposed utilities will need to be investigated at detailed design. There should be sufficient flexibility in the placement of the storm sewer mainline to avoid conflicts as needed. The sanitary generally is deeper and runs down the middle of the road while the water main generally runs along the southern side of the road. The storm main line is depicted on either the north or south side of the road on the plan drawings in Appendix D, according to which side the outlet is located on and/or ease of connection to existing storm leads. However, the storm main line will likely need to run along the northern side of the road to avoid the sanitary and water main. The exact location of the storm main line will be finalized at detailed design.

The results indicate that a storm sewer system within the proposed road ROW is feasible, with pipe sizes ranging from 300mm to 1350mm, with the larger pipes focused on areas with large external contributing areas. However, 2.75 m of cover is not feasible in all areas within the ROW due to the elevations of the



existing outlets. As this is a preliminary analysis, it is recommended that the proposed storm sewer system be analyzed in more detail in future design stages to confirm this conclusion.

The storm sewer design sheets and road plan and profile drawings containing the proposed preliminary storm sewer system design can be found in Appendix D. Note that some of the existing culvert outlets as shown on the drawings will need to be either extended or connected into downstream storm sewer system, which will be determined during detailed design.

5.3 Water Quality Control / LIDs

The roadway improvements are proposed to include water quality treatment for the entire Garner Road ROW and not just net new impervious areas. Water quality measures are limited to Oil/Grit Separator (OGS) units and Low Impact Development (LID) measures within the ROW due to the space constraints of the proposed roadway.

The preferred method of water quality control through the Study Area is through implementation of LID features such as bioretention areas (rain gardens). As exact site soil conditions are not known, it is likely that any LID feature will be fitted with an underdrain and be designed mostly to provide water quality (and potentially quantity) control as opposed to infiltration; however, this will be confirmed at future design stages and infiltration shall be implemented where possible.

Bioretention cells are proposed to be implemented in all areas with the following characteristics:

- Greater than approximately 2.5 m of boulevard space *OR* greater than approximately 7.5 m of space on the outside of the sidewalk/multi-use path.
- Adequate separation to groundwater from the bottom of the system (> 1 m).
- Minimal tree removal required.
- Areas without sewers or significant underground utilities.

Design considerations for the sizing of bioretention areas include but are not limited to:

- The ideal impervious to pervious drainage area ratio is 5:1 to 20:1 for the footprint of each facility, depending on site soil conditions.
- The maximum area draining to one bioretention area should not exceed 0.8 Ha. Thus, multiple bioretention areas should be distributed throughout the Study Area.

Due to the number of constraints for locations of the LID features, it is assumed that OGS units will also be required to achieve the water quality target of 80% TSS removal before being outlet to natural watercourses. By using bioswales/ditches, bioretention cells, and OGS units, a “treatment train” will be provided for all flow, allowing the Study Area to achieve the 80% TSS removal water quality target. Potential locations for both LIDs and OGS units have noted on the plan drawings in Appendix D. Potential LID locations were chosen in areas with enough width, minimal tree removal, and minimal utility



disturbance as noted in the list above. However, specific locations and sizing must be completed at the detailed design stage once more information such as updated utility locations, groundwater and soil information, and contributing drainage areas are available. Similarly, potential OGS locations were identified at manholes in areas that do not accept large external areas (to avoid treatment of external lands), but specific locations and sizing will need to be completed at the detailed design stage when drainage areas and LID locations and sizes are confirmed. OGS units may not be necessary where LIDs are implemented, or to be used in conjunction (in series).

5.4 Erosion Control/Water Balance

In accordance with the erosion control/water balance targets, the proposed design will aim to retain as much runoff volume through onsite LID measures as possible. Runoff captured by the LID measures that can not be infiltrated will be released at a reduced rate and volume to reduce the risk of downstream erosion. Any runoff that cannot be controlled through LID measures will be captured in underground storage units and released at a reduced rate, if necessary. Through the proposed LID features, it is reasonable to assume that the majority of runoff from frequent storms will be retained. During detailed design, investigation of the site's soil conditions should be completed, followed by an analysis of the feasibility of the implementation of various LID measures. If practical, LIDs can be sized to contain the 25mm event runoff and/or meet infiltration targets.

6 Erosion and Sediment Control

The Erosion and Sediment Control (ESC) plan for the project must adhere to the Toronto and Region Conservation Authorities' *Erosion and Sediment Control (ESC) Guidelines for Urban Construction*, dated 2019.

To minimize the potential environmental impacts, the following erosion and sedimentation control practices will serve to guide the Erosion and Sedimentation Control Plan:

- Limit size of disturbed area.
- Limit duration of soil exposure.
- Retain existing vegetation where feasible.
- Limit slope length and gradient of disturbed areas.
- Preserve overland sheet flow and micro-drainage (avoid concentrated channel flows).
- Break and redirect flows to lower gradients.
- Design and implement staged stripping.
- Prevent disturbance of previously stripped and stabilized areas.

- Stabilize stripped areas with temporary vegetative controls.

Appropriate permanent/temporary erosion control measures to be considered in the design and implementation of the Erosion and Sedimentation Control Plan are:

- Hydroseeding - One step application of seed and hydraulic slurry with adhesive binder (provides permanent stabilization for moderate to steep slopes).
- Seed and Straw Mulch - Alternative two step application that will be applied to provide permanent/temporary vegetative stabilization of disturbed areas.
- Mulch (straw, wood etc.) - Used to provide temporary erosion protection of exposed slopes during over-wintering and for disturbed areas inactive for greater than 45 days.
- Sod - Utilized to provide quick permanent stabilization of disturbed areas. Applications include lateral ditches with gradients < 5% and slopes with steep to moderate grades (i.e., 3% to 5%).
- Erosion Control Blanket - Applied as temporary/permanent erosion protection for slopes greater than 2:1 or as a ditch liner. For permanent applications, seed will be applied prior to installation.
- Aggregate Stone - Appropriate material, such as rip rap will be used to provide immediate permanent erosion protection of lateral ditches > 5% gradient; and along chute/spillways.

For the intended construction on the site described in this report, the following erosion measures should be implemented:

- Install a siltation barrier ring along the site perimeter using heavy-duty silt fence. Keep a provision of temporary.
- Stabilize all disturbed areas where work will not take place for a period of 30 days or more according to OPSS 572.
- Perform street sweeping as necessary to remove soil accumulation caused by construction traffic.
- Use filter socks, where necessary, to further filter the discharge.
- Install and maintain silt sacks at all catchbasins to prevent sediment from entering the proposed storm sewer.

7 Conclusions and Recommendations

This report documents the preliminary stormwater management aspects associated with improvements to Garner Road within the project limits as part of the Schedule ‘C’ MCEA study.

Based on the preceding report, the following conclusions can be drawn:

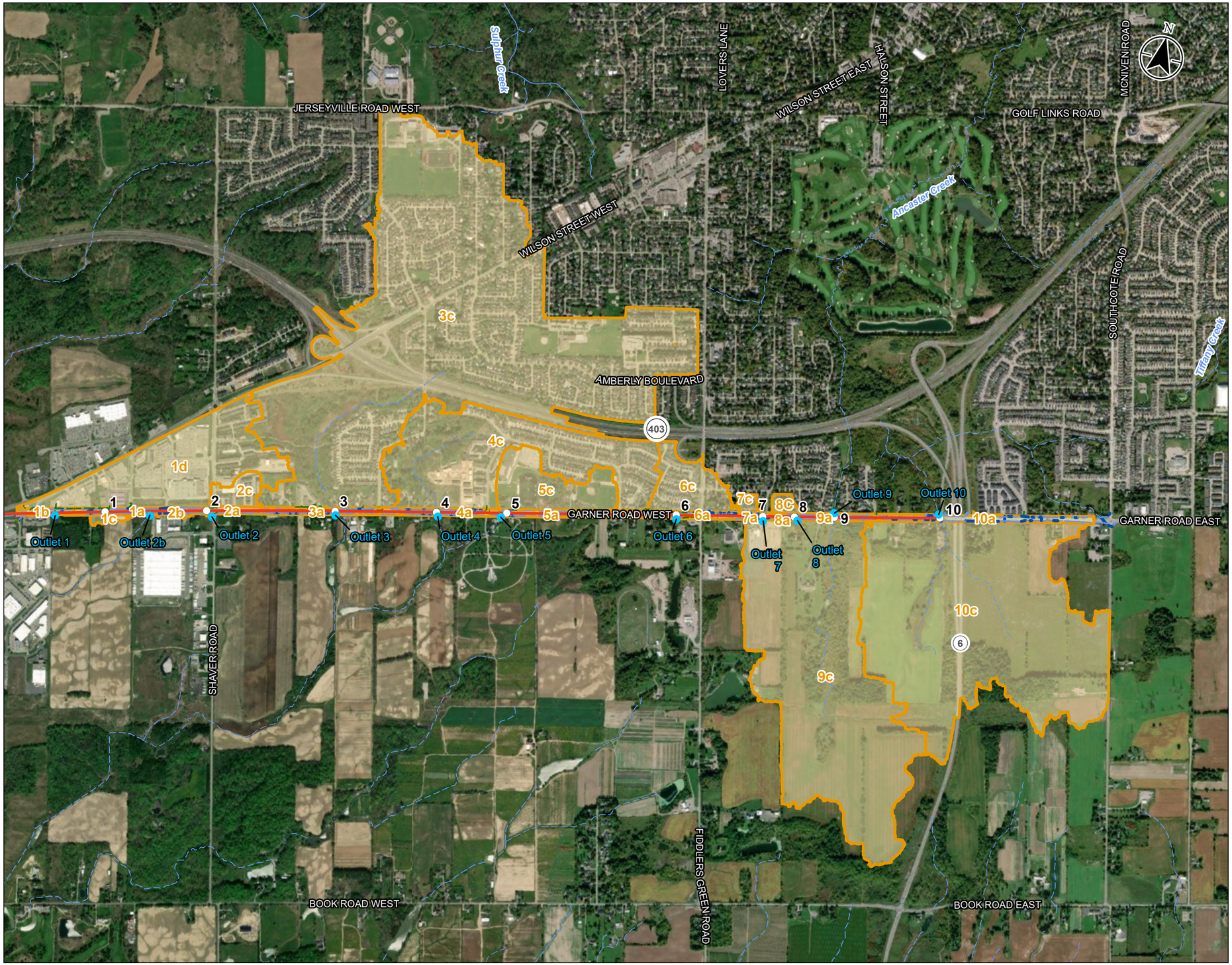
- Storage is required prior to six existing outlets to match proposed conditions flows to existing conditions. This is proposed to be achieved through underground storage units.
- Based on preliminary analysis, five existing culverts are recommended to be replaced with larger culverts due to insufficient hydraulic capacity.
- A storm sewer system is feasible within the road ROW, with pipe sizes from 300 mm to 1350 mm required to convey stormwater to the identified outlets.
- LID features such as bioretention areas should be used as water quality treatment measures where feasible, with OGS units used as additional water quality measures where necessary.
- To reduce erosion risk and promote infiltration, water from frequent storm events should be retained/infiltrated when possible and released to the environment at a reduced flow rate if necessary.

Based on the preceding report and associated analysis, the following recommendations have been determined:

- A more detailed storm sewer assessment must be conducted in future design stages to confirm pipe sizing, locations, and avoid utility conflicts.
- A field inspection should be conducted to analyze existing culvert conditions to determine if additional culverts require replacement based on condition assessment.
- Additional hydraulic analyses should be conducted to confirm culvert sizing recommendations once extension lengths have been determined.
- Detailed geotechnical and/or hydrogeological investigations are required to be completed at detailed design to review feasibility of infiltration and low impact development features within the project limits.
- LID features should be sized to contain the 25 mm event runoff volume or greater where feasible once locations have been determined.
- OGS units should be sized where necessary after LID sizes and locations have been determined.
- Detailed sizing of water quantity controls in conjunction with proposed roadway and storm sewer design will be completed at a future design stage.

Overall, preliminary analysis of stormwater management systems has been completed, with further design refinement to occur during the detailed design stage.

Appendix A – Figures



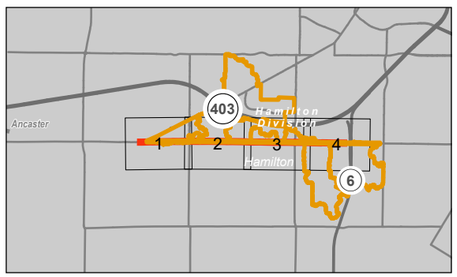
Stantec

Legend
- Outlet
- Culvert
- Contour - 5m
- Culverts
- Storm Sewer
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Project Location
- Catchment

0 500 1,000 Meters

1:20,000 (At original document size of 11x17)

Notes
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Project Location
City of Hamilton

165001196 REV1
Prepared by JWH on 2024-12-06

Client/Project
CITY OF HAMILTON
GARNER ROAD (WILSON ST TO HIGHWAY 403 RAMP)
MUNICIPAL CLASS EA PHASE 3 AND 4

Figure No.
2

Title
Catchment Overview

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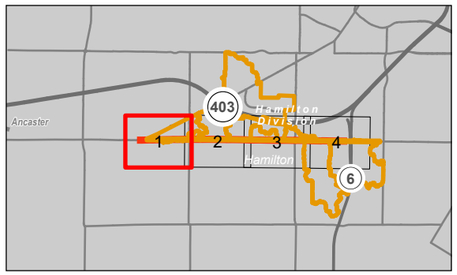
- Outlet
- Culvert
- Contour - 5m
- Contour - 1m
- Culverts
- Storm Sewer
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Project Location
- Catchment

0 100 200 Meters

1:5,000 (At original document size of 11x17)

Notes

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Project Location
City of Hamilton

165001196 REV1
Prepared by JWH on 2024-12-06

Client/Project
CITY OF HAMILTON
GARNER ROAD (WILSON ST TO HIGHWAY 403 RAMP)
MUNICIPAL CLASS EA PHASE 3 AND 4

Figure No.
3-1

Title
Catchment

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Revised: 2024-12-06 By jwh



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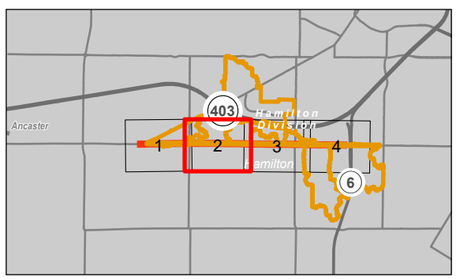
- Outlet
- Culvert
- Contour - 5m
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Project Location
City of Hamilton

165001196 REV1
Prepared by JWH on 2024-12-06

Client/Project
CITY OF HAMILTON
GARNER ROAD (WILSON ST TO HIGHWAY 403 RAMP)
MUNICIPAL CLASS EA PHASE 3 AND 4

Figure No.
3-2

Title
Catchment

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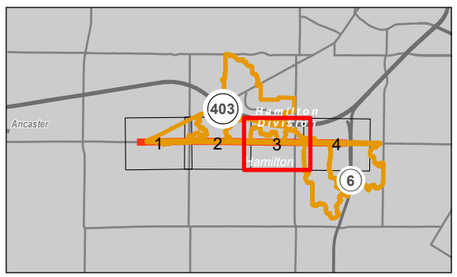
- Outlet
- Culvert
- Contour - 5m
- Contour - 1m
- Culverts
- Storm Sewer
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Project Location
- Catchment

0 100 200 Meters

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4. Contours interpolated from LiDAR, Hamilton-Niagara, 2021 and Lake Erie 2018.



Project Location
City of Hamilton

165001196 REV1
Prepared by JWH on 2024-12-06

Client/Project
CITY OF HAMILTON
GARNER ROAD (WILSON ST TO HIGHWAY 403 RAMP)
MUNICIPAL CLASS EA PHASE 3 AND 4

Figure No.
3-3

Title
Catchment

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Stantec

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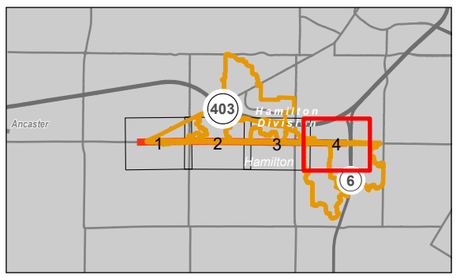
- Outlet
- Culvert
- Contour - 5m
- Contour - 1m
- Culverts
- Storm Sewer
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Project Location
- Catchment

0 100 200 Meters

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Project Location
City of Hamilton

165001196 REV1
Prepared by JWH on 2024-12-06

Client/Project
CITY OF HAMILTON
GARNER ROAD (WILSON ST TO HIGHWAY 403 RAMP)
MUNICIPAL CLASS EA PHASE 3 AND 4

Figure No.
3-4

Title
Catchment

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Appendix B – Hydrologic Calculations / Model Files

Subject: NRCS (SCS) Curve Number Determination
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

TABLE OF CURVE NUMBERS (CN's)

Land Use		Hydrologic Soil Type A	AB	B	BC	C	CD	D	Manning's 'n'
Meadow	"Good"	30	44	58	64.5	71	74.5	78	0.40
Woodlot	"Fair"	36	48	60	66.5	73	76	79	0.40
Gravel		76	80.5	85	87	89	90	91	0.30
Lawns	"Good"	39	50	61	67.5	74	77	80	0.25
Pasture/Range		58	61.5	65	70.5	76	78.5	81	0.17
Crop		66	70	74	78	82	84	86	0.13
Fallow (Bare)		77	82	86	89	91	93	94	0.05
Impervious		98	98	98	98	98	98	98	0.01

1. MTO Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
2. Chin (2000), Water-Resources Engineering, Table 6.13-Curve Numbers for Various Urban Land Uses

HYDROLOGIC SOIL TYPE (%) - Existing Conditions

Catchment	Hydrologic Soil Type A	AB	B	BC	C	CD	D	TOTAL
1a				100				100
1b				100				100
1c				100				100
1d		50		40			10	100
2b				100				100
2a		100						100
2c		100						100
3a		50	25				25	100
3c		25		25			50	100
4a		34		33			33	100
4c		50					50	100
5a		50		25			25	100
5c		50		20			30	100
6a	90						10	100
6c	40	40					20	100
7a	100							100
7c	100							100
8a		80					20	100
8c	20	80						100
9a	33	33					34	100
9c	25	25			25		25	100
10a	40	40					20	100
10c	30	10			40		20	100

LAND USE (%) - Existing Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious (see note)	Total
1a				75				25	100
1b				75				25	100
1c				50		50			100
1d				20				80	100
2b				80				20	100
2a				67				33	100
2c				20				80	100
3a				75				25	100
3c				60				40	100
4a				75				25	100
4c		20		50				30	100
5a				75				25	100
5c				75				25	100
6a				70				30	100
6c				50				50	100
7a				80				20	100
7c				60				40	100
8a				75				25	100
8c						85		15	100
9a				72				28	100
9c		25				65		10	100
10a				75				25	100
10c		25				65		10	100

CURVE NUMBER (CN) - Existing Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious	Weighted CN	Pervious CN
1a				50.6				24.5	75	68
1b				50.6				24.5	75	68
1c				33.8		39.0			73	73
1d				12.0				78.4	90	60
2b				54.0				19.6	74	68
2a				33.5				32.3	66	50
2c				10.0				78.4	88	50
3a				45.2				24.5	70	60
3c				41.6				39.2	81	69
4a				49.3				24.5	74	66
4c		12.7		32.5				29.4	75	65
5a				46.4				24.5	71	62
5c				46.9				24.5	71	63
6a				30.2				29.4	60	43
6c				25.8				49.0	75	52
7a				31.2				19.6	51	39
7c				23.4				39.2	63	39
8a				42.0				24.5	67	56
8c						58.8		14.7	74	69
9a				40.7				27.4	68	57
9c		14.8				49.4		9.8	74	71
10a				38.7				24.5	63	52
10c		15.2				49.9		9.8	75	72

** AMC II assumed
** Hydrological Soil Group taken from MTO Drainage Manual for each soil type

Subject: NRCS (SCS) Curve Number Determination
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

TABLE OF CURVE NUMBERS (CN's)

Land Use		Hydrologic Soil Type A	AB	B	BC	C	CD	D	Manning's 'n'
Meadow	"Good"	30	44	58	64.5	71	74.5	78	0.40
Woodlot	"Fair"	36	48	60	66.5	73	76	79	0.40
Gravel		76	80.5	85	87	89	90	91	0.30
Lawns	"Good"	39	50	61	67.5	74	77	80	0.25
Pasture/Range		58	61.5	65	70.5	76	78.5	81	0.17
Crop		66	70	74	78	82	84	86	0.13
Fallow (Bare)		77	82	86	89	91	93	94	0.05
Impervious		98	98	98	98	98	98	98	0.01

1. MTO Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
2. Chin (2000), Water-Resources Engineering, Table 6.13-Curve Numbers for Various Urban Land Uses

HYDROLOGIC SOIL TYPE (%) - Proposed Conditions

Catchment	Hydrologic Soil Type A	AB	B	BC	C	CD	D	TOTAL
1a	0	0	0	100	0	0	0	100
1b	0	0	0	100	0	0	0	100
1c	0	0	0	100	0	0	0	100
1d	0	50	0	40	0	0	10	100
2b	0	0	0	100	0	0	0	100
2a	0	100	0	0	0	0	0	100
2c	0	100	0	0	0	0	0	100
3a	0	50	25	0	0	0	25	100
3c	0	25	0	25	0	0	50	100
4a	0	34	0	33	0	0	33	100
4c	0	50	0	0	0	0	50	100
5a	0	50	0	25	0	0	25	100
5c	0	50	0	20	0	0	30	100
6a	90	0	0	0	0	0	10	100
6c	40	40	0	0	0	0	20	100
7a	100	0	0	0	0	0	0	100
7c	100	0	0	0	0	0	0	100
8a	0	80	0	0	0	0	20	100
8c	20	80	0	0	0	0	0	100
9a	33	33	0	0	0	0	34	100
9c	25	25	0	0	25	0	25	100
10a	40	40	0	0	0	0	20	100
10c	30	10	0	0	40	0	20	100

LAND USE (%) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious (see note)	Total
1a	0.0	0	0	40	0	0	0	60	100
1b	0.0	0	0	35	0	0	0	65	100
1c	0.0	0	0	50	0	50	0	0	100
1d	0.0	0	0	20	0	0	0	80	100
2b	0.0	0	0	45	0	0	0	55	100
2a	0.0	0	0	35	0	0	0	65	100
2c	0.0	0	0	20	0	0	0	80	100
3a	0.0	0	0	40	0	0	0	60	100
3c	0.0	0	0	60	0	0	0	40	100
4a	0	0	0	40	0	0	0	60	100
4c	0	20	0	50	0	0	0	30	100
5a	0	0	0	40	0	0	0	60	100
5c	0	0	0	75	0	0	0	25	100
6a	0	0	0	35	0	0	0	65	100
6c	0	0	0	50	0	0	0	50	100
7a	0	0	0	45	0	0	0	55	100
7c	0	0	0	60	0	0	0	40	100
8a	0	0	0	40	0	0	0	60	100
8c	0	0	0	0	0	85	0	15	100
9a	0	0	0	42	0	0	0	58	100
9c	0	25	0	0	0	65	0	10	100
10a	0	0	0	40	0	0	0	60	100
10c	0	25	0	0	0	65	0	10	100

CURVE NUMBER (CN) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious	Weighted CN	Pervious CN
1a				27.0				58.8	86	68
1b				23.6				63.7	87	68
1c				33.8		39.0			73	73
1d				12.0				78.4	90	60
2b				30.4				53.9	84	68
2a				17.5				63.7	81	50
2c				10.0				78.4	88	50
3a				24.1				58.8	83	60
3c				41.6				39.2	81	69
4a				26.3				58.8	85	66
4c		12.7		32.5				29.4	75	65
5a				24.8				58.8	84	62
5c				46.9				24.5	71	63
6a				15.1				63.7	79	43
6c				25.8				49.0	75	52
7a				17.6				53.9	71	39
7c				23.4				39.2	63	39
8a				22.4				58.8	81	56
8c						58.8		14.7	74	69
9a				23.8				56.8	81	57
9c		14.8				49.4		9.8	74	71
10a				20.6				58.8	79	52
10c		15.2				49.9		9.8	75	72

** AMC II assumed
** Hydrological Soil Group taken from MTO Drainage Manual for each soil type

Subject: SWMHYMO Parameters
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

Existing Conditions

Area Description	Catchment ID	SWMHYMO Command	Area	CN	TIMP	XIMP	High point	Low point	Impervious Slope	Impervious Length	IA Impervious	Impervious Mannings	Pervious Length	IA Pervious	Pervious Mannings	Pervious Slope	Runoff	Tc	Tp
			(ha)				(m)	(m)	(%)				(m)				Coeff.	(hrs)	(hrs)
Road ROW to C1	1a	CALIB STANDHYD	1.94	68	0.25	0.06	234.20	228.90	1.1%	440	2	0.025	40	5	0.25	1.1%	N/A	N/A	N/A
Road catchment west of C1 draining to storm sewer and pond south of ROW	1b	CALIB STANDHYD	0.96	68	0.25	0.06	231.00	228.30	2.2%	80	2	0.025	40	5	0.25	2.2%	N/A	N/A	N/A
Small agricultural area south of road draining to C1	1c	CALIB NASHYD	0.73	73	0.00	0.00	230.00	227.00	N/A	N/A	N/A	N/A	140	6	N/A	2.1%	0.35	0.37	0.22
Commercial area catchment draining to ditch by 1b	1d	CALIB STANDHYD	35.00	60	0.80	0.64	243.00	228.00	1.4%	1100	2	0.013	30	5	0.25	2.0%	N/A	N/A	N/A
South part of road ROW and grassed/ditch area draining to watercourse to south	2b	CALIB STANDHYD	0.59	68	0.20	0.05	234.00	230.00	1.6%	210	2	0.025	40	5	N/A	1.6%	N/A	N/A	N/A
Road ROW to C2	2a	CALIB STANDHYD	1.18	50	0.33	0.08	243.60	234.20	3.4%	235	2	0.025	40	5	0.25	3.4%	N/A	N/A	N/A
Residential catchment draining to C2	2c	CALIB STANDHYD	3.44	50	0.80	0.64	245.00	235.00	3.1%	320	2	0.013	10	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C3	3a	CALIB STANDHYD	2.38	60	0.25	0.06	243.60	234.60	2.5%	320	2	0.025	40	5	0.25	2.5%	N/A	N/A	N/A
Large, mainly residential catchment draining to C3	3c	CALIB STANDHYD	197.18	69	0.40	0.32	250.00	236.00	0.5%	2750	2	0.020	40	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C4	4a	CALIB STANDHYD	1.94	66	0.25	0.06	238.20	234.10	1.3%	280	2	0.025	40	5	0.25	1.3%	N/A	N/A	N/A
Residential and wooded catchment draining to C4	4c	CALIB STANDHYD	46.39	65	0.30	0.24	249.00	232.00	1.0%	1700	2	0.013	60	7	0.25	2.0%	N/A	N/A	N/A
Road ROW to C5	5a	CALIB STANDHYD	2.21	62	0.25	0.06	250.00	238.20	2.0%	540	2	0.025	40	5	0.25	2.0%	N/A	N/A	N/A
School and park catchment draining to C5	5c	CALIB STANDHYD	13.39	63	0.25	0.06	246.50	237.50	1.6%	575	2	0.025	75	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C6	6a	CALIB STANDHYD	2.19	43	0.30	0.08	249.50	247.90	0.5%	285	2	0.025	40	5	0.25	0.5%	N/A	N/A	N/A
Residential catchment draining to C6	6c	CALIB STANDHYD	9.59	52	0.50	0.40	249.00	246.00	0.8%	400	2	0.013	40	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C7	7a	CALIB STANDHYD	0.46	39	0.20	0.05	249.50	249.10	0.4%	70	2	0.025	40	5	0.25	0.4%	N/A	N/A	N/A
Small residential catchment draining to C7	7c	CALIB STANDHYD	0.87	39	0.40	0.32	249.00	247.50	1.9%	80	2	0.013	110	5	0.25	0.5%	N/A	N/A	N/A
Road ROW to C8	8a	CALIB STANDHYD	0.71	56	0.25	0.06	249.10	246.50	1.7%	110	2	0.025	40	5	0.25	1.7%	N/A	N/A	N/A
Small creek catchment to C8	8c	CALIB NASHYD	1.14	69	0.15	0.02	246.00	245.00	N/A	N/A	N/A	N/A	100	6	N/A	1.0%	0.10	0.54	0.33
Road ROW to C9	9a	CALIB STANDHYD	1.42	57	0.28	0.07	247.50	241.50	2.9%	170	2	0.025	40	5	0.25	2.9%	N/A	N/A	N/A
Large agricultural area draining to C9	9c	CALIB NASHYD	95.98	71	0.10	0.01	246.00	239.00	N/A	N/A	N/A	N/A	1900	7	N/A	0.4%	0.30	2.63	1.58
Road ROW to C10	10a	CALIB STANDHYD	3.74	52	0.25	0.06	247.50	241.90	1.3%	385	2	0.025	40	5	0.25	1.3%	N/A	N/A	N/A
Large agricultural area draining to C10	10c	CALIB NASHYD	109.26	72	0.10	0.01	246.00	240.00	N/A	N/A	N/A	N/A	1380	7	N/A	0.4%	0.30	2.13	1.28
Total			532.69																

Notes:

CN calculated for pervious areas only for DESIGN STANDHYD. CN is a weighted average for DESIGN NASHYD

TIMP ..... *Total percent impervious*

XIMP ..... *Percent impervious directly connected*

Time of Concentration calculated using the Airport Method ..... $Tc = [\ 3.26\ (1.1-C)\ L^{0.5}\ ] / S^{0.33}$

Where: *C = Runoff Coefficient according to MTO Design chart 1.07 for land use and soil texture pertaining to each catchment*
L = Length of Overland Flow (m)
S = Slope (%)

Time to Peak (hr) ..... $Tp = 0.6Tc$

Subject: SWMHYMO Parameters
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

Proposed Conditions

Area Description	Catchment ID	SWMHYMO Command	Area	CN	TIMP	XIMP	Impervious Slope	Impervious Length	IA Impervious	Impervious Mannings	Pervious Length	IA Pervious	Pervious Mannings	Pervious Slope	Runoff	Tc	Tp
			(ha)				(%)				(m)				Coeff.	(hrs)	(hrs)
Road ROW to C1	1a	CALIB STANDHYD	1.94	68	0.60	0.42	1.1%	440	2	0.025	40	5	0.25	1.1%	N/A	N/A	N/A
Road catchment west of C1 draining to storm sewer and pond south of ROW	1b	CALIB STANDHYD	0.96	68	0.65	0.46	2.2%	80	2	0.025	40	5	0.25	2.2%	N/A	N/A	N/A
Small agricultural area south of road draining to C1	1c	CALIB NASHYD	0.73	73	0.00	0.00	N/A	N/A	N/A	N/A	140	6	N/A	2.1%	0.35	0.37	0.22
Commercial area catchment draining to ditch by 1b	1d	CALIB STANDHYD	35.00	60	0.80	0.64	1.4%	1100	2	0.013	30	5	0.25	2.0%	N/A	N/A	N/A
South part of road ROW and grassed/ditch area draining to watercourse to south	2b	CALIB STANDHYD	0.59	68	0.55	0.39	1.6%	210	2	0.025	40	5	N/A	1.6%	N/A	N/A	N/A
Road ROW to C2	2a	CALIB STANDHYD	1.18	50	0.65	0.46	3.4%	235	2	0.025	40	5	0.25	3.4%	N/A	N/A	N/A
Residential catchment draining to C2	2c	CALIB STANDHYD	3.44	50	0.80	0.64	3.1%	320	2	0.013	10	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C3	3a	CALIB STANDHYD	2.38	60	0.60	0.42	2.5%	320	2	0.025	40	5	0.25	2.5%	N/A	N/A	N/A
Large, mainly residential catchment draining to C3	3c	CALIB STANDHYD	197.18	69	0.40	0.32	0.5%	2750	2	0.02	40	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C4	4a	CALIB STANDHYD	1.94	66	0.60	0.42	1.3%	280	2	0.025	40	5	0.25	1.3%	N/A	N/A	N/A
Residential and wooded catchment draining to C4	4c	CALIB STANDHYD	46.39	65	0.30	0.24	1.0%	1700	2	0.013	60	7	0.25	2.0%	N/A	N/A	N/A
Road ROW to C5	5a	CALIB STANDHYD	2.21	62	0.60	0.42	2.0%	540	2	0.025	40	5	0.25	2.0%	N/A	N/A	N/A
School and park catchment draining to C5	5c	CALIB STANDHYD	13.39	63	0.25	0.06	1.6%	575	2	0.025	75	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C6	6a	CALIB STANDHYD	2.19	43	0.65	0.46	0.5%	285	2	0.025	40	5	0.25	0.5%	N/A	N/A	N/A
Residential catchment draining to C6	6c	CALIB STANDHYD	9.59	52	0.50	0.40	0.8%	400	2	0.013	40	5	0.25	2.0%	N/A	N/A	N/A
Road ROW to C7	7a	CALIB STANDHYD	0.46	39	0.55	0.39	0.4%	70	2	0.025	40	5	0.25	0.4%	N/A	N/A	N/A
Small residential catchment draining to C7	7c	CALIB STANDHYD	0.87	39	0.40	0.32	1.9%	80	2	0.013	110	5	0.25	0.5%	N/A	N/A	N/A
Road ROW to C8	8a	CALIB STANDHYD	0.71	56	0.60	0.42	1.7%	110	2	0.025	40	5	0.25	1.7%	N/A	N/A	N/A
Small creek catchment to C8	8c	CALIB NASHYD	1.14	69	0.15	0.02	N/A	N/A	N/A	N/A	100	6	N/A	1.0%	0.10	0.54	0.33
Road ROW to C9	9a	CALIB STANDHYD	1.42	57	0.58	0.41	2.9%	170	2	0.025	40	5	0.25	2.9%	N/A	N/A	N/A
Large agricultural area draining to C9	9c	CALIB NASHYD	95.98	71	0.10	0.01	N/A	N/A	N/A	N/A	1900	7	N/A	0.4%	0.30	2.63	1.58
Road ROW to C10	10a	CALIB STANDHYD	3.74	52	0.60	0.42	1.3%	385	2	0.025	40	5	0.25	1.3%	N/A	N/A	N/A
Large agricultural area draining to C10	10c	CALIB NASHYD	109.26	72	0.10	0.01	N/A	N/A	N/A	N/A	1380	7	N/A	0.4%	0.30	2.13	1.28
Total			532.69														

Notes:

CN calculated for pervious areas only for DESIGN STANDHYD. CN is a weighted average for DESIGN NASHYD

TIMP ..... *Total percent impervious*

XIMP ..... *Percent impervious directly connected*

Time of Concentration calculated using the Airport Method ..... $Tc = [\ 3.26\ (1.1-C)\ L^{0.5}\ ] / S^{0.33}$

Where: *C = Runoff Coefficient according to MTO Design chart 1.07 for land use and soil texture pertaining to each catchment*
L = Length of Overland Flow (m)
S = Slope (%)

Time to Peak (hr) ..... $Tp = 0.6Tc$

Subject: Existing and Proposed Release Rate Comparison
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

Outlet	5-year 6h SCS Storm			10-year 6h SCS Storm			50-year 6h SCS Storm			100-year 6h SCS Storm		
	Existing Flow Rate (m^3/s)	Proposed Flow Rate (m^3/s)	Percent Change	Existing Flow Rate (m^3/s)	Proposed Flow Rate (m^3/s)	Percent Change	Existing Flow Rate (m^3/s)	Proposed Flow Rate (m^3/s)	Percent Change	Existing Flow Rate (m^3/s)	Proposed Flow Rate (m^3/s)	Percent Change
C1_out	4.760	4.908	3%	6.028	6.190	3%	9.084	9.296	2%	10.467	10.691	2%
2b	0.029	0.066	56%	0.043	0.085	49%	0.082	0.132	38%	0.099	0.154	36%
C2_out	0.632	0.727	13%	0.793	0.905	12%	1.173	1.317	11%	1.345	1.500	10%
C3_out	7.864	7.873	0%	10.676	10.688	0%	18.226	18.237	0%	21.917	21.923	0%
C4_out	2.216	2.277	3%	3.044	3.101	2%	5.276	5.340	1%	6.331	6.375	1%
C5_out	0.516	0.587	12%	0.780	0.854	9%	1.514	1.608	6%	1.873	1.975	5%
C6_out	0.936	1.093	14%	1.199	1.386	13%	1.855	2.115	12%	2.161	2.456	12%
C7_out	0.075	0.112	33%	0.092	0.135	32%	0.132	0.192	31%	0.152	0.218	30%
C8_out	0.067	0.106	37%	0.095	0.139	32%	0.168	0.222	24%	0.203	0.260	22%
C9_out	1.186	1.190	0%	1.665	1.670	0%	2.866	2.872	0%	3.430	3.436	0%
C10_out	1.627	1.636	1%	2.283	2.292	0%	3.923	3.935	0%	4.692	4.705	0%
GRCA	12.715	13.380	5%	17.193	17.871	4%	29.221	30.022	3%	35.377	36.105	2%
HCA	2.784	2.798	1%	3.908	3.924	0%	6.724	6.745	0%	8.045	8.068	0%
All_F	13.404	14.293	6%	18.218	19.134	5%	31.103	32.159	3%	37.724	38.715	3%

```
2     Metric units
*#*************************************************************************
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#*************************************************************************
*#
*#
*#*************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
                    ["Ham2yr.STM"] <--storm filename, one per line for NSTORM ti
*%------------------|-------------------------------------------------------|
READ STORM          STORM_FILENAME=["STORM.001"]
*#*************************************************************************
*#  EXISTING CATCHMENTS
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["1a"], DT=[1](min), AREA=[1.94](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[68],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.1](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.1](%),
                                         LGI=[440](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["1b"], DT=[1](min), AREA=[0.96](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[68],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2.2](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2.2](%),
                                         LGI=[80](m), MNI=[0.025], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB NASHYD        ID=[3], NHYD=["1c"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[73], IA=[6](mm),
                    N=[3], TP=[0.22]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[4], NHYD=["1d"], DT=[1](min), AREA=[35.00](ha),
                    XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[60],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.4](%),
                                         LGI=[1100](m), MNI=[0.013], SCI=[0](min
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["C1_cul"], IDs to add=[1+3]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["C1_out"], IDs to add=[2+4+5]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[10], NHYD=["2b"], DT=[1](min), AREA=[0.59](ha),
                    XIMP=[0.05], TIMP=[0.20], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[68],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.6](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.6](%),
                                         LGI=[210](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["2a"], DT=[1](min), AREA=[1.18](ha),
                    XIMP=[0.08], TIMP=[0.33], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[50],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[3.4](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[3.4](%),
                                         LGI=[235](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["2c"], DT=[1](min), AREA=[3.44](ha),
                    XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[50],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[10](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[3.1](%),
                                         LGI=[320](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[8], NHYD=["C2_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["3a"], DT=[1](min), AREA=[2.38](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[60],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2.5](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2.5](%),
                                         LGI=[320](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["3c"], DT=[1](min), AREA=[197.18](ha),
                    XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
                                         LGI=[2750](m), MNI=[0.02], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["C3_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["4a"], DT=[1](min), AREA=[1.94](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
                                         LGI=[280](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["4c"], DT=[1](min), AREA=[46.39](ha),
                    XIMP=[0.24], TIMP=[0.30], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[65],
                    Pervious   surfaces: IAper=[7](mm), SLPP=[2](%),
                                         LGP=[60](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1](%),
                                         LGI=[1700](m), MNI=[0.013], SCI=[0](min
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["C4_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["5a"], DT=[1](min), AREA=[2.21](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[62],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[540](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["5c"], DT=[1](min), AREA=[13.39](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[63],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2.0](%),
                                         LGP=[75](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
                                         LGI=[575](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["C5_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["6a"], DT=[1](min), AREA=[2.19](ha),
                    XIMP=[0.08], TIMP=[0.30], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[43],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
                                         LGI=[285](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["6c"], DT=[1](min), AREA=[9.59](ha),
                    XIMP=[0.40], TIMP=[0.50], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[52],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[0.8](%),
                                         LGI=[400](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["C6_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["GRCA"], IDs to add=[7+8+9+4+5+6+10]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["7a"], DT=[1](min), AREA=[0.46](ha),
                    XIMP=[0.05], TIMP=[0.20], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[39],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[0.4](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[0.4](%),
                                         LGI=[70](m), MNI=[0.025], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB STANDHYD      ID=[2], NHYD=["7c"], DT=[1](min), AREA=[0.87](ha),
                    XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[39],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
                                         LGP=[110](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.9](%),
                                         LGI=[80](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["C7_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["8a"], DT=[1](min), AREA=[0.71](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[56],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.7](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.7](%),
                                         LGI=[110](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB NASHYD        ID=[2], NHYD=["8c"], DT=[1]min, AREA=[1.14](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[6](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[8], NHYD=["C8_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["9a"], DT=[1](min), AREA=[1.42](ha),
                    XIMP=[0.07], TIMP=[0.28], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[57],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2.9](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2.9](%),
                                         LGI=[170](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB NASHYD        ID=[2], NHYD=["9c"], DT=[1]min, AREA=[95.98](ha),
                    DWF=[0](cms),  CN/C=[71], IA=[7](mm),
                    N=[3], TP=[1.58]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["C9_out"], IDs to add=[1+2+7+8]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["10a"], DT=[1](min), AREA=[3.74](ha),
                    XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[52],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
                                         LGI=[385](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*************************************************************************
CALIB NASHYD        ID=[2], NHYD=["10c"], DT=[1]min, AREA=[109.26](ha),
                    DWF=[0](cms),  CN/C=[72], IA=[7](mm),
                    N=[3], TP=[1.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["C10_out"], IDs to add=[1+2]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
*%------------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["HCA"], IDs to add=[9+10]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
ADD HYD             IDsum=[6], NHYD=["All_F"], IDs to add=[3+5]
*%------------------|-------------------------------------------------------|
*#*************************************************************************
*%------------------|-------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[5]
                    ["H5SCS.6h"] <--storm filename, one per line for NSTORM time
*%------------------|-------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[10]
```

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00271>                     ["H10SCS.6h"] <--storm filename, one per line for NSTORM tim
00272> *%-----------------|-------------------------------------------------------------|
00273> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[50]
00274>                     ["H50SCS.6h"] <--storm filename, one per line for NSTORM tim
00275> *%-----------------|-------------------------------------------------------------|
00276> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[100]
00277>                     ["H100SCS.6h"] <--storm filename, one per line for NSTORM ti
00278> *%-----------------|-------------------------------------------------------------|
00279> FINISH
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00001> 2     Metric units
00002> *#*************************************************************************
00003> *#  Project Name: Garner Rd. MCEA
00004> *#  Date        : December 12, 2024
00005> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00006> *#  Modeller    : Amy Kyle
00007> *#  License #   :  4730904
00008> *#*************************************************************************
00009> *#
00010> *#
00011> *#
00012> *#*************************************************************************
00013> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
00014>                     ["Ham2yr.STM"] <--storm filename, one per line for NSTORM ti
00015> *%------------------|-------------------------------------------------------|
00016> READ STORM           STORM_FILENAME=["STORM.001"]
00017> *#*************************************************************************
00018> *#  PROPOSED CATCHMENTS (UNCONTROLLED)
00019> *#*************************************************************************
00020> CALIB STANDHYD      ID=[1], NHYD=["1a"], DT=[1](min), AREA=[1.94](ha),
00021>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00022>                     SCS curve number CN=[68],
00023>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.1](%),
00024>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00025>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.1](%),
00026>                                          LGI=[440](m), MNI=[0.025], SCI=[0](min)
00027>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00028> *#*************************************************************************
00029> CALIB STANDHYD      ID=[2], NHYD=["1b"], DT=[1](min), AREA=[0.96](ha),
00030>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00031>                     SCS curve number CN=[68],
00032>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.2](%),
00033>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00034>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2.2](%),
00035>                                          LGI=[80](m), MNI=[0.025], SCI=[0](min),
00036>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00037> *#*************************************************************************
00038> CALIB NASHYD        ID=[3], NHYD=["1c"], DT=[1]min, AREA=[0.73](ha),
00039>                     DWF=[0](cms),  CN/C=[73], IA=[6](mm),
00040>                     N=[3], TP=[0.22]hrs,
00041>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00042> *#*************************************************************************
00043> CALIB STANDHYD      ID=[4], NHYD=["1d"], DT=[1](min), AREA=[35.00](ha),
00044>                     XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
00045>                     SCS curve number CN=[60],
00046>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00047>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00048>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.4](%),
00049>                                          LGI=[1100](m), MNI=[0.013], SCI=[0](min
00050>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00051> *#*************************************************************************
00052> *%------------------|-------------------------------------------------------|
00053> ADD HYD             IDsum=[5], NHYD=["C1_cul"], IDs to add=[1+3]
00054> *%------------------|-------------------------------------------------------|
00055> *#*************************************************************************
00056> *%------------------|-------------------------------------------------------|
00057> ADD HYD             IDsum=[7], NHYD=["C1_out"], IDs to add=[2+4+5]
00058> *%------------------|-------------------------------------------------------|
00059> *#*************************************************************************
00060> CALIB STANDHYD      ID=[10], NHYD=["2b"], DT=[1](min), AREA=[0.59](ha),
00061>                     XIMP=[0.39], TIMP=[0.55], DWF=[0](cms), LOSS=[2],
00062>                     SCS curve number CN=[68],
00063>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.6](%),
00064>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00065>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.6](%),
00066>                                          LGI=[210](m), MNI=[0.025], SCI=[0](min)
00067>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00068> *#*************************************************************************
00069> CALIB STANDHYD      ID=[1], NHYD=["2a"], DT=[1](min), AREA=[1.18](ha),
00070>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00071>                     SCS curve number CN=[50],
00072>                     Pervious   surfaces: IAper=[5](mm), SLPP=[3.4](%),
00073>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00074>                     Impervious surfaces: IAimp=[2](mm), SLPI=[3.4](%),
00075>                                          LGI=[235](m), MNI=[0.025], SCI=[0](min)
00076>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00077> *#*************************************************************************
00078> CALIB STANDHYD      ID=[2], NHYD=["2c"], DT=[1](min), AREA=[3.44](ha),
00079>                     XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
00080>                     SCS curve number CN=[50],
00081>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00082>                                          LGP=[10](m), MNP=[0.25], SCP=[0](min),
00083>                     Impervious surfaces: IAimp=[2](mm), SLPI=[3.1](%),
00084>                                          LGI=[320](m), MNI=[0.013], SCI=[0](min)
00085>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00086> *#*************************************************************************
00087> *%------------------|-------------------------------------------------------|
00088> ADD HYD             IDsum=[8], NHYD=["C2_out"], IDs to add=[1+2]
00089> *%------------------|-------------------------------------------------------|
00090> *#*************************************************************************
00091> CALIB STANDHYD      ID=[1], NHYD=["3a"], DT=[1](min), AREA=[2.38](ha),
00092>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00093>                     SCS curve number CN=[60],
00094>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.5](%),
00095>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00096>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2.5](%),
00097>                                          LGI=[320](m), MNI=[0.025], SCI=[0](min)
00098>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00099> *#*************************************************************************
00100> CALIB STANDHYD      ID=[2], NHYD=["3c"], DT=[1](min), AREA=[197.18](ha),
00101>                     XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
00102>                     SCS curve number CN=[69],
00103>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00104>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00105>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
00106>                                          LGI=[2750](m), MNI=[0.02], SCI=[0](min)
00107>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00108> *#*************************************************************************
00109> *%------------------|-------------------------------------------------------|
00110> ADD HYD             IDsum=[9], NHYD=["C3_out"], IDs to add=[1+2]
00111> *%------------------|-------------------------------------------------------|
00112> *#*************************************************************************
00113> CALIB STANDHYD      ID=[1], NHYD=["4a"], DT=[1](min), AREA=[1.94](ha),
00114>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00115>                     SCS curve number CN=[66],
00116>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
00117>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00118>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
00119>                                          LGI=[280](m), MNI=[0.025], SCI=[0](min)
00120>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00121> *#*************************************************************************
00122> CALIB STANDHYD      ID=[2], NHYD=["4c"], DT=[1](min), AREA=[46.39](ha),
00123>                     XIMP=[0.24], TIMP=[0.30], DWF=[0](cms), LOSS=[2],
00124>                     SCS curve number CN=[65],
00125>                     Pervious   surfaces: IAper=[7](mm), SLPP=[2](%),
00126>                                          LGP=[60](m), MNP=[0.25], SCP=[0](min),
00127>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1](%),
00128>                                          LGI=[1700](m), MNI=[0.013], SCI=[0](min
00129>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00130> *#*************************************************************************
00131> *%------------------|-------------------------------------------------------|
00132> ADD HYD             IDsum=[4], NHYD=["C4_out"], IDs to add=[1+2]
00133> *%------------------|-------------------------------------------------------|
00134> *#*************************************************************************
00135> CALIB STANDHYD      ID=[1], NHYD=["5a"], DT=[1](min), AREA=[2.21](ha),
00136>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00137>                     SCS curve number CN=[62],
00138>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00139>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00140>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00141>                                          LGI=[540](m), MNI=[0.025], SCI=[0](min)
00142>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00143> *#*************************************************************************
00144> CALIB STANDHYD      ID=[2], NHYD=["5c"], DT=[1](min), AREA=[13.39](ha),
00145>                     XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
00146>                     SCS curve number CN=[63],
00147>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.0](%),
00148>                                          LGP=[75](m), MNP=[0.25], SCP=[0](min),
00149>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.6](%),
00150>                                          LGI=[575](m), MNI=[0.025], SCI=[0](min)
00151>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00152> *#*************************************************************************
00153> *%------------------|-------------------------------------------------------|
00154> ADD HYD             IDsum=[5], NHYD=["C5_out"], IDs to add=[1+2]
00155> *%------------------|-------------------------------------------------------|
00156> *#*************************************************************************
00157> CALIB STANDHYD      ID=[1], NHYD=["6a"], DT=[1](min), AREA=[2.19](ha),
00158>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00159>                     SCS curve number CN=[43],
00160>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
00161>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00162>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
00163>                                          LGI=[285](m), MNI=[0.025], SCI=[0](min)
00164>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00165> *#*************************************************************************
00166> CALIB STANDHYD      ID=[2], NHYD=["6c"], DT=[1](min), AREA=[9.59](ha),
00167>                     XIMP=[0.40], TIMP=[0.50], DWF=[0](cms), LOSS=[2],
00168>                     SCS curve number CN=[52],
00169>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00170>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00171>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.8](%),
00172>                                          LGI=[400](m), MNI=[0.013], SCI=[0](min)
00173>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00174> *#*************************************************************************
00175> *%------------------|-------------------------------------------------------|
00176> ADD HYD             IDsum=[6], NHYD=["C6_out"], IDs to add=[1+2]
00177> *%------------------|-------------------------------------------------------|
00178> *#*************************************************************************
00179> *%------------------|-------------------------------------------------------|
00180> ADD HYD             IDsum=[3], NHYD=["GRCA"], IDs to add=[7+8+9+4+5+6+10]
00181> *%------------------|-------------------------------------------------------|
00182> *#*************************************************************************
00183> CALIB STANDHYD      ID=[1], NHYD=["7a"], DT=[1](min), AREA=[0.46](ha),
00184>                     XIMP=[0.39], TIMP=[0.55], DWF=[0](cms), LOSS=[2],
00185>                     SCS curve number CN=[39],
00186>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.4](%),
00187>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00188>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.4](%),
00189>                                          LGI=[70](m), MNI=[0.025], SCI=[0](min),
00190>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00191> *#*************************************************************************
00192> CALIB STANDHYD      ID=[2], NHYD=["7c"], DT=[1](min), AREA=[0.87](ha),
00193>                     XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
00194>                     SCS curve number CN=[39],
00195>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
00196>                                          LGP=[110](m), MNP=[0.25], SCP=[0](min),
00197>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.9](%),
00198>                                          LGI=[80](m), MNI=[0.013], SCI=[0](min),
00199>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00200> *#*************************************************************************
00201> *%------------------|-------------------------------------------------------|
00202> ADD HYD             IDsum=[7], NHYD=["C7_out"], IDs to add=[1+2]
00203> *%------------------|-------------------------------------------------------|
00204> *#*************************************************************************
00205> CALIB STANDHYD      ID=[1], NHYD=["8a"], DT=[1](min), AREA=[0.71](ha),
00206>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00207>                     SCS curve number CN=[56],
00208>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.7](%),
00209>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00210>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.7](%),
00211>                                          LGI=[110](m), MNI=[0.025], SCI=[0](min)
00212>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00213> *#*************************************************************************
00214> CALIB NASHYD        ID=[2], NHYD=["8c"], DT=[1]min, AREA=[1.14](ha),
00215>                     DWF=[0](cms),  CN/C=[69], IA=[6](mm),
00216>                     N=[3], TP=[0.33]hrs,
00217>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00218> *#*************************************************************************
00219> *%------------------|-------------------------------------------------------|
00220> ADD HYD             IDsum=[8], NHYD=["C8_out"], IDs to add=[1+2]
00221> *%------------------|-------------------------------------------------------|
00222> *#*************************************************************************
00223> CALIB STANDHYD      ID=[1], NHYD=["9a"], DT=[1](min), AREA=[1.42](ha),
00224>                     XIMP=[0.41], TIMP=[0.58], DWF=[0](cms), LOSS=[2],
00225>                     SCS curve number CN=[57],
00226>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.9](%),
00227>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00228>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2.9](%),
00229>                                          LGI=[170](m), MNI=[0.025], SCI=[0](min)
00230>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00231> *#*************************************************************************
00232> CALIB NASHYD        ID=[2], NHYD=["9c"], DT=[1]min, AREA=[95.98](ha),
00233>                     DWF=[0](cms),  CN/C=[71], IA=[7](mm),
00234>                     N=[3], TP=[1.58]hrs,
00235>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00236> *#*************************************************************************
00237> *%------------------|-------------------------------------------------------|
00238> ADD HYD             IDsum=[9], NHYD=["C9_out"], IDs to add=[1+2+7+8]
00239> *%------------------|-------------------------------------------------------|
00240> *#*************************************************************************
00241> CALIB STANDHYD      ID=[1], NHYD=["10a"], DT=[1](min), AREA=[3.74](ha),
00242>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00243>                     SCS curve number CN=[52],
00244>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
00245>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00246>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
00247>                                          LGI=[385](m), MNI=[0.025], SCI=[0](min)
00248>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00249> *#*************************************************************************
00250> CALIB NASHYD        ID=[2], NHYD=["10c"], DT=[1]min, AREA=[109.26](ha),
00251>                     DWF=[0](cms),  CN/C=[72], IA=[7](mm),
00252>                     N=[3], TP=[1.28]hrs,
00253>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00254> *#*************************************************************************
00255> *%------------------|-------------------------------------------------------|
00256> ADD HYD             IDsum=[10], NHYD=["C10_out"], IDs to add=[1+2]
00257> *%------------------|-------------------------------------------------------|
00258> *#*************************************************************************
00259> *%------------------|-------------------------------------------------------|
00260> ADD HYD             IDsum=[5], NHYD=["HCA"], IDs to add=[9+10]
00261> *%------------------|-------------------------------------------------------|
00262> *#*************************************************************************
00263> ADD HYD             IDsum=[6], NHYD=["All_F"], IDs to add=[3+5]
00264> *%------------------|-------------------------------------------------------|
00265> *#*************************************************************************
00266> *%------------------|-------------------------------------------------------|
00267> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[5]
00268>                     ["H5SCS.6h"] <--storm filename, one per line for NSTORM time
00269> *%------------------|-------------------------------------------------------|
00270> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[10]
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00271>                      ["H10SCS.6h"] <--storm filename, one per line for NSTORM tim
00272> *%-----------------|-------------------------------------------------------------|
00273> START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[50]
00274>                      ["H50SCS.6h"] <--storm filename, one per line for NSTORM tim
00275> *%-----------------|-------------------------------------------------------------|
00276> START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[100]
00277>                      ["H100SCS.6h"] <--storm filename, one per line for NSTORM ti
00278> *%-----------------|-------------------------------------------------------------|
00279> FINISH
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00001> 2     Metric units
00002> *#*************************************************************************
00003> *#  Project Name: Garner Rd. MCEA
00004> *#  Date        : December 12, 2024
00005> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00006> *#  Modeller    : Amy Kyle
00007> *#  License #   :  4730904
00008> *#*************************************************************************
00009> *#
00010> *#
00011> *#
00012> *#*************************************************************************
00013> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
00014>                     ["Ham2yr.STM"] <--storm filename, one per line for NSTORM ti
00015> *%-----------------|-------------------------------------------------------|
00016> READ STORM          STORM_FILENAME=["STORM.001"]
00017> *#*************************************************************************
00018> *#  PROPOSED CATCHMENTS (CONTROLLED)
00019> *#*************************************************************************
00020> CALIB STANDHYD      ID=[1], NHYD=["1a"], DT=[1](min), AREA=[1.94](ha),
00021>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00022>                     SCS curve number CN=[68],
00023>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.1](%),
00024>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00025>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.1](%),
00026>                                          LGI=[440](m), MNI=[0.025], SCI=[0](min)
00027>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00028> *#*************************************************************************
00029> CALIB STANDHYD      ID=[2], NHYD=["1b"], DT=[1](min), AREA=[0.96](ha),
00030>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00031>                     SCS curve number CN=[68],
00032>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.2](%),
00033>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00034>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2.2](%),
00035>                                          LGI=[80](m), MNI=[0.025], SCI=[0](min),
00036>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00037> *#*************************************************************************
00038> CALIB NASHYD        ID=[3], NHYD=["1c"], DT=[1]min, AREA=[0.73](ha),
00039>                     DWF=[0](cms),  CN/C=[73], IA=[6](mm),
00040>                     N=[3], TP=[0.22]hrs,
00041>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00042> *#*************************************************************************
00043> CALIB STANDHYD      ID=[4], NHYD=["1d"], DT=[1](min), AREA=[35.00](ha),
00044>                     XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
00045>                     SCS curve number CN=[60],
00046>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00047>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00048>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.4](%),
00049>                                          LGI=[1100](m), MNI=[0.013], SCI=[0](min
00050>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00051> *#*************************************************************************
00052> *%-----------------|-------------------------------------------------------|
00053> ADD HYD             IDsum=[5], NHYD=["C1_cul"], IDs to add=[1+3]
00054> *%-----------------|-------------------------------------------------------|
00055> *#*************************************************************************
00056> *%-----------------|-------------------------------------------------------|
00057> ADD HYD             IDsum=[7], NHYD=["C1_out"], IDs to add=[2+4+5]
00058> *%-----------------|-------------------------------------------------------|
00059> *#*************************************************************************
00060> CALIB STANDHYD      ID=[10], NHYD=["2b"], DT=[1](min), AREA=[0.59](ha),
00061>                     XIMP=[0.39], TIMP=[0.55], DWF=[0](cms), LOSS=[2],
00062>                     SCS curve number CN=[68],
00063>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.6](%),
00064>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00065>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.6](%),
00066>                                          LGI=[210](m), MNI=[0.025], SCI=[0](min)
00067>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00068> *#*************************************************************************
00069> ROUTE RESERVOIR     IDout=[1],   NHYD=[2bStor],  IDin=[10],
00070>                     RDT=[1](min),
00071>                           TABLE of ( OUTFLOW-STORAGE ) values
00072>                                      (cms) - (ha-m)
00073>                                 [   0.0   ,  0.0    ]
00074>                                 [   0.029 ,  0.0067 ]
00075>                                 [   0.099 ,  0.0123 ]
00076>                                 [   -1  ,  -1  ]  (max twenty pts)
00077>                           IDovf=[2], NHYDovf=["2bovf"]
00078> *#*************************************************************************
00079> *%-----------------|-------------------------------------------------------|
00080> ADD HYD             IDsum=[3], NHYD=["2b_out"], IDs to add=[1+2]
00081> *%-----------------|-------------------------------------------------------|
00082> *#*************************************************************************
00083> CALIB STANDHYD      ID=[1], NHYD=["2a"], DT=[1](min), AREA=[1.18](ha),
00084>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00085>                     SCS curve number CN=[50],
00086>                     Pervious   surfaces: IAper=[5](mm), SLPP=[3.4](%),
00087>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00088>                     Impervious surfaces: IAimp=[2](mm), SLPI=[3.4](%),
00089>                                          LGI=[235](m), MNI=[0.025], SCI=[0](min)
00090>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00091> *#*************************************************************************
00092> ROUTE RESERVOIR     IDout=[2],   NHYD=[C2stor],  IDin=[1],
00093>                     RDT=[1](min),
00094>                           TABLE of ( OUTFLOW-STORAGE ) values
00095>                                      (cms) - (ha-m)
00096>                                 [   0.0   ,  0.0    ]
00097>                                 [   0.047 ,  0.017  ]
00098>                                 [   0.158 ,  0.031  ]
00099>                                 [   -1  ,  -1  ]  (max twenty pts)
00100>                           IDovf=[3], NHYDovf=["C2ovf"]
00101> *#*************************************************************************
00102> CALIB STANDHYD      ID=[1], NHYD=["2c"], DT=[1](min), AREA=[3.44](ha),
00103>                     XIMP=[0.64], TIMP=[0.80], DWF=[0](cms), LOSS=[2],
00104>                     SCS curve number CN=[50],
00105>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00106>                                          LGP=[10](m), MNP=[0.25], SCP=[0](min),
00107>                     Impervious surfaces: IAimp=[2](mm), SLPI=[3.1](%),
00108>                                          LGI=[320](m), MNI=[0.013], SCI=[0](min)
00109>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00110> *#*************************************************************************
00111> *%-----------------|-------------------------------------------------------|
00112> ADD HYD             IDsum=[8], NHYD=["C2_out"], IDs to add=[1+2+3]
00113> *%-----------------|-------------------------------------------------------|
00114> *#*************************************************************************
00115> CALIB STANDHYD      ID=[1], NHYD=["3a"], DT=[1](min), AREA=[2.38](ha),
00116>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00117>                     SCS curve number CN=[60],
00118>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.5](%),
00119>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00120>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2.5](%),
00121>                                          LGI=[320](m), MNI=[0.025], SCI=[0](min)
00122>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00123> *#*************************************************************************
00124> CALIB STANDHYD      ID=[2], NHYD=["3c"], DT=[1](min), AREA=[197.18](ha),
00125>                     XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
00126>                     SCS curve number CN=[69],
00127>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00128>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00129>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
00130>                                          LGI=[2750](m), MNI=[0.02], SCI=[0](min)
00131>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00132> *#*************************************************************************
00133> *%-----------------|-------------------------------------------------------|
00134> ADD HYD             IDsum=[9], NHYD=["C3_out"], IDs to add=[1+2]
00135> *%-----------------|-------------------------------------------------------|
00136> *#*************************************************************************
00137> CALIB STANDHYD      ID=[1], NHYD=["4a"], DT=[1](min), AREA=[1.94](ha),
00138>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00139>                     SCS curve number CN=[66],
00140>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
00141>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00142>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
00143>                                          LGI=[280](m), MNI=[0.025], SCI=[0](min)
00144>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00145> *#*************************************************************************
00146> CALIB STANDHYD      ID=[2], NHYD=["4c"], DT=[1](min), AREA=[46.39](ha),
00147>                     XIMP=[0.24], TIMP=[0.30], DWF=[0](cms), LOSS=[2],
00148>                     SCS curve number CN=[65],
00149>                     Pervious   surfaces: IAper=[7](mm), SLPP=[2](%),
00150>                                          LGP=[60](m), MNP=[0.25], SCP=[0](min),
00151>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1](%),
00152>                                          LGI=[1700](m), MNI=[0.013], SCI=[0](min
00153>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00154> *#*************************************************************************
00155> *%-----------------|-------------------------------------------------------|
00156> ADD HYD             IDsum=[4], NHYD=["C4_out"], IDs to add=[1+2]
00157> *%-----------------|-------------------------------------------------------|
00158> *#*************************************************************************
00159> CALIB STANDHYD      ID=[1], NHYD=["5a"], DT=[1](min), AREA=[2.21](ha),
00160>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00161>                     SCS curve number CN=[62],
00162>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00163>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00164>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00165>                                          LGI=[540](m), MNI=[0.025], SCI=[0](min)
00166>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00167> *#*************************************************************************
00168> ROUTE RESERVOIR     IDout=[2],   NHYD=[C5stor],  IDin=[1],
00169>                     RDT=[1](min),
00170>                           TABLE of ( OUTFLOW-STORAGE ) values
00171>                                      (cms) - (ha-m)
00172>                                 [   0.0   ,  0.0    ]
00173>                                 [   0.079 ,  0.031  ]
00174>                                 [   0.292 ,  0.055  ]
00175>                                 [   -1  ,  -1  ]  (max twenty pts)
00176>                           IDovf=[3], NHYDovf=["C5ovf"]
00177> *#*************************************************************************
00178> CALIB STANDHYD      ID=[1], NHYD=["5c"], DT=[1](min), AREA=[13.39](ha),
00179>                     XIMP=[0.06], TIMP=[0.25], DWF=[0](cms), LOSS=[2],
00180>                     SCS curve number CN=[63],
00181>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2.0](%),
00182>                                          LGP=[75](m), MNP=[0.25], SCP=[0](min),
00183>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.6](%),
00184>                                          LGI=[575](m), MNI=[0.025], SCI=[0](min)
00185>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00186> *#*************************************************************************
00187> *%-----------------|-------------------------------------------------------|
00188> ADD HYD             IDsum=[5], NHYD=["C5_out"], IDs to add=[1+2+3]
00189> *%-----------------|-------------------------------------------------------|
00190> *#*************************************************************************
00191> CALIB STANDHYD      ID=[1], NHYD=["6a"], DT=[1](min), AREA=[2.19](ha),
00192>                     XIMP=[0.46], TIMP=[0.65], DWF=[0](cms), LOSS=[2],
00193>                     SCS curve number CN=[43],
00194>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
00195>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00196>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.5](%),
00197>                                          LGI=[285](m), MNI=[0.025], SCI=[0](min)
00198>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00199> *#*************************************************************************
00200> ROUTE RESERVOIR     IDout=[2],   NHYD=[C6stor],  IDin=[1],
00201>                     RDT=[1](min),
00202>                           TABLE of ( OUTFLOW-STORAGE ) values
00203>                                      (cms) - (ha-m)
00204>                                 [   0.0   ,  0.0    ]
00205>                                 [   0.044 ,  0.037  ]
00206>                                 [   0.137 ,  0.068  ]
00207>                                 [   -1  ,  -1  ]  (max twenty pts)
00208>                           IDovf=[3], NHYDovf=["C6ovf"]
00209> *%-----------------|-------------------------------------------------------|
00210> CALIB STANDHYD      ID=[1], NHYD=["6c"], DT=[1](min), AREA=[9.59](ha),
00211>                     XIMP=[0.40], TIMP=[0.50], DWF=[0](cms), LOSS=[2],
00212>                     SCS curve number CN=[52],
00213>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00214>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00215>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.8](%),
00216>                                          LGI=[400](m), MNI=[0.013], SCI=[0](min)
00217>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00218> *#*************************************************************************
00219> *%-----------------|-------------------------------------------------------|
00220> ADD HYD             IDsum=[6], NHYD=["C6_out"], IDs to add=[1+2+3]
00221> *%-----------------|-------------------------------------------------------|
00222> *#*************************************************************************
00223> *%-----------------|-------------------------------------------------------|
00224> ADD HYD             IDsum=[3], NHYD=["GRCA"], IDs to add=[7+8+9+4+5+6+10]
00225> *%-----------------|-------------------------------------------------------|
00226> *#*************************************************************************
00227> CALIB STANDHYD      ID=[1], NHYD=["7a"], DT=[1](min), AREA=[0.46](ha),
00228>                     XIMP=[0.39], TIMP=[0.55], DWF=[0](cms), LOSS=[2],
00229>                     SCS curve number CN=[39],
00230>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.4](%),
00231>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00232>                     Impervious surfaces: IAimp=[2](mm), SLPI=[0.4](%),
00233>                                          LGI=[70](m), MNI=[0.025], SCI=[0](min),
00234>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00235> *#*************************************************************************
00236> *%-----------------|-------------------------------------------------------|
00237> ROUTE RESERVOIR     IDout=[2],   NHYD=[C7stor],  IDin=[1],
00238>                     RDT=[1](min),
00239>                           TABLE of ( OUTFLOW-STORAGE ) values
00240>                                      (cms) - (ha-m)
00241>                                 [   0.0   ,  0.0    ]
00242>                                 [   0.006 ,  0.0071  ]
00243>                                 [   0.023 ,  0.0128  ]
00244>                                 [   -1  ,  -1  ]  (max twenty pts)
00245>                           IDovf=[3], NHYDovf=["C7ovf"]
00246> *%-----------------|-------------------------------------------------------|
00247> CALIB STANDHYD      ID=[1], NHYD=["7c"], DT=[1](min), AREA=[0.87](ha),
00248>                     XIMP=[0.32], TIMP=[0.40], DWF=[0](cms), LOSS=[2],
00249>                     SCS curve number CN=[39],
00250>                     Pervious   surfaces: IAper=[5](mm), SLPP=[0.5](%),
00251>                                          LGP=[110](m), MNP=[0.25], SCP=[0](min),
00252>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.9](%),
00253>                                          LGI=[80](m), MNI=[0.013], SCI=[0](min),
00254>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00255> *#*************************************************************************
00256> *%-----------------|-------------------------------------------------------|
00257> ADD HYD             IDsum=[7], NHYD=["C7_out"], IDs to add=[1+2+3]
00258> *%-----------------|-------------------------------------------------------|
00259> *#*************************************************************************
00260> CALIB STANDHYD      ID=[1], NHYD=["8a"], DT=[1](min), AREA=[0.71](ha),
00261>                     XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
00262>                     SCS curve number CN=[56],
00263>                     Pervious   surfaces: IAper=[5](mm), SLPP=[1.7](%),
00264>                                          LGP=[40](m), MNP=[0.25], SCP=[0](min),
00265>                     Impervious surfaces: IAimp=[2](mm), SLPI=[1.7](%),
00266>                                          LGI=[110](m), MNI=[0.025], SCI=[0](min)
00267>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00268> *#*************************************************************************
00269> *%-----------------|-------------------------------------------------------|
00270> ROUTE RESERVOIR     IDout=[2],   NHYD=[C8stor],  IDin=[1],
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                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0   ,  0.0    ]
                                [   0.025  ,  0.0097  ]
                                [   0.081  ,  0.0186  ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[3], NHYDovf=["C8ovf"]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8c"], DT=[1]min, AREA=[1.14](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[6](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*********************************************************************************
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[8], NHYD=["C8_out"], IDs to add=[1+2+3]
*#*********************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["9a"], DT=[1](min), AREA=[1.42](ha),
                    XIMP=[0.41], TIMP=[0.58], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[57],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2.9](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2.9](%),
                                         LGI=[170](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*********************************************************************************
CALIB NASHYD        ID=[2], NHYD=["9c"], DT=[1]min, AREA=[95.98](ha),
                    DWF=[0](cms),  CN/C=[71], IA=[7](mm),
                    N=[3], TP=[1.58]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*********************************************************************************
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["C9_out"], IDs to add=[1+2+7+8]
*%-----------------|---------------------------------------------------------|
*#*********************************************************************************
CALIB STANDHYD      ID=[1], NHYD=["10a"], DT=[1](min), AREA=[3.74](ha),
                    XIMP=[0.42], TIMP=[0.60], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[52],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.3](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[1.3](%),
                                         LGI=[385](m), MNI=[0.025], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#*********************************************************************************
CALIB NASHYD        ID=[2], NHYD=["10c"], DT=[1]min, AREA=[109.26](ha),
                    DWF=[0](cms),  CN/C=[72], IA=[7](mm),
                    N=[3], TP=[1.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#*********************************************************************************
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["C10_out"], IDs to add=[1+2]
*%-----------------|---------------------------------------------------------|
*#*********************************************************************************
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["HCA"], IDs to add=[9+10]
*%-----------------|---------------------------------------------------------|
*#*********************************************************************************
ADD HYD             IDsum=[6], NHYD=["All_F"], IDs to add=[3+5]
*%-----------------|---------------------------------------------------------|
*#*********************************************************************************
*%-----------------|---------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[5]
                    ["H5SCS.6h"] <--storm filename, one per line for NSTORM time
*%-----------------|---------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[10]
                    ["H10SCS.6h"] <--storm filename, one per line for NSTORM tim
*%-----------------|---------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[50]
                    ["H50SCS.6h"] <--storm filename, one per line for NSTORM tim
*%-----------------|---------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[100]
                    ["H100SCS.6h"] <--storm filename, one per line for NSTORM ti
*%-----------------|---------------------------------------------------------|
FINISH
```

```
00001> ================================================================================
00002>
00003>   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
00004>   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
00005>   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
00006>       S  W W W  M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
00007>   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
00008>                                                          9   9  9   9   # 4730904
00009>         StormWater Management HYdrologic Model            999    999    =========
00010>
00011>  ********************************************************************************
00012>  ***************************** SWMHYMO Ver/4.05  ********************************
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: Stantec Consulting Ltd. (Kitchener)          +++++++++
00025>  +++++++++                  Kitchener            SERIAL#:4730904      +++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************
00029>  *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
00030>  *********           Maximum value for ID numbers  :     10           *********
00031>  *********           Max. number of rainfall points: 105408           *********
00032>  *********           Max. number of flow points    : 105408           *********
00033>  ********************************************************************************
00034>
00035>
00036>  **********************   D E T A I L E D   O U T P U T   **********************
00037>  ********************************************************************************
00038>  *         DATE: 2024-12-12     TIME: 14:39:11     RUN COUNTER: 000642         *
00039>  ********************************************************************************
00040>  * Input   filename: C:\SWMHYMO\Garner\12-12-~1\GarnEx.dat                       *
00041>  * Output  filename: C:\SWMHYMO\Garner\12-12-~1\GarnEx.out                       *
00042>  * Summary filename: C:\SWMHYMO\Garner\12-12-~1\GarnEx.sum                       *
00043>  * User comments:                                                               *
00044>  * 1:_____________________________________________________________________________*
00045>  * 2:_____________________________________________________________________________*
00046>  * 3:_____________________________________________________________________________*
00047>  ********************************************************************************
00048>
00049> --------------------------------------------------------------------------------
00050> 001:0001--------------------------------------------------------------------------
00051> *#*****************************************************************************
00052> *#  Project Name: Garner Rd. MCEA
00053> *#  Date        : December 12, 2024
00054> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00055> *#  Modeller    : Amy Kyle
00056> *#  License #   :  4730904
00057> *#*****************************************************************************
00058> *#
00059> *#
00060> *#
00061> *#*****************************************************************************
00062>   ** END OF RUN :   1
00063>
00064> ********************************************************************************
00065>
00066>
00067>
00068>
00069>
00070> --------------------
00071> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
00072> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
00073>     TZERO =   .00 hrs on        0
00074>     METOUT=   2 (output = METRIC)
00075>     NRUN  = 002
00076>     NSTORM=   1
00077>               #  1=Ham2yr.STM
00078> --------------------------------------------------------------------------------
00079> 002:0002--------------------------------------------------------------------------
00080> *#*****************************************************************************
00081> *#  Project Name: Garner Rd. MCEA
00082> *#  Date        : December 12, 2024
00083> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00084> *#  Modeller    : Amy Kyle
00085> *#  License #   :  4730904
00086> *#*****************************************************************************
00087> *#
00088> *#
00089> *#
00090> *#*****************************************************************************
00091> --------------------------------------------------------------------------------
00092> 002:0002--------------------------------------------------------------------------
00093> --------------------
00094> | READ STORM       |    Filename: CHICAGO STORM
00095> | Ptotal=  32.71 mm|    Comments: CHICAGO STORM
00096> --------------------
00097>              TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
00098>               hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
00099>               .08   2.929 |   .83   8.680 |  1.58   9.866 |  2.33   3.860
00100>               .17   3.141 |   .92  11.561 |  1.67   8.318 |  2.42   3.634
00101>               .25   3.390 |  1.00  17.565 |  1.75   7.210 |  2.50   3.435
00102>               .33   3.689 |  1.08  37.119 |  1.83   6.377 |  2.58   3.259
00103>               .42   4.054 |  1.17  99.290 |  1.92   5.727 |  2.67   3.102
00104>               .50   4.510 |  1.25  42.696 |  2.00   5.207 |  2.75   2.961
00105>               .58   5.097 |  1.33  23.344 |  2.08   4.780 |  2.83   2.834
00106>               .67   5.883 |  1.42  15.986 |  2.17   4.423 |  2.92   2.718
00107>               .75   6.993 |  1.50  12.178 |  2.25   4.121 |  3.00   2.612
00108>
00109> --------------------------------------------------------------------------------
00110> 002:0003--------------------------------------------------------------------------
00111> *#*****************************************************************************
00112> *#  EXISTING CATCHMENTS
00113> *#*****************************************************************************
00114> ----------------------
00115> | CALIB STANDHYD     |   Area    (ha)=    1.94
00116> | 01:1a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00117> ----------------------
00118>                                IMPERVIOUS    PERVIOUS (i)
00119>      Surface Area     (ha)=        .49          1.46
00120>      Dep. Storage     (mm)=       2.00          5.00
00121>      Average Slope     (%)=       1.10          1.10
00122>      Length            (m)=     440.00         40.00
00123>      Mannings n            =       .025          .250
00124>
00125>      Max.eff.Inten.(mm/hr)=      70.99          9.66
00126>                 over (min)       10.00         32.00
00127>      Storage Coeff.  (min)=       10.25 (ii)    31.76 (ii)
00128>      Unit Hyd. Tpeak (min)=       10.00         32.00
00129>      Unit Hyd. peak  (cms)=         .11           .04
00130>                                                          *TOTALS*
00131>      PEAK FLOW       (cms)=         .02           .02          .027 (iii)
00132>      TIME TO PEAK    (hrs)=        1.30          1.77         1.683
00133>      RUNOFF VOLUME    (mm)=       30.71          6.65         8.092
00134>      TOTAL RAINFALL   (mm)=       32.71         32.71        32.713
00135>      RUNOFF COEFFICIENT   =         .94           .20          .247
00136>
00137>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00138>            CN* =  68.0    Ia = Dep. Storage  (Above)
00139>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00140>            THAN THE STORAGE COEFFICIENT.
00141>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00142>
00143> --------------------------------------------------------------------------------
00144> 002:0004--------------------------------------------------------------------------
00145> *#*****************************************************************************
00146> ----------------------
00147> | CALIB STANDHYD     |   Area    (ha)=     .96
00148> | 02:1b     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00149> ----------------------
00150>                                IMPERVIOUS    PERVIOUS (i)
00151>      Surface Area     (ha)=        .24           .72
00152>      Dep. Storage     (mm)=       2.00          5.00
00153>      Average Slope     (%)=       2.20          2.20
00154>      Length            (m)=      80.00         40.00
00155>      Mannings n            =       .025          .250
00156>
00157>      Max.eff.Inten.(mm/hr)=      99.29         13.39
00158>                 over (min)        3.00         18.00
00159>      Storage Coeff.  (min)=       2.62 (ii)    17.95 (ii)
00160>      Unit Hyd. Tpeak (min)=       3.00         18.00
00161>      Unit Hyd. peak  (cms)=         .41           .06
00162>                                                          *TOTALS*
00163>      PEAK FLOW       (cms)=         .01           .02          .018 (iii)
00164>      TIME TO PEAK    (hrs)=        1.18          1.52         1.450
00165>      RUNOFF VOLUME    (mm)=       30.71          6.65         8.092
00166>      TOTAL RAINFALL   (mm)=       32.71         32.71        32.713
00167>      RUNOFF COEFFICIENT   =         .94           .20          .247
00168>
00169>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00170>            CN* =  68.0    Ia = Dep. Storage  (Above)
00171>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00172>            THAN THE STORAGE COEFFICIENT.
00173>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00174>
00175> --------------------------------------------------------------------------------
00176> 002:0005--------------------------------------------------------------------------
00177> *#*****************************************************************************
00178> ----------------------
00179> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
00180> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00181> ----------------------  U.H. Tp(hrs)=    .220
00182>
00183>      Unit Hyd Qpeak  (cms)=     .127
00184>
00185>      PEAK FLOW       (cms)=     .013 (i)
00186>      TIME TO PEAK    (hrs)=    1.467
00187>      RUNOFF VOLUME    (mm)=    5.914
00188>      TOTAL RAINFALL   (mm)=   32.713
00189>      RUNOFF COEFFICIENT   =     .181
00190>
00191>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00192>
00193> --------------------------------------------------------------------------------
00194> 002:0006--------------------------------------------------------------------------
00195> *#*****************************************************************************
00196> ----------------------
00197> | CALIB STANDHYD     |   Area    (ha)=   35.00
00198> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
00199> ----------------------
00200>                                IMPERVIOUS    PERVIOUS (i)
00201>      Surface Area     (ha)=      28.00          7.00
00202>      Dep. Storage     (mm)=       2.00          5.00
00203>      Average Slope     (%)=       1.40          2.00
00204>      Length            (m)=    1100.00         30.00
00205>      Mannings n            =       .013          .250
00206>
00207>      Max.eff.Inten.(mm/hr)=      67.91         18.27
00208>                 over (min)       11.00         23.00
00209>      Storage Coeff.  (min)=      11.36 (ii)    23.09 (ii)
00210>      Unit Hyd. Tpeak (min)=      11.00         23.00
00211>      Unit Hyd. peak  (cms)=         .10           .05
00212>                                                          *TOTALS*
00213>      PEAK FLOW       (cms)=        2.83           .21          2.927 (iii)
00214>      TIME TO PEAK    (hrs)=        1.32          1.60         1.317
00215>      RUNOFF VOLUME    (mm)=       30.71          7.23        22.257
00216>      TOTAL RAINFALL   (mm)=       32.71         32.71        32.713
00217>      RUNOFF COEFFICIENT   =         .94           .22          .680
00218>
00219>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00220>            CN* =  60.0    Ia = Dep. Storage  (Above)
00221>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00222>            THAN THE STORAGE COEFFICIENT.
00223>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00224>
00225> --------------------------------------------------------------------------------
00226> 002:0007--------------------------------------------------------------------------
00227> *#*****************************************************************************
00228> ----------------------
00229> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00230> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00231>                        ID1 01:1a          1.94      .027    1.68    8.09     .000
00232>                      +ID2 03:1c           .73      .013    1.47    5.91     .000
00233>                        ==========================================================
00234>                        SUM 05:C1_cul      2.67      .038    1.65    7.50     .000
00235>
00236>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00237>
00238> --------------------------------------------------------------------------------
00239> 002:0008--------------------------------------------------------------------------
00240> *#*****************************************************************************
00241> ----------------------
00242> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00243> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00244>                        ID1 02:1b           .96      .018    1.45    8.09     .000
00245>                      +ID2 04:1d          35.00     2.927    1.32   22.26     .000
00246>                      +ID3 05:C1_cul       2.67      .038    1.65    7.50     .000
00247>                        ==========================================================
00248>                        SUM 07:C1_out      38.63     2.972    1.32   20.89     .000
00249>
00250>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00251>
00252> --------------------------------------------------------------------------------
00253> 002:0009--------------------------------------------------------------------------
00254> *#*****************************************************************************
00255> ----------------------
00256> | CALIB STANDHYD     |   Area    (ha)=     .59
00257> | 10:2b     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
00258> ----------------------
00259>                                IMPERVIOUS    PERVIOUS (i)
00260>      Surface Area     (ha)=        .12           .47
00261>      Dep. Storage     (mm)=       2.00          5.00
00262>      Average Slope     (%)=       1.60          1.60
00263>      Length            (m)=     210.00         40.00
00264>      Mannings n            =       .025          .250
00265>
00266>      Max.eff.Inten.(mm/hr)=      99.29         10.21
00267>                 over (min)        5.00         24.00
00268>      Storage Coeff.  (min)=       5.14 (ii)    23.94 (ii)
00269>      Unit Hyd. Tpeak (min)=       5.00         24.00
00270>      Unit Hyd. peak  (cms)=         .22           .05
```

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .01          .01          .009 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.63         1.583
     RUNOFF VOLUME    (mm)=      30.71         6.29         7.511
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .19          .230

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0010--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   33.00   Dir. Conn.(%)=    8.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .39          .79
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      99.29         7.85
                  over (min)       4.00        21.00
     Storage Coeff.  (min)=       4.39 (ii)   21.04 (ii)
     Unit Hyd. Tpeak (min)=       4.00        21.00
     Unit Hyd. peak  (cms)=        .27          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .01          .020 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.57         1.200
     RUNOFF VOLUME    (mm)=      30.71         3.95         6.089
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .12          .186

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0011--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      99.29        20.44
                  over (min)       4.00         9.00
     Storage Coeff.  (min)=       3.67 (ii)    9.46 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .30          .12
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .46          .02          .472 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.33         1.200
     RUNOFF VOLUME    (mm)=      30.71         5.24        21.542
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .16          .659

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0012--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:2a            1.18      .020    1.20   6.09    .000
                    +ID2 02:2c            3.44      .472    1.20  21.54    .000
                     ========================================================
                     SUM 08:C2_out        4.62      .493    1.20  17.60    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
002:0013--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .60         1.79
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.50         2.50
     Length            (m)=     320.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      89.86         8.55
                  over (min)       6.00        24.00
     Storage Coeff.  (min)=       6.03 (ii)   23.68 (ii)
     Unit Hyd. Tpeak (min)=       6.00        24.00
     Unit Hyd. peak  (cms)=        .19          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .02          .031 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.63         1.550
     RUNOFF VOLUME    (mm)=      30.71         5.04         6.576
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .15          .201

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0014--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=  197.18
| 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      78.87       118.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=    2750.00        40.00
     Mannings n            =       .020         .250

     Max.eff.Inten.(mm/hr)=      99.29         6.12
                  over (min)       5.00        51.00
     Storage Coeff.  (min)=      29.84 (ii)   51.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        51.00
     Unit Hyd. peak  (cms)=        .05          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=       4.79         1.11         4.939 (iii)
     TIME TO PEAK    (hrs)=       1.32         2.15         1.317
     RUNOFF VOLUME    (mm)=      30.71         6.21        14.050
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .19          .430

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 69.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0015--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:3a            2.38      .031    1.55   6.58    .000
                    +ID2 02:3c          197.18     4.939    1.32  14.05    .000
                     ========================================================
                     SUM 09:C3_out       199.56     4.968    1.32  13.96    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
002:0016--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:4a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .49         1.46
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.30         1.30
     Length            (m)=     280.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      83.12         9.91
                  over (min)       7.00        27.00
     Storage Coeff.  (min)=       6.98 (ii)   27.23 (ii)
     Unit Hyd. Tpeak (min)=       7.00        27.00
     Unit Hyd. peak  (cms)=        .16          .04
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .02          .027 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.68         1.600
     RUNOFF VOLUME    (mm)=      30.71         6.20         7.668
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .19          .234

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0017--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.92        32.47
     Dep. Storage     (mm)=       2.00         7.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=    1700.00        60.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      53.64         4.29
                  over (min)      18.00        50.00
     Storage Coeff.  (min)=      17.94 (ii)   49.65 (ii)
     Unit Hyd. Tpeak (min)=      18.00        50.00
     Unit Hyd. peak  (cms)=        .06          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.07          .21         1.125 (iii)
     TIME TO PEAK    (hrs)=       1.43         2.17         1.450
     RUNOFF VOLUME    (mm)=      30.71         4.53        10.815
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .14          .331

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
002:0018--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:4a            1.94      .027    1.60   7.67    .000
                    +ID2 02:4c           46.39     1.125    1.45  10.81    .000
                     ========================================================
                     SUM 04:C4_out       48.33     1.149    1.45  10.69    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
002:0019--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .55         1.66
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     540.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      70.99         8.22
                  over (min)      10.00        29.00
     Storage Coeff.  (min)=       9.69 (ii)   28.86 (ii)
     Unit Hyd. Tpeak (min)=      10.00        29.00
     Unit Hyd. peak  (cms)=        .12          .04
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .02          .028 (iii)
     TIME TO PEAK    (hrs)=       1.30         1.72         1.633
     RUNOFF VOLUME    (mm)=      30.71         5.39         6.914
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .16          .211
```

```
00541>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00542>           CN* =  62.0    Ia = Dep. Storage  (Above)
00543>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00544>           THAN THE STORAGE COEFFICIENT.
00545>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00546>
00547> ---------------------------------------------------------------------------
00548> 002:0020-----------------------------------------------------------------
00549> *#************************************************************************
00550> ----------------------
00551> | CALIB STANDHYD     |   Area    (ha)=   13.39
00552> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00553> ----------------------
00554>                              IMPERVIOUS    PERVIOUS (i)
00555>      Surface Area     (ha)=       3.35        10.04
00556>      Dep. Storage     (mm)=       2.00         5.00
00557>      Average Slope     (%)=       1.60         2.00
00558>      Length            (m)=     575.00        75.00
00559>      Mannings n             =      .025         .250
00560>
00561>      Max.eff.Inten.(mm/hr)=      67.91         6.94
00562>                 over (min)       11.00        41.00
00563>      Storage Coeff.  (min)=      10.95 (ii)   40.88 (ii)
00564>      Unit Hyd. Tpeak (min)=      11.00        41.00
00565>      Unit Hyd. peak  (cms)=        .10          .03
00566>                                                          *TOTALS*
00567>      PEAK FLOW       (cms)=        .10          .11          .133 (iii)
00568>      TIME TO PEAK    (hrs)=       1.32         1.95         1.850
00569>      RUNOFF VOLUME    (mm)=      30.71         5.58         7.092
00570>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00571>      RUNOFF COEFFICIENT   =        .94          .17          .217
00572>
00573>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00574>            CN* =  63.0    Ia = Dep. Storage  (Above)
00575>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00576>            THAN THE STORAGE COEFFICIENT.
00577>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00578>
00579> ---------------------------------------------------------------------------
00580> 002:0021-----------------------------------------------------------------
00581> *#************************************************************************
00582> ----------------------
00583> | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00584> ----------------------- ------------     (ha)     (cms)   (hrs)   (mm)    (cms)
00585>                       ID1 01:5a          2.21     .028    1.63   6.91    .000
00586>                      +ID2 02:5c         13.39     .133    1.85   7.09    .000
00587>                       ==========================================================
00588>                       SUM 05:C5_out      15.60     .158    1.83   7.07    .000
00589>
00590>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00591>
00592> ---------------------------------------------------------------------------
00593> 002:0022-----------------------------------------------------------------
00594> *#************************************************************************
00595> ----------------------
00596> | CALIB STANDHYD     |   Area    (ha)=    2.19
00597> | 01:6a     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    8.00
00598> ----------------------
00599>                              IMPERVIOUS    PERVIOUS (i)
00600>      Surface Area     (ha)=        .66         1.53
00601>      Dep. Storage     (mm)=       2.00         5.00
00602>      Average Slope     (%)=        .50          .50
00603>      Length            (m)=     285.00        40.00
00604>      Mannings n             =      .025         .250
00605>
00606>      Max.eff.Inten.(mm/hr)=      70.99         3.26
00607>                 over (min)       10.00        52.00
00608>      Storage Coeff.  (min)=      10.01 (ii)   52.09 (ii)
00609>      Unit Hyd. Tpeak (min)=      10.00        52.00
00610>      Unit Hyd. peak  (cms)=        .11          .02
00611>                                                          *TOTALS*
00612>      PEAK FLOW       (cms)=        .02          .01          .025 (iii)
00613>      TIME TO PEAK    (hrs)=       1.30         2.17         1.300
00614>      RUNOFF VOLUME    (mm)=      30.71         2.93         5.154
00615>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00616>      RUNOFF COEFFICIENT   =        .94          .09          .158
00617>
00618>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00619>            CN* =  43.0    Ia = Dep. Storage  (Above)
00620>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00621>            THAN THE STORAGE COEFFICIENT.
00622>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00623>
00624> ---------------------------------------------------------------------------
00625> 002:0023-----------------------------------------------------------------
00626> *#************************************************************************
00627> ----------------------
00628> | CALIB STANDHYD     |   Area    (ha)=    9.59
00629> | 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
00630> ----------------------
00631>                              IMPERVIOUS    PERVIOUS (i)
00632>      Surface Area     (ha)=       4.80         4.80
00633>      Dep. Storage     (mm)=       2.00         5.00
00634>      Average Slope     (%)=        .80         2.00
00635>      Length            (m)=     400.00        40.00
00636>      Mannings n             =      .013         .250
00637>
00638>      Max.eff.Inten.(mm/hr)=      83.12         5.15
00639>                 over (min)        7.00        30.00
00640>      Storage Coeff.  (min)=       6.76 (ii)   29.87 (ii)
00641>      Unit Hyd. Tpeak (min)=       7.00        30.00
00642>      Unit Hyd. peak  (cms)=        .17          .04
00643>                                                          *TOTALS*
00644>      PEAK FLOW       (cms)=        .63          .04          .633 (iii)
00645>      TIME TO PEAK    (hrs)=       1.25         1.75         1.250
00646>      RUNOFF VOLUME    (mm)=      30.71         3.64        14.468
00647>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00648>      RUNOFF COEFFICIENT   =        .94          .11          .442
00649>
00650>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00651>            CN* =  52.0    Ia = Dep. Storage  (Above)
00652>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00653>            THAN THE STORAGE COEFFICIENT.
00654>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00655>
00656> ---------------------------------------------------------------------------
00657> 002:0024-----------------------------------------------------------------
00658> *#************************************************************************
00659> ----------------------
00660> | ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00661> ----------------------- ------------     (ha)     (cms)   (hrs)   (mm)    (cms)
00662>                       ID1 01:6a          2.19     .025    1.30   5.15    .000
00663>                      +ID2 02:6c          9.59     .633    1.25  14.47    .000
00664>                       ==========================================================
00665>                       SUM 06:C6_out      11.78     .655    1.25  12.74    .000
00666>
00667>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00668>
00669> ---------------------------------------------------------------------------
00670> 002:0025-----------------------------------------------------------------
00671> *#************************************************************************
00672> ----------------------
00673> | ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00674> ----------------------- ------------     (ha)     (cms)   (hrs)   (mm)    (cms)
00675>                       ID1 07:C1_out      38.63    2.972    1.32  20.89    .000
00676>                      +ID2 08:C2_out       4.62     .493    1.20  17.60    .000
00677>                      +ID3 09:C3_out     199.56    4.968    1.32  13.96    .000
00678>                      +ID4 04:C4_out      48.33    1.149    1.45  10.69    .000
00679>                      +ID5 05:C5_out      15.60     .158    1.83   7.07    .000
00680>                      +ID6 06:C6_out      11.78     .655    1.25  12.74    .000
00681>                      +ID7 10:2b            .59     .009    1.58   7.51    .000
00682>                       ==========================================================
00683>                       SUM 03:GRCA       319.11    9.851    1.32  13.96    .000
00684>
00685>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00686>
00687> ---------------------------------------------------------------------------
00688> 002:0026-----------------------------------------------------------------
00689> *#************************************************************************
00690> ----------------------
00691> | CALIB STANDHYD     |   Area    (ha)=     .46
00692> | 01:7a     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
00693> ----------------------
00694>                              IMPERVIOUS    PERVIOUS (i)
00695>      Surface Area     (ha)=        .09          .37
00696>      Dep. Storage     (mm)=       2.00         5.00
00697>      Average Slope     (%)=        .40          .40
00698>      Length            (m)=      70.00        40.00
00699>      Mannings n             =      .025         .250
00700>
00701>      Max.eff.Inten.(mm/hr)=      99.29         6.93
00702>                 over (min)        4.00        37.00
00703>      Storage Coeff.  (min)=       4.03 (ii)   37.30 (ii)
00704>      Unit Hyd. Tpeak (min)=       4.00        37.00
00705>      Unit Hyd. peak  (cms)=        .28          .03
00706>                                                          *TOTALS*
00707>      PEAK FLOW       (cms)=        .00          .00          .005 (iii)
00708>      TIME TO PEAK    (hrs)=       1.20         1.90         1.200
00709>      RUNOFF VOLUME    (mm)=      30.71         2.24         3.661
00710>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00711>      RUNOFF COEFFICIENT   =        .94          .07          .112
00712>
00713>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00714>            CN* =  39.0    Ia = Dep. Storage  (Above)
00715>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00716>            THAN THE STORAGE COEFFICIENT.
00717>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00718>
00719> ---------------------------------------------------------------------------
00720> 002:0027-----------------------------------------------------------------
00721> *#************************************************************************
00722> ----------------------
00723> | CALIB STANDHYD     |   Area    (ha)=     .87
00724> | 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
00725> ----------------------
00726>                              IMPERVIOUS    PERVIOUS (i)
00727>      Surface Area     (ha)=        .35          .52
00728>      Dep. Storage     (mm)=       2.00         5.00
00729>      Average Slope     (%)=       1.90          .50
00730>      Length            (m)=      80.00       110.00
00731>      Mannings n             =      .013         .250
00732>
00733>      Max.eff.Inten.(mm/hr)=      99.29         7.66
00734>                 over (min)        2.00        57.00
00735>      Storage Coeff.  (min)=       1.85 (ii)   56.69 (ii)
00736>      Unit Hyd. Tpeak (min)=       2.00        57.00
00737>      Unit Hyd. peak  (cms)=        .59          .02
00738>                                                          *TOTALS*
00739>      PEAK FLOW       (cms)=        .07          .00          .072 (iii)
00740>      TIME TO PEAK    (hrs)=       1.17         2.28         1.167
00741>      RUNOFF VOLUME    (mm)=      30.71         2.11        11.266
00742>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00743>      RUNOFF COEFFICIENT   =        .94          .06          .344
00744>
00745>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00746>            CN* =  39.0    Ia = Dep. Storage  (Above)
00747>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00748>            THAN THE STORAGE COEFFICIENT.
00749>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00750>
00751> ---------------------------------------------------------------------------
00752> 002:0028-----------------------------------------------------------------
00753> *#************************************************************************
00754> ----------------------
00755> | ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00756> ----------------------- ------------     (ha)     (cms)   (hrs)   (mm)    (cms)
00757>                       ID1 01:7a           .46     .005    1.20   3.66    .000
00758>                      +ID2 02:7c           .87     .072    1.17  11.27    .000
00759>                       ==========================================================
00760>                       SUM 07:C7_out       1.33     .077    1.17   8.64    .000
00761>
00762>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00763>
00764> ---------------------------------------------------------------------------
00765> 002:0029-----------------------------------------------------------------
00766> *#************************************************************************
00767> ----------------------
00768> | CALIB STANDHYD     |   Area    (ha)=     .71
00769> | 01:8a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00770> ----------------------
00771>                              IMPERVIOUS    PERVIOUS (i)
00772>      Surface Area     (ha)=        .18          .53
00773>      Dep. Storage     (mm)=       2.00         5.00
00774>      Average Slope     (%)=       1.70         1.70
00775>      Length            (m)=     110.00        40.00
00776>      Mannings n             =      .025         .250
00777>
00778>      Max.eff.Inten.(mm/hr)=      99.29         7.41
00779>                 over (min)        3.00        24.00
00780>      Storage Coeff.  (min)=       3.43 (ii)   24.41 (ii)
00781>      Unit Hyd. Tpeak (min)=       3.00        24.00
00782>      Unit Hyd. peak  (cms)=        .34          .05
00783>                                                          *TOTALS*
00784>      PEAK FLOW       (cms)=        .01          .01          .010 (iii)
00785>      TIME TO PEAK    (hrs)=       1.18         1.63         1.183
00786>      RUNOFF VOLUME    (mm)=      30.71         4.39         5.969
00787>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00788>      RUNOFF COEFFICIENT   =        .94          .13          .182
00789>
00790>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00791>            CN* =  56.0    Ia = Dep. Storage  (Above)
00792>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00793>            THAN THE STORAGE COEFFICIENT.
00794>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00795>
00796> ---------------------------------------------------------------------------
00797> 002:0030-----------------------------------------------------------------
00798> *#************************************************************************
00799> ----------------------
00800> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
00801> | 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00802> ----------------------  U.H. Tp(hrs)=    .330
00803>
00804>      Unit Hyd Qpeak  (cms)=     .132
00805>
00806>      PEAK FLOW       (cms)=     .014 (i)
00807>      TIME TO PEAK    (hrs)=    1.633
00808>      RUNOFF VOLUME    (mm)=    5.067
00809>      TOTAL RAINFALL   (mm)=   32.713
00810>      RUNOFF COEFFICIENT   =     .155
```

```
00811>
00812>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00813>
00814> ------------------------------------------------------------------------------
00815> 002:0031------------------------------------------------------------------------
00816> *#*****************************************************************************
00817> ----------------------
00818> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00819> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00820>                       ID1 01:8a            .71     .010    1.18   5.97    .000
00821>                      +ID2 02:8c           1.14     .014    1.63   5.07    .000
00822>                       ========================================================
00823>                       SUM 08:C8_out        1.85     .021    1.62   5.41    .000
00824>
00825>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00826>
00827> ------------------------------------------------------------------------------
00828> 002:0032------------------------------------------------------------------------
00829> *#*****************************************************************************
00830> ----------------------
00831> | CALIB STANDHYD     |   Area    (ha)=    1.42
00832> | 01:9a     DT= 1.00 |   Total Imp(%)=   28.00   Dir. Conn.(%)=    7.00
00833> ----------------------
00834>                              IMPERVIOUS    PERVIOUS (i)
00835>      Surface Area     (ha)=        .40         1.02
00836>      Dep. Storage     (mm)=       2.00         5.00
00837>      Average Slope     (%)=       2.90         2.90
00838>      Length            (m)=     170.00        40.00
00839>      Mannings n            =       .025         .250
00840>
00841>      Max.eff.Inten.(mm/hr)=      99.29         9.09
00842>                    over (min)       4.00        20.00
00843>      Storage Coeff.  (min)=       3.79 (ii)   20.26 (ii)
00844>      Unit Hyd. Tpeak (min)=       4.00        20.00
00845>      Unit Hyd. peak  (cms)=        .29          .06
00846>                                                        *TOTALS*
00847>      PEAK FLOW       (cms)=        .02          .01          .023 (iii)
00848>      TIME TO PEAK    (hrs)=       1.20         1.55         1.200
00849>      RUNOFF VOLUME    (mm)=      30.71         4.69         6.516
00850>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00851>      RUNOFF COEFFICIENT   =        .94          .14          .199
00852>
00853>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00854>            CN* =  57.0    Ia = Dep. Storage  (Above)
00855>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00856>            THAN THE STORAGE COEFFICIENT.
00857>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00858>
00859> ------------------------------------------------------------------------------
00860> 002:0033------------------------------------------------------------------------
00861> *#*****************************************************************************
00862> ----------------------
00863> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
00864> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
00865> ----------------------   U.H. Tp(hrs)=   1.580
00866>
00867>      Unit Hyd Qpeak  (cms)=    2.320
00868>
00869>      PEAK FLOW       (cms)=     .414 (i)
00870>      TIME TO PEAK    (hrs)=    3.333
00871>      RUNOFF VOLUME    (mm)=    5.107
00872>      TOTAL RAINFALL   (mm)=   32.713
00873>      RUNOFF COEFFICIENT   =     .156
00874>
00875>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00876>
00877> ------------------------------------------------------------------------------
00878> 002:0034------------------------------------------------------------------------
00879> *#*****************************************************************************
00880> ----------------------
00881> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00882> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00883>                       ID1 01:9a            1.42     .023    1.20   6.52    .000
00884>                      +ID2 02:9c           95.98     .414    3.33   5.11    .000
00885>                      +ID3 07:C7_out        1.33     .077    1.17   8.64    .000
00886>                      +ID4 08:C8_out        1.85     .021    1.62   5.41    .000
00887>                       ========================================================
00888>                       SUM 09:C9_out      100.58     .422    3.27   5.18    .000
00889>
00890>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00891>
00892> ------------------------------------------------------------------------------
00893> 002:0035------------------------------------------------------------------------
00894> *#*****************************************************************************
00895> ----------------------
00896> | CALIB STANDHYD     |   Area    (ha)=    3.74
00897> | 01:10a    DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00898> ----------------------
00899>                              IMPERVIOUS    PERVIOUS (i)
00900>      Surface Area     (ha)=        .94         2.81
00901>      Dep. Storage     (mm)=       2.00         5.00
00902>      Average Slope     (%)=       1.30         1.30
00903>      Length            (m)=     385.00        40.00
00904>      Mannings n            =       .025         .250
00905>
00906>      Max.eff.Inten.(mm/hr)=      74.14         5.17
00907>                    over (min)       9.00        35.00
00908>      Storage Coeff.  (min)=       8.85 (ii)   35.12 (ii)
00909>      Unit Hyd. Tpeak (min)=       9.00        35.00
00910>      Unit Hyd. peak  (cms)=        .13          .03
00911>                                                        *TOTALS*
00912>      PEAK FLOW       (cms)=        .03          .02          .037 (iii)
00913>      TIME TO PEAK    (hrs)=       1.28         1.85         1.300
00914>      RUNOFF VOLUME    (mm)=      30.71         3.82         5.437
00915>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00916>      RUNOFF COEFFICIENT   =        .94          .12          .166
00917>
00918>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00919>            CN* =  52.0    Ia = Dep. Storage  (Above)
00920>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00921>            THAN THE STORAGE COEFFICIENT.
00922>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00923>
00924> ------------------------------------------------------------------------------
00925> 002:0036------------------------------------------------------------------------
00926> *#*****************************************************************************
00927> ----------------------
00928> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
00929> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
00930> ----------------------   U.H. Tp(hrs)=   1.280
00931>
00932>      Unit Hyd Qpeak  (cms)=    3.260
00933>
00934>      PEAK FLOW       (cms)=     .568 (i)
00935>      TIME TO PEAK    (hrs)=    3.017
00936>      RUNOFF VOLUME    (mm)=    5.311
00937>      TOTAL RAINFALL   (mm)=   32.713
00938>      RUNOFF COEFFICIENT   =     .162
00939>
00940>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00941>
00942> ------------------------------------------------------------------------------
00943> 002:0037------------------------------------------------------------------------
00944> *#*****************************************************************************
00945> ----------------------
00946> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00947> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00948>                       ID1 01:10a           3.74     .037    1.30   5.44    .000
00949>                      +ID2 02:10c         109.26     .568    3.02   5.31    .000
00950>                       ========================================================
00951>                       SUM 10:C10_out      113.00     .581    2.98   5.31    .000
00952>
00953>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00954>
00955> ------------------------------------------------------------------------------
00956> 002:0038------------------------------------------------------------------------
00957> *#*****************************************************************************
00958> ----------------------
00959> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00960> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00961>                       ID1 09:C9_out      100.58     .422    3.27   5.18    .000
00962>                      +ID2 10:C10_out     113.00     .581    2.98   5.31    .000
00963>                       ========================================================
00964>                       SUM 05:HCA          213.58     .997    3.10   5.25    .000
00965>
00966>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00967>
00968> ------------------------------------------------------------------------------
00969> 002:0039------------------------------------------------------------------------
00970> *#*****************************************************************************
00971> ----------------------
00972> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00973> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00974>                       ID1 03:GRCA        319.11    9.851    1.32  13.96    .000
00975>                      +ID2 05:HCA         213.58     .997    3.10   5.25    .000
00976>                       ========================================================
00977>                       SUM 06:All_F        532.69    9.978    1.32  10.47    .000
00978>
00979>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00980>
00981> ------------------------------------------------------------------------------
00982> 002:0040------------------------------------------------------------------------
00983> *#*****************************************************************************
00984>   ** END OF RUN :   4
00985>
00986> ******************************************************************************
00987>
00988>
00989>
00990>
00991>
00992> --------------------
00993> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12~~1\
00994> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12~~1\
00995>     TZERO =   .00 hrs on        0
00996>     METOUT=   2 (output = METRIC)
00997>     NRUN  = 005
00998>     NSTORM=   1
00999>               #  1=H5SCS.6h
01000> ------------------------------------------------------------------------------
01001> 005:0002------------------------------------------------------------------------
01002> *#*****************************************************************************
01003> *#  Project Name: Garner Rd. MCEA
01004> *#  Date        : December 12, 2024
01005> *#  Company     : Stantec Consulting Ltd. (Waterloo)
01006> *#  Modeller    : Amy Kyle
01007> *#  License #   :  4730904
01008> *#*****************************************************************************
01009> *#
01010> *#
01011> *#
01012> *#*****************************************************************************
01013> ------------------------------------------------------------------------------
01014> 005:0002------------------------------------------------------------------------
01015> ---------------------
01016> | READ STORM       |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01017> | Ptotal=  56.50 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01018> ---------------------
01019>              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
01020>               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
01021>               .17   2.260 |   1.67   5.650 |   3.17  12.430 |   4.67   3.390
01022>               .33   2.260 |   1.83   5.650 |   3.33  12.430 |   4.83   3.390
01023>               .50   2.260 |   2.00   5.650 |   3.50  12.430 |   5.00   3.390
01024>               .67   3.390 |   2.17   6.780 |   3.67   5.650 |   5.17   2.260
01025>               .83   3.390 |   2.33   6.780 |   3.83   5.650 |   5.33   2.260
01026>              1.00   3.390 |   2.50   6.780 |   4.00   5.650 |   5.50   2.260
01027>              1.17   3.390 |   2.67  33.900 |   4.17   4.520 |   5.67   2.260
01028>              1.33   3.390 |   2.83  61.020 |   4.33   4.520 |   5.83   2.260
01029>              1.50   3.390 |   3.00  88.140 |   4.50   4.520 |   6.00   2.260
01030>
01031> ------------------------------------------------------------------------------
01032> 005:0003------------------------------------------------------------------------
01033> *#*****************************************************************************
01034> *#  EXISTING CATCHMENTS
01035> *#*****************************************************************************
01036> ----------------------
01037> | CALIB STANDHYD     |   Area    (ha)=    1.94
01038> | 01:1a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
01039> ----------------------
01040>                              IMPERVIOUS    PERVIOUS (i)
01041>      Surface Area     (ha)=        .49         1.46
01042>      Dep. Storage     (mm)=       2.00         5.00
01043>      Average Slope     (%)=       1.10         1.10
01044>      Length            (m)=     440.00        40.00
01045>      Mannings n            =       .025         .250
01046>
01047>      Max.eff.Inten.(mm/hr)=      88.14        30.69
01048>                    over (min)       9.00        23.00
01049>      Storage Coeff.  (min)=       9.40 (ii)   22.95 (ii)
01050>      Unit Hyd. Tpeak (min)=       9.00        23.00
01051>      Unit Hyd. peak  (cms)=        .12          .05
01052>                                                        *TOTALS*
01053>      PEAK FLOW       (cms)=        .02          .08          .086 (iii)
01054>      TIME TO PEAK    (hrs)=       3.05         3.30         3.267
01055>      RUNOFF VOLUME    (mm)=      54.50        18.64        20.797
01056>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01057>      RUNOFF COEFFICIENT   =        .96          .33          .368
01058>
01059>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01060>            CN* =  68.0    Ia = Dep. Storage  (Above)
01061>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01062>            THAN THE STORAGE COEFFICIENT.
01063>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01064>
01065> ------------------------------------------------------------------------------
01066> 005:0004------------------------------------------------------------------------
01067> *#*****************************************************************************
01068> ----------------------
01069> | CALIB STANDHYD     |   Area    (ha)=     .96
01070> | 02:1b     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
01071> ----------------------
01072>                              IMPERVIOUS    PERVIOUS (i)
01073>      Surface Area     (ha)=        .24          .72
01074>      Dep. Storage     (mm)=       2.00         5.00
01075>      Average Slope     (%)=       2.20         2.20
01076>      Length            (m)=      80.00        40.00
01077>      Mannings n            =       .025         .250
01078>
01079>      Max.eff.Inten.(mm/hr)=      88.14        42.79
01080>                    over (min)       3.00        12.00
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```
01081>      Storage Coeff.  (min)=       2.75 (ii)   12.38 (ii)
01082>      Unit Hyd. Tpeak (min)=       3.00        12.00
01083>      Unit Hyd. peak  (cms)=        .40          .09
01084>                                                        *TOTALS*
01085>      PEAK FLOW       (cms)=        .01          .06          .060 (iii)
01086>      TIME TO PEAK    (hrs)=       3.00         3.12         3.033
01087>      RUNOFF VOLUME    (mm)=      54.50        18.65        20.797
01088>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01089>      RUNOFF COEFFICIENT   =        .96          .33          .368
01090>
01091>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01092>            CN* =  68.0    Ia = Dep. Storage  (Above)
01093>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01094>            THAN THE STORAGE COEFFICIENT.
01095>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01096>
01097> ---------------------------------------------------------------------------
01098> 005:0005-----------------------------------------------------------------
01099> *#************************************************************************
01100> ----------------------
01101> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number    (CN)=73.00
01102> | 03:1c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
01103> ----------------------   U.H. Tp(hrs)=    .220
01104>
01105>      Unit Hyd Qpeak  (cms)=     .127
01106>
01107>      PEAK FLOW       (cms)=     .040 (i)
01108>      TIME TO PEAK    (hrs)=    3.133
01109>      RUNOFF VOLUME    (mm)=   17.655
01110>      TOTAL RAINFALL   (mm)=   56.500
01111>      RUNOFF COEFFICIENT   =     .312
01112>
01113>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01114>
01115> ---------------------------------------------------------------------------
01116> 005:0006-----------------------------------------------------------------
01117> *#************************************************************************
01118> ----------------------
01119> | CALIB STANDHYD     |   Area    (ha)=   35.00
01120> | 04:1d      DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01121> ----------------------
01122>                                IMPERVIOUS    PERVIOUS (i)
01123>      Surface Area     (ha)=      28.00         7.00
01124>      Dep. Storage     (mm)=       2.00         5.00
01125>      Average Slope     (%)=       1.40         2.00
01126>      Length            (m)=    1100.00        30.00
01127>      Mannings n            =       .013         .250
01128>
01129>      Max.eff.Inten.(mm/hr)=      88.14        53.61
01130>                  over (min)      10.00        18.00
01131>      Storage Coeff.  (min)=      10.24 (ii)   17.86 (ii)
01132>      Unit Hyd. Tpeak (min)=      10.00        18.00
01133>      Unit Hyd. peak  (cms)=        .11          .06
01134>                                                        *TOTALS*
01135>      PEAK FLOW       (cms)=       4.08          .64         4.590 (iii)
01136>      TIME TO PEAK    (hrs)=       3.05         3.20         3.067
01137>      RUNOFF VOLUME    (mm)=      54.50        19.53        41.910
01138>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01139>      RUNOFF COEFFICIENT   =        .96          .35          .742
01140>
01141>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01142>            CN* =  60.0    Ia = Dep. Storage  (Above)
01143>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01144>            THAN THE STORAGE COEFFICIENT.
01145>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01146>
01147> ---------------------------------------------------------------------------
01148> 005:0007-----------------------------------------------------------------
01149> *#************************************************************************
01150> ------------------------
01151> | ADD HYD (C1_cul    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01152> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01153>                      ID1 01:1a             1.94      .086    3.27  20.80    .000
01154>                     +ID2 03:1c              .73      .040    3.13  17.66    .000
01155>                      ========================================================
01156>                      SUM 05:C1_cul         2.67      .122    3.20  19.94    .000
01157>
01158>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01159>
01160> ---------------------------------------------------------------------------
01161> 005:0008-----------------------------------------------------------------
01162> *#************************************************************************
01163> ------------------------
01164> | ADD HYD (C1_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01165> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01166>                      ID1 02:1b              .96      .060    3.03  20.80    .000
01167>                     +ID2 04:1d            35.00     4.590    3.07  41.91    .000
01168>                     +ID3 05:C1_cul         2.67      .122    3.20  19.94    .000
01169>                      ========================================================
01170>                      SUM 07:C1_out         38.63     4.760    3.07  39.87    .000
01171>
01172>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01173>
01174> ---------------------------------------------------------------------------
01175> 005:0009-----------------------------------------------------------------
01176> *#************************************************************************
01177> ----------------------
01178> | CALIB STANDHYD     |   Area    (ha)=     .59
01179> | 10:2b      DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
01180> ----------------------
01181>                                IMPERVIOUS    PERVIOUS (i)
01182>      Surface Area     (ha)=        .12          .47
01183>      Dep. Storage     (mm)=       2.00         5.00
01184>      Average Slope     (%)=       1.60         1.60
01185>      Length            (m)=     210.00        40.00
01186>      Mannings n            =       .025         .250
01187>
01188>      Max.eff.Inten.(mm/hr)=      88.14        33.36
01189>                  over (min)       5.00        17.00
01190>      Storage Coeff.  (min)=       5.39 (ii)   17.10 (ii)
01191>      Unit Hyd. Tpeak (min)=       5.00        17.00
01192>      Unit Hyd. peak  (cms)=        .21          .07
01193>                                                        *TOTALS*
01194>      PEAK FLOW       (cms)=        .01          .03          .029 (iii)
01195>      TIME TO PEAK    (hrs)=       3.00         3.20         3.167
01196>      RUNOFF VOLUME    (mm)=      54.50        17.88        19.708
01197>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01198>      RUNOFF COEFFICIENT   =        .96          .32          .349
01199>
01200>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01201>            CN* =  68.0    Ia = Dep. Storage  (Above)
01202>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01203>            THAN THE STORAGE COEFFICIENT.
01204>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01205>
01206> ---------------------------------------------------------------------------
01207> 005:0010-----------------------------------------------------------------
01208> *#************************************************************************
01209> ----------------------
01210> | CALIB STANDHYD     |   Area    (ha)=    1.18
01211> | 01:2a      DT= 1.00 |   Total Imp(%)=   33.00   Dir. Conn.(%)=    8.00
01212> ----------------------
01213>                                IMPERVIOUS    PERVIOUS (i)
01214>      Surface Area     (ha)=        .39          .79
01215>      Dep. Storage     (mm)=       2.00         5.00
01216>      Average Slope     (%)=       3.40         3.40
01217>      Length            (m)=     235.00        40.00
01218>      Mannings n            =       .025         .250
01219>
01220>      Max.eff.Inten.(mm/hr)=      88.14        26.28
01221>                  over (min)       5.00        15.00
01222>      Storage Coeff.  (min)=       4.60 (ii)   14.87 (ii)
01223>      Unit Hyd. Tpeak (min)=       5.00        15.00
01224>      Unit Hyd. peak  (cms)=        .24          .08
01225>                                                        *TOTALS*
01226>      PEAK FLOW       (cms)=        .02          .04          .049 (iii)
01227>      TIME TO PEAK    (hrs)=       3.00         3.17         3.050
01228>      RUNOFF VOLUME    (mm)=      54.50        11.75        15.168
01229>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01230>      RUNOFF COEFFICIENT   =        .96          .21          .268
01231>
01232>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01233>            CN* =  50.0    Ia = Dep. Storage  (Above)
01234>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01235>            THAN THE STORAGE COEFFICIENT.
01236>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01237>
01238> ---------------------------------------------------------------------------
01239> 005:0011-----------------------------------------------------------------
01240> *#************************************************************************
01241> ----------------------
01242> | CALIB STANDHYD     |   Area    (ha)=    3.44
01243> | 02:2c      DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01244> ----------------------
01245>                                IMPERVIOUS    PERVIOUS (i)
01246>      Surface Area     (ha)=       2.75          .69
01247>      Dep. Storage     (mm)=       2.00         5.00
01248>      Average Slope     (%)=       3.10         2.00
01249>      Length            (m)=     320.00        10.00
01250>      Mannings n            =       .013         .250
01251>
01252>      Max.eff.Inten.(mm/hr)=      88.14        53.83
01253>                  over (min)       4.00         8.00
01254>      Storage Coeff.  (min)=       3.85 (ii)    7.78 (ii)
01255>      Unit Hyd. Tpeak (min)=       4.00         8.00
01256>      Unit Hyd. peak  (cms)=        .29          .14
01257>                                                        *TOTALS*
01258>      PEAK FLOW       (cms)=        .52          .07          .585 (iii)
01259>      TIME TO PEAK    (hrs)=       3.00         3.05         3.000
01260>      RUNOFF VOLUME    (mm)=      54.50        14.81        40.213
01261>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01262>      RUNOFF COEFFICIENT   =        .96          .26          .712
01263>
01264>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01265>            CN* =  50.0    Ia = Dep. Storage  (Above)
01266>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01267>            THAN THE STORAGE COEFFICIENT.
01268>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01269>
01270> ---------------------------------------------------------------------------
01271> 005:0012-----------------------------------------------------------------
01272> *#************************************************************************
01273> ------------------------
01274> | ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01275> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01276>                      ID1 01:2a             1.18      .049    3.05  15.17    .000
01277>                     +ID2 02:2c             3.44      .585    3.00  40.21    .000
01278>                      ========================================================
01279>                      SUM 08:C2_out         4.62      .632    3.00  33.82    .000
01280>
01281>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01282>
01283> ---------------------------------------------------------------------------
01284> 005:0013-----------------------------------------------------------------
01285> *#************************************************************************
01286> ----------------------
01287> | CALIB STANDHYD     |   Area    (ha)=    2.38
01288> | 01:3a      DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
01289> ----------------------
01290>                                IMPERVIOUS    PERVIOUS (i)
01291>      Surface Area     (ha)=        .60         1.79
01292>      Dep. Storage     (mm)=       2.00         5.00
01293>      Average Slope     (%)=       2.50         2.50
01294>      Length            (m)=     320.00        40.00
01295>      Mannings n            =       .025         .250
01296>
01297>      Max.eff.Inten.(mm/hr)=      88.14        28.61
01298>                  over (min)       6.00        17.00
01299>      Storage Coeff.  (min)=       6.07 (ii)   16.96 (ii)
01300>      Unit Hyd. Tpeak (min)=       6.00        17.00
01301>      Unit Hyd. peak  (cms)=        .19          .07
01302>                                                        *TOTALS*
01303>      PEAK FLOW       (cms)=        .03          .09          .101 (iii)
01304>      TIME TO PEAK    (hrs)=       3.02         3.20         3.133
01305>      RUNOFF VOLUME    (mm)=      54.50        14.70        17.085
01306>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01307>      RUNOFF COEFFICIENT   =        .96          .26          .302
01308>
01309>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01310>            CN* =  60.0    Ia = Dep. Storage  (Above)
01311>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01312>            THAN THE STORAGE COEFFICIENT.
01313>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01314>
01315> ---------------------------------------------------------------------------
01316> 005:0014-----------------------------------------------------------------
01317> *#************************************************************************
01318> ----------------------
01319> | CALIB STANDHYD     |   Area    (ha)=  197.18
01320> | 02:3c      DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
01321> ----------------------
01322>                                IMPERVIOUS    PERVIOUS (i)
01323>      Surface Area     (ha)=      78.87        118.31
01324>      Dep. Storage     (mm)=       2.00         5.00
01325>      Average Slope     (%)=        .50         2.00
01326>      Length            (m)=    2750.00        40.00
01327>      Mannings n            =       .020         .250
01328>
01329>      Max.eff.Inten.(mm/hr)=      49.81        15.16
01330>                  over (min)      39.00        54.00
01331>      Storage Coeff.  (min)=      39.32 (ii)   54.33 (ii)
01332>      Unit Hyd. Tpeak (min)=      39.00        54.00
01333>      Unit Hyd. peak  (cms)=        .03          .02
01334>                                                        *TOTALS*
01335>      PEAK FLOW       (cms)=       5.41         2.96         7.813 (iii)
01336>      TIME TO PEAK    (hrs)=       3.52         3.83         3.600
01337>      RUNOFF VOLUME    (mm)=      54.49        17.75        29.516
01338>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01339>      RUNOFF COEFFICIENT   =        .96          .31          .522
01340>
01341>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01342>            CN* =  69.0    Ia = Dep. Storage  (Above)
01343>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01344>            THAN THE STORAGE COEFFICIENT.
01345>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01346>
01347> ---------------------------------------------------------------------------
01348> 005:0015-----------------------------------------------------------------
01349> *#************************************************************************
01350> ------------------------
```

```
| ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:3a            2.38     .101    3.13  17.08    .000
                    +ID2 02:3c          197.18    7.813    3.60  29.52    .000
                     ==========================================================
                     SUM 09:C3_out       199.56    7.864    3.60  29.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0016
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:4a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .49          1.46
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.30          1.30
     Length            (m)=     280.00         40.00
     Mannings n           =       .025          .250

     Max.eff.Inten.(mm/hr)=      88.14         32.74
                   over (min)       7.00         19.00
     Storage Coeff.  (min)=       6.82 (ii)    19.37 (ii)
     Unit Hyd. Tpeak (min)=       7.00         19.00
     Unit Hyd. peak  (cms)=        .16           .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .02           .08          .090 (iii)
     TIME TO PEAK    (hrs)=       3.02          3.23         3.183
     RUNOFF VOLUME    (mm)=      54.50         17.57         19.788
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .31          .350

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0017
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.92         32.47
     Dep. Storage     (mm)=       2.00          7.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=    1700.00         60.00
     Mannings n           =       .013          .250

     Max.eff.Inten.(mm/hr)=      79.10         14.97
                   over (min)      15.00         35.00
     Storage Coeff.  (min)=      15.36 (ii)    34.60 (ii)
     Unit Hyd. Tpeak (min)=      15.00         35.00
     Unit Hyd. peak  (cms)=        .07           .03
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.68           .84         2.127 (iii)
     TIME TO PEAK    (hrs)=       3.12          3.52          3.167
     RUNOFF VOLUME    (mm)=      54.49         14.23         23.897
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .25          .423

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0018
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:4a            1.94     .090    3.18  19.79    .000
                    +ID2 02:4c           46.39    2.127    3.17  23.90    .000
                     ==========================================================
                     SUM 04:C4_out       48.33    2.216    3.17  23.73    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0019
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .55          1.66
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     540.00         40.00
     Mannings n           =       .025          .250

     Max.eff.Inten.(mm/hr)=      88.14         27.10
                   over (min)       9.00         21.00
     Storage Coeff.  (min)=       8.89 (ii)    20.79 (ii)
     Unit Hyd. Tpeak (min)=       9.00         21.00
     Unit Hyd. peak  (cms)=        .13           .05
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .03           .08          .089 (iii)
     TIME TO PEAK    (hrs)=       3.03          3.27         3.217
     RUNOFF VOLUME    (mm)=      54.50         15.60         17.937
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .28          .317

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0020
| CALIB STANDHYD     |   Area    (ha)=   13.39
| 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.35         10.04
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.60          2.00
     Length            (m)=     575.00         75.00
     Mannings n           =       .025          .250

     Max.eff.Inten.(mm/hr)=      88.14         22.11
                   over (min)      10.00         29.00
     Storage Coeff.  (min)=       9.87 (ii)    28.69 (ii)
     Unit Hyd. Tpeak (min)=      10.00         29.00
     Unit Hyd. peak  (cms)=        .11           .04
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .15           .39          .437 (iii)
     TIME TO PEAK    (hrs)=       3.05          3.40         3.367
     RUNOFF VOLUME    (mm)=      54.50         16.07         18.380
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .28          .325

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0021
| ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:5a            2.21     .089    3.22  17.94    .000
                    +ID2 02:5c           13.39     .437    3.37  18.38    .000
                     ==========================================================
                     SUM 05:C5_out       15.60     .516    3.33  18.32    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0022
| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    8.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .66          1.53
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .50           .50
     Length            (m)=     285.00         40.00
     Mannings n           =       .025          .250

     Max.eff.Inten.(mm/hr)=      88.14         11.16
                   over (min)       9.00         35.00
     Storage Coeff.  (min)=       9.18 (ii)    34.90 (ii)
     Unit Hyd. Tpeak (min)=       9.00         35.00
     Unit Hyd. peak  (cms)=        .12           .03
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .03           .03          .045 (iii)
     TIME TO PEAK    (hrs)=       3.05          3.52         3.083
     RUNOFF VOLUME    (mm)=      54.50          8.99         12.631
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .16          .224

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  43.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0023
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80          4.80
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .80          2.00
     Length            (m)=     400.00         40.00
     Mannings n           =       .013          .250

     Max.eff.Inten.(mm/hr)=      88.14         18.03
                   over (min)       7.00         21.00
     Storage Coeff.  (min)=       6.60 (ii)    20.61 (ii)
     Unit Hyd. Tpeak (min)=       7.00         21.00
     Unit Hyd. peak  (cms)=        .17           .05
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .81           .15          .892 (iii)
     TIME TO PEAK    (hrs)=       3.02          3.27         3.033
     RUNOFF VOLUME    (mm)=      54.50         11.05         28.434
     TOTAL RAINFALL   (mm)=      56.50         56.50         56.500
     RUNOFF COEFFICIENT   =        .96           .20          .503

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0024
| ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:6a            2.19     .045    3.08  12.63    .000
                    +ID2 02:6c            9.59     .892    3.03  28.43    .000
                     ==========================================================
                     SUM 06:C6_out       11.78     .936    3.03  25.50    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0025
| ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 07:C1_out       38.63    4.760    3.07  39.87    .000
                     +ID2 08:C2_out       4.62     .632    3.00  33.82    .000
                     +ID3 09:C3_out     199.56    7.864    3.60  29.37    .000
                     +ID4 04:C4_out      48.33    2.216    3.17  23.73    .000
                     +ID5 05:C5_out      15.60     .516    3.33  18.32    .000
                     +ID6 06:C6_out      11.78     .936    3.03  25.50    .000
                     +ID7 10:2b           .59     .029    3.17  19.71    .000
                     ==========================================================
                     SUM 03:GRCA         319.11   12.715    3.12  29.15    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0026
| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .09           .37
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .40           .40
     Length            (m)=      70.00         40.00
```

```
      Mannings n          =       .025         .250

      Max.eff.Inten.(mm/hr)=      88.14         7.75
                over (min)        4.00        36.00
      Storage Coeff.  (min)=       4.23 (ii)   36.05 (ii)
      Unit Hyd. Tpeak (min)=       4.00        36.00
      Unit Hyd. peak  (cms)=        .27          .03
                                                        *TOTALS*
      PEAK FLOW       (cms)=        .01          .00          .007 (iii)
      TIME TO PEAK    (hrs)=       3.00         3.53         3.000
      RUNOFF VOLUME    (mm)=      54.50         7.07          9.440
      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
      RUNOFF COEFFICIENT   =        .96          .13          .167

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  39.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0027-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=     .87
| 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .35          .52
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.90          .50
      Length             (m)=     80.00       110.00
      Mannings n          =        .013         .250

      Max.eff.Inten.(mm/hr)=      88.14         4.75
                over (min)        2.00        68.00
      Storage Coeff.  (min)=       1.94 (ii)   68.33 (ii)
      Unit Hyd. Tpeak (min)=       2.00        68.00
      Unit Hyd. peak  (cms)=        .57          .02
                                                        *TOTALS*
      PEAK FLOW       (cms)=        .07          .00          .069 (iii)
      TIME TO PEAK    (hrs)=       3.00         4.08         3.000
      RUNOFF VOLUME    (mm)=      54.50         6.74         22.022
      TOTAL RAINFALL   (mm)=      56.50        56.50         56.500
      RUNOFF COEFFICIENT   =        .96          .12          .390

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  39.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0028-------------------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ----------------------- ----              (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:7a             .46      .007    3.00   9.44    .000
                     +ID2 02:7c             .87      .069    3.00  22.02    .000
                      ========================================================
                      SUM 07:C7_out         1.33     .075    3.00  17.67    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0029-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=     .71
| 01:8a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .18          .53
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.70         1.70
      Length             (m)=     110.00        40.00
      Mannings n          =        .025         .250

      Max.eff.Inten.(mm/hr)=      88.14        25.95
                over (min)        4.00        16.00
      Storage Coeff.  (min)=       3.59 (ii)   16.30 (ii)
      Unit Hyd. Tpeak (min)=       4.00        16.00
      Unit Hyd. peak  (cms)=        .30          .07
                                                        *TOTALS*
      PEAK FLOW       (cms)=        .01          .02          .027 (iii)
      TIME TO PEAK    (hrs)=       3.00         3.18         3.033
      RUNOFF VOLUME    (mm)=      54.50        13.02        15.511
      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
      RUNOFF COEFFICIENT   =        .96          .23          .275

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  56.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0030-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
| 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
 ----------------------  U.H. Tp(hrs)=    .330

      Unit Hyd Qpeak  (cms)=     .132

      PEAK FLOW       (cms)=     .042 (i)
      TIME TO PEAK    (hrs)=    3.250
      RUNOFF VOLUME    (mm)=   15.492
      TOTAL RAINFALL   (mm)=   56.500
      RUNOFF COEFFICIENT   =     .274

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

005:0031-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ----------------------- ----              (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:8a             .71      .027    3.03  15.51    .000
                     +ID2 02:8c            1.14      .042    3.25  15.49    .000
                      ========================================================
                      SUM 08:C8_out         1.85     .067    3.20  15.50    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0032-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 01:9a     DT= 1.00 |   Total Imp(%)=   28.00   Dir. Conn.(%)=    7.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .40         1.02
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       2.90         2.90
      Length             (m)=     170.00        40.00
      Mannings n          =        .025         .250

      Max.eff.Inten.(mm/hr)=      88.14        30.14
                over (min)        4.00        14.00
      Storage Coeff.  (min)=       3.97 (ii)   14.17 (ii)
      Unit Hyd. Tpeak (min)=       4.00        14.00
      Unit Hyd. peak  (cms)=        .28          .08
                                                        *TOTALS*
      PEAK FLOW       (cms)=        .02          .05          .065 (iii)
      TIME TO PEAK    (hrs)=       3.00         3.15         3.050
      RUNOFF VOLUME    (mm)=      54.50        13.78        16.632
      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
      RUNOFF COEFFICIENT   =        .96          .24          .294

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  57.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0033-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
| 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
 ----------------------  U.H. Tp(hrs)=   1.580

      Unit Hyd Qpeak  (cms)=    2.320

      PEAK FLOW       (cms)=    1.161 (i)
      TIME TO PEAK    (hrs)=    4.867
      RUNOFF VOLUME    (mm)=   15.989
      TOTAL RAINFALL   (mm)=   56.500
      RUNOFF COEFFICIENT   =     .283

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

005:0034-------------------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ----------------------- ----              (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:9a            1.42      .065    3.05  16.63    .000
                     +ID2 02:9c           95.98     1.161    4.87  15.99    .000
                     +ID3 07:C7_out        1.33      .075    3.00  17.67    .000
                     +ID4 08:C8_out        1.85      .067    3.20  15.50    .000
                      ========================================================
                      SUM 09:C9_out       100.58    1.186    4.85  16.01    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0035-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.74
| 01:10a    DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .94         2.81
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.30         1.30
      Length             (m)=     385.00        40.00
      Mannings n          =        .025         .250

      Max.eff.Inten.(mm/hr)=      88.14        17.78
                over (min)        8.00        24.00
      Storage Coeff.  (min)=       8.26 (ii)   24.28 (ii)
      Unit Hyd. Tpeak (min)=       8.00        24.00
      Unit Hyd. peak  (cms)=        .14          .05
                                                        *TOTALS*
      PEAK FLOW       (cms)=        .04          .09          .101 (iii)
      TIME TO PEAK    (hrs)=       3.03         3.32         3.267
      RUNOFF VOLUME    (mm)=      54.50        11.51        14.089
      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
      RUNOFF COEFFICIENT   =        .96          .20          .249

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  52.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

005:0036-------------------------------------------------------------------------------
*#*****************************************************************************
 ----------------------
| CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
| 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
 ----------------------  U.H. Tp(hrs)=   1.280

      Unit Hyd Qpeak  (cms)=    3.260

      PEAK FLOW       (cms)=    1.600 (i)
      TIME TO PEAK    (hrs)=    4.467
      RUNOFF VOLUME    (mm)=   16.525
      TOTAL RAINFALL   (mm)=   56.500
      RUNOFF COEFFICIENT   =     .292

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

005:0037-------------------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ----------------------- ----              (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:10a            3.74      .101    3.27  14.09    .000
                     +ID2 02:10c          109.26     1.600    4.47  16.52    .000
                      ========================================================
                      SUM 10:C10_out       113.00    1.627    4.45  16.44    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0038-------------------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ----------------------- ----              (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 09:C9_out       100.58    1.186    4.85  16.01    .000
                     +ID2 10:C10_out      113.00    1.627    4.45  16.44    .000
                      ========================================================
                      SUM 05:HCA           213.58    2.784    4.60  16.24    .000

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

```
01891> 005:0039-------------------------------------------------------------------------------
01892> *#*****************************************************************************
01893> ----------------------
01894> | ADD HYD (A11_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01895> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
01896>                        ID1 03:GRCA         319.11   12.715    3.12  29.15    .000
01897>                       +ID2 05:HCA          213.58    2.784    4.60  16.24    .000
01898>                        ============================================================
01899>                        SUM 06:A11_F        532.69   13.404    3.52  23.97    .000
01900>
01901>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01902>
01903> -------------------------------------------------------------------------------
01904> 005:0040-------------------------------------------------------------------------------
01905> *#*****************************************************************************
01906> -------------------------------------------------------------------------------
01907> 005:0002-------------------------------------------------------------------------------
01908>   ** END OF RUN :   9
01909>
01910> *****************************************************************************
01911>
01912>
01913>
01914>
01915>
01916> --------------------
01917> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
01918> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
01919>     TZERO =   .00 hrs on       0
01920>     METOUT=   2 (output = METRIC)
01921>     NRUN  = 010
01922>     NSTORM=   1
01923>               #  1=H10SCS.6h
01924> -------------------------------------------------------------------------------
01925> 010:0002-------------------------------------------------------------------------------
01926> *#*****************************************************************************
01927> *#  Project Name: Garner Rd. MCEA
01928> *#  Date        : December 12, 2024
01929> *#  Company     : Stantec Consulting Ltd. (Waterloo)
01930> *#  Modeller    : Amy Kyle
01931> *#  License #   :  4730904
01932> *#*****************************************************************************
01933> *#
01934> *#
01935> *#
01936> *#*****************************************************************************
01937> -------------------------------------------------------------------------------
01938> 010:0002-------------------------------------------------------------------------------
01939> --------------------
01940> | READ STORM       |    Filename: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
01941> | Ptotal=  67.60 mm|    Comments: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
01942> --------------------
01943>               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
01944>                hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
01945>                .17   2.700 |   1.67   6.760 |   3.17  14.870 |   4.67   4.060
01946>                .33   2.700 |   1.83   6.760 |   3.33  14.870 |   4.83   4.060
01947>                .50   2.700 |   2.00   6.760 |   3.50  14.870 |   5.00   4.060
01948>                .67   4.060 |   2.17   8.110 |   3.67   6.760 |   5.17   2.700
01949>                .83   4.060 |   2.33   8.110 |   3.83   6.760 |   5.33   2.700
01950>               1.00   4.060 |   2.50   8.110 |   4.00   6.760 |   5.50   2.700
01951>               1.17   4.060 |   2.67  40.560 |   4.17   5.410 |   5.67   2.700
01952>               1.33   4.060 |   2.83  73.010 |   4.33   5.410 |   5.83   2.700
01953>               1.50   4.060 |   3.00 105.460 |   4.50   5.410 |   6.00   2.700
01954>
01955> -------------------------------------------------------------------------------
01956> 010:0003-------------------------------------------------------------------------------
01957> *#*****************************************************************************
01958> *#  EXISTING CATCHMENTS
01959> *#*****************************************************************************
01960> --------------------
01961> | CALIB STANDHYD     |   Area    (ha)=    1.94
01962> | 01:1a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
01963> ----------------------
01964>                              IMPERVIOUS    PERVIOUS (i)
01965>      Surface Area     (ha)=        .49         1.46
01966>      Dep. Storage     (mm)=       2.00         5.00
01967>      Average Slope     (%)=       1.10         1.10
01968>      Length            (m)=     440.00        40.00
01969>      Mannings n             =      .025         .250
01970>
01971>      Max.eff.Inten.(mm/hr)=     105.46        46.71
01972>                 over (min)        9.00        20.00
01973>      Storage Coeff.  (min)=       8.75 (ii)   20.20 (ii)
01974>      Unit Hyd. Tpeak (min)=       9.00        20.00
01975>      Unit Hyd. peak  (cms)=        .13          .06
01976>                                                          *TOTALS*
01977>      PEAK FLOW       (cms)=        .03          .11          .128 (iii)
01978>      TIME TO PEAK    (hrs)=       3.03         3.23         3.217
01979>      RUNOFF VOLUME    (mm)=      65.60        25.45        27.861
01980>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
01981>      RUNOFF COEFFICIENT   =        .97          .38          .412
01982>
01983>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01984>            CN* =  68.0    Ia = Dep. Storage  (Above)
01985>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01986>            THAN THE STORAGE COEFFICIENT.
01987>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01988>
01989> -------------------------------------------------------------------------------
01990> 010:0004-------------------------------------------------------------------------------
01991> *#*****************************************************************************
01992> ----------------------
01993> | CALIB STANDHYD     |   Area    (ha)=     .96
01994> | 02:1b     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
01995> ----------------------
01996>                              IMPERVIOUS    PERVIOUS (i)
01997>      Surface Area     (ha)=        .24          .72
01998>      Dep. Storage     (mm)=       2.00         5.00
01999>      Average Slope     (%)=       2.20         2.20
02000>      Length            (m)=     80.00        40.00
02001>      Mannings n             =      .025         .250
02002>
02003>      Max.eff.Inten.(mm/hr)=     105.46        60.38
02004>                 over (min)        3.00        11.00
02005>      Storage Coeff.  (min)=       2.56 (ii)   10.95 (ii)
02006>      Unit Hyd. Tpeak (min)=       3.00        11.00
02007>      Unit Hyd. peak  (cms)=        .42          .10
02008>                                                          *TOTALS*
02009>      PEAK FLOW       (cms)=        .02          .08          .088 (iii)
02010>      TIME TO PEAK    (hrs)=       3.00         3.10         3.033
02011>      RUNOFF VOLUME    (mm)=      65.60        25.45        27.861
02012>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02013>      RUNOFF COEFFICIENT   =        .97          .38          .412
02014>
02015>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02016>            CN* =  68.0    Ia = Dep. Storage  (Above)
02017>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02018>            THAN THE STORAGE COEFFICIENT.
02019>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02020>
02021> -------------------------------------------------------------------------------
02022> 010:0005-------------------------------------------------------------------------------
02023> *#*****************************************************************************
02024> ----------------------
02025> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number    (CN)=73.00
02026> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
02027> ----------------------   U.H. Tp(hrs)=    .220
02028>
02029>      Unit Hyd Qpeak  (cms)=     .127
02030>
02031>      PEAK FLOW       (cms)=     .056 (i)
02032>      TIME TO PEAK    (hrs)=    3.133
02033>      RUNOFF VOLUME    (mm)=   24.395
02034>      TOTAL RAINFALL   (mm)=   67.600
02035>      RUNOFF COEFFICIENT   =     .361
02036>
02037>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02038>
02039> -------------------------------------------------------------------------------
02040> 010:0006-------------------------------------------------------------------------------
02041> *#*****************************************************************************
02042> ----------------------
02043> | CALIB STANDHYD     |   Area    (ha)=   35.00
02044> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
02045> ----------------------
02046>                              IMPERVIOUS    PERVIOUS (i)
02047>      Surface Area     (ha)=      28.00         7.00
02048>      Dep. Storage     (mm)=       2.00         5.00
02049>      Average Slope     (%)=       1.40         2.00
02050>      Length            (m)=    1100.00        30.00
02051>      Mannings n             =      .013         .250
02052>
02053>      Max.eff.Inten.(mm/hr)=     105.46        76.65
02054>                 over (min)       10.00        16.00
02055>      Storage Coeff.  (min)=       9.53 (ii)   16.14 (ii)
02056>      Unit Hyd. Tpeak (min)=      10.00        16.00
02057>      Unit Hyd. peak  (cms)=        .12          .07
02058>                                                          *TOTALS*
02059>      PEAK FLOW       (cms)=       4.98          .94         5.775 (iii)
02060>      TIME TO PEAK    (hrs)=       3.05         3.17         3.067
02061>      RUNOFF VOLUME    (mm)=      65.60        26.44        51.504
02062>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02063>      RUNOFF COEFFICIENT   =        .97          .39          .762
02064>
02065>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02066>            CN* =  60.0    Ia = Dep. Storage  (Above)
02067>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02068>            THAN THE STORAGE COEFFICIENT.
02069>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02070>
02071> -------------------------------------------------------------------------------
02072> 010:0007-------------------------------------------------------------------------------
02073> *#*****************************************************************************
02074> ----------------------
02075> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
02076> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
02077>                        ID1 01:1a           1.94     .128    3.22  27.86    .000
02078>                       +ID2 03:1c            .73     .056    3.13  24.39    .000
02079>                        ============================================================
02080>                        SUM 05:C1_cul       2.67     .182    3.17  26.91    .000
02081>
02082>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02083>
02084> -------------------------------------------------------------------------------
02085> 010:0008-------------------------------------------------------------------------------
02086> *#*****************************************************************************
02087> ----------------------
02088> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
02089> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
02090>                        ID1 02:1b            .96     .088    3.03  27.86    .000
02091>                       +ID2 04:1d          35.00    5.775    3.07  51.50    .000
02092>                       +ID3 05:C1_cul       2.67     .182    3.17  26.91    .000
02093>                        ============================================================
02094>                        SUM 07:C1_out       38.63    6.028    3.07  49.22    .000
02095>
02096>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02097>
02098> -------------------------------------------------------------------------------
02099> 010:0009-------------------------------------------------------------------------------
02100> *#*****************************************************************************
02101> ----------------------
02102> | CALIB STANDHYD     |   Area    (ha)=    .59
02103> | 10:2b     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
02104> ----------------------
02105>                              IMPERVIOUS    PERVIOUS (i)
02106>      Surface Area     (ha)=        .12          .47
02107>      Dep. Storage     (mm)=       2.00         5.00
02108>      Average Slope     (%)=       1.60         1.60
02109>      Length            (m)=     210.00        40.00
02110>      Mannings n             =      .025         .250
02111>
02112>      Max.eff.Inten.(mm/hr)=     105.46        48.44
02113>                 over (min)        5.00        15.00
02114>      Storage Coeff.  (min)=       5.02 (ii)   15.10 (ii)
02115>      Unit Hyd. Tpeak (min)=       5.00        15.00
02116>      Unit Hyd. peak  (cms)=        .23          .08
02117>                                                          *TOTALS*
02118>      PEAK FLOW       (cms)=        .01          .04          .043 (iii)
02119>      TIME TO PEAK    (hrs)=       3.00         3.15         3.133
02120>      RUNOFF VOLUME    (mm)=      65.60        24.49        26.550
02121>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02122>      RUNOFF COEFFICIENT   =        .97          .36          .393
02123>
02124>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02125>            CN* =  68.0    Ia = Dep. Storage  (Above)
02126>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02127>            THAN THE STORAGE COEFFICIENT.
02128>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02129>
02130> -------------------------------------------------------------------------------
02131> 010:0010-------------------------------------------------------------------------------
02132> *#*****************************************************************************
02133> ----------------------
02134> | CALIB STANDHYD     |   Area    (ha)=   1.18
02135> | 01:2a     DT= 1.00 |   Total Imp(%)=   33.00   Dir. Conn.(%)=    8.00
02136> ----------------------
02137>                              IMPERVIOUS    PERVIOUS (i)
02138>      Surface Area     (ha)=        .39          .79
02139>      Dep. Storage     (mm)=       2.00         5.00
02140>      Average Slope     (%)=       3.40         3.40
02141>      Length            (m)=     235.00        40.00
02142>      Mannings n             =      .025         .250
02143>
02144>      Max.eff.Inten.(mm/hr)=     105.46        39.26
02145>                 over (min)        4.00        13.00
02146>      Storage Coeff.  (min)=       4.28 (ii)   13.03 (ii)
02147>      Unit Hyd. Tpeak (min)=       4.00        13.00
02148>      Unit Hyd. peak  (cms)=        .27          .09
02149>                                                          *TOTALS*
02150>      PEAK FLOW       (cms)=        .03          .06          .071 (iii)
02151>      TIME TO PEAK    (hrs)=       3.00         3.13         3.033
02152>      RUNOFF VOLUME    (mm)=      65.60        16.43        20.366
02153>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02154>      RUNOFF COEFFICIENT   =        .97          .24          .301
02155>
02156>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02157>            CN* =  50.0    Ia = Dep. Storage  (Above)
02158>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02159>            THAN THE STORAGE COEFFICIENT.
02160>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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02161>
02162> ----------------------------------------------------------------------------
02163> 010:0011----------------------------------------------------------------------
02164> *#****************************************************************************
02165> ----------------------
02166> | CALIB STANDHYD     |   Area    (ha)=    3.44
02167> | 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
02168> ----------------------
02169>                              IMPERVIOUS    PERVIOUS (i)
02170>      Surface Area     (ha)=       2.75          .69
02171>      Dep. Storage     (mm)=       2.00         5.00
02172>      Average Slope     (%)=       3.10         2.00
02173>      Length            (m)=     320.00        10.00
02174>      Mannings n              =     .013         .250
02175>
02176>      Max.eff.Inten.(mm/hr)=     105.46        74.99
02177>                    over (min)        4.00         7.00
02178>      Storage Coeff.  (min)=       3.58 (ii)    7.03 (ii)
02179>      Unit Hyd. Tpeak (min)=       4.00         7.00
02180>      Unit Hyd. peak  (cms)=        .30          .16
02181>                                                          *TOTALS*
02182>      PEAK FLOW       (cms)=        .62          .11          .725 (iii)
02183>      TIME TO PEAK    (hrs)=       3.00         3.03         3.000
02184>      RUNOFF VOLUME    (mm)=      65.60        20.40        49.330
02185>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02186>      RUNOFF COEFFICIENT   =        .97          .30          .730
02187>
02188>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02189>            CN* =  50.0    Ia = Dep. Storage  (Above)
02190>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02191>            THAN THE STORAGE COEFFICIENT.
02192>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02193>
02194> ----------------------------------------------------------------------------
02195> 010:0012----------------------------------------------------------------------
02196> *#****************************************************************************
02197> ------------------------
02198> | ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02199> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02200>                      ID1 01:2a             1.18      .071    3.03  20.37    .000
02201>                     +ID2 02:2c             3.44      .725    3.00  49.33    .000
02202>                      ========================================================
02203>                      SUM 08:C2_out          4.62      .793    3.00  41.93    .000
02204>
02205>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02206>
02207> ----------------------------------------------------------------------------
02208> 010:0013----------------------------------------------------------------------
02209> *#****************************************************************************
02210> ----------------------
02211> | CALIB STANDHYD     |   Area    (ha)=    2.38
02212> | 01:3a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
02213> ----------------------
02214>                              IMPERVIOUS    PERVIOUS (i)
02215>      Surface Area     (ha)=        .60         1.79
02216>      Dep. Storage     (mm)=       2.00         5.00
02217>      Average Slope     (%)=       2.50         2.50
02218>      Length            (m)=     320.00        40.00
02219>      Mannings n              =     .025         .250
02220>
02221>      Max.eff.Inten.(mm/hr)=     105.46        42.10
02222>                    over (min)        6.00        15.00
02223>      Storage Coeff.  (min)=       5.65 (ii)   14.98 (ii)
02224>      Unit Hyd. Tpeak (min)=       6.00        15.00
02225>      Unit Hyd. peak  (cms)=        .20          .08
02226>                                                          *TOTALS*
02227>      PEAK FLOW       (cms)=        .04          .13          .152 (iii)
02228>      TIME TO PEAK    (hrs)=       3.02         3.17         3.100
02229>      RUNOFF VOLUME    (mm)=      65.60        20.36        23.076
02230>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02231>      RUNOFF COEFFICIENT   =        .97          .30          .341
02232>
02233>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02234>            CN* =  60.0    Ia = Dep. Storage  (Above)
02235>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02236>            THAN THE STORAGE COEFFICIENT.
02237>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02238>
02239> ----------------------------------------------------------------------------
02240> 010:0014----------------------------------------------------------------------
02241> *#****************************************************************************
02242> ----------------------
02243> | CALIB STANDHYD     |   Area    (ha)=  197.18
02244> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
02245> ----------------------
02246>                              IMPERVIOUS    PERVIOUS (i)
02247>      Surface Area     (ha)=      78.87       118.31
02248>      Dep. Storage     (mm)=       2.00         5.00
02249>      Average Slope     (%)=        .50         2.00
02250>      Length            (m)=    2750.00        40.00
02251>      Mannings n              =     .020         .250
02252>
02253>      Max.eff.Inten.(mm/hr)=      63.32        21.99
02254>                    over (min)       36.00        49.00
02255>      Storage Coeff.  (min)=      35.72 (ii)   48.65 (ii)
02256>      Unit Hyd. Tpeak (min)=      36.00        49.00
02257>      Unit Hyd. peak  (cms)=        .03          .02
02258>                                                          *TOTALS*
02259>      PEAK FLOW       (cms)=       6.87         4.42        10.605 (iii)
02260>      TIME TO PEAK    (hrs)=       3.47         3.73         3.550
02261>      RUNOFF VOLUME    (mm)=      65.59        24.36        37.560
02262>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02263>      RUNOFF COEFFICIENT   =        .97          .36          .556
02264>
02265>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02266>            CN* =  69.0    Ia = Dep. Storage  (Above)
02267>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02268>            THAN THE STORAGE COEFFICIENT.
02269>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02270>
02271> ----------------------------------------------------------------------------
02272> 010:0015----------------------------------------------------------------------
02273> *#****************************************************************************
02274> ------------------------
02275> | ADD HYD (C3_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02276> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02277>                      ID1 01:3a             2.38      .152    3.10  23.08    .000
02278>                     +ID2 02:3c           197.18   10.605    3.55  37.56    .000
02279>                      ========================================================
02280>                      SUM 09:C3_out        199.56   10.676    3.55  37.39    .000
02281>
02282>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02283>
02284> ----------------------------------------------------------------------------
02285> 010:0016----------------------------------------------------------------------
02286> *#****************************************************************************
02287> ----------------------
02288> | CALIB STANDHYD     |   Area    (ha)=    1.94
02289> | 01:4a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
02290> ----------------------
02291>                              IMPERVIOUS    PERVIOUS (i)
02292>      Surface Area     (ha)=        .49         1.46
02293>      Dep. Storage     (mm)=       2.00         5.00
02294>      Average Slope     (%)=       1.30         1.30
02295>      Length            (m)=     280.00        40.00
02296>      Mannings n              =     .025         .250
02297>
02298>      Max.eff.Inten.(mm/hr)=     105.46        47.50
02299>                    over (min)        6.00        17.00
02300>      Storage Coeff.  (min)=       6.35 (ii)   17.17 (ii)
02301>      Unit Hyd. Tpeak (min)=       6.00        17.00
02302>      Unit Hyd. peak  (cms)=        .18          .07
02303>                                                          *TOTALS*
02304>      PEAK FLOW       (cms)=        .03          .12          .132 (iii)
02305>      TIME TO PEAK    (hrs)=       3.02         3.18         3.150
02306>      RUNOFF VOLUME    (mm)=      65.60        24.08        26.574
02307>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02308>      RUNOFF COEFFICIENT   =        .97          .36          .393
02309>
02310>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02311>            CN* =  66.0    Ia = Dep. Storage  (Above)
02312>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02313>            THAN THE STORAGE COEFFICIENT.
02314>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02315>
02316> ----------------------------------------------------------------------------
02317> 010:0017----------------------------------------------------------------------
02318> *#****************************************************************************
02319> ----------------------
02320> | CALIB STANDHYD     |   Area    (ha)=   46.39
02321> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
02322> ----------------------
02323>                              IMPERVIOUS    PERVIOUS (i)
02324>      Surface Area     (ha)=      13.92        32.47
02325>      Dep. Storage     (mm)=       2.00         7.00
02326>      Average Slope     (%)=       1.00         2.00
02327>      Length            (m)=    1700.00        60.00
02328>      Mannings n              =     .013         .250
02329>
02330>      Max.eff.Inten.(mm/hr)=      96.19        23.41
02331>                    over (min)       14.00        30.00
02332>      Storage Coeff.  (min)=      14.20 (ii)   30.29 (ii)
02333>      Unit Hyd. Tpeak (min)=      14.00        30.00
02334>      Unit Hyd. peak  (cms)=        .08          .04
02335>                                                          *TOTALS*
02336>      PEAK FLOW       (cms)=       2.08         1.31         2.913 (iii)
02337>      TIME TO PEAK    (hrs)=       3.12         3.42         3.167
02338>      RUNOFF VOLUME    (mm)=      65.60        19.98        30.933
02339>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02340>      RUNOFF COEFFICIENT   =        .97          .30          .458
02341>
02342>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02343>            CN* =  65.0    Ia = Dep. Storage  (Above)
02344>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02345>            THAN THE STORAGE COEFFICIENT.
02346>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02347>
02348> ----------------------------------------------------------------------------
02349> 010:0018----------------------------------------------------------------------
02350> *#****************************************************************************
02351> ------------------------
02352> | ADD HYD (C4_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02353> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02354>                      ID1 01:4a             1.94      .132    3.15  26.57    .000
02355>                     +ID2 02:4c            46.39    2.913    3.17  30.93    .000
02356>                      ========================================================
02357>                      SUM 04:C4_out         48.33    3.044    3.17  30.76    .000
02358>
02359>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02360>
02361> ----------------------------------------------------------------------------
02362> 010:0019----------------------------------------------------------------------
02363> *#****************************************************************************
02364> ----------------------
02365> | CALIB STANDHYD     |   Area    (ha)=    2.21
02366> | 01:5a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
02367> ----------------------
02368>                              IMPERVIOUS    PERVIOUS (i)
02369>      Surface Area     (ha)=        .55         1.66
02370>      Dep. Storage     (mm)=       2.00         5.00
02371>      Average Slope     (%)=       2.00         2.00
02372>      Length            (m)=     540.00        40.00
02373>      Mannings n              =     .025         .250
02374>
02375>      Max.eff.Inten.(mm/hr)=     105.46        41.13
02376>                    over (min)        8.00        18.00
02377>      Storage Coeff.  (min)=       8.27 (ii)   18.34 (ii)
02378>      Unit Hyd. Tpeak (min)=       8.00        18.00
02379>      Unit Hyd. peak  (cms)=        .14          .06
02380>                                                          *TOTALS*
02381>      PEAK FLOW       (cms)=        .03          .12          .133 (iii)
02382>      TIME TO PEAK    (hrs)=       3.03         3.22         3.167
02383>      RUNOFF VOLUME    (mm)=      65.60        21.54        24.187
02384>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02385>      RUNOFF COEFFICIENT   =        .97          .32          .358
02386>
02387>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02388>            CN* =  62.0    Ia = Dep. Storage  (Above)
02389>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02390>            THAN THE STORAGE COEFFICIENT.
02391>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02392>
02393> ----------------------------------------------------------------------------
02394> 010:0020----------------------------------------------------------------------
02395> *#****************************************************************************
02396> ----------------------
02397> | CALIB STANDHYD     |   Area    (ha)=   13.39
02398> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
02399> ----------------------
02400>                              IMPERVIOUS    PERVIOUS (i)
02401>      Surface Area     (ha)=       3.35        10.04
02402>      Dep. Storage     (mm)=       2.00         5.00
02403>      Average Slope     (%)=       1.60         2.00
02404>      Length            (m)=     575.00        75.00
02405>      Mannings n              =     .025         .250
02406>
02407>      Max.eff.Inten.(mm/hr)=     105.46        34.22
02408>                    over (min)        9.00        25.00
02409>      Storage Coeff.  (min)=       9.18 (ii)   24.99 (ii)
02410>      Unit Hyd. Tpeak (min)=       9.00        25.00
02411>      Unit Hyd. peak  (cms)=        .12          .05
02412>                                                          *TOTALS*
02413>      PEAK FLOW       (cms)=        .18          .59          .659 (iii)
02414>      TIME TO PEAK    (hrs)=       3.05         3.33         3.300
02415>      RUNOFF VOLUME    (mm)=      65.60        22.15        24.762
02416>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02417>      RUNOFF COEFFICIENT   =        .97          .33          .366
02418>
02419>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02420>            CN* =  63.0    Ia = Dep. Storage  (Above)
02421>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02422>            THAN THE STORAGE COEFFICIENT.
02423>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02424>
02425> ----------------------------------------------------------------------------
02426> 010:0021----------------------------------------------------------------------
02427> *#****************************************************************************
02428> ------------------------
02429> | ADD HYD (C5_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02430> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
```

```
                    ID1 01:5a          2.21    .133   3.17  24.19    .000
                   +ID2 02:5c         13.39    .659   3.30  24.76    .000
                    ================================================================
                    SUM 05:C5_out      15.60    .780   3.27  24.68    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    8.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .66          1.53
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .50           .50
     Length            (m)=     285.00         40.00
     Mannings n            =       .025          .250

     Max.eff.Inten.(mm/hr)=     105.46         17.52
                 over (min)        9.00         30.00
     Storage Coeff.  (min)=       8.55 (ii)    30.02 (ii)
     Unit Hyd. Tpeak (min)=       9.00         30.00
     Unit Hyd. peak  (cms)=        .13           .04
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .04           .05          .064 (iii)
     TIME TO PEAK    (hrs)=       3.03          3.42         3.100
     RUNOFF VOLUME    (mm)=      65.60         12.72        16.950
     TOTAL RAINFALL   (mm)=      67.60         67.60        67.600
     RUNOFF COEFFICIENT   =        .97           .19          .251

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  43.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80          4.80
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .80          2.00
     Length            (m)=     400.00         40.00
     Mannings n            =       .013          .250

     Max.eff.Inten.(mm/hr)=     105.46         27.95
                 over (min)        6.00         18.00
     Storage Coeff.  (min)=       6.14 (ii)    17.89 (ii)
     Unit Hyd. Tpeak (min)=       6.00         18.00
     Unit Hyd. peak  (cms)=        .19           .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .99           .23         1.140 (iii)
     TIME TO PEAK    (hrs)=       3.02          3.22         3.017
     RUNOFF VOLUME    (mm)=      65.60         15.55        35.568
     TOTAL RAINFALL   (mm)=      67.60         67.60        67.600
     RUNOFF COEFFICIENT   =        .97           .23          .526

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                       |                  (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:6a            2.19     .064   3.10  16.95    .000
                   +ID2 02:6c            9.59    1.140   3.02  35.57    .000
                    ================================================================
                    SUM 06:C6_out       11.78    1.199   3.02  32.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                       |                  (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 07:C1_out        38.63    6.028   3.07  49.22    .000
                   +ID2 08:C2_out         4.62     .793   3.00  41.93    .000
                   +ID3 09:C3_out       199.56   10.676   3.55  37.39    .000
                   +ID4 04:C4_out        48.33    3.044   3.17  30.76    .000
                   +ID5 05:C5_out        15.60     .780   3.27  24.68    .000
                   +ID6 06:C6_out        11.78    1.199   3.02  32.11    .000
                   +ID7 10:2b              .59     .043   3.13  26.55    .000
                    ================================================================
                    SUM 03:GRCA         319.11   17.193   3.12  37.04    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .09           .37
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .40           .40
     Length            (m)=     70.00         40.00
     Mannings n            =       .025          .250

     Max.eff.Inten.(mm/hr)=     105.46         12.48
                 over (min)        4.00         30.00
     Storage Coeff.  (min)=       3.93 (ii)    30.23 (ii)
     Unit Hyd. Tpeak (min)=       4.00         30.00
     Unit Hyd. peak  (cms)=        .29           .04
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .01           .01          .009 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.43         3.017
     RUNOFF VOLUME    (mm)=      65.60         10.10        12.873
     TOTAL RAINFALL   (mm)=      67.60         67.60        67.600
     RUNOFF COEFFICIENT   =        .97           .15          .190

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD     |   Area    (ha)=     .87
| 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .35           .52
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.90           .50
     Length            (m)=     80.00        110.00
     Mannings n            =       .013          .250

     Max.eff.Inten.(mm/hr)=     105.46         7.85
                 over (min)        2.00        56.00
     Storage Coeff.  (min)=       1.80 (ii)    56.12 (ii)
     Unit Hyd. Tpeak (min)=       2.00        56.00
     Unit Hyd. peak  (cms)=        .60          .02
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .08          .01          .083 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.88         3.000
     RUNOFF VOLUME    (mm)=      65.60         9.65        27.554
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .14          .408

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                       |                  (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:7a             .46     .009   3.02  12.87    .000
                   +ID2 02:7c             .87     .083   3.00  27.55    .000
                    ================================================================
                    SUM 07:C7_out        1.33     .092   3.00  22.48    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB STANDHYD     |   Area    (ha)=     .71
| 01:8a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .18           .53
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.70          1.70
     Length            (m)=     110.00         40.00
     Mannings n            =       .025          .250

     Max.eff.Inten.(mm/hr)=     105.46        38.53
                 over (min)        3.00        14.00
     Storage Coeff.  (min)=       3.34 (ii)   14.20 (ii)
     Unit Hyd. Tpeak (min)=       3.00        14.00
     Unit Hyd. peak  (cms)=        .35          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .01          .04          .040 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.15         3.033
     RUNOFF VOLUME    (mm)=      65.60        18.16        21.004
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .27          .311

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  56.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
| 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .330

     Unit Hyd Qpeak  (cms)=     .132

     PEAK FLOW       (cms)=     .059 (i)
     TIME TO PEAK    (hrs)=    3.250
     RUNOFF VOLUME    (mm)=   21.595
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .319

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

| ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                       |                  (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:8a             .71     .040   3.03  21.00    .000
                   +ID2 02:8c            1.14     .059   3.25  21.59    .000
                    ================================================================
                    SUM 08:C8_out        1.85     .095   3.18  21.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB STANDHYD     |   Area    (ha)=    1.42
| 01:9a     DT= 1.00 |   Total Imp(%)=   28.00   Dir. Conn.(%)=    7.00

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .40          1.02
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.90          2.90
     Length            (m)=     170.00         40.00
     Mannings n            =       .025          .250

     Max.eff.Inten.(mm/hr)=     105.46        44.82
                 over (min)        4.00        12.00
     Storage Coeff.  (min)=       3.70 (ii)   12.40 (ii)
     Unit Hyd. Tpeak (min)=       4.00        12.00
     Unit Hyd. peak  (cms)=        .30          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .03          .08          .098 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.12         3.050
     RUNOFF VOLUME    (mm)=      65.60        19.15        22.402
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .28          .331

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  57.0    Ia = Dep. Storage  (Above)
```

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

---------- 010:0033 ----------
**********
----------
| CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
| 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=    2.320

     PEAK FLOW       (cms)=    1.632 (i)
     TIME TO PEAK    (hrs)=    4.833
     RUNOFF VOLUME    (mm)=   22.345
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .331

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

---------- 010:0034 ----------
**********
----------
| ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
---------- ------------------------          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:9a              1.42     .098    3.05  22.40    .000
                     +ID2 02:9c             95.98    1.632    4.83  22.35    .000
                     +ID3 07:C7_out          1.33     .092    3.00  22.48    .000
                     +ID4 08:C8_out          1.85     .095    3.18  21.37    .000
                      ========================================================
                      SUM 09:C9_out        100.58    1.665    4.82  22.33    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------- 010:0035 ----------
**********
----------
| CALIB STANDHYD     |   Area    (ha)=    3.74
| 01:10a    DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .94         2.81
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.30         1.30
     Length            (m)=    385.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=    105.46        27.74
               over (min)        8.00        21.00
     Storage Coeff.  (min)=      7.68 (ii)   21.10 (ii)
     Unit Hyd. Tpeak (min)=      8.00        21.00
     Unit Hyd. peak  (cms)=       .15          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .05          .13        .154 (iii)
     TIME TO PEAK    (hrs)=      3.03         3.27         3.217
     RUNOFF VOLUME    (mm)=     65.60        16.14        19.109
     TOTAL RAINFALL   (mm)=     67.60        67.60        67.600
     RUNOFF COEFFICIENT   =       .97          .24          .283

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------- 010:0036 ----------
**********
----------
| CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
| 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=   1.280

     Unit Hyd Qpeak  (cms)=    3.260

     PEAK FLOW       (cms)=    2.248 (i)
     TIME TO PEAK    (hrs)=    4.450
     RUNOFF VOLUME    (mm)=   23.042
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .341

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

---------- 010:0037 ----------
**********
----------
| ADD HYD (C10_out   ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
---------- ------------------------          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:10a             3.74     .154    3.22  19.11    .000
                     +ID2 02:10c           109.26    2.248    4.45  23.04    .000
                      ========================================================
                      SUM 10:C10_out       113.00    2.283    4.43  22.91    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------- 010:0038 ----------
**********
----------
| ADD HYD (HCA       ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
---------- ------------------------          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:C9_out        100.58    1.665    4.82  22.33    .000
                     +ID2 10:C10_out       113.00    2.283    4.43  22.91    .000
                      ========================================================
                      SUM 05:HCA           213.58    3.908    4.57  22.64    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------- 010:0039 ----------
**********
----------
| ADD HYD (All_F     ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
---------- ------------------------          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:GRCA          319.11   17.193    3.12  37.04    .000
                     +ID2 05:HCA           213.58    3.908    4.57  22.64    .000
                      ========================================================
                      SUM 06:All_F         532.69   18.218    3.13  31.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------- 010:0040 ----------
**********
---------- 010:0002 ----------
---------- 010:0002 ----------
   ** END OF RUN :  49

**********
---------- 050:0002 ----------
**********
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
**********
*#
*#
*#
**********
---------- 050:0002 ----------
----------
| READ STORM       |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
| Ptotal=  91.90 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
--------------------

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
              hrs   mm/hr  |   hrs   mm/hr  |   hrs   mm/hr  |   hrs   mm/hr
               .17   3.680 |   1.67   9.190 |   3.17  20.220 |   4.67   5.510
               .33   3.680 |   1.83   9.190 |   3.33  20.220 |   4.83   5.510
               .50   3.680 |   2.00   9.190 |   3.50  20.220 |   5.00   5.510
               .67   5.510 |   2.17  11.030 |   3.67   9.190 |   5.17   3.680
               .83   5.510 |   2.33  11.030 |   3.83   9.190 |   5.33   3.680
              1.00   5.510 |   2.50  11.030 |   4.00   9.190 |   5.50   3.680
              1.17   5.510 |   2.67  55.140 |   4.17   7.350 |   5.67   3.680
              1.33   5.510 |   2.83  99.250 |   4.33   7.350 |   5.83   3.680
              1.50   5.510 |   3.00 143.360 |   4.50   7.350 |   6.00   3.680

---------- 050:0003 ----------
**********
*#  EXISTING CATCHMENTS
**********
----------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .49         1.46
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.10         1.10
     Length            (m)=    440.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=    143.36        83.69
               over (min)        8.00        17.00
     Storage Coeff.  (min)=      7.74 (ii)   16.81 (ii)
     Unit Hyd. Tpeak (min)=      8.00        17.00
     Unit Hyd. peak  (cms)=       .14          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .04          .21          .235 (iii)
     TIME TO PEAK    (hrs)=      3.03         3.18         3.150
     RUNOFF VOLUME    (mm)=     89.90        42.16        45.031
     TOTAL RAINFALL   (mm)=     91.90        91.90        91.900
     RUNOFF COEFFICIENT   =       .98          .46          .490

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------- 050:0004 ----------
**********
----------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .24          .72
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      2.20         2.20
     Length            (m)=     80.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=    143.36       104.38
               over (min)        2.00         9.00
     Storage Coeff.  (min)=      2.26 (ii)    9.00 (ii)
     Unit Hyd. Tpeak (min)=      2.00         9.00
     Unit Hyd. peak  (cms)=       .52          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .02          .15          .160 (iii)
     TIME TO PEAK    (hrs)=      3.00         3.07         3.017
     RUNOFF VOLUME    (mm)=     89.90        42.17        45.031
     TOTAL RAINFALL   (mm)=     91.90        91.90        91.900
     RUNOFF COEFFICIENT   =       .98          .46          .490

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------- 050:0005 ----------
**********
----------
| CALIB NASHYD       |   Area    (ha)=    .73   Curve Number    (CN)=73.00
| 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=     .127

     PEAK FLOW       (cms)=     .096 (i)
     TIME TO PEAK    (hrs)=    3.117
     RUNOFF VOLUME    (mm)=   41.028
     TOTAL RAINFALL   (mm)=   91.900
     RUNOFF COEFFICIENT   =     .446

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

---------- 050:0006 ----------
**********
----------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
```

```
02971> ----------------------
02972>                              IMPERVIOUS    PERVIOUS (i)
02973>      Surface Area     (ha)=      28.00         7.00
02974>      Dep. Storage     (mm)=       2.00         5.00
02975>      Average Slope     (%)=       1.40         2.00
02976>      Length            (m)=    1100.00        30.00
02977>      Mannings n            =       .013         .250
02978>
02979>      Max.eff.Inten.(mm/hr)=     143.36       132.51
02980>                 over (min)=       8.00        14.00
02981>      Storage Coeff.  (min)=       8.43 (ii)   13.74 (ii)
02982>      Unit Hyd. Tpeak (min)=       8.00        14.00
02983>      Unit Hyd. peak  (cms)=        .14          .08
02984>                                                          *TOTALS*
02985>      PEAK FLOW       (cms)=       7.16         1.69         8.627 (iii)
02986>      TIME TO PEAK    (hrs)=       3.03         3.13         3.050
02987>      RUNOFF VOLUME    (mm)=      89.89        43.35        73.144
02988>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
02989>      RUNOFF COEFFICIENT   =        .98          .47          .796
02990>
02991>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02992>            CN* =  60.0    Ia = Dep. Storage  (Above)
02993>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02994>            THAN THE STORAGE COEFFICIENT.
02995>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02996>
02997> ----------------------------------------------------------------------------
02998> 050:0007------------------------------------------------------------------------
02999> *#*************************************************************************
03000> ----------------------
03001> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03002> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03003>                        ID1 01:1a          1.94     .235    3.15  45.03    .000
03004>                       +ID2 03:1c           .73     .096    3.12  41.03    .000
03005>                        ========================================================
03006>                        SUM 05:C1_cul        2.67     .330    3.13  43.94    .000
03007>
03008>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03009>
03010> ----------------------------------------------------------------------------
03011> 050:0008------------------------------------------------------------------------
03012> *#*************************************************************************
03013> ----------------------
03014> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03015> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03016>                        ID1 02:1b           .96     .160    3.02  45.03    .000
03017>                       +ID2 04:1d         35.00    8.627    3.05  73.14    .000
03018>                       +ID3 05:C1_cul      2.67     .330    3.13  43.94    .000
03019>                        ========================================================
03020>                        SUM 07:C1_out      38.63    9.084    3.05  70.43    .000
03021>
03022>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03023>
03024> ----------------------------------------------------------------------------
03025> 050:0009------------------------------------------------------------------------
03026> *#*************************************************************************
03027> ----------------------
03028> | CALIB STANDHYD     |   Area    (ha)=     .59
03029> | 10:2b     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
03030> ----------------------
03031>                              IMPERVIOUS    PERVIOUS (i)
03032>      Surface Area     (ha)=       .12          .47
03033>      Dep. Storage     (mm)=       2.00         5.00
03034>      Average Slope     (%)=       1.60         1.60
03035>      Length            (m)=     210.00        40.00
03036>      Mannings n            =       .025         .250
03037>
03038>      Max.eff.Inten.(mm/hr)=     143.36        88.11
03039>                 over (min)=       4.00        12.00
03040>      Storage Coeff.  (min)=       4.44 (ii)   12.38 (ii)
03041>      Unit Hyd. Tpeak (min)=       4.00        12.00
03042>      Unit Hyd. peak  (cms)=        .26          .09
03043>                                                          *TOTALS*
03044>      PEAK FLOW       (cms)=        .01          .08          .082 (iii)
03045>      TIME TO PEAK    (hrs)=       3.00         3.10         3.083
03046>      RUNOFF VOLUME    (mm)=      89.90        40.82        43.280
03047>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03048>      RUNOFF COEFFICIENT   =        .98          .44          .471
03049>
03050>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03051>            CN* =  68.0    Ia = Dep. Storage  (Above)
03052>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03053>            THAN THE STORAGE COEFFICIENT.
03054>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03055>
03056> ----------------------------------------------------------------------------
03057> 050:0010------------------------------------------------------------------------
03058> *#*************************************************************************
03059> ----------------------
03060> | CALIB STANDHYD     |   Area    (ha)=    1.18
03061> | 01:2a     DT= 1.00 |   Total Imp(%)=   33.00   Dir. Conn.(%)=    8.00
03062> ----------------------
03063>                              IMPERVIOUS    PERVIOUS (i)
03064>      Surface Area     (ha)=       .39          .79
03065>      Dep. Storage     (mm)=       2.00         5.00
03066>      Average Slope     (%)=       3.40         3.40
03067>      Length            (m)=     235.00        40.00
03068>      Mannings n            =       .025         .250
03069>
03070>      Max.eff.Inten.(mm/hr)=     143.36        73.09
03071>                 over (min)=       4.00        11.00
03072>      Storage Coeff.  (min)=       3.79 (ii)   10.61 (ii)
03073>      Unit Hyd. Tpeak (min)=       4.00        11.00
03074>      Unit Hyd. peak  (cms)=        .29          .11
03075>                                                          *TOTALS*
03076>      PEAK FLOW       (cms)=        .04          .11          .133 (iii)
03077>      TIME TO PEAK    (hrs)=       3.00         3.10         3.033
03078>      RUNOFF VOLUME    (mm)=      89.90        28.51        33.420
03079>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03080>      RUNOFF COEFFICIENT   =        .98          .31          .364
03081>
03082>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03083>            CN* =  50.0    Ia = Dep. Storage  (Above)
03084>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03085>            THAN THE STORAGE COEFFICIENT.
03086>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03087>
03088> ----------------------------------------------------------------------------
03089> 050:0011------------------------------------------------------------------------
03090> *#*************************************************************************
03091> ----------------------
03092> | CALIB STANDHYD     |   Area    (ha)=    3.44
03093> | 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
03094> ----------------------
03095>                              IMPERVIOUS    PERVIOUS (i)
03096>      Surface Area     (ha)=       2.75          .69
03097>      Dep. Storage     (mm)=       2.00         5.00
03098>      Average Slope     (%)=       3.10         2.00
03099>      Length            (m)=     320.00        10.00
03100>      Mannings n            =       .013         .250
03101>
03102>      Max.eff.Inten.(mm/hr)=     143.36       127.14
03103>                 over (min)=       3.00         6.00
03104>      Storage Coeff.  (min)=       3.17 (ii)    5.96 (ii)
03105>      Unit Hyd. Tpeak (min)=       3.00         6.00
03106>      Unit Hyd. peak  (cms)=        .36          .19
03107>                                                          *TOTALS*
03108>      PEAK FLOW       (cms)=        .86          .19         1.048 (iii)
03109>      TIME TO PEAK    (hrs)=       3.00         3.03         3.000
03110>      RUNOFF VOLUME    (mm)=      89.90        34.50        69.955
03111>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03112>      RUNOFF COEFFICIENT   =        .98          .38          .761
03113>
03114>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03115>            CN* =  50.0    Ia = Dep. Storage  (Above)
03116>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03117>            THAN THE STORAGE COEFFICIENT.
03118>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03119>
03120> ----------------------------------------------------------------------------
03121> 050:0012------------------------------------------------------------------------
03122> *#*************************************************************************
03123> ----------------------
03124> | ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03125> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03126>                        ID1 01:2a          1.18     .133    3.03  33.42    .000
03127>                       +ID2 02:2c          3.44    1.048    3.00  69.96    .000
03128>                        ========================================================
03129>                        SUM 08:C2_out      4.62    1.173    3.00  60.62    .000
03130>
03131>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03132>
03133> ----------------------------------------------------------------------------
03134> 050:0013------------------------------------------------------------------------
03135> *#*************************************************************************
03136> ----------------------
03137> | CALIB STANDHYD     |   Area    (ha)=    2.38
03138> | 01:3a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03139> ----------------------
03140>                              IMPERVIOUS    PERVIOUS (i)
03141>      Surface Area     (ha)=       .60         1.79
03142>      Dep. Storage     (mm)=       2.00         5.00
03143>      Average Slope     (%)=       2.50         2.50
03144>      Length            (m)=     320.00        40.00
03145>      Mannings n            =       .025         .250
03146>
03147>      Max.eff.Inten.(mm/hr)=     143.36        78.66
03148>                 over (min)=       5.00        12.00
03149>      Storage Coeff.  (min)=       5.00 (ii)   12.26 (ii)
03150>      Unit Hyd. Tpeak (min)=       5.00        12.00
03151>      Unit Hyd. peak  (cms)=        .23          .09
03152>                                                          *TOTALS*
03153>      PEAK FLOW       (cms)=        .05          .26          .289 (iii)
03154>      TIME TO PEAK    (hrs)=       3.00         3.12         3.067
03155>      RUNOFF VOLUME    (mm)=      89.90        34.65        37.968
03156>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03157>      RUNOFF COEFFICIENT   =        .98          .38          .413
03158>
03159>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03160>            CN* =  60.0    Ia = Dep. Storage  (Above)
03161>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03162>            THAN THE STORAGE COEFFICIENT.
03163>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03164>
03165> ----------------------------------------------------------------------------
03166> 050:0014------------------------------------------------------------------------
03167> *#*************************************************************************
03168> ----------------------
03169> | CALIB STANDHYD     |   Area    (ha)=  197.18
03170> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
03171> ----------------------
03172>                              IMPERVIOUS    PERVIOUS (i)
03173>      Surface Area     (ha)=      78.87       118.31
03174>      Dep. Storage     (mm)=       2.00         5.00
03175>      Average Slope     (%)=        .50         2.00
03176>      Length            (m)=    2750.00        40.00
03177>      Mannings n            =       .020         .250
03178>
03179>      Max.eff.Inten.(mm/hr)=      99.25        41.94
03180>                 over (min)=      30.00        40.00
03181>      Storage Coeff.  (min)=      29.84 (ii)   39.83 (ii)
03182>      Unit Hyd. Tpeak (min)=      30.00        40.00
03183>      Unit Hyd. peak  (cms)=        .04          .03
03184>                                                          *TOTALS*
03185>      PEAK FLOW       (cms)=      10.46         8.60         18.104 (iii)
03186>      TIME TO PEAK    (hrs)=       3.37         3.58         3.450
03187>      RUNOFF VOLUME    (mm)=      89.89        40.67        56.427
03188>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03189>      RUNOFF COEFFICIENT   =        .98          .44          .614
03190>
03191>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03192>            CN* =  69.0    Ia = Dep. Storage  (Above)
03193>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03194>            THAN THE STORAGE COEFFICIENT.
03195>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03196>
03197> ----------------------------------------------------------------------------
03198> 050:0015------------------------------------------------------------------------
03199> *#*************************************************************************
03200> ----------------------
03201> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03202> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03203>                        ID1 01:3a          2.38     .289    3.07  37.97    .000
03204>                       +ID2 02:3c        197.18  18.104    3.45  56.43    .000
03205>                        ========================================================
03206>                        SUM 09:C3_out     199.56  18.226    3.45  56.21    .000
03207>
03208>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03209>
03210> ----------------------------------------------------------------------------
03211> 050:0016------------------------------------------------------------------------
03212> *#*************************************************************************
03213> ----------------------
03214> | CALIB STANDHYD     |   Area    (ha)=    1.94
03215> | 01:4a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03216> ----------------------
03217>                              IMPERVIOUS    PERVIOUS (i)
03218>      Surface Area     (ha)=       .49         1.46
03219>      Dep. Storage     (mm)=       2.00         5.00
03220>      Average Slope     (%)=       1.30         1.30
03221>      Length            (m)=     280.00        40.00
03222>      Mannings n            =       .025         .250
03223>
03224>      Max.eff.Inten.(mm/hr)=     143.36        86.03
03225>                 over (min)=       6.00        14.00
03226>      Storage Coeff.  (min)=       5.61 (ii)   14.14 (ii)
03227>      Unit Hyd. Tpeak (min)=       6.00        14.00
03228>      Unit Hyd. peak  (cms)=        .20          .08
03229>                                                          *TOTALS*
03230>      PEAK FLOW       (cms)=        .04          .22          .248 (iii)
03231>      TIME TO PEAK    (hrs)=       3.02         3.13         3.100
03232>      RUNOFF VOLUME    (mm)=      89.90        40.18        43.169
03233>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03234>      RUNOFF COEFFICIENT   =        .98          .44          .470
03235>
03236>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03237>            CN* =  66.0    Ia = Dep. Storage  (Above)
03238>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03239>            THAN THE STORAGE COEFFICIENT.
03240>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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03241>
03242> ------------------------------------------------------------------------------
03243> 050:0017------------------------------------------------------------------------
03244> *#*****************************************************************************
03245> ----------------------
03246> | CALIB STANDHYD     |   Area    (ha)=   46.39
03247> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
03248> ----------------------
03249>                              IMPERVIOUS    PERVIOUS (i)
03250>      Surface Area     (ha)=      13.92        32.47
03251>      Dep. Storage     (mm)=       2.00         7.00
03252>      Average Slope     (%)=       1.00         2.00
03253>      Length            (m)=    1700.00        60.00
03254>      Mannings n             =      .013         .250
03255>
03256>      Max.eff.Inten.(mm/hr)=     136.01        48.28
03257>                  over (min)       12.00        24.00
03258>      Storage Coeff.  (min)=      12.36 (ii)   24.41 (ii)
03259>      Unit Hyd. Tpeak (min)=      12.00        24.00
03260>      Unit Hyd. peak  (cms)=        .09          .05
03261>                                                          *TOTALS*
03262>      PEAK FLOW       (cms)=       3.04         2.65          5.030 (iii)
03263>      TIME TO PEAK    (hrs)=       3.08         3.32          3.133
03264>      RUNOFF VOLUME    (mm)=      89.90        34.53         47.825
03265>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03266>      RUNOFF COEFFICIENT   =        .98          .38           .520
03267>
03268>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03269>            CN* =  65.0    Ia = Dep. Storage  (Above)
03270>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03271>            THAN THE STORAGE COEFFICIENT.
03272>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03273>
03274> ------------------------------------------------------------------------------
03275> 050:0018------------------------------------------------------------------------
03276> *#*****************************************************************************
03277> ------------------------
03278> | ADD HYD (C4_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03279> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03280>                       ID1 01:4a             1.94      .248    3.10  43.17    .000
03281>                      +ID2 02:4c            46.39    5.030    3.13  47.82    .000
03282>                       ========================================================
03283>                       SUM 04:C4_out         48.33    5.276    3.13  47.64    .000
03284>
03285>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03286>
03287> ------------------------------------------------------------------------------
03288> 050:0019------------------------------------------------------------------------
03289> *#*****************************************************************************
03290> ----------------------
03291> | CALIB STANDHYD     |   Area    (ha)=    2.21
03292> | 01:5a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03293> ----------------------
03294>                              IMPERVIOUS    PERVIOUS (i)
03295>      Surface Area     (ha)=        .55         1.66
03296>      Dep. Storage     (mm)=       2.00         5.00
03297>      Average Slope     (%)=       2.00         2.00
03298>      Length            (m)=     540.00        40.00
03299>      Mannings n             =      .025         .250
03300>
03301>      Max.eff.Inten.(mm/hr)=     143.36        75.64
03302>                  over (min)        7.00        15.00
03303>      Storage Coeff.  (min)=       7.32 (ii)   15.21 (ii)
03304>      Unit Hyd. Tpeak (min)=       7.00        15.00
03305>      Unit Hyd. peak  (cms)=        .16          .07
03306>                                                          *TOTALS*
03307>      PEAK FLOW       (cms)=        .04          .22           .249 (iii)
03308>      TIME TO PEAK    (hrs)=       3.02         3.15          3.117
03309>      RUNOFF VOLUME    (mm)=      89.90        36.43         39.641
03310>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03311>      RUNOFF COEFFICIENT   =        .98          .40           .431
03312>
03313>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03314>            CN* =  62.0    Ia = Dep. Storage  (Above)
03315>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03316>            THAN THE STORAGE COEFFICIENT.
03317>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03318>
03319> ------------------------------------------------------------------------------
03320> 050:0020------------------------------------------------------------------------
03321> *#*****************************************************************************
03322> ----------------------
03323> | CALIB STANDHYD     |   Area    (ha)=   13.39
03324> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03325> ----------------------
03326>                              IMPERVIOUS    PERVIOUS (i)
03327>      Surface Area     (ha)=       3.35        10.04
03328>      Dep. Storage     (mm)=       2.00         5.00
03329>      Average Slope     (%)=       1.60         2.00
03330>      Length            (m)=     575.00        75.00
03331>      Mannings n             =      .025         .250
03332>
03333>      Max.eff.Inten.(mm/hr)=     143.36        68.57
03334>                  over (min)        8.00        20.00
03335>      Storage Coeff.  (min)=       8.12 (ii)   20.09 (ii)
03336>      Unit Hyd. Tpeak (min)=       8.00        20.00
03337>      Unit Hyd. peak  (cms)=        .14          .06
03338>                                                          *TOTALS*
03339>      PEAK FLOW       (cms)=        .26         1.16          1.278 (iii)
03340>      TIME TO PEAK    (hrs)=       3.03         3.23          3.217
03341>      RUNOFF VOLUME    (mm)=      89.90        37.34         40.500
03342>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03343>      RUNOFF COEFFICIENT   =        .98          .41           .441
03344>
03345>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03346>            CN* =  63.0    Ia = Dep. Storage  (Above)
03347>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03348>            THAN THE STORAGE COEFFICIENT.
03349>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03350>
03351> ------------------------------------------------------------------------------
03352> 050:0021------------------------------------------------------------------------
03353> *#*****************************************************************************
03354> ------------------------
03355> | ADD HYD (C5_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03356> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03357>                       ID1 01:5a             2.21      .249    3.12  39.64    .000
03358>                      +ID2 02:5c            13.39    1.278    3.22  40.50    .000
03359>                       ========================================================
03360>                       SUM 05:C5_out         15.60    1.514    3.18  40.38    .000
03361>
03362>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03363>
03364> ------------------------------------------------------------------------------
03365> 050:0022------------------------------------------------------------------------
03366> *#*****************************************************************************
03367> ----------------------
03368> | CALIB STANDHYD     |   Area    (ha)=    2.19
03369> | 01:6a     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    8.00
03370> ----------------------
03371>                              IMPERVIOUS    PERVIOUS (i)
03372>      Surface Area     (ha)=        .66         1.53
03373>      Dep. Storage     (mm)=       2.00         5.00
03374>      Average Slope     (%)=        .50          .50
03375>      Length            (m)=     285.00        40.00
03376>      Mannings n             =      .025         .250
03377>
03378>      Max.eff.Inten.(mm/hr)=     143.36        37.97
03379>                  over (min)        8.00        23.00
03380>      Storage Coeff.  (min)=       7.56 (ii)   23.32 (ii)
03381>      Unit Hyd. Tpeak (min)=       8.00        23.00
03382>      Unit Hyd. peak  (cms)=        .15          .05
03383>                                                          *TOTALS*
03384>      PEAK FLOW       (cms)=        .06          .10           .124 (iii)
03385>      TIME TO PEAK    (hrs)=       3.03         3.30          3.100
03386>      RUNOFF VOLUME    (mm)=      89.89        22.54         27.931
03387>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03388>      RUNOFF COEFFICIENT   =        .98          .25           .304
03389>
03390>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03391>            CN* =  43.0    Ia = Dep. Storage  (Above)
03392>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03393>            THAN THE STORAGE COEFFICIENT.
03394>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03395>
03396> ------------------------------------------------------------------------------
03397> 050:0023------------------------------------------------------------------------
03398> *#*****************************************************************************
03399> ----------------------
03400> | CALIB STANDHYD     |   Area    (ha)=    9.59
03401> | 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
03402> ----------------------
03403>                              IMPERVIOUS    PERVIOUS (i)
03404>      Surface Area     (ha)=       4.80         4.80
03405>      Dep. Storage     (mm)=       2.00         5.00
03406>      Average Slope     (%)=        .80         2.00
03407>      Length            (m)=     400.00        40.00
03408>      Mannings n             =      .013         .250
03409>
03410>      Max.eff.Inten.(mm/hr)=     143.36        55.11
03411>                  over (min)        5.00        14.00
03412>      Storage Coeff.  (min)=       5.43 (ii)   14.39 (ii)
03413>      Unit Hyd. Tpeak (min)=       5.00        14.00
03414>      Unit Hyd. peak  (cms)=        .21          .08
03415>                                                          *TOTALS*
03416>      PEAK FLOW       (cms)=       1.39          .47          1.744 (iii)
03417>      TIME TO PEAK    (hrs)=       3.00         3.15          3.017
03418>      RUNOFF VOLUME    (mm)=      89.90        27.19         52.272
03419>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03420>      RUNOFF COEFFICIENT   =        .98          .30           .569
03421>
03422>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03423>            CN* =  52.0    Ia = Dep. Storage  (Above)
03424>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03425>            THAN THE STORAGE COEFFICIENT.
03426>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03427>
03428> ------------------------------------------------------------------------------
03429> 050:0024------------------------------------------------------------------------
03430> *#*****************************************************************************
03431> ------------------------
03432> | ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03433> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03434>                       ID1 01:6a             2.19      .124    3.10  27.93    .000
03435>                      +ID2 02:6c             9.59    1.744    3.02  52.27    .000
03436>                       ========================================================
03437>                       SUM 06:C6_out        11.78    1.855    3.02  47.75    .000
03438>
03439>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03440>
03441> ------------------------------------------------------------------------------
03442> 050:0025------------------------------------------------------------------------
03443> *#*****************************************************************************
03444> ------------------------
03445> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03446> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03447>                       ID1 07:C1_out        38.63    9.084    3.05  70.43    .000
03448>                      +ID2 08:C2_out         4.62    1.173    3.00  60.62    .000
03449>                      +ID3 09:C3_out       199.56   18.226    3.45  56.21    .000
03450>                      +ID4 04:C4_out        48.33    5.276    3.13  47.64    .000
03451>                      +ID5 05:C5_out        15.60    1.514    3.18  40.38    .000
03452>                      +ID6 06:C6_out        11.78    1.855    3.02  47.75    .000
03453>                      +ID7 10:2b              .59     .082    3.08  43.28    .000
03454>                       ========================================================
03455>                       SUM 03:GRCA          319.11   29.221    3.10  55.58    .000
03456>
03457>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03458>
03459> ------------------------------------------------------------------------------
03460> 050:0026------------------------------------------------------------------------
03461> *#*****************************************************************************
03462> ----------------------
03463> | CALIB STANDHYD     |   Area    (ha)=     .46
03464> | 01:7a     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
03465> ----------------------
03466>                              IMPERVIOUS    PERVIOUS (i)
03467>      Surface Area     (ha)=        .09          .37
03468>      Dep. Storage     (mm)=       2.00         5.00
03469>      Average Slope     (%)=        .40          .40
03470>      Length            (m)=     70.00        40.00
03471>      Mannings n             =      .025         .250
03472>
03473>      Max.eff.Inten.(mm/hr)=     143.36        27.43
03474>                  over (min)        3.00        23.00
03475>      Storage Coeff.  (min)=       3.48 (ii)   22.67 (ii)
03476>      Unit Hyd. Tpeak (min)=       3.00        23.00
03477>      Unit Hyd. peak  (cms)=        .34          .05
03478>                                                          *TOTALS*
03479>      PEAK FLOW       (cms)=        .01          .02           .019 (iii)
03480>      TIME TO PEAK    (hrs)=       3.00         3.30          3.300
03481>      RUNOFF VOLUME    (mm)=      89.90        18.21         21.795
03482>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03483>      RUNOFF COEFFICIENT   =        .98          .20           .237
03484>
03485>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03486>            CN* =  39.0    Ia = Dep. Storage  (Above)
03487>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03488>            THAN THE STORAGE COEFFICIENT.
03489>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03490>
03491> ------------------------------------------------------------------------------
03492> 050:0027------------------------------------------------------------------------
03493> *#*****************************************************************************
03494> ----------------------
03495> | CALIB STANDHYD     |   Area    (ha)=     .87
03496> | 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
03497> ----------------------
03498>                              IMPERVIOUS    PERVIOUS (i)
03499>      Surface Area     (ha)=        .35          .52
03500>      Dep. Storage     (mm)=       2.00         5.00
03501>      Average Slope     (%)=       1.90          .50
03502>      Length            (m)=     80.00       110.00
03503>      Mannings n             =      .013         .250
03504>
03505>      Max.eff.Inten.(mm/hr)=     143.36        16.76
03506>                  over (min)        2.00        42.00
03507>      Storage Coeff.  (min)=       1.60 (ii)   41.70 (ii)
03508>      Unit Hyd. Tpeak (min)=       2.00        42.00
03509>      Unit Hyd. peak  (cms)=        .64          .03
03510>                                                          *TOTALS*
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```
03511>      PEAK FLOW       (cms)=        .11          .02          .115 (iii)
03512>      TIME TO PEAK    (hrs)=       3.00         3.63         3.000
03513>      RUNOFF VOLUME    (mm)=      89.90        17.47        40.650
03514>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03515>      RUNOFF COEFFICIENT   =        .98          .19          .442
03516>
03517>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03518>            CN* =  39.0    Ia = Dep. Storage  (Above)
03519>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03520>            THAN THE STORAGE COEFFICIENT.
03521>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03522>
03523> ------------------------------------------------------------------------------
03524> 050:0028-----------------------------------------------------------------------
03525> *#*****************************************************************************
03526> ------------------------
03527> | ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03528> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03529>                        ID1 01:7a           .46      .019    3.30  21.80    .000
03530>                       +ID2 02:7c           .87      .115    3.00  40.65    .000
03531>                        ========================================================
03532>                        SUM 07:C7_out       1.33     .132    3.00  34.13    .000
03533>
03534>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03535>
03536> ------------------------------------------------------------------------------
03537> 050:0029-----------------------------------------------------------------------
03538> *#*****************************************************************************
03539> ----------------------
03540> | CALIB STANDHYD     |   Area    (ha)=     .71
03541> | 01:8a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03542> ----------------------
03543>                              IMPERVIOUS    PERVIOUS (i)
03544>      Surface Area     (ha)=        .18          .53
03545>      Dep. Storage     (mm)=       2.00         5.00
03546>      Average Slope     (%)=       1.70         1.70
03547>      Length            (m)=     110.00        40.00
03548>      Mannings n            =       .025         .250
03549>
03550>      Max.eff.Inten.(mm/hr)=     143.36        73.43
03551>                    over (min)        3.00        11.00
03552>      Storage Coeff.  (min)=       2.96 (ii)   11.34 (ii)
03553>      Unit Hyd. Tpeak (min)=       3.00        11.00
03554>      Unit Hyd. peak  (cms)=        .38          .10
03555>                                                      *TOTALS*
03556>      PEAK FLOW       (cms)=        .02          .07          .080 (iii)
03557>      TIME TO PEAK    (hrs)=       3.00         3.10         3.033
03558>      RUNOFF VOLUME    (mm)=      89.90        31.27        34.788
03559>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03560>      RUNOFF COEFFICIENT   =        .98          .34          .379
03561>
03562>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03563>            CN* =  56.0    Ia = Dep. Storage  (Above)
03564>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03565>            THAN THE STORAGE COEFFICIENT.
03566>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03567>
03568> ------------------------------------------------------------------------------
03569> 050:0030-----------------------------------------------------------------------
03570> *#*****************************************************************************
03571> ----------------------
03572> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number    (CN)=69.00
03573> | 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
03574> ----------------------  U.H. Tp(hrs)=    .330
03575>
03576>      Unit Hyd Qpeak  (cms)=     .132
03577>
03578>      PEAK FLOW       (cms)=     .102 (i)
03579>      TIME TO PEAK    (hrs)=    3.233
03580>      RUNOFF VOLUME    (mm)=   36.891
03581>      TOTAL RAINFALL   (mm)=   91.900
03582>      RUNOFF COEFFICIENT   =     .401
03583>
03584>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03585>
03586> ------------------------------------------------------------------------------
03587> 050:0031-----------------------------------------------------------------------
03588> *#*****************************************************************************
03589> ------------------------
03590> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03591> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03592>                        ID1 01:8a           .71      .080    3.03  34.79    .000
03593>                       +ID2 02:8c          1.14      .102    3.23  36.89    .000
03594>                        ========================================================
03595>                        SUM 08:C8_out       1.85      .168    3.13  36.08    .000
03596>
03597>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03598>
03599> ------------------------------------------------------------------------------
03600> 050:0032-----------------------------------------------------------------------
03601> *#*****************************************************************************
03602> ----------------------
03603> | CALIB STANDHYD     |   Area    (ha)=    1.42
03604> | 01:9a     DT= 1.00 |   Total Imp(%)=   28.00   Dir. Conn.(%)=    7.00
03605> ----------------------
03606>                              IMPERVIOUS    PERVIOUS (i)
03607>      Surface Area     (ha)=        .40         1.02
03608>      Dep. Storage     (mm)=       2.00         5.00
03609>      Average Slope     (%)=       2.90         2.90
03610>      Length            (m)=     170.00        40.00
03611>      Mannings n            =       .025         .250
03612>
03613>      Max.eff.Inten.(mm/hr)=     143.36        82.53
03614>                    over (min)        3.00        10.00
03615>      Storage Coeff.  (min)=       3.27 (ii)   10.09 (ii)
03616>      Unit Hyd. Tpeak (min)=       3.00        10.00
03617>      Unit Hyd. peak  (cms)=        .35          .11
03618>                                                      *TOTALS*
03619>      PEAK FLOW       (cms)=        .04          .16          .182 (iii)
03620>      TIME TO PEAK    (hrs)=       3.00         3.08         3.033
03621>      RUNOFF VOLUME    (mm)=      89.90        32.78        36.781
03622>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03623>      RUNOFF COEFFICIENT   =        .98          .36          .400
03624>
03625>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03626>            CN* =  57.0    Ia = Dep. Storage  (Above)
03627>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03628>            THAN THE STORAGE COEFFICIENT.
03629>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03630>
03631> ------------------------------------------------------------------------------
03632> 050:0033-----------------------------------------------------------------------
03633> *#*****************************************************************************
03634> ----------------------
03635> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
03636> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
03637> ----------------------  U.H. Tp(hrs)=   1.580
03638>
03639>      Unit Hyd Qpeak  (cms)=    2.320
03640>
03641>      PEAK FLOW       (cms)=    2.814 (i)
03642>      TIME TO PEAK    (hrs)=    4.783
03643>      RUNOFF VOLUME    (mm)=   38.209
03644>      TOTAL RAINFALL   (mm)=   91.900
03645>      RUNOFF COEFFICIENT   =     .416
03646>
03647>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03648>
03649> ------------------------------------------------------------------------------
03650> 050:0034-----------------------------------------------------------------------
03651> *#*****************************************************************************
03652> ------------------------
03653> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03654> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03655>                        ID1 01:9a           1.42      .182    3.03  36.78    .000
03656>                       +ID2 02:9c          95.98     2.814    4.78  38.21    .000
03657>                        ========================================================
03658>                        +ID3 07:C7_out      1.33      .132    3.00  34.13    .000
03659>                        +ID4 08:C8_out      1.85      .168    3.13  36.08    .000
03660>                        ========================================================
03661>                        SUM 09:C9_out     100.58     2.866    4.77  38.10    .000
03662>
03663>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03664>
03665> ------------------------------------------------------------------------------
03666> 050:0035-----------------------------------------------------------------------
03667> *#*****************************************************************************
03668> ----------------------
03669> | CALIB STANDHYD     |   Area    (ha)=    3.74
03670> | 01:10a    DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03671> ----------------------
03672>                              IMPERVIOUS    PERVIOUS (i)
03673>      Surface Area     (ha)=        .94         2.81
03674>      Dep. Storage     (mm)=       2.00         5.00
03675>      Average Slope     (%)=       1.30         1.30
03676>      Length            (m)=     385.00        40.00
03677>      Mannings n            =       .025         .250
03678>
03679>      Max.eff.Inten.(mm/hr)=     143.36        54.67
03680>                    over (min)        7.00        17.00
03681>      Storage Coeff.  (min)=       6.80 (ii)   17.02 (ii)
03682>      Unit Hyd. Tpeak (min)=       7.00        17.00
03683>      Unit Hyd. peak  (cms)=        .16          .07
03684>                                                      *TOTALS*
03685>      PEAK FLOW       (cms)=        .08          .26          .304 (iii)
03686>      TIME TO PEAK    (hrs)=       3.02         3.20         3.150
03687>      RUNOFF VOLUME    (mm)=      89.90        28.10        31.813
03688>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03689>      RUNOFF COEFFICIENT   =        .98          .31          .346
03690>
03691>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03692>            CN* =  52.0    Ia = Dep. Storage  (Above)
03693>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03694>            THAN THE STORAGE COEFFICIENT.
03695>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03696>
03697> ------------------------------------------------------------------------------
03698> 050:0036-----------------------------------------------------------------------
03699> *#*****************************************************************************
03700> ----------------------
03701> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
03702> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
03703> ----------------------  U.H. Tp(hrs)=   1.280
03704>
03705>      Unit Hyd Qpeak  (cms)=    3.260
03706>
03707>      PEAK FLOW       (cms)=    3.872 (i)
03708>      TIME TO PEAK    (hrs)=    4.400
03709>      RUNOFF VOLUME    (mm)=   39.243
03710>      TOTAL RAINFALL   (mm)=   91.900
03711>      RUNOFF COEFFICIENT   =     .427
03712>
03713>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03714>
03715> ------------------------------------------------------------------------------
03716> 050:0037-----------------------------------------------------------------------
03717> *#*****************************************************************************
03718> ------------------------
03719> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03720> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03721>                        ID1 01:10a          3.74      .304    3.15  31.81    .000
03722>                       +ID2 02:10c        109.26    3.872    4.40  39.24    .000
03723>                        ========================================================
03724>                        SUM 10:C10_out     113.00    3.923    4.38  39.00    .000
03725>
03726>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03727>
03728> ------------------------------------------------------------------------------
03729> 050:0038-----------------------------------------------------------------------
03730> *#*****************************************************************************
03731> ------------------------
03732> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03733> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03734>                        ID1 09:C9_out     100.58    2.866    4.77  38.10    .000
03735>                       +ID2 10:C10_out    113.00    3.923    4.38  39.00    .000
03736>                        ========================================================
03737>                        SUM 05:HCA         213.58    6.724    4.53  38.57    .000
03738>
03739>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03740>
03741> ------------------------------------------------------------------------------
03742> 050:0039-----------------------------------------------------------------------
03743> *#*****************************************************************************
03744> ------------------------
03745> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03746> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
03747>                        ID1 03:GRCA        319.11   29.221    3.10  55.58    .000
03748>                       +ID2 05:HCA         213.58    6.724    4.53  38.57    .000
03749>                        ========================================================
03750>                        SUM 06:All_F       532.69   31.103    3.12  48.76    .000
03751>
03752>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03753>
03754> ------------------------------------------------------------------------------
03755> 050:0040-----------------------------------------------------------------------
03756> *#*****************************************************************************
03757> ------------------------------------------------------------------------------
03758> 050:0002-----------------------------------------------------------------------
03759> ------------------------------------------------------------------------------
03760> 050:0002-----------------------------------------------------------------------
03761> ------------------------------------------------------------------------------
03762>  ** END OF RUN :  99
03763>
03764> ******************************************************************************
03765>
03766>
03767>
03768>
03769>
03770> ---------------------
03771> | START             |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
03772> ---------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
03773>     TZERO =    .00 hrs on        0
03774>     METOUT=   2 (output = METRIC)
03775>     NRUN  = 100
03776>     NSTORM=   1
03777>               #  1=H100SCS.6h
03778> ------------------------------------------------------------------------------
03779> 100:0002-----------------------------------------------------------------------
03780> *#*****************************************************************************
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*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#*************************************************************************
*#
*#
*#
*#*************************************************************************
-------------------------------------------------------------------------------
100:0002-------------------------------------------------------------------------
--------------------
| READ STORM       |    Filename: Hamilton (Mount Hope), 100-yr,6 hr SCS s
| Ptotal= 102.30 mm|    Comments: Hamilton (Mount Hope), 100-yr,6 hr SCS s
--------------------
               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
                hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
                .17   4.090 |   1.67  10.230 |   3.17  22.510 |   4.67   6.140
                .33   4.090 |   1.83  10.230 |   3.33  22.510 |   4.83   6.140
                .50   4.090 |   2.00  10.230 |   3.50  22.510 |   5.00   6.140
                .67   6.140 |   2.17  12.280 |   3.67  10.230 |   5.17   4.090
                .83   6.140 |   2.33  12.280 |   3.83  10.230 |   5.33   4.090
               1.00   6.140 |   2.50  12.280 |   4.00  10.230 |   5.50   4.090
               1.17   6.140 |   2.67  61.380 |   4.17   8.180 |   5.67   4.090
               1.33   6.140 |   2.83 110.480 |   4.33   8.180 |   5.83   4.090
               1.50   6.140 |   3.00 159.590 |   4.50   8.180 |   6.00   4.090

-------------------------------------------------------------------------------
100:0003-------------------------------------------------------------------------
*#*************************************************************************
*#  EXISTING CATCHMENTS
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .49         1.46
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.10         1.10
     Length            (m)=     440.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       101.47
                  over (min)       7.00        16.00
     Storage Coeff.  (min)=       7.42 (ii)   15.81 (ii)
     Unit Hyd. Tpeak (min)=       7.00        16.00
     Unit Hyd. peak  (cms)=        .16          .07
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .04          .26          .287 (iii)
     TIME TO PEAK    (hrs)=       3.02         3.17         3.133
     RUNOFF VOLUME    (mm)=     100.30        49.90        52.927
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .49          .517

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
100:0004-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .24          .72
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.20         2.20
     Length            (m)=      80.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       124.35
                  over (min)       2.00         8.00
     Storage Coeff.  (min)=       2.17 (ii)    8.45 (ii)
     Unit Hyd. Tpeak (min)=       2.00         8.00
     Unit Hyd. peak  (cms)=        .53          .14
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .03          .18          .198 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.05         3.017
     RUNOFF VOLUME    (mm)=     100.30        49.90        52.927
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .49          .517

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
100:0005-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
| 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=     .127

     PEAK FLOW       (cms)=     .114 (i)
     TIME TO PEAK    (hrs)=    3.117
     RUNOFF VOLUME    (mm)=   48.747
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .477

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

-------------------------------------------------------------------------------
100:0006-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.00         7.00
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.40         2.00
     Length            (m)=    1100.00        30.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       160.56
                  over (min)       8.00        13.00
     Storage Coeff.  (min)=       8.07 (ii)   12.99 (ii)
     Unit Hyd. Tpeak (min)=       8.00        13.00
     Unit Hyd. peak  (cms)=        .14          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       8.06         2.07         9.905 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.12         3.050
     RUNOFF VOLUME    (mm)=     100.30        51.16         82.611
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .50          .808

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
100:0007-------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)    (cms)
                        ID1 01:1a          1.94     .287    3.13  52.93    .000
                       +ID2 03:1c           .73     .114    3.12  48.75    .000
                        ==========================================================
                        SUM 05:C1_cul      2.67     .401    3.13  51.78    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
100:0008-------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)    (cms)
                        ID1 02:1b           .96     .198    3.02  52.93    .000
                       +ID2 04:1d         35.00    9.905    3.05  82.61    .000
                       +ID3 05:C1_cul      2.67     .401    3.13  51.78    .000
                        ==========================================================
                        SUM 07:C1_out      38.63   10.467    3.05  79.74    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
100:0009-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=     .59
| 10:2b     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .12          .47
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.60         1.60
     Length            (m)=     210.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       104.22
                  over (min)       4.00        12.00
     Storage Coeff.  (min)=       4.25 (ii)   11.68 (ii)
     Unit Hyd. Tpeak (min)=       4.00        12.00
     Unit Hyd. peak  (cms)=        .27          .10
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .01          .09          .099 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.10         3.083
     RUNOFF VOLUME    (mm)=     100.30        48.41         51.007
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .47          .499

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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100:0010-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   33.00   Dir. Conn.(%)=    8.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .39          .79
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59        91.48
                  over (min)       4.00        10.00
     Storage Coeff.  (min)=       3.63 (ii)    9.87 (ii)
     Unit Hyd. Tpeak (min)=       4.00        10.00
     Unit Hyd. peak  (cms)=        .30          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .04          .14          .166 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08         3.033
     RUNOFF VOLUME    (mm)=     100.30        34.32         39.597
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .34          .387

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
100:0011-------------------------------------------------------------------------
*#*************************************************************************

----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       150.99
                  over (min)       3.00         6.00
     Storage Coeff.  (min)=       3.03 (ii)    5.64 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .37          .20
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .96          .23          1.187 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.02         3.000
     RUNOFF VOLUME    (mm)=     100.30        41.16         79.011
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .40          .772

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
100:0012-------------------------------------------------------------------------
*#*************************************************************************
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04051> ------------------------
04052> | ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04053> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
04054>                      ID1 01:2a            1.18     .166    3.03  39.60    .000
04055>                     +ID2 02:2c            3.44    1.187    3.00  79.01    .000
04056>                      ============================================================
04057>                      SUM 08:C2_out         4.62    1.345    3.00  68.94    .000
04058>
04059>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04060>
04061> ---------------------------------------------------------------------------------
04062> 100:0013-----------------------------------------------------------------------
04063> *#*********************************************************************
04064> ---------------------
04065> | CALIB STANDHYD     |   Area    (ha)=    2.38
04066> | 01:3a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04067> ---------------------
04068>                                IMPERVIOUS    PERVIOUS (i)
04069>      Surface Area     (ha)=        .60          1.79
04070>      Dep. Storage     (mm)=       2.00          5.00
04071>      Average Slope     (%)=       2.50          2.50
04072>      Length            (m)=     320.00         40.00
04073>      Mannings n           =       .025          .250
04074>
04075>      Max.eff.Inten.(mm/hr)=     159.59         93.87
04076>                   over (min)       5.00         12.00
04077>      Storage Coeff.  (min)=       4.79 (ii)   11.56 (ii)
04078>      Unit Hyd. Tpeak (min)=       5.00         12.00
04079>      Unit Hyd. peak  (cms)=        .23          .10
04080>                                                          *TOTALS*
04081>      PEAK FLOW       (cms)=        .06          .31          .351 (iii)
04082>      TIME TO PEAK    (hrs)=       3.00         3.10         3.067
04083>      RUNOFF VOLUME    (mm)=     100.30        41.41        44.941
04084>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04085>      RUNOFF COEFFICIENT   =        .98          .40          .439
04086>
04087>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04088>            CN* =  60.0    Ia = Dep. Storage  (Above)
04089>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04090>              THAN THE STORAGE COEFFICIENT.
04091>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04092>
04093> ---------------------------------------------------------------------------------
04094> 100:0014-----------------------------------------------------------------------
04095> *#*********************************************************************
04096> ---------------------
04097> | CALIB STANDHYD     |   Area    (ha)=  197.18
04098> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
04099> ---------------------
04100>                                IMPERVIOUS    PERVIOUS (i)
04101>      Surface Area     (ha)=      78.87        118.31
04102>      Dep. Storage     (mm)=       2.00          5.00
04103>      Average Slope     (%)=        .50          2.00
04104>      Length            (m)=    2750.00         40.00
04105>      Mannings n           =       .020          .250
04106>
04107>      Max.eff.Inten.(mm/hr)=     113.99         52.67
04108>                   over (min)      28.00         37.00
04109>      Storage Coeff.  (min)=      28.23 (ii)   37.35 (ii)
04110>      Unit Hyd. Tpeak (min)=      28.00         37.00
04111>      Unit Hyd. peak  (cms)=        .04           .03
04112>                                                          *TOTALS*
04113>      PEAK FLOW       (cms)=      12.08         10.73        21.767 (iii)
04114>      TIME TO PEAK    (hrs)=       3.33          3.53         3.417
04115>      RUNOFF VOLUME    (mm)=     100.28         48.25        64.910
04116>      TOTAL RAINFALL   (mm)=     102.30        102.30       102.302
04117>      RUNOFF COEFFICIENT   =        .98           .47          .634
04118>
04119>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04120>            CN* =  69.0    Ia = Dep. Storage  (Above)
04121>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04122>              THAN THE STORAGE COEFFICIENT.
04123>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04124>
04125> ---------------------------------------------------------------------------------
04126> 100:0015-----------------------------------------------------------------------
04127> *#*********************************************************************
04128> ------------------------
04129> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04130> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
04131>                      ID1 01:3a            2.38      .351    3.07  44.94    .000
04132>                     +ID2 02:3c          197.18   21.767    3.42  64.91    .000
04133>                      ============================================================
04134>                      SUM 09:C3_out       199.56   21.917    3.42  64.67    .000
04135>
04136>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04137>
04138> ---------------------------------------------------------------------------------
04139> 100:0016-----------------------------------------------------------------------
04140> *#*********************************************************************
04141> ---------------------
04142> | CALIB STANDHYD     |   Area    (ha)=    1.94
04143> | 01:4a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04144> ---------------------
04145>                                IMPERVIOUS    PERVIOUS (i)
04146>      Surface Area     (ha)=        .49          1.46
04147>      Dep. Storage     (mm)=       2.00          5.00
04148>      Average Slope     (%)=       1.30          1.30
04149>      Length            (m)=     280.00         40.00
04150>      Mannings n           =       .025          .250
04151>
04152>      Max.eff.Inten.(mm/hr)=     159.59        104.91
04153>                   over (min)       5.00         13.00
04154>      Storage Coeff.  (min)=       5.38 (ii)   13.26 (ii)
04155>      Unit Hyd. Tpeak (min)=       5.00         13.00
04156>      Unit Hyd. peak  (cms)=        .22           .09
04157>                                                          *TOTALS*
04158>      PEAK FLOW       (cms)=        .05           .28          .304 (iii)
04159>      TIME TO PEAK    (hrs)=       3.00          3.12         3.083
04160>      RUNOFF VOLUME    (mm)=     100.30         47.68        50.837
04161>      TOTAL RAINFALL   (mm)=     102.30        102.30       102.302
04162>      RUNOFF COEFFICIENT   =        .98           .47          .497
04163>
04164>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04165>            CN* =  66.0    Ia = Dep. Storage  (Above)
04166>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04167>              THAN THE STORAGE COEFFICIENT.
04168>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04169>
04170> ---------------------------------------------------------------------------------
04171> 100:0017-----------------------------------------------------------------------
04172> *#*********************************************************************
04173> ---------------------
04174> | CALIB STANDHYD     |   Area    (ha)=   46.39
04175> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
04176> ---------------------
04177>                                IMPERVIOUS    PERVIOUS (i)
04178>      Surface Area     (ha)=      13.92         32.47
04179>      Dep. Storage     (mm)=       2.00          7.00
04180>      Average Slope     (%)=       1.00          2.00
04181>      Length            (m)=    1700.00         60.00
04182>      Mannings n           =       .013          .250
04183>
04184>      Max.eff.Inten.(mm/hr)=     151.41         60.03
04185>                   over (min)      12.00         23.00
04186>      Storage Coeff.  (min)=      11.85 (ii)   22.89 (ii)
04187>      Unit Hyd. Tpeak (min)=      12.00         23.00
04188>      Unit Hyd. peak  (cms)=        .10           .05
04189>                                                          *TOTALS*
04190>      PEAK FLOW       (cms)=       3.43          3.32          6.032 (iii)
04191>      TIME TO PEAK    (hrs)=       3.08          3.28          3.133
04192>      RUNOFF VOLUME    (mm)=     100.30        41.42         55.552
04193>      TOTAL RAINFALL   (mm)=     102.30       102.30        102.302
04194>      RUNOFF COEFFICIENT   =        .98           .40           .543
04195>
04196>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04197>            CN* =  65.0    Ia = Dep. Storage  (Above)
04198>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04199>              THAN THE STORAGE COEFFICIENT.
04200>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04201>
04202> ---------------------------------------------------------------------------------
04203> 100:0018-----------------------------------------------------------------------
04204> *#*********************************************************************
04205> ------------------------
04206> | ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04207> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
04208>                      ID1 01:4a            1.94      .304    3.08  50.84    .000
04209>                     +ID2 02:4c           46.39    6.032    3.13  55.55    .000
04210>                      ============================================================
04211>                      SUM 04:C4_out        48.33    6.331    3.13  55.36    .000
04212>
04213>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04214>
04215> ---------------------------------------------------------------------------------
04216> 100:0019-----------------------------------------------------------------------
04217> *#*********************************************************************
04218> ---------------------
04219> | CALIB STANDHYD     |   Area    (ha)=    2.21
04220> | 01:5a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04221> ---------------------
04222>                                IMPERVIOUS    PERVIOUS (i)
04223>      Surface Area     (ha)=        .55          1.66
04224>      Dep. Storage     (mm)=       2.00          5.00
04225>      Average Slope     (%)=       2.00          2.00
04226>      Length            (m)=     540.00         40.00
04227>      Mannings n           =       .025          .250
04228>
04229>      Max.eff.Inten.(mm/hr)=     159.59         92.70
04230>                   over (min)       7.00         14.00
04231>      Storage Coeff.  (min)=       7.01 (ii)   14.28 (ii)
04232>      Unit Hyd. Tpeak (min)=       7.00         14.00
04233>      Unit Hyd. peak  (cms)=        .16           .08
04234>                                                          *TOTALS*
04235>      PEAK FLOW       (cms)=        .05           .27           .309 (iii)
04236>      TIME TO PEAK    (hrs)=       3.02          3.13          3.100
04237>      RUNOFF VOLUME    (mm)=     100.30         43.43         46.847
04238>      TOTAL RAINFALL   (mm)=     102.30        102.30        102.302
04239>      RUNOFF COEFFICIENT   =        .98           .42           .458
04240>
04241>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04242>            CN* =  62.0    Ia = Dep. Storage  (Above)
04243>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04244>              THAN THE STORAGE COEFFICIENT.
04245>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04246>
04247> ---------------------------------------------------------------------------------
04248> 100:0020-----------------------------------------------------------------------
04249> *#*********************************************************************
04250> ---------------------
04251> | CALIB STANDHYD     |   Area    (ha)=   13.39
04252> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04253> ---------------------
04254>                                IMPERVIOUS    PERVIOUS (i)
04255>      Surface Area     (ha)=       3.35         10.04
04256>      Dep. Storage     (mm)=       2.00          5.00
04257>      Average Slope     (%)=       1.60          2.00
04258>      Length            (m)=     575.00         75.00
04259>      Mannings n           =       .025          .250
04260>
04261>      Max.eff.Inten.(mm/hr)=     159.59         83.80
04262>                   over (min)       8.00         19.00
04263>      Storage Coeff.  (min)=       7.78 (ii)   18.83 (ii)
04264>      Unit Hyd. Tpeak (min)=       8.00         19.00
04265>      Unit Hyd. peak  (cms)=        .14           .06
04266>                                                          *TOTALS*
04267>      PEAK FLOW       (cms)=        .29          1.44          1.581 (iii)
04268>      TIME TO PEAK    (hrs)=       3.03          3.22          3.183
04269>      RUNOFF VOLUME    (mm)=     100.30         44.47         47.822
04270>      TOTAL RAINFALL   (mm)=     102.30        102.30        102.302
04271>      RUNOFF COEFFICIENT   =        .98           .43           .467
04272>
04273>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04274>            CN* =  63.0    Ia = Dep. Storage  (Above)
04275>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04276>              THAN THE STORAGE COEFFICIENT.
04277>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04278>
04279> ---------------------------------------------------------------------------------
04280> 100:0021-----------------------------------------------------------------------
04281> *#*********************************************************************
04282> ------------------------
04283> | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04284> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
04285>                      ID1 01:5a            2.21      .309    3.10  46.85    .000
04286>                     +ID2 02:5c           13.39    1.581    3.18  47.82    .000
04287>                      ============================================================
04288>                      SUM 05:C5_out        15.60    1.873    3.17  47.68    .000
04289>
04290>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04291>
04292> ---------------------------------------------------------------------------------
04293> 100:0022-----------------------------------------------------------------------
04294> *#*********************************************************************
04295> ---------------------
04296> | CALIB STANDHYD     |   Area    (ha)=    2.19
04297> | 01:6a     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    8.00
04298> ---------------------
04299>                                IMPERVIOUS    PERVIOUS (i)
04300>      Surface Area     (ha)=        .66          1.53
04301>      Dep. Storage     (mm)=       2.00          5.00
04302>      Average Slope     (%)=        .50           .50
04303>      Length            (m)=     285.00         40.00
04304>      Mannings n           =       .025          .250
04305>
04306>      Max.eff.Inten.(mm/hr)=     159.59         47.79
04307>                   over (min)       7.00         22.00
04308>      Storage Coeff.  (min)=       7.24 (ii)   21.61 (ii)
04309>      Unit Hyd. Tpeak (min)=       7.00         22.00
04310>      Unit Hyd. peak  (cms)=        .16           .05
04311>                                                          *TOTALS*
04312>      PEAK FLOW       (cms)=        .07           .13           .151 (iii)
04313>      TIME TO PEAK    (hrs)=       3.02          3.28          3.100
04314>      RUNOFF VOLUME    (mm)=     100.30         27.35         33.189
04315>      TOTAL RAINFALL   (mm)=     102.30        102.30        102.302
04316>      RUNOFF COEFFICIENT   =        .98           .27           .324
04317>
04318>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04319>            CN* =  43.0    Ia = Dep. Storage  (Above)
04320>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0023------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.80         4.80
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=         .80         2.00
     Length            (m)=      400.00        40.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     159.59        68.65
                   over (min)        5.00        13.00
     Storage Coeff.  (min)=        5.21 (ii)   13.41 (ii)
     Unit Hyd. Tpeak (min)=        5.00        13.00
     Unit Hyd. peak  (cms)=         .22          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=        1.56          .59         2.024 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.13          3.017
     RUNOFF VOLUME    (mm)=      100.30        32.81         59.807
     TOTAL RAINFALL   (mm)=      102.30       102.30        102.302
     RUNOFF COEFFICIENT   =         .98          .32           .585

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0024------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:6a             2.19      .151    3.10  33.19    .000
                     +ID2 02:6c             9.59    2.024    3.02  59.81    .000
                      ==========================================================
                      SUM 06:C6_out        11.78    2.161    3.02  54.86    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
100:0025------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 07:C1_out        38.63   10.467    3.05  79.74    .000
                     +ID2 08:C2_out         4.62    1.345    3.00  68.94    .000
                     +ID3 09:C3_out       199.56   21.917    3.42  64.67    .000
                     +ID4 04:C4_out        48.33    6.331    3.13  55.36    .000
                     +ID5 05:C5_out        15.60    1.873    3.17  47.68    .000
                     +ID6 06:C6_out        11.78    2.161    3.02  54.86    .000
                     +ID7 10:2b              .59     .099    3.08  51.01    .000
                      ==========================================================
                      SUM 03:GRCA         319.11   35.377    3.12  63.93    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
100:0026------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a     DT= 1.00 |   Total Imp(%)=   20.00   Dir. Conn.(%)=    5.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .09          .37
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=         .40          .40
     Length            (m)=       70.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59        37.27
                   over (min)        3.00        20.00
     Storage Coeff.  (min)=        3.33 (ii)   20.31 (ii)
     Unit Hyd. Tpeak (min)=        3.00        20.00
     Unit Hyd. peak  (cms)=         .35          .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .01          .02           .025 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.25          3.233
     RUNOFF VOLUME    (mm)=      100.30        22.24         26.143
     TOTAL RAINFALL   (mm)=      102.30       102.30        102.302
     RUNOFF COEFFICIENT   =         .98          .22           .256

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0027------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .87
| 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .35          .52
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        1.90          .50
     Length            (m)=      80.00       110.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     159.59        21.81
                   over (min)        2.00        38.00
     Storage Coeff.  (min)=        1.53 (ii)   37.62 (ii)
     Unit Hyd. Tpeak (min)=        2.00        38.00
     Unit Hyd. peak  (cms)=         .66          .03
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .12          .02           .129 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.57          3.000
     RUNOFF VOLUME    (mm)=      100.30        21.37         46.627
     TOTAL RAINFALL   (mm)=      102.30       102.30        102.302
     RUNOFF COEFFICIENT   =         .98          .21           .456

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0028------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:7a              .46      .025    3.23  26.14    .000
                     +ID2 02:7c              .87      .129    3.00  46.63    .000
                      ==========================================================
                      SUM 07:C7_out         1.33      .152    3.00  39.54    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
100:0029------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .71
| 01:8a     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .18          .53
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        1.70         1.70
     Length            (m)=      110.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59        88.01
                   over (min)        3.00        11.00
     Storage Coeff.  (min)=        2.83 (ii)   10.63 (ii)
     Unit Hyd. Tpeak (min)=        3.00        11.00
     Unit Hyd. peak  (cms)=         .39          .11
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .02          .09           .097 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.10          3.033
     RUNOFF VOLUME    (mm)=      100.30        37.53         41.295
     TOTAL RAINFALL   (mm)=      102.30       102.30        102.302
     RUNOFF COEFFICIENT   =         .98          .37           .404

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  56.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0030------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
| 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------  U.H. Tp(hrs)=    .330

     Unit Hyd Qpeak  (cms)=     .132

     PEAK FLOW       (cms)=     .122 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   44.074
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .431

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

------------------------------------------------------------------------------
100:0031------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:8a              .71      .097    3.03  41.30    .000
                     +ID2 02:8c             1.14      .122    3.23  44.07    .000
                      ==========================================================
                      SUM 08:C8_out         1.85      .203    3.13  43.01    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
100:0032------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 01:9a     DT= 1.00 |   Total Imp(%)=   28.00   Dir. Conn.(%)=    7.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .40         1.02
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        2.90         2.90
     Length            (m)=      170.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       100.11
                   over (min)        3.00         9.00
     Storage Coeff.  (min)=        3.13 (ii)    9.44 (ii)
     Unit Hyd. Tpeak (min)=        3.00         9.00
     Unit Hyd. peak  (cms)=         .36          .12
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .04          .20           .227 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.07          3.033
     RUNOFF VOLUME    (mm)=      100.30        39.26         43.533
     TOTAL RAINFALL   (mm)=      102.30       102.30        102.302
     RUNOFF COEFFICIENT   =         .98          .38           .426

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  57.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0033------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
| 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------  U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=    2.320

     PEAK FLOW       (cms)=    3.369 (i)
     TIME TO PEAK    (hrs)=    4.767
     RUNOFF VOLUME    (mm)=   45.629
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .446

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

------------------------------------------------------------------------------
100:0034------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:9a             1.42      .227    3.03  43.53    .000
                     +ID2 02:9c            95.98    3.369    4.77  45.63    .000
                     +ID3 07:C7_out         1.33      .152    3.00  39.54    .000
                     +ID4 08:C8_out         1.85      .203    3.13  43.01    .000
                      ==========================================================
                      SUM 09:C9_out       100.58    3.430    4.75  45.47    .000

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

```
04591>
04592> ------------------------------------------------------------------------------
04593> 100:0035------------------------------------------------------------------------
04594> *#*****************************************************************************
04595> ----------------------
04596> | CALIB STANDHYD     |   Area    (ha)=    3.74
04597> | 01:10a    DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04598> ----------------------
04599>                              IMPERVIOUS    PERVIOUS (i)
04600>      Surface Area     (ha)=        .94         2.81
04601>      Dep. Storage     (mm)=       2.00         5.00
04602>      Average Slope     (%)=       1.30         1.30
04603>      Length            (m)=     385.00        40.00
04604>      Mannings n             =      .025         .250
04605>
04606>      Max.eff.Inten.(mm/hr)=     159.59        67.80
04607>                   over (min)        7.00        16.00
04608>      Storage Coeff.  (min)=       6.51 (ii)   15.89 (ii)
04609>      Unit Hyd. Tpeak (min)=       7.00        16.00
04610>      Unit Hyd. peak  (cms)=        .17          .07
04611>                                                          *TOTALS*
04612>      PEAK FLOW       (cms)=        .09          .33          .381 (iii)
04613>      TIME TO PEAK    (hrs)=       3.02         3.17         3.133
04614>      RUNOFF VOLUME    (mm)=     100.30        33.87        37.854
04615>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04616>      RUNOFF COEFFICIENT   =        .98          .33          .370
04617>
04618>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04619>            CN* =  52.0    Ia = Dep. Storage  (Above)
04620>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04621>            THAN THE STORAGE COEFFICIENT.
04622>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04623>
04624> ------------------------------------------------------------------------------
04625> 100:0036------------------------------------------------------------------------
04626> *#*****************************************************************************
04627> ----------------------
04628> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
04629> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
04630> ----------------------   U.H. Tp(hrs)=   1.280
04631>
04632>      Unit Hyd Qpeak  (cms)=    3.260
04633>
04634>      PEAK FLOW       (cms)=    4.634 (i)
04635>      TIME TO PEAK    (hrs)=    4.383
04636>      RUNOFF VOLUME    (mm)=   46.797
04637>      TOTAL RAINFALL   (mm)=  102.302
04638>      RUNOFF COEFFICIENT   =     .457
04639>
04640>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04641>
04642> ------------------------------------------------------------------------------
04643> 100:0037------------------------------------------------------------------------
04644> *#*****************************************************************************
04645> ------------------------
04646> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04647> ------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
04648>                       ID1 01:10a          3.74      .381    3.13  37.85    .000
04649>                      +ID2 02:10c        109.26    4.634    4.38  46.80    .000
04650>                       ===========================================================
04651>                       SUM 10:C10_out     113.00    4.692    4.38  46.50    .000
04652>
04653>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04654>
04655> ------------------------------------------------------------------------------
04656> 100:0038------------------------------------------------------------------------
04657> *#*****************************************************************************
04658> ------------------------
04659> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04660> ------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
04661>                       ID1 09:C9_out      100.58    3.430    4.75  45.47    .000
04662>                      +ID2 10:C10_out     113.00    4.692    4.38  46.50    .000
04663>                       ===========================================================
04664>                       SUM 05:HCA         213.58    8.045    4.52  46.02    .000
04665>
04666>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04667>
04668> ------------------------------------------------------------------------------
04669> 100:0039------------------------------------------------------------------------
04670> *#*****************************************************************************
04671> ------------------------
04672> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04673> ------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
04674>                       ID1 03:GRCA        319.11   35.377    3.12  63.93    .000
04675>                      +ID2 05:HCA         213.58    8.045    4.52  46.02    .000
04676>                       ===========================================================
04677>                       SUM 06:All_F       532.69   37.724    3.12  56.75    .000
04678>
04679>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04680>
04681> ------------------------------------------------------------------------------
04682> 100:0040------------------------------------------------------------------------
04683> *#*****************************************************************************
04684> ------------------------------------------------------------------------------
04685> 100:0002------------------------------------------------------------------------
04686> ------------------------------------------------------------------------------
04687> 100:0002------------------------------------------------------------------------
04688> ------------------------------------------------------------------------------
04689> 100:0002------------------------------------------------------------------------
04690> ------------------------------------------------------------------------------
04691> 100:0002------------------------------------------------------------------------
04692>       FINISH
04693> ------------------------------------------------------------------------------
04694> *****************************************************************************
04695>      WARNINGS / ERRORS / NOTES
04696>      -------------------------
04697>    Simulation ended on 2024-12-12     at 14:39:14
04698> ==============================================================================
04699>
```

```
00001> ================================================================================
00002>
00003>   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
00004>   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
00005>   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
00006>       S  W W W  M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
00007>   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
00008>                                                          9   9  9   9   # 4730904
00009>         StormWater Management HYdrologic Model            999    999    =========
00010>
00011>  ********************************************************************************
00012>  ************************** SWMHYMO Ver/4.05  ***************************
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: Stantec Consulting Ltd. (Kitchener)          +++++++++
00025>  +++++++++                 Kitchener            SERIAL#:4730904       +++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************
00029>  *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
00030>  *********           Maximum value for ID numbers  :     10            *********
00031>  *********           Max. number of rainfall points: 105408            *********
00032>  *********           Max. number of flow points    : 105408            *********
00033>  ********************************************************************************
00034>
00035>
00036>  **********************   D E T A I L E D   O U T P U T   **********************
00037>  ********************************************************************************
00038>  *         DATE: 2024-12-13     TIME: 11:20:06     RUN COUNTER: 000651         *
00039>  ********************************************************************************
00040>  * Input   filename: C:\SWMHYMO\Garner\12-12-~1\GarnPr.dat                       *
00041>  * Output  filename: C:\SWMHYMO\Garner\12-12-~1\GarnPr.out                       *
00042>  * Summary filename: C:\SWMHYMO\Garner\12-12-~1\GarnPr.sum                       *
00043>  * User comments:                                                               *
00044>  * 1:_____________________________________________________________________________*
00045>  * 2:_____________________________________________________________________________*
00046>  * 3:_____________________________________________________________________________*
00047>  ********************************************************************************
00048>
00049> --------------------------------------------------------------------------------
00050> 001:0001--------------------------------------------------------------------------
00051> *#*****************************************************************************
00052> *#  Project Name: Garner Rd. MCEA
00053> *#  Date        : December 12, 2024
00054> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00055> *#  Modeller    : Amy Kyle
00056> *#  License #   :  4730904
00057> *#*****************************************************************************
00058> *#
00059> *#
00060> *#
00061> *#*****************************************************************************
00062>   ** END OF RUN :   1
00063>
00064> ********************************************************************************
00065>
00066>
00067>
00068>
00069>
00070> --------------------
00071> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
00072> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
00073>     TZERO =   .00 hrs on        0
00074>     METOUT=   2 (output = METRIC)
00075>     NRUN  = 002
00076>     NSTORM=   1
00077>               #  1=Ham2yr.STM
00078> --------------------------------------------------------------------------------
00079> 002:0002--------------------------------------------------------------------------
00080> *#*****************************************************************************
00081> *#  Project Name: Garner Rd. MCEA
00082> *#  Date        : December 12, 2024
00083> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00084> *#  Modeller    : Amy Kyle
00085> *#  License #   :  4730904
00086> *#*****************************************************************************
00087> *#
00088> *#
00089> *#
00090> *#*****************************************************************************
00091> --------------------------------------------------------------------------------
00092> 002:0002--------------------------------------------------------------------------
00093> --------------------
00094> | READ STORM       |    Filename: CHICAGO STORM
00095> | Ptotal=  32.71 mm|    Comments: CHICAGO STORM
00096> --------------------
00097>              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
00098>               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
00099>               .08   2.929 |    .83   8.680 |   1.58   9.866 |   2.33   3.860
00100>               .17   3.141 |    .92  11.561 |   1.67   8.318 |   2.42   3.634
00101>               .25   3.390 |   1.00  17.565 |   1.75   7.210 |   2.50   3.435
00102>               .33   3.689 |   1.08  37.119 |   1.83   6.377 |   2.58   3.259
00103>               .42   4.054 |   1.17  99.290 |   1.92   5.727 |   2.67   3.102
00104>               .50   4.510 |   1.25  42.696 |   2.00   5.207 |   2.75   2.961
00105>               .58   5.097 |   1.33  23.344 |   2.08   4.780 |   2.83   2.834
00106>               .67   5.883 |   1.42  15.986 |   2.17   4.423 |   2.92   2.718
00107>               .75   6.993 |   1.50  12.178 |   2.25   4.121 |   3.00   2.612
00108>
00109> --------------------------------------------------------------------------------
00110> 002:0003--------------------------------------------------------------------------
00111> *#*****************************************************************************
00112> *#  PROPOSED CATCHMENTS (UNCONTROLLED)
00113> *#*****************************************************************************
00114> ----------------------
00115> | CALIB STANDHYD     |   Area    (ha)=    1.94
00116> | 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00117> ----------------------
00118>                                IMPERVIOUS    PERVIOUS (i)
00119>      Surface Area     (ha)=       1.16          .78
00120>      Dep. Storage     (mm)=       2.00         5.00
00121>      Average Slope     (%)=       1.10         1.10
00122>      Length            (m)=     440.00        40.00
00123>      Mannings n             =       .025         .250
00124>
00125>      Max.eff.Inten.(mm/hr)=      70.99        13.72
00126>                 over (min)       10.00        29.00
00127>      Storage Coeff.  (min)=      10.25 (ii)   28.94 (ii)
00128>      Unit Hyd. Tpeak (min)=      10.00        29.00
00129>      Unit Hyd. peak  (cms)=        .11          .04
00130>                                                          *TOTALS*
00131>      PEAK FLOW       (cms)=        .11          .02          .114 (iii)
00132>      TIME TO PEAK    (hrs)=       1.30         1.72         1.300
00133>      RUNOFF VOLUME    (mm)=      30.71         7.67        17.346
00134>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00135>      RUNOFF COEFFICIENT   =        .94          .23          .530
00136>
00137>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00138>            CN* =  68.0    Ia = Dep. Storage  (Above)
00139>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00140>            THAN THE STORAGE COEFFICIENT.
00141>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00142>
00143> --------------------------------------------------------------------------------
00144> 002:0004--------------------------------------------------------------------------
00145> *#*****************************************************************************
00146> ----------------------
00147> | CALIB STANDHYD     |   Area    (ha)=     .96
00148> | 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
00149> ----------------------
00150>                                IMPERVIOUS    PERVIOUS (i)
00151>      Surface Area     (ha)=        .62          .34
00152>      Dep. Storage     (mm)=       2.00         5.00
00153>      Average Slope     (%)=       2.20         2.20
00154>      Length            (m)=      80.00        40.00
00155>      Mannings n             =       .025         .250
00156>
00157>      Max.eff.Inten.(mm/hr)=      99.29        22.59
00158>                 over (min)        3.00        15.00
00159>      Storage Coeff.  (min)=       2.62 (ii)   15.05 (ii)
00160>      Unit Hyd. Tpeak (min)=       3.00        15.00
00161>      Unit Hyd. peak  (cms)=        .41          .08
00162>                                                          *TOTALS*
00163>      PEAK FLOW       (cms)=        .10          .01          .106 (iii)
00164>      TIME TO PEAK    (hrs)=       1.18         1.45         1.183
00165>      RUNOFF VOLUME    (mm)=      30.71         8.12        18.514
00166>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00167>      RUNOFF COEFFICIENT   =        .94          .25          .566
00168>
00169>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00170>            CN* =  68.0    Ia = Dep. Storage  (Above)
00171>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00172>            THAN THE STORAGE COEFFICIENT.
00173>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00174>
00175> --------------------------------------------------------------------------------
00176> 002:0005--------------------------------------------------------------------------
00177> *#*****************************************************************************
00178> ----------------------
00179> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
00180> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00181> ----------------------  U.H. Tp(hrs)=    .220
00182>
00183>      Unit Hyd Qpeak  (cms)=     .127
00184>
00185>      PEAK FLOW       (cms)=     .013 (i)
00186>      TIME TO PEAK    (hrs)=    1.467
00187>      RUNOFF VOLUME    (mm)=    5.914
00188>      TOTAL RAINFALL   (mm)=   32.713
00189>      RUNOFF COEFFICIENT   =     .181
00190>
00191>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00192>
00193> --------------------------------------------------------------------------------
00194> 002:0006--------------------------------------------------------------------------
00195> *#*****************************************************************************
00196> ----------------------
00197> | CALIB STANDHYD     |   Area    (ha)=   35.00
00198> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
00199> ----------------------
00200>                                IMPERVIOUS    PERVIOUS (i)
00201>      Surface Area     (ha)=      28.00         7.00
00202>      Dep. Storage     (mm)=       2.00         5.00
00203>      Average Slope     (%)=       1.40         2.00
00204>      Length            (m)=    1100.00        30.00
00205>      Mannings n             =       .013         .250
00206>
00207>      Max.eff.Inten.(mm/hr)=      67.91        18.27
00208>                 over (min)       11.00        23.00
00209>      Storage Coeff.  (min)=      11.36 (ii)   23.09 (ii)
00210>      Unit Hyd. Tpeak (min)=      11.00        23.00
00211>      Unit Hyd. peak  (cms)=        .10          .05
00212>                                                          *TOTALS*
00213>      PEAK FLOW       (cms)=       2.83          .21         2.927 (iii)
00214>      TIME TO PEAK    (hrs)=       1.32         1.60         1.317
00215>      RUNOFF VOLUME    (mm)=      30.71         7.23        22.257
00216>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00217>      RUNOFF COEFFICIENT   =        .94          .22          .680
00218>
00219>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00220>            CN* =  60.0    Ia = Dep. Storage  (Above)
00221>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00222>            THAN THE STORAGE COEFFICIENT.
00223>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00224>
00225> --------------------------------------------------------------------------------
00226> 002:0007--------------------------------------------------------------------------
00227> *#*****************************************************************************
00228> ----------------------
00229> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00230> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00231>                        ID1 01:1a          1.94      .114    1.30  17.35     .000
00232>                      +ID2 03:1c           .73      .013    1.47   5.91     .000
00233>                        ==========================================================
00234>                        SUM 05:C1_cul      2.67      .123    1.32  14.22     .000
00235>
00236>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00237>
00238> --------------------------------------------------------------------------------
00239> 002:0008--------------------------------------------------------------------------
00240> *#*****************************************************************************
00241> ----------------------
00242> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00243> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00244>                        ID1 02:1b            .96      .106    1.18  18.51     .000
00245>                      +ID2 04:1d           35.00     2.927    1.32  22.26     .000
00246>                      +ID3 05:C1_cul        2.67      .123    1.32  14.22     .000
00247>                        ==========================================================
00248>                        SUM 07:C1_out       38.63     3.099    1.32  21.61     .000
00249>
00250>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00251>
00252> --------------------------------------------------------------------------------
00253> 002:0009--------------------------------------------------------------------------
00254> *#*****************************************************************************
00255> ----------------------
00256> | CALIB STANDHYD     |   Area    (ha)=     .59
00257> | 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
00258> ----------------------
00259>                                IMPERVIOUS    PERVIOUS (i)
00260>      Surface Area     (ha)=       .32          .27
00261>      Dep. Storage     (mm)=       2.00         5.00
00262>      Average Slope     (%)=       1.60         1.60
00263>      Length            (m)=     210.00        40.00
00264>      Mannings n             =       .025         .250
00265>
00266>      Max.eff.Inten.(mm/hr)=      99.29        14.07
00267>                 over (min)        5.00        22.00
00268>      Storage Coeff.  (min)=       5.14 (ii)   21.68 (ii)
00269>      Unit Hyd. Tpeak (min)=       5.00        22.00
00270>      Unit Hyd. peak  (cms)=        .22          .05
```

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .04          .01          .044 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.58         1.217
     RUNOFF VOLUME    (mm)=      30.71         7.19        16.362
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .22          .500

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0010------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .77          .41
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      99.29        10.60
                   over (min)       4.00        19.00
     Storage Coeff.  (min)=      4.39 (ii)   19.16 (ii)
     Unit Hyd. Tpeak (min)=      4.00        19.00
     Unit Hyd. peak  (cms)=       .27          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .11          .01          .109 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.53         1.200
     RUNOFF VOLUME    (mm)=      30.71         4.47        16.544
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .14          .506

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0011------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      99.29        20.44
                   over (min)       4.00         9.00
     Storage Coeff.  (min)=      3.67 (ii)    9.46 (ii)
     Unit Hyd. Tpeak (min)=      4.00         9.00
     Unit Hyd. peak  (cms)=       .30          .12
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .46          .02          .472 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.33         1.200
     RUNOFF VOLUME    (mm)=      30.71         5.24        21.542
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .16          .659

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0012------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:2a            1.18      .109    1.20  16.54    .000
                    +ID2 02:2c            3.44      .472    1.20  21.54    .000
                     ========================================================
                     SUM 08:C2_out        4.62      .581    1.20  20.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0013------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.43          .95
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.50         2.50
     Length            (m)=     320.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      89.86        12.49
                   over (min)       6.00        21.00
     Storage Coeff.  (min)=      6.03 (ii)   21.19 (ii)
     Unit Hyd. Tpeak (min)=      6.00        21.00
     Unit Hyd. peak  (cms)=        .19          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .17          .02          .177 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.57         1.233
     RUNOFF VOLUME    (mm)=      30.71         5.86        16.300
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .18          .498

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0014------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=  197.18
| 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      78.87       118.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=    2750.00        40.00
     Mannings n            =       .020         .250

     Max.eff.Inten.(mm/hr)=      99.29         6.12
                   over (min)       5.00        51.00
     Storage Coeff.  (min)=      29.84 (ii)   51.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        51.00
     Unit Hyd. peak  (cms)=        .05          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=       4.79         1.11         4.939 (iii)
     TIME TO PEAK    (hrs)=       1.32         2.15         1.317
     RUNOFF VOLUME    (mm)=      30.71         6.21        14.050
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .19          .430

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 69.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0015------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:3a            2.38      .177    1.23  16.30    .000
                    +ID2 02:3c          197.18     4.939    1.32  14.05    .000
                     ========================================================
                     SUM 09:C3_out       199.56     5.083    1.32  14.08    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0016------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16          .78
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.30         1.30
     Length            (m)=     280.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      83.12        13.94
                   over (min)       7.00        25.00
     Storage Coeff.  (min)=      6.98 (ii)   24.64 (ii)
     Unit Hyd. Tpeak (min)=      7.00        25.00
     Unit Hyd. peak  (cms)=        .16          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .13          .02          .136 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.63         1.250
     RUNOFF VOLUME    (mm)=      30.71         7.17        17.056
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .22          .521

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0017------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.92        32.47
     Dep. Storage     (mm)=       2.00         7.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=    1700.00        60.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      53.64         4.29
                   over (min)      18.00        50.00
     Storage Coeff.  (min)=      17.94 (ii)   49.65 (ii)
     Unit Hyd. Tpeak (min)=      18.00        50.00
     Unit Hyd. peak  (cms)=        .06          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.07          .21         1.125 (iii)
     TIME TO PEAK    (hrs)=       1.43         2.17         1.450
     RUNOFF VOLUME    (mm)=      30.71         4.53        10.815
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .14          .331

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0018------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:4a            1.94      .136    1.25  17.06    .000
                    +ID2 02:4c           46.39     1.125    1.45  10.81    .000
                     ========================================================
                     SUM 04:C4_out        48.33    1.208    1.43  11.07    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0019------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.33          .88
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     540.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      70.99        11.87
                   over (min)      10.00        26.00
     Storage Coeff.  (min)=       9.69 (ii)   26.25 (ii)
     Unit Hyd. Tpeak (min)=      10.00        26.00
     Unit Hyd. peak  (cms)=        .12          .04
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .13          .02          .132 (iii)
     TIME TO PEAK    (hrs)=       1.30         1.67         1.300
     RUNOFF VOLUME    (mm)=      30.71         6.27        16.535
     TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
     RUNOFF COEFFICIENT   =        .94          .19          .505
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00541>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00542>            CN* =  62.0    Ia = Dep. Storage  (Above)
00543>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00544>            THAN THE STORAGE COEFFICIENT.
00545>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00546>
00547> ---------------------------------------------------------------------------
00548> 002:0020----------------------------------------------------------------------
00549> *#*********************************************************************
00550>  ---------------------
00551> | CALIB STANDHYD     |   Area    (ha)=   13.39
00552> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00553>  ---------------------
00554>                              IMPERVIOUS    PERVIOUS (i)
00555>      Surface Area     (ha)=       3.35        10.04
00556>      Dep. Storage     (mm)=       2.00         5.00
00557>      Average Slope     (%)=       1.60         2.00
00558>      Length            (m)=     575.00        75.00
00559>      Mannings n            =       .025         .250
00560>
00561>      Max.eff.Inten.(mm/hr)=      67.91         6.94
00562>                 over (min)       11.00        41.00
00563>      Storage Coeff.  (min)=      10.95 (ii)   40.88 (ii)
00564>      Unit Hyd. Tpeak (min)=      11.00        41.00
00565>      Unit Hyd. peak  (cms)=        .10          .03
00566>                                                          *TOTALS*
00567>      PEAK FLOW       (cms)=        .10          .11          .133 (iii)
00568>      TIME TO PEAK    (hrs)=       1.32         1.95         1.850
00569>      RUNOFF VOLUME    (mm)=      30.71         5.58         7.092
00570>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00571>      RUNOFF COEFFICIENT   =        .94          .17          .217
00572>
00573>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00574>            CN* =  63.0    Ia = Dep. Storage  (Above)
00575>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00576>            THAN THE STORAGE COEFFICIENT.
00577>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00578>
00579> ---------------------------------------------------------------------------
00580> 002:0021----------------------------------------------------------------------
00581> *#*********************************************************************
00582>  ------------------------
00583> | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00584>  ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00585>                        ID1 01:5a          2.21     .132    1.30  16.53    .000
00586>                       +ID2 02:5c         13.39     .133    1.85   7.09    .000
00587>                        ========================================================
00588>                        SUM 05:C5_out      15.60     .256    1.32   8.43    .000
00589>
00590>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00591>
00592> ---------------------------------------------------------------------------
00593> 002:0022----------------------------------------------------------------------
00594> *#*********************************************************************
00595>  ---------------------
00596> | CALIB STANDHYD     |   Area    (ha)=    2.19
00597> | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
00598>  ---------------------
00599>                              IMPERVIOUS    PERVIOUS (i)
00600>      Surface Area     (ha)=       1.42          .77
00601>      Dep. Storage     (mm)=       2.00         5.00
00602>      Average Slope     (%)=        .50          .50
00603>      Length            (m)=     285.00        40.00
00604>      Mannings n            =       .025         .250
00605>
00606>      Max.eff.Inten.(mm/hr)=      70.99         4.95
00607>                 over (min)       10.00        46.00
00608>      Storage Coeff.  (min)=      10.01 (ii)   45.62 (ii)
00609>      Unit Hyd. Tpeak (min)=      10.00        46.00
00610>      Unit Hyd. peak  (cms)=        .11          .02
00611>                                                          *TOTALS*
00612>      PEAK FLOW       (cms)=        .14          .01          .137 (iii)
00613>      TIME TO PEAK    (hrs)=       1.30         2.05         1.300
00614>      RUNOFF VOLUME    (mm)=      30.71         3.51        16.021
00615>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00616>      RUNOFF COEFFICIENT   =        .94          .11          .490
00617>
00618>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00619>            CN* =  43.0    Ia = Dep. Storage  (Above)
00620>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00621>            THAN THE STORAGE COEFFICIENT.
00622>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00623>
00624> ---------------------------------------------------------------------------
00625> 002:0023----------------------------------------------------------------------
00626> *#*********************************************************************
00627>  ---------------------
00628> | CALIB STANDHYD     |   Area    (ha)=    9.59
00629> | 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
00630>  ---------------------
00631>                              IMPERVIOUS    PERVIOUS (i)
00632>      Surface Area     (ha)=       4.80         4.80
00633>      Dep. Storage     (mm)=       2.00         5.00
00634>      Average Slope     (%)=        .80         2.00
00635>      Length            (m)=     400.00        40.00
00636>      Mannings n            =       .013         .250
00637>
00638>      Max.eff.Inten.(mm/hr)=      83.12         5.15
00639>                 over (min)        7.00        30.00
00640>      Storage Coeff.  (min)=       6.76 (ii)   29.87 (ii)
00641>      Unit Hyd. Tpeak (min)=       7.00        30.00
00642>      Unit Hyd. peak  (cms)=        .17          .04
00643>                                                          *TOTALS*
00644>      PEAK FLOW       (cms)=        .63          .04          .633 (iii)
00645>      TIME TO PEAK    (hrs)=       1.25         1.75         1.250
00646>      RUNOFF VOLUME    (mm)=      30.71         3.64        14.468
00647>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00648>      RUNOFF COEFFICIENT   =        .94          .11          .442
00649>
00650>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00651>            CN* =  52.0    Ia = Dep. Storage  (Above)
00652>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00653>            THAN THE STORAGE COEFFICIENT.
00654>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00655>
00656> ---------------------------------------------------------------------------
00657> 002:0024----------------------------------------------------------------------
00658> *#*********************************************************************
00659>  ------------------------
00660> | ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00661>  ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00662>                        ID1 01:6a          2.19     .137    1.30  16.02    .000
00663>                       +ID2 02:6c          9.59     .633    1.25  14.47    .000
00664>                        ========================================================
00665>                        SUM 06:C6_out      11.78     .758    1.25  14.76    .000
00666>
00667>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00668>
00669> ---------------------------------------------------------------------------
00670> 002:0025----------------------------------------------------------------------
00671> *#*********************************************************************
00672>  ------------------------
00673> | ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00674>  ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00675>                        ID1 07:C1_out      38.63    3.099    1.32  21.61    .000
00676>                       +ID2 08:C2_out       4.62     .581    1.20  20.27    .000
00677>                       +ID3 09:C3_out     199.56    5.083    1.32  14.08    .000
00678>                       +ID4 04:C4_out      48.33    1.208    1.43  11.07    .000
00679>                       +ID5 05:C5_out      15.60     .256    1.32   8.43    .000
00680>                       +ID6 06:C6_out      11.78     .758    1.25  14.76    .000
00681>                       +ID7 10:2b            .59     .044    1.22  16.36    .000
00682>                        ========================================================
00683>                        SUM 03:GRCA       319.11   10.484    1.32  14.38    .000
00684>
00685>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00686>
00687> ---------------------------------------------------------------------------
00688> 002:0026----------------------------------------------------------------------
00689> *#*********************************************************************
00690>  ---------------------
00691> | CALIB STANDHYD     |   Area    (ha)=     .46
00692> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
00693>  ---------------------
00694>                              IMPERVIOUS    PERVIOUS (i)
00695>      Surface Area     (ha)=        .25          .21
00696>      Dep. Storage     (mm)=       2.00         5.00
00697>      Average Slope     (%)=        .40          .40
00698>      Length            (m)=      70.00        40.00
00699>      Mannings n            =       .025         .250
00700>
00701>      Max.eff.Inten.(mm/hr)=      99.29         3.07
00702>                 over (min)        4.00        50.00
00703>      Storage Coeff.  (min)=       4.03 (ii)   50.13 (ii)
00704>      Unit Hyd. Tpeak (min)=       4.00        50.00
00705>      Unit Hyd. peak  (cms)=        .28          .02
00706>                                                          *TOTALS*
00707>      PEAK FLOW       (cms)=        .04          .00          .037 (iii)
00708>      TIME TO PEAK    (hrs)=       1.20         2.13         1.200
00709>      RUNOFF VOLUME    (mm)=      30.71         2.62        13.573
00710>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00711>      RUNOFF COEFFICIENT   =        .94          .08          .415
00712>
00713>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00714>            CN* =  39.0    Ia = Dep. Storage  (Above)
00715>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00716>            THAN THE STORAGE COEFFICIENT.
00717>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00718>
00719> ---------------------------------------------------------------------------
00720> 002:0027----------------------------------------------------------------------
00721> *#*********************************************************************
00722>  ---------------------
00723> | CALIB STANDHYD     |   Area    (ha)=     .87
00724> | 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
00725>  ---------------------
00726>                              IMPERVIOUS    PERVIOUS (i)
00727>      Surface Area     (ha)=        .35          .52
00728>      Dep. Storage     (mm)=       2.00         5.00
00729>      Average Slope     (%)=       1.90          .50
00730>      Length            (m)=      80.00       110.00
00731>      Mannings n            =       .013         .250
00732>
00733>      Max.eff.Inten.(mm/hr)=      99.29         7.66
00734>                 over (min)        2.00        57.00
00735>      Storage Coeff.  (min)=       1.85 (ii)   56.69 (ii)
00736>      Unit Hyd. Tpeak (min)=       2.00        57.00
00737>      Unit Hyd. peak  (cms)=        .59          .02
00738>                                                          *TOTALS*
00739>      PEAK FLOW       (cms)=        .07          .00          .072 (iii)
00740>      TIME TO PEAK    (hrs)=       1.17         2.28         1.167
00741>      RUNOFF VOLUME    (mm)=      30.71         2.11        11.266
00742>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00743>      RUNOFF COEFFICIENT   =        .94          .06          .344
00744>
00745>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00746>            CN* =  39.0    Ia = Dep. Storage  (Above)
00747>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00748>            THAN THE STORAGE COEFFICIENT.
00749>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00750>
00751> ---------------------------------------------------------------------------
00752> 002:0028----------------------------------------------------------------------
00753> *#*********************************************************************
00754>  ------------------------
00755> | ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00756>  ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00757>                        ID1 01:7a           .46     .037    1.20  13.57    .000
00758>                       +ID2 02:7c           .87     .072    1.17  11.27    .000
00759>                        ========================================================
00760>                        SUM 07:C7_out       1.33     .106    1.17  12.06    .000
00761>
00762>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00763>
00764> ---------------------------------------------------------------------------
00765> 002:0029----------------------------------------------------------------------
00766> *#*********************************************************************
00767>  ---------------------
00768> | CALIB STANDHYD     |   Area    (ha)=     .71
00769> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00770>  ---------------------
00771>                              IMPERVIOUS    PERVIOUS (i)
00772>      Surface Area     (ha)=        .43          .28
00773>      Dep. Storage     (mm)=       2.00         5.00
00774>      Average Slope     (%)=       1.70         1.70
00775>      Length            (m)=     110.00        40.00
00776>      Mannings n            =       .025         .250
00777>
00778>      Max.eff.Inten.(mm/hr)=      99.29        10.58
00779>                 over (min)        3.00        22.00
00780>      Storage Coeff.  (min)=       3.43 (ii)   21.62 (ii)
00781>      Unit Hyd. Tpeak (min)=       3.00        22.00
00782>      Unit Hyd. peak  (cms)=        .34          .05
00783>                                                          *TOTALS*
00784>      PEAK FLOW       (cms)=        .07          .00          .066 (iii)
00785>      TIME TO PEAK    (hrs)=       1.18         1.58         1.183
00786>      RUNOFF VOLUME    (mm)=      30.71         5.13        15.875
00787>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00788>      RUNOFF COEFFICIENT   =        .94          .16          .485
00789>
00790>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00791>            CN* =  56.0    Ia = Dep. Storage  (Above)
00792>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00793>            THAN THE STORAGE COEFFICIENT.
00794>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00795>
00796> ---------------------------------------------------------------------------
00797> 002:0030----------------------------------------------------------------------
00798> *#*********************************************************************
00799>  ---------------------
00800> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
00801> | 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00802>  ---------------------  U.H. Tp(hrs)=    .330
00803>
00804>      Unit Hyd Qpeak  (cms)=     .132
00805>
00806>      PEAK FLOW       (cms)=     .014 (i)
00807>      TIME TO PEAK    (hrs)=    1.633
00808>      RUNOFF VOLUME    (mm)=    5.067
00809>      TOTAL RAINFALL   (mm)=   32.713
00810>      RUNOFF COEFFICIENT   =     .155
```

```
00811>
00812>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00813>
00814> ------------------------------------------------------------------------------
00815> 002:0031------------------------------------------------------------------------
00816> *#**************************************************************************
00817> ------------------------
00818> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00819> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00820>                       ID1 01:8a           .71     .066    1.18  15.88    .000
00821>                      +ID2 02:8c          1.14     .014    1.63   5.07    .000
00822>                       ========================================================
00823>                       SUM 08:C8_out       1.85     .067    1.18   9.21    .000
00824>
00825>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00826>
00827> ------------------------------------------------------------------------------
00828> 002:0032------------------------------------------------------------------------
00829> *#**************************************************************************
00830> ----------------------
00831> | CALIB STANDHYD     |   Area    (ha)=    1.42
00832> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
00833> ----------------------
00834>                              IMPERVIOUS    PERVIOUS (i)
00835>      Surface Area     (ha)=        .82          .60
00836>      Dep. Storage     (mm)=       2.00         5.00
00837>      Average Slope     (%)=       2.90         2.90
00838>      Length            (m)=     170.00        40.00
00839>      Mannings n            =       .025         .250
00840>
00841>      Max.eff.Inten.(mm/hr)=      99.29        11.13
00842>                    over (min)        4.00        19.00
00843>      Storage Coeff.  (min)=       3.79 (ii)   18.98 (ii)
00844>      Unit Hyd. Tpeak (min)=       4.00        19.00
00845>      Unit Hyd. peak  (cms)=        .29          .06
00846>                                                          *TOTALS*
00847>      PEAK FLOW       (cms)=        .12          .01          .123 (iii)
00848>      TIME TO PEAK    (hrs)=       1.20         1.53         1.200
00849>      RUNOFF VOLUME    (mm)=      30.71         5.13        15.621
00850>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00851>      RUNOFF COEFFICIENT   =        .94          .16          .478
00852>
00853>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00854>            CN* =  57.0    Ia = Dep. Storage  (Above)
00855>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00856>            THAN THE STORAGE COEFFICIENT.
00857>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00858>
00859> ------------------------------------------------------------------------------
00860> 002:0033------------------------------------------------------------------------
00861> *#**************************************************************************
00862> ----------------------
00863> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
00864> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
00865> ----------------------  U.H. Tp(hrs)=   1.580
00866>
00867>      Unit Hyd Qpeak  (cms)=    2.320
00868>
00869>      PEAK FLOW       (cms)=     .414 (i)
00870>      TIME TO PEAK    (hrs)=    3.333
00871>      RUNOFF VOLUME    (mm)=    5.107
00872>      TOTAL RAINFALL   (mm)=   32.713
00873>      RUNOFF COEFFICIENT   =     .156
00874>
00875>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00876>
00877> ------------------------------------------------------------------------------
00878> 002:0034------------------------------------------------------------------------
00879> *#**************************************************************************
00880> ------------------------
00881> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00882> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00883>                       ID1 01:9a           1.42     .123    1.20  15.62    .000
00884>                      +ID2 02:9c          95.98     .414    3.33   5.11    .000
00885>                      +ID3 07:C7_out       1.33     .106    1.17  12.06    .000
00886>                      +ID4 08:C8_out       1.85     .067    1.18   9.21    .000
00887>                       ========================================================
00888>                       SUM 09:C9_out      100.58     .421    3.28   5.42    .000
00889>
00890>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00891>
00892> ------------------------------------------------------------------------------
00893> 002:0035------------------------------------------------------------------------
00894> *#**************************************************************************
00895> ----------------------
00896> | CALIB STANDHYD     |   Area    (ha)=    3.74
00897> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00898> ----------------------
00899>                              IMPERVIOUS    PERVIOUS (i)
00900>      Surface Area     (ha)=       2.24         1.50
00901>      Dep. Storage     (mm)=       2.00         5.00
00902>      Average Slope     (%)=       1.30         1.30
00903>      Length            (m)=     385.00        40.00
00904>      Mannings n            =       .025         .250
00905>
00906>      Max.eff.Inten.(mm/hr)=      74.14         7.57
00907>                    over (min)        9.00        31.00
00908>      Storage Coeff.  (min)=       8.85 (ii)   31.40 (ii)
00909>      Unit Hyd. Tpeak (min)=       9.00        31.00
00910>      Unit Hyd. peak  (cms)=        .13          .04
00911>                                                          *TOTALS*
00912>      PEAK FLOW       (cms)=        .23          .02          .230 (iii)
00913>      TIME TO PEAK    (hrs)=       1.28         1.75         1.283
00914>      RUNOFF VOLUME    (mm)=      30.71         4.48        15.500
00915>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00916>      RUNOFF COEFFICIENT   =        .94          .14          .474
00917>
00918>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00919>            CN* =  52.0    Ia = Dep. Storage  (Above)
00920>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00921>            THAN THE STORAGE COEFFICIENT.
00922>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00923>
00924> ------------------------------------------------------------------------------
00925> 002:0036------------------------------------------------------------------------
00926> *#**************************************************************************
00927> ----------------------
00928> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
00929> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
00930> ----------------------  U.H. Tp(hrs)=   1.280
00931>
00932>      Unit Hyd Qpeak  (cms)=    3.260
00933>
00934>      PEAK FLOW       (cms)=     .568 (i)
00935>      TIME TO PEAK    (hrs)=    3.017
00936>      RUNOFF VOLUME    (mm)=    5.311
00937>      TOTAL RAINFALL   (mm)=   32.713
00938>      RUNOFF COEFFICIENT   =     .162
00939>
00940>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00941>
00942> ------------------------------------------------------------------------------
00943> 002:0037------------------------------------------------------------------------
00944> *#**************************************************************************
00945> ------------------------
00946> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00947> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00948>                       ID1 01:10a          3.74     .230    1.28  15.50    .000
00949>                      +ID2 02:10c        109.26     .568    3.02   5.31    .000
00950>                       ========================================================
00951>                       SUM 10:C10_out     113.00     .588    2.98   5.65    .000
00952>
00953>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00954>
00955> ------------------------------------------------------------------------------
00956> 002:0038------------------------------------------------------------------------
00957> *#**************************************************************************
00958> ------------------------
00959> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00960> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00961>                       ID1 09:C9_out      100.58     .421    3.28   5.42    .000
00962>                      +ID2 10:C10_out     113.00     .588    2.98   5.65    .000
00963>                       ========================================================
00964>                       SUM 05:HCA         213.58    1.007    3.02   5.54    .000
00965>
00966>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00967>
00968> ------------------------------------------------------------------------------
00969> 002:0039------------------------------------------------------------------------
00970> *#**************************************************************************
00971> ------------------------
00972> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00973> ------------------------                 (ha)     (cms)   (hrs)   (mm)    (cms)
00974>                       ID1 03:GRCA        319.11   10.484    1.32  14.38    .000
00975>                      +ID2 05:HCA         213.58    1.007    3.02   5.54    .000
00976>                       ========================================================
00977>                       SUM 06:All_F       532.69   10.890    1.32  10.83    .000
00978>
00979>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00980>
00981> ------------------------------------------------------------------------------
00982> 002:0040------------------------------------------------------------------------
00983> *#**************************************************************************
00984>   ** END OF RUN :   4
00985>
00986> ****************************************************************************
00987>
00988>
00989>
00990>
00991>
00992> --------------------
00993> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12~~1\
00994> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12~~1\
00995>     TZERO =   .00 hrs on        0
00996>     METOUT=   2 (output = METRIC)
00997>     NRUN  = 005
00998>     NSTORM=   1
00999>               #  1=H5SCS.6h
01000> ------------------------------------------------------------------------------
01001> 005:0002------------------------------------------------------------------------
01002> *#**************************************************************************
01003> *#  Project Name: Garner Rd. MCEA
01004> *#  Date       : December 12, 2024
01005> *#  Company    : Stantec Consulting Ltd. (Waterloo)
01006> *#  Modeller   : Amy Kyle
01007> *#  License #  :  4730904
01008> *#**************************************************************************
01009> *#
01010> *#
01011> *#
01012> *#**************************************************************************
01013> ------------------------------------------------------------------------------
01014> 005:0002------------------------------------------------------------------------
01015> --------------------
01016> | READ STORM       |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01017> | Ptotal=  56.50 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01018> --------------------
01019>              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
01020>               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
01021>               .17   2.260 |   1.67   5.650 |   3.17  12.430 |   4.67   3.390
01022>               .33   2.260 |   1.83   5.650 |   3.33  12.430 |   4.83   3.390
01023>               .50   2.260 |   2.00   5.650 |   3.50  12.430 |   5.00   3.390
01024>               .67   3.390 |   2.17   6.780 |   3.67   5.650 |   5.17   2.260
01025>               .83   3.390 |   2.33   6.780 |   3.83   5.650 |   5.33   2.260
01026>              1.00   3.390 |   2.50   6.780 |   4.00   5.650 |   5.50   2.260
01027>              1.17   3.390 |   2.67  33.900 |   4.17   4.520 |   5.67   2.260
01028>              1.33   3.390 |   2.83  61.020 |   4.33   4.520 |   5.83   2.260
01029>              1.50   3.390 |   3.00  88.140 |   4.50   4.520 |   6.00   2.260
01030>
01031> ------------------------------------------------------------------------------
01032> 005:0003------------------------------------------------------------------------
01033> *#**************************************************************************
01034> *#  PROPOSED CATCHMENTS (UNCONTROLLED)
01035> *#**************************************************************************
01036> ----------------------
01037> | CALIB STANDHYD     |   Area    (ha)=    1.94
01038> | 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01039> ----------------------
01040>                              IMPERVIOUS    PERVIOUS (i)
01041>      Surface Area     (ha)=       1.16          .78
01042>      Dep. Storage     (mm)=       2.00         5.00
01043>      Average Slope     (%)=       1.10         1.10
01044>      Length            (m)=     440.00        40.00
01045>      Mannings n            =       .025         .250
01046>
01047>      Max.eff.Inten.(mm/hr)=      88.14        42.54
01048>                    over (min)        9.00        21.00
01049>      Storage Coeff.  (min)=       9.40 (ii)   21.29 (ii)
01050>      Unit Hyd. Tpeak (min)=       9.00        21.00
01051>      Unit Hyd. peak  (cms)=        .12          .05
01052>                                                          *TOTALS*
01053>      PEAK FLOW       (cms)=        .15          .06          .192 (iii)
01054>      TIME TO PEAK    (hrs)=       3.05         3.27         3.067
01055>      RUNOFF VOLUME    (mm)=      54.50        20.77        34.939
01056>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01057>      RUNOFF COEFFICIENT   =        .96          .37          .618
01058>
01059>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01060>            CN* =  68.0    Ia = Dep. Storage  (Above)
01061>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01062>            THAN THE STORAGE COEFFICIENT.
01063>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01064>
01065> ------------------------------------------------------------------------------
01066> 005:0004------------------------------------------------------------------------
01067> *#**************************************************************************
01068> ----------------------
01069> | CALIB STANDHYD     |   Area    (ha)=     .96
01070> | 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
01071> ----------------------
01072>                              IMPERVIOUS    PERVIOUS (i)
01073>      Surface Area     (ha)=        .62          .34
01074>      Dep. Storage     (mm)=       2.00         5.00
01075>      Average Slope     (%)=       2.20         2.20
01076>      Length            (m)=      80.00        40.00
01077>      Mannings n            =       .025         .250
01078>
01079>      Max.eff.Inten.(mm/hr)=      88.14        63.32
01080>                    over (min)        3.00        11.00
```

```
01081>      Storage Coeff.  (min)=       2.75 (ii)   10.98 (ii)
01082>      Unit Hyd. Tpeak (min)=       3.00        11.00
01083>      Unit Hyd. peak  (cms)=        .40          .10
01084>                                                          *TOTALS*
01085>      PEAK FLOW       (cms)=        .11          .04          .139 (iii)
01086>      TIME TO PEAK    (hrs)=       3.00         3.10         3.000
01087>      RUNOFF VOLUME    (mm)=      54.50        21.70        36.787
01088>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01089>      RUNOFF COEFFICIENT   =        .96          .38          .651
01090>
01091>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01092>            CN* =  68.0    Ia = Dep. Storage  (Above)
01093>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01094>            THAN THE STORAGE COEFFICIENT.
01095>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01096>
01097> ------------------------------------------------------------------------------
01098> 005:0005-----------------------------------------------------------------------
01099> *#*****************************************************************************
01100> ----------------------
01101> | CALIB NASHYD      |   Area    (ha)=     .73   Curve Number    (CN)=73.00
01102> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
01103> ----------------------  U.H. Tp(hrs)=    .220
01104>
01105>      Unit Hyd Qpeak  (cms)=     .127
01106>
01107>      PEAK FLOW       (cms)=     .040 (i)
01108>      TIME TO PEAK    (hrs)=    3.133
01109>      RUNOFF VOLUME    (mm)=   17.655
01110>      TOTAL RAINFALL   (mm)=   56.500
01111>      RUNOFF COEFFICIENT   =     .312
01112>
01113>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01114>
01115> ------------------------------------------------------------------------------
01116> 005:0006-----------------------------------------------------------------------
01117> *#*****************************************************************************
01118> ----------------------
01119> | CALIB STANDHYD     |   Area    (ha)=   35.00
01120> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01121> ----------------------
01122>                                 IMPERVIOUS    PERVIOUS (i)
01123>      Surface Area     (ha)=      28.00         7.00
01124>      Dep. Storage     (mm)=       2.00         5.00
01125>      Average Slope     (%)=       1.40         2.00
01126>      Length            (m)=    1100.00        30.00
01127>      Mannings n            =       .013         .250
01128>
01129>      Max.eff.Inten.(mm/hr)=      88.14        53.61
01130>                   over (min)       10.00        18.00
01131>      Storage Coeff.  (min)=      10.24 (ii)   17.86 (ii)
01132>      Unit Hyd. Tpeak (min)=      10.00        18.00
01133>      Unit Hyd. peak  (cms)=        .11          .06
01134>                                                          *TOTALS*
01135>      PEAK FLOW       (cms)=       4.08          .64         4.590 (iii)
01136>      TIME TO PEAK    (hrs)=       3.05         3.20         3.067
01137>      RUNOFF VOLUME    (mm)=      54.50        19.53        41.910
01138>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01139>      RUNOFF COEFFICIENT   =        .96          .35          .742
01140>
01141>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01142>            CN* =  60.0    Ia = Dep. Storage  (Above)
01143>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01144>            THAN THE STORAGE COEFFICIENT.
01145>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01146>
01147> ------------------------------------------------------------------------------
01148> 005:0007-----------------------------------------------------------------------
01149> *#*****************************************************************************
01150> ------------------------
01151> | ADD HYD (C1_cul    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01152> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01153>                      ID1 01:1a             1.94      .192    3.07  34.94    .000
01154>                     +ID2 03:1c              .73      .040    3.13  17.66    .000
01155>                      ========================================================
01156>                      SUM 05:C1_cul         2.67      .230    3.07  30.21    .000
01157>
01158>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01159>
01160> ------------------------------------------------------------------------------
01161> 005:0008-----------------------------------------------------------------------
01162> *#*****************************************************************************
01163> ------------------------
01164> | ADD HYD (C1_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01165> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01166>                      ID1 02:1b              .96      .139    3.00  36.79    .000
01167>                     +ID2 04:1d            35.00    4.590    3.07  41.91    .000
01168>                     +ID3 05:C1_cul         2.67      .230    3.07  30.21    .000
01169>                      ========================================================
01170>                      SUM 07:C1_out         38.63    4.908    3.07  40.97    .000
01171>
01172>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01173>
01174> ------------------------------------------------------------------------------
01175> 005:0009-----------------------------------------------------------------------
01176> *#*****************************************************************************
01177> ----------------------
01178> | CALIB STANDHYD     |   Area    (ha)=     .59
01179> | 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
01180> ----------------------
01181>                                 IMPERVIOUS    PERVIOUS (i)
01182>      Surface Area     (ha)=        .32          .27
01183>      Dep. Storage     (mm)=       2.00         5.00
01184>      Average Slope     (%)=       1.60         1.60
01185>      Length            (m)=     210.00        40.00
01186>      Mannings n            =       .025         .250
01187>
01188>      Max.eff.Inten.(mm/hr)=      88.14        43.41
01189>                   over (min)        5.00        16.00
01190>      Storage Coeff.  (min)=       5.39 (ii)   15.93 (ii)
01191>      Unit Hyd. Tpeak (min)=       5.00        16.00
01192>      Unit Hyd. peak  (cms)=        .21          .07
01193>                                                          *TOTALS*
01194>      PEAK FLOW       (cms)=        .05          .02          .066 (iii)
01195>      TIME TO PEAK    (hrs)=       3.00         3.17         3.017
01196>      RUNOFF VOLUME    (mm)=      54.50        19.78        33.322
01197>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01198>      RUNOFF COEFFICIENT   =        .96          .35          .590
01199>
01200>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01201>            CN* =  68.0    Ia = Dep. Storage  (Above)
01202>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01203>            THAN THE STORAGE COEFFICIENT.
01204>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01205>
01206> ------------------------------------------------------------------------------
01207> 005:0010-----------------------------------------------------------------------
01208> *#*****************************************************************************
01209> ----------------------
01210> | CALIB STANDHYD     |   Area    (ha)=    1.18
01211> | 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
01212> ----------------------
01213>                                 IMPERVIOUS    PERVIOUS (i)
01214>      Surface Area     (ha)=        .77          .41
01215>      Dep. Storage     (mm)=       2.00         5.00
01216>      Average Slope     (%)=       3.40         3.40
01217>      Length            (m)=     235.00        40.00
01218>      Mannings n            =       .025         .250
01219>
01220>      Max.eff.Inten.(mm/hr)=      88.14        33.81
01221>                   over (min)        5.00        14.00
01222>      Storage Coeff.  (min)=       4.60 (ii)   13.89 (ii)
01223>      Unit Hyd. Tpeak (min)=       5.00        14.00
01224>      Unit Hyd. peak  (cms)=        .24          .08
01225>                                                          *TOTALS*
01226>      PEAK FLOW       (cms)=        .12          .02          .142 (iii)
01227>      TIME TO PEAK    (hrs)=       3.00         3.15         3.000
01228>      RUNOFF VOLUME    (mm)=      54.50        13.02        32.100
01229>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01230>      RUNOFF COEFFICIENT   =        .96          .23          .568
01231>
01232>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01233>            CN* =  50.0    Ia = Dep. Storage  (Above)
01234>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01235>            THAN THE STORAGE COEFFICIENT.
01236>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01237>
01238> ------------------------------------------------------------------------------
01239> 005:0011-----------------------------------------------------------------------
01240> *#*****************************************************************************
01241> ----------------------
01242> | CALIB STANDHYD     |   Area    (ha)=    3.44
01243> | 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01244> ----------------------
01245>                                 IMPERVIOUS    PERVIOUS (i)
01246>      Surface Area     (ha)=       2.75          .69
01247>      Dep. Storage     (mm)=       2.00         5.00
01248>      Average Slope     (%)=       3.10         2.00
01249>      Length            (m)=     320.00        10.00
01250>      Mannings n            =       .013         .250
01251>
01252>      Max.eff.Inten.(mm/hr)=      88.14        53.83
01253>                   over (min)        4.00         8.00
01254>      Storage Coeff.  (min)=       3.85 (ii)    7.78 (ii)
01255>      Unit Hyd. Tpeak (min)=       4.00         8.00
01256>      Unit Hyd. peak  (cms)=        .29          .14
01257>                                                          *TOTALS*
01258>      PEAK FLOW       (cms)=        .52          .07          .585 (iii)
01259>      TIME TO PEAK    (hrs)=       3.00         3.05         3.000
01260>      RUNOFF VOLUME    (mm)=      54.50        14.81        40.213
01261>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01262>      RUNOFF COEFFICIENT   =        .96          .26          .712
01263>
01264>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01265>            CN* =  50.0    Ia = Dep. Storage  (Above)
01266>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01267>            THAN THE STORAGE COEFFICIENT.
01268>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01269>
01270> ------------------------------------------------------------------------------
01271> 005:0012-----------------------------------------------------------------------
01272> *#*****************************************************************************
01273> ------------------------
01274> | ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01275> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01276>                      ID1 01:2a             1.18      .142    3.00  32.10    .000
01277>                     +ID2 02:2c             3.44      .585    3.00  40.21    .000
01278>                      ========================================================
01279>                      SUM 08:C2_out         4.62      .727    3.00  38.14    .000
01280>
01281>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01282>
01283> ------------------------------------------------------------------------------
01284> 005:0013-----------------------------------------------------------------------
01285> *#*****************************************************************************
01286> ----------------------
01287> | CALIB STANDHYD     |   Area    (ha)=    2.38
01288> | 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01289> ----------------------
01290>                                 IMPERVIOUS    PERVIOUS (i)
01291>      Surface Area     (ha)=       1.43          .95
01292>      Dep. Storage     (mm)=       2.00         5.00
01293>      Average Slope     (%)=       2.50         2.50
01294>      Length            (m)=     320.00        40.00
01295>      Mannings n            =       .025         .250
01296>
01297>      Max.eff.Inten.(mm/hr)=      88.14        38.50
01298>                   over (min)        6.00        16.00
01299>      Storage Coeff.  (min)=       6.07 (ii)   15.74 (ii)
01300>      Unit Hyd. Tpeak (min)=       6.00        16.00
01301>      Unit Hyd. peak  (cms)=        .19          .07
01302>                                                          *TOTALS*
01303>      PEAK FLOW       (cms)=        .22          .06          .262 (iii)
01304>      TIME TO PEAK    (hrs)=       3.02         3.18         3.017
01305>      RUNOFF VOLUME    (mm)=      54.50        16.57        32.502
01306>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01307>      RUNOFF COEFFICIENT   =        .96          .29          .575
01308>
01309>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01310>            CN* =  60.0    Ia = Dep. Storage  (Above)
01311>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01312>            THAN THE STORAGE COEFFICIENT.
01313>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01314>
01315> ------------------------------------------------------------------------------
01316> 005:0014-----------------------------------------------------------------------
01317> *#*****************************************************************************
01318> ----------------------
01319> | CALIB STANDHYD     |   Area    (ha)=  197.18
01320> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
01321> ----------------------
01322>                                 IMPERVIOUS    PERVIOUS (i)
01323>      Surface Area     (ha)=      78.87        118.31
01324>      Dep. Storage     (mm)=       2.00         5.00
01325>      Average Slope     (%)=        .50         2.00
01326>      Length            (m)=    2750.00        40.00
01327>      Mannings n            =       .020         .250
01328>
01329>      Max.eff.Inten.(mm/hr)=      49.81        15.16
01330>                   over (min)       39.00        54.00
01331>      Storage Coeff.  (min)=      39.32 (ii)   54.33 (ii)
01332>      Unit Hyd. Tpeak (min)=      39.00        54.00
01333>      Unit Hyd. peak  (cms)=        .03          .02
01334>                                                          *TOTALS*
01335>      PEAK FLOW       (cms)=       5.41         2.96         7.813 (iii)
01336>      TIME TO PEAK    (hrs)=       3.52         3.83         3.600
01337>      RUNOFF VOLUME    (mm)=      54.49        17.75        29.516
01338>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01339>      RUNOFF COEFFICIENT   =        .96          .31          .522
01340>
01341>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01342>            CN* =  69.0    Ia = Dep. Storage  (Above)
01343>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01344>            THAN THE STORAGE COEFFICIENT.
01345>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01346>
01347> ------------------------------------------------------------------------------
01348> 005:0015-----------------------------------------------------------------------
01349> *#*****************************************************************************
01350> ------------------------
```

```
| ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                                          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:3a            2.38     .262    3.02  32.50    .000
                     +ID2 02:3c          197.18    7.813    3.60  29.52    .000
                      ==========================================================
                      SUM 09:C3_out       199.56    7.873    3.58  29.55    .000

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

```
005:0016
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16         .78
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=       1.30        1.30
     Length            (m)=     280.00       40.00
     Mannings n           =       .025        .250

     Max.eff.Inten.(mm/hr)=      88.14       43.63
                 over (min)       7.00       18.00
     Storage Coeff.  (min)=       6.82 (ii)  18.01 (ii)
     Unit Hyd. Tpeak (min)=       7.00       18.00
     Unit Hyd. peak  (cms)=        .16         .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .17         .06        .211 (iii)
     TIME TO PEAK    (hrs)=       3.02        3.22       3.033
     RUNOFF VOLUME    (mm)=      54.50       19.64      34.282
     TOTAL RAINFALL   (mm)=      56.50       56.50      56.500
     RUNOFF COEFFICIENT   =        .96         .35        .607

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0017
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.92       32.47
     Dep. Storage     (mm)=       2.00        7.00
     Average Slope     (%)=       1.00        2.00
     Length            (m)=    1700.00       60.00
     Mannings n           =       .013        .250

     Max.eff.Inten.(mm/hr)=      79.10       14.97
                 over (min)      15.00       35.00
     Storage Coeff.  (min)=      15.36 (ii)  34.60 (ii)
     Unit Hyd. Tpeak (min)=      15.00       35.00
     Unit Hyd. peak  (cms)=        .07         .03
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.68         .84       2.127 (iii)
     TIME TO PEAK    (hrs)=       3.12        3.52       3.167
     RUNOFF VOLUME    (mm)=      54.49       14.23      23.897
     TOTAL RAINFALL   (mm)=      56.50       56.50      56.500
     RUNOFF COEFFICIENT   =        .96         .25        .423

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0018
*#*************************************************************************
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                                          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:4a            1.94     .211    3.03  34.28    .000
                     +ID2 02:4c           46.39    2.127    3.17  23.90    .000
                      ==========================================================
                      SUM 04:C4_out       48.33    2.277    3.15  24.31    .000

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

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005:0019
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.33         .88
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=       2.00        2.00
     Length            (m)=     540.00       40.00
     Mannings n           =       .025        .250

     Max.eff.Inten.(mm/hr)=      88.14       37.71
                 over (min)       9.00       19.00
     Storage Coeff.  (min)=       8.89 (ii)  19.31 (ii)
     Unit Hyd. Tpeak (min)=       9.00       19.00
     Unit Hyd. peak  (cms)=        .13         .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .18         .06        .219 (iii)
     TIME TO PEAK    (hrs)=       3.03        3.23       3.067
     RUNOFF VOLUME    (mm)=      54.50       17.54      33.066
     TOTAL RAINFALL   (mm)=      56.50       56.50      56.500
     RUNOFF COEFFICIENT   =        .96         .31        .585

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0020
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=   13.39
| 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.35        10.04
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.60         2.00
     Length            (m)=     575.00        75.00
     Mannings n           =       .025         .250

     Max.eff.Inten.(mm/hr)=      88.14        22.11
                 over (min)      10.00        29.00
     Storage Coeff.  (min)=       9.87 (ii)   28.69 (ii)
     Unit Hyd. Tpeak (min)=      10.00        29.00
     Unit Hyd. peak  (cms)=        .11          .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .15          .39        .437 (iii)
     TIME TO PEAK    (hrs)=       3.05         3.40       3.367
     RUNOFF VOLUME    (mm)=      54.50        16.07      18.380
     TOTAL RAINFALL   (mm)=      56.50        56.50      56.500
     RUNOFF COEFFICIENT   =        .96          .28        .325

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0021
*#*************************************************************************
| ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                                          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:5a            2.21     .219    3.07  33.07    .000
                     +ID2 02:5c           13.39     .437    3.37  18.38    .000
                      ==========================================================
                      SUM 05:C5_out       15.60     .587    3.12  20.46    .000

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

```
005:0022
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.42         .77
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=        .50         .50
     Length            (m)=     285.00       40.00
     Mannings n           =       .025        .250

     Max.eff.Inten.(mm/hr)=      88.14       16.52
                 over (min)       9.00       31.00
     Storage Coeff.  (min)=       9.18 (ii)  31.16 (ii)
     Unit Hyd. Tpeak (min)=       9.00       31.00
     Unit Hyd. peak  (cms)=        .12         .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .19         .02        .201 (iii)
     TIME TO PEAK    (hrs)=       3.05        3.45       3.050
     RUNOFF VOLUME    (mm)=      54.50       10.45      30.712
     TOTAL RAINFALL   (mm)=      56.50       56.50      56.500
     RUNOFF COEFFICIENT   =        .96         .18        .544

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  43.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0023
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80        4.80
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=        .80        2.00
     Length            (m)=     400.00       40.00
     Mannings n           =       .013        .250

     Max.eff.Inten.(mm/hr)=      88.14       18.03
                 over (min)       7.00       21.00
     Storage Coeff.  (min)=       6.60 (ii)  20.61 (ii)
     Unit Hyd. Tpeak (min)=       7.00       21.00
     Unit Hyd. peak  (cms)=        .17         .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .81         .15        .892 (iii)
     TIME TO PEAK    (hrs)=       3.02        3.27       3.033
     RUNOFF VOLUME    (mm)=      54.50       11.05      28.434
     TOTAL RAINFALL   (mm)=      56.50       56.50      56.500
     RUNOFF COEFFICIENT   =        .96         .20        .503

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
005:0024
*#*************************************************************************
| ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                                          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:6a            2.19     .201    3.05  30.71    .000
                     +ID2 02:6c            9.59     .892    3.03  28.43    .000
                      ==========================================================
                      SUM 06:C6_out       11.78    1.093    3.03  28.86    .000

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

```
005:0025
*#*************************************************************************
| ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
                                          (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 07:C1_out       38.63    4.908    3.07  40.97    .000
                     +ID2 08:C2_out        4.62     .727    3.00  38.14    .000
                     +ID3 09:C3_out      199.56    7.873    3.58  29.55    .000
                     +ID4 04:C4_out       48.33    2.277    3.15  24.31    .000
                     +ID5 05:C5_out       15.60     .587    3.12  20.46    .000
                     +ID6 06:C6_out       11.78    1.093    3.03  28.86    .000
                     +ID7 10:2b            .59     .066    3.02  33.32    .000
                      ==========================================================
                      SUM 03:GRCA         319.11  13.380    3.10  29.80    .000

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

```
005:0026
*#*************************************************************************
| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .25         .21
     Dep. Storage     (mm)=       2.00        5.00
     Average Slope     (%)=        .40         .40
     Length            (m)=      70.00       40.00
```

```
01621>      Mannings n          =       .025        .250
01622>
01623>      Max.eff.Inten.(mm/hr)=      88.14       10.89
01624>                 over (min)        4.00       32.00
01625>      Storage Coeff.  (min)=       4.23 (ii)   31.99 (ii)
01626>      Unit Hyd. Tpeak (min)=       4.00       32.00
01627>      Unit Hyd. peak  (cms)=        .27         .04
01628>                                                        *TOTALS*
01629>      PEAK FLOW       (cms)=        .04         .00          .043 (iii)
01630>      TIME TO PEAK    (hrs)=       3.00        3.47         3.000
01631>      RUNOFF VOLUME    (mm)=      54.50        8.06        26.174
01632>      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
01633>      RUNOFF COEFFICIENT  =         .96         .14          .463
01634>
01635>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01636>            CN* =  39.0    Ia = Dep. Storage  (Above)
01637>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01638>            THAN THE STORAGE COEFFICIENT.
01639>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01640>
01641> ------------------------------------------------------------------------------
01642> 005:0027-------------------------------------------------------------------------
01643> *#*************************************************************************
01644> ----------------------
01645> | CALIB STANDHYD     |   Area    (ha)=     .87
01646> | 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
01647> ----------------------
01648>                              IMPERVIOUS    PERVIOUS (i)
01649>      Surface Area     (ha)=       .35         .52
01650>      Dep. Storage     (mm)=      2.00        5.00
01651>      Average Slope     (%)=      1.90         .50
01652>      Length            (m)=     80.00      110.00
01653>      Mannings n          =       .013        .250
01654>
01655>      Max.eff.Inten.(mm/hr)=      88.14        4.75
01656>                 over (min)        2.00       68.00
01657>      Storage Coeff.  (min)=       1.94 (ii)   68.33 (ii)
01658>      Unit Hyd. Tpeak (min)=       2.00       68.00
01659>      Unit Hyd. peak  (cms)=        .57         .02
01660>                                                        *TOTALS*
01661>      PEAK FLOW       (cms)=        .07         .00          .069 (iii)
01662>      TIME TO PEAK    (hrs)=       3.00        4.08         3.000
01663>      RUNOFF VOLUME    (mm)=      54.50        6.74        22.022
01664>      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
01665>      RUNOFF COEFFICIENT  =         .96         .12          .390
01666>
01667>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01668>            CN* =  39.0    Ia = Dep. Storage  (Above)
01669>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01670>            THAN THE STORAGE COEFFICIENT.
01671>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01672>
01673> ------------------------------------------------------------------------------
01674> 005:0028-------------------------------------------------------------------------
01675> *#*************************************************************************
01676> ------------------------
01677> | ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01678> ------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
01679>                       ID1 01:7a           .46     .043    3.00  26.17    .000
01680>                      +ID2 02:7c           .87     .069    3.00  22.02    .000
01681>                       ============================================================
01682>                       SUM 07:C7_out       1.33    .112    3.00  23.46    .000
01683>
01684>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01685>
01686> ------------------------------------------------------------------------------
01687> 005:0029-------------------------------------------------------------------------
01688> *#*************************************************************************
01689> ----------------------
01690> | CALIB STANDHYD     |   Area    (ha)=     .71
01691> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01692> ----------------------
01693>                              IMPERVIOUS    PERVIOUS (i)
01694>      Surface Area     (ha)=       .43         .28
01695>      Dep. Storage     (mm)=      2.00        5.00
01696>      Average Slope     (%)=      1.70        1.70
01697>      Length            (m)=     110.00      40.00
01698>      Mannings n          =       .025        .250
01699>
01700>      Max.eff.Inten.(mm/hr)=      88.14       35.13
01701>                 over (min)        4.00       15.00
01702>      Storage Coeff.  (min)=       3.59 (ii)   14.85 (ii)
01703>      Unit Hyd. Tpeak (min)=       4.00       15.00
01704>      Unit Hyd. peak  (cms)=        .30         .08
01705>                                                        *TOTALS*
01706>      PEAK FLOW       (cms)=        .07         .02          .083 (iii)
01707>      TIME TO PEAK    (hrs)=       3.00        3.17         3.000
01708>      RUNOFF VOLUME    (mm)=      54.50       14.76        31.451
01709>      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
01710>      RUNOFF COEFFICIENT  =         .96         .26          .557
01711>
01712>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01713>            CN* =  56.0    Ia = Dep. Storage  (Above)
01714>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01715>            THAN THE STORAGE COEFFICIENT.
01716>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01717>
01718> ------------------------------------------------------------------------------
01719> 005:0030-------------------------------------------------------------------------
01720> *#*************************************************************************
01721> ----------------------
01722> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
01723> | 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
01724> ----------------------  U.H. Tp(hrs)=    .330
01725>
01726>      Unit Hyd Qpeak  (cms)=     .132
01727>
01728>      PEAK FLOW       (cms)=     .042 (i)
01729>      TIME TO PEAK    (hrs)=    3.250
01730>      RUNOFF VOLUME    (mm)=   15.492
01731>      TOTAL RAINFALL   (mm)=   56.500
01732>      RUNOFF COEFFICIENT  =     .274
01733>
01734>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01735>
01736> ------------------------------------------------------------------------------
01737> 005:0031-------------------------------------------------------------------------
01738> *#*************************************************************************
01739> ------------------------
01740> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01741> ------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
01742>                       ID1 01:8a           .71     .083    3.00  31.45    .000
01743>                      +ID2 02:8c          1.14     .042    3.25  15.49    .000
01744>                       ============================================================
01745>                       SUM 08:C8_out       1.85    .106    3.02  21.62    .000
01746>
01747>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01748>
01749> ------------------------------------------------------------------------------
01750> 005:0032-------------------------------------------------------------------------
01751> *#*************************************************************************
01752> ----------------------
01753> | CALIB STANDHYD     |   Area    (ha)=    1.42
01754> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
01755> ----------------------
01756>                              IMPERVIOUS    PERVIOUS (i)
01757>      Surface Area     (ha)=       .82         .60
01758>      Dep. Storage     (mm)=      2.00        5.00
01759>      Average Slope     (%)=      2.90        2.90
01760>      Length            (m)=     170.00      40.00
01761>      Mannings n          =       .025        .250
01762>
01763>      Max.eff.Inten.(mm/hr)=      88.14       36.40
01764>                 over (min)        4.00       13.00
01765>      Storage Coeff.  (min)=       3.97 (ii)   13.43 (ii)
01766>      Unit Hyd. Tpeak (min)=       4.00       13.00
01767>      Unit Hyd. peak  (cms)=        .28         .09
01768>                                                        *TOTALS*
01769>      PEAK FLOW       (cms)=        .14         .04          .165 (iii)
01770>      TIME TO PEAK    (hrs)=       3.00        3.13         3.000
01771>      RUNOFF VOLUME    (mm)=      54.50       14.80        31.078
01772>      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
01773>      RUNOFF COEFFICIENT  =         .96         .26          .550
01774>
01775>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01776>            CN* =  57.0    Ia = Dep. Storage  (Above)
01777>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01778>            THAN THE STORAGE COEFFICIENT.
01779>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01780>
01781> ------------------------------------------------------------------------------
01782> 005:0033-------------------------------------------------------------------------
01783> *#*************************************************************************
01784> ----------------------
01785> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
01786> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
01787> ----------------------  U.H. Tp(hrs)=   1.580
01788>
01789>      Unit Hyd Qpeak  (cms)=    2.320
01790>
01791>      PEAK FLOW       (cms)=    1.161 (i)
01792>      TIME TO PEAK    (hrs)=    4.867
01793>      RUNOFF VOLUME    (mm)=   15.989
01794>      TOTAL RAINFALL   (mm)=   56.500
01795>      RUNOFF COEFFICIENT  =     .283
01796>
01797>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01798>
01799> ------------------------------------------------------------------------------
01800> 005:0034-------------------------------------------------------------------------
01801> *#*************************************************************************
01802> ------------------------
01803> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01804> ------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
01805>                       ID1 01:9a          1.42     .165    3.00  31.08    .000
01806>                      +ID2 02:9c         95.98    1.161    4.87  15.99    .000
01807>                      +ID3 07:C7_out      1.33     .112    3.00  23.46    .000
01808>                      +ID4 08:C8_out      1.85     .106    3.02  21.62    .000
01809>                       ============================================================
01810>                       SUM 09:C9_out     100.58    1.190    4.85  16.40    .000
01811>
01812>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01813>
01814> ------------------------------------------------------------------------------
01815> 005:0035-------------------------------------------------------------------------
01816> *#*************************************************************************
01817> ----------------------
01818> | CALIB STANDHYD     |   Area    (ha)=    3.74
01819> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01820> ----------------------
01821>                              IMPERVIOUS    PERVIOUS (i)
01822>      Surface Area     (ha)=       2.24        1.50
01823>      Dep. Storage     (mm)=      2.00        5.00
01824>      Average Slope     (%)=      1.30        1.30
01825>      Length            (m)=     385.00      40.00
01826>      Mannings n          =       .025        .250
01827>
01828>      Max.eff.Inten.(mm/hr)=      88.14       25.14
01829>                 over (min)        8.00       22.00
01830>      Storage Coeff.  (min)=       8.26 (ii)   22.21 (ii)
01831>      Unit Hyd. Tpeak (min)=       8.00       22.00
01832>      Unit Hyd. peak  (cms)=        .14         .05
01833>                                                        *TOTALS*
01834>      PEAK FLOW       (cms)=        .31         .06          .349 (iii)
01835>      TIME TO PEAK    (hrs)=       3.03        3.28         3.033
01836>      RUNOFF VOLUME    (mm)=      54.50       13.10        30.491
01837>      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
01838>      RUNOFF COEFFICIENT  =         .96         .23          .540
01839>
01840>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01841>            CN* =  52.0    Ia = Dep. Storage  (Above)
01842>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01843>            THAN THE STORAGE COEFFICIENT.
01844>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01845>
01846> ------------------------------------------------------------------------------
01847> 005:0036-------------------------------------------------------------------------
01848> *#*************************************************************************
01849> ----------------------
01850> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
01851> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
01852> ----------------------  U.H. Tp(hrs)=   1.280
01853>
01854>      Unit Hyd Qpeak  (cms)=    3.260
01855>
01856>      PEAK FLOW       (cms)=    1.600 (i)
01857>      TIME TO PEAK    (hrs)=    4.467
01858>      RUNOFF VOLUME    (mm)=   16.525
01859>      TOTAL RAINFALL   (mm)=   56.500
01860>      RUNOFF COEFFICIENT  =     .292
01861>
01862>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01863>
01864> ------------------------------------------------------------------------------
01865> 005:0037-------------------------------------------------------------------------
01866> *#*************************************************************************
01867> ------------------------
01868> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01869> ------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
01870>                       ID1 01:10a          3.74     .349    3.03  30.49    .000
01871>                      +ID2 02:10c        109.26    1.600    4.47  16.52    .000
01872>                       ============================================================
01873>                       SUM 10:C10_out     113.00    1.636    4.45  16.99    .000
01874>
01875>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01876>
01877> ------------------------------------------------------------------------------
01878> 005:0038-------------------------------------------------------------------------
01879> *#*************************************************************************
01880> ------------------------
01881> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01882> ------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
01883>                       ID1 09:C9_out     100.58    1.190    4.85  16.40    .000
01884>                      +ID2 10:C10_out    113.00    1.636    4.45  16.99    .000
01885>                       ============================================================
01886>                       SUM 05:HCA        213.58    2.798    4.58  16.71    .000
01887>
01888>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01889>
01890> ------------------------------------------------------------------------------
```

```
01891> 005:0039-------------------------------------------------------------------------------
01892> *#*****************************************************************************
01893> ----------------------
01894> | ADD HYD (A11_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01895> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
01896>                        ID1 03:GRCA         319.11   13.380    3.10  29.80    .000
01897>                       +ID2 05:HCA          213.58    2.798    4.58  16.71    .000
01898>                        ============================================================
01899>                        SUM 06:A11_F        532.69   14.293    3.10  24.55    .000
01900>
01901>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01902>
01903> -------------------------------------------------------------------------------
01904> 005:0040-------------------------------------------------------------------------------
01905> *#*****************************************************************************
01906> -------------------------------------------------------------------------------
01907> 005:0002-------------------------------------------------------------------------------
01908>   ** END OF RUN :   9
01909>
01910> *****************************************************************************
01911>
01912>
01913>
01914>
01915>
01916> --------------------
01917> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
01918> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
01919>     TZERO =   .00 hrs on       0
01920>     METOUT=   2 (output = METRIC)
01921>     NRUN  = 010
01922>     NSTORM=   1
01923>               #  1=H10SCS.6h
01924> -------------------------------------------------------------------------------
01925> 010:0002-------------------------------------------------------------------------------
01926> *#*****************************************************************************
01927> *#  Project Name: Garner Rd. MCEA
01928> *#  Date        : December 12, 2024
01929> *#  Company     : Stantec Consulting Ltd. (Waterloo)
01930> *#  Modeller    : Amy Kyle
01931> *#  License #   :  4730904
01932> *#*****************************************************************************
01933> *#
01934> *#
01935> *#
01936> *#*****************************************************************************
01937> -------------------------------------------------------------------------------
01938> 010:0002-------------------------------------------------------------------------------
01939> --------------------
01940> | READ STORM       |    Filename: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
01941> | Ptotal=  67.60 mm|    Comments: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
01942> --------------------
01943>               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
01944>                hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
01945>                .17   2.700 |   1.67   6.760 |   3.17  14.870 |   4.67   4.060
01946>                .33   2.700 |   1.83   6.760 |   3.33  14.870 |   4.83   4.060
01947>                .50   2.700 |   2.00   6.760 |   3.50  14.870 |   5.00   4.060
01948>                .67   4.060 |   2.17   8.110 |   3.67   6.760 |   5.17   2.700
01949>                .83   4.060 |   2.33   8.110 |   3.83   6.760 |   5.33   2.700
01950>               1.00   4.060 |   2.50   8.110 |   4.00   6.760 |   5.50   2.700
01951>               1.17   4.060 |   2.67  40.560 |   4.17   5.410 |   5.67   2.700
01952>               1.33   4.060 |   2.83  73.010 |   4.33   5.410 |   5.83   2.700
01953>               1.50   4.060 |   3.00 105.460 |   4.50   5.410 |   6.00   2.700
01954>
01955> -------------------------------------------------------------------------------
01956> 010:0003-------------------------------------------------------------------------------
01957> *#*****************************************************************************
01958> *#  PROPOSED CATCHMENTS (UNCONTROLLED)
01959> *#*****************************************************************************
01960> --------------------
01961> | CALIB STANDHYD     |   Area    (ha)=    1.94
01962> | 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01963> ----------------------
01964>                              IMPERVIOUS    PERVIOUS (i)
01965>      Surface Area     (ha)=       1.16         .78
01966>      Dep. Storage     (mm)=       2.00        5.00
01967>      Average Slope     (%)=       1.10        1.10
01968>      Length            (m)=     440.00       40.00
01969>      Mannings n             =      .025        .250
01970>
01971>      Max.eff.Inten.(mm/hr)=     105.46       61.33
01972>                 over (min)        9.00       19.00
01973>      Storage Coeff.  (min)=       8.75 (ii)   19.02 (ii)
01974>      Unit Hyd. Tpeak (min)=       9.00       19.00
01975>      Unit Hyd. peak  (cms)=        .13         .06
01976>                                                          *TOTALS*
01977>      PEAK FLOW       (cms)=        .19         .08          .249 (iii)
01978>      TIME TO PEAK    (hrs)=       3.03        3.22         3.067
01979>      RUNOFF VOLUME    (mm)=      65.60       28.07        43.836
01980>      TOTAL RAINFALL   (mm)=      67.60       67.60        67.600
01981>      RUNOFF COEFFICIENT   =        .97         .42          .648
01982>
01983>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01984>            CN* =  68.0    Ia = Dep. Storage  (Above)
01985>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01986>            THAN THE STORAGE COEFFICIENT.
01987>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01988>
01989> -------------------------------------------------------------------------------
01990> 010:0004-------------------------------------------------------------------------------
01991> *#*****************************************************************************
01992> ----------------------
01993> | CALIB STANDHYD     |   Area    (ha)=     .96
01994> | 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
01995> ----------------------
01996>                              IMPERVIOUS    PERVIOUS (i)
01997>      Surface Area     (ha)=        .62         .34
01998>      Dep. Storage     (mm)=       2.00        5.00
01999>      Average Slope     (%)=       2.20        2.20
02000>      Length            (m)=      80.00       40.00
02001>      Mannings n             =      .025        .250
02002>
02003>      Max.eff.Inten.(mm/hr)=     105.46       88.16
02004>                 over (min)        3.00       10.00
02005>      Storage Coeff.  (min)=       2.56 (ii)    9.77 (ii)
02006>      Unit Hyd. Tpeak (min)=       3.00       10.00
02007>      Unit Hyd. peak  (cms)=        .42         .11
02008>                                                          *TOTALS*
02009>      PEAK FLOW       (cms)=        .13         .06          .177 (iii)
02010>      TIME TO PEAK    (hrs)=       3.00        3.08         3.000
02011>      RUNOFF VOLUME    (mm)=      65.60       29.20        45.946
02012>      TOTAL RAINFALL   (mm)=      67.60       67.60        67.600
02013>      RUNOFF COEFFICIENT   =        .97         .43          .680
02014>
02015>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02016>            CN* =  68.0    Ia = Dep. Storage  (Above)
02017>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02018>            THAN THE STORAGE COEFFICIENT.
02019>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02020>
02021> -------------------------------------------------------------------------------
02022> 010:0005-------------------------------------------------------------------------------
02023> *#*****************************************************************************
02024> ----------------------
02025> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number    (CN)=73.00
02026> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
02027> ----------------------   U.H. Tp(hrs)=    .220
02028>
02029>      Unit Hyd Qpeak  (cms)=     .127
02030>
02031>      PEAK FLOW       (cms)=     .056 (i)
02032>      TIME TO PEAK    (hrs)=    3.133
02033>      RUNOFF VOLUME    (mm)=   24.395
02034>      TOTAL RAINFALL   (mm)=   67.600
02035>      RUNOFF COEFFICIENT   =     .361
02036>
02037>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02038>
02039> -------------------------------------------------------------------------------
02040> 010:0006-------------------------------------------------------------------------------
02041> *#*****************************************************************************
02042> ----------------------
02043> | CALIB STANDHYD     |   Area    (ha)=   35.00
02044> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
02045> ----------------------
02046>                              IMPERVIOUS    PERVIOUS (i)
02047>      Surface Area     (ha)=      28.00        7.00
02048>      Dep. Storage     (mm)=       2.00        5.00
02049>      Average Slope     (%)=       1.40        2.00
02050>      Length            (m)=    1100.00       30.00
02051>      Mannings n             =      .013        .250
02052>
02053>      Max.eff.Inten.(mm/hr)=     105.46       76.65
02054>                 over (min)       10.00       16.00
02055>      Storage Coeff.  (min)=       9.53 (ii)   16.14 (ii)
02056>      Unit Hyd. Tpeak (min)=      10.00       16.00
02057>      Unit Hyd. peak  (cms)=        .12         .07
02058>                                                          *TOTALS*
02059>      PEAK FLOW       (cms)=       4.98         .94          5.775 (iii)
02060>      TIME TO PEAK    (hrs)=       3.05        3.17         3.067
02061>      RUNOFF VOLUME    (mm)=      65.60       26.44        51.504
02062>      TOTAL RAINFALL   (mm)=      67.60       67.60        67.600
02063>      RUNOFF COEFFICIENT   =        .97         .39          .762
02064>
02065>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02066>            CN* =  60.0    Ia = Dep. Storage  (Above)
02067>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02068>            THAN THE STORAGE COEFFICIENT.
02069>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02070>
02071> -------------------------------------------------------------------------------
02072> 010:0007-------------------------------------------------------------------------------
02073> *#*****************************************************************************
02074> ----------------------
02075> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
02076> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
02077>                        ID1 01:1a           1.94     .249    3.07  43.84    .000
02078>                       +ID2 03:1c            .73     .056    3.13  24.39    .000
02079>                        ============================================================
02080>                        SUM 05:C1_cul       2.67     .302    3.07  38.52    .000
02081>
02082>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02083>
02084> -------------------------------------------------------------------------------
02085> 010:0008-------------------------------------------------------------------------------
02086> *#*****************************************************************************
02087> ----------------------
02088> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
02089> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
02090>                        ID1 02:1b            .96     .177    3.00  45.95    .000
02091>                       +ID2 04:1d          35.00    5.775    3.07  51.50    .000
02092>                       +ID3 05:C1_cul       2.67     .302    3.07  38.52    .000
02093>                        ============================================================
02094>                        SUM 07:C1_out       38.63    6.190    3.07  50.47    .000
02095>
02096>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02097>
02098> -------------------------------------------------------------------------------
02099> 010:0009-------------------------------------------------------------------------------
02100> *#*****************************************************************************
02101> ----------------------
02102> | CALIB STANDHYD     |   Area    (ha)=     .59
02103> | 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
02104> ----------------------
02105>                              IMPERVIOUS    PERVIOUS (i)
02106>      Surface Area     (ha)=        .32         .27
02107>      Dep. Storage     (mm)=       2.00        5.00
02108>      Average Slope     (%)=       1.60        1.60
02109>      Length            (m)=     210.00       40.00
02110>      Mannings n             =      .025        .250
02111>
02112>      Max.eff.Inten.(mm/hr)=     105.46       62.39
02113>                 over (min)        5.00       14.00
02114>      Storage Coeff.  (min)=       5.02 (ii)   14.13 (ii)
02115>      Unit Hyd. Tpeak (min)=       5.00       14.00
02116>      Unit Hyd. peak  (cms)=        .23         .08
02117>                                                          *TOTALS*
02118>      PEAK FLOW       (cms)=        .06         .03          .085 (iii)
02119>      TIME TO PEAK    (hrs)=       3.00        3.13         3.017
02120>      RUNOFF VOLUME    (mm)=      65.60       26.86        41.967
02121>      TOTAL RAINFALL   (mm)=      67.60       67.60        67.600
02122>      RUNOFF COEFFICIENT   =        .97         .40          .621
02123>
02124>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02125>            CN* =  68.0    Ia = Dep. Storage  (Above)
02126>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02127>            THAN THE STORAGE COEFFICIENT.
02128>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02129>
02130> -------------------------------------------------------------------------------
02131> 010:0010-------------------------------------------------------------------------------
02132> *#*****************************************************************************
02133> ----------------------
02134> | CALIB STANDHYD     |   Area    (ha)=    1.18
02135> | 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
02136> ----------------------
02137>                              IMPERVIOUS    PERVIOUS (i)
02138>      Surface Area     (ha)=        .77         .41
02139>      Dep. Storage     (mm)=       2.00        5.00
02140>      Average Slope     (%)=       3.40        3.40
02141>      Length            (m)=     235.00       40.00
02142>      Mannings n             =      .025        .250
02143>
02144>      Max.eff.Inten.(mm/hr)=     105.46       50.28
02145>                 over (min)        4.00       12.00
02146>      Storage Coeff.  (min)=       4.28 (ii)   12.21 (ii)
02147>      Unit Hyd. Tpeak (min)=       4.00       12.00
02148>      Unit Hyd. peak  (cms)=        .27         .09
02149>                                                          *TOTALS*
02150>      PEAK FLOW       (cms)=        .15         .04          .180 (iii)
02151>      TIME TO PEAK    (hrs)=       3.00        3.12         3.000
02152>      RUNOFF VOLUME    (mm)=      65.60       18.09        39.944
02153>      TOTAL RAINFALL   (mm)=      67.60       67.60        67.600
02154>      RUNOFF COEFFICIENT   =        .97         .27          .591
02155>
02156>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02157>            CN* =  50.0    Ia = Dep. Storage  (Above)
02158>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02159>            THAN THE STORAGE COEFFICIENT.
02160>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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02161>
02162> ------------------------------------------------------------------------------
02163> 010:0011------------------------------------------------------------------------
02164> *#*****************************************************************************
02165> ----------------------
02166> | CALIB STANDHYD     |   Area    (ha)=    3.44
02167> | 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
02168> ----------------------
02169>                              IMPERVIOUS    PERVIOUS (i)
02170>      Surface Area     (ha)=       2.75          .69
02171>      Dep. Storage     (mm)=       2.00         5.00
02172>      Average Slope     (%)=       3.10         2.00
02173>      Length            (m)=     320.00        10.00
02174>      Mannings n             =      .013         .250
02175>
02176>      Max.eff.Inten.(mm/hr)=     105.46        74.99
02177>                   over (min)        4.00         7.00
02178>      Storage Coeff.  (min)=       3.58 (ii)    7.03 (ii)
02179>      Unit Hyd. Tpeak (min)=       4.00         7.00
02180>      Unit Hyd. peak  (cms)=        .30          .16
02181>                                                          *TOTALS*
02182>      PEAK FLOW       (cms)=        .62          .11          .725 (iii)
02183>      TIME TO PEAK    (hrs)=       3.00         3.03         3.000
02184>      RUNOFF VOLUME    (mm)=      65.60        20.40        49.330
02185>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02186>      RUNOFF COEFFICIENT   =        .97          .30          .730
02187>
02188>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02189>            CN* =  50.0    Ia = Dep. Storage  (Above)
02190>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02191>            THAN THE STORAGE COEFFICIENT.
02192>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02193>
02194> ------------------------------------------------------------------------------
02195> 010:0012------------------------------------------------------------------------
02196> *#*****************************************************************************
02197> ------------------------
02198> | ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02199> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02200>                      ID1 01:2a             1.18     .180    3.00  39.94    .000
02201>                     +ID2 02:2c             3.44     .725    3.00  49.33    .000
02202>                      ========================================================
02203>                      SUM 08:C2_out          4.62     .905    3.00  46.93    .000
02204>
02205>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02206>
02207> ------------------------------------------------------------------------------
02208> 010:0013------------------------------------------------------------------------
02209> *#*****************************************************************************
02210> ----------------------
02211> | CALIB STANDHYD     |   Area    (ha)=    2.38
02212> | 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02213> ----------------------
02214>                              IMPERVIOUS    PERVIOUS (i)
02215>      Surface Area     (ha)=       1.43          .95
02216>      Dep. Storage     (mm)=       2.00         5.00
02217>      Average Slope     (%)=       2.50         2.50
02218>      Length            (m)=     320.00        40.00
02219>      Mannings n             =      .025         .250
02220>
02221>      Max.eff.Inten.(mm/hr)=     105.46        56.10
02222>                   over (min)        6.00        14.00
02223>      Storage Coeff.  (min)=       5.65 (ii)   13.97 (ii)
02224>      Unit Hyd. Tpeak (min)=       6.00        14.00
02225>      Unit Hyd. peak  (cms)=        .20          .08
02226>                                                          *TOTALS*
02227>      PEAK FLOW       (cms)=        .26          .10          .337 (iii)
02228>      TIME TO PEAK    (hrs)=       3.02         3.15         3.017
02229>      RUNOFF VOLUME    (mm)=      65.60        22.74        40.745
02230>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02231>      RUNOFF COEFFICIENT   =        .97          .34          .603
02232>
02233>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02234>            CN* =  60.0    Ia = Dep. Storage  (Above)
02235>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02236>            THAN THE STORAGE COEFFICIENT.
02237>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02238>
02239> ------------------------------------------------------------------------------
02240> 010:0014------------------------------------------------------------------------
02241> *#*****************************************************************************
02242> ----------------------
02243> | CALIB STANDHYD     |   Area    (ha)=  197.18
02244> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
02245> ----------------------
02246>                              IMPERVIOUS    PERVIOUS (i)
02247>      Surface Area     (ha)=      78.87        118.31
02248>      Dep. Storage     (mm)=       2.00         5.00
02249>      Average Slope     (%)=        .50         2.00
02250>      Length            (m)=    2750.00        40.00
02251>      Mannings n             =      .020         .250
02252>
02253>      Max.eff.Inten.(mm/hr)=      63.32        21.99
02254>                   over (min)       36.00        49.00
02255>      Storage Coeff.  (min)=       35.72 (ii)   48.65 (ii)
02256>      Unit Hyd. Tpeak (min)=       36.00        49.00
02257>      Unit Hyd. peak  (cms)=         .03          .02
02258>                                                          *TOTALS*
02259>      PEAK FLOW       (cms)=        6.87         4.42        10.605 (iii)
02260>      TIME TO PEAK    (hrs)=        3.47         3.73         3.550
02261>      RUNOFF VOLUME    (mm)=       65.59        24.36        37.560
02262>      TOTAL RAINFALL   (mm)=       67.60        67.60        67.600
02263>      RUNOFF COEFFICIENT   =         .97          .36          .556
02264>
02265>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02266>            CN* =  69.0    Ia = Dep. Storage  (Above)
02267>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02268>            THAN THE STORAGE COEFFICIENT.
02269>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02270>
02271> ------------------------------------------------------------------------------
02272> 010:0015------------------------------------------------------------------------
02273> *#*****************************************************************************
02274> ------------------------
02275> | ADD HYD (C3_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02276> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02277>                      ID1 01:3a             2.38     .337    3.02  40.74    .000
02278>                     +ID2 02:3c           197.18   10.605    3.55  37.56    .000
02279>                      ========================================================
02280>                      SUM 09:C3_out        199.56   10.688    3.55  37.60    .000
02281>
02282>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02283>
02284> ------------------------------------------------------------------------------
02285> 010:0016------------------------------------------------------------------------
02286> *#*****************************************************************************
02287> ----------------------
02288> | CALIB STANDHYD     |   Area    (ha)=    1.94
02289> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02290> ----------------------
02291>                              IMPERVIOUS    PERVIOUS (i)
02292>      Surface Area     (ha)=       1.16          .78
02293>      Dep. Storage     (mm)=       2.00         5.00
02294>      Average Slope     (%)=       1.30         1.30
02295>      Length            (m)=     280.00        40.00
02296>      Mannings n             =      .025         .250
02297>
02298>      Max.eff.Inten.(mm/hr)=     105.46        62.55
02299>                   over (min)        6.00        16.00
02300>      Storage Coeff.  (min)=       6.35 (ii)   16.04 (ii)
02301>      Unit Hyd. Tpeak (min)=       6.00        16.00
02302>      Unit Hyd. peak  (cms)=        .18          .07
02303>                                                          *TOTALS*
02304>      PEAK FLOW       (cms)=        .21          .08          .272 (iii)
02305>      TIME TO PEAK    (hrs)=       3.02         3.17         3.033
02306>      RUNOFF VOLUME    (mm)=      65.60        26.65        43.012
02307>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02308>      RUNOFF COEFFICIENT   =        .97          .39          .636
02309>
02310>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02311>            CN* =  66.0    Ia = Dep. Storage  (Above)
02312>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02313>            THAN THE STORAGE COEFFICIENT.
02314>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02315>
02316> ------------------------------------------------------------------------------
02317> 010:0017------------------------------------------------------------------------
02318> *#*****************************************************************************
02319> ----------------------
02320> | CALIB STANDHYD     |   Area    (ha)=   46.39
02321> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
02322> ----------------------
02323>                              IMPERVIOUS    PERVIOUS (i)
02324>      Surface Area     (ha)=      13.92        32.47
02325>      Dep. Storage     (mm)=       2.00         7.00
02326>      Average Slope     (%)=       1.00         2.00
02327>      Length            (m)=    1700.00        60.00
02328>      Mannings n             =      .013         .250
02329>
02330>      Max.eff.Inten.(mm/hr)=      96.19        23.41
02331>                   over (min)       14.00        30.00
02332>      Storage Coeff.  (min)=       14.20 (ii)   30.29 (ii)
02333>      Unit Hyd. Tpeak (min)=       14.00        30.00
02334>      Unit Hyd. peak  (cms)=         .08          .04
02335>                                                          *TOTALS*
02336>      PEAK FLOW       (cms)=        2.08         1.31         2.913 (iii)
02337>      TIME TO PEAK    (hrs)=        3.12         3.42         3.167
02338>      RUNOFF VOLUME    (mm)=       65.60        19.98        30.933
02339>      TOTAL RAINFALL   (mm)=       67.60        67.60        67.600
02340>      RUNOFF COEFFICIENT   =         .97          .30          .458
02341>
02342>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02343>            CN* =  65.0    Ia = Dep. Storage  (Above)
02344>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02345>            THAN THE STORAGE COEFFICIENT.
02346>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02347>
02348> ------------------------------------------------------------------------------
02349> 010:0018------------------------------------------------------------------------
02350> *#*****************************************************************************
02351> ------------------------
02352> | ADD HYD (C4_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02353> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02354>                      ID1 01:4a             1.94     .272    3.03  43.01    .000
02355>                     +ID2 02:4c            46.39    2.913    3.17  30.93    .000
02356>                      ========================================================
02357>                      SUM 04:C4_out         48.33    3.101    3.15  31.42    .000
02358>
02359>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02360>
02361> ------------------------------------------------------------------------------
02362> 010:0019------------------------------------------------------------------------
02363> *#*****************************************************************************
02364> ----------------------
02365> | CALIB STANDHYD     |   Area    (ha)=    2.21
02366> | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02367> ----------------------
02368>                              IMPERVIOUS    PERVIOUS (i)
02369>      Surface Area     (ha)=       1.33          .88
02370>      Dep. Storage     (mm)=       2.00         5.00
02371>      Average Slope     (%)=       2.00         2.00
02372>      Length            (m)=     540.00        40.00
02373>      Mannings n             =      .025         .250
02374>
02375>      Max.eff.Inten.(mm/hr)=     105.46        54.57
02376>                   over (min)        8.00        17.00
02377>      Storage Coeff.  (min)=       8.27 (ii)   17.27 (ii)
02378>      Unit Hyd. Tpeak (min)=       8.00        17.00
02379>      Unit Hyd. peak  (cms)=        .14          .07
02380>                                                          *TOTALS*
02381>      PEAK FLOW       (cms)=        .22          .08          .283 (iii)
02382>      TIME TO PEAK    (hrs)=       3.03         3.18         3.050
02383>      RUNOFF VOLUME    (mm)=       65.60        23.99        41.469
02384>      TOTAL RAINFALL   (mm)=       67.60        67.60        67.600
02385>      RUNOFF COEFFICIENT   =         .97          .35          .613
02386>
02387>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02388>            CN* =  62.0    Ia = Dep. Storage  (Above)
02389>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02390>            THAN THE STORAGE COEFFICIENT.
02391>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02392>
02393> ------------------------------------------------------------------------------
02394> 010:0020------------------------------------------------------------------------
02395> *#*****************************************************************************
02396> ----------------------
02397> | CALIB STANDHYD     |   Area    (ha)=   13.39
02398> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
02399> ----------------------
02400>                              IMPERVIOUS    PERVIOUS (i)
02401>      Surface Area     (ha)=       3.35         10.04
02402>      Dep. Storage     (mm)=       2.00         5.00
02403>      Average Slope     (%)=       1.60         2.00
02404>      Length            (m)=     575.00        75.00
02405>      Mannings n             =      .025         .250
02406>
02407>      Max.eff.Inten.(mm/hr)=     105.46        34.22
02408>                   over (min)        9.00        25.00
02409>      Storage Coeff.  (min)=       9.18 (ii)   24.99 (ii)
02410>      Unit Hyd. Tpeak (min)=       9.00        25.00
02411>      Unit Hyd. peak  (cms)=        .12          .05
02412>                                                          *TOTALS*
02413>      PEAK FLOW       (cms)=        .18          .59          .659 (iii)
02414>      TIME TO PEAK    (hrs)=       3.05         3.33         3.300
02415>      RUNOFF VOLUME    (mm)=       65.60        22.15        24.762
02416>      TOTAL RAINFALL   (mm)=       67.60        67.60        67.600
02417>      RUNOFF COEFFICIENT   =         .97          .33          .366
02418>
02419>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02420>            CN* =  63.0    Ia = Dep. Storage  (Above)
02421>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02422>            THAN THE STORAGE COEFFICIENT.
02423>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02424>
02425> ------------------------------------------------------------------------------
02426> 010:0021------------------------------------------------------------------------
02427> *#*****************************************************************************
02428> ------------------------
02429> | ADD HYD (C5_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02430> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
```

```
                    ID1 01:5a            2.21     .283    3.05  41.47    .000
                   +ID2 02:5c           13.39     .659    3.30  24.76    .000
                    ==========================================================
                    SUM 05:C5_out        15.60     .854    3.12  27.13    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0022------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a      DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       1.42          .77
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=        .50          .50
     Length             (m)=     285.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        25.64
                 over (min)=       9.00        27.00
     Storage Coeff.  (min)=       8.55 (ii)   26.98 (ii)
     Unit Hyd. Tpeak (min)=       9.00        27.00
     Unit Hyd. peak  (cms)=        .13          .04
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .23          .03          .251 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.37         3.050
     RUNOFF VOLUME    (mm)=      65.60        14.66        38.091
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .22          .563

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  43.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
010:0023------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c      DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       4.80         4.80
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=        .80         2.00
     Length             (m)=     400.00        40.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     105.46        27.95
                 over (min)=       6.00        18.00
     Storage Coeff.  (min)=       6.14 (ii)   17.89 (ii)
     Unit Hyd. Tpeak (min)=       6.00        18.00
     Unit Hyd. peak  (cms)=        .19          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .99          .23         1.140 (iii)
     TIME TO PEAK    (hrs)=       3.02         3.22         3.017
     RUNOFF VOLUME    (mm)=      65.60        15.55        35.568
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .23          .526

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
010:0024------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:6a            2.19     .251    3.05  38.09    .000
                   +ID2 02:6c            9.59    1.140    3.02  35.57    .000
                    ==========================================================
                    SUM 06:C6_out       11.78    1.386    3.02  36.04    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0025------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 07:C1_out       38.63    6.190    3.07  50.47    .000
                   +ID2 08:C2_out        4.62     .905    3.00  46.93    .000
                   +ID3 09:C3_out      199.56   10.688    3.55  37.60    .000
                   +ID4 04:C4_out       48.33    3.101    3.15  31.42    .000
                   +ID5 05:C5_out       15.60     .854    3.12  27.13    .000
                   +ID6 06:C6_out       11.78    1.386    3.02  36.04    .000
                   +ID7 10:2b             .59     .085    3.02  41.97    .000
                    ==========================================================
                    SUM 03:GRCA         319.11   17.871    3.10  37.79    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0026------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a      DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .25          .21
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=        .40          .40
     Length             (m)=      70.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        17.41
                 over (min)=       4.00        27.00
     Storage Coeff.  (min)=       3.93 (ii)   26.95 (ii)
     Unit Hyd. Tpeak (min)=       4.00        27.00
     Unit Hyd. peak  (cms)=        .29          .04
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .05          .01          .053 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.37         3.000
     RUNOFF VOLUME    (mm)=      65.60        11.44        32.564
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .17          .482

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
010:0027------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .87
| 02:7c      DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .35          .52
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=       1.90          .50
     Length             (m)=      80.00       110.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     105.46         7.85
                 over (min)=       2.00        56.00
     Storage Coeff.  (min)=       1.80 (ii)   56.12 (ii)
     Unit Hyd. Tpeak (min)=       2.00        56.00
     Unit Hyd. peak  (cms)=        .60          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .08          .01          .083 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.88         3.000
     RUNOFF VOLUME    (mm)=      65.60         9.65        27.554
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .14          .408

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
010:0028------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:7a             .46     .053    3.00  32.56    .000
                   +ID2 02:7c             .87     .083    3.00  27.55    .000
                    ==========================================================
                    SUM 07:C7_out        1.33     .135    3.00  29.29    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0029------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .71
| 01:8a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .43          .28
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=       1.70         1.70
     Length             (m)=     110.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        51.72
                 over (min)=       3.00        13.00
     Storage Coeff.  (min)=       3.34 (ii)   12.99 (ii)
     Unit Hyd. Tpeak (min)=       3.00        13.00
     Unit Hyd. peak  (cms)=        .35          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .09          .03          .105 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.13         3.000
     RUNOFF VOLUME    (mm)=      65.60        20.39        39.381
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .30          .583

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  56.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
010:0030------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
| 02:8c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .330

     Unit Hyd Qpeak  (cms)=     .132

     PEAK FLOW       (cms)=     .059 (i)
     TIME TO PEAK    (hrs)=    3.250
     RUNOFF VOLUME    (mm)=   21.595
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .319

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

------------------------------------------------------------------------------
010:0031------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                    ID1 01:8a             .71     .105    3.00  39.38    .000
                   +ID2 02:8c            1.14     .059    3.25  21.59    .000
                    ==========================================================
                    SUM 08:C8_out        1.85     .139    3.00  28.42    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0032------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 01:9a      DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .82          .60
     Dep. Storage      (mm)=       2.00         5.00
     Average Slope      (%)=       2.90         2.90
     Length             (m)=     170.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        52.05
                 over (min)=       4.00        12.00
     Storage Coeff.  (min)=       3.70 (ii)   11.90 (ii)
     Unit Hyd. Tpeak (min)=       4.00        12.00
     Unit Hyd. peak  (cms)=        .30          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .16          .06          .209 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.12         3.000
     RUNOFF VOLUME    (mm)=      65.60        20.46        38.968
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .30          .576

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  57.0    Ia = Dep. Storage  (Above)
```

```
02701>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02702>            THAN THE STORAGE COEFFICIENT.
02703>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02704>
02705> ---------------------------------------------------------------------------
02706> 010:0033----------------------------------------------------------------------
02707> *#**********************************************************************
02708> ----------------------
02709> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
02710> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
02711> ----------------------   U.H. Tp(hrs)=   1.580
02712>
02713>      Unit Hyd Qpeak  (cms)=    2.320
02714>
02715>      PEAK FLOW       (cms)=    1.632 (i)
02716>      TIME TO PEAK    (hrs)=    4.833
02717>      RUNOFF VOLUME    (mm)=   22.345
02718>      TOTAL RAINFALL   (mm)=   67.600
02719>      RUNOFF COEFFICIENT   =     .331
02720>
02721>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02722>
02723> ---------------------------------------------------------------------------
02724> 010:0034----------------------------------------------------------------------
02725> *#**********************************************************************
02726> ------------------------
02727> | ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02728> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02729>                       ID1 01:9a             1.42     .209    3.00  38.97    .000
02730>                      +ID2 02:9c            95.98    1.632    4.83  22.35    .000
02731>                      +ID3 07:C7_out         1.33     .135    3.00  29.29    .000
02732>                      +ID4 08:C8_out         1.85     .139    3.00  28.42    .000
02733>                       ================================================
02734>                       SUM 09:C9_out       100.58    1.670    4.82  22.78    .000
02735>
02736>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02737>
02738> ---------------------------------------------------------------------------
02739> 010:0035----------------------------------------------------------------------
02740> *#**********************************************************************
02741> ----------------------
02742> | CALIB STANDHYD     |   Area    (ha)=    3.74
02743> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02744> ----------------------
02745>                              IMPERVIOUS    PERVIOUS (i)
02746>      Surface Area     (ha)=       2.24         1.50
02747>      Dep. Storage     (mm)=       2.00         5.00
02748>      Average Slope     (%)=       1.30         1.30
02749>      Length            (m)=     385.00        40.00
02750>      Mannings n             =      .025         .250
02751>
02752>      Max.eff.Inten.(mm/hr)=     105.46        38.75
02753>                 over (min)        8.00        19.00
02754>      Storage Coeff.  (min)=       7.68 (ii)   19.42 (ii)
02755>      Unit Hyd. Tpeak (min)=       8.00        19.00
02756>      Unit Hyd. peak  (cms)=        .15          .06
02757>                                                          *TOTALS*
02758>      PEAK FLOW       (cms)=        .38          .10          .445 (iii)
02759>      TIME TO PEAK    (hrs)=       3.03         3.23         3.050
02760>      RUNOFF VOLUME    (mm)=      65.60        18.22        38.121
02761>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
02762>      RUNOFF COEFFICIENT   =        .97          .27          .564
02763>
02764>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02765>            CN* =  52.0    Ia = Dep. Storage  (Above)
02766>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02767>            THAN THE STORAGE COEFFICIENT.
02768>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02769>
02770> ---------------------------------------------------------------------------
02771> 010:0036----------------------------------------------------------------------
02772> *#**********************************************************************
02773> ----------------------
02774> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
02775> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
02776> ----------------------   U.H. Tp(hrs)=   1.280
02777>
02778>      Unit Hyd Qpeak  (cms)=    3.260
02779>
02780>      PEAK FLOW       (cms)=    2.248 (i)
02781>      TIME TO PEAK    (hrs)=    4.450
02782>      RUNOFF VOLUME    (mm)=   23.042
02783>      TOTAL RAINFALL   (mm)=   67.600
02784>      RUNOFF COEFFICIENT   =     .341
02785>
02786>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02787>
02788> ---------------------------------------------------------------------------
02789> 010:0037----------------------------------------------------------------------
02790> *#**********************************************************************
02791> ------------------------
02792> | ADD HYD (C10_out   ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02793> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02794>                       ID1 01:10a            3.74     .445    3.05  38.12    .000
02795>                      +ID2 02:10c          109.26    2.248    4.45  23.04    .000
02796>                       ================================================
02797>                       SUM 10:C10_out       113.00    2.292    4.43  23.54    .000
02798>
02799>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02800>
02801> ---------------------------------------------------------------------------
02802> 010:0038----------------------------------------------------------------------
02803> *#**********************************************************************
02804> ------------------------
02805> | ADD HYD (HCA       ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02806> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02807>                       ID1 09:C9_out       100.58    1.670    4.82  22.78    .000
02808>                      +ID2 10:C10_out      113.00    2.292    4.43  23.54    .000
02809>                       ================================================
02810>                       SUM 05:HCA           213.58    3.924    4.55  23.18    .000
02811>
02812>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02813>
02814> ---------------------------------------------------------------------------
02815> 010:0039----------------------------------------------------------------------
02816> *#**********************************************************************
02817> ------------------------
02818> | ADD HYD (All_F     ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02819> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02820>                       ID1 03:GRCA         319.11   17.871    3.10  37.79    .000
02821>                      +ID2 05:HCA          213.58    3.924    4.55  23.18    .000
02822>                       ================================================
02823>                       SUM 06:All_F         532.69   19.134    3.10  31.94    .000
02824>
02825>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02826>
02827> ---------------------------------------------------------------------------
02828> 010:0040----------------------------------------------------------------------
02829> *#**********************************************************************
02830> ---------------------------------------------------------------------------
02831> 010:0002----------------------------------------------------------------------
02832> ---------------------------------------------------------------------------
02833> 010:0002----------------------------------------------------------------------
02834>   ** END OF RUN :  49
02835>
02836> ***************************************************************************
02837>
02838>
02839>
02840>
02841>
02842> --------------------
02843> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
02844> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
02845>     TZERO =   .00 hrs on      0
02846>     METOUT=   2 (output = METRIC)
02847>     NRUN  = 050
02848>     NSTORM=   1
02849>               #  1=H50SCS.6h
02850> ---------------------------------------------------------------------------
02851> 050:0002----------------------------------------------------------------------
02852> *#**********************************************************************
02853> *#  Project Name: Garner Rd. MCEA
02854> *#  Date        : December 12, 2024
02855> *#  Company     : Stantec Consulting Ltd. (Waterloo)
02856> *#  Modeller    : Amy Kyle
02857> *#  License #   :  4730904
02858> *#**********************************************************************
02859> *#
02860> *#
02861> *#
02862> *#**********************************************************************
02863> ---------------------------------------------------------------------------
02864> 050:0002----------------------------------------------------------------------
02865> --------------------
02866> | READ STORM        |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
02867> | Ptotal=  91.90 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
02868> --------------------
02869>                TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
02870>                 hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
02871>                 .17   3.680 |   1.67   9.190 |   3.17  20.220 |   4.67   5.510
02872>                 .33   3.680 |   1.83   9.190 |   3.33  20.220 |   4.83   5.510
02873>                 .50   3.680 |   2.00   9.190 |   3.50  20.220 |   5.00   5.510
02874>                 .67   5.510 |   2.17  11.030 |   3.67   9.190 |   5.17   3.680
02875>                 .83   5.510 |   2.33  11.030 |   3.83   9.190 |   5.33   3.680
02876>                1.00   5.510 |   2.50  11.030 |   4.00   9.190 |   5.50   3.680
02877>                1.17   5.510 |   2.67  55.140 |   4.17   7.350 |   5.67   3.680
02878>                1.33   5.510 |   2.83  99.250 |   4.33   7.350 |   5.83   3.680
02879>                1.50   5.510 |   3.00 143.360 |   4.50   7.350 |   6.00   3.680
02880>
02881> ---------------------------------------------------------------------------
02882> 050:0003----------------------------------------------------------------------
02883> *#**********************************************************************
02884> *#  PROPOSED CATCHMENTS (UNCONTROLLED)
02885> *#**********************************************************************
02886> ----------------------
02887> | CALIB STANDHYD     |   Area    (ha)=    1.94
02888> | 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02889> ----------------------
02890>                              IMPERVIOUS    PERVIOUS (i)
02891>      Surface Area     (ha)=       1.16          .78
02892>      Dep. Storage     (mm)=       2.00         5.00
02893>      Average Slope     (%)=       1.10         1.10
02894>      Length            (m)=     440.00        40.00
02895>      Mannings n             =      .025         .250
02896>
02897>      Max.eff.Inten.(mm/hr)=     143.36       107.68
02898>                 over (min)        8.00        16.00
02899>      Storage Coeff.  (min)=       7.74 (ii)   15.94 (ii)
02900>      Unit Hyd. Tpeak (min)=       8.00        16.00
02901>      Unit Hyd. peak  (cms)=        .14          .07
02902>                                                          *TOTALS*
02903>      PEAK FLOW       (cms)=        .27          .15          .389 (iii)
02904>      TIME TO PEAK    (hrs)=       3.03         3.17         3.050
02905>      RUNOFF VOLUME    (mm)=      89.90        45.78        64.312
02906>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
02907>      RUNOFF COEFFICIENT   =        .98          .50          .700
02908>
02909>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02910>            CN* =  68.0    Ia = Dep. Storage  (Above)
02911>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02912>            THAN THE STORAGE COEFFICIENT.
02913>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02914>
02915> ---------------------------------------------------------------------------
02916> 050:0004----------------------------------------------------------------------
02917> *#**********************************************************************
02918> ----------------------
02919> | CALIB STANDHYD     |   Area    (ha)=     .96
02920> | 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
02921> ----------------------
02922>                              IMPERVIOUS    PERVIOUS (i)
02923>      Surface Area     (ha)=        .62          .34
02924>      Dep. Storage     (mm)=       2.00         5.00
02925>      Average Slope     (%)=       2.20         2.20
02926>      Length            (m)=      80.00        40.00
02927>      Mannings n             =      .025         .250
02928>
02929>      Max.eff.Inten.(mm/hr)=     143.36       144.31
02930>                 over (min)        2.00         8.00
02931>      Storage Coeff.  (min)=       2.26 (ii)    8.18 (ii)
02932>      Unit Hyd. Tpeak (min)=       2.00         8.00
02933>      Unit Hyd. peak  (cms)=        .52          .14
02934>                                                          *TOTALS*
02935>      PEAK FLOW       (cms)=        .17          .10          .268 (iii)
02936>      TIME TO PEAK    (hrs)=       3.00         3.05         3.000
02937>      RUNOFF VOLUME    (mm)=      89.90        47.31        66.904
02938>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
02939>      RUNOFF COEFFICIENT   =        .98          .51          .728
02940>
02941>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02942>            CN* =  68.0    Ia = Dep. Storage  (Above)
02943>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02944>            THAN THE STORAGE COEFFICIENT.
02945>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02946>
02947> ---------------------------------------------------------------------------
02948> 050:0005----------------------------------------------------------------------
02949> *#**********************************************************************
02950> ----------------------
02951> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number    (CN)=73.00
02952> | 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
02953> ----------------------   U.H. Tp(hrs)=    .220
02954>
02955>      Unit Hyd Qpeak  (cms)=     .127
02956>
02957>      PEAK FLOW       (cms)=     .096 (i)
02958>      TIME TO PEAK    (hrs)=    3.117
02959>      RUNOFF VOLUME    (mm)=   41.028
02960>      TOTAL RAINFALL   (mm)=   91.900
02961>      RUNOFF COEFFICIENT   =     .446
02962>
02963>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02964>
02965> ---------------------------------------------------------------------------
02966> 050:0006----------------------------------------------------------------------
02967> *#**********************************************************************
02968> ----------------------
02969> | CALIB STANDHYD     |   Area    (ha)=   35.00
02970> | 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
```

```
02971> ----------------------
02972>                              IMPERVIOUS    PERVIOUS (i)
02973>      Surface Area     (ha)=      28.00         7.00
02974>      Dep. Storage     (mm)=       2.00         5.00
02975>      Average Slope     (%)=       1.40         2.00
02976>      Length            (m)=    1100.00        30.00
02977>      Mannings n            =       .013         .250
02978>
02979>      Max.eff.Inten.(mm/hr)=     143.36       132.51
02980>                 over (min)=       8.00        14.00
02981>      Storage Coeff.  (min)=       8.43 (ii)   13.74 (ii)
02982>      Unit Hyd. Tpeak (min)=       8.00        14.00
02983>      Unit Hyd. peak  (cms)=        .14          .08
02984>                                                          *TOTALS*
02985>      PEAK FLOW       (cms)=       7.16         1.69         8.627 (iii)
02986>      TIME TO PEAK    (hrs)=       3.03         3.13         3.050
02987>      RUNOFF VOLUME    (mm)=      89.89        43.35        73.144
02988>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
02989>      RUNOFF COEFFICIENT   =        .98          .47          .796
02990>
02991>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02992>            CN* =  60.0    Ia = Dep. Storage  (Above)
02993>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02994>            THAN THE STORAGE COEFFICIENT.
02995>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02996>
02997> ---------------------------------------------------------------------------
02998> 050:0007-----------------------------------------------------------------------
02999> *#************************************************************************
03000> ----------------------
03001> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03002> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03003>                        ID1 01:1a          1.94     .389    3.05  64.31    .000
03004>                       +ID2 03:1c           .73     .096    3.12  41.03    .000
03005>                        ========================================================
03006>                        SUM 05:C1_cul      2.67     .479    3.07  57.95    .000
03007>
03008>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03009>
03010> ---------------------------------------------------------------------------
03011> 050:0008-----------------------------------------------------------------------
03012> *#************************************************************************
03013> ----------------------
03014> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03015> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03016>                        ID1 02:1b           .96     .268    3.00  66.90    .000
03017>                       +ID2 04:1d         35.00    8.627    3.05  73.14    .000
03018>                       +ID3 05:C1_cul      2.67     .479    3.07  57.95    .000
03019>                        ========================================================
03020>                        SUM 07:C1_out     38.63    9.296    3.03  71.94    .000
03021>
03022>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03023>
03024> ---------------------------------------------------------------------------
03025> 050:0009-----------------------------------------------------------------------
03026> *#************************************************************************
03027> ----------------------
03028> | CALIB STANDHYD     |   Area    (ha)=     .59
03029> | 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
03030> ----------------------
03031>                              IMPERVIOUS    PERVIOUS (i)
03032>      Surface Area     (ha)=        .32          .27
03033>      Dep. Storage     (mm)=       2.00         5.00
03034>      Average Slope     (%)=       1.60         1.60
03035>      Length            (m)=     210.00        40.00
03036>      Mannings n            =       .025         .250
03037>
03038>      Max.eff.Inten.(mm/hr)=     143.36       108.33
03039>                 over (min)=       4.00        12.00
03040>      Storage Coeff.  (min)=       4.44 (ii)   11.75 (ii)
03041>      Unit Hyd. Tpeak (min)=       4.00        12.00
03042>      Unit Hyd. peak  (cms)=        .26          .10
03043>                                                          *TOTALS*
03044>      PEAK FLOW       (cms)=        .09          .05          .132 (iii)
03045>      TIME TO PEAK    (hrs)=       3.00         3.10         3.017
03046>      RUNOFF VOLUME    (mm)=      89.90        44.11        61.971
03047>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03048>      RUNOFF COEFFICIENT   =        .98          .48          .674
03049>
03050>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03051>            CN* =  68.0    Ia = Dep. Storage  (Above)
03052>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03053>            THAN THE STORAGE COEFFICIENT.
03054>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03055>
03056> ---------------------------------------------------------------------------
03057> 050:0010-----------------------------------------------------------------------
03058> *#************************************************************************
03059> ----------------------
03060> | CALIB STANDHYD     |   Area    (ha)=    1.18
03061> | 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
03062> ----------------------
03063>                              IMPERVIOUS    PERVIOUS (i)
03064>      Surface Area     (ha)=        .77          .41
03065>      Dep. Storage     (mm)=       2.00         5.00
03066>      Average Slope     (%)=       3.40         3.40
03067>      Length            (m)=     235.00        40.00
03068>      Mannings n            =       .025         .250
03069>
03070>      Max.eff.Inten.(mm/hr)=     143.36        92.93
03071>                 over (min)=       4.00        10.00
03072>      Storage Coeff.  (min)=       3.79 (ii)    9.99 (ii)
03073>      Unit Hyd. Tpeak (min)=       4.00        10.00
03074>      Unit Hyd. peak  (cms)=        .29          .11
03075>                                                          *TOTALS*
03076>      PEAK FLOW       (cms)=        .21          .07          .270 (iii)
03077>      TIME TO PEAK    (hrs)=       3.00         3.08         3.000
03078>      RUNOFF VOLUME    (mm)=      89.90        31.03        58.112
03079>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03080>      RUNOFF COEFFICIENT   =        .98          .34          .632
03081>
03082>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03083>            CN* =  50.0    Ia = Dep. Storage  (Above)
03084>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03085>            THAN THE STORAGE COEFFICIENT.
03086>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03087>
03088> ---------------------------------------------------------------------------
03089> 050:0011-----------------------------------------------------------------------
03090> *#************************************************************************
03091> ----------------------
03092> | CALIB STANDHYD     |   Area    (ha)=    3.44
03093> | 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
03094> ----------------------
03095>                              IMPERVIOUS    PERVIOUS (i)
03096>      Surface Area     (ha)=       2.75          .69
03097>      Dep. Storage     (mm)=       2.00         5.00
03098>      Average Slope     (%)=       3.10         2.00
03099>      Length            (m)=     320.00        10.00
03100>      Mannings n            =       .013         .250
03101>
03102>      Max.eff.Inten.(mm/hr)=     143.36       127.14
03103>                 over (min)=       3.00         6.00
03104>      Storage Coeff.  (min)=       3.17 (ii)    5.96 (ii)
03105>      Unit Hyd. Tpeak (min)=       3.00         6.00
03106>      Unit Hyd. peak  (cms)=        .36          .19
03107>                                                          *TOTALS*
03108>      PEAK FLOW       (cms)=        .86          .19         1.048 (iii)
03109>      TIME TO PEAK    (hrs)=       3.00         3.03         3.000
03110>      RUNOFF VOLUME    (mm)=      89.90        34.50        69.955
03111>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03112>      RUNOFF COEFFICIENT   =        .98          .38          .761
03113>
03114>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03115>            CN* =  50.0    Ia = Dep. Storage  (Above)
03116>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03117>            THAN THE STORAGE COEFFICIENT.
03118>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03119>
03120> ---------------------------------------------------------------------------
03121> 050:0012-----------------------------------------------------------------------
03122> *#************************************************************************
03123> ----------------------
03124> | ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03125> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03126>                        ID1 01:2a          1.18     .270    3.00  58.11    .000
03127>                       +ID2 02:2c          3.44    1.048    3.00  69.96    .000
03128>                        ========================================================
03129>                        SUM 08:C2_out      4.62    1.317    3.00  66.93    .000
03130>
03131>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03132>
03133> ---------------------------------------------------------------------------
03134> 050:0013-----------------------------------------------------------------------
03135> *#************************************************************************
03136> ----------------------
03137> | CALIB STANDHYD     |   Area    (ha)=    2.38
03138> | 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03139> ----------------------
03140>                              IMPERVIOUS    PERVIOUS (i)
03141>      Surface Area     (ha)=       1.43          .95
03142>      Dep. Storage     (mm)=       2.00         5.00
03143>      Average Slope     (%)=       2.50         2.50
03144>      Length            (m)=     320.00        40.00
03145>      Mannings n            =       .025         .250
03146>
03147>      Max.eff.Inten.(mm/hr)=     143.36        99.92
03148>                 over (min)=       5.00        12.00
03149>      Storage Coeff.  (min)=       5.00 (ii)   11.60 (ii)
03150>      Unit Hyd. Tpeak (min)=       5.00        12.00
03151>      Unit Hyd. peak  (cms)=        .23          .10
03152>                                                          *TOTALS*
03153>      PEAK FLOW       (cms)=        .37          .18          .517 (iii)
03154>      TIME TO PEAK    (hrs)=       3.00         3.10         3.017
03155>      RUNOFF VOLUME    (mm)=      89.90        38.12        59.868
03156>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03157>      RUNOFF COEFFICIENT   =        .98          .41          .651
03158>
03159>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03160>            CN* =  60.0    Ia = Dep. Storage  (Above)
03161>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03162>            THAN THE STORAGE COEFFICIENT.
03163>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03164>
03165> ---------------------------------------------------------------------------
03166> 050:0014-----------------------------------------------------------------------
03167> *#************************************************************************
03168> ----------------------
03169> | CALIB STANDHYD     |   Area    (ha)=  197.18
03170> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
03171> ----------------------
03172>                              IMPERVIOUS    PERVIOUS (i)
03173>      Surface Area     (ha)=      78.87       118.31
03174>      Dep. Storage     (mm)=       2.00         5.00
03175>      Average Slope     (%)=        .50         2.00
03176>      Length            (m)=    2750.00        40.00
03177>      Mannings n            =       .020         .250
03178>
03179>      Max.eff.Inten.(mm/hr)=      99.25        41.94
03180>                 over (min)=      30.00        40.00
03181>      Storage Coeff.  (min)=      29.84 (ii)   39.83 (ii)
03182>      Unit Hyd. Tpeak (min)=      30.00        40.00
03183>      Unit Hyd. peak  (cms)=        .04          .03
03184>                                                          *TOTALS*
03185>      PEAK FLOW       (cms)=      10.46         8.60        18.104 (iii)
03186>      TIME TO PEAK    (hrs)=       3.37         3.58         3.450
03187>      RUNOFF VOLUME    (mm)=      89.89        40.67        56.427
03188>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03189>      RUNOFF COEFFICIENT   =        .98          .44          .614
03190>
03191>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03192>            CN* =  69.0    Ia = Dep. Storage  (Above)
03193>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03194>            THAN THE STORAGE COEFFICIENT.
03195>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03196>
03197> ---------------------------------------------------------------------------
03198> 050:0015-----------------------------------------------------------------------
03199> *#************************************************************************
03200> ----------------------
03201> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03202> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03203>                        ID1 01:3a          2.38     .517    3.02  59.87    .000
03204>                       +ID2 02:3c        197.18  18.104    3.45  56.43    .000
03205>                        ========================================================
03206>                        SUM 09:C3_out     199.56  18.237    3.45  56.47    .000
03207>
03208>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03209>
03210> ---------------------------------------------------------------------------
03211> 050:0016-----------------------------------------------------------------------
03212> *#************************************************************************
03213> ----------------------
03214> | CALIB STANDHYD     |   Area    (ha)=    1.94
03215> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03216> ----------------------
03217>                              IMPERVIOUS    PERVIOUS (i)
03218>      Surface Area     (ha)=       1.16          .78
03219>      Dep. Storage     (mm)=       2.00         5.00
03220>      Average Slope     (%)=       1.30         1.30
03221>      Length            (m)=     280.00        40.00
03222>      Mannings n            =       .025         .250
03223>
03224>      Max.eff.Inten.(mm/hr)=     143.36       111.37
03225>                 over (min)=       6.00        13.00
03226>      Storage Coeff.  (min)=       5.61 (ii)   13.31 (ii)
03227>      Unit Hyd. Tpeak (min)=       6.00        13.00
03228>      Unit Hyd. peak  (cms)=        .20          .09
03229>                                                          *TOTALS*
03230>      PEAK FLOW       (cms)=        .29          .16          .423 (iii)
03231>      TIME TO PEAK    (hrs)=       3.02         3.12         3.033
03232>      RUNOFF VOLUME    (mm)=      89.90        43.78        63.152
03233>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03234>      RUNOFF COEFFICIENT   =        .98          .48          .687
03235>
03236>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03237>            CN* =  66.0    Ia = Dep. Storage  (Above)
03238>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03239>            THAN THE STORAGE COEFFICIENT.
03240>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
03241>
03242> ------------------------------------------------------------------------------
03243> 050:0017------------------------------------------------------------------------
03244> *#*****************************************************************************
03245> ----------------------
03246> | CALIB STANDHYD     |   Area    (ha)=   46.39
03247> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
03248> ----------------------
03249>                              IMPERVIOUS    PERVIOUS (i)
03250>      Surface Area     (ha)=      13.92        32.47
03251>      Dep. Storage     (mm)=       2.00         7.00
03252>      Average Slope     (%)=       1.00         2.00
03253>      Length            (m)=    1700.00        60.00
03254>      Mannings n             =      .013         .250
03255>
03256>      Max.eff.Inten.(mm/hr)=     136.01        48.28
03257>                    over (min)       12.00        24.00
03258>      Storage Coeff.  (min)=      12.36 (ii)   24.41 (ii)
03259>      Unit Hyd. Tpeak (min)=      12.00        24.00
03260>      Unit Hyd. peak  (cms)=        .09          .05
03261>                                                          *TOTALS*
03262>      PEAK FLOW       (cms)=       3.04         2.65          5.030 (iii)
03263>      TIME TO PEAK    (hrs)=       3.08         3.32          3.133
03264>      RUNOFF VOLUME    (mm)=      89.90        34.53         47.825
03265>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03266>      RUNOFF COEFFICIENT   =        .98          .38           .520
03267>
03268>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03269>            CN* =  65.0    Ia = Dep. Storage  (Above)
03270>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03271>            THAN THE STORAGE COEFFICIENT.
03272>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03273>
03274> ------------------------------------------------------------------------------
03275> 050:0018------------------------------------------------------------------------
03276> *#*****************************************************************************
03277> ------------------------
03278> | ADD HYD (C4_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03279> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03280>                      ID1 01:4a             1.94      .423    3.03  63.15    .000
03281>                     +ID2 02:4c            46.39    5.030    3.13  47.82    .000
03282>                      ========================================================
03283>                      SUM 04:C4_out         48.33    5.340    3.13  48.44    .000
03284>
03285>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03286>
03287> ------------------------------------------------------------------------------
03288> 050:0019------------------------------------------------------------------------
03289> *#*****************************************************************************
03290> ----------------------
03291> | CALIB STANDHYD     |   Area    (ha)=    2.21
03292> | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03293> ----------------------
03294>                              IMPERVIOUS    PERVIOUS (i)
03295>      Surface Area     (ha)=       1.33          .88
03296>      Dep. Storage     (mm)=       2.00         5.00
03297>      Average Slope     (%)=       2.00         2.00
03298>      Length            (m)=     540.00        40.00
03299>      Mannings n             =      .025         .250
03300>
03301>      Max.eff.Inten.(mm/hr)=     143.36        98.63
03302>                    over (min)        7.00        14.00
03303>      Storage Coeff.  (min)=       7.32 (ii)   14.41 (ii)
03304>      Unit Hyd. Tpeak (min)=       7.00        14.00
03305>      Unit Hyd. peak  (cms)=        .16          .08
03306>                                                          *TOTALS*
03307>      PEAK FLOW       (cms)=        .31          .16           .441 (iii)
03308>      TIME TO PEAK    (hrs)=       3.02         3.13          3.033
03309>      RUNOFF VOLUME    (mm)=      89.90        39.95         60.932
03310>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03311>      RUNOFF COEFFICIENT   =        .98          .43           .663
03312>
03313>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03314>            CN* =  62.0    Ia = Dep. Storage  (Above)
03315>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03316>            THAN THE STORAGE COEFFICIENT.
03317>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03318>
03319> ------------------------------------------------------------------------------
03320> 050:0020------------------------------------------------------------------------
03321> *#*****************************************************************************
03322> ----------------------
03323> | CALIB STANDHYD     |   Area    (ha)=   13.39
03324> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03325> ----------------------
03326>                              IMPERVIOUS    PERVIOUS (i)
03327>      Surface Area     (ha)=       3.35         10.04
03328>      Dep. Storage     (mm)=       2.00          5.00
03329>      Average Slope     (%)=       1.60          2.00
03330>      Length            (m)=     575.00         75.00
03331>      Mannings n             =      .025          .250
03332>
03333>      Max.eff.Inten.(mm/hr)=     143.36        68.57
03334>                    over (min)        8.00        20.00
03335>      Storage Coeff.  (min)=       8.12 (ii)   20.09 (ii)
03336>      Unit Hyd. Tpeak (min)=       8.00        20.00
03337>      Unit Hyd. peak  (cms)=        .14          .06
03338>                                                          *TOTALS*
03339>      PEAK FLOW       (cms)=        .26         1.16          1.278 (iii)
03340>      TIME TO PEAK    (hrs)=       3.03         3.23          3.217
03341>      RUNOFF VOLUME    (mm)=      89.90        37.34         40.500
03342>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03343>      RUNOFF COEFFICIENT   =        .98          .41           .441
03344>
03345>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03346>            CN* =  63.0    Ia = Dep. Storage  (Above)
03347>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03348>            THAN THE STORAGE COEFFICIENT.
03349>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03350>
03351> ------------------------------------------------------------------------------
03352> 050:0021------------------------------------------------------------------------
03353> *#*****************************************************************************
03354> ------------------------
03355> | ADD HYD (C5_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03356> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03357>                      ID1 01:5a             2.21      .441    3.03  60.93    .000
03358>                     +ID2 02:5c            13.39    1.278    3.22  40.50    .000
03359>                      ========================================================
03360>                      SUM 05:C5_out         15.60    1.608    3.10  43.39    .000
03361>
03362>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03363>
03364> ------------------------------------------------------------------------------
03365> 050:0022------------------------------------------------------------------------
03366> *#*****************************************************************************
03367> ----------------------
03368> | CALIB STANDHYD     |   Area    (ha)=    2.19
03369> | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
03370> ----------------------
03371>                              IMPERVIOUS    PERVIOUS (i)
03372>      Surface Area     (ha)=       1.42          .77
03373>      Dep. Storage     (mm)=       2.00         5.00
03374>      Average Slope     (%)=        .50          .50
03375>      Length            (m)=     285.00        40.00
03376>      Mannings n             =      .025          .250
03377>
03378>      Max.eff.Inten.(mm/hr)=     143.36        54.44
03379>                    over (min)        8.00        21.00
03380>      Storage Coeff.  (min)=       7.56 (ii)   21.20 (ii)
03381>      Unit Hyd. Tpeak (min)=       8.00        21.00
03382>      Unit Hyd. peak  (cms)=        .15          .05
03383>                                                          *TOTALS*
03384>      PEAK FLOW       (cms)=        .33          .07           .376 (iii)
03385>      TIME TO PEAK    (hrs)=       3.03         3.27          3.033
03386>      RUNOFF VOLUME    (mm)=      89.90        25.61         55.185
03387>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03388>      RUNOFF COEFFICIENT   =        .98          .28           .600
03389>
03390>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03391>            CN* =  43.0    Ia = Dep. Storage  (Above)
03392>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03393>            THAN THE STORAGE COEFFICIENT.
03394>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03395>
03396> ------------------------------------------------------------------------------
03397> 050:0023------------------------------------------------------------------------
03398> *#*****************************************************************************
03399> ----------------------
03400> | CALIB STANDHYD     |   Area    (ha)=    9.59
03401> | 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
03402> ----------------------
03403>                              IMPERVIOUS    PERVIOUS (i)
03404>      Surface Area     (ha)=       4.80          4.80
03405>      Dep. Storage     (mm)=       2.00          5.00
03406>      Average Slope     (%)=        .80          2.00
03407>      Length            (m)=     400.00         40.00
03408>      Mannings n             =      .013          .250
03409>
03410>      Max.eff.Inten.(mm/hr)=     143.36         55.11
03411>                    over (min)        5.00         14.00
03412>      Storage Coeff.  (min)=       5.43 (ii)   14.39 (ii)
03413>      Unit Hyd. Tpeak (min)=       5.00         14.00
03414>      Unit Hyd. peak  (cms)=        .21          .08
03415>                                                          *TOTALS*
03416>      PEAK FLOW       (cms)=       1.39          .47          1.744 (iii)
03417>      TIME TO PEAK    (hrs)=       3.00         3.15          3.017
03418>      RUNOFF VOLUME    (mm)=      89.90        27.19         52.272
03419>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03420>      RUNOFF COEFFICIENT   =        .98          .30           .569
03421>
03422>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03423>            CN* =  52.0    Ia = Dep. Storage  (Above)
03424>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03425>            THAN THE STORAGE COEFFICIENT.
03426>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03427>
03428> ------------------------------------------------------------------------------
03429> 050:0024------------------------------------------------------------------------
03430> *#*****************************************************************************
03431> ------------------------
03432> | ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03433> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03434>                      ID1 01:6a             2.19      .376    3.03  55.19    .000
03435>                     +ID2 02:6c             9.59    1.744    3.02  52.27    .000
03436>                      ========================================================
03437>                      SUM 06:C6_out        11.78    2.115    3.02  52.81    .000
03438>
03439>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03440>
03441> ------------------------------------------------------------------------------
03442> 050:0025------------------------------------------------------------------------
03443> *#*****************************************************************************
03444> ------------------------
03445> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03446> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03447>                      ID1 07:C1_out        38.63    9.296    3.03  71.94    .000
03448>                     +ID2 08:C2_out         4.62    1.317    3.00  66.93    .000
03449>                     +ID3 09:C3_out       199.56   18.237    3.45  56.47    .000
03450>                     +ID4 04:C4_out        48.33    5.340    3.13  48.44    .000
03451>                     +ID5 05:C5_out        15.60    1.608    3.10  43.39    .000
03452>                     +ID6 06:C6_out        11.78    2.115    3.02  52.81    .000
03453>                     +ID7 10:2b              .59     .132    3.02  61.97    .000
03454>                      ========================================================
03455>                      SUM 03:GRCA          319.11   30.022    3.08  56.51    .000
03456>
03457>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03458>
03459> ------------------------------------------------------------------------------
03460> 050:0026------------------------------------------------------------------------
03461> *#*****************************************************************************
03462> ----------------------
03463> | CALIB STANDHYD     |   Area    (ha)=     .46
03464> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
03465> ----------------------
03466>                              IMPERVIOUS    PERVIOUS (i)
03467>      Surface Area     (ha)=        .25          .21
03468>      Dep. Storage     (mm)=       2.00         5.00
03469>      Average Slope     (%)=        .40          .40
03470>      Length            (m)=      70.00        40.00
03471>      Mannings n             =      .025          .250
03472>
03473>      Max.eff.Inten.(mm/hr)=     143.36        39.07
03474>                    over (min)        3.00        20.00
03475>      Storage Coeff.  (min)=       3.48 (ii)   20.14 (ii)
03476>      Unit Hyd. Tpeak (min)=       3.00        20.00
03477>      Unit Hyd. peak  (cms)=        .34          .06
03478>                                                          *TOTALS*
03479>      PEAK FLOW       (cms)=        .07          .01           .077 (iii)
03480>      TIME TO PEAK    (hrs)=       3.00         3.25          3.000
03481>      RUNOFF VOLUME    (mm)=      89.90        20.41         47.510
03482>      TOTAL RAINFALL   (mm)=      91.90        91.90         91.900
03483>      RUNOFF COEFFICIENT   =        .98          .22           .517
03484>
03485>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03486>            CN* =  39.0    Ia = Dep. Storage  (Above)
03487>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03488>            THAN THE STORAGE COEFFICIENT.
03489>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03490>
03491> ------------------------------------------------------------------------------
03492> 050:0027------------------------------------------------------------------------
03493> *#*****************************************************************************
03494> ----------------------
03495> | CALIB STANDHYD     |   Area    (ha)=     .87
03496> | 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
03497> ----------------------
03498>                              IMPERVIOUS    PERVIOUS (i)
03499>      Surface Area     (ha)=        .35          .52
03500>      Dep. Storage     (mm)=       2.00         5.00
03501>      Average Slope     (%)=       1.90          .50
03502>      Length            (m)=      80.00        110.00
03503>      Mannings n             =      .013          .250
03504>
03505>      Max.eff.Inten.(mm/hr)=     143.36         16.76
03506>                    over (min)        2.00         42.00
03507>      Storage Coeff.  (min)=       1.60 (ii)   41.70 (ii)
03508>      Unit Hyd. Tpeak (min)=       2.00         42.00
03509>      Unit Hyd. peak  (cms)=        .64          .03
03510>                                                          *TOTALS*
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```
03511>      PEAK FLOW       (cms)=        .11          .02          .115 (iii)
03512>      TIME TO PEAK    (hrs)=       3.00         3.63         3.000
03513>      RUNOFF VOLUME    (mm)=      89.90        17.47        40.650
03514>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03515>      RUNOFF COEFFICIENT   =        .98          .19          .442
03516>
03517>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03518>            CN* =  39.0    Ia = Dep. Storage  (Above)
03519>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03520>            THAN THE STORAGE COEFFICIENT.
03521>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03522>
03523> ------------------------------------------------------------------------------
03524> 050:0028-------------------------------------------------------------------------
03525> *#*************************************************************************
03526> ----------------------
03527> | ADD HYD (C7_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03528> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03529>                        ID1 01:7a           .46      .077    3.00  47.51    .000
03530>                       +ID2 02:7c           .87      .115    3.00  40.65    .000
03531>                        ========================================================
03532>                        SUM 07:C7_out       1.33     .192    3.00  43.02    .000
03533>
03534>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03535>
03536> ------------------------------------------------------------------------------
03537> 050:0029-------------------------------------------------------------------------
03538> *#*************************************************************************
03539> ----------------------
03540> | CALIB STANDHYD     |   Area    (ha)=     .71
03541> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03542> ----------------------
03543>                              IMPERVIOUS    PERVIOUS (i)
03544>      Surface Area     (ha)=        .43          .28
03545>      Dep. Storage     (mm)=       2.00         5.00
03546>      Average Slope     (%)=       1.70         1.70
03547>      Length            (m)=     110.00        40.00
03548>      Mannings n            =       .025         .250
03549>
03550>      Max.eff.Inten.(mm/hr)=     143.36        97.57
03551>                    over (min)        3.00        10.00
03552>      Storage Coeff.  (min)=       2.96 (ii)   10.44 (ii)
03553>      Unit Hyd. Tpeak (min)=       3.00        10.00
03554>      Unit Hyd. peak  (cms)=        .38          .11
03555>                                                        *TOTALS*
03556>      PEAK FLOW       (cms)=        .12          .05          .161 (iii)
03557>      TIME TO PEAK    (hrs)=       3.00         3.00         3.000
03558>      RUNOFF VOLUME    (mm)=      89.90        34.60        57.829
03559>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03560>      RUNOFF COEFFICIENT   =        .98          .38          .629
03561>
03562>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03563>            CN* =  56.0    Ia = Dep. Storage  (Above)
03564>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03565>            THAN THE STORAGE COEFFICIENT.
03566>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03567>
03568> ------------------------------------------------------------------------------
03569> 050:0030-------------------------------------------------------------------------
03570> *#*************************************************************************
03571> ----------------------
03572> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number    (CN)=69.00
03573> | 02:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
03574> ----------------------   U.H. Tp(hrs)=    .330
03575>
03576>      Unit Hyd Qpeak  (cms)=     .132
03577>
03578>      PEAK FLOW       (cms)=     .102 (i)
03579>      TIME TO PEAK    (hrs)=    3.233
03580>      RUNOFF VOLUME    (mm)=   36.891
03581>      TOTAL RAINFALL   (mm)=   91.900
03582>      RUNOFF COEFFICIENT   =     .401
03583>
03584>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03585>
03586> ------------------------------------------------------------------------------
03587> 050:0031-------------------------------------------------------------------------
03588> *#*************************************************************************
03589> ----------------------
03590> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03591> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03592>                        ID1 01:8a           .71      .161    3.00  57.83    .000
03593>                       +ID2 02:8c          1.14      .102    3.23  36.89    .000
03594>                        ========================================================
03595>                        SUM 08:C8_out       1.85      .222    3.02  44.93    .000
03596>
03597>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03598>
03599> ------------------------------------------------------------------------------
03600> 050:0032-------------------------------------------------------------------------
03601> *#*************************************************************************
03602> ----------------------
03603> | CALIB STANDHYD     |   Area    (ha)=    1.42
03604> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
03605> ----------------------
03606>                              IMPERVIOUS    PERVIOUS (i)
03607>      Surface Area     (ha)=        .82          .60
03608>      Dep. Storage     (mm)=       2.00         5.00
03609>      Average Slope     (%)=       2.90         2.90
03610>      Length            (m)=     170.00        40.00
03611>      Mannings n            =       .025         .250
03612>
03613>      Max.eff.Inten.(mm/hr)=     143.36        94.92
03614>                    over (min)        3.00        10.00
03615>      Storage Coeff.  (min)=       3.27 (ii)    9.72 (ii)
03616>      Unit Hyd. Tpeak (min)=       3.00        10.00
03617>      Unit Hyd. peak  (cms)=        .35          .12
03618>                                                        *TOTALS*
03619>      PEAK FLOW       (cms)=        .23          .11          .320 (iii)
03620>      TIME TO PEAK    (hrs)=       3.00         3.08         3.000
03621>      RUNOFF VOLUME    (mm)=      89.90        34.72        57.346
03622>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03623>      RUNOFF COEFFICIENT   =        .98          .38          .624
03624>
03625>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03626>            CN* =  57.0    Ia = Dep. Storage  (Above)
03627>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03628>            THAN THE STORAGE COEFFICIENT.
03629>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03630>
03631> ------------------------------------------------------------------------------
03632> 050:0033-------------------------------------------------------------------------
03633> *#*************************************************************************
03634> ----------------------
03635> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
03636> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
03637> ----------------------   U.H. Tp(hrs)=   1.580
03638>
03639>      Unit Hyd Qpeak  (cms)=    2.320
03640>
03641>      PEAK FLOW       (cms)=    2.814 (i)
03642>      TIME TO PEAK    (hrs)=    4.783
03643>      RUNOFF VOLUME    (mm)=   38.209
03644>      TOTAL RAINFALL   (mm)=   91.900
03645>      RUNOFF COEFFICIENT   =     .416
03646>
03647>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03648>
03649> ------------------------------------------------------------------------------
03650> 050:0034-------------------------------------------------------------------------
03651> *#*************************************************************************
03652> ----------------------
03653> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03654> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03655>                        ID1 01:9a           1.42      .320    3.00  57.35    .000
03656>                       +ID2 02:9c          95.98     2.814    4.78  38.21    .000
03657>                       +ID3 07:C7_out       1.33      .192    3.00  43.02    .000
03658>                       +ID4 08:C8_out       1.85      .222    3.02  44.93    .000
03659>                        ========================================================
03660>                        SUM 09:C9_out     100.58     2.872    4.77  38.67    .000
03661>
03662>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03663>
03664> ------------------------------------------------------------------------------
03665> 050:0035-------------------------------------------------------------------------
03666> *#*************************************************************************
03667> ----------------------
03668> | CALIB STANDHYD     |   Area    (ha)=    3.74
03669> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03670> ----------------------
03671>                              IMPERVIOUS    PERVIOUS (i)
03672>      Surface Area     (ha)=       2.24         1.50
03673>      Dep. Storage     (mm)=       2.00         5.00
03674>      Average Slope     (%)=       1.30         1.30
03675>      Length            (m)=     385.00        40.00
03676>      Mannings n            =       .025         .250
03677>
03678>      Max.eff.Inten.(mm/hr)=     143.36        72.48
03679>                    over (min)        7.00        16.00
03680>      Storage Coeff.  (min)=       6.80 (ii)   15.93 (ii)
03681>      Unit Hyd. Tpeak (min)=       7.00        16.00
03682>      Unit Hyd. peak  (cms)=        .16          .07
03683>                                                        *TOTALS*
03684>      PEAK FLOW       (cms)=        .53          .19          .680 (iii)
03685>      TIME TO PEAK    (hrs)=       3.02         3.17         3.033
03686>      RUNOFF VOLUME    (mm)=      89.90        31.27        55.898
03687>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03688>      RUNOFF COEFFICIENT   =        .98          .34          .608
03689>
03690>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03691>            CN* =  52.0    Ia = Dep. Storage  (Above)
03692>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03693>            THAN THE STORAGE COEFFICIENT.
03694>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03695>
03696> ------------------------------------------------------------------------------
03697> 050:0036-------------------------------------------------------------------------
03698> *#*************************************************************************
03699> ----------------------
03700> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
03701> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
03702> ----------------------   U.H. Tp(hrs)=   1.280
03703>
03704>      Unit Hyd Qpeak  (cms)=    3.260
03705>
03706>      PEAK FLOW       (cms)=    3.872 (i)
03707>      TIME TO PEAK    (hrs)=    4.400
03708>      RUNOFF VOLUME    (mm)=   39.243
03709>      TOTAL RAINFALL   (mm)=   91.900
03710>      RUNOFF COEFFICIENT   =     .427
03711>
03712>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03713>
03714> ------------------------------------------------------------------------------
03715> 050:0037-------------------------------------------------------------------------
03716> *#*************************************************************************
03717> ----------------------
03718> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03719> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03720>                        ID1 01:10a           3.74      .680    3.03  55.90    .000
03721>                       +ID2 02:10c         109.26     3.872    4.40  39.24    .000
03722>                        ========================================================
03723>                        SUM 10:C10_out      113.00     3.935    4.40  39.79    .000
03724>
03725>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03726>
03727> ------------------------------------------------------------------------------
03728> 050:0038-------------------------------------------------------------------------
03729> *#*************************************************************************
03730> ----------------------
03731> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03732> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03733>                        ID1 09:C9_out      100.58     2.872    4.77  38.67    .000
03734>                       +ID2 10:C10_out     113.00     3.935    4.40  39.79    .000
03735>                        ========================================================
03736>                        SUM 05:HCA          213.58     6.745    4.52  39.26    .000
03737>
03738>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03739>
03740> ------------------------------------------------------------------------------
03741> 050:0039-------------------------------------------------------------------------
03742> *#*************************************************************************
03743> ----------------------
03744> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
03745> ----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
03746>                        ID1 03:GRCA        319.11   30.022    3.08  56.51    .000
03747>                       +ID2 05:HCA         213.58     6.745    4.52  39.26    .000
03748>                        ========================================================
03749>                        SUM 06:All_F       532.69   32.159    3.08  49.60    .000
03750>
03751>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03752>
03753> ------------------------------------------------------------------------------
03754> 050:0040-------------------------------------------------------------------------
03755> *#*************************************************************************
03756> ------------------------------------------------------------------------------
03757> 050:0002-------------------------------------------------------------------------
03758> ------------------------------------------------------------------------------
03759> 050:0002-------------------------------------------------------------------------
03760> ------------------------------------------------------------------------------
03761> 050:0002-------------------------------------------------------------------------
03762>  ** END OF RUN :  99
03763>
03764> ************************************************************************
03765>
03766>
03767>
03768>
03769>
03770> ---------------------
03771> | START             |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
03772> ---------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
03773>     TZERO =    .00 hrs on        0
03774>     METOUT=   2 (output = METRIC)
03775>     NRUN  = 100
03776>     NSTORM=   1
03777>               #  1=H100SCS.6h
03778> ------------------------------------------------------------------------------
03779> 100:0002-------------------------------------------------------------------------
03780> *#*************************************************************************
```

```
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#**************************************************************************
*#
*#
*#
*#**************************************************************************
----------------------------------------------------------------------------
100:0002-------------------------------------------------------------------
--------------------
| READ STORM       |    Filename: Hamilton (Mount Hope), 100-yr,6 hr SCS s
| Ptotal= 102.30 mm|    Comments: Hamilton (Mount Hope), 100-yr,6 hr SCS s
--------------------
               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
                hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
                .17   4.090 |   1.67  10.230 |   3.17  22.510 |   4.67   6.140
                .33   4.090 |   1.83  10.230 |   3.33  22.510 |   4.83   6.140
                .50   4.090 |   2.00  10.230 |   3.50  22.510 |   5.00   6.140
                .67   6.140 |   2.17  12.280 |   3.67  10.230 |   5.17   4.090
                .83   6.140 |   2.33  12.280 |   3.83  10.230 |   5.33   4.090
               1.00   6.140 |   2.50  12.280 |   4.00  10.230 |   5.50   4.090
               1.17   6.140 |   2.67  61.380 |   4.17   8.180 |   5.67   4.090
               1.33   6.140 |   2.83 110.480 |   4.33   8.180 |   5.83   4.090
               1.50   6.140 |   3.00 159.590 |   4.50   8.180 |   6.00   4.090

----------------------------------------------------------------------------
100:0003-------------------------------------------------------------------
*#**************************************************************************
*#  PROPOSED CATCHMENTS (UNCONTROLLED)
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16          .78
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.10         1.10
     Length            (m)=     440.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       129.75
                   over (min)        7.00        15.00
     Storage Coeff.  (min)=       7.42 (ii)   15.03 (ii)
     Unit Hyd. Tpeak (min)=       7.00        15.00
     Unit Hyd. peak  (cms)=        .16          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .30          .18          .454 (iii)
     TIME TO PEAK    (hrs)=       3.02         3.15         3.050
     RUNOFF VOLUME    (mm)=     100.30        53.90        73.391
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .53          .717

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0004-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .34
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.20         2.20
     Length            (m)=      80.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       168.47
                   over (min)        2.00         8.00
     Storage Coeff.  (min)=       2.17 (ii)    7.73 (ii)
     Unit Hyd. Tpeak (min)=       2.00         8.00
     Unit Hyd. peak  (cms)=        .53          .14
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .19          .12          .307 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.05         3.000
     RUNOFF VOLUME    (mm)=     100.30        55.59        76.156
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .54          .744

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0005-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
| 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=     .127

     PEAK FLOW       (cms)=     .114 (i)
     TIME TO PEAK    (hrs)=    3.117
     RUNOFF VOLUME    (mm)=   48.747
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .477

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

----------------------------------------------------------------------------
100:0006-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.00         7.00
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.40         2.00
     Length            (m)=    1100.00        30.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       160.56
                   over (min)        8.00        13.00
     Storage Coeff.  (min)=       8.07 (ii)   12.99 (ii)
     Unit Hyd. Tpeak (min)=       8.00        13.00
     Unit Hyd. peak  (cms)=        .14          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       8.06         2.07         9.905 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.12         3.050
     RUNOFF VOLUME    (mm)=     100.30        51.16        82.611
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .50          .808

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0007-------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 01:1a           1.94      .454    3.05  73.39    .000
                      +ID2 03:1c            .73      .114    3.12  48.75    .000
                       ==========================================================
                       SUM 05:C1_cul       2.67      .560    3.05  66.65    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

----------------------------------------------------------------------------
100:0008-------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 02:1b            .96      .307    3.00  76.16    .000
                      +ID2 04:1d          35.00     9.905    3.05  82.61    .000
                      +ID3 05:C1_cul       2.67      .560    3.05  66.65    .000
                       ==========================================================
                       SUM 07:C1_out       38.63   10.691    3.03  81.35    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

----------------------------------------------------------------------------
100:0009-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .59
| 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .32          .27
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.60         1.60
     Length            (m)=     210.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       131.71
                   over (min)        4.00        11.00
     Storage Coeff.  (min)=       4.25 (ii)   11.01 (ii)
     Unit Hyd. Tpeak (min)=       4.00        11.00
     Unit Hyd. peak  (cms)=        .27          .10
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .10          .07          .154 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08         3.017
     RUNOFF VOLUME    (mm)=     100.30        52.06        70.875
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .51          .693

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0010-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .77          .41
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       112.96
                   over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.63 (ii)    9.36 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .30          .12
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .23          .09          .312 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.07         3.000
     RUNOFF VOLUME    (mm)=     100.30        37.21        66.234
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .36          .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0011-------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 02:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       150.99
                   over (min)        3.00         6.00
     Storage Coeff.  (min)=       3.03 (ii)    5.64 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .37          .20
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .96          .23         1.187 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.02         3.000
     RUNOFF VOLUME    (mm)=     100.30        41.16        79.011
     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
     RUNOFF COEFFICIENT   =        .98          .40          .772

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----------------------------------------------------------------------------
100:0012-------------------------------------------------------------------
*#**************************************************************************
```

```
04051> ----------------------
04052> | ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04053> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
04054>                       ID1 01:2a            1.18     .312    3.00  66.23    .000
04055>                      +ID2 02:2c            3.44    1.187    3.00  79.01    .000
04056>                       ========================================================
04057>                       SUM 08:C2_out         4.62    1.500    3.00  75.75    .000
04058>
04059>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04060>
04061> ------------------------------------------------------------------------------
04062> 100:0013----------------------------------------------------------------------
04063> *#############################################################################
04064> ----------------------
04065> | CALIB STANDHYD     |   Area    (ha)=    2.38
04066> | 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04067> ----------------------
04068>                                IMPERVIOUS    PERVIOUS (i)
04069>      Surface Area     (ha)=       1.43          .95
04070>      Dep. Storage     (mm)=       2.00         5.00
04071>      Average Slope     (%)=       2.50         2.50
04072>      Length            (m)=     320.00        40.00
04073>      Mannings n           =       .025         .250
04074>
04075>      Max.eff.Inten.(mm/hr)=     159.59       122.69
04076>                    over (min)        5.00        11.00
04077>      Storage Coeff.  (min)=       4.79 (ii)   10.87 (ii)
04078>      Unit Hyd. Tpeak (min)=       5.00        11.00
04079>      Unit Hyd. peak  (cms)=        .23          .10
04080>                                                          *TOTALS*
04081>      PEAK FLOW       (cms)=        .41          .22          .604 (iii)
04082>      TIME TO PEAK    (hrs)=       3.00         3.08         3.017
04083>      RUNOFF VOLUME    (mm)=     100.30        45.32        68.411
04084>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04085>      RUNOFF COEFFICIENT   =        .98          .44          .669
04086>
04087>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04088>            CN* =  60.0    Ia = Dep. Storage  (Above)
04089>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04090>              THAN THE STORAGE COEFFICIENT.
04091>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04092>
04093> ------------------------------------------------------------------------------
04094> 100:0014----------------------------------------------------------------------
04095> *#############################################################################
04096> ----------------------
04097> | CALIB STANDHYD     |   Area    (ha)=  197.18
04098> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
04099> ----------------------
04100>                                IMPERVIOUS    PERVIOUS (i)
04101>      Surface Area     (ha)=      78.87        118.31
04102>      Dep. Storage     (mm)=       2.00         5.00
04103>      Average Slope     (%)=        .50         2.00
04104>      Length            (m)=    2750.00        40.00
04105>      Mannings n           =       .020         .250
04106>
04107>      Max.eff.Inten.(mm/hr)=     113.99        52.67
04108>                    over (min)       28.00        37.00
04109>      Storage Coeff.  (min)=       28.23 (ii)   37.35 (ii)
04110>      Unit Hyd. Tpeak (min)=       28.00        37.00
04111>      Unit Hyd. peak  (cms)=         .04          .03
04112>                                                          *TOTALS*
04113>      PEAK FLOW       (cms)=       12.08        10.73        21.767 (iii)
04114>      TIME TO PEAK    (hrs)=        3.33         3.53         3.417
04115>      RUNOFF VOLUME    (mm)=     100.28        48.25        64.910
04116>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04117>      RUNOFF COEFFICIENT   =        .98          .47          .634
04118>
04119>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04120>            CN* =  69.0    Ia = Dep. Storage  (Above)
04121>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04122>              THAN THE STORAGE COEFFICIENT.
04123>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04124>
04125> ------------------------------------------------------------------------------
04126> 100:0015----------------------------------------------------------------------
04127> *#############################################################################
04128> ----------------------
04129> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04130> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
04131>                       ID1 01:3a            2.38     .604    3.02  68.41    .000
04132>                      +ID2 02:3c          197.18   21.767    3.42  64.91    .000
04133>                       ========================================================
04134>                       SUM 09:C3_out       199.56   21.923    3.42  64.95    .000
04135>
04136>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04137>
04138> ------------------------------------------------------------------------------
04139> 100:0016----------------------------------------------------------------------
04140> *#############################################################################
04141> ----------------------
04142> | CALIB STANDHYD     |   Area    (ha)=    1.94
04143> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04144> ----------------------
04145>                                IMPERVIOUS    PERVIOUS (i)
04146>      Surface Area     (ha)=       1.16          .78
04147>      Dep. Storage     (mm)=       2.00         5.00
04148>      Average Slope     (%)=       1.30         1.30
04149>      Length            (m)=     280.00        40.00
04150>      Mannings n           =       .025         .250
04151>
04152>      Max.eff.Inten.(mm/hr)=     159.59       131.16
04153>                    over (min)        5.00        13.00
04154>      Storage Coeff.  (min)=       5.38 (ii)   12.58 (ii)
04155>      Unit Hyd. Tpeak (min)=       5.00        13.00
04156>      Unit Hyd. peak  (cms)=        .22          .09
04157>                                                          *TOTALS*
04158>      PEAK FLOW       (cms)=        .33          .19          .488 (iii)
04159>      TIME TO PEAK    (hrs)=       3.00         3.12         3.017
04160>      RUNOFF VOLUME    (mm)=     100.30        51.68        72.100
04161>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04162>      RUNOFF COEFFICIENT   =        .98          .51          .705
04163>
04164>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04165>            CN* =  66.0    Ia = Dep. Storage  (Above)
04166>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04167>              THAN THE STORAGE COEFFICIENT.
04168>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04169>
04170> ------------------------------------------------------------------------------
04171> 100:0017----------------------------------------------------------------------
04172> *#############################################################################
04173> ----------------------
04174> | CALIB STANDHYD     |   Area    (ha)=   46.39
04175> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
04176> ----------------------
04177>                                IMPERVIOUS    PERVIOUS (i)
04178>      Surface Area     (ha)=      13.92         32.47
04179>      Dep. Storage     (mm)=       2.00         7.00
04180>      Average Slope     (%)=       1.00         2.00
04181>      Length            (m)=    1700.00        60.00
04182>      Mannings n           =       .013         .250
04183>
04184>      Max.eff.Inten.(mm/hr)=     151.41        60.03
04185>                    over (min)       12.00        23.00
04186>      Storage Coeff.  (min)=       11.85 (ii)   22.89 (ii)
04187>      Unit Hyd. Tpeak (min)=       12.00        23.00
04188>      Unit Hyd. peak  (cms)=         .10          .05
04189>                                                          *TOTALS*
04190>      PEAK FLOW       (cms)=        3.43         3.32         6.032 (iii)
04191>      TIME TO PEAK    (hrs)=        3.08         3.28         3.133
04192>      RUNOFF VOLUME    (mm)=     100.30        41.42        55.552
04193>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04194>      RUNOFF COEFFICIENT   =         .98          .40          .543
04195>
04196>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04197>            CN* =  65.0    Ia = Dep. Storage  (Above)
04198>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04199>              THAN THE STORAGE COEFFICIENT.
04200>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04201>
04202> ------------------------------------------------------------------------------
04203> 100:0018----------------------------------------------------------------------
04204> *#############################################################################
04205> ----------------------
04206> | ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04207> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
04208>                       ID1 01:4a            1.94     .488    3.02  72.10    .000
04209>                      +ID2 02:4c           46.39    6.032    3.13  55.55    .000
04210>                       ========================================================
04211>                       SUM 04:C4_out        48.33    6.375    3.13  56.22    .000
04212>
04213>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04214>
04215> ------------------------------------------------------------------------------
04216> 100:0019----------------------------------------------------------------------
04217> *#############################################################################
04218> ----------------------
04219> | CALIB STANDHYD     |   Area    (ha)=    2.21
04220> | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04221> ----------------------
04222>                                IMPERVIOUS    PERVIOUS (i)
04223>      Surface Area     (ha)=       1.33          .88
04224>      Dep. Storage     (mm)=       2.00         5.00
04225>      Average Slope     (%)=       2.00         2.00
04226>      Length            (m)=     540.00        40.00
04227>      Mannings n           =       .025         .250
04228>
04229>      Max.eff.Inten.(mm/hr)=     159.59       116.88
04230>                    over (min)        7.00        14.00
04231>      Storage Coeff.  (min)=       7.01 (ii)   13.64 (ii)
04232>      Unit Hyd. Tpeak (min)=       7.00        14.00
04233>      Unit Hyd. peak  (cms)=        .16          .08
04234>                                                          *TOTALS*
04235>      PEAK FLOW       (cms)=        .35          .19          .509 (iii)
04236>      TIME TO PEAK    (hrs)=       3.02         3.13         3.033
04237>      RUNOFF VOLUME    (mm)=     100.30        47.38        69.611
04238>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04239>      RUNOFF COEFFICIENT   =        .98          .46          .680
04240>
04241>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04242>            CN* =  62.0    Ia = Dep. Storage  (Above)
04243>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04244>              THAN THE STORAGE COEFFICIENT.
04245>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04246>
04247> ------------------------------------------------------------------------------
04248> 100:0020----------------------------------------------------------------------
04249> *#############################################################################
04250> ----------------------
04251> | CALIB STANDHYD     |   Area    (ha)=   13.39
04252> | 02:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
04253> ----------------------
04254>                                IMPERVIOUS    PERVIOUS (i)
04255>      Surface Area     (ha)=       3.35         10.04
04256>      Dep. Storage     (mm)=       2.00         5.00
04257>      Average Slope     (%)=       1.60         2.00
04258>      Length            (m)=     575.00        75.00
04259>      Mannings n           =       .025         .250
04260>
04261>      Max.eff.Inten.(mm/hr)=     159.59        83.80
04262>                    over (min)        8.00        19.00
04263>      Storage Coeff.  (min)=       7.78 (ii)   18.83 (ii)
04264>      Unit Hyd. Tpeak (min)=       8.00        19.00
04265>      Unit Hyd. peak  (cms)=        .14          .06
04266>                                                          *TOTALS*
04267>      PEAK FLOW       (cms)=        .29         1.44         1.581 (iii)
04268>      TIME TO PEAK    (hrs)=       3.03         3.22         3.183
04269>      RUNOFF VOLUME    (mm)=     100.30        44.47        47.822
04270>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04271>      RUNOFF COEFFICIENT   =        .98          .43          .467
04272>
04273>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04274>            CN* =  63.0    Ia = Dep. Storage  (Above)
04275>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04276>              THAN THE STORAGE COEFFICIENT.
04277>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04278>
04279> ------------------------------------------------------------------------------
04280> 100:0021----------------------------------------------------------------------
04281> *#############################################################################
04282> ----------------------
04283> | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04284> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
04285>                       ID1 01:5a            2.21     .509    3.03  69.61    .000
04286>                      +ID2 02:5c           13.39    1.581    3.18  47.82    .000
04287>                       ========================================================
04288>                       SUM 05:C5_out        15.60    1.975    3.10  50.91    .000
04289>
04290>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04291>
04292> ------------------------------------------------------------------------------
04293> 100:0022----------------------------------------------------------------------
04294> *#############################################################################
04295> ----------------------
04296> | CALIB STANDHYD     |   Area    (ha)=    2.19
04297> | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
04298> ----------------------
04299>                                IMPERVIOUS    PERVIOUS (i)
04300>      Surface Area     (ha)=       1.42          .77
04301>      Dep. Storage     (mm)=       2.00         5.00
04302>      Average Slope     (%)=        .50          .50
04303>      Length            (m)=     285.00        40.00
04304>      Mannings n           =       .025         .250
04305>
04306>      Max.eff.Inten.(mm/hr)=     159.59        68.34
04307>                    over (min)        7.00        20.00
04308>      Storage Coeff.  (min)=       7.24 (ii)   19.70 (ii)
04309>      Unit Hyd. Tpeak (min)=       7.00        20.00
04310>      Unit Hyd. peak  (cms)=        .16          .06
04311>                                                          *TOTALS*
04312>      PEAK FLOW       (cms)=        .38          .09          .435 (iii)
04313>      TIME TO PEAK    (hrs)=       3.02         3.23         3.033
04314>      RUNOFF VOLUME    (mm)=     100.30        30.93        62.840
04315>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04316>      RUNOFF COEFFICIENT   =        .98          .30          .614
04317>
04318>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04319>            CN* =  43.0    Ia = Dep. Storage  (Above)
04320>         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0023--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 02:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.80         4.80
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=         .80         2.00
     Length            (m)=      400.00        40.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     159.59        68.65
                   over (min)        5.00        13.00
     Storage Coeff.  (min)=        5.21 (ii)   13.41 (ii)
     Unit Hyd. Tpeak (min)=        5.00        13.00
     Unit Hyd. peak  (cms)=         .22          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=        1.56          .59        2.024 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.13         3.017
     RUNOFF VOLUME    (mm)=      100.30        32.81        59.807
     TOTAL RAINFALL   (mm)=      102.30       102.30       102.302
     RUNOFF COEFFICIENT   =         .98          .32          .585

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0024--------------------------------------------------------------------------------
*#*****************************************************************************
------------------------
| ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:6a            2.19      .435    3.03  62.84    .000
                      +ID2 02:6c            9.59    2.024    3.02  59.81    .000
                       ==========================================================
                       SUM 06:C6_out        11.78    2.456    3.02  60.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

100:0025--------------------------------------------------------------------------------
*#*****************************************************************************
------------------------
| ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 07:C1_out        38.63   10.691    3.03  81.35    .000
                      +ID2 08:C2_out         4.62    1.500    3.00  75.75    .000
                      +ID3 09:C3_out       199.56   21.923    3.42  64.95    .000
                      +ID4 04:C4_out        48.33    6.375    3.13  56.22    .000
                      +ID5 05:C5_out        15.60    1.975    3.10  50.91    .000
                      +ID6 06:C6_out        11.78    2.456    3.02  60.37    .000
                      +ID7 10:2b              .59     .154    3.02  70.87    .000
                       ==========================================================
                       SUM 03:GRCA         319.11   36.105    3.10  64.93    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

100:0026--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .46
| 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .25          .21
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=         .40          .40
     Length            (m)=       70.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59        50.23
                   over (min)        3.00        18.00
     Storage Coeff.  (min)=        3.33 (ii)   18.40 (ii)
     Unit Hyd. Tpeak (min)=        3.00        18.00
     Unit Hyd. peak  (cms)=         .35          .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .08          .02          .089 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.22         3.000
     RUNOFF VOLUME    (mm)=      100.30        24.83        54.262
     TOTAL RAINFALL   (mm)=      102.30       102.30       102.302
     RUNOFF COEFFICIENT   =         .98          .24          .530

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0027--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .87
| 02:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .35          .52
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        1.90          .50
     Length            (m)=      80.00       110.00
     Mannings n              =      .013         .250

     Max.eff.Inten.(mm/hr)=     159.59        21.81
                   over (min)        2.00        38.00
     Storage Coeff.  (min)=        1.53 (ii)   37.62 (ii)
     Unit Hyd. Tpeak (min)=        2.00        38.00
     Unit Hyd. peak  (cms)=         .66          .03
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .12          .02          .129 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.57         3.000
     RUNOFF VOLUME    (mm)=      100.30        21.37        46.627
     TOTAL RAINFALL   (mm)=      102.30       102.30       102.302
     RUNOFF COEFFICIENT   =         .98          .21          .456

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  39.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0028--------------------------------------------------------------------------------
*#*****************************************************************************
------------------------
| ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:7a             .46      .089    3.00  54.26    .000
                      +ID2 02:7c             .87      .129    3.00  46.63    .000
                       ==========================================================
                       SUM 07:C7_out        1.33      .218    3.00  49.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

100:0029--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .71
| 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .43          .28
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        1.70         1.70
     Length            (m)=      110.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       116.26
                   over (min)        3.00        10.00
     Storage Coeff.  (min)=        2.83 (ii)    9.81 (ii)
     Unit Hyd. Tpeak (min)=        3.00        10.00
     Unit Hyd. peak  (cms)=         .39          .11
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .13          .06          .185 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08         3.000
     RUNOFF VOLUME    (mm)=      100.30        41.32        66.093
     TOTAL RAINFALL   (mm)=      102.30       102.30       102.302
     RUNOFF COEFFICIENT   =         .98          .40          .646

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  56.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0030--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
| 02:8c     DT= 1.00 |   Ia      (mm)=    6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=     .330

     Unit Hyd Qpeak  (cms)=     .132

     PEAK FLOW       (cms)=     .122 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   44.074
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .431

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

100:0031--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:8a             .71      .185    3.00  66.09    .000
                      +ID2 02:8c            1.14      .122    3.23  44.07    .000
                       ==========================================================
                       SUM 08:C8_out        1.85      .260    3.02  52.52    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

100:0032--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .82          .60
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        2.90         2.90
     Length            (m)=      170.00        40.00
     Mannings n              =      .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       114.70
                   over (min)        3.00         9.00
     Storage Coeff.  (min)=        3.13 (ii)    9.11 (ii)
     Unit Hyd. Tpeak (min)=        3.00         9.00
     Unit Hyd. peak  (cms)=         .36          .12
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .25          .13          .373 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.07         3.000
     RUNOFF VOLUME    (mm)=      100.30        41.46        65.587
     TOTAL RAINFALL   (mm)=      102.30       102.30       102.302
     RUNOFF COEFFICIENT   =         .98          .41          .641

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  57.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

100:0033--------------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
| 02:9c     DT= 1.00 |   Ia      (mm)=    7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    1.580

     Unit Hyd Qpeak  (cms)=    2.320

     PEAK FLOW       (cms)=    3.369 (i)
     TIME TO PEAK    (hrs)=    4.767
     RUNOFF VOLUME    (mm)=   45.629
     TOTAL RAINFALL   (mm)=  102.302
     RUNOFF COEFFICIENT   =     .446

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

100:0034--------------------------------------------------------------------------------
*#*****************************************************************************
------------------------
| ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:9a            1.42      .373    3.00  65.59    .000
                      +ID2 02:9c           95.98    3.369    4.77  45.63    .000
                      +ID3 07:C7_out        1.33      .218    3.00  49.27    .000
                      +ID4 08:C8_out        1.85      .260    3.02  52.52    .000
                       ==========================================================
                       SUM 09:C9_out      100.58    3.436    4.75  46.09    .000

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

```
04591>
04592> ------------------------------------------------------------------------------
04593> 100:0035------------------------------------------------------------------------
04594> *#*****************************************************************************
04595> ----------------------
04596> | CALIB STANDHYD     |   Area    (ha)=    3.74
04597> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04598> ----------------------
04599>                              IMPERVIOUS    PERVIOUS (i)
04600>      Surface Area     (ha)=       2.24         1.50
04601>      Dep. Storage     (mm)=       2.00         5.00
04602>      Average Slope     (%)=       1.30         1.30
04603>      Length            (m)=     385.00        40.00
04604>      Mannings n             =      .025         .250
04605>
04606>      Max.eff.Inten.(mm/hr)=     159.59        89.42
04607>                    over (min)        7.00        15.00
04608>      Storage Coeff.  (min)=       6.51 (ii)   14.91 (ii)
04609>      Unit Hyd. Tpeak (min)=       7.00        15.00
04610>      Unit Hyd. peak  (cms)=        .17          .08
04611>                                                          *TOTALS*
04612>      PEAK FLOW       (cms)=        .60          .24          .789 (iii)
04613>      TIME TO PEAK    (hrs)=       3.02         3.15         3.033
04614>      RUNOFF VOLUME    (mm)=     100.30        37.50        63.880
04615>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04616>      RUNOFF COEFFICIENT   =        .98          .37          .624
04617>
04618>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04619>            CN* =  52.0    Ia = Dep. Storage  (Above)
04620>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04621>            THAN THE STORAGE COEFFICIENT.
04622>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04623>
04624> ------------------------------------------------------------------------------
04625> 100:0036------------------------------------------------------------------------
04626> *#*****************************************************************************
04627> ----------------------
04628> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
04629> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
04630> ----------------------   U.H. Tp(hrs)=   1.280
04631>
04632>      Unit Hyd Qpeak  (cms)=    3.260
04633>
04634>      PEAK FLOW       (cms)=    4.634 (i)
04635>      TIME TO PEAK    (hrs)=    4.383
04636>      RUNOFF VOLUME    (mm)=   46.797
04637>      TOTAL RAINFALL   (mm)=  102.302
04638>      RUNOFF COEFFICIENT   =     .457
04639>
04640>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04641>
04642> ------------------------------------------------------------------------------
04643> 100:0037------------------------------------------------------------------------
04644> *#*****************************************************************************
04645> ------------------------
04646> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04647> ------------------------ ID1                (ha)     (cms)   (hrs)   (mm)   (cms)
04648>                       ID1 01:10a           3.74     .789    3.03  63.88    .000
04649>                      +ID2 02:10c         109.26    4.634    4.38  46.80    .000
04650>                       ==========================================================
04651>                       SUM 10:C10_out      113.00    4.705    4.38  47.36    .000
04652>
04653>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04654>
04655> ------------------------------------------------------------------------------
04656> 100:0038------------------------------------------------------------------------
04657> *#*****************************************************************************
04658> ------------------------
04659> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04660> ------------------------ ID1                (ha)     (cms)   (hrs)   (mm)   (cms)
04661>                       ID1 09:C9_out       100.58    3.436    4.75  46.09    .000
04662>                      +ID2 10:C10_out      113.00    4.705    4.38  47.36    .000
04663>                       ==========================================================
04664>                       SUM 05:HCA          213.58    8.068    4.52  46.76    .000
04665>
04666>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04667>
04668> ------------------------------------------------------------------------------
04669> 100:0039------------------------------------------------------------------------
04670> *#*****************************************************************************
04671> ------------------------
04672> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04673> ------------------------ ID1                (ha)     (cms)   (hrs)   (mm)   (cms)
04674>                       ID1 03:GRCA         319.11   36.105    3.10  64.93    .000
04675>                      +ID2 05:HCA          213.58    8.068    4.52  46.76    .000
04676>                       ==========================================================
04677>                       SUM 06:All_F        532.69   38.715    3.10  57.64    .000
04678>
04679>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04680>
04681> ------------------------------------------------------------------------------
04682> 100:0040------------------------------------------------------------------------
04683> *#*****************************************************************************
04684> ------------------------------------------------------------------------------
04685> 100:0002------------------------------------------------------------------------
04686> ------------------------------------------------------------------------------
04687> 100:0002------------------------------------------------------------------------
04688> ------------------------------------------------------------------------------
04689> 100:0002------------------------------------------------------------------------
04690> ------------------------------------------------------------------------------
04691> 100:0002------------------------------------------------------------------------
04692>       FINISH
04693> ------------------------------------------------------------------------------
04694> *****************************************************************************
04695>      WARNINGS / ERRORS / NOTES
04696>      -------------------------
04697>    Simulation ended on 2024-12-13     at 11:20:07
04698> ==============================================================================
04699>
```

```
00001> ================================================================================
00002>
00003>   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
00004>   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
00005>   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
00006>       S  W W W  M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
00007>   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
00008>                                                          9   9  9   9   # 4730904
00009>         StormWater Management HYdrologic Model            999    999    =========
00010>
00011>  ************************************************************************
00012>  ***************************** SWMHYMO Ver/4.05  ***************************
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: Stantec Consulting Ltd. (Kitchener)          +++++++++
00025>  +++++++++                 Kitchener            SERIAL#:4730904       +++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ************************************************************************
00029>  *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
00030>  *********           Maximum value for ID numbers  :     10            *********
00031>  *********           Max. number of rainfall points: 105408            *********
00032>  *********           Max. number of flow points    : 105408            *********
00033>  ************************************************************************
00034>
00035>
00036>  **********************   D E T A I L E D   O U T P U T   **********************
00037>  ************************************************************************
00038>  *         DATE: 2024-12-13     TIME: 11:20:53     RUN COUNTER: 000652         *
00039>  ************************************************************************
00040>  * Input   filename: C:\SWMHYMO\Garner\12-12-~1\GarnCtrl.dat                 *
00041>  * Output  filename: C:\SWMHYMO\Garner\12-12-~1\GarnCtrl.out                 *
00042>  * Summary filename: C:\SWMHYMO\Garner\12-12-~1\GarnCtrl.sum                 *
00043>  * User comments:                                                           *
00044>  * 1:_____________________________________________________________________*
00045>  * 2:_____________________________________________________________________*
00046>  * 3:_____________________________________________________________________*
00047>  ************************************************************************
00048>
00049> --------------------------------------------------------------------------------
00050> 001:0001--------------------------------------------------------------------------
00051> *#*************************************************************************
00052> *#  Project Name: Garner Rd. MCEA
00053> *#  Date        : December 12, 2024
00054> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00055> *#  Modeller    : Amy Kyle
00056> *#  License #   :  4730904
00057> *#*************************************************************************
00058> *#
00059> *#
00060> *#
00061> *#*************************************************************************
00062>   ** END OF RUN :   1
00063>
00064> ********************************************************************************
00065>
00066>
00067>
00068>
00069>
00070> --------------------
00071> | START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
00072> --------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
00073>     TZERO =   .00 hrs on        0
00074>     METOUT=   2 (output = METRIC)
00075>     NRUN  = 002
00076>     NSTORM=   1
00077>               #  1=Ham2yr.STM
00078> --------------------------------------------------------------------------------
00079> 002:0002--------------------------------------------------------------------------
00080> *#*************************************************************************
00081> *#  Project Name: Garner Rd. MCEA
00082> *#  Date        : December 12, 2024
00083> *#  Company     : Stantec Consulting Ltd. (Waterloo)
00084> *#  Modeller    : Amy Kyle
00085> *#  License #   :  4730904
00086> *#*************************************************************************
00087> *#
00088> *#
00089> *#
00090> *#*************************************************************************
00091> --------------------------------------------------------------------------------
00092> 002:0002--------------------------------------------------------------------------
00093> --------------------
00094> | READ STORM       |    Filename: CHICAGO STORM
00095> | Ptotal=  32.71 mm|    Comments: CHICAGO STORM
00096> --------------------
00097>              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
00098>               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
00099>               .08   2.929 |    .83   8.680 |   1.58   9.866 |   2.33   3.860
00100>               .17   3.141 |    .92  11.561 |   1.67   8.318 |   2.42   3.634
00101>               .25   3.390 |   1.00  17.565 |   1.75   7.210 |   2.50   3.435
00102>               .33   3.689 |   1.08  37.119 |   1.83   6.377 |   2.58   3.259
00103>               .42   4.054 |   1.17  99.290 |   1.92   5.727 |   2.67   3.102
00104>               .50   4.510 |   1.25  42.696 |   2.00   5.207 |   2.75   2.961
00105>               .58   5.097 |   1.33  23.344 |   2.08   4.780 |   2.83   2.834
00106>               .67   5.883 |   1.42  15.986 |   2.17   4.423 |   2.92   2.718
00107>               .75   6.993 |   1.50  12.178 |   2.25   4.121 |   3.00   2.612
00108>
00109> --------------------------------------------------------------------------------
00110> 002:0003--------------------------------------------------------------------------
00111> *#*************************************************************************
00112> *#  PROPOSED CATCHMENTS (CONTROLLED)
00113> *#*************************************************************************
00114> ----------------------
00115> | CALIB STANDHYD     |   Area    (ha)=    1.94
00116> | 01:1a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00117> ----------------------
00118>                                IMPERVIOUS    PERVIOUS (i)
00119>      Surface Area     (ha)=       1.16          .78
00120>      Dep. Storage     (mm)=       2.00         5.00
00121>      Average Slope     (%)=       1.10         1.10
00122>      Length            (m)=     440.00        40.00
00123>      Mannings n             =       .025         .250
00124>
00125>      Max.eff.Inten.(mm/hr)=      70.99        13.72
00126>                 over (min)       10.00        29.00
00127>      Storage Coeff.  (min)=      10.25 (ii)   28.94 (ii)
00128>      Unit Hyd. Tpeak (min)=      10.00        29.00
00129>      Unit Hyd. peak  (cms)=        .11          .04
00130>                                                          *TOTALS*
00131>      PEAK FLOW       (cms)=        .11          .02          .114 (iii)
00132>      TIME TO PEAK    (hrs)=       1.30         1.72         1.300
00133>      RUNOFF VOLUME    (mm)=      30.71         7.67        17.346
00134>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00135>      RUNOFF COEFFICIENT   =        .94          .23          .530
00136>
00137>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00138>            CN* =  68.0    Ia = Dep. Storage  (Above)
00139>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00140>            THAN THE STORAGE COEFFICIENT.
00141>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00142>
00143> --------------------------------------------------------------------------------
00144> 002:0004--------------------------------------------------------------------------
00145> *#*************************************************************************
00146> ----------------------
00147> | CALIB STANDHYD     |   Area    (ha)=     .96
00148> | 02:1b      DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
00149> ----------------------
00150>                                IMPERVIOUS    PERVIOUS (i)
00151>      Surface Area     (ha)=        .62          .34
00152>      Dep. Storage     (mm)=       2.00         5.00
00153>      Average Slope     (%)=       2.20         2.20
00154>      Length            (m)=      80.00        40.00
00155>      Mannings n             =       .025         .250
00156>
00157>      Max.eff.Inten.(mm/hr)=      99.29        22.59
00158>                 over (min)        3.00        15.00
00159>      Storage Coeff.  (min)=       2.62 (ii)   15.05 (ii)
00160>      Unit Hyd. Tpeak (min)=       3.00        15.00
00161>      Unit Hyd. peak  (cms)=        .41          .08
00162>                                                          *TOTALS*
00163>      PEAK FLOW       (cms)=        .10          .01          .106 (iii)
00164>      TIME TO PEAK    (hrs)=       1.18         1.45         1.183
00165>      RUNOFF VOLUME    (mm)=      30.71         8.12        18.514
00166>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00167>      RUNOFF COEFFICIENT   =        .94          .25          .566
00168>
00169>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00170>            CN* =  68.0    Ia = Dep. Storage  (Above)
00171>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00172>            THAN THE STORAGE COEFFICIENT.
00173>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00174>
00175> --------------------------------------------------------------------------------
00176> 002:0005--------------------------------------------------------------------------
00177> *#*************************************************************************
00178> ----------------------
00179> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
00180> | 03:1c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00181> ----------------------  U.H. Tp(hrs)=    .220
00182>
00183>      Unit Hyd Qpeak  (cms)=     .127
00184>
00185>      PEAK FLOW       (cms)=     .013 (i)
00186>      TIME TO PEAK    (hrs)=    1.467
00187>      RUNOFF VOLUME    (mm)=    5.914
00188>      TOTAL RAINFALL   (mm)=   32.713
00189>      RUNOFF COEFFICIENT   =     .181
00190>
00191>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00192>
00193> --------------------------------------------------------------------------------
00194> 002:0006--------------------------------------------------------------------------
00195> *#*************************************************************************
00196> ----------------------
00197> | CALIB STANDHYD     |   Area    (ha)=   35.00
00198> | 04:1d      DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
00199> ----------------------
00200>                                IMPERVIOUS    PERVIOUS (i)
00201>      Surface Area     (ha)=      28.00         7.00
00202>      Dep. Storage     (mm)=       2.00         5.00
00203>      Average Slope     (%)=       1.40         2.00
00204>      Length            (m)=    1100.00        30.00
00205>      Mannings n             =       .013         .250
00206>
00207>      Max.eff.Inten.(mm/hr)=      67.91        18.27
00208>                 over (min)       11.00        23.00
00209>      Storage Coeff.  (min)=      11.36 (ii)   23.09 (ii)
00210>      Unit Hyd. Tpeak (min)=      11.00        23.00
00211>      Unit Hyd. peak  (cms)=        .10          .05
00212>                                                          *TOTALS*
00213>      PEAK FLOW       (cms)=       2.83          .21         2.927 (iii)
00214>      TIME TO PEAK    (hrs)=       1.32         1.60         1.317
00215>      RUNOFF VOLUME    (mm)=      30.71         7.23        22.257
00216>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00217>      RUNOFF COEFFICIENT   =        .94          .22          .680
00218>
00219>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00220>            CN* =  60.0    Ia = Dep. Storage  (Above)
00221>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00222>            THAN THE STORAGE COEFFICIENT.
00223>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00224>
00225> --------------------------------------------------------------------------------
00226> 002:0007--------------------------------------------------------------------------
00227> *#*************************************************************************
00228> ----------------------
00229> | ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00230> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00231>                        ID1 01:1a          1.94      .114    1.30  17.35     .000
00232>                      +ID2 03:1c           .73      .013    1.47   5.91     .000
00233>                        ==========================================================
00234>                        SUM 05:C1_cul      2.67      .123    1.32  14.22     .000
00235>
00236>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00237>
00238> --------------------------------------------------------------------------------
00239> 002:0008--------------------------------------------------------------------------
00240> *#*************************************************************************
00241> ----------------------
00242> | ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.     DWF
00243> ----------------------                   (ha)     (cms)   (hrs)   (mm)    (cms)
00244>                        ID1 02:1b            .96      .106    1.18  18.51     .000
00245>                      +ID2 04:1d           35.00     2.927    1.32  22.26     .000
00246>                      +ID3 05:C1_cul        2.67      .123    1.32  14.22     .000
00247>                        ==========================================================
00248>                        SUM 07:C1_out       38.63     3.099    1.32  21.61     .000
00249>
00250>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00251>
00252> --------------------------------------------------------------------------------
00253> 002:0009--------------------------------------------------------------------------
00254> *#*************************************************************************
00255> ----------------------
00256> | CALIB STANDHYD     |   Area    (ha)=     .59
00257> | 10:2b      DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
00258> ----------------------
00259>                                IMPERVIOUS    PERVIOUS (i)
00260>      Surface Area     (ha)=        .32          .27
00261>      Dep. Storage     (mm)=       2.00         5.00
00262>      Average Slope     (%)=       1.60         1.60
00263>      Length            (m)=     210.00        40.00
00264>      Mannings n             =       .025         .250
00265>
00266>      Max.eff.Inten.(mm/hr)=      99.29        14.07
00267>                 over (min)        5.00        22.00
00268>      Storage Coeff.  (min)=       5.14 (ii)   21.68 (ii)
00269>      Unit Hyd. Tpeak (min)=       5.00        22.00
00270>      Unit Hyd. peak  (cms)=        .22          .05
```

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .04          .01           .044 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.58          1.217
     RUNOFF VOLUME    (mm)=      30.71         7.19          16.362
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .22           .500

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0010------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(2b    )   |
| OUT<01:(000002)   |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00    |     .099  .1230E-01
                            .029  .6700E-02    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (2b    )         .59      .044     1.217      16.362
     OUTFLOW<01: (000002)         .59      .015     1.567      16.362
    OVERFLOW<02: (2bovf )         .00      .000      .000        .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   35.453
                    TIME SHIFT OF PEAK FLOW         (min)=    21.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3579E-02

------------------------------------------------------------------------------
002:0011------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (2b_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:         2       .59      .015    1.57  16.36    .000
                    +ID2 02:2bovf            .00      .000     .00    .00    .000
                     ========================================================
                     SUM 03:2b_out           .59      .015    1.57  16.36    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0012------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD    |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .77          .41
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        3.40         3.40
     Length            (m)=      235.00        40.00
     Mannings n             =      .025         .250

     Max.eff.Inten.(mm/hr)=       99.29        10.60
               over (min)         4.00        19.00
     Storage Coeff.  (min)=       4.39 (ii)   19.16 (ii)
     Unit Hyd. Tpeak (min)=       4.00        19.00
     Unit Hyd. peak  (cms)=        .27          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .11          .01           .109 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.53          1.200
     RUNOFF VOLUME    (mm)=      30.71         4.47          16.544
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .14           .506

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0013------------------------------------------------------------------------
*#**************************************************************************
----------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>01:(2a    )   |
| OUT<02:(000002)   |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00    |     .158  .3100E-01
                            .047  .1700E-01    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (2a    )         1.18      .109     1.200      16.544
     OUTFLOW<02: (000002)         1.18      .026     1.583      16.544
    OVERFLOW<03: (C2ovf )         .00       .000      .000        .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   24.000
                    TIME SHIFT OF PEAK FLOW         (min)=    23.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.9471E-02

------------------------------------------------------------------------------
002:0014------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD    |   Area    (ha)=    3.44
| 01:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.75          .69
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        3.10         2.00
     Length            (m)=      320.00        10.00
     Mannings n             =      .013         .250

     Max.eff.Inten.(mm/hr)=       99.29        20.44
               over (min)         4.00         9.00
     Storage Coeff.  (min)=       3.67 (ii)    9.46 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .30          .12
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .46          .02           .472 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.33          1.200
     RUNOFF VOLUME    (mm)=      30.71         5.24          21.542
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .16           .659

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0015------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:2c            3.44      .472    1.20  21.54    .000
                    +ID2 02:         2     1.18      .026    1.58  16.54    .000
                    +ID3 03:C2ovf           .00      .000     .00    .00    .000
                     ========================================================
                     SUM 08:C2_out          4.62      .486    1.20  20.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0016------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD    |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.43          .95
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        2.50         2.50
     Length            (m)=      320.00        40.00
     Mannings n             =      .025         .250

     Max.eff.Inten.(mm/hr)=       89.86        12.49
               over (min)         6.00        21.00
     Storage Coeff.  (min)=       6.03 (ii)   21.19 (ii)
     Unit Hyd. Tpeak (min)=       6.00        21.00
     Unit Hyd. peak  (cms)=        .19          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .17          .02           .177 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.57          1.233
     RUNOFF VOLUME    (mm)=      30.71         5.86          16.300
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .18           .498

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0017------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD    |   Area    (ha)=  197.18
| 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       78.87        118.31
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=         .50         2.00
     Length            (m)=    2750.00        40.00
     Mannings n             =      .020         .250

     Max.eff.Inten.(mm/hr)=       99.29         6.12
               over (min)         5.00        51.00
     Storage Coeff.  (min)=      29.84 (ii)   51.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        51.00
     Unit Hyd. peak  (cms)=        .05          .02
                                                        *TOTALS*
     PEAK FLOW       (cms)=       4.79         1.11          4.939 (iii)
     TIME TO PEAK    (hrs)=       1.32         2.15          1.317
     RUNOFF VOLUME    (mm)=      30.71         6.21          14.050
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .19           .430

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  69.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0018------------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:3a             2.38      .177    1.23  16.30    .000
                    +ID2 02:3c           197.18     4.939    1.32  14.05    .000
                     ========================================================
                     SUM 09:C3_out       199.56     5.083    1.32  14.08    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
002:0019------------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD    |   Area    (ha)=    1.94
| 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.16          .78
     Dep. Storage     (mm)=        2.00         5.00
     Average Slope     (%)=        1.30         1.30
     Length            (m)=      280.00        40.00
     Mannings n             =      .025         .250

     Max.eff.Inten.(mm/hr)=       83.12        13.94
               over (min)         7.00        25.00
     Storage Coeff.  (min)=       6.98 (ii)   24.64 (ii)
     Unit Hyd. Tpeak (min)=       7.00        25.00
     Unit Hyd. peak  (cms)=        .16          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .13          .02           .136 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.63          1.250
     RUNOFF VOLUME    (mm)=      30.71         7.17          17.056
     TOTAL RAINFALL   (mm)=      32.71        32.71          32.713
     RUNOFF COEFFICIENT   =        .94          .22           .521

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
002:0020------------------------------------------------------------------------
*#**************************************************************************
```

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00541) ----------------------
00542) | CALIB STANDHYD     |   Area    (ha)=   46.39
00543) | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
00544) ----------------------
00545)                              IMPERVIOUS    PERVIOUS (i)
00546)      Surface Area     (ha)=      13.92        32.47
00547)      Dep. Storage     (mm)=       2.00         7.00
00548)      Average Slope     (%)=       1.00         2.00
00549)      Length            (m)=    1700.00        60.00
00550)      Mannings n             =       .013         .250
00551)
00552)      Max.eff.Inten.(mm/hr)=      53.64         4.29
00553)                over (min)       18.00        50.00
00554)      Storage Coeff.  (min)=      17.94 (ii)   49.65 (ii)
00555)      Unit Hyd. Tpeak (min)=      18.00        50.00
00556)      Unit Hyd. peak  (cms)=        .06          .02
00557)                                                          *TOTALS*
00558)      PEAK FLOW       (cms)=       1.07          .21         1.125 (iii)
00559)      TIME TO PEAK    (hrs)=       1.43         2.17         1.450
00560)      RUNOFF VOLUME    (mm)=      30.71         4.53        10.815
00561)      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00562)      RUNOFF COEFFICIENT   =        .94          .14          .331
00563)
00564)        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00565)            CN* =  65.0    Ia = Dep. Storage  (Above)
00566)       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00567)            THAN THE STORAGE COEFFICIENT.
00568)      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00569)
00570) ------------------------------------------------------------------------------
00571) 002:0021----------------------------------------------------------------------
00572) *#*****************************************************************************
00573) ----------------------
00574) | ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00575) ----------------------- ----             (ha)     (cms)   (hrs)    (mm)   (cms)
00576)                       ID1 01:4a          1.94     .136    1.25  17.06    .000
00577)                      +ID2 02:4c         46.39    1.125    1.45  10.81    .000
00578)                       ================================================================
00579)                       SUM 04:C4_out      48.33    1.208    1.43  11.07    .000
00580)
00581)    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00582)
00583) ------------------------------------------------------------------------------
00584) 002:0022----------------------------------------------------------------------
00585) *#*****************************************************************************
00586) ----------------------
00587) | CALIB STANDHYD     |   Area    (ha)=    2.21
00588) | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00589) ----------------------
00590)                              IMPERVIOUS    PERVIOUS (i)
00591)      Surface Area     (ha)=       1.33          .88
00592)      Dep. Storage     (mm)=       2.00         5.00
00593)      Average Slope     (%)=       2.00         2.00
00594)      Length            (m)=     540.00        40.00
00595)      Mannings n             =       .025         .250
00596)
00597)      Max.eff.Inten.(mm/hr)=      70.99        11.87
00598)                over (min)       10.00        26.00
00599)      Storage Coeff.  (min)=       9.69 (ii)   26.25 (ii)
00600)      Unit Hyd. Tpeak (min)=      10.00        26.00
00601)      Unit Hyd. peak  (cms)=        .12          .04
00602)                                                          *TOTALS*
00603)      PEAK FLOW       (cms)=        .13          .02          .132 (iii)
00604)      TIME TO PEAK    (hrs)=       1.30         1.67         1.300
00605)      RUNOFF VOLUME    (mm)=      30.71         6.27        16.535
00606)      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00607)      RUNOFF COEFFICIENT   =        .94          .19          .505
00608)
00609)        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00610)            CN* =  62.0    Ia = Dep. Storage  (Above)
00611)       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00612)            THAN THE STORAGE COEFFICIENT.
00613)      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00614)
00615) ------------------------------------------------------------------------------
00616) 002:0023----------------------------------------------------------------------
00617) *#*****************************************************************************
00618) ----------------------
00619) | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
00620) |  IN>01:(5a    )   |
00621) | OUT<02:(000005)   |    =========  OUTLFOW STORAGE TABLE  =========
00622) ----------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
00623)                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
00624)                           .000  .0000E+00    |     .292  .5500E-01
00625)                           .079  .3100E-01     |    .000  .0000E+00
00626)
00627)      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
00628)      --------------------       (ha)     (cms)     (hrs)       (mm)
00629)      INFLOW >01: (5a    )       2.21      .132     1.300     16.535
00630)      OUTFLOW<02: (000005)       2.21      .043     1.850     16.535
00631)     OVERFLOW<03: (C5ovf )        .00      .000      .000       .000
00632)
00633)                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
00634)                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
00635)                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
00636)
00637)
00638)                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   32.467
00639)                    TIME SHIFT OF PEAK FLOW         (min)=    33.00
00640)                    MAXIMUM  STORAGE   USED       (ha.m.)=.1687E-01
00641)
00642) ------------------------------------------------------------------------------
00643) 002:0024----------------------------------------------------------------------
00644) *#*****************************************************************************
00645) ----------------------
00646) | CALIB STANDHYD     |   Area    (ha)=   13.39
00647) | 01:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
00648) ----------------------
00649)                              IMPERVIOUS    PERVIOUS (i)
00650)      Surface Area     (ha)=       3.35        10.04
00651)      Dep. Storage     (mm)=       2.00         5.00
00652)      Average Slope     (%)=       1.60         2.00
00653)      Length            (m)=     575.00        75.00
00654)      Mannings n             =       .025         .250
00655)
00656)      Max.eff.Inten.(mm/hr)=      67.91         6.94
00657)                over (min)       11.00        41.00
00658)      Storage Coeff.  (min)=      10.95 (ii)   40.88 (ii)
00659)      Unit Hyd. Tpeak (min)=      11.00        41.00
00660)      Unit Hyd. peak  (cms)=        .10          .03
00661)                                                          *TOTALS*
00662)      PEAK FLOW       (cms)=        .10          .11          .133 (iii)
00663)      TIME TO PEAK    (hrs)=       1.32         1.95         1.850
00664)      RUNOFF VOLUME    (mm)=      30.71         5.58         7.092
00665)      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00666)      RUNOFF COEFFICIENT   =        .94          .17          .217
00667)
00668)        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00669)            CN* =  63.0    Ia = Dep. Storage  (Above)
00670)       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00671)            THAN THE STORAGE COEFFICIENT.
00672)      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00673)
00674) ------------------------------------------------------------------------------
00675) 002:0025----------------------------------------------------------------------
00676) *#*****************************************************************************
00677) ----------------------
00678) | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00679) ----------------------- ----             (ha)     (cms)   (hrs)    (mm)   (cms)
00680)                       ID1 01:5c          13.39     .133    1.85   7.09    .000
00681)                      +ID2 02:        5     2.21     .043    1.85  16.53    .000
00682)                      +ID3 03:C5ovf          .00     .000     .00    .00    .000
00683)                       ================================================================
00684)                       SUM 05:C5_out      15.60     .176    1.85   8.43    .000
00685)
00686)    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00687)
00688) ------------------------------------------------------------------------------
00689) 002:0026----------------------------------------------------------------------
00690) *#*****************************************************************************
00691) ----------------------
00692) | CALIB STANDHYD     |   Area    (ha)=    2.19
00693) | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
00694) ----------------------
00695)                              IMPERVIOUS    PERVIOUS (i)
00696)      Surface Area     (ha)=       1.42          .77
00697)      Dep. Storage     (mm)=       2.00         5.00
00698)      Average Slope     (%)=        .50          .50
00699)      Length            (m)=     285.00        40.00
00700)      Mannings n             =       .025         .250
00701)
00702)      Max.eff.Inten.(mm/hr)=      70.99         4.95
00703)                over (min)       10.00        46.00
00704)      Storage Coeff.  (min)=      10.01 (ii)   45.62 (ii)
00705)      Unit Hyd. Tpeak (min)=      10.00        46.00
00706)      Unit Hyd. peak  (cms)=        .11          .02
00707)                                                          *TOTALS*
00708)      PEAK FLOW       (cms)=        .14          .01          .137 (iii)
00709)      TIME TO PEAK    (hrs)=       1.30         2.05         1.300
00710)      RUNOFF VOLUME    (mm)=      30.71         3.51        16.021
00711)      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00712)      RUNOFF COEFFICIENT   =        .94          .11          .490
00713)
00714)        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00715)            CN* =  43.0    Ia = Dep. Storage  (Above)
00716)       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00717)            THAN THE STORAGE COEFFICIENT.
00718)      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00719)
00720) ------------------------------------------------------------------------------
00721) 002:0027----------------------------------------------------------------------
00722) *#*****************************************************************************
00723) ----------------------
00724) | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
00725) |  IN>01:(6a    )   |
00726) | OUT<02:(000006)   |    =========  OUTLFOW STORAGE TABLE  =========
00727) ----------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
00728)                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
00729)                           .000  .0000E+00    |     .137  .6800E-01
00730)                           .044  .3700E-01     |    .000  .0000E+00
00731)
00732)      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
00733)      --------------------       (ha)     (cms)     (hrs)       (mm)
00734)      INFLOW >01: (6a    )       2.19      .137     1.300     16.021
00735)      OUTFLOW<02: (000006)       2.19      .025     2.100     16.021
00736)     OVERFLOW<03: (C6ovf )        .00      .000      .000       .000
00737)
00738)                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
00739)                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
00740)                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
00741)
00742)
00743)                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   18.048
00744)                    TIME SHIFT OF PEAK FLOW         (min)=    48.00
00745)                    MAXIMUM  STORAGE   USED       (ha.m.)=.2077E-01
00746)
00747) ------------------------------------------------------------------------------
00748) 002:0028----------------------------------------------------------------------
00749) ----------------------
00750) | CALIB STANDHYD     |   Area    (ha)=    9.59
00751) | 01:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
00752) ----------------------
00753)                              IMPERVIOUS    PERVIOUS (i)
00754)      Surface Area     (ha)=       4.80         4.80
00755)      Dep. Storage     (mm)=       2.00         5.00
00756)      Average Slope     (%)=        .80         2.00
00757)      Length            (m)=     400.00        40.00
00758)      Mannings n             =       .013         .250
00759)
00760)      Max.eff.Inten.(mm/hr)=      83.12         5.15
00761)                over (min)        7.00        30.00
00762)      Storage Coeff.  (min)=       6.76 (ii)   29.87 (ii)
00763)      Unit Hyd. Tpeak (min)=       7.00        30.00
00764)      Unit Hyd. peak  (cms)=        .17          .04
00765)                                                          *TOTALS*
00766)      PEAK FLOW       (cms)=        .63          .04          .633 (iii)
00767)      TIME TO PEAK    (hrs)=       1.25         1.75         1.250
00768)      RUNOFF VOLUME    (mm)=      30.71         3.64        14.468
00769)      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00770)      RUNOFF COEFFICIENT   =        .94          .11          .442
00771)
00772)        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00773)            CN* =  52.0    Ia = Dep. Storage  (Above)
00774)       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00775)            THAN THE STORAGE COEFFICIENT.
00776)      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00777)
00778) ------------------------------------------------------------------------------
00779) 002:0029----------------------------------------------------------------------
00780) *#*****************************************************************************
00781) ----------------------
00782) | ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00783) ----------------------- ----             (ha)     (cms)   (hrs)    (mm)   (cms)
00784)                       ID1 01:6c           9.59     .633    1.25  14.47    .000
00785)                      +ID2 02:        6     2.19     .025    2.10  16.02    .000
00786)                      +ID3 03:C6ovf          .00     .000     .00    .00    .000
00787)                       ================================================================
00788)                       SUM 06:C6_out      11.78     .641    1.25  14.76    .000
00789)
00790)    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00791)
00792) ------------------------------------------------------------------------------
00793) 002:0030----------------------------------------------------------------------
00794) *#*****************************************************************************
00795) ----------------------
00796) | ADD HYD (GRCA      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
00797) ----------------------- ----             (ha)     (cms)   (hrs)    (mm)   (cms)
00798)                       ID1 07:C1_out      38.63    3.099    1.32  21.61    .000
00799)                      +ID2 08:C2_out       4.62     .486    1.20  20.27    .000
00800)                      +ID3 09:C3_out     199.56    5.083    1.32  14.08    .000
00801)                      +ID4 04:C4_out      48.33    1.208    1.43  11.07    .000
00802)                      +ID5 05:C5_out      15.60     .176    1.85   8.43    .000
00803)                      +ID6 06:C6_out      11.78     .641    1.25  14.76    .000
00804)                      +ID7 10:2b            .59     .044    1.22  16.36    .000
00805)                       ================================================================
00806)                       SUM 03:GRCA        319.11   10.205    1.32  14.38    .000
00807)
00808)    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00809)
00810) ------------------------------------------------------------------------------
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00811> 002:0031------------------------------------------------------------------------------
00812> *#*****************************************************************************
00813> ----------------------
00814> | CALIB STANDHYD     |   Area    (ha)=     .46
00815> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
00816> ----------------------
00817>                              IMPERVIOUS    PERVIOUS (i)
00818>      Surface Area     (ha)=        .25          .21
00819>      Dep. Storage     (mm)=       2.00         5.00
00820>      Average Slope     (%)=        .40          .40
00821>      Length            (m)=      70.00        40.00
00822>      Mannings n            =       .025         .250
00823>
00824>      Max.eff.Inten.(mm/hr)=      99.29         3.07
00825>                   over (min)        4.00        50.00
00826>      Storage Coeff.  (min)=       4.03 (ii)   50.13 (ii)
00827>      Unit Hyd. Tpeak (min)=       4.00        50.00
00828>      Unit Hyd. peak  (cms)=        .28          .02
00829>                                                          *TOTALS*
00830>      PEAK FLOW       (cms)=        .04          .00          .037 (iii)
00831>      TIME TO PEAK    (hrs)=       1.20         2.13         1.200
00832>      RUNOFF VOLUME    (mm)=      30.71         2.62        13.573
00833>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00834>      RUNOFF COEFFICIENT   =        .94          .08          .415
00835>
00836>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00837>            CN* =  39.0    Ia = Dep. Storage  (Above)
00838>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00839>            THAN THE STORAGE COEFFICIENT.
00840>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00841>
00842> ------------------------------------------------------------------------------
00843> 002:0032------------------------------------------------------------------------------
00844> *#*****************************************************************************
00845> ----------------------
00846> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
00847> |  IN>01:(7a    )   |
00848> | OUT<02:(000007)   |    =========  OUTLFOW STORAGE TABLE  =========
00849> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
00850>                             (cms)     (ha.m.)   |    (cms)    (ha.m.)
00851>                              .000  .0000E+00   |     .023  .1280E-01
00852>                              .006  .7100E-02   |     .000  .0000E+00
00853>
00854>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
00855>      ---------------------      (ha)     (cms)     (hrs)       (mm)
00856>      INFLOW >01: (7a     )       .46      .037     1.200     13.573
00857>      OUTFLOW<02: (000007)        .46      .003     2.150     13.573
00858>     OVERFLOW<03: (C7ovf )        .00      .000      .000       .000
00859>
00860>                     TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
00861>                     CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
00862>                     PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
00863>
00864>
00865>                     PEAK   FLOW   REDUCTION [Qout/Qin](%)=    9.225
00866>                     TIME SHIFT OF PEAK FLOW         (min)=    57.00
00867>                     MAXIMUM  STORAGE   USED       (ha.m.)=.3988E-02
00868>
00869> ------------------------------------------------------------------------------
00870> 002:0033------------------------------------------------------------------------------
00871> ----------------------
00872> | CALIB STANDHYD     |   Area    (ha)=     .87
00873> | 01:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
00874> ----------------------
00875>                              IMPERVIOUS    PERVIOUS (i)
00876>      Surface Area     (ha)=        .35          .52
00877>      Dep. Storage     (mm)=       2.00         5.00
00878>      Average Slope     (%)=       1.90          .50
00879>      Length            (m)=      80.00       110.00
00880>      Mannings n            =       .013         .250
00881>
00882>      Max.eff.Inten.(mm/hr)=      99.29         7.66
00883>                   over (min)        2.00        57.00
00884>      Storage Coeff.  (min)=       1.85 (ii)   56.69 (ii)
00885>      Unit Hyd. Tpeak (min)=       2.00        57.00
00886>      Unit Hyd. peak  (cms)=        .59          .02
00887>                                                          *TOTALS*
00888>      PEAK FLOW       (cms)=        .07          .00          .072 (iii)
00889>      TIME TO PEAK    (hrs)=       1.17         2.28         1.167
00890>      RUNOFF VOLUME    (mm)=      30.71         2.11        11.266
00891>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00892>      RUNOFF COEFFICIENT   =        .94          .06          .344
00893>
00894>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00895>            CN* =  39.0    Ia = Dep. Storage  (Above)
00896>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00897>            THAN THE STORAGE COEFFICIENT.
00898>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00899>
00900> ------------------------------------------------------------------------------
00901> 002:0034------------------------------------------------------------------------------
00902> *#*****************************************************************************
00903> ----------------------
00904> | ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
00905> ----------------------  (ha)     (cms)   (hrs)   (mm)   (cms)
00906>                      ID1 01:7c             .87     .072    1.17  11.27    .000
00907>                     +ID2 02:         7      .46     .003    2.15  13.57    .000
00908>                     +ID3 03:C7ovf          .00     .000     .00    .00    .000
00909>                      ==========================================================
00910>                      SUM 07:C7_out         1.33     .073    1.17  12.06    .000
00911>
00912>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00913>
00914> ------------------------------------------------------------------------------
00915> 002:0035------------------------------------------------------------------------------
00916> *#*****************************************************************************
00917> ----------------------
00918> | CALIB STANDHYD     |   Area    (ha)=     .71
00919> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
00920> ----------------------
00921>                              IMPERVIOUS    PERVIOUS (i)
00922>      Surface Area     (ha)=        .43          .28
00923>      Dep. Storage     (mm)=       2.00         5.00
00924>      Average Slope     (%)=       1.70         1.70
00925>      Length            (m)=     110.00        40.00
00926>      Mannings n            =       .025         .250
00927>
00928>      Max.eff.Inten.(mm/hr)=      99.29        10.58
00929>                   over (min)        3.00        22.00
00930>      Storage Coeff.  (min)=       3.43 (ii)   21.62 (ii)
00931>      Unit Hyd. Tpeak (min)=       3.00        22.00
00932>      Unit Hyd. peak  (cms)=        .34          .05
00933>                                                          *TOTALS*
00934>      PEAK FLOW       (cms)=        .07          .00          .066 (iii)
00935>      TIME TO PEAK    (hrs)=       1.18         1.58         1.183
00936>      RUNOFF VOLUME    (mm)=      30.71         5.13        15.875
00937>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
00938>      RUNOFF COEFFICIENT   =        .94          .16          .485
00939>
00940>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
00941>            CN* =  56.0    Ia = Dep. Storage  (Above)
00942>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
00943>            THAN THE STORAGE COEFFICIENT.
00944>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00945>
00946> ------------------------------------------------------------------------------
00947> 002:0036------------------------------------------------------------------------------
00948> *#*****************************************************************************
00949> ----------------------
00950> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
00951> |  IN>01:(8a    )   |
00952> | OUT<02:(000008)   |    =========  OUTLFOW STORAGE TABLE  =========
00953> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
00954>                             (cms)     (ha.m.)   |    (cms)    (ha.m.)
00955>                              .000  .0000E+00   |     .081  .1860E-01
00956>                              .025  .9700E-02   |     .000  .0000E+00
00957>
00958>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
00959>      ---------------------      (ha)     (cms)     (hrs)       (mm)
00960>      INFLOW >01: (8a     )       .71      .066     1.183     15.875
00961>      OUTFLOW<02: (000008)        .71      .014     1.600     15.875
00962>     OVERFLOW<03: (C8ovf )        .00      .000      .000       .000
00963>
00964>                     TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
00965>                     CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
00966>                     PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
00967>
00968>
00969>                     PEAK   FLOW   REDUCTION [Qout/Qin](%)=   20.940
00970>                     TIME SHIFT OF PEAK FLOW         (min)=    25.00
00971>                     MAXIMUM  STORAGE   USED       (ha.m.)=.5359E-02
00972>
00973> ------------------------------------------------------------------------------
00974> 002:0037------------------------------------------------------------------------------
00975> ----------------------
00976> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
00977> | 01:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
00978> ----------------------   U.H. Tp(hrs)=    .330
00979>
00980>      Unit Hyd Qpeak  (cms)=     .132
00981>
00982>      PEAK FLOW       (cms)=     .014 (i)
00983>      TIME TO PEAK    (hrs)=    1.633
00984>      RUNOFF VOLUME    (mm)=    5.067
00985>      TOTAL RAINFALL   (mm)=   32.713
00986>      RUNOFF COEFFICIENT   =     .155
00987>
00988>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00989>
00990> ------------------------------------------------------------------------------
00991> 002:0038------------------------------------------------------------------------------
00992> *#*****************************************************************************
00993> ------------------------
00994> | ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
00995> ------------------------  (ha)     (cms)   (hrs)   (mm)   (cms)
00996>                       ID1 01:8c            1.14     .014    1.63   5.07    .000
00997>                      +ID2 02:         8      .71     .014    1.60  15.88    .000
00998>                      +ID3 03:C8ovf          .00     .000     .00    .00    .000
00999>                       ==========================================================
01000>                       SUM 08:C8_out         1.85     .027    1.63   9.21    .000
01001>
01002>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01003>
01004> ------------------------------------------------------------------------------
01005> 002:0039------------------------------------------------------------------------------
01006> *#*****************************************************************************
01007> ----------------------
01008> | CALIB STANDHYD     |   Area    (ha)=    1.42
01009> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
01010> ----------------------
01011>                              IMPERVIOUS    PERVIOUS (i)
01012>      Surface Area     (ha)=        .82          .60
01013>      Dep. Storage     (mm)=       2.00         5.00
01014>      Average Slope     (%)=       2.90         2.90
01015>      Length            (m)=     170.00        40.00
01016>      Mannings n            =       .025         .250
01017>
01018>      Max.eff.Inten.(mm/hr)=      99.29        11.13
01019>                   over (min)        4.00        19.00
01020>      Storage Coeff.  (min)=       3.79 (ii)   18.98 (ii)
01021>      Unit Hyd. Tpeak (min)=       4.00        19.00
01022>      Unit Hyd. peak  (cms)=        .29          .06
01023>                                                          *TOTALS*
01024>      PEAK FLOW       (cms)=        .12          .01          .123 (iii)
01025>      TIME TO PEAK    (hrs)=       1.20         1.53         1.200
01026>      RUNOFF VOLUME    (mm)=      30.71         5.13        15.621
01027>      TOTAL RAINFALL   (mm)=      32.71        32.71        32.713
01028>      RUNOFF COEFFICIENT   =        .94          .16          .478
01029>
01030>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01031>            CN* =  57.0    Ia = Dep. Storage  (Above)
01032>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01033>            THAN THE STORAGE COEFFICIENT.
01034>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01035>
01036> ------------------------------------------------------------------------------
01037> 002:0040------------------------------------------------------------------------------
01038> *#*****************************************************************************
01039> ----------------------
01040> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
01041> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
01042> ----------------------   U.H. Tp(hrs)=   1.580
01043>
01044>      Unit Hyd Qpeak  (cms)=    2.320
01045>
01046>      PEAK FLOW       (cms)=     .414 (i)
01047>      TIME TO PEAK    (hrs)=    3.333
01048>      RUNOFF VOLUME    (mm)=    5.107
01049>      TOTAL RAINFALL   (mm)=   32.713
01050>      RUNOFF COEFFICIENT   =     .156
01051>
01052>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01053>
01054> ------------------------------------------------------------------------------
01055> 002:0041------------------------------------------------------------------------------
01056> *#*****************************************************************************
01057> ----------------------
01058> | ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01059> ----------------------  (ha)     (cms)   (hrs)   (mm)   (cms)
01060>                       ID1 01:9a            1.42     .123    1.20  15.62    .000
01061>                      +ID2 02:9c           95.98     .414    3.33   5.11    .000
01062>                      +ID3 07:C7_out        1.33     .073    1.17  12.06    .000
01063>                      +ID4 08:C8_out        1.85     .027    1.63   9.21    .000
01064>                       ==========================================================
01065>                       SUM 09:C9_out       100.58     .429    3.27   5.42    .000
01066>
01067>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01068>
01069> ------------------------------------------------------------------------------
01070> 002:0042------------------------------------------------------------------------------
01071> *#*****************************************************************************
01072> ----------------------
01073> | CALIB STANDHYD     |   Area    (ha)=    3.74
01074> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01075> ----------------------
01076>                              IMPERVIOUS    PERVIOUS (i)
01077>      Surface Area     (ha)=       2.24         1.50
01078>      Dep. Storage     (mm)=       2.00         5.00
01079>      Average Slope     (%)=       1.30         1.30
01080>      Length            (m)=     385.00        40.00
```

```
01081>      Mannings n          =       .025         .250
01082>
01083>      Max.eff.Inten.(mm/hr)=     74.14        7.57
01084>                over (min)        9.00       31.00
01085>      Storage Coeff.  (min)=      8.85 (ii)   31.40 (ii)
01086>      Unit Hyd. Tpeak (min)=      9.00       31.00
01087>      Unit Hyd. peak  (cms)=       .13         .04
01088>                                                      *TOTALS*
01089>      PEAK FLOW       (cms)=       .23         .02        .230 (iii)
01090>      TIME TO PEAK    (hrs)=      1.28        1.75       1.283
01091>      RUNOFF VOLUME    (mm)=     30.71        4.48      15.500
01092>      TOTAL RAINFALL   (mm)=     32.71       32.71      32.713
01093>      RUNOFF COEFFICIENT   =       .94         .14        .474
01094>
01095>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01096>            CN* =  52.0    Ia = Dep. Storage  (Above)
01097>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01098>            THAN THE STORAGE COEFFICIENT.
01099>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01100>
01101> ---------------------------------------------------------------------------
01102> 002:0043-----------------------------------------------------------------------
01103> *#*************************************************************************
01104> ----------------------
01105> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
01106> | 02:10c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
01107> ----------------------   U.H. Tp(hrs)=   1.280
01108>
01109>      Unit Hyd Qpeak  (cms)=    3.260
01110>
01111>      PEAK FLOW       (cms)=     .568 (i)
01112>      TIME TO PEAK    (hrs)=    3.017
01113>      RUNOFF VOLUME    (mm)=    5.311
01114>      TOTAL RAINFALL   (mm)=   32.713
01115>      RUNOFF COEFFICIENT   =     .162
01116>
01117>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01118>
01119> ---------------------------------------------------------------------------
01120> 002:0044-----------------------------------------------------------------------
01121> *#*************************************************************************
01122> ----------------------
01123> | ADD HYD (C10_out   ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01124> ----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
01125>                       ID1 01:10a           3.74     .230    1.28  15.50    .000
01126>                      +ID2 02:10c         109.26     .568    3.02   5.31    .000
01127>                       ========================================================
01128>                       SUM 10:C10_out      113.00     .588    2.98   5.65    .000
01129>
01130>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01131>
01132> ---------------------------------------------------------------------------
01133> 002:0045-----------------------------------------------------------------------
01134> *#*************************************************************************
01135> ----------------------
01136> | ADD HYD (HCA       ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01137> ----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
01138>                       ID1 09:C9_out       100.58     .429    3.27   5.42    .000
01139>                      +ID2 10:C10_out      113.00     .588    2.98   5.65    .000
01140>                       ========================================================
01141>                       SUM 05:HCA          213.58    1.013    3.02   5.54    .000
01142>
01143>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01144>
01145> ---------------------------------------------------------------------------
01146> 002:0046-----------------------------------------------------------------------
01147> *#*************************************************************************
01148> ----------------------
01149> | ADD HYD (A11_F     ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01150> ----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
01151>                       ID1 03:C8ovf          .00      .000     .00    .00    .000
01152>                      +ID2 05:HCA          213.58    1.013    3.02   5.54    .000
01153>                       ========================================================
01154>                       SUM 06:A11_F        213.58    1.013    3.02   5.54    .000
01155>
01156>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01157>
01158> ---------------------------------------------------------------------------
01159> 002:0047-----------------------------------------------------------------------
01160> *#*************************************************************************
01161>  ** END OF RUN :   4
01162>
01163> ***************************************************************************
01164>
01165>
01166>
01167>
01168>
01169> ---------------------
01170> | START             |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
01171> ---------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
01172>     TZERO =   .00 hrs on      0
01173>     METOUT=  2 (output = METRIC)
01174>     NRUN  = 005
01175>     NSTORM=   1
01176>           #  1=H5SCS.6h
01177> ---------------------------------------------------------------------------
01178> 005:0002-----------------------------------------------------------------------
01179> *#*************************************************************************
01180> *#  Project Name: Garner Rd. MCEA
01181> *#  Date        : December 12, 2024
01182> *#  Company     : Stantec Consulting Ltd. (Waterloo)
01183> *#  Modeller    : Amy Kyle
01184> *#  License #   : 4730904
01185> *#*************************************************************************
01186> *#
01187> *#
01188> *#
01189> *#*************************************************************************
01190> ---------------------------------------------------------------------------
01191> 005:0002-----------------------------------------------------------------------
01192> ---------------------
01193> | READ STORM       |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01194> | Ptotal=  56.50 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
01195> ---------------------
01196>              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
01197>              hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
01198>               .17   2.260 |   1.67   5.650 |   3.17  12.430 |   4.67   3.390
01199>               .33   2.260 |   1.83   5.650 |   3.33  12.430 |   4.83   3.390
01200>               .50   2.260 |   2.00   5.650 |   3.50  12.430 |   5.00   3.390
01201>               .67   3.390 |   2.17   6.780 |   3.67   5.650 |   5.17   2.260
01202>               .83   3.390 |   2.33   6.780 |   3.83   5.650 |   5.33   2.260
01203>              1.00   3.390 |   2.50   6.780 |   4.00   5.650 |   5.50   2.260
01204>              1.17   3.390 |   2.67  33.900 |   4.17   4.520 |   5.67   2.260
01205>              1.33   3.390 |   2.83  61.020 |   4.33   4.520 |   5.83   2.260
01206>              1.50   3.390 |   3.00  88.140 |   4.50   4.520 |   6.00   2.260
01207>
01208> ---------------------------------------------------------------------------
01209> 005:0003-----------------------------------------------------------------------
01210> *#*************************************************************************
01211> *#  PROPOSED CATCHMENTS (CONTROLLED)
01212> *#*************************************************************************
01213> ----------------------
01214> | CALIB STANDHYD     |   Area    (ha)=    1.94
01215> | 01:1a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01216> ----------------------
01217>                                  IMPERVIOUS    PERVIOUS (i)
01218>      Surface Area     (ha)=        1.16          .78
01219>      Dep. Storage     (mm)=        2.00         5.00
01220>      Average Slope     (%)=        1.10         1.10
01221>      Length            (m)=      440.00        40.00
01222>      Mannings n          =        .025         .250
01223>
01224>      Max.eff.Inten.(mm/hr)=       88.14        42.54
01225>                over (min)         9.00        21.00
01226>      Storage Coeff.  (min)=       9.40 (ii)   21.29 (ii)
01227>      Unit Hyd. Tpeak (min)=       9.00        21.00
01228>      Unit Hyd. peak  (cms)=        .12          .05
01229>                                                      *TOTALS*
01230>      PEAK FLOW       (cms)=        .15          .06         .192 (iii)
01231>      TIME TO PEAK    (hrs)=       3.05         3.27        3.067
01232>      RUNOFF VOLUME    (mm)=      54.50        20.77       34.939
01233>      TOTAL RAINFALL   (mm)=      56.50        56.50       56.500
01234>      RUNOFF COEFFICIENT   =        .96          .37         .618
01235>
01236>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01237>            CN* =  68.0    Ia = Dep. Storage  (Above)
01238>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01239>            THAN THE STORAGE COEFFICIENT.
01240>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01241>
01242> ---------------------------------------------------------------------------
01243> 005:0004-----------------------------------------------------------------------
01244> *#*************************************************************************
01245> ----------------------
01246> | CALIB STANDHYD     |   Area    (ha)=     .96
01247> | 02:1b      DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
01248> ----------------------
01249>                                  IMPERVIOUS    PERVIOUS (i)
01250>      Surface Area     (ha)=         .62          .34
01251>      Dep. Storage     (mm)=        2.00         5.00
01252>      Average Slope     (%)=        2.20         2.20
01253>      Length            (m)=       80.00        40.00
01254>      Mannings n          =        .025         .250
01255>
01256>      Max.eff.Inten.(mm/hr)=       88.14        63.32
01257>                over (min)         3.00        11.00
01258>      Storage Coeff.  (min)=       2.75 (ii)   10.98 (ii)
01259>      Unit Hyd. Tpeak (min)=       3.00        11.00
01260>      Unit Hyd. peak  (cms)=        .40          .10
01261>                                                      *TOTALS*
01262>      PEAK FLOW       (cms)=        .11          .04         .139 (iii)
01263>      TIME TO PEAK    (hrs)=       3.00         3.10        3.000
01264>      RUNOFF VOLUME    (mm)=      54.50        21.70       36.787
01265>      TOTAL RAINFALL   (mm)=      56.50        56.50       56.500
01266>      RUNOFF COEFFICIENT   =        .96          .38         .651
01267>
01268>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01269>            CN* =  68.0    Ia = Dep. Storage  (Above)
01270>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01271>            THAN THE STORAGE COEFFICIENT.
01272>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01273>
01274> ---------------------------------------------------------------------------
01275> 005:0005-----------------------------------------------------------------------
01276> *#*************************************************************************
01277> ----------------------
01278> | CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
01279> | 03:1c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
01280> ----------------------   U.H. Tp(hrs)=    .220
01281>
01282>      Unit Hyd Qpeak  (cms)=     .127
01283>
01284>      PEAK FLOW       (cms)=     .040 (i)
01285>      TIME TO PEAK    (hrs)=    3.133
01286>      RUNOFF VOLUME    (mm)=   17.655
01287>      TOTAL RAINFALL   (mm)=   56.500
01288>      RUNOFF COEFFICIENT   =     .312
01289>
01290>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01291>
01292> ---------------------------------------------------------------------------
01293> 005:0006-----------------------------------------------------------------------
01294> *#*************************************************************************
01295> ----------------------
01296> | CALIB STANDHYD     |   Area    (ha)=   35.00
01297> | 04:1d      DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01298> ----------------------
01299>                                  IMPERVIOUS    PERVIOUS (i)
01300>      Surface Area     (ha)=       28.00         7.00
01301>      Dep. Storage     (mm)=        2.00         5.00
01302>      Average Slope     (%)=        1.40         2.00
01303>      Length            (m)=     1100.00        30.00
01304>      Mannings n          =        .013         .250
01305>
01306>      Max.eff.Inten.(mm/hr)=       88.14        53.61
01307>                over (min)        10.00        18.00
01308>      Storage Coeff.  (min)=      10.24 (ii)   17.86 (ii)
01309>      Unit Hyd. Tpeak (min)=      10.00        18.00
01310>      Unit Hyd. peak  (cms)=        .11          .06
01311>                                                      *TOTALS*
01312>      PEAK FLOW       (cms)=       4.08          .64        4.590 (iii)
01313>      TIME TO PEAK    (hrs)=       3.05         3.20        3.067
01314>      RUNOFF VOLUME    (mm)=      54.50        19.53       41.910
01315>      TOTAL RAINFALL   (mm)=      56.50        56.50       56.500
01316>      RUNOFF COEFFICIENT   =        .96          .35         .742
01317>
01318>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01319>            CN* =  60.0    Ia = Dep. Storage  (Above)
01320>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01321>            THAN THE STORAGE COEFFICIENT.
01322>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01323>
01324> ---------------------------------------------------------------------------
01325> 005:0007-----------------------------------------------------------------------
01326> *#*************************************************************************
01327> ----------------------
01328> | ADD HYD (C1_cul    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01329> ----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
01330>                       ID1 01:1a            1.94     .192    3.07  34.94    .000
01331>                      +ID2 03:1c             .73     .040    3.13  17.66    .000
01332>                       ========================================================
01333>                       SUM 05:C1_cul        2.67     .230    3.07  30.21    .000
01334>
01335>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01336>
01337> ---------------------------------------------------------------------------
01338> 005:0008-----------------------------------------------------------------------
01339> *#*************************************************************************
01340> ----------------------
01341> | ADD HYD (C1_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01342> ----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
01343>                       ID1 02:1b             .96     .139    3.00  36.79    .000
01344>                      +ID2 04:1d           35.00    4.590    3.07  41.91    .000
01345>                      +ID3 05:C1_cul        2.67     .230    3.07  30.21    .000
01346>                       ========================================================
01347>                       SUM 07:C1_out       38.63    4.908    3.07  40.97    .000
01348>
01349>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01350>
```

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01351> ------------------------------------------------------------------------------
01352> 005:0009------------------------------------------------------------------------
01353> *#*****************************************************************************
01354> ----------------------
01355> | CALIB STANDHYD     |   Area    (ha)=     .59
01356> | 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
01357> ----------------------
01358>                              IMPERVIOUS    PERVIOUS (i)
01359>      Surface Area     (ha)=        .32          .27
01360>      Dep. Storage     (mm)=       2.00         5.00
01361>      Average Slope     (%)=       1.60         1.60
01362>      Length            (m)=     210.00        40.00
01363>      Mannings n             =      .025         .250
01364>
01365>      Max.eff.Inten.(mm/hr)=      88.14        43.41
01366>                  over (min)        5.00        16.00
01367>      Storage Coeff.  (min)=       5.39 (ii)   15.93 (ii)
01368>      Unit Hyd. Tpeak (min)=       5.00        16.00
01369>      Unit Hyd. peak  (cms)=        .21          .07
01370>                                                          *TOTALS*
01371>      PEAK FLOW       (cms)=        .05          .02          .066 (iii)
01372>      TIME TO PEAK    (hrs)=       3.00         3.17         3.017
01373>      RUNOFF VOLUME    (mm)=      54.50        19.78        33.322
01374>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01375>      RUNOFF COEFFICIENT   =        .96          .35          .590
01376>
01377>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01378>            CN* =  68.0    Ia = Dep. Storage  (Above)
01379>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01380>            THAN THE STORAGE COEFFICIENT.
01381>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01382>
01383> ------------------------------------------------------------------------------
01384> 005:0010------------------------------------------------------------------------
01385> *#*****************************************************************************
01386> ---------------------
01387> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
01388> |  IN>10:(2b    )   |
01389> | OUT<01:(000002)   |    =========  OUTLFOW STORAGE TABLE  =========
01390> ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
01391>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
01392>                             .000  .0000E+00    |     .099  .1230E-01
01393>                             .029  .6700E-02    |     .000  .0000E+00
01394>
01395>      ROUTING RESULTS             AREA     QPEAK     TPEAK       R.V.
01396>      ---------------             (ha)     (cms)     (hrs)       (mm)
01397>      INFLOW >10: (2b    )         .59      .066     3.017     33.322
01398>      OUTFLOW<01: (000002)         .59      .029     3.267     33.322
01399>     OVERFLOW<02: (2bovf )         .00      .000      .000       .000
01400>
01401>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
01402>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
01403>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
01404>
01405>
01406>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   44.034
01407>                    TIME SHIFT OF PEAK FLOW         (min)=    15.00
01408>                    MAXIMUM  STORAGE   USED       (ha.m.)=.6679E-02
01409>
01410> ------------------------------------------------------------------------------
01411> 005:0011------------------------------------------------------------------------
01412> *#*****************************************************************************
01413> ------------------------
01414> | ADD HYD (2b_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01415> ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
01416>                       ID1 01:         2      .59     .029    3.27  33.32    .000
01417>                      +ID2 02:2bovf           .00     .000     .00    .00    .000
01418>                       ========================================================
01419>                       SUM 03:2b_out           .59     .029    3.27  33.32    .000
01420>
01421>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01422>
01423> ------------------------------------------------------------------------------
01424> 005:0012------------------------------------------------------------------------
01425> *#*****************************************************************************
01426> ----------------------
01427> | CALIB STANDHYD     |   Area    (ha)=    1.18
01428> | 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
01429> ----------------------
01430>                              IMPERVIOUS    PERVIOUS (i)
01431>      Surface Area     (ha)=        .77          .41
01432>      Dep. Storage     (mm)=       2.00         5.00
01433>      Average Slope     (%)=       3.40         3.40
01434>      Length            (m)=     235.00        40.00
01435>      Mannings n             =      .025         .250
01436>
01437>      Max.eff.Inten.(mm/hr)=      88.14        33.81
01438>                  over (min)        5.00        14.00
01439>      Storage Coeff.  (min)=       4.60 (ii)   13.89 (ii)
01440>      Unit Hyd. Tpeak (min)=       5.00        14.00
01441>      Unit Hyd. peak  (cms)=        .24          .08
01442>                                                          *TOTALS*
01443>      PEAK FLOW       (cms)=        .12          .02          .142 (iii)
01444>      TIME TO PEAK    (hrs)=       3.00         3.15         3.000
01445>      RUNOFF VOLUME    (mm)=      54.50        13.02        32.100
01446>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01447>      RUNOFF COEFFICIENT   =        .96          .23          .568
01448>
01449>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01450>            CN* =  50.0    Ia = Dep. Storage  (Above)
01451>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01452>            THAN THE STORAGE COEFFICIENT.
01453>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01454>
01455> ------------------------------------------------------------------------------
01456> 005:0013------------------------------------------------------------------------
01457> *#*****************************************************************************
01458> ---------------------
01459> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
01460> |  IN>01:(2a    )   |
01461> | OUT<02:(000002)   |    =========  OUTLFOW STORAGE TABLE  =========
01462> ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
01463>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
01464>                             .000  .0000E+00    |     .158  .3100E-01
01465>                             .047  .1700E-01    |     .000  .0000E+00
01466>
01467>      ROUTING RESULTS             AREA     QPEAK     TPEAK       R.V.
01468>      ---------------             (ha)     (cms)     (hrs)       (mm)
01469>      INFLOW >01: (2a    )        1.18      .142     3.000     32.100
01470>      OUTFLOW<02: (000002)        1.18      .046     3.250     32.100
01471>     OVERFLOW<03: (C2ovf )         .00      .000      .000       .000
01472>
01473>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
01474>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
01475>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
01476>
01477>
01478>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   32.235
01479>                    TIME SHIFT OF PEAK FLOW         (min)=    15.00
01480>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1653E-01
01481>
01482> ------------------------------------------------------------------------------
01483> 005:0014------------------------------------------------------------------------
01484> *#*****************************************************************************
01485> ----------------------
01486> | CALIB STANDHYD     |   Area    (ha)=    3.44
01487> | 01:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
01488> ----------------------
01489>                              IMPERVIOUS    PERVIOUS (i)
01490>      Surface Area     (ha)=       2.75          .69
01491>      Dep. Storage     (mm)=       2.00         5.00
01492>      Average Slope     (%)=       3.10         2.00
01493>      Length            (m)=     320.00        10.00
01494>      Mannings n             =      .013         .250
01495>
01496>      Max.eff.Inten.(mm/hr)=      88.14        53.83
01497>                  over (min)        4.00         8.00
01498>      Storage Coeff.  (min)=       3.85 (ii)    7.78 (ii)
01499>      Unit Hyd. Tpeak (min)=       4.00         8.00
01500>      Unit Hyd. peak  (cms)=        .29          .14
01501>                                                          *TOTALS*
01502>      PEAK FLOW       (cms)=        .52          .07          .585 (iii)
01503>      TIME TO PEAK    (hrs)=       3.00         3.05         3.000
01504>      RUNOFF VOLUME    (mm)=      54.50        14.81        40.213
01505>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01506>      RUNOFF COEFFICIENT   =        .96          .26          .712
01507>
01508>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01509>            CN* =  50.0    Ia = Dep. Storage  (Above)
01510>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01511>            THAN THE STORAGE COEFFICIENT.
01512>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01513>
01514> ------------------------------------------------------------------------------
01515> 005:0015------------------------------------------------------------------------
01516> *#*****************************************************************************
01517> ------------------------
01518> | ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01519> ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
01520>                       ID1 01:2c            3.44      .585    3.00  40.21    .000
01521>                      +ID2 02:         2     1.18      .046    3.25  32.10    .000
01522>                      +ID3 03:C2ovf          .00      .000     .00    .00    .000
01523>                       ========================================================
01524>                       SUM 08:C2_out        4.62      .620    3.00  38.14    .000
01525>
01526>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01527>
01528> ------------------------------------------------------------------------------
01529> 005:0016------------------------------------------------------------------------
01530> *#*****************************************************************************
01531> ----------------------
01532> | CALIB STANDHYD     |   Area    (ha)=    2.38
01533> | 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01534> ----------------------
01535>                              IMPERVIOUS    PERVIOUS (i)
01536>      Surface Area     (ha)=       1.43          .95
01537>      Dep. Storage     (mm)=       2.00         5.00
01538>      Average Slope     (%)=       2.50         2.50
01539>      Length            (m)=     320.00        40.00
01540>      Mannings n             =      .025         .250
01541>
01542>      Max.eff.Inten.(mm/hr)=      88.14        38.50
01543>                  over (min)        6.00        16.00
01544>      Storage Coeff.  (min)=       6.07 (ii)   15.74 (ii)
01545>      Unit Hyd. Tpeak (min)=       6.00        16.00
01546>      Unit Hyd. peak  (cms)=        .19          .07
01547>                                                          *TOTALS*
01548>      PEAK FLOW       (cms)=        .22          .06          .262 (iii)
01549>      TIME TO PEAK    (hrs)=       3.02         3.18         3.017
01550>      RUNOFF VOLUME    (mm)=      54.50        16.57        32.502
01551>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01552>      RUNOFF COEFFICIENT   =        .96          .29          .575
01553>
01554>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01555>            CN* =  60.0    Ia = Dep. Storage  (Above)
01556>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01557>            THAN THE STORAGE COEFFICIENT.
01558>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01559>
01560> ------------------------------------------------------------------------------
01561> 005:0017------------------------------------------------------------------------
01562> *#*****************************************************************************
01563> ----------------------
01564> | CALIB STANDHYD     |   Area    (ha)=  197.18
01565> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
01566> ----------------------
01567>                              IMPERVIOUS    PERVIOUS (i)
01568>      Surface Area     (ha)=      78.87        118.31
01569>      Dep. Storage     (mm)=       2.00         5.00
01570>      Average Slope     (%)=        .50         2.00
01571>      Length            (m)=    2750.00        40.00
01572>      Mannings n             =      .020         .250
01573>
01574>      Max.eff.Inten.(mm/hr)=      49.81        15.16
01575>                  over (min)       39.00        54.00
01576>      Storage Coeff.  (min)=      39.32 (ii)   54.33 (ii)
01577>      Unit Hyd. Tpeak (min)=      39.00        54.00
01578>      Unit Hyd. peak  (cms)=        .03          .02
01579>                                                          *TOTALS*
01580>      PEAK FLOW       (cms)=       5.41         2.96         7.813 (iii)
01581>      TIME TO PEAK    (hrs)=       3.52         3.83         3.600
01582>      RUNOFF VOLUME    (mm)=      54.49        17.75        29.516
01583>      TOTAL RAINFALL   (mm)=      56.50        56.50        56.500
01584>      RUNOFF COEFFICIENT   =        .96          .31          .522
01585>
01586>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01587>            CN* =  69.0    Ia = Dep. Storage  (Above)
01588>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01589>            THAN THE STORAGE COEFFICIENT.
01590>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01591>
01592> ------------------------------------------------------------------------------
01593> 005:0018------------------------------------------------------------------------
01594> *#*****************************************************************************
01595> ------------------------
01596> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
01597> ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
01598>                       ID1 01:3a            2.38      .262    3.02  32.50    .000
01599>                      +ID2 02:3c          197.18    7.813    3.60  29.52    .000
01600>                       ========================================================
01601>                       SUM 09:C3_out       199.56    7.873    3.58  29.55    .000
01602>
01603>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01604>
01605> ------------------------------------------------------------------------------
01606> 005:0019------------------------------------------------------------------------
01607> *#*****************************************************************************
01608> ----------------------
01609> | CALIB STANDHYD     |   Area    (ha)=    1.94
01610> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
01611> ----------------------
01612>                              IMPERVIOUS    PERVIOUS (i)
01613>      Surface Area     (ha)=       1.16          .78
01614>      Dep. Storage     (mm)=       2.00         5.00
01615>      Average Slope     (%)=       1.30         1.30
01616>      Length            (m)=     280.00        40.00
01617>      Mannings n             =      .025         .250
01618>
01619>      Max.eff.Inten.(mm/hr)=      88.14        43.63
01620>                  over (min)        7.00        18.00
```

```
      Storage Coeff.  (min)=       6.82 (ii)   18.01 (ii)
      Unit Hyd. Tpeak (min)=       7.00        18.00
      Unit Hyd. peak  (cms)=        .16         .06
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .17         .06          .211 (iii)
      TIME TO PEAK    (hrs)=       3.02        3.22         3.033
      RUNOFF VOLUME    (mm)=      54.50       19.64        34.282
      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
      RUNOFF COEFFICIENT   =        .96         .35          .607

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0020------------------------------------------------------------------------
*#*************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      13.92        32.47
      Dep. Storage     (mm)=       2.00         7.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=    1700.00        60.00
      Mannings n            =       .013         .250

      Max.eff.Inten.(mm/hr)=      79.10        14.97
                  over (min)      15.00        35.00
      Storage Coeff.  (min)=      15.36 (ii)   34.60 (ii)
      Unit Hyd. Tpeak (min)=      15.00        35.00
      Unit Hyd. peak  (cms)=        .07          .03
                                                          *TOTALS*
      PEAK FLOW       (cms)=       1.68          .84          2.127 (iii)
      TIME TO PEAK    (hrs)=       3.12         3.52          3.167
      RUNOFF VOLUME    (mm)=      54.49        14.23         23.897
      TOTAL RAINFALL   (mm)=      56.50        56.50         56.500
      RUNOFF COEFFICIENT   =        .96          .25           .423

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  65.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0021------------------------------------------------------------------------
*#*************************************************************************
 ------------------------
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:4a             1.94     .211    3.03  34.28    .000
                     +ID2 02:4c            46.39    2.127    3.17  23.90    .000
                      ========================================================
                      SUM 04:C4_out         48.33    2.277    3.15  24.31    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
005:0022------------------------------------------------------------------------
*#*************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       1.33         .88
      Dep. Storage     (mm)=       2.00        5.00
      Average Slope     (%)=       2.00        2.00
      Length            (m)=     540.00       40.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=      88.14       37.71
                  over (min)       9.00       19.00
      Storage Coeff.  (min)=       8.89 (ii)  19.31 (ii)
      Unit Hyd. Tpeak (min)=       9.00       19.00
      Unit Hyd. peak  (cms)=        .13         .06
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .18         .06          .219 (iii)
      TIME TO PEAK    (hrs)=       3.03        3.23         3.067
      RUNOFF VOLUME    (mm)=      54.50       17.54        33.066
      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
      RUNOFF COEFFICIENT   =        .96         .31          .585

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  62.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0023------------------------------------------------------------------------
*#*************************************************************************
 ---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>01:(5a    )   |
| OUT<02:(000005)   |    =========  OUTLFOW STORAGE TABLE  =========
 ---------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |     .292  .5500E-01
                           .079  .3100E-01   |     .000  .0000E+00

      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
      --------------------        (ha)     (cms)     (hrs)       (mm)
      INFLOW >01: (5a    )       2.21      .219     3.067     33.066
      OUTFLOW<02: (000005)       2.21      .079     3.500     33.066
     OVERFLOW<03: (C5ovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   36.072
                    TIME SHIFT OF PEAK FLOW          (min)=    26.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3097E-01

------------------------------------------------------------------------------
005:0024------------------------------------------------------------------------
*#*************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=   13.39
| 01:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       3.35        10.04
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.60         2.00
      Length            (m)=     575.00        75.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=      88.14       22.11
                  over (min)      10.00       29.00
      Storage Coeff.  (min)=       9.87 (ii)  28.69 (ii)
      Unit Hyd. Tpeak (min)=      10.00       29.00
      Unit Hyd. peak  (cms)=        .11         .04
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .15         .39          .437 (iii)
      TIME TO PEAK    (hrs)=       3.05        3.40         3.367
      RUNOFF VOLUME    (mm)=      54.50       16.07        18.380
      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
      RUNOFF COEFFICIENT   =        .96         .28          .325

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  63.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0025------------------------------------------------------------------------
*#*************************************************************************
 ------------------------
| ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:5c             13.39     .437    3.37  18.38    .000
                     +ID2 02:        5       2.21     .079    3.50  33.07    .000
                     +ID3 03:C5ovf            .00     .000     .00    .00    .000
                      ========================================================
                      SUM 05:C5_out         15.60     .515    3.38  20.46    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
005:0026------------------------------------------------------------------------
*#*************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       1.42         .77
      Dep. Storage     (mm)=       2.00        5.00
      Average Slope     (%)=        .50         .50
      Length            (m)=     285.00       40.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=      88.14       16.52
                  over (min)       9.00       31.00
      Storage Coeff.  (min)=       9.18 (ii)  31.16 (ii)
      Unit Hyd. Tpeak (min)=       9.00       31.00
      Unit Hyd. peak  (cms)=        .12         .04
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .19         .02          .201 (iii)
      TIME TO PEAK    (hrs)=       3.05        3.45         3.050
      RUNOFF VOLUME    (mm)=      54.50       10.45        30.712
      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
      RUNOFF COEFFICIENT   =        .96         .18          .544

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  43.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0027------------------------------------------------------------------------
*#*************************************************************************
 ---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>01:(6a    )   |
| OUT<02:(000006)   |    =========  OUTLFOW STORAGE TABLE  =========
 ---------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |     .137  .6800E-01
                           .044  .3700E-01   |     .000  .0000E+00

      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
      --------------------        (ha)     (cms)     (hrs)       (mm)
      INFLOW >01: (6a    )       2.19      .201     3.050     30.712
      OUTFLOW<02: (000006)       2.19      .044     3.733     30.712
     OVERFLOW<03: (C6ovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   21.641
                    TIME SHIFT OF PEAK FLOW          (min)=    41.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3659E-01

------------------------------------------------------------------------------
005:0028------------------------------------------------------------------------
*#*************************************************************************
 ----------------------
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 01:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
 ----------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       4.80        4.80
      Dep. Storage     (mm)=       2.00        5.00
      Average Slope     (%)=        .80        2.00
      Length            (m)=     400.00       40.00
      Mannings n            =       .013         .250

      Max.eff.Inten.(mm/hr)=      88.14       18.03
                  over (min)       7.00       21.00
      Storage Coeff.  (min)=       6.60 (ii)  20.61 (ii)
      Unit Hyd. Tpeak (min)=       7.00       21.00
      Unit Hyd. peak  (cms)=        .17         .05
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .81         .15          .892 (iii)
      TIME TO PEAK    (hrs)=       3.02        3.27         3.033
      RUNOFF VOLUME    (mm)=      54.50       11.05        28.434
      TOTAL RAINFALL   (mm)=      56.50       56.50        56.500
      RUNOFF COEFFICIENT   =        .96         .20          .503

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  52.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
005:0029------------------------------------------------------------------------
*#*************************************************************************
 ------------------------
| ADD HYD (C6_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:6c              9.59     .892    3.03  28.43    .000
                     +ID2 02:        6       2.19     .044    3.73  30.71    .000
                     +ID3 03:C6ovf            .00     .000     .00    .00    .000
                      ========================================================
                      SUM 06:C6_out         11.78     .918    3.03  28.86    .000

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

```
01891> ------------------------------------------------------------------------------
01892> 005:0030------------------------------------------------------------------------
01893> *#*****************************************************************************
01894> ------------------------
01895> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
01896> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
01897>                      ID1 07:C1_out        38.63    4.908    3.07  40.97    .000
01898>                     +ID2 08:C2_out         4.62     .620    3.00  38.14    .000
01899>                     +ID3 09:C3_out       199.56    7.873    3.58  29.55    .000
01900>                     +ID4 04:C4_out        48.33    2.277    3.15  24.31    .000
01901>                     +ID5 05:C5_out        15.60     .515    3.38  20.46    .000
01902>                     +ID6 06:C6_out        11.78     .918    3.03  28.86    .000
01903>                     +ID7 10:2b            .59      .066    3.02  33.32    .000
01904>                      ==========================================================
01905>                      SUM 03:GRCA         319.11   13.015    3.10  29.80    .000
01906>
01907>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01908>
01909> ------------------------------------------------------------------------------
01910> 005:0031------------------------------------------------------------------------
01911> *#*****************************************************************************
01912> ----------------------
01913> | CALIB STANDHYD     |   Area    (ha)=     .46
01914> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
01915> ----------------------
01916>                              IMPERVIOUS    PERVIOUS (i)
01917>      Surface Area     (ha)=       .25          .21
01918>      Dep. Storage     (mm)=      2.00         5.00
01919>      Average Slope     (%)=       .40          .40
01920>      Length            (m)=     70.00        40.00
01921>      Mannings n             =     .025         .250
01922>
01923>      Max.eff.Inten.(mm/hr)=     88.14        10.89
01924>                 over (min)=      4.00        32.00
01925>      Storage Coeff.  (min)=      4.23 (ii)   31.99 (ii)
01926>      Unit Hyd. Tpeak (min)=      4.00        32.00
01927>      Unit Hyd. peak  (cms)=       .27          .04
01928>                                                        *TOTALS*
01929>      PEAK FLOW       (cms)=       .04          .00          .043 (iii)
01930>      TIME TO PEAK    (hrs)=      3.00         3.47         3.000
01931>      RUNOFF VOLUME    (mm)=     54.50         8.06        26.174
01932>      TOTAL RAINFALL   (mm)=     56.50        56.50        56.500
01933>      RUNOFF COEFFICIENT   =       .96          .14          .463
01934>
01935>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01936>            CN* =  39.0    Ia = Dep. Storage  (Above)
01937>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01938>            THAN THE STORAGE COEFFICIENT.
01939>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01940>
01941> ------------------------------------------------------------------------------
01942> 005:0032------------------------------------------------------------------------
01943> *#*****************************************************************************
01944> ----------------------
01945> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
01946> |  IN>01:(7a     )   |
01947> | OUT<02:(000007)    |    =========  OUTLFOW STORAGE TABLE  =========
01948> ----------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
01949>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
01950>                             .000  .0000E+00    |     .023  .1280E-01
01951>                             .006  .7100E-02    |     .000  .0000E+00
01952>
01953>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
01954>      --------------------       (ha)     (cms)     (hrs)       (mm)
01955>      INFLOW >01: (7a    )        .46      .043     3.000     26.174
01956>      OUTFLOW<02: (000007)        .46      .006     3.783     26.174
01957>     OVERFLOW<03: (C7ovf )        .00      .000      .000       .000
01958>
01959>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
01960>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
01961>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
01962>
01963>
01964>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   13.903
01965>                    TIME SHIFT OF PEAK FLOW          (min)=    47.00
01966>                    MAXIMUM  STORAGE   USED       (ha.m.)=.7085E-02
01967>
01968> ------------------------------------------------------------------------------
01969> 005:0033------------------------------------------------------------------------
01970> ----------------------
01971> | CALIB STANDHYD     |   Area    (ha)=     .87
01972> | 01:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
01973> ----------------------
01974>                              IMPERVIOUS    PERVIOUS (i)
01975>      Surface Area     (ha)=       .35          .52
01976>      Dep. Storage     (mm)=      2.00         5.00
01977>      Average Slope     (%)=      1.90          .50
01978>      Length            (m)=     80.00       110.00
01979>      Mannings n             =     .013         .250
01980>
01981>      Max.eff.Inten.(mm/hr)=     88.14         4.75
01982>                 over (min)=      2.00        68.00
01983>      Storage Coeff.  (min)=      1.94 (ii)   68.33 (ii)
01984>      Unit Hyd. Tpeak (min)=      2.00        68.00
01985>      Unit Hyd. peak  (cms)=       .57          .02
01986>                                                        *TOTALS*
01987>      PEAK FLOW       (cms)=       .07          .00          .069 (iii)
01988>      TIME TO PEAK    (hrs)=      3.00         4.08         3.000
01989>      RUNOFF VOLUME    (mm)=     54.50         6.74        22.022
01990>      TOTAL RAINFALL   (mm)=     56.50        56.50        56.500
01991>      RUNOFF COEFFICIENT   =       .96          .12          .390
01992>
01993>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
01994>            CN* =  39.0    Ia = Dep. Storage  (Above)
01995>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
01996>            THAN THE STORAGE COEFFICIENT.
01997>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01998>
01999> ------------------------------------------------------------------------------
02000> 005:0034------------------------------------------------------------------------
02001> *#*****************************************************************************
02002> ------------------------
02003> | ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02004> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02005>                      ID1 01:7c            .87      .069    3.00  22.02    .000
02006>                     +ID2 02:         7    .46      .006    3.78  26.17    .000
02007>                     +ID3 03:C7ovf        .00      .000     .00    .00    .000
02008>                      ==========================================================
02009>                      SUM 07:C7_out        1.33     .073    3.00  23.46    .000
02010>
02011>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02012>
02013> ------------------------------------------------------------------------------
02014> 005:0035------------------------------------------------------------------------
02015> *#*****************************************************************************
02016> ----------------------
02017> | CALIB STANDHYD     |   Area    (ha)=     .71
02018> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
02019> ----------------------
02020>                              IMPERVIOUS    PERVIOUS (i)
02021>      Surface Area     (ha)=       .43          .28
02022>      Dep. Storage     (mm)=      2.00         5.00
02023>      Average Slope     (%)=      1.70         1.70
02024>      Length            (m)=    110.00        40.00
02025>      Mannings n             =     .025         .250
02026>
02027>      Max.eff.Inten.(mm/hr)=     88.14        35.13
02028>                 over (min)=      4.00        15.00
02029>      Storage Coeff.  (min)=      3.59 (ii)   14.85 (ii)
02030>      Unit Hyd. Tpeak (min)=      4.00        15.00
02031>      Unit Hyd. peak  (cms)=       .30          .08
02032>                                                        *TOTALS*
02033>      PEAK FLOW       (cms)=       .07          .02          .083 (iii)
02034>      TIME TO PEAK    (hrs)=      3.00         3.17         3.000
02035>      RUNOFF VOLUME    (mm)=     54.50        14.76        31.451
02036>      TOTAL RAINFALL   (mm)=     56.50        56.50        56.500
02037>      RUNOFF COEFFICIENT   =       .96          .26          .557
02038>
02039>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02040>            CN* =  56.0    Ia = Dep. Storage  (Above)
02041>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02042>            THAN THE STORAGE COEFFICIENT.
02043>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02044>
02045> ------------------------------------------------------------------------------
02046> 005:0036------------------------------------------------------------------------
02047> *#*****************************************************************************
02048> ----------------------
02049> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
02050> |  IN>01:(8a     )   |
02051> | OUT<02:(000008)    |    =========  OUTLFOW STORAGE TABLE  =========
02052> ----------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
02053>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
02054>                             .000  .0000E+00    |     .081  .1860E-01
02055>                             .025  .9700E-02    |     .000  .0000E+00
02056>
02057>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
02058>      --------------------       (ha)     (cms)     (hrs)       (mm)
02059>      INFLOW >01: (8a    )        .71      .083     3.000     31.451
02060>      OUTFLOW<02: (000008)        .71      .025     3.300     31.451
02061>     OVERFLOW<03: (C8ovf )        .00      .000      .000       .000
02062>
02063>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
02064>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
02065>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
02066>
02067>
02068>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   30.201
02069>                    TIME SHIFT OF PEAK FLOW          (min)=    18.00
02070>                    MAXIMUM  STORAGE   USED       (ha.m.)=.9692E-02
02071>
02072> ------------------------------------------------------------------------------
02073> 005:0037------------------------------------------------------------------------
02074> ----------------------
02075> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
02076> | 01:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
02077> ----------------------   U.H. Tp(hrs)=    .330
02078>
02079>      Unit Hyd Qpeak  (cms)=     .132
02080>
02081>      PEAK FLOW       (cms)=     .042 (i)
02082>      TIME TO PEAK    (hrs)=    3.250
02083>      RUNOFF VOLUME    (mm)=   15.492
02084>      TOTAL RAINFALL   (mm)=   56.500
02085>      RUNOFF COEFFICIENT   =     .274
02086>
02087>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02088>
02089> ------------------------------------------------------------------------------
02090> 005:0038------------------------------------------------------------------------
02091> *#*****************************************************************************
02092> ------------------------
02093> | ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02094> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02095>                      ID1 01:8c            1.14     .042    3.25  15.49    .000
02096>                     +ID2 02:         8    .71      .025    3.30  31.45    .000
02097>                     +ID3 03:C8ovf        .00      .000     .00    .00    .000
02098>                      ==========================================================
02099>                      SUM 08:C8_out        1.85     .066    3.25  21.62    .000
02100>
02101>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02102>
02103> ------------------------------------------------------------------------------
02104> 005:0039------------------------------------------------------------------------
02105> *#*****************************************************************************
02106> ----------------------
02107> | CALIB STANDHYD     |   Area    (ha)=    1.42
02108> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
02109> ----------------------
02110>                              IMPERVIOUS    PERVIOUS (i)
02111>      Surface Area     (ha)=       .82          .60
02112>      Dep. Storage     (mm)=      2.00         5.00
02113>      Average Slope     (%)=      2.90         2.90
02114>      Length            (m)=    170.00        40.00
02115>      Mannings n             =     .025         .250
02116>
02117>      Max.eff.Inten.(mm/hr)=     88.14        36.40
02118>                 over (min)=      4.00        13.00
02119>      Storage Coeff.  (min)=      3.97 (ii)   13.43 (ii)
02120>      Unit Hyd. Tpeak (min)=      4.00        13.00
02121>      Unit Hyd. peak  (cms)=       .28          .09
02122>                                                        *TOTALS*
02123>      PEAK FLOW       (cms)=       .14          .04          .165 (iii)
02124>      TIME TO PEAK    (hrs)=      3.00         3.13         3.000
02125>      RUNOFF VOLUME    (mm)=     54.50        14.80        31.078
02126>      TOTAL RAINFALL   (mm)=     56.50        56.50        56.500
02127>      RUNOFF COEFFICIENT   =       .96          .26          .550
02128>
02129>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02130>            CN* =  57.0    Ia = Dep. Storage  (Above)
02131>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02132>            THAN THE STORAGE COEFFICIENT.
02133>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02134>
02135> ------------------------------------------------------------------------------
02136> 005:0040------------------------------------------------------------------------
02137> *#*****************************************************************************
02138> ----------------------
02139> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
02140> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
02141> ----------------------   U.H. Tp(hrs)=   1.580
02142>
02143>      Unit Hyd Qpeak  (cms)=    2.320
02144>
02145>      PEAK FLOW       (cms)=    1.161 (i)
02146>      TIME TO PEAK    (hrs)=    4.867
02147>      RUNOFF VOLUME    (mm)=   15.989
02148>      TOTAL RAINFALL   (mm)=   56.500
02149>      RUNOFF COEFFICIENT   =     .283
02150>
02151>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02152>
02153> ------------------------------------------------------------------------------
02154> 005:0041------------------------------------------------------------------------
02155> *#*****************************************************************************
02156> ------------------------
02157> | ADD HYD (C9_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02158> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02159>                      ID1 01:9a            1.42     .165    3.00  31.08    .000
02160>                     +ID2 02:9c           95.98    1.161    4.87  15.99    .000
```

```
                    +ID3 07:C7_out         1.33     .073    3.00  23.46    .000
                    +ID4 08:C8_out         1.85     .066    3.25  21.62    .000
                     ============================================================
                     SUM 09:C9_out       100.58    1.200    4.83  16.40    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
005:0042--------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.74
| 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.24         1.50
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.30         1.30
     Length            (m)=     385.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=      88.14        25.14
                  over (min)        8.00        22.00
     Storage Coeff.  (min)=       8.26 (ii)   22.21 (ii)
     Unit Hyd. Tpeak (min)=       8.00        22.00
     Unit Hyd. peak  (cms)=        .14          .05
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .31          .06         .349 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.28        3.033
     RUNOFF VOLUME    (mm)=      54.50        13.10       30.491
     TOTAL RAINFALL   (mm)=      56.50        56.50       56.500
     RUNOFF COEFFICIENT   =        .96          .23         .540

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
005:0043--------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
| 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=   1.280

     Unit Hyd Qpeak  (cms)=    3.260

     PEAK FLOW       (cms)=    1.600 (i)
     TIME TO PEAK    (hrs)=    4.467
     RUNOFF VOLUME    (mm)=   16.525
     TOTAL RAINFALL   (mm)=   56.500
     RUNOFF COEFFICIENT   =     .292

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

--------------------------------------------------------------------------------
005:0044--------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:10a           3.74     .349    3.03  30.49    .000
                    +ID2 02:10c         109.26    1.600    4.47  16.52    .000
                     ============================================================
                     SUM 10:C10_out      113.00    1.636    4.45  16.99    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
005:0045--------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 09:C9_out       100.58    1.200    4.83  16.40    .000
                    +ID2 10:C10_out      113.00    1.636    4.45  16.99    .000
                     ============================================================
                     SUM 05:HCA          213.58    2.809    4.58  16.71    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
005:0046--------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 03:C8ovf           .00      .000     .00    .00    .000
                    +ID2 05:HCA          213.58    2.809    4.58  16.71    .000
                     ============================================================
                     SUM 06:All_F        213.58    2.809    4.58  16.71    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
005:0047--------------------------------------------------------------------------
*#*************************************************************************
--------------------------------------------------------------------------------
005:0002--------------------------------------------------------------------------
  ** END OF RUN :   9
 ***************************************************************************
--------------------
| START            |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
--------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 010
    NSTORM=   1
             #  1=H10SCS.6h
--------------------------------------------------------------------------------
010:0002--------------------------------------------------------------------------
*#*************************************************************************
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#*************************************************************************
*#
*#
*#
*#*************************************************************************
--------------------------------------------------------------------------------
010:0002--------------------------------------------------------------------------
----------------------
| READ STORM       |    Filename: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
| Ptotal=  67.60 mm|    Comments: Hamilton (Mount Hope), 10-yr, 6 hr SCS s
----------------------
               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .17   2.700 |   1.67   6.760 |   3.17  14.870 |   4.67   4.060
               .33   2.700 |   1.83   6.760 |   3.33  14.870 |   4.83   4.060
               .50   2.700 |   2.00   6.760 |   3.50  14.870 |   5.00   4.060
               .67   4.060 |   2.17   8.110 |   3.67   6.760 |   5.17   2.700
               .83   4.060 |   2.33   8.110 |   3.83   6.760 |   5.33   2.700
              1.00   4.060 |   2.50   8.110 |   4.00   6.760 |   5.50   2.700
              1.17   4.060 |   2.67  40.560 |   4.17   5.410 |   5.67   2.700
              1.33   4.060 |   2.83  73.010 |   4.33   5.410 |   5.83   2.700
              1.50   4.060 |   3.00 105.460 |   4.50   5.410 |   6.00   2.700

--------------------------------------------------------------------------------
010:0003--------------------------------------------------------------------------
*#*************************************************************************
*#  PROPOSED CATCHMENTS (CONTROLLED)
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16          .78
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.10         1.10
     Length            (m)=     440.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        61.33
                  over (min)        9.00        19.00
     Storage Coeff.  (min)=       8.75 (ii)   19.02 (ii)
     Unit Hyd. Tpeak (min)=       9.00        19.00
     Unit Hyd. peak  (cms)=        .13          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .19          .08         .249 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.22        3.067
     RUNOFF VOLUME    (mm)=      65.60        28.07       43.836
     TOTAL RAINFALL   (mm)=      67.60        67.60       67.600
     RUNOFF COEFFICIENT   =        .97          .42         .648

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0004--------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .34
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.20         2.20
     Length            (m)=      80.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        88.16
                  over (min)        3.00        10.00
     Storage Coeff.  (min)=       2.56 (ii)    9.77 (ii)
     Unit Hyd. Tpeak (min)=       3.00        10.00
     Unit Hyd. peak  (cms)=        .42          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .13          .06         .177 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08        3.000
     RUNOFF VOLUME    (mm)=      65.60        29.20       45.946
     TOTAL RAINFALL   (mm)=      67.60        67.60       67.600
     RUNOFF COEFFICIENT   =        .97          .43         .680

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0005--------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=     .73   Curve Number    (CN)=73.00
| 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=     .127

     PEAK FLOW       (cms)=     .056 (i)
     TIME TO PEAK    (hrs)=    3.133
     RUNOFF VOLUME    (mm)=   24.395
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .361

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

--------------------------------------------------------------------------------
010:0006--------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.00         7.00
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.40         2.00
     Length            (m)=    1100.00        30.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     105.46        76.65
                  over (min)       10.00        16.00
     Storage Coeff.  (min)=       9.53 (ii)   16.14 (ii)
     Unit Hyd. Tpeak (min)=      10.00        16.00
     Unit Hyd. peak  (cms)=        .12          .07
                                                        *TOTALS*
     PEAK FLOW       (cms)=       4.98          .94         5.775 (iii)
     TIME TO PEAK    (hrs)=       3.05         3.17        3.067
     RUNOFF VOLUME    (mm)=      65.60        26.44       51.504
     TOTAL RAINFALL   (mm)=      67.60        67.60       67.600
     RUNOFF COEFFICIENT   =        .97          .39         .762

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0007--------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
```

```
                     ID1 01:1a            1.94     .249    3.07  43.84    .000
                    +ID2 03:1c             .73     .056    3.13  24.39    .000
                     ==========================================================
                     SUM 05:C1_cul         2.67     .302    3.07  38.52    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0008--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C1_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                     ID1 02:1b              .96      .177    3.00  45.95    .000
                    +ID2 04:1d            35.00    5.775    3.07  51.50    .000
                    +ID3 05:C1_cul         2.67     .302    3.07  38.52    .000
                     ==========================================================
                     SUM 07:C1_out        38.63    6.190    3.07  50.47    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0009--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .59
| 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .32          .27
     Dep. Storage     (mm)=         2.00         5.00
     Average Slope     (%)=         1.60         1.60
     Length            (m)=       210.00        40.00
     Mannings n             =       .025         .250

     Max.eff.Inten.(mm/hr)=       105.46        62.39
                   over (min)         5.00        14.00
     Storage Coeff.  (min)=         5.02 (ii)   14.13 (ii)
     Unit Hyd. Tpeak (min)=         5.00        14.00
     Unit Hyd. peak  (cms)=          .23          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=          .06          .03          .085 (iii)
     TIME TO PEAK    (hrs)=         3.00         3.13         3.017
     RUNOFF VOLUME    (mm)=        65.60        26.86        41.967
     TOTAL RAINFALL   (mm)=        67.60        67.60        67.600
     RUNOFF COEFFICIENT   =          .97          .40          .621

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0010--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(2b     )   |
| OUT<01:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                             .000  .0000E+00    |     .099  .1230E-01
                             .029  .6700E-02    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (2b     )       .59      .085     3.017     41.967
     OUTFLOW<01: (000002)       .59      .046     3.200     41.967
    OVERFLOW<02: (2bovf )       .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   54.091
                    TIME SHIFT OF PEAK FLOW          (min)=    11.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.8061E-02

--------------------------------------------------------------------------------
010:0011--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (2b_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                     ID1 01:          2      .59      .046    3.20  41.97    .000
                    +ID2 02:2bovf           .00      .000     .00    .00    .000
                     ==========================================================
                     SUM 03:2b_out          .59      .046    3.20  41.97    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0012--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .77          .41
     Dep. Storage     (mm)=         2.00         5.00
     Average Slope     (%)=         3.40         3.40
     Length            (m)=       235.00        40.00
     Mannings n             =       .025         .250

     Max.eff.Inten.(mm/hr)=       105.46        50.28
                   over (min)         4.00        12.00
     Storage Coeff.  (min)=         4.28 (ii)   12.21 (ii)
     Unit Hyd. Tpeak (min)=         4.00        12.00
     Unit Hyd. peak  (cms)=          .27          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=          .15          .04          .180 (iii)
     TIME TO PEAK    (hrs)=         3.00         3.12         3.000
     RUNOFF VOLUME    (mm)=        65.60        18.09        39.944
     TOTAL RAINFALL   (mm)=        67.60        67.60        67.600
     RUNOFF COEFFICIENT   =          .97          .27          .591

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0013--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>01:(2a     )   |
| OUT<02:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                             .000  .0000E+00    |     .158  .3100E-01
                                    .047  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (2a     )       1.18      .180     3.000     39.944
     OUTFLOW<02: (000002)        1.18      .070     3.183     39.944
    OVERFLOW<03: (C2ovf )         .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   38.889
                    TIME SHIFT OF PEAK FLOW          (min)=    11.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1992E-01

--------------------------------------------------------------------------------
010:0014--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 01:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         2.75          .69
     Dep. Storage     (mm)=         2.00         5.00
     Average Slope     (%)=         3.10         2.00
     Length            (m)=       320.00        10.00
     Mannings n             =       .013         .250

     Max.eff.Inten.(mm/hr)=       105.46        74.99
                   over (min)         4.00         7.00
     Storage Coeff.  (min)=         3.58 (ii)    7.03 (ii)
     Unit Hyd. Tpeak (min)=         4.00         7.00
     Unit Hyd. peak  (cms)=          .30          .16
                                                          *TOTALS*
     PEAK FLOW       (cms)=          .62          .11          .725 (iii)
     TIME TO PEAK    (hrs)=         3.00         3.03         3.000
     RUNOFF VOLUME    (mm)=        65.60        20.40        49.330
     TOTAL RAINFALL   (mm)=        67.60        67.60        67.600
     RUNOFF COEFFICIENT   =          .97          .30          .730

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0015--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                     ID1 01:2c             3.44      .725    3.00  49.33    .000
                    +ID2 02:          2     1.18      .070    3.18  39.94    .000
                    +ID3 03:C2ovf          .00      .000     .00    .00    .000
                     ==========================================================
                     SUM 08:C2_out         4.62      .769    3.00  46.93    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0016--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         1.43          .95
     Dep. Storage     (mm)=         2.00         5.00
     Average Slope     (%)=         2.50         2.50
     Length            (m)=       320.00        40.00
     Mannings n             =       .025         .250

     Max.eff.Inten.(mm/hr)=       105.46        56.10
                   over (min)         6.00        14.00
     Storage Coeff.  (min)=         5.65 (ii)   13.97 (ii)
     Unit Hyd. Tpeak (min)=         6.00        14.00
     Unit Hyd. peak  (cms)=          .20          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=          .26          .10          .337 (iii)
     TIME TO PEAK    (hrs)=         3.02         3.15         3.017
     RUNOFF VOLUME    (mm)=        65.60        22.74        40.745
     TOTAL RAINFALL   (mm)=        67.60        67.60        67.600
     RUNOFF COEFFICIENT   =          .97          .34          .603

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0017--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=  197.18
| 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        78.87        118.31
     Dep. Storage     (mm)=         2.00         5.00
     Average Slope     (%)=          .50         2.00
     Length            (m)=    2750.00        40.00
     Mannings n             =       .020         .250

     Max.eff.Inten.(mm/hr)=       63.32        21.99
                   over (min)        36.00        49.00
     Storage Coeff.  (min)=        35.72 (ii)   48.65 (ii)
     Unit Hyd. Tpeak (min)=        36.00        49.00
     Unit Hyd. peak  (cms)=          .03          .02
                                                          *TOTALS*
     PEAK FLOW       (cms)=         6.87         4.42        10.605 (iii)
     TIME TO PEAK    (hrs)=         3.47         3.73         3.550
     RUNOFF VOLUME    (mm)=        65.59        24.36        37.560
     TOTAL RAINFALL   (mm)=        67.60        67.60        67.600
     RUNOFF COEFFICIENT   =          .97          .36          .556

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  69.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0018--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C3_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                     ID1 01:3a             2.38      .337    3.02  40.74    .000
                    +ID2 02:3c           197.18   10.605    3.55  37.56    .000
```

```
                    ============================================================
                    SUM 09:C3_out       199.56   10.688    3.55  37.60    .000
                    ============================================================

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0019--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:4a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16          .78
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.30         1.30
     Length            (m)=     280.00        40.00
     Mannings n           =       .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        62.55
                  over (min)       6.00        16.00
     Storage Coeff.  (min)=       6.35 (ii)   16.04 (ii)
     Unit Hyd. Tpeak (min)=       6.00        16.00
     Unit Hyd. peak  (cms)=        .18          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .21          .08          .272 (iii)
     TIME TO PEAK    (hrs)=       3.02         3.17         3.033
     RUNOFF VOLUME    (mm)=      65.60        26.65        43.012
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .39          .636

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0020--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   46.39
| 02:4c      DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.92         32.47
     Dep. Storage     (mm)=       2.00          7.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=    1700.00         60.00
     Mannings n           =        .013         .250

     Max.eff.Inten.(mm/hr)=      96.19        23.41
                  over (min)      14.00        30.00
     Storage Coeff.  (min)=      14.20 (ii)   30.29 (ii)
     Unit Hyd. Tpeak (min)=      14.00        30.00
     Unit Hyd. peak  (cms)=        .08          .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=       2.08         1.31         2.913 (iii)
     TIME TO PEAK    (hrs)=       3.12         3.42         3.167
     RUNOFF VOLUME    (mm)=      65.60        19.98        30.933
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .30          .458

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF AN.

--------------------------------------------------------------------------------
010:0021--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:4a             1.94     .272   3.03  43.01    .000
                     +ID2 02:4c            46.39    2.913   3.17  30.93    .000
                      ============================================================
                      SUM 04:C4_out        48.33    3.101    3.15  31.42    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0022--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.21
| 01:5a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.33          .88
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     540.00        40.00
     Mannings n           =        .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        54.57
                  over (min)       8.00        17.00
     Storage Coeff.  (min)=       8.27 (ii)   17.27 (ii)
     Unit Hyd. Tpeak (min)=       8.00        17.00
     Unit Hyd. peak  (cms)=        .14          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .22          .08          .283 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.18         3.050
     RUNOFF VOLUME    (mm)=      65.60        23.99        41.469
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .35          .613

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0023--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>01:(5a     )   |
| OUT<02:(000005)    |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW     STORAGE   |  OUTFLOW     STORAGE
                            (cms)     (ha.m.)   |    (cms)     (ha.m.)
                             .000  .0000E+00    |     .292  .5500E-01
                             .079  .3100E-01    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (5a     )      2.21      .283     3.050     41.469
     OUTFLOW<02: (000005)       2.21      .129     3.350     41.469
    OVERFLOW<03: (C5ovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   45.563
                    TIME SHIFT OF PEAK FLOW          (min)=    18.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3665E-01

--------------------------------------------------------------------------------
010:0024--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   13.39
| 01:5c      DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.35         10.04
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.60          2.00
     Length            (m)=     575.00         75.00
     Mannings n           =        .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        34.22
                  over (min)       9.00        25.00
     Storage Coeff.  (min)=       9.18 (ii)   24.99 (ii)
     Unit Hyd. Tpeak (min)=       9.00        25.00
     Unit Hyd. peak  (cms)=        .12          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .18          .59          .659 (iii)
     TIME TO PEAK    (hrs)=       3.05         3.33         3.300
     RUNOFF VOLUME    (mm)=      65.60        22.15        24.762
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .33          .366

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0025--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                      ID1 01:5c             13.39     .659   3.30  24.76    .000
                     +ID2 02:        5       2.21     .129   3.35  41.47    .000
                     +ID3 03:C5ovf            .00     .000    .00    .00    .000
                      ============================================================
                      SUM 05:C5_out        15.60     .787    3.30  27.13    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
010:0026--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.19
| 01:6a      DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.42          .77
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50          .50
     Length            (m)=     285.00        40.00
     Mannings n           =        .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        25.64
                  over (min)       9.00        27.00
     Storage Coeff.  (min)=       8.55 (ii)   26.98 (ii)
     Unit Hyd. Tpeak (min)=       9.00        27.00
     Unit Hyd. peak  (cms)=        .13          .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .23          .03          .251 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.37         3.050
     RUNOFF VOLUME    (mm)=      65.60        14.66        38.091
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .22          .563

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  43.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
010:0027--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>01:(6a     )   |
| OUT<02:(000006)    |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW     STORAGE   |  OUTFLOW     STORAGE
                            (cms)     (ha.m.)   |    (cms)     (ha.m.)
                             .000  .0000E+00    |     .137  .6800E-01
                             .044  .3700E-01    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (6a     )      2.19      .251     3.050     38.091
     OUTFLOW<02: (000006)       2.19      .065     3.633     38.091
    OVERFLOW<03: (C6ovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   25.998
                    TIME SHIFT OF PEAK FLOW          (min)=    35.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.4409E-01

--------------------------------------------------------------------------------
010:0028--------------------------------------------------------------------------
*#*****************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    9.59
| 01:6c      DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         4.80
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .80         2.00
     Length            (m)=     400.00        40.00
     Mannings n           =        .013         .250

     Max.eff.Inten.(mm/hr)=     105.46        27.95
                  over (min)       6.00        18.00
     Storage Coeff.  (min)=       6.14 (ii)   17.89 (ii)
     Unit Hyd. Tpeak (min)=       6.00        18.00
     Unit Hyd. peak  (cms)=        .19          .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .99          .23         1.140 (iii)
     TIME TO PEAK    (hrs)=       3.02         3.22         3.017
     RUNOFF VOLUME    (mm)=      65.60        15.55        35.568
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .23          .526
```

```
02971>
02972>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
02973>           CN* =  52.0    Ia = Dep. Storage  (Above)
02974>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
02975>           THAN THE STORAGE COEFFICIENT.
02976>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
02977>
02978> ---------------------------------------------------------------------------
02979> 010:0029-----------------------------------------------------------------
02980> *#*************************************************************************
02981> ----------------------
02982> | ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02983> ----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02984>                        ID1 01:6c            9.59    1.140    3.02  35.57    .000
02985>                       +ID2 02:         6     2.19     .065    3.63  38.09    .000
02986>                       +ID3 03:C6ovf          .00     .000     .00    .00    .000
02987>                        ==========================================================
02988>                        SUM 06:C6_out       11.78    1.171    3.02  36.04    .000
02989>
02990>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
02991>
02992> ---------------------------------------------------------------------------
02993> 010:0030-----------------------------------------------------------------
02994> *#*************************************************************************
02995> ----------------------
02996> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
02997> ----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
02998>                        ID1 07:C1_out       38.63    6.190    3.07  50.47    .000
02999>                       +ID2 08:C2_out        4.62     .769    3.00  46.93    .000
03000>                       +ID3 09:C3_out      199.56   10.688    3.55  37.60    .000
03001>                       +ID4 04:C4_out       48.33    3.101    3.15  31.42    .000
03002>                       +ID5 05:C5_out       15.60     .787    3.30  27.13    .000
03003>                       +ID6 06:C6_out       11.78    1.171    3.02  36.04    .000
03004>                       +ID7 10:2b            .59     .085    3.02  41.97    .000
03005>                        ==========================================================
03006>                        SUM 03:GRCA         319.11   17.436    3.12  37.79    .000
03007>
03008>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03009>
03010> ---------------------------------------------------------------------------
03011> 010:0031-----------------------------------------------------------------
03012> *#*************************************************************************
03013> ----------------------
03014> | CALIB STANDHYD     |   Area    (ha)=     .46
03015> | 01:7a      DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
03016> ----------------------
03017>                              IMPERVIOUS    PERVIOUS (i)
03018>      Surface Area     (ha)=        .25          .21
03019>      Dep. Storage     (mm)=       2.00         5.00
03020>      Average Slope     (%)=        .40          .40
03021>      Length            (m)=      70.00        40.00
03022>      Mannings n             =      .025         .250
03023>
03024>      Max.eff.Inten.(mm/hr)=     105.46        17.41
03025>                over (min)        4.00        27.00
03026>      Storage Coeff.  (min)=       3.93 (ii)   26.95 (ii)
03027>      Unit Hyd. Tpeak (min)=       4.00        27.00
03028>      Unit Hyd. peak  (cms)=        .29          .04
03029>                                                          *TOTALS*
03030>      PEAK FLOW       (cms)=        .05          .01          .053 (iii)
03031>      TIME TO PEAK    (hrs)=       3.00         3.37         3.000
03032>      RUNOFF VOLUME    (mm)=      65.60        11.44        32.564
03033>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
03034>      RUNOFF COEFFICIENT   =        .97          .17          .482
03035>
03036>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03037>            CN* =  39.0    Ia = Dep. Storage  (Above)
03038>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03039>            THAN THE STORAGE COEFFICIENT.
03040>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03041>
03042> ---------------------------------------------------------------------------
03043> 010:0032-----------------------------------------------------------------
03044> *#*************************************************************************
03045> ----------------------
03046> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
03047> |  IN>01:(7a    )    |
03048> | OUT<02:(000007)    |    =========  OUTLFOW STORAGE TABLE  =========
03049> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
03050>                             (cms)    (ha.m.)   |    (cms)    (ha.m.)
03051>                              .000  .0000E+00    |     .023  .1280E-01
03052>                              .006  .7100E-02    |     .000  .0000E+00
03053>
03054>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
03055>      --------------------       (ha)     (cms)     (hrs)       (mm)
03056>      INFLOW >01: (7a    )        .46      .053     3.000     32.564
03057>      OUTFLOW<02: (000007)        .46      .010     3.600     32.564
03058>     OVERFLOW<03: (C7ovf )        .00      .000      .000       .000
03059>
03060>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
03061>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
03062>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
03063>
03064>
03065>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   18.884
03066>                    TIME SHIFT OF PEAK FLOW          (min)=    36.00
03067>                    MAXIMUM  STORAGE   USED       (ha.m.)=.8439E-02
03068>
03069> ---------------------------------------------------------------------------
03070> 010:0033-----------------------------------------------------------------
03071> ----------------------
03072> | CALIB STANDHYD     |   Area    (ha)=     .87
03073> | 01:7c      DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
03074> ----------------------
03075>                              IMPERVIOUS    PERVIOUS (i)
03076>      Surface Area     (ha)=        .35          .52
03077>      Dep. Storage     (mm)=       2.00         5.00
03078>      Average Slope     (%)=       1.90          .50
03079>      Length            (m)=      80.00       110.00
03080>      Mannings n             =      .013         .250
03081>
03082>      Max.eff.Inten.(mm/hr)=     105.46         7.85
03083>                over (min)        2.00        56.00
03084>      Storage Coeff.  (min)=       1.80 (ii)   56.12 (ii)
03085>      Unit Hyd. Tpeak (min)=       2.00        56.00
03086>      Unit Hyd. peak  (cms)=        .60          .02
03087>                                                          *TOTALS*
03088>      PEAK FLOW       (cms)=        .08          .01          .083 (iii)
03089>      TIME TO PEAK    (hrs)=       3.00         3.88         3.000
03090>      RUNOFF VOLUME    (mm)=      65.60         9.65        27.554
03091>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
03092>      RUNOFF COEFFICIENT   =        .97          .14          .408
03093>
03094>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03095>            CN* =  39.0    Ia = Dep. Storage  (Above)
03096>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03097>            THAN THE STORAGE COEFFICIENT.
03098>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03099>
03100> ---------------------------------------------------------------------------
03101> 010:0034-----------------------------------------------------------------
03102> *#*************************************************************************
03103> ----------------------
03104> | ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03105> ----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03106>                        ID1 01:7c            .87     .083    3.00  27.55    .000
03107>                       +ID2 02:         7     .46     .010    3.60  32.56    .000
03108>                       +ID3 03:C7ovf          .00     .000     .00    .00    .000
03109>                        ==========================================================
03110>                        SUM 07:C7_out        1.33     .088    3.00  29.29    .000
03111>
03112>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03113>
03114> ---------------------------------------------------------------------------
03115> 010:0035-----------------------------------------------------------------
03116> *#*************************************************************************
03117> ----------------------
03118> | CALIB STANDHYD     |   Area    (ha)=     .71
03119> | 01:8a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03120> ----------------------
03121>                              IMPERVIOUS    PERVIOUS (i)
03122>      Surface Area     (ha)=        .43          .28
03123>      Dep. Storage     (mm)=       2.00         5.00
03124>      Average Slope     (%)=       1.70         1.70
03125>      Length            (m)=     110.00        40.00
03126>      Mannings n             =      .025         .250
03127>
03128>      Max.eff.Inten.(mm/hr)=     105.46        51.72
03129>                over (min)        3.00        13.00
03130>      Storage Coeff.  (min)=       3.34 (ii)   12.99 (ii)
03131>      Unit Hyd. Tpeak (min)=       3.00        13.00
03132>      Unit Hyd. peak  (cms)=        .35          .09
03133>                                                          *TOTALS*
03134>      PEAK FLOW       (cms)=        .09          .03          .105 (iii)
03135>      TIME TO PEAK    (hrs)=       3.00         3.13         3.000
03136>      RUNOFF VOLUME    (mm)=      65.60        20.39        39.381
03137>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
03138>      RUNOFF COEFFICIENT   =        .97          .30          .583
03139>
03140>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03141>            CN* =  56.0    Ia = Dep. Storage  (Above)
03142>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03143>            THAN THE STORAGE COEFFICIENT.
03144>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03145>
03146> ---------------------------------------------------------------------------
03147> 010:0036-----------------------------------------------------------------
03148> *#*************************************************************************
03149> ----------------------
03150> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
03151> |  IN>01:(8a    )    |
03152> | OUT<02:(000008)    |    =========  OUTLFOW STORAGE TABLE  =========
03153> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
03154>                             (cms)    (ha.m.)   |    (cms)    (ha.m.)
03155>                              .000  .0000E+00    |     .081  .1860E-01
03156>                              .025  .9700E-02    |     .000  .0000E+00
03157>
03158>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
03159>      --------------------       (ha)     (cms)     (hrs)       (mm)
03160>      INFLOW >01: (8a    )        .71      .105     3.000     39.381
03161>      OUTFLOW<02: (000008)        .71      .038     3.217     39.381
03162>     OVERFLOW<03: (C8ovf )        .00      .000      .000       .000
03163>
03164>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
03165>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
03166>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
03167>
03168>
03169>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   35.920
03170>                    TIME SHIFT OF PEAK FLOW          (min)=    13.00
03171>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1175E-01
03172>
03173> ---------------------------------------------------------------------------
03174> 010:0037-----------------------------------------------------------------
03175> ----------------------
03176> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
03177> | 01:8c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
03178> ----------------------   U.H. Tp(hrs)=    .330
03179>
03180>      Unit Hyd Qpeak  (cms)=     .132
03181>
03182>      PEAK FLOW       (cms)=     .059 (i)
03183>      TIME TO PEAK    (hrs)=    3.250
03184>      RUNOFF VOLUME    (mm)=   21.595
03185>      TOTAL RAINFALL   (mm)=   67.600
03186>      RUNOFF COEFFICIENT   =     .319
03187>
03188>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03189>
03190> ---------------------------------------------------------------------------
03191> 010:0038-----------------------------------------------------------------
03192> *#*************************************************************************
03193> ----------------------
03194> | ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03195> ----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03196>                        ID1 01:8c            1.14     .059    3.25  21.59    .000
03197>                       +ID2 02:         8      .71     .038    3.22  39.38    .000
03198>                       +ID3 03:C8ovf          .00     .000     .00    .00    .000
03199>                        ==========================================================
03200>                        SUM 08:C8_out        1.85     .096    3.23  28.42    .000
03201>
03202>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03203>
03204> ---------------------------------------------------------------------------
03205> 010:0039-----------------------------------------------------------------
03206> *#*************************************************************************
03207> ----------------------
03208> | CALIB STANDHYD     |   Area    (ha)=    1.42
03209> | 01:9a      DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
03210> ----------------------
03211>                              IMPERVIOUS    PERVIOUS (i)
03212>      Surface Area     (ha)=        .82          .60
03213>      Dep. Storage     (mm)=       2.00         5.00
03214>      Average Slope     (%)=       2.90         2.90
03215>      Length            (m)=     170.00        40.00
03216>      Mannings n             =      .025         .250
03217>
03218>      Max.eff.Inten.(mm/hr)=     105.46        52.05
03219>                over (min)        4.00        12.00
03220>      Storage Coeff.  (min)=       3.70 (ii)   11.90 (ii)
03221>      Unit Hyd. Tpeak (min)=       4.00        12.00
03222>      Unit Hyd. peak  (cms)=        .30          .09
03223>                                                          *TOTALS*
03224>      PEAK FLOW       (cms)=        .16          .06          .209 (iii)
03225>      TIME TO PEAK    (hrs)=       3.00         3.12         3.000
03226>      RUNOFF VOLUME    (mm)=      65.60        20.46        38.968
03227>      TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
03228>      RUNOFF COEFFICIENT   =        .97          .30          .576
03229>
03230>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03231>            CN* =  57.0    Ia = Dep. Storage  (Above)
03232>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03233>            THAN THE STORAGE COEFFICIENT.
03234>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03235>
03236> ---------------------------------------------------------------------------
03237> 010:0040-----------------------------------------------------------------
03238> *#*************************************************************************
03239> ----------------------
03240> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
```

```
| 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
 ----------------------   U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=    2.320

     PEAK FLOW       (cms)=    1.632 (i)
     TIME TO PEAK    (hrs)=    4.833
     RUNOFF VOLUME    (mm)=   22.345
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .331

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

------------------------------------------------------------------------------
010:0041----------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:9a            1.42     .209    3.00  38.97    .000
                     +ID2 02:9c           95.98    1.632    4.83  22.35    .000
                     +ID3 07:C7_out        1.33     .088    3.00  29.29    .000
                     +ID4 08:C8_out        1.85     .096    3.23  28.42    .000
                      ============================================================
                      SUM 09:C9_out       100.58    1.681    4.80  22.78    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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010:0042----------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.74
| 01:10a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.24         1.50
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.30         1.30
     Length            (m)=     385.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     105.46        38.75
                 over (min)        8.00        19.00
     Storage Coeff.  (min)=       7.68 (ii)   19.42 (ii)
     Unit Hyd. Tpeak (min)=       8.00        19.00
     Unit Hyd. peak  (cms)=        .15          .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .38          .10          .445 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.23         3.050
     RUNOFF VOLUME    (mm)=      65.60        18.22        38.121
     TOTAL RAINFALL   (mm)=      67.60        67.60        67.600
     RUNOFF COEFFICIENT   =        .97          .27          .564

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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010:0043----------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
| 02:10c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
 ----------------------   U.H. Tp(hrs)=   1.280

     Unit Hyd Qpeak  (cms)=    3.260

     PEAK FLOW       (cms)=    2.248 (i)
     TIME TO PEAK    (hrs)=    4.450
     RUNOFF VOLUME    (mm)=   23.042
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =     .341

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

------------------------------------------------------------------------------
010:0044----------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:10a            3.74     .445    3.05  38.12    .000
                     +ID2 02:10c          109.26    2.248    4.45  23.04    .000
                      ============================================================
                      SUM 10:C10_out      113.00    2.292    4.43  23.54    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0045----------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:C9_out       100.58    1.681    4.80  22.78    .000
                     +ID2 10:C10_out      113.00    2.292    4.43  23.54    .000
                      ============================================================
                      SUM 05:HCA          213.58    3.937    4.55  23.18    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0046----------------------------------------------------------------------
*#**************************************************************************
------------------------
| ADD HYD (A11_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:C8ovf          .00      .000     .00    .00    .000
                     +ID2 05:HCA          213.58    3.937    4.55  23.18    .000
                      ============================================================
                      SUM 06:A11_F        213.58    3.937    4.55  23.18    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
010:0047----------------------------------------------------------------------
*#**************************************************************************
------------------------------------------------------------------------------
010:0002----------------------------------------------------------------------
------------------------------------------------------------------------------
010:0002----------------------------------------------------------------------
  ** END OF RUN :  49

********************************************************************************



---------------------
| START             |  Project  dir.: C:\SWMHYMO\Garner\12-12-~1\
---------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12-~1\

    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 050
    NSTORM=   1
             #  1=H50SCS.6h
------------------------------------------------------------------------------
050:0002----------------------------------------------------------------------
*#**************************************************************************
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#**************************************************************************
*#
*#
*#
*#**************************************************************************
------------------------------------------------------------------------------
050:0002----------------------------------------------------------------------
--------------------
| READ STORM       |    Filename: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
| Ptotal= 91.90 mm|    Comments: Hamilton (Mount Hope), 5-yr, 6 hr SCS st
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .17   3.680 |   1.67   9.190 |   3.17  20.220 |   4.67   5.510
               .33   3.680 |   1.83   9.190 |   3.33  20.220 |   4.83   5.510
               .50   3.680 |   2.00   9.190 |   3.50  20.220 |   5.00   5.510
               .67   5.510 |   2.17  11.030 |   3.67   9.190 |   5.17   3.680
               .83   5.510 |   2.33  11.030 |   3.83   9.190 |   5.33   3.680
              1.00   5.510 |   2.50  11.030 |   4.00   9.190 |   5.50   3.680
              1.17   5.510 |   2.67  55.140 |   4.17   7.350 |   5.67   3.680
              1.33   5.510 |   2.83  99.250 |   4.33   7.350 |   5.83   3.680
              1.50   5.510 |   3.00 143.360 |   4.50   7.350 |   6.00   3.680

------------------------------------------------------------------------------
050:0003----------------------------------------------------------------------
*#**************************************************************************
*#  PROPOSED CATCHMENTS (CONTROLLED)
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a      DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.16          .78
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.10         1.10
     Length            (m)=     440.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     143.36       107.68
                 over (min)        8.00        16.00
     Storage Coeff.  (min)=       7.74 (ii)   15.94 (ii)
     Unit Hyd. Tpeak (min)=       8.00        16.00
     Unit Hyd. peak  (cms)=        .14          .07
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .27          .15          .389 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.17         3.050
     RUNOFF VOLUME    (mm)=      89.90        45.78        64.312
     TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
     RUNOFF COEFFICIENT   =        .98          .50          .700

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0004----------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b      DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .34
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.20         2.20
     Length            (m)=     80.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     143.36       144.31
                 over (min)        2.00         8.00
     Storage Coeff.  (min)=       2.26 (ii)    8.18 (ii)
     Unit Hyd. Tpeak (min)=       2.00         8.00
     Unit Hyd. peak  (cms)=        .52          .14
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .17          .10          .268 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.05         3.000
     RUNOFF VOLUME    (mm)=      89.90        47.31        66.904
     TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
     RUNOFF COEFFICIENT   =        .98          .51          .728

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0005----------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
| 03:1c      DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
 ----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=     .127

     PEAK FLOW       (cms)=     .096 (i)
     TIME TO PEAK    (hrs)=    3.117
     RUNOFF VOLUME    (mm)=   41.028
     TOTAL RAINFALL   (mm)=   91.900
     RUNOFF COEFFICIENT   =     .446

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

------------------------------------------------------------------------------
050:0006----------------------------------------------------------------------
*#**************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d      DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.00         7.00
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.40         2.00
     Length            (m)=    1100.00        30.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     143.36       132.51
```

```
                over (min)        8.00       14.00
     Storage Coeff.  (min)=       8.43 (ii)  13.74 (ii)
     Unit Hyd. Tpeak (min)=       8.00       14.00
     Unit Hyd. peak  (cms)=        .14         .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       7.16        1.69      8.627 (iii)
     TIME TO PEAK    (hrs)=       3.03        3.13       3.050
     RUNOFF VOLUME    (mm)=      89.89       43.35      73.144
     TOTAL RAINFALL   (mm)=      91.90       91.90      91.900
     RUNOFF COEFFICIENT   =        .98         .47        .796

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0007------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C1_cul    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:1a          1.94      .389    3.05  64.31    .000
                       +ID2 03:1c           .73      .096    3.12  41.03    .000
                        ==========================================================
                        SUM 05:C1_cul       2.67      .479    3.07  57.95    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0008------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C1_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:1b           .96      .268    3.00  66.90    .000
                       +ID2 04:1d         35.00     8.627    3.05  73.14    .000
                       +ID3 05:C1_cul      2.67      .479    3.07  57.95    .000
                        ==========================================================
                        SUM 07:C1_out      38.63     9.296    3.03  71.94    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0009------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .59
| 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .32          .27
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.60         1.60
     Length            (m)=     210.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=     143.36       108.33
                over (min)        4.00        12.00
     Storage Coeff.  (min)=       4.44 (ii)  11.75 (ii)
     Unit Hyd. Tpeak (min)=       4.00        12.00
     Unit Hyd. peak  (cms)=        .26         .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .09         .05        .132 (iii)
     TIME TO PEAK    (hrs)=       3.00        3.10       3.017
     RUNOFF VOLUME    (mm)=      89.90       44.11      61.971
     TOTAL RAINFALL   (mm)=      91.90       91.90      91.900
     RUNOFF COEFFICIENT   =        .98         .48        .674

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0010------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(2b     )   |
| OUT<01:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00    |     .099  .1230E-01
                            .029  .6700E-02    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (2b    )        .59      .132     3.017     61.971
     OUTFLOW<01: (000002)        .59      .082     3.150     61.971
    OVERFLOW<02: (2bovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   62.310
                    TIME SHIFT OF PEAK FLOW         (min)=     8.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1094E-01

------------------------------------------------------------------------------
050:0011------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (2b_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:          2      .59      .082    3.15  61.97    .000
                       +ID2 02:2bovf           .00      .000     .00    .00    .000
                        ==========================================================
                        SUM 03:2b_out           .59      .082    3.15  61.97    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0012------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .77          .41
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=     143.36        92.93
                over (min)        4.00        10.00
     Storage Coeff.  (min)=       3.79 (ii)   9.99 (ii)
     Unit Hyd. Tpeak (min)=       4.00        10.00
     Unit Hyd. peak  (cms)=        .29         .11

                                                      *TOTALS*
     PEAK FLOW       (cms)=        .21         .07        .270 (iii)
     TIME TO PEAK    (hrs)=       3.00        3.08       3.000
     RUNOFF VOLUME    (mm)=      89.90       31.03      58.112
     TOTAL RAINFALL   (mm)=      91.90       91.90      91.900
     RUNOFF COEFFICIENT   =        .98         .34        .632

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0013------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>01:(2a     )   |
| OUT<02:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00    |     .158  .3100E-01
                            .047  .1700E-01    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (2a    )       1.18      .270     3.000     58.112
     OUTFLOW<02: (000002)       1.18      .128     3.133     58.112
    OVERFLOW<03: (C2ovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   47.308
                    TIME SHIFT OF PEAK FLOW         (min)=     8.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.2718E-01

------------------------------------------------------------------------------
050:0014------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 01:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=     143.36       127.14
                over (min)        3.00         6.00
     Storage Coeff.  (min)=       3.17 (ii)   5.96 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .36         .19
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .86         .19       1.048 (iii)
     TIME TO PEAK    (hrs)=       3.00        3.03       3.000
     RUNOFF VOLUME    (mm)=      89.90       34.50      69.955
     TOTAL RAINFALL   (mm)=      91.90       91.90      91.900
     RUNOFF COEFFICIENT   =        .98         .38        .761

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0015------------------------------------------------------------------------
*#*************************************************************************
------------------------
| ADD HYD (C2_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:2c          3.44     1.048    3.00  69.96    .000
                       +ID2 02:         2    1.18      .128    3.13  58.11    .000
                       +ID3 03:C2ovf         .00      .000     .00    .00    .000
                        ==========================================================
                        SUM 08:C2_out      4.62     1.141    3.00  66.93    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0016------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.43          .95
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.50         2.50
     Length            (m)=     320.00        40.00
     Mannings n             =     .025         .250

     Max.eff.Inten.(mm/hr)=     143.36        99.92
                over (min)        5.00        12.00
     Storage Coeff.  (min)=       5.00 (ii)  11.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        12.00
     Unit Hyd. peak  (cms)=        .23         .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .37         .18        .517 (iii)
     TIME TO PEAK    (hrs)=       3.00        3.10       3.017
     RUNOFF VOLUME    (mm)=      89.90       38.12      59.868
     TOTAL RAINFALL   (mm)=      91.90       91.90      91.900
     RUNOFF COEFFICIENT   =        .98         .41        .651

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0017------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=  197.18
| 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      78.87        118.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=    2750.00        40.00
     Mannings n             =     .020         .250

     Max.eff.Inten.(mm/hr)=      99.25        41.94
                over (min)       30.00        40.00
     Storage Coeff.  (min)=      29.84 (ii)   39.83 (ii)
```

```
03781>      Unit Hyd. Tpeak (min)=      30.00        40.00
03782>      Unit Hyd. peak  (cms)=        .04          .03
03783>                                                      *TOTALS*
03784>      PEAK FLOW       (cms)=      10.46         8.60        18.104 (iii)
03785>      TIME TO PEAK    (hrs)=       3.37         3.58         3.450
03786>      RUNOFF VOLUME    (mm)=      89.89        40.67        56.427
03787>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03788>      RUNOFF COEFFICIENT   =        .98          .44          .614
03789>
03790>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03791>            CN* =  69.0    Ia = Dep. Storage  (Above)
03792>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03793>            THAN THE STORAGE COEFFICIENT.
03794>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03795>
03796> ------------------------------------------------------------------------------
03797> 050:0018-----------------------------------------------------------------------
03798> *#*****************************************************************************
03799> ------------------------
03800> | ADD HYD (C3_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03801> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03802>                      ID1 01:3a            2.38      .517    3.02  59.87    .000
03803>                     +ID2 02:3c          197.18   18.104    3.45  56.43    .000
03804>                      ========================================================
03805>                      SUM 09:C3_out       199.56   18.237    3.45  56.47    .000
03806>
03807>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03808>
03809> ------------------------------------------------------------------------------
03810> 050:0019-----------------------------------------------------------------------
03811> *#*****************************************************************************
03812> ------------------------
03813> | CALIB STANDHYD     |   Area    (ha)=    1.94
03814> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03815> ------------------------
03816>                              IMPERVIOUS    PERVIOUS (i)
03817>      Surface Area     (ha)=       1.16          .78
03818>      Dep. Storage     (mm)=       2.00         5.00
03819>      Average Slope     (%)=       1.30         1.30
03820>      Length            (m)=     280.00        40.00
03821>      Mannings n            =       .025         .250
03822>
03823>      Max.eff.Inten.(mm/hr)=     143.36       111.37
03824>                   over (min)       6.00        13.00
03825>      Storage Coeff.  (min)=       5.61 (ii)   13.31 (ii)
03826>      Unit Hyd. Tpeak (min)=       6.00        13.00
03827>      Unit Hyd. peak  (cms)=        .20          .09
03828>                                                      *TOTALS*
03829>      PEAK FLOW       (cms)=        .29          .16          .423 (iii)
03830>      TIME TO PEAK    (hrs)=       3.02         3.12         3.033
03831>      RUNOFF VOLUME    (mm)=      89.90        43.78        63.152
03832>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03833>      RUNOFF COEFFICIENT   =        .98          .48          .687
03834>
03835>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03836>            CN* =  66.0    Ia = Dep. Storage  (Above)
03837>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03838>            THAN THE STORAGE COEFFICIENT.
03839>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03840>
03841> ------------------------------------------------------------------------------
03842> 050:0020-----------------------------------------------------------------------
03843> *#*****************************************************************************
03844> ------------------------
03845> | CALIB STANDHYD     |   Area    (ha)=   46.39
03846> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
03847> ------------------------
03848>                              IMPERVIOUS    PERVIOUS (i)
03849>      Surface Area     (ha)=      13.92        32.47
03850>      Dep. Storage     (mm)=       2.00         7.00
03851>      Average Slope     (%)=       1.00         2.00
03852>      Length            (m)=    1700.00        60.00
03853>      Mannings n            =       .013         .250
03854>
03855>      Max.eff.Inten.(mm/hr)=     136.01        48.28
03856>                   over (min)      12.00        24.00
03857>      Storage Coeff.  (min)=      12.36 (ii)   24.41 (ii)
03858>      Unit Hyd. Tpeak (min)=      12.00        24.00
03859>      Unit Hyd. peak  (cms)=        .09          .05
03860>                                                      *TOTALS*
03861>      PEAK FLOW       (cms)=       3.04         2.65         5.030 (iii)
03862>      TIME TO PEAK    (hrs)=       3.08         3.32         3.133
03863>      RUNOFF VOLUME    (mm)=      89.90        34.53        47.825
03864>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03865>      RUNOFF COEFFICIENT   =        .98          .38          .520
03866>
03867>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03868>            CN* =  65.0    Ia = Dep. Storage  (Above)
03869>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03870>            THAN THE STORAGE COEFFICIENT.
03871>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03872>
03873> ------------------------------------------------------------------------------
03874> 050:0021-----------------------------------------------------------------------
03875> *#*****************************************************************************
03876> ------------------------
03877> | ADD HYD (C4_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03878> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03879>                      ID1 01:4a            1.94      .423    3.03  63.15    .000
03880>                     +ID2 02:4c           46.39    5.030    3.13  47.82    .000
03881>                      ========================================================
03882>                      SUM 04:C4_out        48.33    5.340    3.13  48.44    .000
03883>
03884>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03885>
03886> ------------------------------------------------------------------------------
03887> 050:0022-----------------------------------------------------------------------
03888> *#*****************************************************************************
03889> ------------------------
03890> | CALIB STANDHYD     |   Area    (ha)=    2.21
03891> | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
03892> ------------------------
03893>                              IMPERVIOUS    PERVIOUS (i)
03894>      Surface Area     (ha)=       1.33          .88
03895>      Dep. Storage     (mm)=       2.00         5.00
03896>      Average Slope     (%)=       2.00         2.00
03897>      Length            (m)=     540.00        40.00
03898>      Mannings n            =       .025         .250
03899>
03900>      Max.eff.Inten.(mm/hr)=     143.36        98.63
03901>                   over (min)       7.00        14.00
03902>      Storage Coeff.  (min)=       7.32 (ii)   14.41 (ii)
03903>      Unit Hyd. Tpeak (min)=       7.00        14.00
03904>      Unit Hyd. peak  (cms)=        .16          .08
03905>                                                      *TOTALS*
03906>      PEAK FLOW       (cms)=        .31          .16          .441 (iii)
03907>      TIME TO PEAK    (hrs)=       3.02         3.13         3.033
03908>      RUNOFF VOLUME    (mm)=      89.90        39.95        60.932
03909>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03910>      RUNOFF COEFFICIENT   =        .98          .43          .663
03911>
03912>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03913>            CN* =  62.0    Ia = Dep. Storage  (Above)
03914>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03915>            THAN THE STORAGE COEFFICIENT.
03916>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03917>
03918> ------------------------------------------------------------------------------
03919> 050:0023-----------------------------------------------------------------------
03920> *#*****************************************************************************
03921> ----------------------
03922> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
03923> |  IN>01:(5a     )   |
03924> | OUT<02:(000005)    |    =========  OUTLFOW STORAGE TABLE  =========
03925> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
03926>                             (cms)     (ha.m.)   |    (cms)    (ha.m.)
03927>                              .000  .0000E+00    |     .292  .5500E-01
03928>                              .079  .3100E-01    |     .000  .0000E+00
03929>
03930>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
03931>      --------------------       (ha)     (cms)     (hrs)       (mm)
03932>      INFLOW >01: (5a    )       2.21      .441     3.033     60.932
03933>      OUTFLOW<02: (000005)       2.21      .240     3.250     60.932
03934>     OVERFLOW<03: (C5ovf )        .00      .000      .000       .000
03935>
03936>                   TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
03937>                   CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
03938>                   PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
03939>
03940>
03941>                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   54.397
03942>                   TIME SHIFT OF PEAK FLOW         (min)=    13.00
03943>                   MAXIMUM  STORAGE   USED       (ha.m.)=.4914E-01
03944>
03945> ------------------------------------------------------------------------------
03946> 050:0024-----------------------------------------------------------------------
03947> *#*****************************************************************************
03948> ------------------------
03949> | CALIB STANDHYD     |   Area    (ha)=   13.39
03950> | 01:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
03951> ------------------------
03952>                              IMPERVIOUS    PERVIOUS (i)
03953>      Surface Area     (ha)=       3.35         10.04
03954>      Dep. Storage     (mm)=       2.00          5.00
03955>      Average Slope     (%)=       1.60          2.00
03956>      Length            (m)=     575.00         75.00
03957>      Mannings n            =       .025          .250
03958>
03959>      Max.eff.Inten.(mm/hr)=     143.36         68.57
03960>                   over (min)       8.00         20.00
03961>      Storage Coeff.  (min)=       8.12 (ii)    20.09 (ii)
03962>      Unit Hyd. Tpeak (min)=       8.00         20.00
03963>      Unit Hyd. peak  (cms)=        .14          .06
03964>                                                      *TOTALS*
03965>      PEAK FLOW       (cms)=        .26         1.16         1.278 (iii)
03966>      TIME TO PEAK    (hrs)=       3.03         3.23         3.217
03967>      RUNOFF VOLUME    (mm)=      89.90        37.34        40.500
03968>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
03969>      RUNOFF COEFFICIENT   =        .98          .41          .441
03970>
03971>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
03972>            CN* =  63.0    Ia = Dep. Storage  (Above)
03973>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
03974>            THAN THE STORAGE COEFFICIENT.
03975>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
03976>
03977> ------------------------------------------------------------------------------
03978> 050:0025-----------------------------------------------------------------------
03979> *#*****************************************************************************
03980> ------------------------
03981> | ADD HYD (C5_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
03982> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
03983>                      ID1 01:5c            13.39    1.278    3.22  40.50    .000
03984>                     +ID2 02:       5      2.21      .240    3.25  60.93    .000
03985>                     +ID3 03:C5ovf         .00      .000     .00    .00    .000
03986>                      ========================================================
03987>                      SUM 05:C5_out        15.60    1.516    3.22  43.39    .000
03988>
03989>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
03990>
03991> ------------------------------------------------------------------------------
03992> 050:0026-----------------------------------------------------------------------
03993> *#*****************************************************************************
03994> ------------------------
03995> | CALIB STANDHYD     |   Area    (ha)=    2.19
03996> | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
03997> ------------------------
03998>                              IMPERVIOUS    PERVIOUS (i)
03999>      Surface Area     (ha)=       1.42          .77
04000>      Dep. Storage     (mm)=       2.00         5.00
04001>      Average Slope     (%)=        .50          .50
04002>      Length            (m)=     285.00        40.00
04003>      Mannings n            =       .025         .250
04004>
04005>      Max.eff.Inten.(mm/hr)=     143.36        54.44
04006>                   over (min)       8.00        21.00
04007>      Storage Coeff.  (min)=       7.56 (ii)   21.20 (ii)
04008>      Unit Hyd. Tpeak (min)=       8.00        21.00
04009>      Unit Hyd. peak  (cms)=        .15          .05
04010>                                                      *TOTALS*
04011>      PEAK FLOW       (cms)=        .33          .07          .376 (iii)
04012>      TIME TO PEAK    (hrs)=       3.03         3.27         3.033
04013>      RUNOFF VOLUME    (mm)=      89.90        25.61        55.185
04014>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
04015>      RUNOFF COEFFICIENT   =        .98          .28          .600
04016>
04017>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04018>            CN* =  43.0    Ia = Dep. Storage  (Above)
04019>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04020>            THAN THE STORAGE COEFFICIENT.
04021>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04022>
04023> ------------------------------------------------------------------------------
04024> 050:0027-----------------------------------------------------------------------
04025> *#*****************************************************************************
04026> ----------------------
04027> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
04028> |  IN>01:(6a     )   |
04029> | OUT<02:(000006)    |    =========  OUTLFOW STORAGE TABLE  =========
04030> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
04031>                             (cms)     (ha.m.)   |    (cms)    (ha.m.)
04032>                              .000  .0000E+00    |     .137  .6800E-01
04033>                              .044  .3700E-01    |     .000  .0000E+00
04034>
04035>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
04036>      --------------------       (ha)     (cms)     (hrs)       (mm)
04037>      INFLOW >01: (6a    )       2.19      .376     3.033     55.185
04038>      OUTFLOW<02: (000006)       2.19      .114     3.533     55.185
04039>     OVERFLOW<03: (C6ovf )        .00      .000      .000       .000
04040>
04041>                   TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
04042>                   CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
04043>                   PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
04044>
04045>
04046>                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   30.347
04047>                   TIME SHIFT OF PEAK FLOW         (min)=    30.00
04048>                   MAXIMUM  STORAGE   USED       (ha.m.)=.6036E-01
04049>
04050> ------------------------------------------------------------------------------
```

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04051> 050:0028-------------------------------------------------------------------------------
04052> ----------------------
04053> | CALIB STANDHYD     |   Area    (ha)=    9.59
04054> | 01:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
04055> ----------------------
04056>                              IMPERVIOUS    PERVIOUS (i)
04057>      Surface Area     (ha)=       4.80         4.80
04058>      Dep. Storage     (mm)=       2.00         5.00
04059>      Average Slope     (%)=        .80         2.00
04060>      Length            (m)=     400.00        40.00
04061>      Mannings n             =       .013         .250
04062>
04063>      Max.eff.Inten.(mm/hr)=     143.36        55.11
04064>                   over (min)        5.00        14.00
04065>      Storage Coeff.  (min)=       5.43 (ii)   14.39 (ii)
04066>      Unit Hyd. Tpeak (min)=       5.00        14.00
04067>      Unit Hyd. peak  (cms)=        .21          .08
04068>                                                          *TOTALS*
04069>      PEAK FLOW       (cms)=       1.39          .47         1.744 (iii)
04070>      TIME TO PEAK    (hrs)=       3.00         3.15         3.017
04071>      RUNOFF VOLUME    (mm)=      89.90        27.19        52.272
04072>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
04073>      RUNOFF COEFFICIENT   =        .98          .30          .569
04074>
04075>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04076>            CN* =  52.0    Ia = Dep. Storage  (Above)
04077>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04078>            THAN THE STORAGE COEFFICIENT.
04079>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04080>
04081> -------------------------------------------------------------------------------
04082> 050:0029-------------------------------------------------------------------------------
04083> *#*****************************************************************************
04084> ----------------------
04085> | ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
04086> ----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
04087>                        ID1 01:6c            9.59    1.744    3.02  52.27    .000
04088>                       +ID2 02:         6     2.19     .114    3.53  55.18    .000
04089>                       +ID3 03:C6ovf          .00     .000     .00    .00    .000
04090>                        ==========================================================
04091>                        SUM 06:C6_out       11.78    1.792    3.02  52.81    .000
04092>
04093>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04094>
04095> -------------------------------------------------------------------------------
04096> 050:0030-------------------------------------------------------------------------------
04097> *#*****************************************************************************
04098> ----------------------
04099> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
04100> ----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
04101>                        ID1 07:C1_out       38.63    9.296    3.03  71.94    .000
04102>                       +ID2 08:C2_out        4.62    1.141    3.00  66.93    .000
04103>                       +ID3 09:C3_out      199.56   18.237    3.45  56.47    .000
04104>                       +ID4 04:C4_out       48.33    5.340    3.13  48.44    .000
04105>                       +ID5 05:C5_out       15.60    1.516    3.22  43.39    .000
04106>                       +ID6 06:C6_out       11.78    1.792    3.02  52.81    .000
04107>                       +ID7 10:2b             .59     .132    3.02  61.97    .000
04108>                        ==========================================================
04109>                        SUM 03:GRCA         319.11   29.479    3.10  56.51    .000
04110>
04111>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04112>
04113> -------------------------------------------------------------------------------
04114> 050:0031-------------------------------------------------------------------------------
04115> *#*****************************************************************************
04116> ----------------------
04117> | CALIB STANDHYD     |   Area    (ha)=     .46
04118> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
04119> ----------------------
04120>                              IMPERVIOUS    PERVIOUS (i)
04121>      Surface Area     (ha)=        .25          .21
04122>      Dep. Storage     (mm)=       2.00         5.00
04123>      Average Slope     (%)=        .40          .40
04124>      Length            (m)=      70.00        40.00
04125>      Mannings n             =       .025         .250
04126>
04127>      Max.eff.Inten.(mm/hr)=     143.36        39.07
04128>                   over (min)        3.00        20.00
04129>      Storage Coeff.  (min)=       3.48 (ii)   20.14 (ii)
04130>      Unit Hyd. Tpeak (min)=       3.00        20.00
04131>      Unit Hyd. peak  (cms)=        .34          .06
04132>                                                          *TOTALS*
04133>      PEAK FLOW       (cms)=        .07          .01          .077 (iii)
04134>      TIME TO PEAK    (hrs)=       3.00         3.25         3.000
04135>      RUNOFF VOLUME    (mm)=      89.90        20.41        47.510
04136>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
04137>      RUNOFF COEFFICIENT   =        .98          .22          .517
04138>
04139>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04140>            CN* =  39.0    Ia = Dep. Storage  (Above)
04141>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04142>            THAN THE STORAGE COEFFICIENT.
04143>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04144>
04145> -------------------------------------------------------------------------------
04146> 050:0032-------------------------------------------------------------------------------
04147> *#*****************************************************************************
04148> ----------------------
04149> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
04150> |  IN>01:(7a    )    |
04151> | OUT<02:(000007)    |    =========  OUTLFOW STORAGE TABLE  =========
04152> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
04153>                             (cms)    (ha.m.)   |    (cms)    (ha.m.)
04154>                              .000   .0000E+00   |     .023  .1280E-01
04155>                              .006   .7100E-02   |     .000  .0000E+00
04156>
04157>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
04158>      --------------------       (ha)     (cms)     (hrs)       (mm)
04159>      INFLOW >01: (7a    )        .46      .077     3.000     47.510
04160>      OUTFLOW<02: (000007)        .46      .019     3.517     47.509
04161>     OVERFLOW<03: (C7ovf )        .00      .000      .000       .000
04162>
04163>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
04164>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
04165>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
04166>
04167>
04168>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   24.421
04169>                    TIME SHIFT OF PEAK FLOW          (min)=    31.00
04170>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1142E-01
04171>
04172> -------------------------------------------------------------------------------
04173> 050:0033-------------------------------------------------------------------------------
04174> ----------------------
04175> | CALIB STANDHYD     |   Area    (ha)=     .87
04176> | 01:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
04177> ----------------------
04178>                              IMPERVIOUS    PERVIOUS (i)
04179>      Surface Area     (ha)=        .35          .52
04180>      Dep. Storage     (mm)=       2.00         5.00
04181>      Average Slope     (%)=       1.90          .50
04182>      Length            (m)=      80.00       110.00
04183>      Mannings n             =       .013         .250
04184>
04185>      Max.eff.Inten.(mm/hr)=     143.36        16.76
04186>                   over (min)        2.00        42.00
04187>      Storage Coeff.  (min)=       1.60 (ii)   41.70 (ii)
04188>      Unit Hyd. Tpeak (min)=       2.00        42.00
04189>      Unit Hyd. peak  (cms)=        .64          .03
04190>                                                          *TOTALS*
04191>      PEAK FLOW       (cms)=        .11          .02          .115 (iii)
04192>      TIME TO PEAK    (hrs)=       3.00         3.63         3.000
04193>      RUNOFF VOLUME    (mm)=      89.90        17.47        40.650
04194>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
04195>      RUNOFF COEFFICIENT   =        .98          .19          .442
04196>
04197>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04198>            CN* =  39.0    Ia = Dep. Storage  (Above)
04199>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04200>            THAN THE STORAGE COEFFICIENT.
04201>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04202>
04203> -------------------------------------------------------------------------------
04204> 050:0034-------------------------------------------------------------------------------
04205> *#*****************************************************************************
04206> ----------------------
04207> | ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
04208> ----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
04209>                        ID1 01:7c            .87     .115    3.00  40.65    .000
04210>                       +ID2 02:         7     .46     .019    3.52  47.51    .000
04211>                       +ID3 03:C7ovf          .00     .000     .00    .00    .000
04212>                        ==========================================================
04213>                        SUM 07:C7_out        1.33     .126    3.00  43.02    .000
04214>
04215>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04216>
04217> -------------------------------------------------------------------------------
04218> 050:0035-------------------------------------------------------------------------------
04219> *#*****************************************************************************
04220> ----------------------
04221> | CALIB STANDHYD     |   Area    (ha)=     .71
04222> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04223> ----------------------
04224>                              IMPERVIOUS    PERVIOUS (i)
04225>      Surface Area     (ha)=        .43          .28
04226>      Dep. Storage     (mm)=       2.00         5.00
04227>      Average Slope     (%)=       1.70         1.70
04228>      Length            (m)=     110.00        40.00
04229>      Mannings n             =       .025         .250
04230>
04231>      Max.eff.Inten.(mm/hr)=     143.36        97.57
04232>                   over (min)        3.00        10.00
04233>      Storage Coeff.  (min)=       2.96 (ii)   10.44 (ii)
04234>      Unit Hyd. Tpeak (min)=       3.00        10.00
04235>      Unit Hyd. peak  (cms)=        .38          .11
04236>                                                          *TOTALS*
04237>      PEAK FLOW       (cms)=        .12          .05          .161 (iii)
04238>      TIME TO PEAK    (hrs)=       3.00         3.08         3.000
04239>      RUNOFF VOLUME    (mm)=      89.90        34.60        57.829
04240>      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
04241>      RUNOFF COEFFICIENT   =        .98          .38          .629
04242>
04243>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04244>            CN* =  56.0    Ia = Dep. Storage  (Above)
04245>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04246>            THAN THE STORAGE COEFFICIENT.
04247>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04248>
04249> -------------------------------------------------------------------------------
04250> 050:0036-------------------------------------------------------------------------------
04251> *#*****************************************************************************
04252> ----------------------
04253> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
04254> |  IN>01:(8a    )    |
04255> | OUT<02:(000008)    |    =========  OUTLFOW STORAGE TABLE  =========
04256> ----------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
04257>                             (cms)    (ha.m.)   |    (cms)    (ha.m.)
04258>                              .000   .0000E+00   |     .081  .1860E-01
04259>                              .025   .9700E-02   |     .000  .0000E+00
04260>
04261>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
04262>      --------------------       (ha)     (cms)     (hrs)       (mm)
04263>      INFLOW >01: (8a    )        .71      .161     3.000     57.829
04264>      OUTFLOW<02: (000008)        .71      .068     3.150     57.829
04265>     OVERFLOW<03: (C8ovf )        .00      .000      .000       .000
04266>
04267>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
04268>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
04269>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
04270>
04271>
04272>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   42.199
04273>                    TIME SHIFT OF PEAK FLOW          (min)=     9.00
04274>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1653E-01
04275>
04276> -------------------------------------------------------------------------------
04277> 050:0037-------------------------------------------------------------------------------
04278> ----------------------
04279> | CALIB NASHYD       |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
04280> | 01:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
04281> ----------------------   U.H. Tp(hrs)=    .330
04282>
04283>      Unit Hyd Qpeak  (cms)=     .132
04284>
04285>      PEAK FLOW       (cms)=     .102 (i)
04286>      TIME TO PEAK    (hrs)=    3.233
04287>      RUNOFF VOLUME    (mm)=   36.891
04288>      TOTAL RAINFALL   (mm)=   91.900
04289>      RUNOFF COEFFICIENT   =     .401
04290>
04291>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04292>
04293> -------------------------------------------------------------------------------
04294> 050:0038-------------------------------------------------------------------------------
04295> *#*****************************************************************************
04296> ----------------------
04297> | ADD HYD (C8_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
04298> ----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
04299>                        ID1 01:8c            1.14     .102    3.23  36.89    .000
04300>                       +ID2 02:         8     .71     .068    3.15  57.83    .000
04301>                       +ID3 03:C8ovf          .00     .000     .00    .00    .000
04302>                        ==========================================================
04303>                        SUM 08:C8_out        1.85     .168    3.22  44.93    .000
04304>
04305>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04306>
04307> -------------------------------------------------------------------------------
04308> 050:0039-------------------------------------------------------------------------------
04309> *#*****************************************************************************
04310> ----------------------
04311> | CALIB STANDHYD     |   Area    (ha)=    1.42
04312> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
04313> ----------------------
04314>                              IMPERVIOUS    PERVIOUS (i)
04315>      Surface Area     (ha)=        .82          .60
04316>      Dep. Storage     (mm)=       2.00         5.00
04317>      Average Slope     (%)=       2.90         2.90
04318>      Length            (m)=     170.00        40.00
04319>      Mannings n             =       .025         .250
04320>
```

```
      Max.eff.Inten.(mm/hr)=     143.36        94.92
                over (min)        3.00        10.00
      Storage Coeff.  (min)=       3.27 (ii)    9.72 (ii)
      Unit Hyd. Tpeak (min)=       3.00        10.00
      Unit Hyd. peak  (cms)=        .35          .12
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .23          .11          .320 (iii)
      TIME TO PEAK    (hrs)=       3.00         3.08         3.000
      RUNOFF VOLUME    (mm)=      89.90        34.72        57.346
      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
      RUNOFF COEFFICIENT   =        .98          .38          .624

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  57.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0040------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number   (CN)=71.00
| 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=   1.580

      Unit Hyd Qpeak  (cms)=    2.320

      PEAK FLOW       (cms)=    2.814 (i)
      TIME TO PEAK    (hrs)=    4.783
      RUNOFF VOLUME    (mm)=   38.209
      TOTAL RAINFALL   (mm)=   91.900
      RUNOFF COEFFICIENT   =     .416

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

------------------------------------------------------------------------------
050:0041------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 01:9a           1.42      .320    3.00  57.35    .000
                      +ID2 02:9c          95.98    2.814    4.78  38.21    .000
                      +ID3 07:C7_out       1.33      .126    3.00  43.02    .000
                      +ID4 08:C8_out       1.85      .168    3.22  44.93    .000
                       ========================================================
                       SUM 09:C9_out      100.58    2.887    4.77  38.67    .000

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0042------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.74
| 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------

                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       2.24         1.50
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.30         1.30
      Length            (m)=     385.00        40.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=     143.36        72.48
                over (min)        7.00        16.00
      Storage Coeff.  (min)=       6.80 (ii)   15.93 (ii)
      Unit Hyd. Tpeak (min)=       7.00        16.00
      Unit Hyd. peak  (cms)=        .16          .07
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .53          .19          .680 (iii)
      TIME TO PEAK    (hrs)=       3.02         3.17         3.033
      RUNOFF VOLUME    (mm)=      89.90        31.27        55.898
      TOTAL RAINFALL   (mm)=      91.90        91.90        91.900
      RUNOFF COEFFICIENT   =        .98          .34          .608

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  52.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
050:0043------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number   (CN)=72.00
| 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=   1.280

      Unit Hyd Qpeak  (cms)=    3.260

      PEAK FLOW       (cms)=    3.872 (i)
      TIME TO PEAK    (hrs)=    4.400
      RUNOFF VOLUME    (mm)=   39.243
      TOTAL RAINFALL   (mm)=   91.900
      RUNOFF COEFFICIENT   =     .427

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

------------------------------------------------------------------------------
050:0044------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 01:10a          3.74      .680    3.03  55.90    .000
                      +ID2 02:10c        109.26    3.872    4.40  39.24    .000
                       ========================================================
                       SUM 10:C10_out     113.00    3.935    4.40  39.79    .000

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0045------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 09:C9_out      100.58    2.887    4.77  38.67    .000
                      +ID2 10:C10_out     113.00    3.935    4.40  39.79    .000
                       ========================================================
                       SUM 05:HCA         213.58    6.761    4.52  39.26    .000

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0046------------------------------------------------------------------------
*#*************************************************************************
----------------------
| ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
----------------------                     (ha)     (cms)   (hrs)   (mm)    (cms)
                       ID1 03:C8ovf          .00      .000     .00    .00    .000
                      +ID2 05:HCA         213.58    6.761    4.52  39.26    .000
                       ========================================================
                       SUM 06:All_F       213.58    6.761    4.52  39.26    .000

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
050:0047------------------------------------------------------------------------
*#*************************************************************************

------------------------------------------------------------------------------
050:0002------------------------------------------------------------------------

------------------------------------------------------------------------------
050:0002------------------------------------------------------------------------
  ** END OF RUN :  99

*************************************************************************



--------------------
| START            |  Project  dir.: C:\SWMHYMO\Garner\12-12~~1\
-------------------  Rainfall dir.: C:\SWMHYMO\Garner\12-12~~1\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 100
    NSTORM=   1
           #  1=H100SCS.6h
------------------------------------------------------------------------------
100:0002------------------------------------------------------------------------
*#*************************************************************************
*#  Project Name: Garner Rd. MCEA
*#  Date        : December 12, 2024
*#  Company     : Stantec Consulting Ltd. (Waterloo)
*#  Modeller    : Amy Kyle
*#  License #   :  4730904
*#*************************************************************************
*#
*#
*#
*#*************************************************************************
------------------------------------------------------------------------------
100:0002------------------------------------------------------------------------
*#*************************************************************************
--------------------
| READ STORM       |    Filename: Hamilton (Mount Hope), 100-yr,6 hr SCS s
| Ptotal= 102.30 mm|    Comments: Hamilton (Mount Hope), 100-yr,6 hr SCS s
--------------------
               TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
                hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .17   4.090 |   1.67  10.230 |   3.17  22.510 |   4.67   6.140
               .33   4.090 |   1.83  10.230 |   3.33  22.510 |   4.83   6.140
               .50   4.090 |   2.00  10.230 |   3.50  22.510 |   5.00   6.140
               .67   6.140 |   2.17  12.280 |   3.67  10.230 |   5.17   4.090
               .83   6.140 |   2.33  12.280 |   3.83  10.230 |   5.33   4.090
              1.00   6.140 |   2.50  12.280 |   4.00  10.230 |   5.50   4.090
              1.17   6.140 |   2.67  61.380 |   4.17   8.180 |   5.67   4.090
              1.33   6.140 |   2.83 110.480 |   4.33   8.180 |   5.83   4.090
              1.50   6.140 |   3.00 159.590 |   4.50   8.180 |   6.00   4.090

------------------------------------------------------------------------------
100:0003------------------------------------------------------------------------
*#*************************************************************************
*#  PROPOSED CATCHMENTS (CONTROLLED)
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.94
| 01:1a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
----------------------

                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       1.16          .78
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       1.10         1.10
      Length            (m)=     440.00        40.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=     159.59       129.75
                over (min)        7.00        15.00
      Storage Coeff.  (min)=       7.42 (ii)   15.03 (ii)
      Unit Hyd. Tpeak (min)=       7.00        15.00
      Unit Hyd. peak  (cms)=        .16          .08
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .30          .18          .454 (iii)
      TIME TO PEAK    (hrs)=       3.02         3.15         3.050
      RUNOFF VOLUME    (mm)=     100.30        53.90        73.391
      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
      RUNOFF COEFFICIENT   =        .98          .53          .717

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  68.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0004------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .96
| 02:1b     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
----------------------

                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        .62          .34
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       2.20         2.20
      Length            (m)=      80.00        40.00
      Mannings n            =       .025         .250

      Max.eff.Inten.(mm/hr)=     159.59       168.47
                over (min)        2.00         8.00
      Storage Coeff.  (min)=       2.17 (ii)    7.73 (ii)
      Unit Hyd. Tpeak (min)=       2.00         8.00
      Unit Hyd. peak  (cms)=        .53          .14
                                                          *TOTALS*
      PEAK FLOW       (cms)=        .19          .12          .307 (iii)
      TIME TO PEAK    (hrs)=       3.00         3.05         3.000
      RUNOFF VOLUME    (mm)=     100.30        55.59        76.156
      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
      RUNOFF COEFFICIENT   =        .98          .54          .744

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  68.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
100:0005------------------------------------------------------------------------
*#*************************************************************************
----------------------
| CALIB NASHYD       |   Area    (ha)=     .73   Curve Number   (CN)=73.00
| 03:1c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220
```

```
      Unit Hyd Qpeak  (cms)=     .127

      PEAK FLOW       (cms)=     .114 (i)
      TIME TO PEAK    (hrs)=    3.117
      RUNOFF VOLUME    (mm)=   48.747
      TOTAL RAINFALL   (mm)=  102.302
      RUNOFF COEFFICIENT   =     .477

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

---------------------------------------------------------------------------
100:0006----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| CALIB STANDHYD     |   Area    (ha)=   35.00
| 04:1d     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
 ---------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.00         7.00
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.40         2.00
     Length            (m)=    1100.00        30.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       160.56
                   over (min)        8.00        13.00
     Storage Coeff.  (min)=       8.07 (ii)   12.99 (ii)
     Unit Hyd. Tpeak (min)=       8.00        13.00
     Unit Hyd. peak  (cms)=        .14          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       8.06         2.07       9.905 (iii)
     TIME TO PEAK    (hrs)=       3.03         3.12       3.050
     RUNOFF VOLUME    (mm)=     100.30        51.16      82.611
     TOTAL RAINFALL   (mm)=     102.30       102.30     102.302
     RUNOFF COEFFICIENT   =        .98          .50        .808

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  60.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
100:0007----------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C1_cul    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:1a              1.94     .454    3.05  73.39    .000
                     +ID2 03:1c               .73     .114    3.12  48.75    .000
                      ========================================================
                      SUM 05:C1_cul          2.67     .560    3.05  66.65    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
100:0008----------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C1_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 02:1b              .96     .307    3.00  76.16    .000
                     +ID2 04:1d            35.00    9.905    3.05  82.61    .000
                     +ID3 05:C1_cul         2.67     .560    3.05  66.65    .000
                      ========================================================
                      SUM 07:C1_out         38.63   10.691    3.03  81.35    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
100:0009----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| CALIB STANDHYD     |   Area    (ha)=     .59
| 10:2b     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
 ---------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .32          .27
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.60         1.60
     Length            (m)=     210.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       131.71
                   over (min)        4.00        11.00
     Storage Coeff.  (min)=       4.25 (ii)   11.01 (ii)
     Unit Hyd. Tpeak (min)=       4.00        11.00
     Unit Hyd. peak  (cms)=        .27          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .10          .07        .154 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08       3.017
     RUNOFF VOLUME    (mm)=     100.30        52.06      70.875
     TOTAL RAINFALL   (mm)=     102.30       102.30     102.302
     RUNOFF COEFFICIENT   =        .98          .51        .693

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
100:0010----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(2b    )    |
| OUT<01:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
 ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                             .000  .0000E+00   |     .099  .1230E-01
                             .029  .6700E-02   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (2b    )        .59      .154     3.017     70.875
     OUTFLOW<01: (000002)        .59      .099     3.133     70.875
    OVERFLOW<02: (2bovf )        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   63.982
                    TIME SHIFT OF PEAK FLOW          (min)=    7.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1227E-01

---------------------------------------------------------------------------
100:0011----------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (2b_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:         2      .59     .099    3.13  70.87    .000
                     +ID2 02:2bovf           .00     .000     .00    .00    .000
                      ========================================================
                      SUM 03:2b_out          .59     .099    3.13  70.87    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
100:0012----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.18
| 01:2a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
 ---------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .77          .41
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.40         3.40
     Length            (m)=     235.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       112.96
                   over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.63 (ii)    9.36 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .30          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .23          .09        .312 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.07       3.000
     RUNOFF VOLUME    (mm)=     100.30        37.21      66.234
     TOTAL RAINFALL   (mm)=     102.30       102.30     102.302
     RUNOFF COEFFICIENT   =        .98          .36        .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
100:0013----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>01:(2a    )    |
| OUT<02:(000002)    |    =========  OUTLFOW STORAGE TABLE  =========
 ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
                             .000  .0000E+00   |     .158  .3100E-01
                             .047  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
     INFLOW >01: (2a    )        1.18      .312     3.000     66.234
     OUTFLOW<02: (000002)        1.18      .153     3.133     66.234
    OVERFLOW<03: (C2ovf )         .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   49.142
                    TIME SHIFT OF PEAK FLOW          (min)=    8.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3044E-01

---------------------------------------------------------------------------
100:0014----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| CALIB STANDHYD     |   Area    (ha)=    3.44
| 01:2c     DT= 1.00 |   Total Imp(%)=   80.00   Dir. Conn.(%)=   64.00
 ---------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75          .69
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.10         2.00
     Length            (m)=     320.00        10.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=     159.59       150.99
                   over (min)        3.00         6.00
     Storage Coeff.  (min)=       3.03 (ii)    5.64 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .37          .20
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .96          .23       1.187 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.02       3.000
     RUNOFF VOLUME    (mm)=     100.30        41.16      79.011
     TOTAL RAINFALL   (mm)=     102.30       102.30     102.302
     RUNOFF COEFFICIENT   =        .98          .40        .772

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  50.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
100:0015----------------------------------------------------------------------
*#*****************************************************************************
 ------------------------
| ADD HYD (C2_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
 ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:2c              3.44    1.187    3.00  79.01    .000
                     +ID2 02:        2       1.18      .153    3.13  66.23    .000
                     +ID3 03:C2ovf            .00      .000     .00    .00    .000
                      ========================================================
                      SUM 08:C2_out          4.62    1.304    3.00  75.75    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------
100:0016----------------------------------------------------------------------
*#*****************************************************************************
 ---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.38
| 01:3a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
 ---------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.43          .95
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.50         2.50
     Length            (m)=     320.00        40.00
     Mannings n            =       .025         .250

     Max.eff.Inten.(mm/hr)=     159.59       122.69
                   over (min)        5.00        11.00
     Storage Coeff.  (min)=       4.79 (ii)   10.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=        .23          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .41          .22        .604 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08       3.017
     RUNOFF VOLUME    (mm)=     100.30        45.32      68.411
     TOTAL RAINFALL   (mm)=     102.30       102.30     102.302
```

```
04861>      RUNOFF COEFFICIENT   =        .98          .44           .669
04862>
04863>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04864>            CN* =  60.0    Ia = Dep. Storage  (Above)
04865>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04866>            THAN THE STORAGE COEFFICIENT.
04867>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04868>
04869> ---------------------------------------------------------------------------
04870> 100:0017-----------------------------------------------------------------
04871> *#*************************************************************************
04872> ----------------------
04873> | CALIB STANDHYD     |   Area    (ha)=  197.18
04874> | 02:3c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
04875> ----------------------
04876>                               IMPERVIOUS    PERVIOUS (i)
04877>      Surface Area     (ha)=      78.87       118.31
04878>      Dep. Storage     (mm)=       2.00         5.00
04879>      Average Slope     (%)=        .50         2.00
04880>      Length            (m)=    2750.00        40.00
04881>      Mannings n             =       .020         .250
04882>
04883>      Max.eff.Inten.(mm/hr)=     113.99        52.67
04884>                 over (min)      28.00        37.00
04885>      Storage Coeff.  (min)=      28.23 (ii)   37.35 (ii)
04886>      Unit Hyd. Tpeak (min)=      28.00        37.00
04887>      Unit Hyd. peak  (cms)=        .04          .03
04888>                                                          *TOTALS*
04889>      PEAK FLOW       (cms)=      12.08        10.73        21.767 (iii)
04890>      TIME TO PEAK    (hrs)=       3.33         3.53         3.417
04891>      RUNOFF VOLUME    (mm)=     100.28        48.25        64.910
04892>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04893>      RUNOFF COEFFICIENT   =        .98          .47          .634
04894>
04895>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04896>            CN* =  69.0    Ia = Dep. Storage  (Above)
04897>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04898>            THAN THE STORAGE COEFFICIENT.
04899>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04900>
04901> ---------------------------------------------------------------------------
04902> 100:0018-----------------------------------------------------------------
04903> *#*************************************************************************
04904> ----------------------
04905> | ADD HYD (C3_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04906> ----------------------- ----             (ha)     (cms)   (hrs)   (mm)   (cms)
04907>                       ID1 01:3a           2.38      .604   3.02  68.41    .000
04908>                      +ID2 02:3c         197.18   21.767   3.42  64.91    .000
04909>                       ========================================================
04910>                       SUM 09:C3_out      199.56   21.923   3.42  64.95    .000
04911>
04912>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04913>
04914> ---------------------------------------------------------------------------
04915> 100:0019-----------------------------------------------------------------
04916> *#*************************************************************************
04917> ----------------------
04918> | CALIB STANDHYD     |   Area    (ha)=    1.94
04919> | 01:4a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04920> ----------------------
04921>                               IMPERVIOUS    PERVIOUS (i)
04922>      Surface Area     (ha)=       1.16          .78
04923>      Dep. Storage     (mm)=       2.00         5.00
04924>      Average Slope     (%)=       1.30         1.30
04925>      Length            (m)=     280.00        40.00
04926>      Mannings n             =       .025         .250
04927>
04928>      Max.eff.Inten.(mm/hr)=     159.59       131.16
04929>                 over (min)       5.00        13.00
04930>      Storage Coeff.  (min)=       5.38 (ii)   12.58 (ii)
04931>      Unit Hyd. Tpeak (min)=       5.00        13.00
04932>      Unit Hyd. peak  (cms)=        .22          .09
04933>                                                          *TOTALS*
04934>      PEAK FLOW       (cms)=        .33          .19          .488 (iii)
04935>      TIME TO PEAK    (hrs)=       3.00         3.12         3.017
04936>      RUNOFF VOLUME    (mm)=     100.30        51.68        72.100
04937>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04938>      RUNOFF COEFFICIENT   =        .98          .51          .705
04939>
04940>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04941>            CN* =  66.0    Ia = Dep. Storage  (Above)
04942>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04943>            THAN THE STORAGE COEFFICIENT.
04944>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04945>
04946> ---------------------------------------------------------------------------
04947> 100:0020-----------------------------------------------------------------
04948> *#*************************************************************************
04949> ----------------------
04950> | CALIB STANDHYD     |   Area    (ha)=   46.39
04951> | 02:4c     DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=   24.00
04952> ----------------------
04953>                               IMPERVIOUS    PERVIOUS (i)
04954>      Surface Area     (ha)=      13.92        32.47
04955>      Dep. Storage     (mm)=       2.00         7.00
04956>      Average Slope     (%)=       1.00         2.00
04957>      Length            (m)=    1700.00        60.00
04958>      Mannings n             =       .013         .250
04959>
04960>      Max.eff.Inten.(mm/hr)=     151.41        60.03
04961>                 over (min)      12.00        23.00
04962>      Storage Coeff.  (min)=      11.85 (ii)   22.89 (ii)
04963>      Unit Hyd. Tpeak (min)=      12.00        23.00
04964>      Unit Hyd. peak  (cms)=        .10          .05
04965>                                                          *TOTALS*
04966>      PEAK FLOW       (cms)=       3.43         3.32         6.032 (iii)
04967>      TIME TO PEAK    (hrs)=       3.08         3.28         3.133
04968>      RUNOFF VOLUME    (mm)=     100.30        41.42        55.552
04969>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
04970>      RUNOFF COEFFICIENT   =        .98          .40          .543
04971>
04972>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
04973>            CN* =  65.0    Ia = Dep. Storage  (Above)
04974>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
04975>            THAN THE STORAGE COEFFICIENT.
04976>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
04977>
04978> ---------------------------------------------------------------------------
04979> 100:0021-----------------------------------------------------------------
04980> *#*************************************************************************
04981> ----------------------
04982> | ADD HYD (C4_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
04983> ----------------------- ----             (ha)     (cms)   (hrs)   (mm)   (cms)
04984>                       ID1 01:4a           1.94      .488   3.02  72.10    .000
04985>                      +ID2 02:4c          46.39    6.032   3.13  55.55    .000
04986>                       ========================================================
04987>                       SUM 04:C4_out       48.33    6.375   3.13  56.22    .000
04988>
04989>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
04990>
04991> ---------------------------------------------------------------------------
04992> 100:0022-----------------------------------------------------------------
04993> *#*************************************************************************
04994> ----------------------
04995> | CALIB STANDHYD     |   Area    (ha)=    2.21
04996> | 01:5a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
04997> ----------------------
04998>                               IMPERVIOUS    PERVIOUS (i)
04999>      Surface Area     (ha)=       1.33          .88
05000>      Dep. Storage     (mm)=       2.00         5.00
05001>      Average Slope     (%)=       2.00         2.00
05002>      Length            (m)=     540.00        40.00
05003>      Mannings n             =       .025         .250
05004>
05005>      Max.eff.Inten.(mm/hr)=     159.59       116.88
05006>                 over (min)       7.00        14.00
05007>      Storage Coeff.  (min)=       7.01 (ii)   13.64 (ii)
05008>      Unit Hyd. Tpeak (min)=       7.00        14.00
05009>      Unit Hyd. peak  (cms)=        .16          .08
05010>                                                          *TOTALS*
05011>      PEAK FLOW       (cms)=        .35          .19          .509 (iii)
05012>      TIME TO PEAK    (hrs)=       3.02         3.13         3.033
05013>      RUNOFF VOLUME    (mm)=     100.30        47.38        69.611
05014>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05015>      RUNOFF COEFFICIENT   =        .98          .46          .680
05016>
05017>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05018>            CN* =  62.0    Ia = Dep. Storage  (Above)
05019>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05020>            THAN THE STORAGE COEFFICIENT.
05021>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05022>
05023> ---------------------------------------------------------------------------
05024> 100:0023-----------------------------------------------------------------
05025> *#*************************************************************************
05026> ----------------------
05027> | ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
05028> |  IN>01:(5a    )    |
05029> | OUT<02:(000005)    |    =========  OUTLFOW STORAGE TABLE  =========
05030> ----------------------    OUTFLOW     STORAGE   |  OUTFLOW    STORAGE
05031>                             (cms)     (ha.m.)   |    (cms)    (ha.m.)
05032>                             .000  .0000E+00   |     .292  .5500E-01
05033>                             .079  .3100E-01   |     .000  .0000E+00
05034>
05035>      ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
05036>      ---------------            (ha)     (cms)     (hrs)       (mm)
05037>      INFLOW >01: (5a    )       2.21      .509     3.033     69.611
05038>      OUTFLOW<02: (000005)       2.21      .288     3.233     69.611
05039>     OVERFLOW<03: (C5ovf )        .00      .000      .000       .000
05040>
05041>                  TOTAL NUMBER OF SIMULATED OVERFLOWS  =         0
05042>                  CUMULATIVE TIME OF OVERFLOWS (hours)=       .00
05043>                  PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
05044>
05045>
05046>                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=    56.560
05047>                  TIME SHIFT OF PEAK FLOW          (min)=    12.00
05048>                  MAXIMUM  STORAGE   USED       (ha.m.)=.5456E-01
05049>
05050> ---------------------------------------------------------------------------
05051> 100:0024-----------------------------------------------------------------
05052> *#*************************************************************************
05053> ----------------------
05054> | CALIB STANDHYD     |   Area    (ha)=   13.39
05055> | 01:5c     DT= 1.00 |   Total Imp(%)=   25.00   Dir. Conn.(%)=    6.00
05056> ----------------------
05057>                               IMPERVIOUS    PERVIOUS (i)
05058>      Surface Area     (ha)=       3.35        10.04
05059>      Dep. Storage     (mm)=       2.00         5.00
05060>      Average Slope     (%)=       1.60         2.00
05061>      Length            (m)=     575.00        75.00
05062>      Mannings n             =       .025         .250
05063>
05064>      Max.eff.Inten.(mm/hr)=     159.59        83.80
05065>                 over (min)       8.00        19.00
05066>      Storage Coeff.  (min)=       7.78 (ii)   18.83 (ii)
05067>      Unit Hyd. Tpeak (min)=       8.00        19.00
05068>      Unit Hyd. peak  (cms)=        .14          .06
05069>                                                          *TOTALS*
05070>      PEAK FLOW       (cms)=        .29         1.44         1.581 (iii)
05071>      TIME TO PEAK    (hrs)=       3.03         3.22         3.183
05072>      RUNOFF VOLUME    (mm)=     100.30        44.47        47.822
05073>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05074>      RUNOFF COEFFICIENT   =        .98          .43          .467
05075>
05076>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05077>            CN* =  63.0    Ia = Dep. Storage  (Above)
05078>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05079>            THAN THE STORAGE COEFFICIENT.
05080>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05081>
05082> ---------------------------------------------------------------------------
05083> 100:0025-----------------------------------------------------------------
05084> *#*************************************************************************
05085> ----------------------
05086> | ADD HYD (C5_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05087> ----------------------- ----             (ha)     (cms)   (hrs)   (mm)   (cms)
05088>                       ID1 01:5c          13.39    1.581   3.18  47.82    .000
05089>                      +ID2 02:        5    2.21      .288   3.23  69.61    .000
05090>                      +ID3 03:C5ovf         .00      .000    .00    .00    .000
05091>                       ========================================================
05092>                       SUM 05:C5_out      15.60    1.866   3.20  50.91    .000
05093>
05094>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05095>
05096> ---------------------------------------------------------------------------
05097> 100:0026-----------------------------------------------------------------
05098> *#*************************************************************************
05099> ----------------------
05100> | CALIB STANDHYD     |   Area    (ha)=    2.19
05101> | 01:6a     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   46.00
05102> ----------------------
05103>                               IMPERVIOUS    PERVIOUS (i)
05104>      Surface Area     (ha)=       1.42          .77
05105>      Dep. Storage     (mm)=       2.00         5.00
05106>      Average Slope     (%)=        .50          .50
05107>      Length            (m)=     285.00        40.00
05108>      Mannings n             =       .025         .250
05109>
05110>      Max.eff.Inten.(mm/hr)=     159.59        68.34
05111>                 over (min)       7.00        20.00
05112>      Storage Coeff.  (min)=       7.24 (ii)   19.70 (ii)
05113>      Unit Hyd. Tpeak (min)=       7.00        20.00
05114>      Unit Hyd. peak  (cms)=        .16          .06
05115>                                                          *TOTALS*
05116>      PEAK FLOW       (cms)=        .38          .09          .435 (iii)
05117>      TIME TO PEAK    (hrs)=       3.02         3.23         3.033
05118>      RUNOFF VOLUME    (mm)=     100.30        30.93        62.840
05119>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05120>      RUNOFF COEFFICIENT   =        .98          .30          .614
05121>
05122>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05123>            CN* =  43.0    Ia = Dep. Storage  (Above)
05124>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05125>            THAN THE STORAGE COEFFICIENT.
05126>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05127>
05128> ---------------------------------------------------------------------------
05129> 100:0027-----------------------------------------------------------------
05130> *#*************************************************************************
```

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05131> ---------------------
05132> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
05133> |  IN>01:(6a    )   |
05134> | OUT<02:(000006)   |    =========  OUTLFOW STORAGE TABLE  =========
05135> ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
05136>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
05137>                            .000  .0000E+00   |     .137  .6800E-01
05138>                            .044  .3700E-01   |     .000  .0000E+00
05139>
05140>     ROUTING RESULTS             AREA     QPEAK     TPEAK       R.V.
05141>     ---------------------       (ha)     (cms)     (hrs)       (mm)
05142>     INFLOW >01: (6a    )         2.19      .435     3.033     62.840
05143>     OUTFLOW<02: (000006)         2.19      .136     3.500     62.839
05144>    OVERFLOW<03: (C6ovf )          .00      .000      .000       .000
05145>
05146>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
05147>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
05148>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
05149>
05150>
05151>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   31.195
05152>                    TIME SHIFT OF PEAK FLOW          (min)=   28.00
05153>                    MAXIMUM  STORAGE   USED       (ha.m.)=.6752E-01
05154>
05155> --------------------------------------------------------------------------------
05156> 100:0028--------------------------------------------------------------------------
05157> ---------------------
05158> | CALIB STANDHYD    |   Area    (ha)=    9.59
05159> | 01:6c     DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   40.00
05160> ---------------------
05161>                              IMPERVIOUS    PERVIOUS (i)
05162>     Surface Area     (ha)=       4.80         4.80
05163>     Dep. Storage     (mm)=       2.00         5.00
05164>     Average Slope     (%)=        .80         2.00
05165>     Length            (m)=     400.00        40.00
05166>     Mannings n             =      .013         .250
05167>
05168>     Max.eff.Inten.(mm/hr)=     159.59        68.65
05169>                 over (min)        5.00        13.00
05170>     Storage Coeff.  (min)=       5.21 (ii)   13.41 (ii)
05171>     Unit Hyd. Tpeak (min)=       5.00        13.00
05172>     Unit Hyd. peak  (cms)=        .22          .09
05173>                                                          *TOTALS*
05174>     PEAK FLOW       (cms)=       1.56          .59          2.024 (iii)
05175>     TIME TO PEAK    (hrs)=       3.00         3.13          3.017
05176>     RUNOFF VOLUME    (mm)=     100.30        32.81         59.807
05177>     TOTAL RAINFALL   (mm)=     102.30       102.30        102.302
05178>     RUNOFF COEFFICIENT   =        .98          .32           .585
05179>
05180>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05181>           CN* =  52.0    Ia = Dep. Storage  (Above)
05182>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05183>           THAN THE STORAGE COEFFICIENT.
05184>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05185>
05186> --------------------------------------------------------------------------------
05187> 100:0029--------------------------------------------------------------------------
05188> *#*****************************************************************************
05189> ------------------------
05190> | ADD HYD (C6_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
05191> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
05192>                      ID1 01:6c             9.59     2.024    3.02  59.81    .000
05193>                     +ID2 02:         6     2.19      .136    3.50  62.84    .000
05194>                     +ID3 03:C6ovf          .00      .000     .00    .00    .000
05195>                      ========================================================
05196>                      SUM 06:C6_out        11.78    2.091    3.02  60.37    .000
05197>
05198>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05199>
05200> --------------------------------------------------------------------------------
05201> 100:0030--------------------------------------------------------------------------
05202> *#*****************************************************************************
05203> ------------------------
05204> | ADD HYD (GRCA      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
05205> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
05206>                      ID1 07:C1_out        38.63   10.691    3.03  81.35    .000
05207>                     +ID2 08:C2_out         4.62    1.304    3.00  75.75    .000
05208>                     +ID3 09:C3_out       199.56   21.923    3.42  64.95    .000
05209>                     +ID4 04:C4_out        48.33    6.375    3.13  56.22    .000
05210>                     +ID5 05:C5_out        15.60    1.866    3.20  50.91    .000
05211>                     +ID6 06:C6_out        11.78    2.091    3.02  60.37    .000
05212>                     +ID7 10:2b             .59      .154    3.02  70.87    .000
05213>                      ========================================================
05214>                      SUM 03:GRCA         319.11   35.566    3.10  64.92    .000
05215>
05216>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05217>
05218> --------------------------------------------------------------------------------
05219> 100:0031--------------------------------------------------------------------------
05220> *#*****************************************************************************
05221> ---------------------
05222> | CALIB STANDHYD    |   Area    (ha)=     .46
05223> | 01:7a     DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   39.00
05224> ---------------------
05225>                              IMPERVIOUS    PERVIOUS (i)
05226>     Surface Area     (ha)=        .25          .21
05227>     Dep. Storage     (mm)=       2.00         5.00
05228>     Average Slope     (%)=        .40          .40
05229>     Length            (m)=      70.00        40.00
05230>     Mannings n             =      .025         .250
05231>
05232>     Max.eff.Inten.(mm/hr)=     159.59        50.23
05233>                 over (min)        3.00        18.00
05234>     Storage Coeff.  (min)=       3.33 (ii)   18.40 (ii)
05235>     Unit Hyd. Tpeak (min)=       3.00        18.00
05236>     Unit Hyd. peak  (cms)=        .35          .06
05237>                                                          *TOTALS*
05238>     PEAK FLOW       (cms)=        .08          .02          .089 (iii)
05239>     TIME TO PEAK    (hrs)=       3.00         3.22          3.000
05240>     RUNOFF VOLUME    (mm)=     100.30        24.83         54.262
05241>     TOTAL RAINFALL   (mm)=     102.30       102.30        102.302
05242>     RUNOFF COEFFICIENT   =        .98          .24           .530
05243>
05244>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05245>           CN* =  39.0    Ia = Dep. Storage  (Above)
05246>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05247>           THAN THE STORAGE COEFFICIENT.
05248>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05249>
05250> --------------------------------------------------------------------------------
05251> 100:0032--------------------------------------------------------------------------
05252> *#*****************************************************************************
05253> ---------------------
05254> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
05255> |  IN>01:(7a    )   |
05256> | OUT<02:(000007)   |    =========  OUTLFOW STORAGE TABLE  =========
05257> ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
05258>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
05259>                            .000  .0000E+00   |     .023  .1280E-01
05260>                            .006  .7100E-02   |     .000  .0000E+00
05261>
05262>     ROUTING RESULTS             AREA     QPEAK     TPEAK       R.V.
05263>     ---------------------       (ha)     (cms)     (hrs)       (mm)
05264>     INFLOW >01: (7a    )         .46      .089     3.000     54.262
05265>     OUTFLOW<02: (000007)         .46      .023     3.483     54.262
05266>    OVERFLOW<03: (C7ovf )          .00      .000      .000       .000
05267>
05268>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
05269>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
05270>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
05271>
05272>
05273>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   25.859
05274>                    TIME SHIFT OF PEAK FLOW          (min)=   29.00
05275>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1277E-01
05276>
05277> --------------------------------------------------------------------------------
05278> 100:0033--------------------------------------------------------------------------
05279> ---------------------
05280> | CALIB STANDHYD    |   Area    (ha)=     .87
05281> | 01:7c     DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   32.00
05282> ---------------------
05283>                              IMPERVIOUS    PERVIOUS (i)
05284>     Surface Area     (ha)=        .35          .52
05285>     Dep. Storage     (mm)=       2.00         5.00
05286>     Average Slope     (%)=       1.90          .50
05287>     Length            (m)=      80.00        110.00
05288>     Mannings n             =      .013         .250
05289>
05290>     Max.eff.Inten.(mm/hr)=     159.59        21.81
05291>                 over (min)        2.00        38.00
05292>     Storage Coeff.  (min)=       1.53 (ii)   37.62 (ii)
05293>     Unit Hyd. Tpeak (min)=       2.00        38.00
05294>     Unit Hyd. peak  (cms)=        .66          .03
05295>                                                          *TOTALS*
05296>     PEAK FLOW       (cms)=        .12          .02          .129 (iii)
05297>     TIME TO PEAK    (hrs)=       3.00         3.57         3.000
05298>     RUNOFF VOLUME    (mm)=     100.30        21.37        46.627
05299>     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05300>     RUNOFF COEFFICIENT   =        .98          .21          .456
05301>
05302>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05303>           CN* =  39.0    Ia = Dep. Storage  (Above)
05304>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05305>           THAN THE STORAGE COEFFICIENT.
05306>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05307>
05308> --------------------------------------------------------------------------------
05309> 100:0034--------------------------------------------------------------------------
05310> *#*****************************************************************************
05311> ------------------------
05312> | ADD HYD (C7_out    ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
05313> ------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
05314>                      ID1 01:7c              .87      .129    3.00  46.63    .000
05315>                     +ID2 02:         7      .46      .023    3.48  54.26    .000
05316>                     +ID3 03:C7ovf          .00      .000     .00    .00    .000
05317>                      ========================================================
05318>                      SUM 07:C7_out         1.33      .144    3.00  49.27    .000
05319>
05320>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05321>
05322> --------------------------------------------------------------------------------
05323> 100:0035--------------------------------------------------------------------------
05324> *#*****************************************************************************
05325> ---------------------
05326> | CALIB STANDHYD    |   Area    (ha)=     .71
05327> | 01:8a     DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
05328> ---------------------
05329>                              IMPERVIOUS    PERVIOUS (i)
05330>     Surface Area     (ha)=        .43          .28
05331>     Dep. Storage     (mm)=       2.00         5.00
05332>     Average Slope     (%)=       1.70         1.70
05333>     Length            (m)=     110.00        40.00
05334>     Mannings n             =      .025         .250
05335>
05336>     Max.eff.Inten.(mm/hr)=     159.59       116.26
05337>                 over (min)        3.00        10.00
05338>     Storage Coeff.  (min)=       2.83 (ii)    9.81 (ii)
05339>     Unit Hyd. Tpeak (min)=       3.00        10.00
05340>     Unit Hyd. peak  (cms)=        .39          .11
05341>                                                          *TOTALS*
05342>     PEAK FLOW       (cms)=        .13          .06          .185 (iii)
05343>     TIME TO PEAK    (hrs)=       3.00         3.08         3.000
05344>     RUNOFF VOLUME    (mm)=     100.30        41.32        66.093
05345>     TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05346>     RUNOFF COEFFICIENT   =        .98          .40          .646
05347>
05348>       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05349>           CN* =  56.0    Ia = Dep. Storage  (Above)
05350>      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05351>           THAN THE STORAGE COEFFICIENT.
05352>     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05353>
05354> --------------------------------------------------------------------------------
05355> 100:0036--------------------------------------------------------------------------
05356> *#*****************************************************************************
05357> ---------------------
05358> | ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
05359> |  IN>01:(8a    )   |
05360> | OUT<02:(000008)   |    =========  OUTLFOW STORAGE TABLE  =========
05361> ---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
05362>                            (cms)    (ha.m.)   |    (cms)    (ha.m.)
05363>                            .000  .0000E+00   |     .081  .1860E-01
05364>                            .025  .9700E-02   |     .000  .0000E+00
05365>
05366>     ROUTING RESULTS             AREA     QPEAK     TPEAK       R.V.
05367>     ---------------------       (ha)     (cms)     (hrs)       (mm)
05368>     INFLOW >01: (8a    )         .71      .185     3.000     66.093
05369>     OUTFLOW<02: (000008)         .71      .081     3.150     66.093
05370>    OVERFLOW<03: (C8ovf )          .00      .000      .000       .000
05371>
05372>                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
05373>                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
05374>                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
05375>
05376>
05377>                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   43.684
05378>                    TIME SHIFT OF PEAK FLOW          (min)=    9.00
05379>                    MAXIMUM  STORAGE   USED       (ha.m.)=.1856E-01
05380>
05381> --------------------------------------------------------------------------------
05382> 100:0037--------------------------------------------------------------------------
05383> ---------------------
05384> | CALIB NASHYD      |   Area    (ha)=    1.14   Curve Number   (CN)=69.00
05385> | 01:8c     DT= 1.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
05386> ---------------------   U.H. Tp(hrs)=    .330
05387>
05388>     Unit Hyd Qpeak  (cms)=     .132
05389>
05390>     PEAK FLOW       (cms)=     .122 (i)
05391>     TIME TO PEAK    (hrs)=    3.233
05392>     RUNOFF VOLUME    (mm)=   44.074
05393>     TOTAL RAINFALL   (mm)=  102.302
05394>     RUNOFF COEFFICIENT   =     .431
05395>
05396>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05397>
05398> --------------------------------------------------------------------------------
05399> 100:0038--------------------------------------------------------------------------
05400> *#*****************************************************************************
```

```
05401> ------------------------
05402> | ADD HYD (C8_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05403> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
05404>                       ID1 01:8c            1.14     .122    3.23  44.07    .000
05405>                      +ID2 02:              .71     .081    3.15  66.09    .000
05406>                      +ID3 03:C8ovf         .00     .000     .00    .00    .000
05407>                       ==========================================================
05408>                       SUM 08:C8_out        1.85     .201    3.22  52.52    .000
05409>
05410>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05411>
05412> ------------------------------------------------------------------------------
05413> 100:0039-----------------------------------------------------------------------
05414> *#*****************************************************************************
05415> ----------------------
05416> | CALIB STANDHYD     |   Area    (ha)=    1.42
05417> | 01:9a     DT= 1.00 |   Total Imp(%)=   58.00   Dir. Conn.(%)=   41.00
05418> ----------------------
05419>                              IMPERVIOUS    PERVIOUS (i)
05420>      Surface Area     (ha)=        .82          .60
05421>      Dep. Storage     (mm)=       2.00         5.00
05422>      Average Slope     (%)=       2.90         2.90
05423>      Length            (m)=     170.00        40.00
05424>      Mannings n             =      .025         .250
05425>
05426>      Max.eff.Inten.(mm/hr)=     159.59       114.70
05427>                    over (min)       3.00         9.00
05428>      Storage Coeff.  (min)=       3.13 (ii)    9.11 (ii)
05429>      Unit Hyd. Tpeak (min)=       3.00         9.00
05430>      Unit Hyd. peak  (cms)=        .36          .12
05431>                                                          *TOTALS*
05432>      PEAK FLOW       (cms)=        .25          .13          .373 (iii)
05433>      TIME TO PEAK    (hrs)=       3.00         3.07         3.000
05434>      RUNOFF VOLUME    (mm)=     100.30        41.46        65.587
05435>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05436>      RUNOFF COEFFICIENT   =        .98          .41          .641
05437>
05438>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05439>            CN* =  57.0    Ia = Dep. Storage  (Above)
05440>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05441>            THAN THE STORAGE COEFFICIENT.
05442>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05443>
05444> ------------------------------------------------------------------------------
05445> 100:0040-----------------------------------------------------------------------
05446> *#*****************************************************************************
05447> ----------------------
05448> | CALIB NASHYD       |   Area    (ha)=   95.98   Curve Number    (CN)=71.00
05449> | 02:9c     DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
05450> ----------------------   U.H. Tp(hrs)=   1.580
05451>
05452>      Unit Hyd Qpeak  (cms)=    2.320
05453>
05454>      PEAK FLOW       (cms)=    3.369 (i)
05455>      TIME TO PEAK    (hrs)=    4.767
05456>      RUNOFF VOLUME    (mm)=   45.629
05457>      TOTAL RAINFALL   (mm)=  102.302
05458>      RUNOFF COEFFICIENT   =     .446
05459>
05460>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05461>
05462> ------------------------------------------------------------------------------
05463> 100:0041-----------------------------------------------------------------------
05464> *#*****************************************************************************
05465> ------------------------
05466> | ADD HYD (C9_out    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05467> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
05468>                       ID1 01:9a            1.42     .373    3.00  65.59    .000
05469>                      +ID2 02:9c           95.98    3.369    4.77  45.63    .000
05470>                      +ID3 07:C7_out        1.33     .144    3.00  49.27    .000
05471>                      +ID4 08:C8_out        1.85     .201    3.22  52.52    .000
05472>                       ==========================================================
05473>                       SUM 09:C9_out       100.58    3.453    4.75  46.09    .000
05474>
05475>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05476>
05477> ------------------------------------------------------------------------------
05478> 100:0042-----------------------------------------------------------------------
05479> *#*****************************************************************************
05480> ----------------------
05481> | CALIB STANDHYD     |   Area    (ha)=    3.74
05482> | 01:10a    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   42.00
05483> ----------------------
05484>                              IMPERVIOUS    PERVIOUS (i)
05485>      Surface Area     (ha)=       2.24         1.50
05486>      Dep. Storage     (mm)=       2.00         5.00
05487>      Average Slope     (%)=       1.30         1.30
05488>      Length            (m)=     385.00        40.00
05489>      Mannings n             =       .025         .250
05490>
05491>      Max.eff.Inten.(mm/hr)=     159.59        89.42
05492>                    over (min)       7.00        15.00
05493>      Storage Coeff.  (min)=       6.51 (ii)   14.91 (ii)
05494>      Unit Hyd. Tpeak (min)=       7.00        15.00
05495>      Unit Hyd. peak  (cms)=        .17          .08
05496>                                                          *TOTALS*
05497>      PEAK FLOW       (cms)=        .60          .24          .789 (iii)
05498>      TIME TO PEAK    (hrs)=       3.02         3.15         3.033
05499>      RUNOFF VOLUME    (mm)=     100.30        37.50        63.880
05500>      TOTAL RAINFALL   (mm)=     102.30       102.30       102.302
05501>      RUNOFF COEFFICIENT   =        .98          .37          .624
05502>
05503>        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
05504>            CN* =  52.0    Ia = Dep. Storage  (Above)
05505>       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
05506>            THAN THE STORAGE COEFFICIENT.
05507>      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05508>
05509> ------------------------------------------------------------------------------
05510> 100:0043-----------------------------------------------------------------------
05511> *#*****************************************************************************
05512> ----------------------
05513> | CALIB NASHYD       |   Area    (ha)=  109.26   Curve Number    (CN)=72.00
05514> | 02:10c    DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
05515> ----------------------   U.H. Tp(hrs)=   1.280
05516>
05517>      Unit Hyd Qpeak  (cms)=    3.260
05518>
05519>      PEAK FLOW       (cms)=    4.634 (i)
05520>      TIME TO PEAK    (hrs)=    4.383
05521>      RUNOFF VOLUME    (mm)=   46.797
05522>      TOTAL RAINFALL   (mm)=  102.302
05523>      RUNOFF COEFFICIENT   =     .457
05524>
05525>      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
05526>
05527> ------------------------------------------------------------------------------
05528> 100:0044-----------------------------------------------------------------------
05529> *#*****************************************************************************
05530> ------------------------
05531> | ADD HYD (C10_out   ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05532> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
05533>                       ID1 01:10a           3.74     .789    3.03  63.88    .000
05534>                      +ID2 02:10c         109.26    4.634    4.38  46.80    .000
05535>                       ==========================================================
05536>                       SUM 10:C10_out      113.00    4.705    4.38  47.36    .000
05537>
05538>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05539>
05540> ------------------------------------------------------------------------------
05541> 100:0045-----------------------------------------------------------------------
05542> *#*****************************************************************************
05543> ------------------------
05544> | ADD HYD (HCA       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05545> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
05546>                       ID1 09:C9_out       100.58    3.453    4.75  46.09    .000
05547>                      +ID2 10:C10_out      113.00    4.705    4.38  47.36    .000
05548>                       ==========================================================
05549>                       SUM 05:HCA          213.58    8.085    4.52  46.76    .000
05550>
05551>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05552>
05553> ------------------------------------------------------------------------------
05554> 100:0046-----------------------------------------------------------------------
05555> *#*****************************************************************************
05556> ------------------------
05557> | ADD HYD (All_F     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
05558> ------------------------                 (ha)     (cms)   (hrs)   (mm)   (cms)
05559>                       ID1 03:C8ovf          .00      .000     .00    .00    .000
05560>                      +ID2 05:HCA          213.58    8.085    4.52  46.76    .000
05561>                       ==========================================================
05562>                       SUM 06:All_F        213.58    8.085    4.52  46.76    .000
05563>
05564>    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
05565>
05566> ------------------------------------------------------------------------------
05567> 100:0047-----------------------------------------------------------------------
05568> *#*****************************************************************************
05569> ------------------------------------------------------------------------------
05570> 100:0002-----------------------------------------------------------------------
05571> ------------------------------------------------------------------------------
05572> 100:0002-----------------------------------------------------------------------
05573> ------------------------------------------------------------------------------
05574> 100:0002-----------------------------------------------------------------------
05575> ------------------------------------------------------------------------------
05576> 100:0002-----------------------------------------------------------------------
05577>       FINISH
05578> ------------------------------------------------------------------------------
05579> *****************************************************************************
05580>      WARNINGS / ERRORS / NOTES
05581>      -------------------------
05582>    Simulation ended on 2024-12-13     at 11:20:55
05583> =============================================================================
05584>
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Appendix C – Hydraulic Calculations / Model Files

Subject: Hydraulic Assessment of Culverts
Project: Garner Rd EA
Project No.: 165001196
Client: City of Hamilton
Date: 13-Dec-24

Proposed Flows, Existing Sizes

Culvert ID	Approximate Stationing	Culvert Description	Material	Shape	Culvert Dimensions (mm)		Number of Barrels	Total Drainage Area	Length	Upstream Invert	Downstream Invert	Upstream Obvert	Downstream Obvert	Slope	Water course?	Unadjusted Flow Rate (m3/s)		Wetland Area	Wetland Reduction Factor	Adjusted Flow Rate (m3/s)		Tail water Elev.	Spill Elev.	Road Elev. At Culvert	Required Headwater Elev. (m)	Required Headwater Elev. (m)	Depth of Headwater / Height of Opening (H/D)	Depth of Headwater / Height of Opening (H/D)	D/H <1.5 (Design Storm)	Freeboard From Spill Point (m)	Freeboard From Road at Spill Point (m)	Freeboard From Road at Spill Point (m)	Freeboard > 0.3 m (Design Storm)	Freeboard > 1.0 m (Design Storm)	HW<Spill point (Check Storm)
					Span	Height/ Diam.		(ha)	(m)	(m)	(m)	(m)	(m)	(%)	(Yes/No)	Design	Check	%	%	Design	Check	(m)	(m)	(m)	Design	Check	Design	Check	(Yes/No)	Design	Design	Check	(Yes/No)	(Yes/No)	(Yes/No)
City of Hamilton																																			
SS1	10+055	Centreline storm sewer				750				**224.86**		**225.61**																							
C1	10+310	Centreline	CSP	Circular		700	1	2.7	22.05	226.73	226.71	227.43	227.41	0.09	No	0.30	0.56	N/A	100%	0.30	0.56	227.13	228.80	228.80	227.36	227.76	0.90	1.47	Yes	1.44	1.44	1.04	Yes	N/A	Yes
C2	10+820	Centreline	CSP	Circular		750	1	4.6	22.84	232.82	232.71	233.57	233.46	0.48	No	0.91	1.50	N/A	100%	0.91	1.50	233.16	234.41	234.41	234.24	235.80	1.89	3.97	No	0.17	0.17	-1.39	No	N/A	No
C3	11+470	Centreline	CSP	Circular		1200	1	199.6	17.68	231.25	231.12	232.45	232.32	0.74	Yes	18.24	28.50	2%	74%	13.50	21.09	231.84	234.36	234.65	256.16	291.11	20.76	49.88	No	-21.80	-21.80	-56.75	N/A	No	No
C4	11+987	Centreline	CSP	Circular		1050	1	48.3	23.28	231.06	230.96	232.11	232.01	0.43	Yes	5.34	8.29	N/A	100%	5.34	8.29	231.59	233.97	234.13	238.27	247.24	6.87	15.41	No	-4.30	-4.30	-13.27	N/A	No	No
C5	12+345	Centreline	Concrete	Box	1200	1200	1	15.6	17.94	235.50	235.29	236.70	236.49	1.17	No	0.85	1.98	N/A	100%	0.85	1.98	236.01	237.65	238.25	236.17	236.71	0.56	1.01	Yes	1.48	1.48	0.94	Yes	N/A	Yes
C6	13+200	Centreline	CSP	Circular		1000	1	11.8	27.90	245.23	245.22	246.23	246.22	0.04	No	1.39	2.46	N/A	100%	1.39	2.46	245.82	247.71	247.74	246.66	248.12	1.43	2.89	Yes	1.05	1.05	-0.41	Yes	N/A	No
C7	13+635	Centreline	CSP	Circular		750	1	1.3	18.76	247.85	247.71	248.60	248.46	0.75	No	0.14	0.22	N/A	100%	0.14	0.22	248.16	248.75	249.07	248.23	248.32	0.51	0.63	Yes	0.52	0.52	0.43	Yes	N/A	Yes
C8	13+795	Centreline	CSP	Circular		850	1	1.9	23.43	243.84	243.38	244.69	244.23	1.96	Yes	0.22	0.34	N/A	100%	0.22	0.34	243.89	246.00	246.46	244.30	244.43	0.54	0.69	Yes	1.70	1.70	1.57	N/A	Yes	Yes
C9	14+000	Centreline	CSP	Circular		1200	1	97.4	29.53	238.21	237.75	239.41	238.95	1.56	Yes	2.87	4.47	N/A	100%	2.87	4.47	238.47	241.38	241.38	239.96	241.56	1.46	2.79	Yes	1.42	1.42	-0.18	N/A	Yes	No
C10	14+530	Centreline	CSP	Circular		2500	1	113.0	33.95	238.54	238.51	241.04	241.01	0.09	Yes	3.94	6.12	N/A	100%	3.94	6.12	240.01	241.77	241.88	240.22	240.48	0.67	0.78	Yes	1.55	1.55	1.29	N/A	Yes	Yes

Notes:

Flows are based on the 6-hour SCS Storm

Design Storm = 10% AEP/10-year event for culverts not on a watercourse based on SD-13 MTO Highway Surface Drainage Guidelines

Check Storm = 100% of 1% AEP/100-year event for culverts not on a watercourse based on SD-13 MTO Highway Surface Drainage Guidelines

Design Storm = 2% AEP/50-year event for culverts on a watercourse with a total span less than or equal to 6.0 m based on WC-1 MTO Highway Surface Drainage Guidelines (Urban Arterial)

Check Storm = 130% of 1% AEP/100-year event based on WC-1 MTO Highway Surface Drainage Guidelines (Urban Arterial)

Subject: Hydraulic Assessment of Culverts

Project: Garner Rd EA

Project No.: 165001196

Client: City of Hamilton

Date: 13-Dec-24

Proposed Flows, Proposed Sizes

Culvert ID	Approximate Stationing	Culvert Description	Material	Shape	Culvert Dimensions (mm)		Number of Barrels	Total Drainage Area	Length	Upstream Invert	Downstream Invert	Upstream Obvert	Downstream Obvert	Slope	Water course?	Unadjusted Flow Rate (m3/s)		Wetland Area	Wetland Reductio n Factor	Adjusted Flow Rate (m3/s)		Tail water Elev.	Spill Elev.	Road Elev. At Culvert	Depth of Cover to Existing Roadway	Required Headwater Elev. (m)	Required Headwater Elev. (m)	Depth of Headwater / Height of Opening (H/D)	Depth of Headwater / Height of Opening (H/D)	D/H <1.5 (Design Storm)	Freeboard From Spill Point (m)	Freeboard From Road at Spill Point (m)	Freeboard From Road at Spill Point (m)	Freeboard > 0.3 m (Design Storm)	Freeboard > 1.0 m (Design Storm)	HW<Spill point (Check Storm)
					Span	Height/ Diam.		(ha)	(m)	(m)	(m)	(m)	(m)	(%)	(Yes/No)	Design	Check	%	%	Design	Check	(m)	(m)	(m)	(m)	Design	Check	Design	Check	(Yes/No)	Design	Design	Check	(Yes/No)	(Yes/No)	(Yes/No)
City of Hamilton																																				
C2	10+820	Centreline	CSP	Circular		1000	1	4.6	22.84	232.82	232.71	233.82	233.71	0.48	No	0.91	1.50	N/A	100%	0.91	1.50	233.31	234.41	234.41	0.59	233.76	234.20	0.94	1.38	Yes	0.65	0.65	0.21	Yes	N/A	Yes
C3	11+470	Centreline	Concrete	Box	3600	2400	1	199.6	17.68	231.25	231.12	233.65	233.52	0.74	Yes	18.24	28.50	2%	74%	13.50	21.09	232.56	234.36	234.65	1.00	233.22	233.91	0.82	1.11	Yes	1.14	1.14	0.45	N/A	Yes	Yes
C4	11+987	Centreline	CSP	Circular		2000	1	48.3	23.28	231.06	230.96	233.06	232.96	0.43	Yes	5.34	8.29	N/A	100%	5.34	8.29	232.16	233.97	234.13	1.07	232.96	233.60	0.95	1.27	Yes	1.01	1.01	0.37	N/A	Yes	Yes
C6	13+200	Centreline	CSP	Circular		1200	1	11.8	27.90	245.23	245.22	246.43	246.42	0.04	No	1.39	2.46	N/A	100%	1.39	2.46	245.94	247.71	247.74	1.31	246.30	247.02	0.89	1.49	Yes	1.41	1.41	0.69	Yes	N/A	Yes
C9	14+000	Centreline	CSP	Circular		1400	1	97.4	29.53	238.21	237.75	239.61	239.15	1.56	Yes	2.87	4.47	N/A	100%	2.87	4.47	238.59	241.38	241.38	1.77	239.57	240.48	0.97	1.62	Yes	1.81	1.81	0.90	N/A	Yes	Yes

Notes:

Flows are based on the 6-hour SCS Storm

Design Storm = 10% AEP/10-year event for culverts not on a watercourse based on SD-13 MTO Highway Surface Drainage Guidelines

Check Storm = 100% of 1% AEP/100-year event for culverts not on a watercourse based on SD-13 MTO Highway Surface Drainage Guidelines

Design Storm = 2% AEP/50-year event for culverts on a watercourse with a total span less than or equal to 6.0 m based on WC-1 MTO Highway Surface Drainage Guidelines (Urban Arterial)

Check Storm = 130% of 1% AEP/100-year event based on WC-1 MTO Highway Surface Drainage Guidelines (Urban Arterial)

Culvert Design Report
C1

Peak Discharge Method: User-Specified			
Design Discharge	0.3000 m³/s	Check Discharge	0.5600 m³/s

Grades Model: Inverts			
Invert Upstream	226.73 m	Invert Downstream	226.71 m
Length	22.05 m	Slope	0.000907 m/m
Drop	0.02 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	227.13 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-700 mm Circular	0.3000 m³/s	227.36 m	1.24 m/s
	Trial-2	1-700 mm Circular	0.5600 m³/s	227.76 m	2.03 m/s

Culvert Design Report
C1

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	227.36 m	Discharge	0.3000 m³/s
Headwater Depth/Height	0.90	Tailwater Elevation	227.13 m
Inlet Control HW Elev.	227.26 m	Control Type	Outlet Control
Outlet Control HW Elev.	227.36 m		

Grades			
Upstream Invert	226.73 m	Downstream Invert	226.71 m
Length	22.05 m	Constructed Slope	0.000907 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.42 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	0.34 m
Velocity Downstream	1.24 m/s	Critical Slope	0.015689 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	0.70 m
Section Size	700 mm	Rise	0.70 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	227.36 m	Upstream Velocity Head	0.04 m
Ke	0.90	Entrance Loss	0.04 m

Inlet Control Properties			
Inlet Control HW Elev.	227.26 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	0.4 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C1

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	227.76 m	Discharge	0.5600 m³/s
Headwater Depth/Height	1.47	Tailwater Elevation	227.13 m
Inlet Control HW Elev.	227.54 m	Control Type	Outlet Control
Outlet Control HW Elev.	227.76 m		

Grades			
Upstream Invert	226.73 m	Downstream Invert	226.71 m
Length	22.05 m	Constructed Slope	0.000907 m/m

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	0.47 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	0.47 m
Velocity Downstream	2.03 m/s	Critical Slope	0.019681 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	0.70 m
Section Size	700 mm	Rise	0.70 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	227.76 m	Upstream Velocity Head	0.11 m
Ke	0.90	Entrance Loss	0.10 m

Inlet Control Properties			
Inlet Control HW Elev.	227.54 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	0.4 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C2

Peak Discharge Method: User-Specified			
Design Discharge	0.9100 m³/s	Check Discharge	1.5000 m³/s

Grades Model: Inverts			
Invert Upstream	232.82 m	Invert Downstream	232.71 m
Length	22.84 m	Slope	0.004816 m/m
Drop	0.11 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	233.16 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-750 mm Circular	0.9100 m³/s	234.24 m	2.41 m/s
	Trial-2	1-750 mm Circular	1.5000 m³/s	235.80 m	3.39 m/s

Culvert Design Report
C2

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	234.24	m	Discharge	0.9100	m³/s
Headwater Depth/Height	1.87		Tailwater Elevation	233.16	m
Inlet Control HW Elev.	233.95	m	Control Type	Outlet Control	
Outlet Control HW Elev.	234.24	m			

Grades					
Upstream Invert	232.82	m	Downstream Invert	232.71	m
Length	22.84	m	Constructed Slope	0.004816	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	0.59	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.59	m
Velocity Downstream	2.41	m/s	Critical Slope	0.023559	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.76	m
Section Size	750 mm		Rise	0.76	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	234.24	m	Upstream Velocity Head	0.20	m
Ke	0.90		Entrance Loss	0.18	m

Inlet Control Properties					
Inlet Control HW Elev.	233.95	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.5	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C2

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	235.80	m	Discharge	1.5000	m³/s
Headwater Depth/Height	3.91		Tailwater Elevation	233.16	m
Inlet Control HW Elev.	235.19	m	Control Type	Outlet Control	
Outlet Control HW Elev.	235.80	m			

Grades					
Upstream Invert	232.82	m	Downstream Invert	232.71	m
Length	22.84	m	Constructed Slope	0.004816	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	0.71	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.71	m
Velocity Downstream	3.39	m/s	Critical Slope	0.049146	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.76	m
Section Size	750 mm		Rise	0.76	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	235.80	m	Upstream Velocity Head	0.55	m
Ke	0.90		Entrance Loss	0.50	m

Inlet Control Properties					
Inlet Control HW Elev.	235.19	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.5	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C3

Peak Discharge Method: User-Specified					
Design Discharge	13.5000	m³/s	Check Discharge	21.0900	m³/s

Grades Model: Inverts					
Invert Upstream	231.25	m	Invert Downstream	231.12	m
Length	17.68	m	Slope	0.007353	m/m
Drop	0.13	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	231.84	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1200 mm Circular	13.5000 m³/s	256.16 m	11.56 m/s
	Trial-2	1-1200 mm Circular	21.0900 m³/s	291.11 m	18.07 m/s

Culvert Design Report
C3

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	256.16	m	Discharge	13.5000	m³/s
Headwater Depth/Height	20.43		Tailwater Elevation	231.84	m
Inlet Control HW Elev.	256.16	m	Control Type	Inlet Control	
Outlet Control HW Elev.	251.93	m			

Grades					
Upstream Invert	231.25	m	Downstream Invert	231.12	m
Length	17.68	m	Constructed Slope	0.007353	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	1.22	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	1.22	m
Velocity Downstream	11.56	m/s	Critical Slope	0.364417	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.22	m
Section Size	1200 mm		Rise	1.22	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	251.93	m	Upstream Velocity Head	6.82	m
Ke	0.90		Entrance Loss	6.14	m

Inlet Control Properties					
Inlet Control HW Elev.	256.16	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	1.2	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C3

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	291.11	m	Discharge	21.0900	m³/s
Headwater Depth/Height	49.10		Tailwater Elevation	231.84	m
Inlet Control HW Elev.	291.11	m	Control Type	Inlet Control	
Outlet Control HW Elev.	280.15	m			

Grades					
Upstream Invert	231.25	m	Downstream Invert	231.12	m
Length	17.68	m	Constructed Slope	0.007353	m/m

Hydraulic Profile					
Profile	PressureProfile		Depth, Downstream	1.22	m
Slope Type	N/A		Normal Depth	N/A	m
Flow Regime	N/A		Critical Depth	1.22	m
Velocity Downstream	18.07	m/s	Critical Slope	0.905221	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.22	m
Section Size	1200 mm		Rise	1.22	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	280.15	m	Upstream Velocity Head	16.64	m
Ke	0.90		Entrance Loss	14.97	m

Inlet Control Properties					
Inlet Control HW Elev.	291.11	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	1.2	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C4

Peak Discharge Method: User-Specified					
Design Discharge	5.3400	m³/s	Check Discharge	8.2900	m³/s

Grades Model: Inverts					
Invert Upstream	231.06	m	Invert Downstream	230.96	m
Length	23.28	m	Slope	0.004296	m/m
Drop	0.10	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	231.59	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1050 mm Circular	5.3400 m³/s	238.27 m	5.99 m/s
	Trial-2	1-1050 mm Circular	8.2900 m³/s	247.24 m	9.28 m/s

Culvert Design Report
C4

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	238.27	m	Discharge	5.3400	m³/s
Headwater Depth/Height	6.76		Tailwater Elevation	231.59	m
Inlet Control HW Elev.	238.11	m	Control Type	Outlet Control	
Outlet Control HW Elev.	238.27	m			

Grades					
Upstream Invert	231.06	m	Downstream Invert	230.96	m
Length	23.28	m	Constructed Slope	0.004296	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	1.05	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	1.05	m
Velocity Downstream	5.99	m/s	Critical Slope	0.109118	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.07	m
Section Size	1050 mm		Rise	1.07	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	238.27	m	Upstream Velocity Head	1.82	m
Ke	0.90		Entrance Loss	1.64	m

Inlet Control Properties					
Inlet Control HW Elev.	238.11	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.9	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C4

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	247.24	m	Discharge	8.2900	m³/s
Headwater Depth/Height	15.17		Tailwater Elevation	231.59	m
Inlet Control HW Elev.	247.24	m	Control Type	Inlet Control	
Outlet Control HW Elev.	247.08	m			

Grades					
Upstream Invert	231.06	m	Downstream Invert	230.96	m
Length	23.28	m	Constructed Slope	0.004296	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	1.06	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	1.06	m
Velocity Downstream	9.28	m/s	Critical Slope	0.276999	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.07	m
Section Size	1050 mm		Rise	1.07	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	247.08	m	Upstream Velocity Head	4.39	m
Ke	0.90		Entrance Loss	3.95	m

Inlet Control Properties					
Inlet Control HW Elev.	247.24	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.9	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C5

Peak Discharge Method: User-Specified			
Design Discharge	0.8500 m³/s	Check Discharge	1.9800 m³/s

Grades Model: Inverts			
Invert Upstream	235.50 m	Invert Downstream	235.29 m
Length	17.94 m	Slope	0.011706 m/m
Drop	0.21 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	236.01 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1200 x 1200 mm Box	0.8500 m³/s	236.17 m	0.98 m/s
	Trial-2	1-1200 x 1200 mm Box	1.9800 m³/s	236.71 m	2.29 m/s

Culvert Design Report
C5

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	236.17 m	Discharge	0.8500 m³/s
Headwater Depth/Height	0.55	Tailwater Elevation	236.01 m
Inlet Control HW Elev.	236.12 m	Control Type	Outlet Control
Outlet Control HW Elev.	236.17 m		

Grades			
Upstream Invert	235.50 m	Downstream Invert	235.29 m
Length	17.94 m	Constructed Slope	0.011706 m/m

Hydraulic Profile			
Profile	S1	Depth, Downstream	0.72 m
Slope Type	Steep	Normal Depth	0.26 m
Flow Regime	Subcritical	Critical Depth	0.37 m
Velocity Downstream	0.98 m/s	Critical Slope	0.004383 m/m

Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	1.20 m
Section Size	1200 x 1200 mm	Rise	1.20 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	236.17 m	Upstream Velocity Head	0.12 m
Ke	0.70	Entrance Loss	0.08 m

Inlet Control Properties			
Inlet Control HW Elev.	236.12 m	Flow Control	N/A
Inlet Type	0° wingwall flares	Area Full	1.4 m²
K	0.06100	HDS 5 Chart	8
M	0.75000	HDS 5 Scale	3
C	0.04230	Equation Form	1
Y	0.82000		

Culvert Design Report
C5

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	236.71 m	Discharge	1.9800 m³/s
Headwater Depth/Height	1.01	Tailwater Elevation	236.01 m
Inlet Control HW Elev.	236.61 m	Control Type	Entrance Control
Outlet Control HW Elev.	236.71 m		

Grades			
Upstream Invert	235.50 m	Downstream Invert	235.29 m
Length	17.94 m	Constructed Slope	0.011706 m/m

Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	0.72 m
Slope Type	Steep	Normal Depth	0.48 m
Flow Regime	N/A	Critical Depth	0.65 m
Velocity Downstream	2.29 m/s	Critical Slope	0.005097 m/m

Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	1.20 m
Section Size	1200 x 1200 mm	Rise	1.20 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	236.71 m	Upstream Velocity Head	0.33 m
Ke	0.70	Entrance Loss	0.23 m

Inlet Control Properties			
Inlet Control HW Elev.	236.61 m	Flow Control	N/A
Inlet Type	0° wingwall flares	Area Full	1.4 m²
K	0.06100	HDS 5 Chart	8
M	0.75000	HDS 5 Scale	3
C	0.04230	Equation Form	1
Y	0.82000		

Culvert Design Report
C6

Peak Discharge Method: User-Specified			
Design Discharge	1.3900 m³/s	Check Discharge	2.4600 m³/s

Grades Model: Inverts			
Invert Upstream	245.23 m	Invert Downstream	245.22 m
Length	27.90 m	Slope	0.000358 m/m
Drop	0.01 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	245.82 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1000 mm Circular	1.3900 m³/s	246.66 m	2.44 m/s
	Trial-2	1-1000 mm Circular	2.4600 m³/s	248.12 m	3.35 m/s

Culvert Design Report
C6

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	246.66	m	Discharge	1.3900	m³/s
Headwater Depth/Height	1.43		Tailwater Elevation	245.82	m
Inlet Control HW Elev.	246.41	m	Control Type	Outlet Control	
Outlet Control HW Elev.	246.66	m			

Grades					
Upstream Invert	245.23	m	Downstream Invert	245.22	m
Length	27.90	m	Constructed Slope	0.000358	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	0.68	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.68	m
Velocity Downstream	2.44	m/s	Critical Slope	0.017663	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.00	m
Section Size	1000 mm		Rise	1.00	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	246.66	m	Upstream Velocity Head	0.16	m
Ke	0.90		Entrance Loss	0.14	m

Inlet Control Properties					
Inlet Control HW Elev.	246.41	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.8	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C6

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	248.12	m	Discharge	2.4600	m³/s
Headwater Depth/Height	2.89		Tailwater Elevation	245.82	m
Inlet Control HW Elev.	247.55	m	Control Type	Outlet Control	
Outlet Control HW Elev.	248.12	m			

Grades					
Upstream Invert	245.23	m	Downstream Invert	245.22	m
Length	27.90	m	Constructed Slope	0.000358	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	0.88	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.88	m
Velocity Downstream	3.35	m/s	Critical Slope	0.032147	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.00	m
Section Size	1000 mm		Rise	1.00	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	248.12	m	Upstream Velocity Head	0.50	m
Ke	0.90		Entrance Loss	0.45	m

Inlet Control Properties					
Inlet Control HW Elev.	247.55	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.8	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C7

Peak Discharge Method: User-Specified					
Design Discharge	0.1400	m³/s	Check Discharge	0.2200	m³/s

Grades Model: Inverts					
Invert Upstream	247.85	m	Invert Downstream	247.71	m
Length	18.76	m	Slope	0.007463	m/m
Drop	0.14	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	248.16	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-750 mm Circular	0.1400 m³/s	248.23 m	0.50 m/s
	Trial-2	1-750 mm Circular	0.2200 m³/s	248.32 m	0.78 m/s

Culvert Design Report
C7

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	248.23	m	Discharge	0.1400	m³/s
Headwater Depth/Height	0.50		Tailwater Elevation	248.16	m
Inlet Control HW Elev.	248.16	m	Control Type	Outlet Control	
Outlet Control HW Elev.	248.23	m			

Grades					
Upstream Invert	247.85	m	Downstream Invert	247.71	m
Length	18.76	m	Constructed Slope	0.007463	m/m

Hydraulic Profile					
Profile	M1		Depth, Downstream	0.45	m
Slope Type	Mild		Normal Depth	0.26	m
Flow Regime	Subcritical		Critical Depth	0.22	m
Velocity Downstream	0.50	m/s	Critical Slope	0.014101	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.76	m
Section Size	750 mm		Rise	0.76	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	248.23	m	Upstream Velocity Head	0.03	m
Ke	0.90		Entrance Loss	0.02	m

Inlet Control Properties					
Inlet Control HW Elev.	248.16	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.5	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C7

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	248.32	m	Discharge	0.2200	m³/s
Headwater Depth/Height	0.61		Tailwater Elevation	248.16	m
Inlet Control HW Elev.	248.26	m	Control Type	Outlet Control	
Outlet Control HW Elev.	248.32	m			

Grades					
Upstream Invert	247.85	m	Downstream Invert	247.71	m
Length	18.76	m	Constructed Slope	0.007463	m/m

Hydraulic Profile					
Profile	M1		Depth, Downstream	0.45	m
Slope Type	Mild		Normal Depth	0.34	m
Flow Regime	Subcritical		Critical Depth	0.28	m
Velocity Downstream	0.78	m/s	Critical Slope	0.014278	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.76	m
Section Size	750 mm		Rise	0.76	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	248.32	m	Upstream Velocity Head	0.05	m
Ke	0.90		Entrance Loss	0.05	m

Inlet Control Properties					
Inlet Control HW Elev.	248.26	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.5	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C8

Peak Discharge Method: User-Specified					
Design Discharge	0.2200	m³/s	Check Discharge	0.3400	m³/s

Grades Model: Inverts					
Invert Upstream	243.84	m	Invert Downstream	243.38	m
Length	23.43	m	Slope	0.019633	m/m
Drop	0.46	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	243.89	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-850 mm Circular	0.2200 m³/s	244.30 m	0.62 m/s
	Trial-2	1-850 mm Circular	0.3400 m³/s	244.43 m	0.96 m/s

Culvert Design Report
C8

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	244.30	m	Discharge	0.2200	m³/s
Headwater Depth/Height	0.54		Tailwater Elevation	243.89	m
Inlet Control HW Elev.	244.22	m	Control Type	Entrance Control	
Outlet Control HW Elev.	244.30	m			

Grades					
Upstream Invert	243.84	m	Downstream Invert	243.38	m
Length	23.43	m	Constructed Slope	0.019633	m/m

Hydraulic Profile					
Profile	CompositeS1S2		Depth, Downstream	0.51	m
Slope Type	Steep		Normal Depth	0.25	m
Flow Regime	N/A		Critical Depth	0.27	m
Velocity Downstream	0.62	m/s	Critical Slope	0.013614	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.85	m
Section Size	850 mm		Rise	0.85	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	244.30	m	Upstream Velocity Head	0.10	m
Ke	0.90		Entrance Loss	0.09	m

Inlet Control Properties					
Inlet Control HW Elev.	244.22	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.6	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C8

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	244.43	m	Discharge	0.3400	m³/s
Headwater Depth/Height	0.69		Tailwater Elevation	243.89	m
Inlet Control HW Elev.	244.34	m	Control Type	Entrance Control	
Outlet Control HW Elev.	244.43	m			

Grades					
Upstream Invert	243.84	m	Downstream Invert	243.38	m
Length	23.43	m	Constructed Slope	0.019633	m/m

Hydraulic Profile					
Profile	CompositeS1S2		Depth, Downstream	0.51	m
Slope Type	Steep		Normal Depth	0.31	m
Flow Regime	N/A		Critical Depth	0.34	m
Velocity Downstream	0.96	m/s	Critical Slope	0.013950	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.85	m
Section Size	850 mm		Rise	0.85	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	244.43	m	Upstream Velocity Head	0.13	m
Ke	0.90		Entrance Loss	0.12	m

Inlet Control Properties					
Inlet Control HW Elev.	244.34	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	0.6	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C9

Peak Discharge Method: User-Specified			
Design Discharge	2.8700 m³/s	Check Discharge	4.4700 m³/s

Grades Model: Inverts			
Invert Upstream	238.21 m	Invert Downstream	237.75 m
Length	29.53 m	Slope	0.015577 m/m
Drop	0.46 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	238.47 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1200 mm Circular	2.8700 m³/s	239.96 m	3.00 m/s
	Trial-2	1-1200 mm Circular	4.4700 m³/s	241.56 m	4.00 m/s

Culvert Design Report
C9

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	239.96 m	Discharge	2.8700 m³/s
Headwater Depth/Height	1.43	Tailwater Elevation	238.47 m
Inlet Control HW Elev.	239.96 m	Control Type	Outlet Control
Outlet Control HW Elev.	239.96 m		

Grades			
Upstream Invert	238.21 m	Downstream Invert	237.75 m
Length	29.53 m	Constructed Slope	0.015577 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.93 m
Slope Type	Mild	Normal Depth	1.06 m
Flow Regime	Subcritical	Critical Depth	0.93 m
Velocity Downstream	3.00 m/s	Critical Slope	0.019650 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.22 m
Section Size	1200 mm	Rise	1.22 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	239.96 m	Upstream Velocity Head	0.37 m
Ke	0.90	Entrance Loss	0.33 m

Inlet Control Properties			
Inlet Control HW Elev.	239.96 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	1.2 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C9

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	241.56 m	Discharge	4.4700 m³/s
Headwater Depth/Height	2.75	Tailwater Elevation	238.47 m
Inlet Control HW Elev.	241.52 m	Control Type	Outlet Control
Outlet Control HW Elev.	241.56 m		

Grades			
Upstream Invert	238.21 m	Downstream Invert	237.75 m
Length	29.53 m	Constructed Slope	0.015577 m/m

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	1.11 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	1.11 m
Velocity Downstream	4.00 m/s	Critical Slope	0.035871 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.22 m
Section Size	1200 mm	Rise	1.22 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	241.56 m	Upstream Velocity Head	0.75 m
Ke	0.90	Entrance Loss	0.67 m

Inlet Control Properties			
Inlet Control HW Elev.	241.52 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	1.2 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
zC10

Peak Discharge Method: User-Specified			
Design Discharge	3.9400 m³/s	Check Discharge	6.1200 m³/s

Grades Model: Inverts			
Invert Upstream	238.54 m	Invert Downstream	238.51 m
Length	33.95 m	Slope	0.000884 m/m
Drop	0.03 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	240.01 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-2500 mm Circular	3.9400 m³/s	240.22 m	1.28 m/s
	Trial-2	1-2500 mm Circular	6.1200 m³/s	240.48 m	1.99 m/s

Culvert Design Report
zC10

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	240.22 m	Discharge	3.9400 m³/s
Headwater Depth/Height	0.67	Tailwater Elevation	240.01 m
Inlet Control HW Elev.	240.01 m	Control Type	Outlet Control
Outlet Control HW Elev.	240.22 m		

Grades			
Upstream Invert	238.54 m	Downstream Invert	238.51 m
Length	33.95 m	Constructed Slope	0.000884 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.50 m
Slope Type	Mild	Normal Depth	1.83 m
Flow Regime	Subcritical	Critical Depth	0.89 m
Velocity Downstream	1.28 m/s	Critical Slope	0.009563 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	2.50 m
Section Size	2500 mm	Rise	2.50 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	240.22 m	Upstream Velocity Head	0.08 m
Ke	0.90	Entrance Loss	0.07 m

Inlet Control Properties			
Inlet Control HW Elev.	240.01 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	4.9 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
zC10

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	240.48 m	Discharge	6.1200 m³/s
Headwater Depth/Height	0.77	Tailwater Elevation	240.01 m
Inlet Control HW Elev.	240.22 m	Control Type	Outlet Control
Outlet Control HW Elev.	240.48 m		

Grades			
Upstream Invert	238.54 m	Downstream Invert	238.51 m
Length	33.95 m	Constructed Slope	0.000884 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.50 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	1.11 m
Velocity Downstream	1.99 m/s	Critical Slope	0.009970 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	2.50 m
Section Size	2500 mm	Rise	2.50 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	240.48 m	Upstream Velocity Head	0.17 m
Ke	0.90	Entrance Loss	0.15 m

Inlet Control Properties			
Inlet Control HW Elev.	240.22 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	4.9 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C2

Peak Discharge Method: User-Specified			
Design Discharge	0.9100 m³/s	Check Discharge	1.5000 m³/s

Grades Model: Inverts			
Invert Upstream	232.82 m	Invert Downstream	232.71 m
Length	22.84 m	Slope	0.004816 m/m
Drop	0.11 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	233.31 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1000 mm Circular	0.9100 m³/s	233.76 m	1.85 m/s
	Trial-2	1-1000 mm Circular	1.5000 m³/s	234.20 m	2.53 m/s

Culvert Design Report
C2

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	233.76 m	Discharge	0.9100 m³/s
Headwater Depth/Height	0.94	Tailwater Elevation	233.31 m
Inlet Control HW Elev.	233.69 m	Control Type	Outlet Control
Outlet Control HW Elev.	233.76 m		

Grades			
Upstream Invert	232.82 m	Downstream Invert	232.71 m
Length	22.84 m	Constructed Slope	0.004816 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.60 m
Slope Type	Mild	Normal Depth	0.83 m
Flow Regime	Subcritical	Critical Depth	0.55 m
Velocity Downstream	1.85 m/s	Critical Slope	0.014705 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.00 m
Section Size	1000 mm	Rise	1.00 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	233.76 m	Upstream Velocity Head	0.11 m
Ke	0.90	Entrance Loss	0.10 m

Inlet Control Properties			
Inlet Control HW Elev.	233.69 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	0.8 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C2

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	234.20 m	Discharge	1.5000 m³/s
Headwater Depth/Height	1.38	Tailwater Elevation	233.31 m
Inlet Control HW Elev.	234.07 m	Control Type	Outlet Control
Outlet Control HW Elev.	234.20 m		

Grades			
Upstream Invert	232.82 m	Downstream Invert	232.71 m
Length	22.84 m	Constructed Slope	0.004816 m/m

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	0.71 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	0.71 m
Velocity Downstream	2.53 m/s	Critical Slope	0.018566 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.00 m
Section Size	1000 mm	Rise	1.00 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	234.20 m	Upstream Velocity Head	0.19 m
Ke	0.90	Entrance Loss	0.17 m

Inlet Control Properties			
Inlet Control HW Elev.	234.07 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	0.8 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
C3

Peak Discharge Method: User-Specified			
Design Discharge	13.5000 m³/s	Check Discharge	21.0900 m³/s

Grades Model: Inverts			
Invert Upstream	231.25 m	Invert Downstream	231.12 m
Length	17.68 m	Slope	0.007353 m/m
Drop	0.13 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	232.56 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-3600 x 2400 Box	13.5000 m³/s	233.22 m	2.60 m/s
	Trial-2	1-3600 x 2400 Box	21.0900 m³/s	233.91 m	4.48 m/s

Culvert Design Report
C3

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	233.22	m	Discharge	13.5000	m³/s
Headwater Depth/Height	0.82		Tailwater Elevation	232.56	m
Inlet Control HW Elev.	233.03	m	Control Type	Entrance Control	
Outlet Control HW Elev.	233.22	m			

Grades					
Upstream Invert	231.25	m	Downstream Invert	231.12	m
Length	17.68	m	Constructed Slope	0.007353	m/m

Hydraulic Profile					
Profile	CompositeS1S2		Depth, Downstream	1.44	m
Slope Type	Steep		Normal Depth	0.83	m
Flow Regime	N/A		Critical Depth	1.13	m
Velocity Downstream	2.60	m/s	Critical Slope	0.003046	m/m

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	3.60	m
Section Size	3600 x 2400		Rise	2.40	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	233.22	m	Upstream Velocity Head	0.56	m
Ke	0.50		Entrance Loss	0.28	m

Inlet Control Properties					
Inlet Control HW Elev.	233.03	m	Flow Control	N/A	
Inlet Type	33.7° wingwall flares - offset		Area Full	8.6	m²
K	0.49500		HDS 5 Chart	13	
M	0.66700		HDS 5 Scale	2	
C	0.02520		Equation Form	2	
Y	0.88100				

Culvert Design Report
C3

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	233.91	m	Discharge	21.0900	m³/s
Headwater Depth/Height	1.11		Tailwater Elevation	232.56	m
Inlet Control HW Elev.	233.70	m	Control Type	Entrance Control	
Outlet Control HW Elev.	233.91	m			

Grades					
Upstream Invert	231.25	m	Downstream Invert	231.12	m
Length	17.68	m	Constructed Slope	0.007353	m/m

Hydraulic Profile					
Profile	S2		Depth, Downstream	1.31	m
Slope Type	Steep		Normal Depth	1.13	m
Flow Regime	Supercritical		Critical Depth	1.52	m
Velocity Downstream	4.48	m/s	Critical Slope	0.003259	m/m

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	3.60	m
Section Size	3600 x 2400		Rise	2.40	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	233.91	m	Upstream Velocity Head	0.76	m
Ke	0.50		Entrance Loss	0.38	m

Inlet Control Properties					
Inlet Control HW Elev.	233.70	m	Flow Control	N/A	
Inlet Type	30 to 75° wingwall flares		Area Full	8.6	m²
K	0.02600		HDS 5 Chart	8	
M	1.00000		HDS 5 Scale	1	
C	0.03470		Equation Form	1	
Y	0.86000				

Culvert Design Report
C4

Peak Discharge Method: User-Specified					
Design Discharge	5.3400	m³/s	Check Discharge	8.2900	m³/s

Grades Model: Inverts					
Invert Upstream	231.06	m	Invert Downstream	230.96	m
Length	23.28	m	Slope	0.004296	m/m
Drop	0.10	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	232.16	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-2000 mm Circular	5.3400 m³/s	232.96 m	2.71 m/s
	Trial-2	1-2000 mm Circular	8.2900 m³/s	233.60 m	3.54 m/s

Culvert Design Report
C4

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	232.96	m	Discharge	5.3400	m³/s
Headwater Depth/Height	0.95		Tailwater Elevation	232.16	m
Inlet Control HW Elev.	232.84	m	Control Type	Outlet Control	
Outlet Control HW Elev.	232.96	m			

Grades					
Upstream Invert	231.06	m	Downstream Invert	230.96	m
Length	23.28	m	Constructed Slope	0.004296	m/m

Hydraulic Profile					
Profile	M2		Depth, Downstream	1.20	m
Slope Type	Mild		Normal Depth	1.62	m
Flow Regime	Subcritical		Critical Depth	1.11	m
Velocity Downstream	2.71	m/s	Critical Slope	0.011798	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	2.00	m
Section Size	2000 mm		Rise	2.00	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	232.96	m	Upstream Velocity Head	0.28	m
Ke	0.90		Entrance Loss	0.25	m

Inlet Control Properties					
Inlet Control HW Elev.	232.84	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	3.1	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C4

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	233.60	m	Discharge	8.2900	m³/s
Headwater Depth/Height	1.27		Tailwater Elevation	232.16	m
Inlet Control HW Elev.	233.51	m	Control Type	Outlet Control	
Outlet Control HW Elev.	233.60	m			

Grades					
Upstream Invert	231.06	m	Downstream Invert	230.96	m
Length	23.28	m	Constructed Slope	0.004296	m/m

Hydraulic Profile					
Profile	M2		Depth, Downstream	1.40	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	1.40	m
Velocity Downstream	3.54	m/s	Critical Slope	0.014503	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	2.00	m
Section Size	2000 mm		Rise	2.00	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	233.60	m	Upstream Velocity Head	0.41	m
Ke	0.90		Entrance Loss	0.36	m

Inlet Control Properties					
Inlet Control HW Elev.	233.51	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	3.1	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C6

Peak Discharge Method: User-Specified					
Design Discharge	1.3900	m³/s	Check Discharge	2.4600	m³/s

Grades Model: Inverts					
Invert Upstream	245.23	m	Invert Downstream	245.22	m
Length	27.90	m	Slope	0.000358	m/m
Drop	0.01	m			

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater		
Tailwater Elevation	245.94	m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1200 mm Circular	1.3900 m³/s	246.38 m	1.94 m/s
	Trial-2	1-1200 mm Circular	2.4600 m³/s	247.02 m	2.79 m/s

Culvert Design Report
C6

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Design	
Computed Headwater Elevation	246.38	m	Discharge	1.3900	m³/s
Headwater Depth/Height	0.95		Tailwater Elevation	245.94	m
Inlet Control HW Elev.	246.24	m	Control Type	Outlet Control	
Outlet Control HW Elev.	246.38	m			

Grades					
Upstream Invert	245.23	m	Downstream Invert	245.22	m
Length	27.90	m	Constructed Slope	0.000358	m/m

Hydraulic Profile					
Profile	M2		Depth, Downstream	0.72	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.64	m
Velocity Downstream	1.94	m/s	Critical Slope	0.013490	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.22	m
Section Size	1200 mm		Rise	1.22	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	246.38	m	Upstream Velocity Head	0.10	m
Ke	0.90		Entrance Loss	0.09	m

Inlet Control Properties					
Inlet Control HW Elev.	246.24	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	1.2	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C6

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	m	Storm Event	Check	
Computed Headwater Elevation	247.02	m	Discharge	2.4600	m³/s
Headwater Depth/Height	1.47		Tailwater Elevation	245.94	m
Inlet Control HW Elev.	246.75	m	Control Type	Outlet Control	
Outlet Control HW Elev.	247.02	m			

Grades					
Upstream Invert	245.23	m	Downstream Invert	245.22	m
Length	27.90	m	Constructed Slope	0.000358	m/m

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	0.86	m
Slope Type	Mild		Normal Depth	N/A	m
Flow Regime	Subcritical		Critical Depth	0.86	m
Velocity Downstream	2.79	m/s	Critical Slope	0.017369	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	1.22	m
Section Size	1200 mm		Rise	1.22	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	247.02	m	Upstream Velocity Head	0.23	m
Ke	0.90		Entrance Loss	0.20	m

Inlet Control Properties					
Inlet Control HW Elev.	246.75	m	Flow Control	N/A	
Inlet Type	Projecting		Area Full	1.2	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
C9

Peak Discharge Method: User-Specified			
Design Discharge	2.8700 m³/s	Check Discharge	4.4700 m³/s

Grades Model: Inverts			
Invert Upstream	238.21 m	Invert Downstream	237.75 m
Length	29.53 m	Slope	0.015577 m/m
Drop	0.46 m		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	238.59 m

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-1400 mm Circular	2.8700 m³/s	239.57 m	2.81 m/s
	Trial-2	1-1400 mm Circular	4.4700 m³/s	240.48 m	3.39 m/s

Culvert Design Report
C9

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Design
Computed Headwater Elevation	239.57 m	Discharge	2.8700 m³/s
Headwater Depth/Height	0.97	Tailwater Elevation	238.59 m
Inlet Control HW Elev.	239.52 m	Control Type	Entrance Control
Outlet Control HW Elev.	239.57 m		

Grades			
Upstream Invert	238.21 m	Downstream Invert	237.75 m
Length	29.53 m	Constructed Slope	0.015577 m/m

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.88 m
Slope Type	Steep	Normal Depth	0.88 m
Flow Regime	Supercritical	Critical Depth	0.90 m
Velocity Downstream	2.81 m/s	Critical Slope	0.014810 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.40 m
Section Size	1400 mm	Rise	1.40 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	239.57 m	Upstream Velocity Head	0.39 m
Ke	0.20	Entrance Loss	0.08 m

Inlet Control Properties			
Inlet Control HW Elev.	239.52 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° (1.5:1) bevels	Area Full	1.5 m²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

Culvert Design Report
C9

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A m	Storm Event	Check
Computed Headwater Elevation	240.48 m	Discharge	4.4700 m³/s
Headwater Depth/Height	1.62	Tailwater Elevation	238.59 m
Inlet Control HW Elev.	240.48 m	Control Type	Inlet Control
Outlet Control HW Elev.	240.38 m		

Grades			
Upstream Invert	238.21 m	Downstream Invert	237.75 m
Length	29.53 m	Constructed Slope	0.015577 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.12 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	1.12 m
Velocity Downstream	3.39 m/s	Critical Slope	0.020685 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.40 m
Section Size	1400 mm	Rise	1.40 m
Number Sections	1		

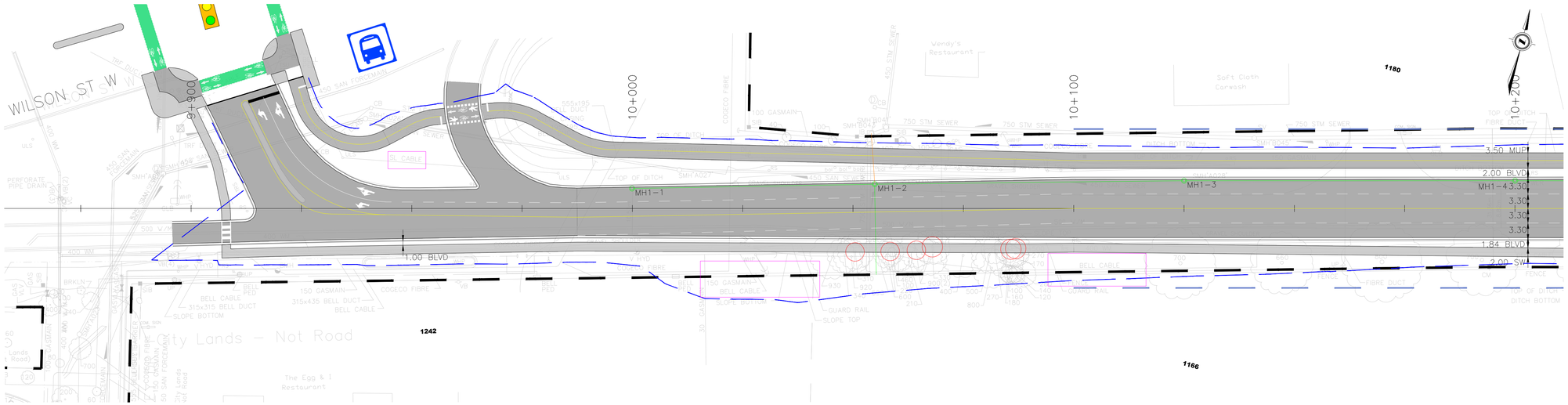
Outlet Control Properties			
Outlet Control HW Elev.	240.38 m	Upstream Velocity Head	0.45 m
Ke	0.90	Entrance Loss	0.41 m

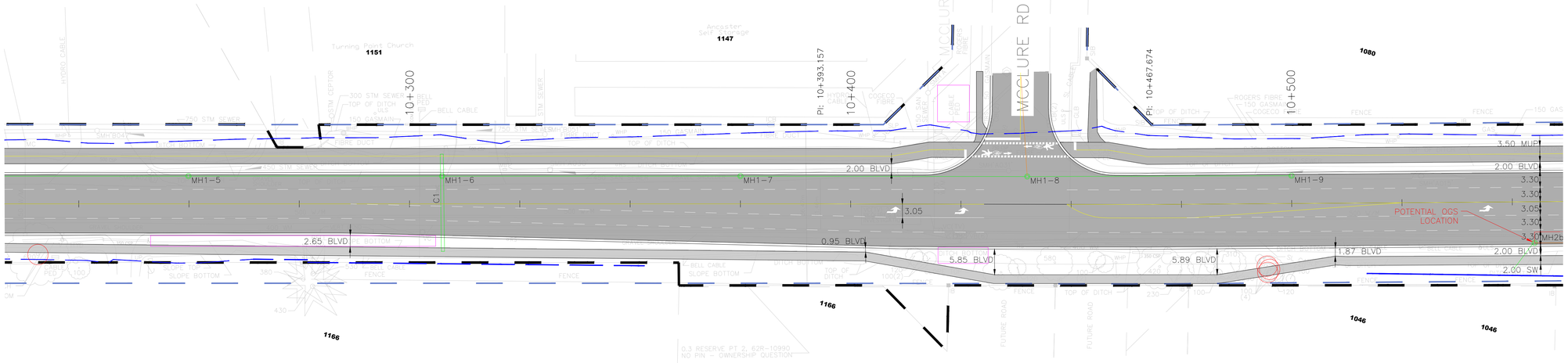
Inlet Control Properties			
Inlet Control HW Elev.	240.48 m	Flow Control	N/A
Inlet Type	Projecting	Area Full	1.5 m²
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M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Appendix D – Storm Sewer Design

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	
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DATE	SEPT 2025
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CONCEPTUAL STORM SEWER LAYOUT

GARNER ROAD
PRELIMINARY OPTION 2

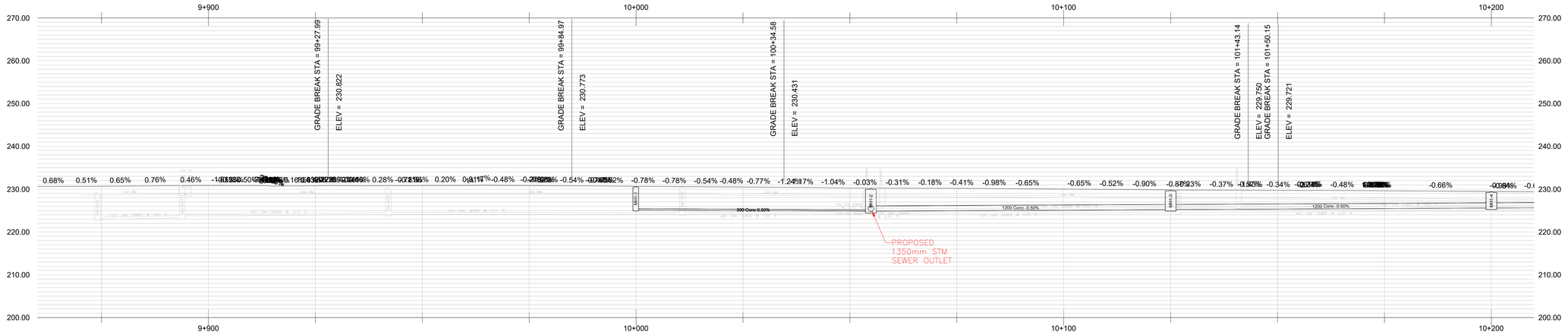
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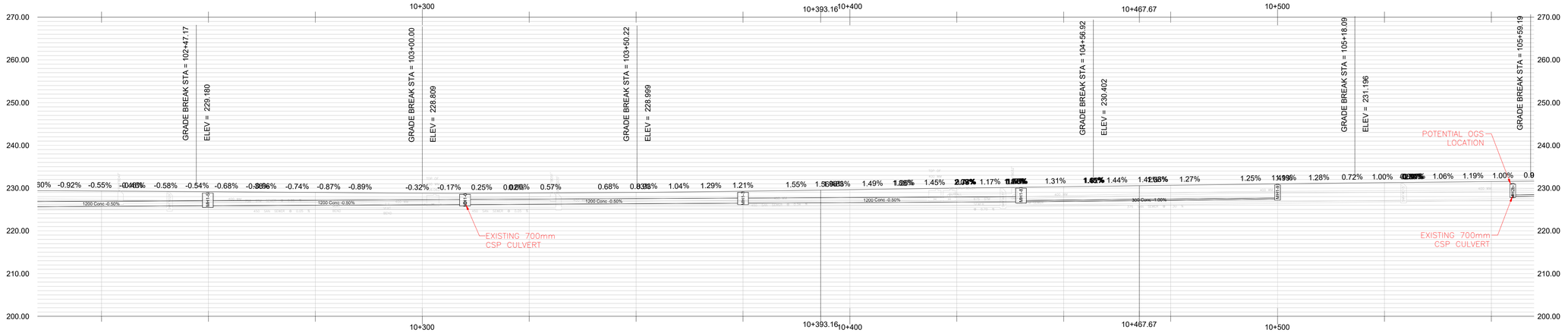
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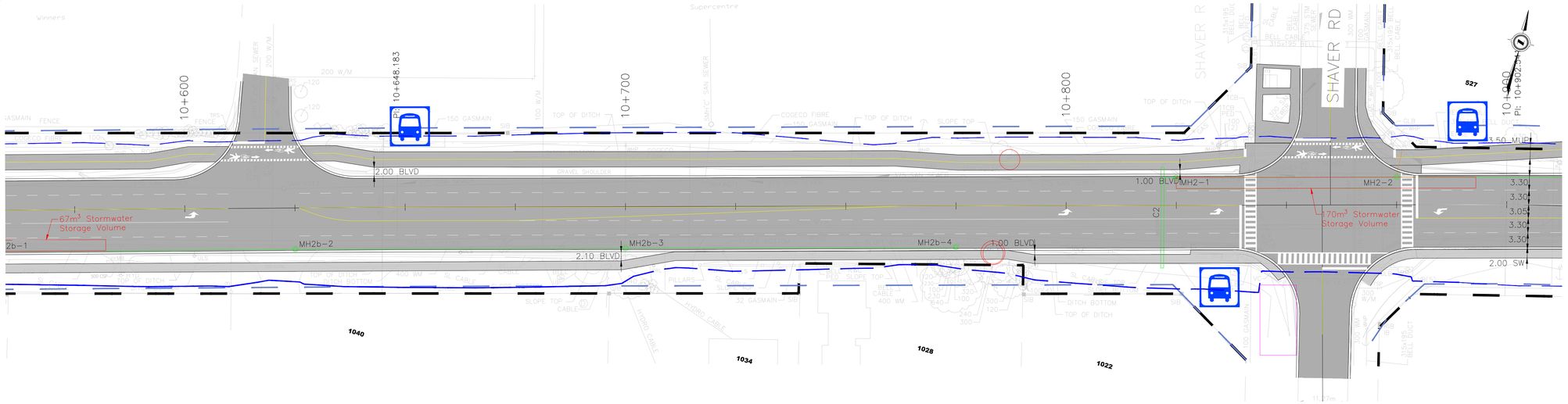
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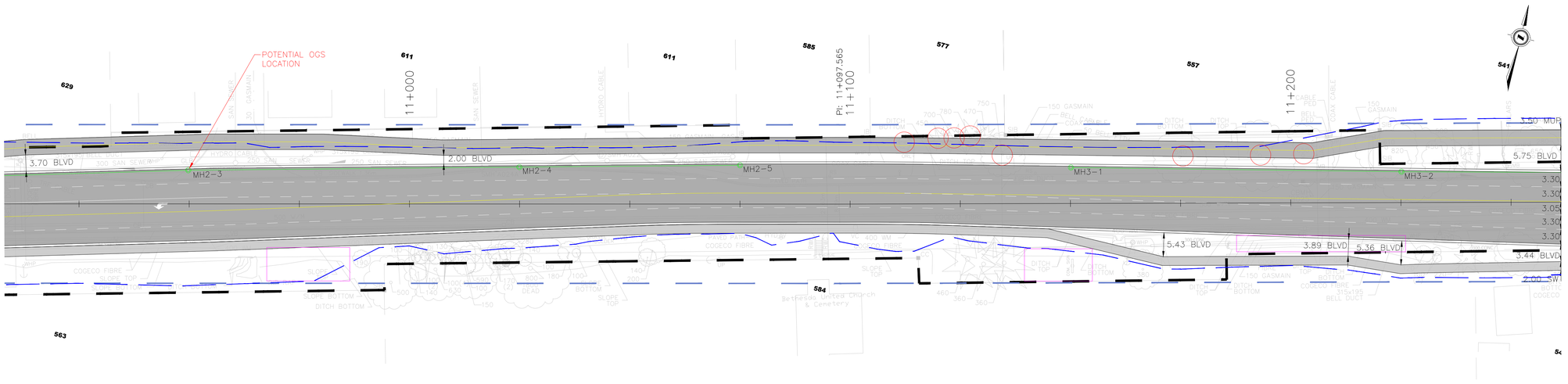
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1650-01196 GARNER ROAD PRELIMINARY OPTIONS

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS





EXISTING SERVICES	DRAWING #. SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
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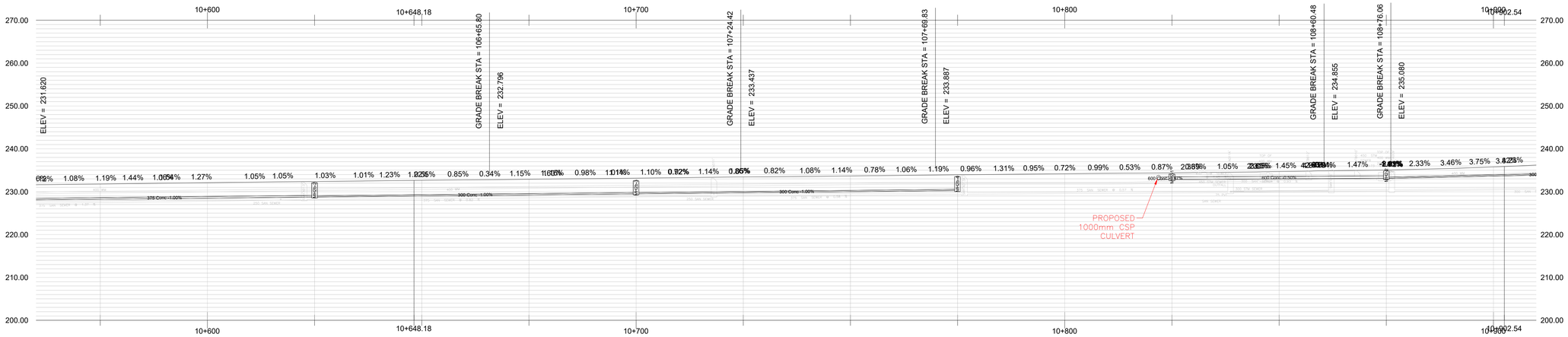
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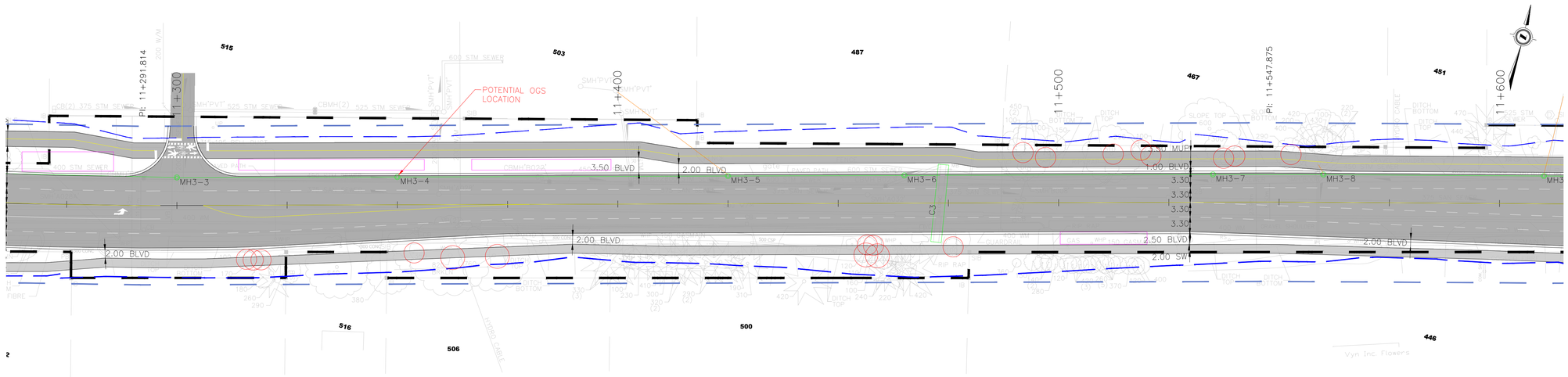
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1650-01196 GARNER ROAD PRELIMINARY OPTIONS


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10+900
10+902.54
GRADE BREAK STA = 106+65.80
ELEV = 232.796
GRADE BREAK STA = 107+24.42
ELEV = 233.437
GRADE BREAK STA = 107+69.83
ELEV = 233.887
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ELEV = 234.855
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SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
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- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS



EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	No.	REVISIONS	DATE	CONSULTANT
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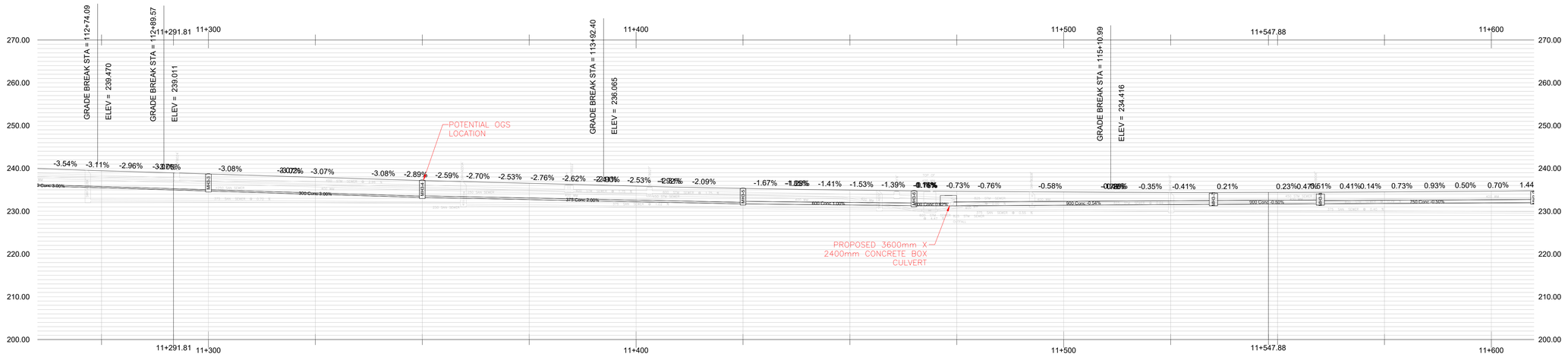
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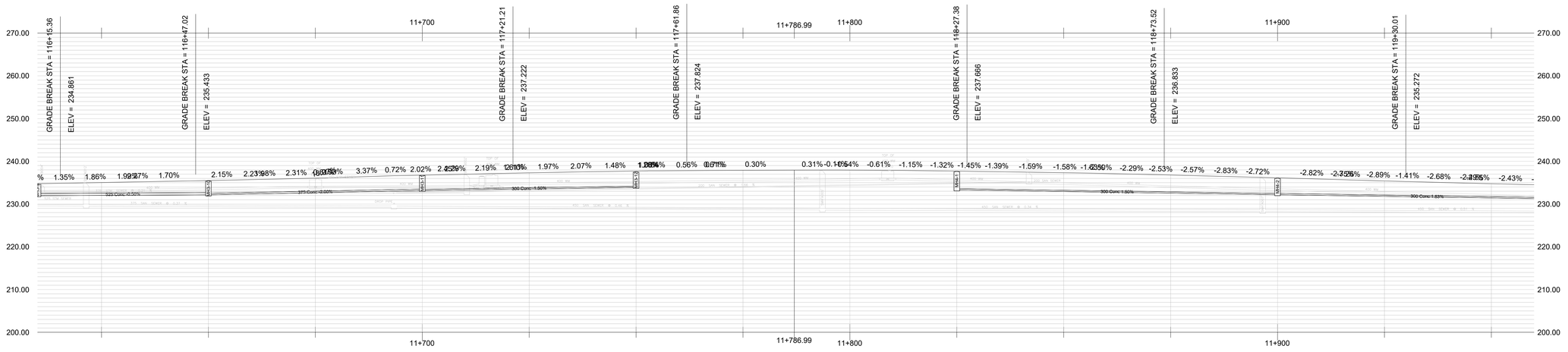
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PRELIMINARY OPTION 2

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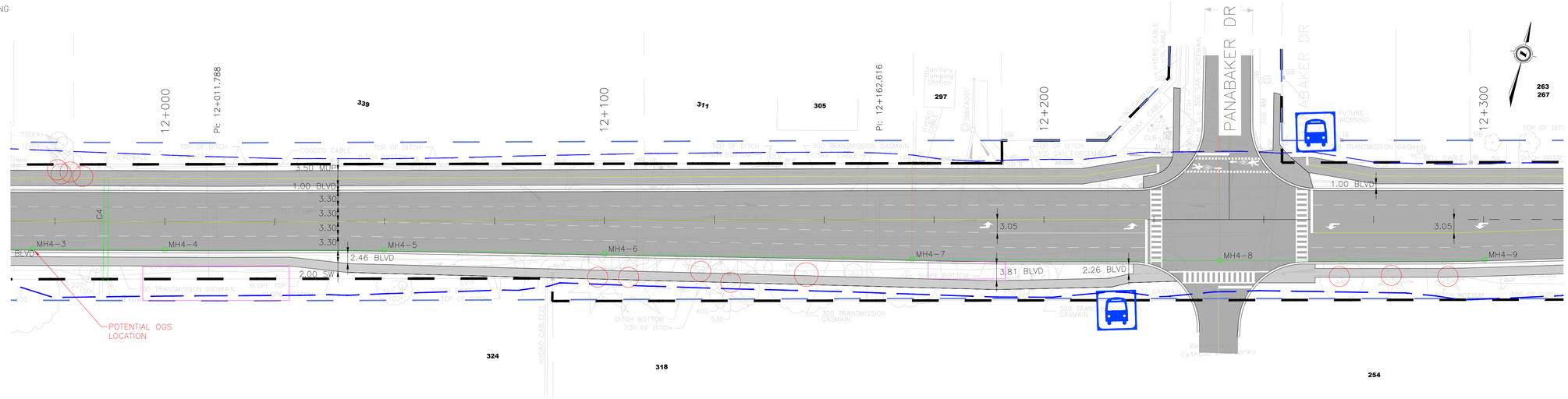
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1650-01196 GARNER ROAD PRELIMINARY OPTIONS

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS



EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

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CONCEPTUAL STORM SEWER LAYOUT

GARNER ROAD
PRELIMINARY OPTION 2

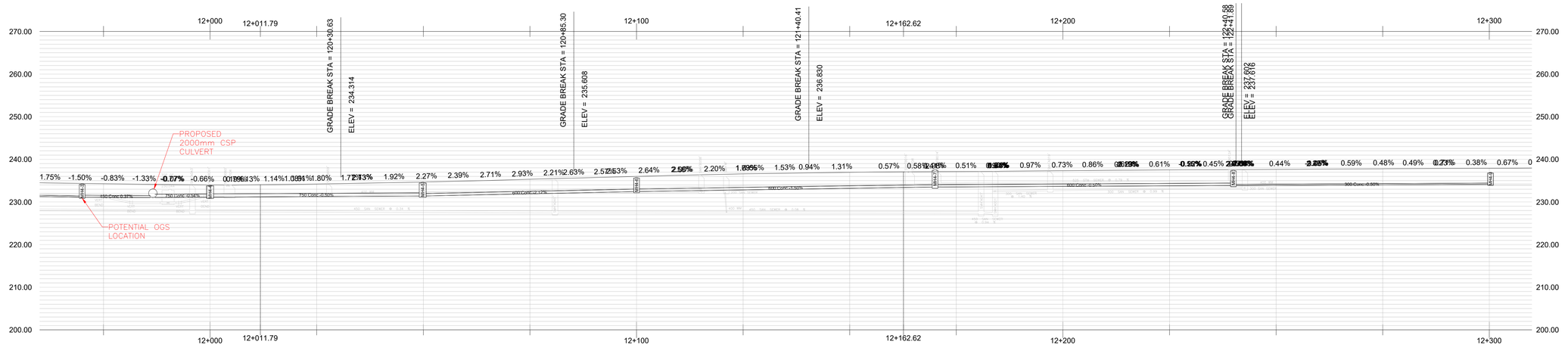
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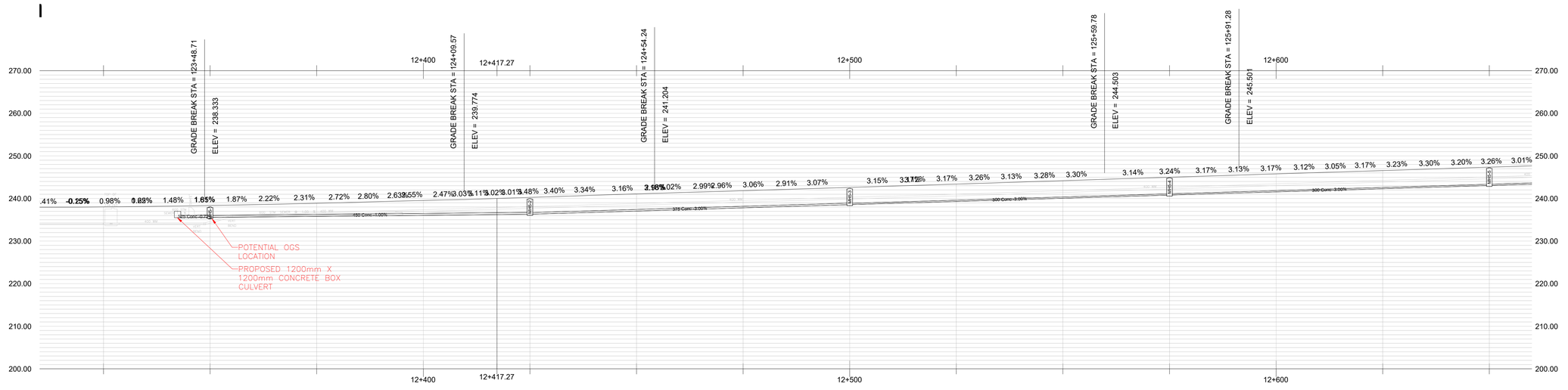
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By:hpocsova

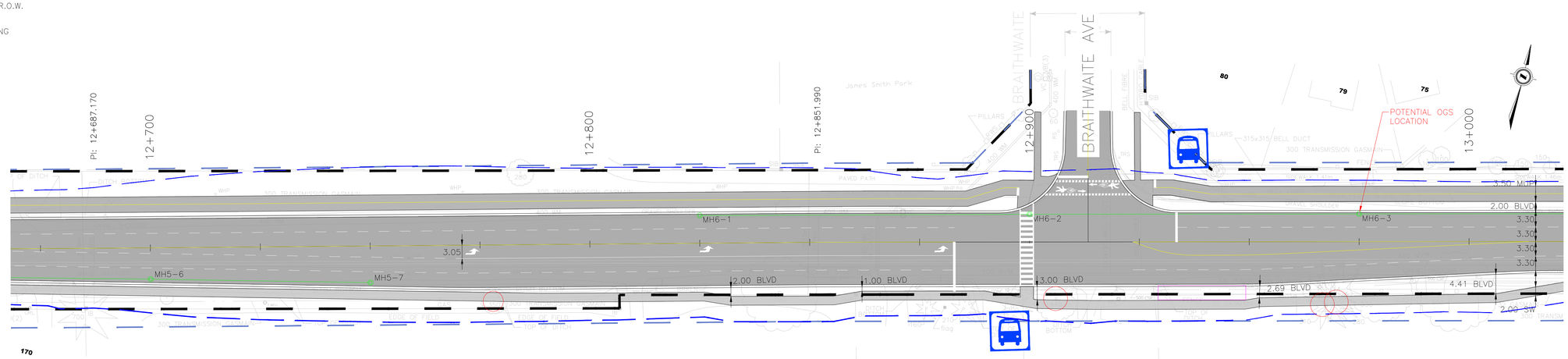
1650-01196 GARNER ROAD PRELIMINARY OPTIONS

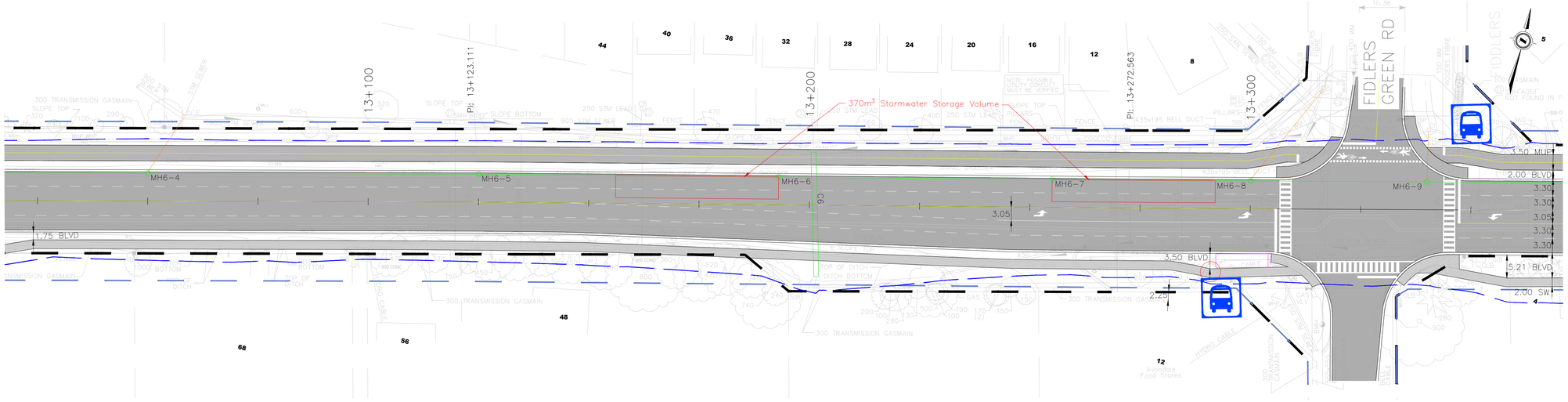

12+000
12+011.79
12+100
12+162.62
12+200
12+300
GRADE BREAK STA = 120+30.63
ELEV = 234.314
GRADE BREAK STA = 120+85.30
ELEV = 235.608
GRADE BREAK STA = 121+40.41
ELEV = 236.830
GRADE BREAK STA = 122+40.58
GRADE BREAK STA = 122+41.88
ELEV = 237.602
ELEV = 237.616
270.00
260.00
250.00
240.00
230.00
220.00
210.00
200.00
1.75%
-1.50%
-0.83%
-1.33%
-0.66%
0.66%
1.14%
1.80%
1.92%
2.27%
2.39%
2.71%
2.93%
2.21%
2.63%
2.64%
2.20%
1.53%
0.94%
1.31%
0.57%
0.51%
0.97%
0.73%
0.86%
0.61%
0.45%
0.44%
0.59%
0.48%
0.49%
0.38%
0.67%
MH4
MH4.1
MH4.2
MH4.3
MH4.4
MH4.5
MH4.6
MH4.7
MH4.8
MH5
MH5.1
MH5.2
MH5.3
MH5.4
MH5.5
PROPOSED 2000mm CSP CULVERT
POTENTIAL OGS LOCATION
450 Conc 0.37%
750 Conc -0.50%
600 Conc -2.12%
600 Conc -1.50%
300 Conc -0.50%


12+400
12+417.27
12+500
12+600
GRADE BREAK STA = 123+48.71
ELEV = 238.333
GRADE BREAK STA = 124+09.57
ELEV = 239.774
GRADE BREAK STA = 124+54.24
ELEV = 241.204
GRADE BREAK STA = 125+59.78
ELEV = 244.503
GRADE BREAK STA = 125+91.28
ELEV = 245.501
270.00
260.00
250.00
240.00
230.00
220.00
210.00
200.00
-0.25%
0.98%
1.48%
1.65%
1.87%
2.22%
2.31%
2.72%
2.80%
2.55%
2.47%
3.03%
3.11%
3.02%
3.01%
3.48%
3.40%
3.34%
3.16%
2.99%
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2.91%
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3.23%
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3.26%
3.01%
MH5
MH5.1
MH5.2
MH5.3
MH5.4
MH5.5
MH5.6
MH5.7
MH5.8
MH6
MH6.1
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MH7.1
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MH7.7
MH7.8
MH8
MH8.1
MH8.2
MH8.3
MH8.4
MH8.5
MH8.6
MH8.7
MH8.8

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	
DRAWN BY	FB
CHECKED	
APPROVED	
DATE	SEPT 2025
1650-01196	

No.	REVISIONS	DATE	CONSULTANT

CONSULTANT OR DIVISION

Stantec

Stantec Consulting Ltd.
171 Queens Avenue
London ON Canada
N6A 5J7
Tel. 519.645.2007
Fax. 519.645.6575
www.stantec.com

ENGINEER'S STAMP

Hamilton

SCALE
HORZSCALE
SCALE - 1 : 500
5 0 10m

TITLE
GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT
GARNER ROAD
PRELIMINARY OPTION 2

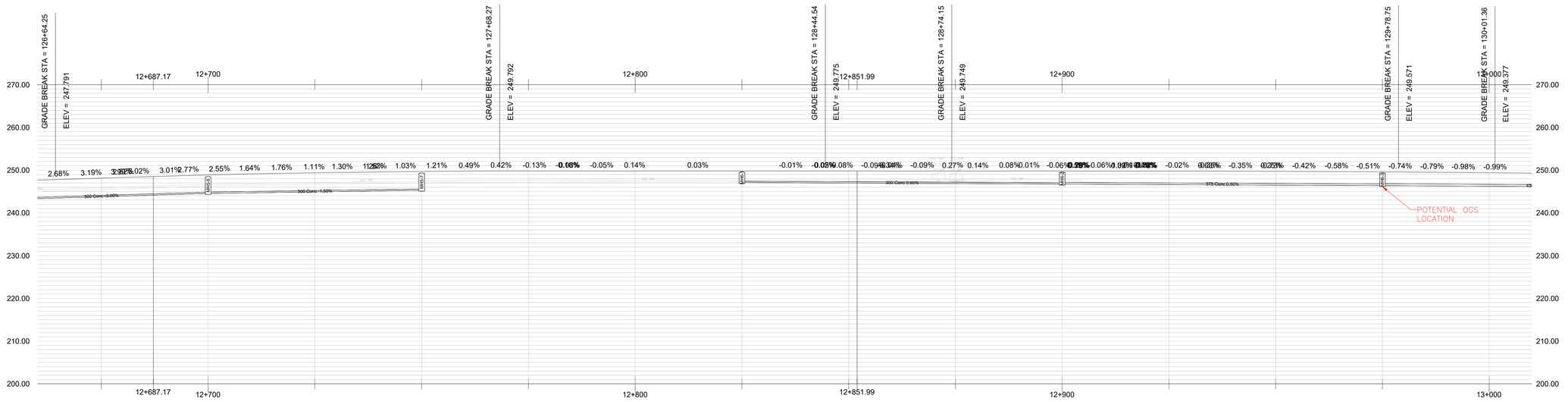
PROJECT No.
TS------

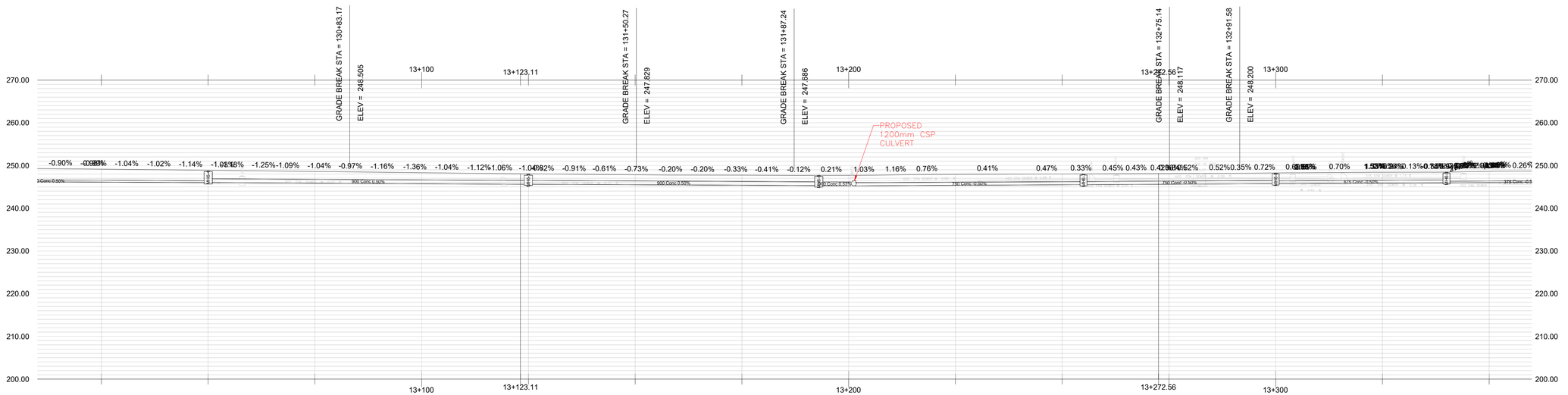
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PLAN FILE No.

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By:hpocsarp

1650-01196 GARNER ROAD PRELIMINARY OPTIONS





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	
DRAWN BY	FB
CHECKED	
APPROVED	
DATE	SEPT 2025
1650-01196	

No.	REVISIONS	DATE	CONSULTANT

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ENGINEER'S STAMP

Hamilton

SCALE
HORZSCALE
VERTSCALE

SCALE – 1 : 500
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TITLE
GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT

GARNER ROAD
PRELIMINARY OPTION 2

PROJECT No.
TS------

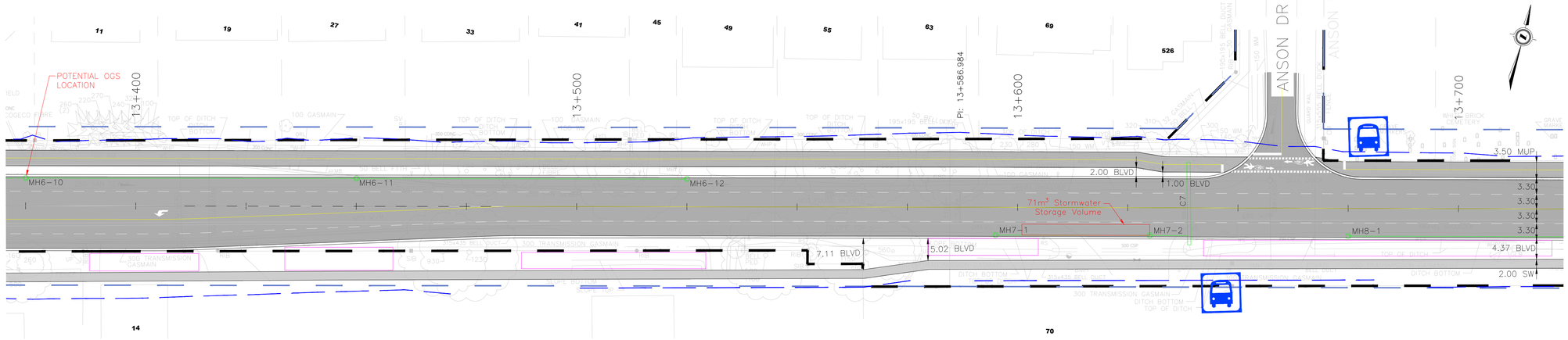
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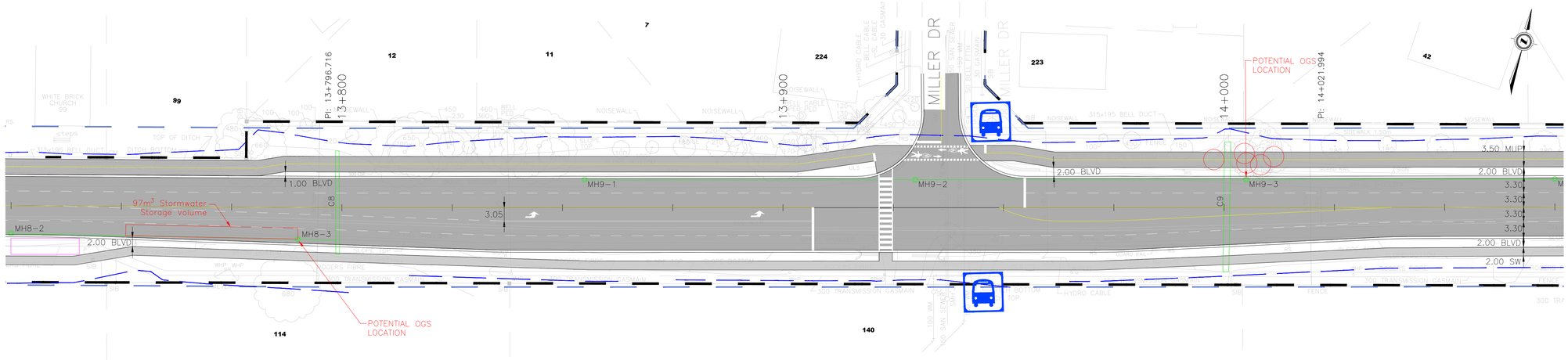
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9/4/2025 1:18 AM By:hsoobrian
1650-01196 GARNER ROAD PRELIMINARY OPTIONS

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	No.	REVISIONS	DATE	CONSULTANT
DESIGN				
DRAWN BY FB				
CHECKED				
APPROVED				
DATE SEPT 2025				
1650-01196				

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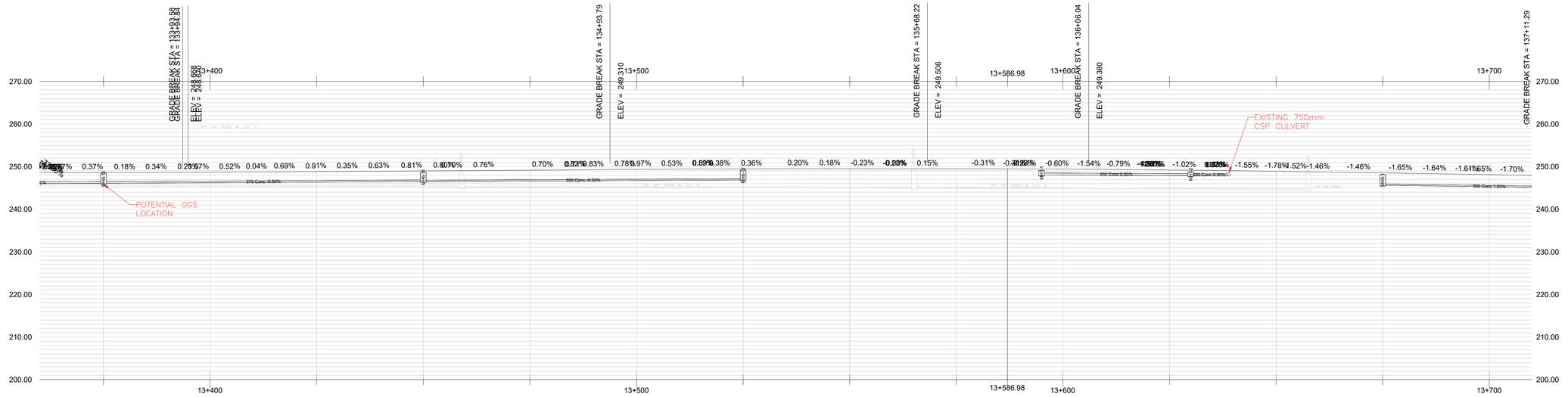
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GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT
GARNER ROAD
PRELIMINARY OPTION 2

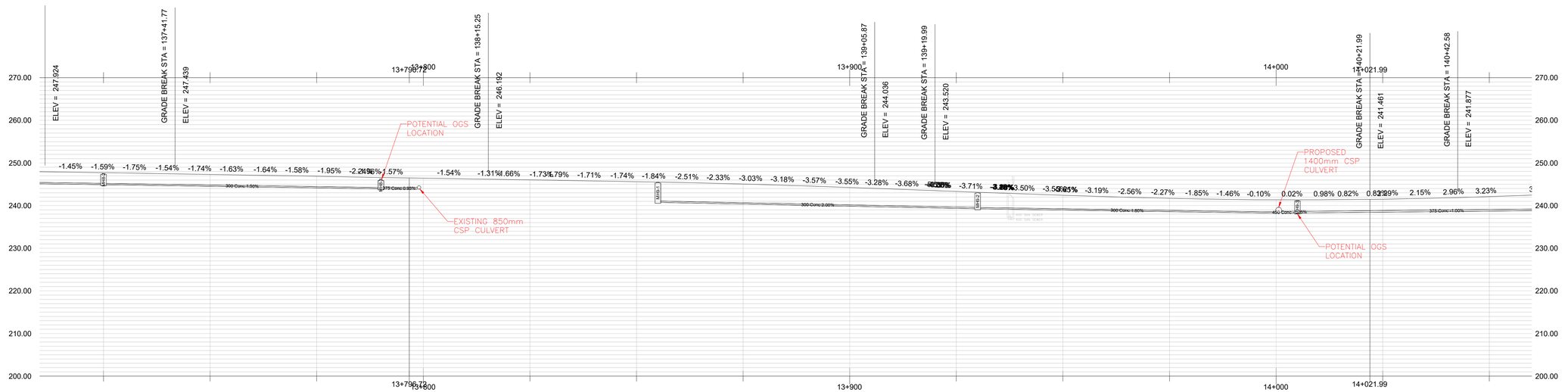
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TS------

SHEET No.
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PLAN FILE No.

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By:hpoonam
1650-01196 GARNER ROAD PRELIMINARY OPTIONS





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	
DRAWN BY	FB
CHECKED	
APPROVED	
DATE	SEPT 2025
1650-01196	

No.	REVISIONS	DATE	CONSULTANT

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ENGINEER'S STAMP

Hamilton

SCALE
HORZSCALE
VERTSCALE

SCALE – 1 : 500
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TITLE
GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT

GARNER ROAD
PRELIMINARY OPTION 2

PROJECT No.
TS------

SHEET No.
12

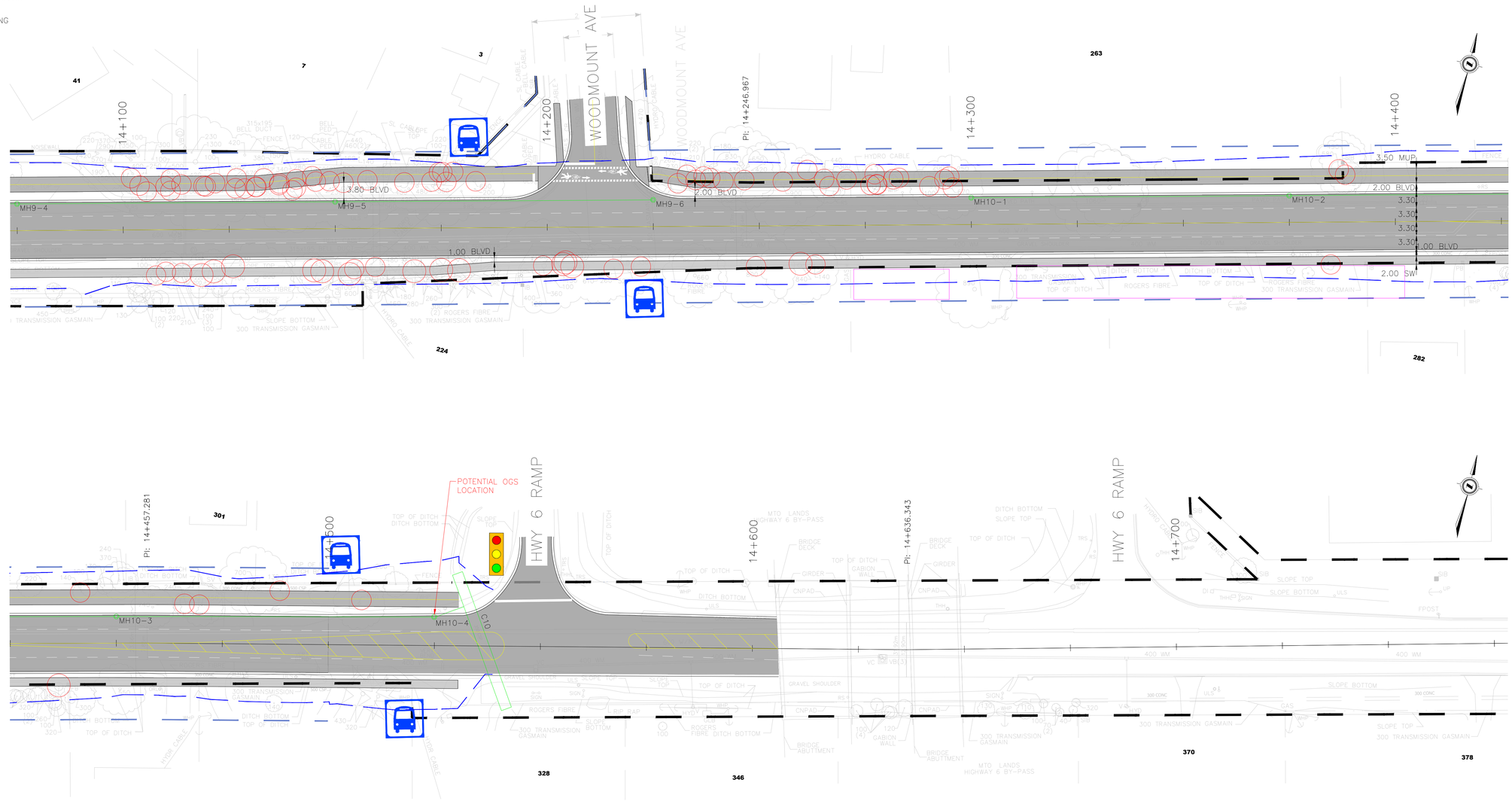
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9/4/2025 12:4 AM fbyhoussein

1650-01196 GARNER ROAD PRELIMINARY OPTIONS

SUPPLEMENTAL LEGEND:

- PROPOSED ROADWAY/MULTI-USE PATH
- PROPOSED SIDEWALK/MEDIAN
- EXISTING R.O.W.
- PROPOSED 36m R.O.W.
- PROPOSED GRADING
- BUS STOP
- CONCEPTUAL STORM SEWER
- POTENTIAL LID LOCATION
- EXISTING STORM PIPE CONVEYING EXTERNAL FLOWS



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By:hpoonsamy

1650-01196 GARNER ROAD PRELIMINARY OPTIONS

EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
					DESIGN				
					DRAWN BY FB				
					CHECKED				
					APPROVED				
					DATE SEPT 2025				
					1650-01196				

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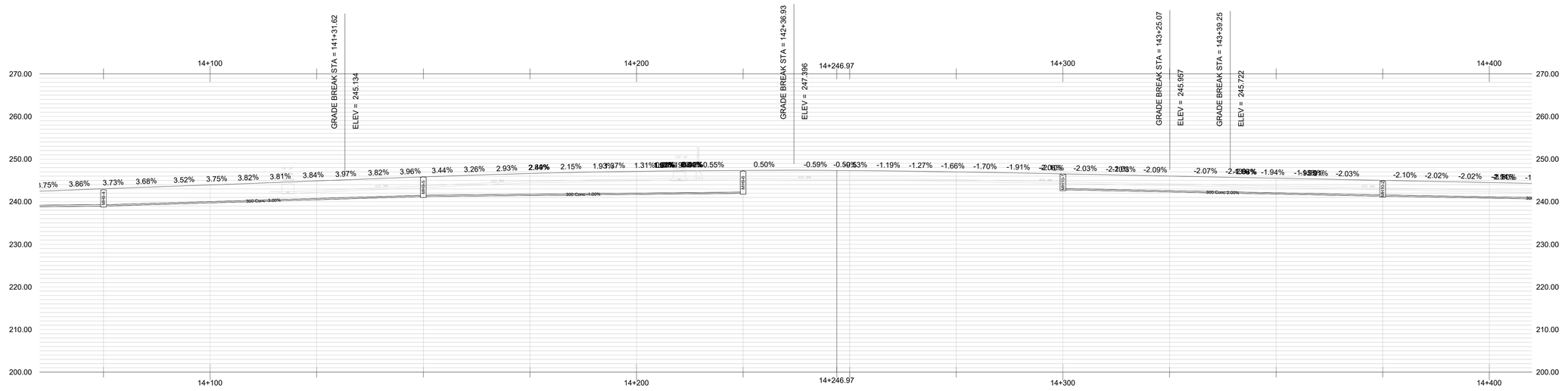
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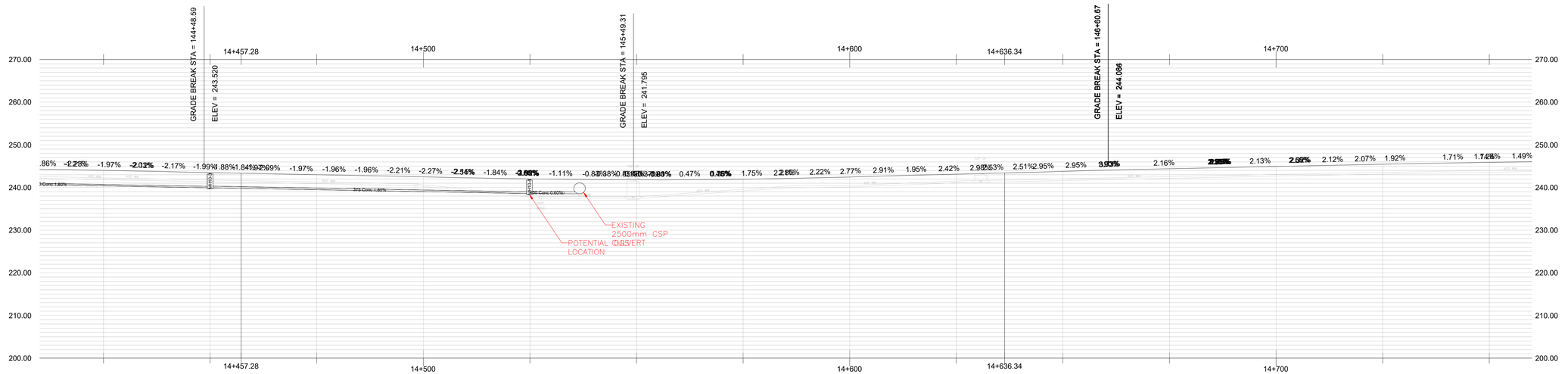
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GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT
GARNER ROAD
PRELIMINARY OPTION 2

PROJECT No.
TS------

SHEET No.
13

PLAN FILE No.





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	
DRAWN BY	FB
CHECKED	
APPROVED	
DATE	SEPT 2025
	1650-01196

No.	REVISIONS	DATE	CONSULTANT

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Fax. 519.645.6575
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ENGINEER'S STAMP

Hamilton

SCALE
HORZSCALE
VERTSCALE

SCALE – 1 : 500
5 0 10m

TITLE
GARNER ROAD EA
CONCEPTUAL STORM SEWER LAYOUT

GARNER ROAD
PRELIMINARY OPTION 2

PROJECT No.
TS------

SHEET No.
14

PLAN FILE No.

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9/4/2025 1:31 AM
By:bpocsova

1650-01196 GARNER ROAD PRELIMINARY OPTIONS

Stantec

Garner Rd Wilson to Hwy 6

STORM SEWER DESIGN SHEET

DATE: August 28, 2025
DESIGNED BY: AK
CHECKED BY: JI/BW
FILE NUMBER: 1650-01196

DESIGN PARAMETERS

DESIGN STORM $I = a / ((tc + b) ^c)$

		1 in 5 yr	1 in 100 yr
a=		1049.5	2317
b=		8	11
c=		0.8030	0.836

MANNING'S n = 0.013

LOCATION						DRAINAGE AREA							PIPE SELECTION							
	Flow Distance (m)	ROW Area (m2)	External Area (m2)	FROM M.H.	TO M.H.	AREA (ha)	C	A x C	ACCUM. AC	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	(ACT) (m/S)	TIME OF FLOW (min)	CAPACITY USED (%)
Outlet 1 - Sta. 9+962 to 10+555																				
5 yr flow - West of Culvert																				
SS1-1	**38**	**1368**	**0**	MH1-1	MH1-2	0.14	0.65	0.09	0.09	10.00	103.04	0.025	55.0	300	0.50	0.068	0.967	0.880	1.04	37%
5 yr flow - East of Culvert																				
SS1-9	**55**	**1980**	**0**	MH1-9	MH1-8	0.20	0.65	0.13	0.13	10.00	103.04	0.037	60.0	300	1.00	0.097	1.368	1.265	0.79	38%
SWM Pond + McClure Rd				SWM	MH1-8	*AC estimated to meet pipe capacity			10.29	25.00	63.33	1.810	10.0	900	1.00	1.810	2.846	3.301	0.05	100%
SS1-8	**60**	**2160**	**0**	MH1-8	MH1-7	0.22	0.65	0.14	10.56	25.05	63.25	1.855	65.0	1200	0.50	2.757	2.438	2.620	0.41	67%
SS1-7	**65**	**2340**	**0**	MH1-7	MH1-6	0.23	0.65	0.15	10.71	25.46	62.62	1.863	65.0	1200	0.50	2.757	2.438	2.620	0.41	68%
1c External area	**0**	**0**	**7000**	C1	MH1-6	0.70	0.50	0.35	0.35	10.00	103.04	0.100	22.0	700	0.09	0.252	0.705	0.652	0.56	40%
SS1-6	**125**	**4500**	**0**	MH1-6	MH1-5	0.45	0.65	0.29	11.35	25.88	62.01	1.955	60.0	1200	0.50	2.757	2.438	2.657	0.38	71%
SS1-5	**50**	**1800**	**0**	MH1-5	MH1-4	0.18	0.65	0.12	11.47	26.25	61.46	1.958	50.0	1200	0.50	2.757	2.438	2.657	0.31	71%
SS1-4	**75**	**2700**	**0**	MH1-4	MH1-3	0.27	0.65	0.18	11.65	26.57	61.01	1.974	75.0	1200	0.50	2.757	2.438	2.657	0.47	72%
SS1-3	**70**	**2520**	**0**	MH1-3	MH1-2	0.25	0.65	0.16	11.81	27.04	60.36	1.980	70.0	1200	0.50	2.757	2.438	2.657	0.44	72%
Existing SS input				Parking lot	MH1-2	*AC estimated to meet pipe capacity			2.57	15.00	84.63	0.605	20.0	450	4.50	0.605	3.803	4.430	0.08	100%
SS1 Outlet Pipe (SS1-2)	**55**	**1980**		MH1-2	SWM Pond	0.20	0.65	0.13	14.60	27.48	59.76	2.423	30.0	1350	0.33	3.066	2.142	2.388	0.21	79%
Outlet 2b - Sta. 10+555 to 10+825																				
5 yr flow - East of Culvert																				
2b-3	**50**	**1800**	**0**	MH2b-4	MH2b-3	0.18	0.65	0.12	0.12	10.00	103.04	0.033	75.0	300	1.00	0.097	1.368	1.231	1.02	35%
2b-2	**75**	**2700**	**0**	MH2b-3	MH2b-2	0.27	0.65	0.18	0.29	11.02	98.60	0.080	75.0	300	1.00	0.097	1.368	1.539	0.81	83%
2b-1	**75**	**2700**	**0**	MH2b-2	MH2b-1	0.27	0.65	0.18	0.47	11.83	95.34	0.124	75.0	375	1.00	0.175	1.587	1.730	0.72	71%
SS2b Outlet Pipe	**75**	**2700**	**0**	MH2b-1	2b ditch	0.27	0.65	0.18	0.64	12.55	92.64	0.166	5.0	450	0.50	0.202	1.268	1.426	0.06	82%
Outlet 2 - Sta. 10+825 to 11+105																				
5 yr flow - East of Culvert																				
C2-5	**30**	**1080**	**0**	MH2-5	MH2-4	0.11	0.65	0.07	0.07	10.00	103.04	0.020	50.0	300	3.00	0.167	2.370	1.469	0.57	12%
C2-4	**50**	**1800**	**0**	MH2-4	MH2-3	0.18	0.65	0.12	0.19	10.57	100.50	0.052	75.0	300	4.00	0.193	2.736	2.244	0.56	27%
C2-3	**75**	**2700**	**0**	MH2-3	MH2-2	0.27	0.65	0.18	0.36	11.12	98.14	0.099	75.0	300	2.00	0.137	1.935	2.128	0.59	72%
Shaver Rd + external	**0**	**0**	**34000**	Shaver	MH2-2	3.40	0.50	1.70	1.70	20.00	72.26	0.341	18.5	450	1.45	0.343	2.159	2.504	0.12	99%
C2-2	**75**	**2700**	**0**	MH2-2	MH2-1	0.27	0.65	0.18	2.24	20.12	72.01	0.448	50.0	675	0.50	0.594	1.661	1.835	0.45	75%
C2-1	**50**	**1800**	**0**	MH2-1	C2	0.18	0.65	0.12	2.36	20.58	71.09	0.465	5.0	675	0.50	0.594	1.661	1.852	0.04	78%

Stantec

Garner Rd Wilson to Hwy 6

STORM SEWER DESIGN SHEET

DATE: August 28, 2025
DESIGNED BY: AK
CHECKED BY: JI/BW
FILE NUMBER: 1650-01196

DESIGN PARAMETERS

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

		1 in 5 yr	1 in 100 yr
a=		1049.5	2317
b=		8	11
c=		0.8030	0.836

MANNING'S n = 0.013

LOCATION						DRAINAGE AREA							PIPE SELECTION							
	Flow Distance (m)	ROW Area (m2)	External Area (m2)	FROM M.H.	TO M.H.	AREA (ha)	C	A x C	ACCUM. AC	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	(ACT) (m/S)	TIME OF FLOW (min)	CAPACITY USED (%)
Outlet 3 - Sta. 11+105 to 11+795																				
5 yr flow - West of Culvert																				
C3-1	**45**	**1620**	**0**	MH3-1	MH3-2	0.16	0.65	0.11	0.11	10.00	103.04	0.030	75.0	300	2.00	0.137	1.935	1.509	0.83	22%
C3-2	**75**	**2700**	**0**	MH3-2	MH3-3	0.27	0.65	0.18	0.28	10.83	99.38	0.078	75.0	300	3.00	0.167	2.370	2.322	0.54	46%
C3-3	**75**	**2700**	**0**	MH3-3	MH3-4	0.27	0.65	0.18	0.46	11.37	97.16	0.123	50.0	300	3.00	0.167	2.370	2.606	0.32	74%
C3-4	**50**	**1800**	**0**	MH3-4	MH3-5	0.18	0.65	0.12	0.57	11.69	95.89	0.153	75.0	375	2.00	0.248	2.245	2.357	0.53	62%
Outlet from SWM Pond				SWM	MH3-5	*AC estimated to meet pipe capacity			1.21	15.00	84.63	0.285	10.0	450	1.00	0.285	1.793	2.079	0.08	100%
C3-5	**75**	**2700**	**0**	MH3-5	MH3-6	0.27	0.65	0.18	1.96	15.08	84.39	0.460	40.0	600	1.00	0.614	2.172	2.400	0.28	75%
C3-6	**40**	**1440**	**0**	MH3-6	C3	0.14	0.65	0.09	2.05	15.36	83.59	0.477	5.0	600	1.00	0.614	2.172	2.410	0.03	78%
5 yr flow - East of Culvert																				
C3-12	**45**	**1620**	**0**	MH3-12	MH3-11	0.16	0.65	0.11	0.11	0.00	197.61	0.058	50.0	300	1.50	0.118	1.675	1.659	0.50	49%
C3-11	**50**	**1800**	**9200**	MH3-11	MH3-10	1.10	0.70	0.77	0.88	15.00	84.63	0.206	50.0	375	2.00	0.248	2.245	2.526	0.33	83%
C3-10	**50**	**1800**	**0**	MH3-10	MH3-9	0.18	0.65	0.12	0.99	15.33	83.67	0.231	40.0	525	0.50	0.304	1.405	1.552	0.43	76%
Outlet from SWM Pond				SWM	MH3-9	*AC estimated to meet pipe capacity			1.53	20.00	72.26	0.307	13.7	525	0.51	0.307	1.419	1.646	0.14	100%
C3-9	**40**	**1440**	**0**	MH3-9	MH3-8	0.14	0.65	0.09	2.62	20.14	71.98	0.523	50.0	750	0.50	0.787	1.782	1.916	0.44	66%
DI Lead				SWM	MH3-8	*AC estimated to meet pipe capacity			1.71	15.00	84.63	0.403	20.0	450	2.00	0.403	2.535	2.941	0.11	100%
C3-8	**50**	**1800**	**0**	MH3-8	MH3-7	0.18	0.65	0.12	4.45	20.57	71.10	0.878	25.0	900	0.50	1.280	2.012	2.183	0.19	69%
C3-7	**25**	**900**	**0**	MH3-7	C3	0.09	0.65	0.06	4.51	20.76	70.72	0.885	65.0	900	0.50	1.280	2.012	2.183	0.50	69%
Outlet 4 - Sta. 11+795 to 12+350																				
5 yr flow - West of Culvert																				
C4-1	**31**	**1116**	**0**	MH4-1	MH4-2	0.11	0.65	0.07	0.07	10.00	103.04	0.021	75.0	300	1.50	0.118	1.675	1.206	1.04	18%
C4-2	**75**	**2700**	**0**	MH4-2	MH4-3	0.27	0.65	0.18	0.25	11.04	98.51	0.068	75.0	300	1.50	0.118	1.675	1.726	0.72	57%
C4-3	**70**	**2520**	**0**	MH4-3	C4	0.25	0.65	0.16	0.41	11.76	95.60	0.109	12.0	450	0.50	0.202	1.268	1.293	0.15	54%
5 yr flow - East of Culvert																				
C4-9	**50**	**1800**	**0**	MH4-9	MH4-8	0.18	0.65	0.12	0.12	10.00	103.04	0.033	60.0	300	0.50	0.068	0.967	0.958	1.04	49%
External flow				Panabaker Dr.	MH4-8	*AC estimated to meet pipe capacity			1.25	15.00	84.63	0.293	200.0	375	2.80	0.293	2.656	3.081	1.08	100%
C4-8	**60**	**2160**	**0**	MH4-8	MH4-7	0.22	0.65	0.14	1.50	16.08	81.56	0.341	70.0	600	0.50	0.434	1.536	1.712	0.68	78%
External flow				305 Garner	MH4-7	*AC estimated to meet pipe capacity			0.53	15.00	84.63	0.124	50.0	375	0.50	0.124	1.123	1.308	0.64	100%
C4-7	**70**	**2520**	**0**	MH4-7	MH4-6	0.25	0.65	0.16	2.20	16.76	79.75	0.486	70.0	600	1.50	0.752	2.660	2.846	0.41	65%
C4-6	**70**	**2520**	**0**	MH4-6	MH4-5	0.25	0.65	0.16	2.36	17.17	78.71	0.516	50.0	600	2.00	0.868	3.071	3.194	0.26	59%
C4-5	**50**	**1800**	**0**	MH4-5	MH4-4	0.18	0.65	0.12	2.48	17.43	78.06	0.537	50.0	750	0.50	0.787	1.782	1.933	0.43	68%
C4-4	**80**	**2880**	**0**	MH4-4	C4	0.29	0.65	0.19	2.66	17.87	77.01	0.570	13.0	750	1.00	1.113	2.520	2.520	0.09	51%

Stantec

Garner Rd Wilson to Hwy 6

DATE: August 28, 2025
DESIGNED BY: AK
CHECKED BY: JI/BW

STORM SEWER DESIGN SHEET

FILE NUMBER: 1650-01196

DESIGN PARAMETERS

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

		1 in 5 yr	1 in 100 yr
a=		1049.5	2317
b=		8	11
c=		0.8030	0.836

MANNING'S n = 0.013

LOCATION						DRAINAGE AREA							PIPE SELECTION							
	Flow Distance (m)	ROW Area (m2)	External Area (m2)	FROM M.H.	TO M.H.	AREA (ha)	C	A x C	ACCUM. AC	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	(ACT) (m/S)	TIME OF FLOW (min)	CAPACITY USED (%)
Outlet 5 - Sta. 12+350 to 12+770																				
5 yr flow - East of Culvert																				
C5-7	**22**	**792**	**0**	MH5-7	MH5-6	0.08	0.65	0.05	0.05	10.00	103.04	0.015	50.0	300	1.50	0.118	1.675	1.106	0.75	12%
C5-6	**50**	**1800**	**0**	MH5-6	MH5-5	0.18	0.65	0.12	0.17	10.75	99.70	0.047	50.0	300	3.00	0.167	2.370	1.943	0.43	28%
C5-5	**50**	**1800**	**0**	MH5-5	MH5-4	0.18	0.65	0.12	0.29	11.18	97.91	0.078	75.0	300	3.00	0.167	2.370	2.322	0.54	46%
C5-4	**75**	**2700**	**0**	MH5-4	MH5-3	0.27	0.65	0.18	0.46	11.72	95.75	0.123	75.0	300	3.00	0.167	2.370	2.606	0.48	73%
C5-3	**75**	**2700**	**0**	MH5-3	MH5-2	0.27	0.65	0.18	0.64	12.20	93.92	0.166	75.0	375	3.00	0.304	2.750	2.805	0.45	55%
C5-2	**75**	**2700**	**0**	MH5-2	MH5-1	0.27	0.65	0.18	0.81	12.65	92.29	0.208	75.0	450	1.00	0.285	1.793	1.972	0.63	73%
C5-1	**75**	**2700**	**0**	MH5-1	C5	0.27	0.65	0.18	0.99	13.28	90.08	0.247	5.0	525	0.72	0.365	1.686	1.812	0.05	68%
SS outlet				SS	C5	*AC estimated to meet pipe capacity			3.06	20.00	72.26	0.614	60.0	600	1.00	0.614	2.172	2.519	0.40	100%
Outlet 6 - Sta. 12+770 to 13+550																				
5 yr flow - West of Culvert																				
C6-1	**55**	**1980**	**0**	MH6-1	MH6-2	0.20	0.65	0.13	0.13	10.00	103.04	0.037	75.0	300	0.50	0.068	0.967	0.977	1.28	54%
C6-2	**75**	**2700**	**0**	MH6-2	MH6-3	0.27	0.65	0.18	0.30	11.28	97.51	0.082	75.0	375	0.50	0.124	1.123	1.207	1.04	66%
C6-3	**75**	**2700**	**0**	MH6-3	MH6-4	0.27	0.65	0.18	0.48	12.32	93.50	0.125	75.0	450	0.50	0.202	1.268	1.331	0.94	62%
Outlet from SWM Pond				SWM	MH6-4	*AC estimated to meet pipe capacity			4.51	20.00	72.26	0.905	12.0	900	0.25	0.905	1.423	1.650	0.12	100%
C6-4	**75**	**2700**	**0**	MH6-4	MH6-5	0.27	0.65	0.18	5.16	20.12	72.01	1.033	75.0	900	0.50	1.280	2.012	2.254	0.55	81%
C6-5	**75**	**2700**	**0**	MH6-5	MH6-6	0.27	0.65	0.18	5.34	20.68	70.89	1.051	68.0	900	0.50	1.280	2.012	2.264	0.50	82%
C6-6	**130**	**4680**	**0**	MH6-6	C6	0.47	0.65	0.30	5.64	21.18	69.91	1.096	7.0	900	0.53	1.318	2.072	2.331	0.05	83%
5 yr flow - East of Culvert																				
C6-12	**25**	**900**	**0**	MH6-12	MH6-11	0.09	0.65	0.06	0.06	10.00	103.04	0.017	75.0	300	0.50	0.068	0.967	0.774	1.62	24%
C6-11	**75**	**2700**	**0**	MH6-11	MH6-10	0.27	0.65	0.18	0.23	11.62	96.17	0.063	75.0	375	0.50	0.124	1.123	1.123	1.11	50%
C6-10	**75**	**2700**	**0**	MH6-10	MH6-9	0.27	0.65	0.18	0.41	12.73	92.00	0.105	35.0	375	0.50	0.124	1.123	1.268	0.46	84%
External Flow	**0**	**0**	**23200**	EX	MH6-9	2.32	0.50	1.16	1.16	15.00	84.63	0.273	5.0	525	0.89	0.406	1.874	2.015	0.04	67%
C6-9	**35**	**1260**	**0**	MH6-9	MH6-8	0.13	0.65	0.08	1.65	15.04	84.51	0.388	40.0	675	0.50	0.594	1.661	1.777	0.38	65%
DICB Flow				DICB	MH6-8	*AC estimated to meet pipe capacity			0.54	15.00	84.63	0.128	12.0	450	0.20	0.128	0.802	0.934	0.21	100%
C6-8	**40**	**1440**	**0**	MH6-8	MH6-7	0.14	0.65	0.09	2.29	15.42	83.42	0.531	45.0	750	0.50	0.787	1.782	1.916	0.39	67%
C6-7	**45**	**1620**	**0**	MH6-7	C6	0.16	0.65	0.11	2.39	15.81	82.31	0.548	62.0	750	0.50	0.787	1.782	1.933	0.53	70%
Outlet 7 - Sta. 13+550 to 13+630																				
5 yr flow - West of Culvert																				
C7-1	**45**	**1620**	**9000**	MH7-1	MH7-2	1.06	0.50	0.53	0.53	15.00	84.63	0.125	35.0	450	0.50	0.202	1.268	1.331	0.44	62%
C7-2	**35**	**1260**	**0**	MH7-2	C-7	0.13	0.65	0.08	0.61	15.44	83.36	0.142	5.0	450	0.50	0.202	1.268	1.382	0.06	70%

Stantec

Garner Rd Wilson to Hwy 6

DATE: August 28, 2025
DESIGNED BY: AK
CHECKED BY: JI/BW

STORM SEWER DESIGN SHEET

FILE NUMBER: 1650-01196

DESIGN PARAMETERS

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

		1 in 5 yr	1 in 100 yr
a=		1049.5	2317
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MANNING'S n = 0.013

LOCATION						DRAINAGE AREA							PIPE SELECTION							
	Flow Distance (m)	ROW Area (m2)	External Area (m2)	FROM M.H.	TO M.H.	AREA (ha)	C	A x C	ACCUM. AC	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	(ACT) (m/S)	TIME OF FLOW (min)	CAPACITY USED (%)
Outlet 8 Sta. 13+630 to 13+790																				
5 yr flow - West of Culvert																				
C8-1	**45**	**1620**	**0**	MH8-1	MH8-2	0.16	0.65	0.11	0.11	10.00	103.04	0.030	50.0	300	1.50	0.118	1.675	1.340	0.62	25%
C8-2	**50**	**1800**	**0**	MH8-2	MH8-3	0.18	0.65	0.12	0.22	10.62	100.27	0.062	65.0	300	1.50	0.118	1.675	1.692	0.64	52%
C8-3	**65**	**2340**	**0**	MH8-3	C-8	0.23	0.65	0.15	0.37	11.26	97.58	0.101	5.0	375	0.93	0.169	1.531	1.607	0.05	60%
Outlet 9 - Sta. 13+790 to 14+237																				
5 yr flow - West of Culvert																				
C9-1	**65**	**2340**	**0**	MH9-1	MH9-2	0.23	0.65	0.15	0.15	10.00	103.04	0.044	75.0	300	2.00	0.137	1.935	1.683	0.74	32%
C9-2	**75**	**2700**		MH9-2	C9	0.27	0.65	0.18	0.33	10.74	99.75	0.091	75.0	300	1.50	0.118	1.675	1.860	0.67	77%
5-yr flow - East of Culvert																				
C9-6	**12**	**432**	**0**	MH9-6	MH9-5	0.04	0.65	0.03	0.03	10.00	103.04	0.008	75.0	300	1.00	0.097	1.368	0.793	1.58	8%
C9-5	**75**	**2700**	**0**	MH9-5	MH9-4	0.27	0.65	0.18	0.20	11.58	96.33	0.054	75.0	300	3.00	0.167	2.370	2.097	0.60	33%
C9-4	**75**	**2700**	**0**	MH9-4	MH9-3	0.27	0.65	0.18	0.38	12.17	94.03	0.099	70.0	375	1.00	0.175	1.587	1.635	0.71	56%
C9-3	**145**	**5220**	**0**	MH9-3	C9	0.52	0.65	0.34	0.72	12.88	91.44	0.182	5.0	450	1.35	0.331	2.083	2.125	0.04	55%
Outlet 10 - Sta. 14+237 to 14+525																				
5 yr flow - West of Culvert																				
C10-1	**63**	**2268**	**0**	MH10-1	MH10-2	0.23	0.65	0.15	0.15	10.00	103.04	0.042	75.0	300	2.00	0.137	1.935	1.683	0.74	31%
C10-2	**75**	**2700**	**0**	MH10-2	MH10-3	0.27	0.65	0.18	0.32	10.74	99.75	0.089	75.0	300	1.80	0.130	1.835	1.991	0.63	69%
C10-3	**75**	**2700**	**0**	MH10-3	MH10-4	0.27	0.65	0.18	0.50	11.37	97.14	0.134	75.0	375	1.80	0.235	2.130	2.194	0.57	57%
C10-4	**75**	**2700**	**0**	MH10-4	C10	0.27	0.65	0.18	0.67	11.94	94.91	0.178	5.0	450	0.67	0.233	1.467	1.629	0.05	76%

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Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

