

APPENDIX

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DRAINAGE AND STORMWATER MANAGEMENT REPORT



Regional Municipality of Halton

Class Environmental Assessment Study for Steeles Avenue (Tremaine Road to Industrial Drive) Drainage & Stormwater Management Report

September 21, 2022

FINAL





Class Environmental Assessment Study for Steeles Avenue (Tremaine Road to Industrial Drive) Drainage & Stormwater Management Report

Regional Municipality of Halton

FINAL

Project No.: 17M-00979-00

Date: September 21, 2022

WSP
610 Chartwell Road
Suite 300
Oakville, ON, Canada L6J 4A5

T: +1 905-823-8500

F: +1 905-823-8503

wsp.com



September 21, 2022

FINAL

Regional Municipality of Halton
1151 Bronte Road
Oakville, ON L6M 3L1

Attention: Jessica Dorgo

Dear Madam/Sir:

Subject: Steeles Avenue Hydrology and Hydraulics Report

We are pleased to submit an electronic copy of the FINAL Drainage & Stormwater Report for the EA for Steeles Avenue. This report documents the stormwater management approach undertaken for the improvements along Steeles Avenue.

We trust the submission of this documents meets your requirements. Should you have any comments we look forward to your response.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Bryan Orendorff', written over the printed name.

Bryan Orendorff
Manager, Water Resources

WSP ref.: 17M-00979-00

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Prepared by	Reviewed / Approved by			
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Prepared by	Reviewed / Approved by			
Marian Tanase, Designer Talal Antar, Project Engineer	Bryan Orendorff, Manager			
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Prepared by	Reviewed / Approved by			
Marian Tanase, Designer	Bryan Orendorff, Manager			

Signatures

Prepared by



Marian Tanase
Designer, Water Resources

Date

Approved¹ by (must be reviewed for technical accuracy prior to approval)



Bryan Orendorff, M.A.Sc., P.Eng.
Manager, Water Resources



Date

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Contributors

Client

Project Manager, Halton Region	Jessica Dorgo
--------------------------------	---------------

WSP

Designer, Water Resources	Marian Tanase
Manager, Water Resources	Bryan Orendorff
Proof (non-technical) / Format	Melinda Nowak
Project Manager	Rhonda George-Hiebert

Subconsultants

N/A

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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by the Regional Municipality of Halton to carry out the Class Environmental Assessment (EA) Study of Steeles Avenue from Tremaine Road to Industrial Drive in the Town of Milton. The Class EA Study was undertaken in accordance with Schedule 'C' of the Municipal Class Environmental Assessment process.

Steeles Avenue from Tremaine Road to Industrial Drive is a two-lane rural road and is classified as an urban arterial road. On both sides along Steeles Avenue within the study area, there are some residential and commercial areas.

The purpose of this EA Study is to:

- Define the need and justification for the proposed improvements on Steeles Avenue
- Identify and assess potential alignment alternatives considering potential environmental, socio-economic, and cultural effects
- Identify the preferred alignment design concept
- Complete the preliminary design and confirm the potential environmental impacts and mitigation measures

1.1 Study Purpose

The purpose of the Drainage and Stormwater Management (SWM) Report is to provide a traceable decision-making process regarding the proposed watercourse crossing design and SWM design concept. 'Approval in principle' from the relevant regulatory agencies is required for various aspects of the design. Relevant regulatory agencies include Conservation Halton (CH) and the Ontario Ministry of Natural Resources and Forestry (MNR).

This Drainage and SWM Report documents the existing drainage characteristics, hydrologic analysis, drainage and SWM issues and design, acceptable opening sizes of major crossing structures, and a feasible SWM strategy for the proposed roadway.

1.2 Study Area

The study area is Steeles Avenue between Tremaine Road and Industrial Drive. The study area and the extend of the study limits are shown in **Figure 1** below.

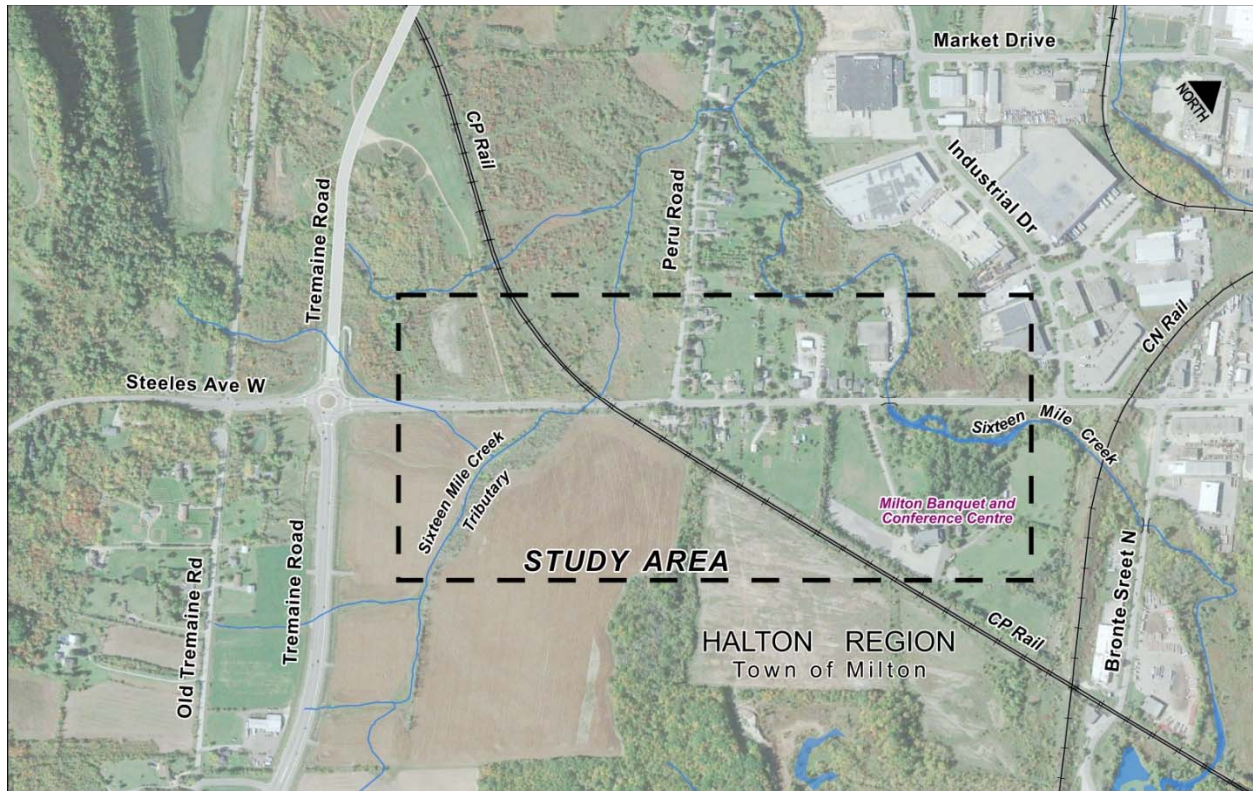


Figure 1: Study Area

1.3 Scope of Work

The scope of work entails the following:

- Estimate existing and proposed storm runoff
- Design “Enhanced Level” water quality treatment facilities for roadway runoff
- Design quantity control measures to control the post-development flows to existing conditions flows
- Analyze hydraulics of the watercourse crossings
- Assess the impacts of proposed road improvement

1.4 Potential Drainage Impacts

Road expansion projects may potentially affect drainage patterns and watercourses in the following ways:

- Increased impervious surface area, if any
- Increased overall volume and peak flow rate, if any
- Increased erosivity potential for the receiving watercourse
- Increased pollutant and sediment loading
- Required physical changes to watercourses (e.g. bridge replacement)
- Required physical changes to drainage boundaries (e.g. new outlet locations and overland flow patterns)
- Required physical changes to hydrologically significant features (e.g. ponding areas, dams, zones of infiltration, etc.)

Any combination of these effects have the potential to impact watercourse morphology, base flows, flooding levels, and overall water quality.

1.5 Background Information and Reports

WSP obtained relevant, drainage-related information and mapping from the Town of Milton, Conservation Halton (CH), and the Regional Municipality of Halton.

The following background information and reports were reviewed in the assessments of this study:

- 1 Milton Heights Neighbourhood, Sherwood Survey Secondary Plan Area, SIS Area 1, 2 and 4, Final Report, Revised Feb 2014, prepared by Rand Engineering et. al.
- 2 Stormwater Management, Indian Creek / Sixteen Mile Creek / Sherwood Survey, Subwatershed Planning Study, Town of Milton, Dec 2004, prepared by Phillip Engineering Ltd.
- 3 HEC-RAS models of Sixteen Mile Creek Main Channel and its tributary
- 4 Shape files of Approximate Regulation Limit (ARL), Floodplain Hazard Limit, Estimated Meander Belt, Wetland, Headwater Floodplain Limit, etc. received from CH

2 GUIDELINES AND DESIGN CRITERIA

2.1 SWM Design Criteria

The proposed improvements along Steeles Avenue include the widening on a new alignment, providing a new crossing over Sixteen Mile Creek, constructing a new grade separation at the Canadian Pacific Railway (CPR) Line crossing, implementing intersection improvements, and adding on-road bike lanes and in-boulevard multi-use paths, on both sides of the road. Due to this, the drainage conditions in some areas have changed, requiring quantity and quality controls including oil and grit separators (OGS), stormwater management facilities (wet / dry / linear facilities), low impact development (LID) measures, roadside ditch / swale, etc. The following stormwater management criteria were considered in the design:

- **SWM Quality Control Criteria:** An Enhanced Level of stormwater treatment was identified for the study area. This is the highest level of treatment (80% removal of total suspended solids) identified in the MOECC (now MECP) SWM Planning and Design Manual (2003).
- **SWM Quantity Control Criteria:** CH SWM criteria state that the post-development flows shall be controlled to pre-development levels for the 2-year, 5-year, 10-year, 25-year, 50-year and 100-year storm events.
- **Extended Detention / Erosion Control Criteria:** SWM facilities shall include an additional storage volume for extended detention to reduce / mitigate the potential erosion impact on the receiving watercourse. Where appropriate, extended detention shall be included in the SWM facilities.
- **Grassed Swales:** For grassed swales to be most effective for stormwater treatment, flow depth should be minimized, bottom width maximized, and channel slope minimized. The grassed swale design should convey the peak flow with a velocity less than 0.5 m/s and flow depth less than 0.25 m. The bottom width should be a minimum of 0.75 m and the channel slope should be a maximum of 1%.

The following design objectives were established to minimize the potential impacts of the proposed road widening on the surrounding environment, based on the prevailing policy framework:

- Provide an effective / efficient drainage system
- Minimize risk to public safety
- Maintain flow paths for upstream lands

- Maintain or enhance the quality of storm runoff
- Maintain or reduce flood risk for lands within and surrounding the transportation corridor
- Minimize future maintenance requirements
- Situate SWM measures on lands available in the transportation corridor

3 HYDROLOGIC ASSESSMENT

3.1 Existing Conditions Drainage

The study area is located within Sub-catchment 2 of Sixteen Mile Creek Subwatershed. A portion of Sub-catchment 2 – north of Steeles Avenue between CPR and Peru Road falls on Phase 2 SIS Area 4. There are three culverts (C1, C3 and C4) and a bridge over Sixteen Mile Creek within the study limit that cross Steeles Avenue. Culvert C2 is located on CPR immediately downstream of Culvert C1. **Exhibit 1** shows the location of these drainage crossings.

– **Culvert C1:**

- Culvert C1 is a 750 mm diameter HDPE culvert, corrugated inside. Culvert condition is good.
- This culvert drains over 125 ha of drainage area. The watercourse is a tributary of Sixteen Mile Creek.
- According to the HEC-RAS model received from CH, the 5-year storm event overtopped Steeles Avenue. The flood depths over Steeles Avenue are approximately 0.15 m and 0.85 m for the 100-year and Regional Storm, respectively.
- Immediately downstream of Culvert C1, there is a box culvert of size 2.4 m span x 1.6 m rise at CPR, identified as Culvert C2. The Regional Storm overtops CPR too. Downstream of the Culvert C2, the floodplain is very wide, more than 100 m for the Regional Storm.
- There is a water pool between Culverts C1 and C2, fish were observed in the water pool during the site visit.

– **Culvert C2:**

- Culvert C2 is a 2.4 m span x 1.6 m rise concrete box culvert, poor condition. There is a wide floodplain area downstream of C2.
- Culvert C2 overtops the CPR during the Regional Storm by approx. 0.10 m

- **Culvert C3 and C4:** Culvert C3, is a 300 mm diameter CSP culvert, draining the roadside ditch only. Culvert C4 (2 x 600 mm diameter concrete pipe) is an outlet culvert for a SWM Pond.

— **Sixteen Mile Creek Bridge at Steeles Avenue:**

As per the HEC-RAS model, the existing bridge has a clear opening of 10.4 m span and an average 2.45 m rise. Flows overtopped Steeles Avenue from the 10-year storm event. **Table 3-1** presents the flows and approximate flow depth over Steeles Avenue at the Sixteen Mile Creek bridge.

Table 3-1: Sixteen Mile Creek – Existing Flows and Approximate Flow Depth

Storm Event	Flows (m ³ /s)	Flow Depth Above Steeles Avenue (m)
10-year	35.94	0.16
25-year	46.22	0.63
50-year	55.80	0.81
100-year	63.32	0.88
Regional	339.91	4.45

The existing land use on both sides of Steeles Avenue includes a small portion of residential and commercial sites, and mainly meadow with some wooded and long grassed areas. The soil type within the study area are mainly Chinguacousy clay loam.

WSP has completed the existing conditions hydrologic assessment for the existing road corridor and tributary watercourse. The drainage mosaic for Tributary NW1-E on the west side of Tremaine Road was matched with the drainage mosaic prepared as part of the Tremaine Road design and construction (ongoing).

Currently, drainage from the roadway is being conveyed by roadside ditches and crossing culverts to the receiving watercourses. Immediately to the west of Industrial Drive, a sediment basin with twin culverts across Steeles Avenue directs the runoff in the intersection area to the Sixteen Mile Creek Tributary. The existing conditions drainage mosaic is located at the end of the report (**Exhibit 1**).

Catchment 100 is the headwater of Tributary NW1-E. Runoff from Catchment 100 (drainage area 85 ha) drains easterly through four culverts located on the proposed realigned Tremaine Road and combines with the runoff from Catchment 101 (drainage area 36.4 ha). Further downstream, the flow combines with runoff from Catchment 102 (drainage area 14.6 ha) and the existing Steeles Avenue which ultimately drains through Culvert C1.

On the northside of the existing Steeles Avenue, runoff from Catchment 105 (drainage area 25 ha) and Catchment 107 (drainage area 13.0 ha) drains easterly via the new Tremaine Road culverts and combines with runoff from Catchments 110, 115 and 130.

Runoff from these catchments further combines with the flow from Culvert C1 and the combined flows drains via Culvert C2 located at the CPR Line. Runoff from Catchment 135 drains downstream of Culvert C2.

Catchments 140 and 145 are the roadway catchments which drain directly to Sixteen Mile Creek via roadside ditches.

3.2 Existing Conditions Hydrologic Modelling

A Visual OTTHYMO based hydrologic model was developed to estimate localized runoff generated from the roadway pavements and from the external areas draining to the roadway under existing conditions. The Visual OTTHYMO modelling software was selected for the following reasons:

- It was developed and tested in Ontario
- It allows single event modelling of user defined design storms
- It generates flow hydrographs at user specified locations (points of interest)
- It considers varying soil and land use conditions
- It allows channel and reservoir routing

The methodology used to develop the hydrologic model can be summarized as follows:

- Hydrologic parameters were estimated for each drainage area based on sub-catchment area, land use distribution (confirmed with topographic mapping, OBM and aerial photographs), soils distribution, and slope of the overland and channel portions of the sub-catchment.
- The hydrologic response for drainage areas with a directly connected impervious land use of 20% or more was obtained using the STANDHYD instantaneous unit hydrograph.
- The hydrologic response for drainage areas with a directly connected impervious land use less than 20% was obtained using the NASHHYD instantaneous unit hydrograph.

The hydrologic input parameters for each drainage area are included in **Appendix A**. The SWMHYMO schematics, input data and summary of output files are also included in **Appendix A**.

3.2.1 Existing Conditions Flows for the Study Area

The existing conditions hydrological assessment was carried out using the Visual OTTHYMO hydrologic model by using the Town of Milton's Intensity-Duration-Frequency (IDF) data with Chicago 24-hour storm distribution. Hydrological parameters were determined by using the land use information from aerial / google map and soil information from Ontario Soil Survey data. The computed hydrological parameters, which were used to generate the frequency storm, are included in **Appendix A**.

The summary output for the Visual OTTHYMO hydrologic model is also included in **Appendix A**. **Table 3-2** provides a summary of the hydrological modelling results.

Table 3-2: Summary of the Existing Hydrological Modelling Results

Catchment / HYD ID	Area (ha)	Flow (m ³ /s)						
		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
100	85.0	1.04	1.90	2.55	3.44	4.13	4.84	9.09
101	36.4	0.68	1.15	1.49	1.94	2.28	2.63	4.00
500	121.4	1.71	3.04	4.04	5.38	6.41	7.46	13.08
102	14.6	0.27	0.49	0.65	0.86	1.02	1.18	1.69
505	136.0	1.98	3.51	4.65	6.18	7.37	8.58	14.73
120	1.04	0.10	0.15	0.19	0.24	0.27	0.31	0.15
125	0.58	0.04	0.07	0.09	0.12	0.13	0.15	0.08
510	137.62	1.99	3.53	4.67	6.22	7.41	8.62	14.90
105	25.0	0.42	0.78	1.07	1.45	1.76	2.07	3.09
107	13.0	0.32	0.57	0.77	1.03	1.23	1.44	1.76
515	38.0	0.71	1.32	1.79	2.43	2.92	3.43	4.81
110	2.85	0.13	0.20	0.25	0.35	0.41	0.48	0.40
520	40.85	0.76	1.42	1.93	2.60	3.13	3.67	5.18
115	1.86	0.08	0.14	0.18	0.24	0.28	0.33	0.27
525	42.71	0.81	1.51	2.04	2.75	3.32	3.90	5.42
130	1.65	0.04	0.08	0.10	0.14	0.16	0.19	0.22
530	44.36	0.86	1.59	2.14	2.89	3.48	4.09	5.64
535	181.98	2.58	4.63	6.16	8.23	9.83	11.46	19.67

Catchment / HYD ID	Area (ha)	Flow (m³/s)						
		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
135	0.33	0.03	0.05	0.06	0.08	0.09	0.10	0.05
540	182.31	2.59	4.63	6.17	8.24	9.84	11.47	19.70
140	0.77	0.07	0.11	0.13	0.17	0.19	0.22	0.11
145	0.70	0.08	0.12	0.15	0.18	0.21	0.24	0.10
545	1.47	0.15	0.23	0.28	0.35	0.40	0.46	0.21

3.3 Proposed Conditions Drainage

The proposed road improvements include a four-lane roadway (each lane 3.5 m wide), a 2 m median, a 1.8 m bike lane, a 3.0 m boulevard, and a 3.0 m multi-use path in each direction. Another important improvement is the realignment of Steeles Avenue to the south.

The proposed conditions drainage mosaics are shown in **Exhibits 2** through **6** at the end of the report. The proposed conditions drainage schematics are shown in **Appendix B**.

In proposed conditions, the runoff from the roadway area of Catchment 200 (drainage area of 1.24 ha) will be drained via storm sewers and outlet to the proposed dry pond at Station 5+200 approximately to provide quantity control. Outflow from the dry pond will drain to Tributary NW1-E creek.

External area Catchment 1021's runoff (drainage area of 8.50 ha) will now be directed to Catchment 205 (drainage area 0.55 ha) via a ditch inlet and a storm sewer system. Flows of both catchments combined will drain to Tributary NW1-E creek.

Runoff from the roadway Catchment 210 (drainage area 2.84 ha) and Catchment 215 (drainage area 0.52 ha) are proposed to be directed to the underground pipe storage facility at approximately Station 6+000 for quantity control. Outflow from the pipe storage facility will drain to Sixteen Mile Creek.

Runoff from Catchment 220 (drainage area 0.34 ha) will drain via storm sewers and drain to Sixteen Mile Creek. Runoff from Catchment 225 (drainage area 0.45 ha) will be maintained as per existing conditions and drain to the sediment basin, eventually to Sixteen Mile Tributary.

Runoff from Catchment 230 (drainage area 1.63 ha) will drain via proposed Culvert C5, and runoff from Catchment 240 (drainage area 0.38 ha) will drain via realigned

Culvert C3. Both flows from culverts C3 and C5 combined will join runoff from Catchment 235 (drainage 5.23 ha) and drain via proposed Culvert C6. Flow from Culvert C6 will drain to Sixteen Mile Creek.

Flows from Catchment 245 (drainage area 0.12 ha) will drain directly to Sixteen Mile Creek. Quantity control treatment of runoff from the roadway Catchment 200, 210 and 215 will be provided through the proposed dry pond at Station 5+200 and the underground pipe storage facility at Station 6+000.

Quality treatment of runoff from the roadway catchments will be provided through oil / grit separators (OGS) and vegetative grassed swales in maintaining a treatment train approach. There is a possibility of providing bio-swales in proposed ditches as a low impact development (LID) measure which will be further reviewed in the detail design phase.

3.4 Proposed Conditions Hydrologic Modelling

3.4.1 Existing Conditions New Alignment

Due to Steeles Avenue's realignment, and consequently partial relocation to the south in proposed conditions, runoff of the existing areas where the realignment is proposed were calculated. The flows generated in existing conditions new alignment are the quantity control targets for the post-development proposed conditions.

The existing conditions new alignment drainage mosaics are shown in **Exhibits 2 to 4** located at the end of the report.

Table 3-3 provides the summary of the hydrological modelling results of the pre-development proposed conditions.

Table 3-3: Summary of the Existing Conditions New Alignment Hydrological Modelling Results

Catchment / HYD ID	Area (ha)	Flow (m ³ /s)					
		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
200	1.24	0.12	0.17	0.21	0.28	0.32	0.36
205	0.55	0.02	0.04	0.05	0.06	0.07	0.09
1021	8.51	0.19	0.34	0.45	0.59	0.70	0.81
500	9.06	0.20	0.36	0.47	0.63	0.74	0.86
510	10.30	0.23	0.41	0.53	0.69	0.82	0.94

Catchment / HYD ID	Area (ha)	Flow (m ³ /s)					
		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
210	2.84	0.07	0.13	0.18	0.24	0.28	0.33
215	0.52	0.02	0.03	0.04	0.05	0.07	0.08
520	3.36	0.09	0.16	0.21	0.29	0.34	0.40
220	0.34	0.01	0.02	0.03	0.04	0.05	0.05
530	3.70	0.10	0.18	0.24	0.32	0.39	0.45
225	0.45	0.08	0.11	0.13	0.15	0.17	0.19
230	1.63	0.03	0.05	0.07	0.09	0.11	0.13
235	5.23	0.13	0.23	0.30	0.40	0.48	0.55
540	6.86	0.16	0.28	0.37	0.49	0.59	0.68
240	0.38	0.04	0.05	0.07	0.08	0.10	0.11
550	7.24	0.16	0.29	0.38	0.51	0.61	0.71
245	0.12	0.01	0.02	0.02	0.03	0.04	0.04
560	7.36	0.17	0.29	0.39	0.51	0.61	0.71

3.4.2 Proposed Conditions

The proposed widening of Steeles Avenue will result in an increase of impervious area from the existing conditions. Increase pavement areas as a result of Steeles Avenue are proposed to be addressed by stormwater quality treatment and quantity control measures. Storm sewers, a dry pond, an underground pipe storage facility, and OGS units are proposed within the new urbanized roadway to replace the existing drainage systems. The proposed conditions post-development drainage mosaics are included in **Exhibits 5 and 6** at the end of the report.

To appropriately size the SWM facilities discussed above, post-development flows with and without controls were calculated. The SWM facilities are proposed at strategic locations along the study corridor to provide quality and quantity control.

Table 3-4 provides a summary of the hydrological modelling results of the proposed conditions uncontrolled flows.

Table 3-4: Summary of the Proposed Conditions Uncontrolled Flows Hydrological Modelling Results

Catchment / HYD ID	Flow (m ³ /s)					
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
200	0.21	0.29	0.35	0.41	0.46	0.52
205	0.10	0.14	0.16	0.19	0.22	0.24
1021	0.19	0.34	0.45	0.59	0.70	0.81
500	0.20	0.35	0.46	0.61	0.72	0.83
510	0.34	0.50	0.61	0.76	0.87	0.98
210	0.30	0.43	0.52	0.65	0.74	0.84
215	0.10	0.14	0.16	0.19	0.21	0.23
520	0.39	0.55	0.66	0.82	0.93	1.04
220	0.07	0.09	0.11	0.13	0.14	0.15
530	0.46	0.64	0.76	0.94	1.06	1.20
225	0.09	0.12	0.14	0.17	0.19	0.21
230	0.03	0.05	0.07	0.09	0.11	0.13
235	0.13	0.23	0.30	0.40	0.48	0.55
540	0.16	0.28	0.37	0.49	0.59	0.68
240	0.04	0.05	0.07	0.08	0.10	0.11
550	0.16	0.29	0.38	0.51	0.61	0.71
245	0.02	0.03	0.03	0.04	0.05	0.05
560	0.17	0.29	0.39	0.51	0.61	0.71

Table 3-5 provides a summary of the hydrological modelling results of the proposed conditions controlled flows.

Table 3-5: Summary of the Proposed Conditions Controlled Flows Hydrological Modelling Results

Catchment ID / HYD ID	Flow (m ³ /s)					
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
200	0.21	0.29	0.35	0.42	0.47	0.52
205	0.10	0.14	0.16	0.19	0.22	0.24
1021	0.19	0.34	0.44	0.59	0.70	0.81
500	0.20	0.35	0.46	0.61	0.72	0.83
510	0.22	0.39	0.51	0.67	0.79	0.91
210	0.33	0.48	0.57	0.71	0.80	0.91
215	0.10	0.14	0.16	0.19	0.21	0.23
520	0.43	0.61	0.73	0.90	1.01	1.14
220	0.07	0.09	0.10	0.12	0.14	0.15
530	0.10	0.17	0.22	0.28	0.33	0.37
225	0.09	0.12	0.14	0.17	0.19	0.21
230	0.03	0.05	0.07	0.09	0.11	0.13
235	0.13	0.23	0.30	0.40	0.48	0.55
540	0.16	0.28	0.37	0.49	0.59	0.68
240	0.04	0.06	0.07	0.09	0.10	0.11
550	0.16	0.29	0.38	0.51	0.61	0.70
245	0.02	0.03	0.03	0.04	0.05	0.05
560	0.17	0.29	0.39	0.51	0.61	0.71
700	0.03	0.04	0.05	0.06	0.07	0.08
710	0.09	0.16	0.20	0.25	0.28	0.32

The results in **Table 3-5** show that Catchments 230, 235, 240, and 245 in post-development conditions have not significantly changed compared to the pre-development flows at the outlet points since there is no significant increase in impervious areas due to the proposed improvements along Steeles Avenue.

Due to the proposed improvements, the flows draining towards Tributary NW1-E via Catchment 205 and flows generated from Catchment 225 have increased in post-

development conditions. Due to property constraints within the vicinity of both catchments, the implementation of SWM controls to treat runoff of both catchments is not possible. However, as an improvement to the drainage conditions, runoff from Catchments 200, 210, and 215 are proposed to be overcontrolled via the SWM facilities in order to compensate for the increase of flows along Catchments 205 and 225.

Overall, the results provided in **Table 3-4** and **Table 3-5** show that post-development flows are less than existing conditions at the outlet points due to the controls provided by using the proposed dry pond and the underground pipe storage facility.

The summary output files of the post-development hydrological modelling are provided in **Appendix B**.

4 HYDRAULIC ASSESSMENT

The existing conditions hydrologic modelling of the Tributary NW1-E and Steeles Avenue has been completed using the Visual OTTHYMO hydrologic model and the flows obtained from the hydrologic modelling is carried forward for the hydraulic analysis.

WSP received the new HEC-RAS Hydraulic Model of Sixteen Mile Creek from Conservation Halton in June 2021. The existing hydraulic model of Tributary NW1-E was provided by Conservation Halton on September 5, 2018.

As part of the Municipal Class Environmental Assessment (MCEA) Study of Steeles Avenue from Tremaine Road to Industrial Drive in the Town of Milton, Conservation Halton requested to extend and update the hydraulic model of the watercourse Tributary NW1-E, which crosses Steeles Avenue from the west of Peru Road.

Both Sixteen Mile Creek and Tributary NW1-E were updated to reflect the existing conditions and proposed conditions. The details of the survey work are discussed in **Section 4.2**. The HEC-RAS model is used to generate flood elevations, to determine the hydraulic performance of the existing structure and to assess the proposed replacement structure.

Within the study area, the current Tributary NW1-E flows south to north beneath Steeles Avenue and Peru Road, and outlets into Sixteen Mile Creek. In the vicinity of the project location Sixteen Mile Creek flows from northwest to southeast beneath Steeles Avenue, CNR Rail and Bronte Road.

4.1 Hydraulic Performance Standards

The MTO Highway Drainage Design Standards (2008) provide the framework for the assessment of the drainage system, freeboard, and clearance requirements for the structures within the project area. In addition to the MTO Highway Drainage Design Standards (2008), where practical and feasible, it is desirable for Regional roads to achieve a flood-free condition in the Regional Storm.

The MTO's Highway Drainage Design Standards (HDDS) prescribe standards for watercourse crossings. The standards that are relevant to this study are as follows:

- **Design Flow:** In accordance with the requirements of the MTO HDDS WC-1, a structure with a span greater than 6.0 m on an urban arterial roadway should be designed to convey a minimum of the 100-year design storm.

- **Freeboard:** The culvert or bridge structures require a minimum of 1.0 m freeboard measured vertically from the headwater elevation (HWL) for the design storm peak flow to the edge of the travelled lane at the lowest point on the road profile adjacent to the spill point.
- **Soffit Clearance:** The soffit clearance criterion relates to the distance between the water surface elevation generated by the peak flow of the design storm and the structure soffit elevation. The MTO HDDS specifies that the clearance for freeways, arterials and collectors shall be equal to or greater than 1.0 m.
- According to the MTO HDDS WC-13 “design of water crossing shall incorporate passage of the Relief Flow over the Roadway in cases where the Regulatory Flow exceeds the Design Flow of the bridge”. The standard recommends that if the Regulatory Storm overtops the road, two parameters shall not be exceeded:
 - The maximum depth of flow on the roadway should not exceed 0.3 metres
 - The product of the velocity and depth on the roadway should not exceed 0.8 m²/s

A summary of the MTO Drainage Design Standards for water crossings can be found in **Table 4-1**.

Table 4-1: MTO Drainage Design Standards for Water Crossings

Item	Design Standard	Description	Standard	Section
1	Design Flow Storm	100-Year	WC-1	1.1.1
2	Top of Road Freeboard (Min.)	>1.0 m (Design Flow Water Surface Elevation – top of road low point)	WC-7	3.1.2
3	Top of Road Freeboard (Desired)	>1.0 m (Design Flow Energy Grade Line Elevation – top of road low point)	WC-7	3.1.1
4	Relief Flow (Max. Depth over roadway)	Max. depth over roadway should not exceed 0.3 m for Regulatory Storm	WC-13	3.2.1
5	Relief Flow (Velocity x Depth)	Velocity x Depth should not exceed 0.8 m ² /s for Regulatory Storm	WC-13	3.2.2
6	Soffit Clearance	Design Flow Water Surface Elevation – Soffit Elevation ≥1.0 m	WC-2	3.2.1

Item	Design Standard	Description	Standard	Section
7	Flood Depth	Culvert with diameter or rise <3.0 m HW/D ≤ 1.5 Culvert with diameter or rise 3.0 to 4.5 m HW ≤ 4.5 m Culvert with diameter or rise > 4.5 m HW/D ≤ 1	WC-7	3.5

4.2 Cross-sections and Model Updates

Sixteen Mile Creek

The existing Sixteen Mile Creek HEC-RAS hydraulic model, received in June 2021 has been updated with the following:

- Three new creek sections, to model the new Steeles Avenue crossing (Section 2166, Section 2126, and Section 2072).
- The left overbank portion of Section 2204 has been revised with a new section alignment.
- CNR Culverts (outside of MCEA study area) have been updated based on the survey information received from the CNR and approved by Conservation Halton and presented below:

Twin CSP Culvert with Diameter 4.42 m.

- Culvert 1: Length 73.2 m, U/S Invert = 197.248; D/S Invert: 197.137
- Culvert 2: Length 72.2 m, U/S Invert = 197.373; D/S Invert: 197.188
- Bronte Street Bridge, currently under construction has been coded in the model based on the new bridge, due to proximity to the study area. It has been modelled as a 19.6 m clear span bridge as per detail design drawings.
- It should be noted that the updated model received in June 2021 included new flows that have been incorporated in the analysis.

In the HEC-RAS model, the creek cross-section runs from left to right looking downstream.

Tributary NW1-E

The existing Tributary NW1-E HEC-RAS hydraulic model, received in 2018 has been updated with the following:

- All cross-sections from 70.16 to 70.33 are new cross-sections and are now geo-referenced
- Upstream channel “Reach 1” is geo-referenced
- Flows are updated based on the New SWMHYMO Hydrologic Model
- Culvert sizes for Steeles Avenue and CPR crossings are updated based on field observation
- Boundary condition, which is the known water surface elevation, is updated based on the New Sixteen Mile Creek, as per Section 3124 of the Sixteen Mile Creek

HEC-RAS model. The known Water Surface Elevations from the revised Sixteen Mile Creek Model, along with the flow change location with respective flows, are presented in **Table 4-2**. Flows at Sections 71.04, 70.09 and 70.04 were taken from the existing model.

Table 4-2: Flow Change Locations, Flows and Reach Boundary Known WSL

Catchment / HYD ID	HEC-RAS Section	Flow (m ³ /s)						
		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	HAZEL
100	70.33	1.04	1.90	2.55	3.44	4.13	4.84	9.09
500	70.27	1.71	3.04	4.04	5.38	6.41	7.46	13.08
510	70.23	1.99	3.53	4.67	6.22	7.41	8.62	14.90
535	70.19	2.58	4.63	6.16	8.23	9.83	11.46	19.67
540	70.16	2.59	4.63	6.17	8.24	9.84	11.47	19.70
Extracted from Existing Model	71.04	1.02	2.32	3.37	4.89	6.08	7.45	10.77
	70.09	2.91	6.47	9.36	13.5	17.51	21.37	31.44
	70.04	3.76	8.33	12.03	17.31	21.43	26.14	36.93
Boundary Conditions		Known Water Surface Elevation (m)						
Reach Boundary - Known WSL (m)	Per Section 3124 of the Revised Sixteen Mile Creek Model	204.15	204.36	204.49	204.64	204.75	204.85	206.26

4.3 Existing Conditions Assessment

There are three existing culverts (C1, C3 and C4) and a bridge over Sixteen Mile Creek within the study area limits that cross Steeles Avenue. Culvert C2 is located at the CPR line, immediately downstream of Culvert C1 while Culvert C3, is approximately 430 m north-east from culvert C1. Culvert C4 is located east of Sixteen Mile Creek, while the bridge over the creek is located approximately 400 m west of Industrial Drive.

Culvert C1 is a 750 mm diameter High Density Polyethylene Pipe (HDPE) culvert, corrugated inside. Immediately downstream of Culvert C1, there is a box culvert at the CPR, Culvert C2, with a 2.4 m wide span and a 1.6 m rise. The existing conditions

hydraulic models for Sixteen Mile Creek and Tributary NW1-E have been updated, as mentioned in **Section 4-2**.

The existing Steeles Avenue Bridge top of the road freeboard, soffit clearance and other hydraulic parameters as they pertain to the MTO HDDS are identified in **Table 4-3**.

Table 4-4 illustrates whether the existing Steeles Avenue crossing is meeting the MTO HDDS Criteria. The full results are included in **Appendix C**.

Table 4-3: Steeles Avenue Bridge Top of Road and Soffit Clearance Summary – Existing Conditions

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	200.90	201.08	201.28	201.49	201.61	201.71	205.94
Energy Grade Line Elevation	200.90	201.08	201.28	201.49	201.61	201.71	205.94
Top of Road (Low Point)	201.30	201.30	201.30	201.30	201.30	201.30	201.30
(2+4) Top of Road Freeboard (Min.)	0.40	0.22	0.02	-0.19	-0.31	-0.41	-4.64
(3) Top of Road Freeboard (Desired)	0.40	0.22	0.02	-0.19	-0.31	-0.41	-4.64
Top of Road Velocity	n/a	n/a	n/a	0.23	0.23	0.23	0.23
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	0.04	0.07	0.09	1.07
Soffit Elevation (Upstream)	202.05	202.05	202.05	202.05	202.05	202.05	202.05
(6) Soffit Clearance	1.15	0.97	0.77	0.56	0.44	0.34	-3.89

Table 4-4: Steeles Avenue Bridge Hydraulic Performance Summary – Existing Conditions

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	No
(3) Top of Road Freeboard (Desired)	100-Year	No
(4) Relief Flow (Max. Depth over roadway)	Regional	No
(5) Relief Flow (Velocity x Depth)	Regional	No
(6) Soffit Clearance	100-Year	No

Under the existing conditions, the current Steeles Avenue Bridge, does not meet any of the MTO HDDS criteria for water crossings. The structure will be overtopped during the 25-year to Regional Storm events. **Table 4-5** illustrates the flooding depth over Steeles Avenue under revised existing conditions. For the existing bridge, the existing road low point elevation is 201.30 m.

Table 4-5: Overtopping Depth over Steeles Avenue at the Bridge Location

Storm Event	Water Surface Elevation (m)	Overtopping Depth above Road Low Point Elevation (m)
2-yr	200.90	-0.40
5-yr	201.08	-0.22
10-yr	201.28	-0.02
25-yr	201.49	0.19
50-yr	201.61	0.31
100-yr	201.71	0.41
Regional	205.94	4.64

As seen above, the results show that the approximate flooding depth over the existing Steeles Avenue at the Sixteen Mile Bridge are 0.41 for the 100-year storm, and 4.64 m for the regional storm.

Upon updating the Sixteen Mile Creek model for existing conditions, shown in **Figure 2** below, the CNR crossing culverts have a significant impact on the upstream water surface elevations by controlling the flows, therefore creating a significant backwater impact, extending up to the Peru Road bridge, which will overtop the current Steeles Avenue Bridge.

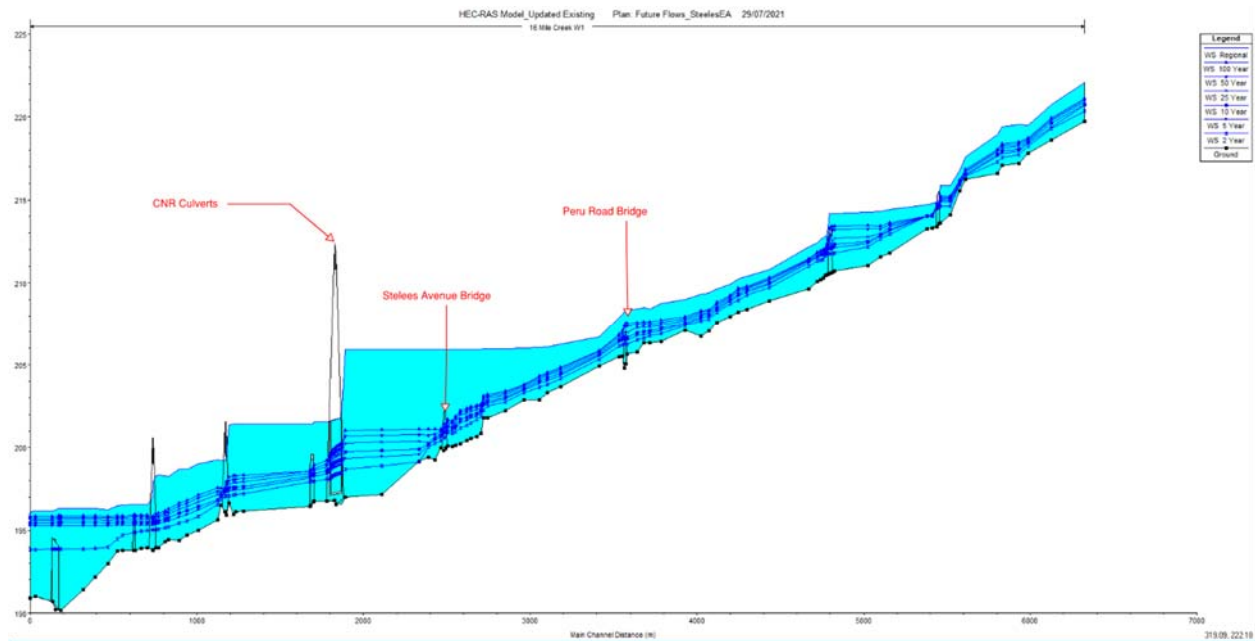


Figure 2: Water Surface Profile of Sixteen Mile Creek

The existing hydraulic model of Tributary NW1-E, provided by Conservation Halton, terminates just upstream of Sixteen Mile Creek crossing over Steeles Avenue. The existing hydraulic model has been extended to the south of the Steeles Avenue crossing to include more headwater features.

Since the existing conditions model of Sixteen Mile Creek was received in June 2021 and updated as mentioned above in **Section 4.2**, the boundary condition for Tributary NW1-E was considered as a known water surface elevation. The known water surface elevation (WSL) is based on Section 3124 of the Sixteen Mile Creek HEC-RAS model.

Based on the updated Tributary NW1-E existing model, the Regional Storm will overtop the CPR culvert (Culvert C2), however the 2-year to 100-year storms will be conveyed through the culvert.

Culvert C1, located immediately upstream of the CPR culvert and conveying flows beneath Steeles Avenue is being overtopped. Flows from the 5-year to Regional Storm will flow over Steeles Avenue. **Table 4-6** illustrates the flooding depth over Steeles Avenue under existing conditions. The road low point has an elevation of 213.27 m.

Table 4-6: Overtopping Depth over Steeles Avenue at Culvert C1

Storm Event	Water Surface Elevation (m)	Overtopping Depth above Road Low Point Elevation (m)
2-yr	213.29	0.02
5-yr	213.40	0.13
10-yr	213.44	0.17
25-yr	213.48	0.21
50-yr	213.51	0.24
100-yr	213.54	0.27
Regional	214.22	0.95

The results show that the flooding depth over Steeles Avenue during the 100-year storm is 0.27 m and for the Regional Storm is 0.95 m. The Regional Storm also overtops the CPR corridor by 0.37 m.

Figure 3 illustrates, there is some backwater impact on the south side of Steeles Avenue due to the existing Steeles Avenue culvert (Culvert C1). The backwater extends up to Section 70.30, which is almost 475 m upstream of the Steeles Avenue crossing.

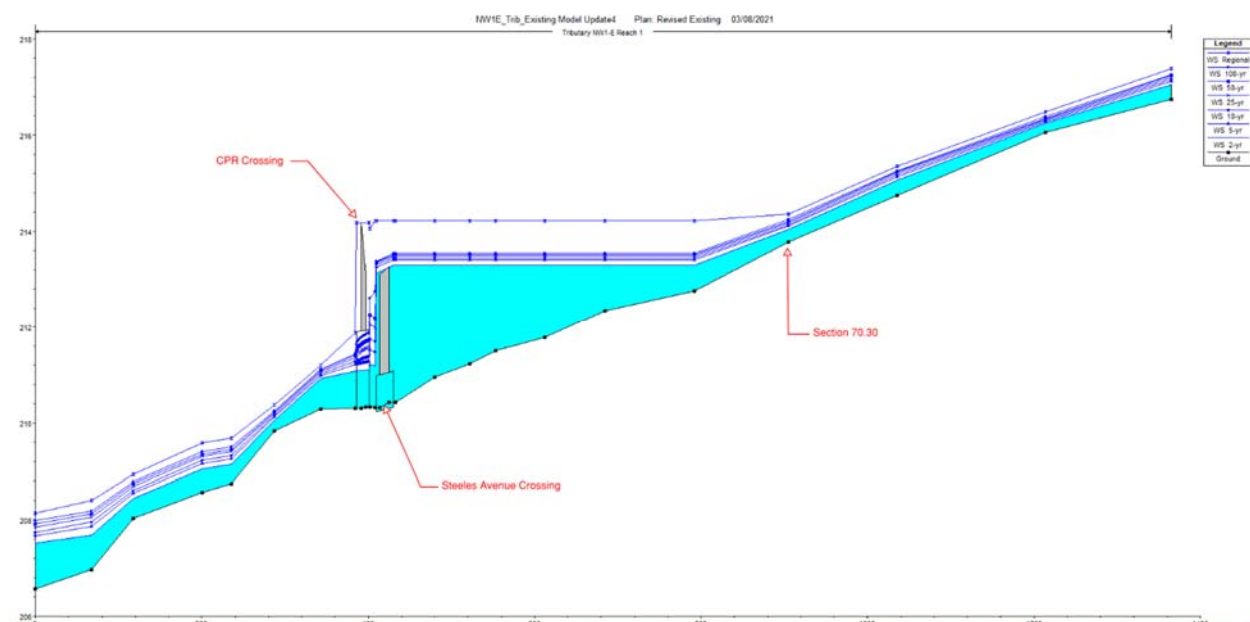


Figure 3: Water Surface Profile of Tributary NW1-E

The updated existing condition hydraulic model will be used to analyse the crossing structures to be proposed along the future realigned Steeles Avenue alignment (at the south side).

4.4 Proposed Conditions Assessment

As part of the proposed improvements on Steeles Avenue, including the widening of Steeles Avenue to four lanes from Tremaine Road to Industrial Drive, a new Steeles Avenue crossing Culvert #1 to convey Tributary NW1-E (Exhibit 5), construction of a new grade separation at CPR line crossing (Exhibit 6), and a new crossing over Sixteen Mile Creek (Exhibit 6) have been proposed as part of the Steeles Avenue improvements. The road will be drained by a storm sewer system which will drain by gravity to Sixteen Mile Creek. During the Regional flood event the flood elevation at the proposed Steeles Avenue bridge is 296.0 m. The road spill point into the CPR Underpass it is situated at an elevation of 295.0 m, therefore the Regional storm event will flood the CPR Underpass. There is an opportunity to revise the preliminary design roadway profile to improve the level of service for flood protection of the underpass and prevent Regional storm flooding. This opportunity can be investigated during detail design along with the specifics of the storm sewers system. For the storm sewer system the outlets will be contained within the identified proposed right-of-way.

4.4.1 Culvert #1 Tributary NW1-E

The new culvert will convey Tributary NW1-E flows from south to north under the new Steeles Avenue proposed alignment and will have the following characteristics: 6.5 m width with a 2.6 m height, 0.35 m low flow channel and a length of 40 m.

Under the proposed conditions, since the existing road alignment will shift south, the existing culvert (Culvert C1) running beneath the existing Steeles Avenue alignment is proposed to be removed. A channel is proposed to connect CPR Culvert C2 to the upstream.

The proposed Steeles Avenue crossing top of road freeboard, flood depth and other hydraulic parameters as they pertain to the MTO HDDS are identified in **Table 4-7**. **Table 4-8** illustrates whether the new Steeles Avenue crossing is meeting the MTO HDDS Criteria.

Table 4-7: New C1 Crossing (Tributary NW1-E) Top of Road and Flood Depth Summary – Proposed Conditions

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	212.28	212.43	212.52	212.69	212.70	212.88	214.24
Energy Grade Line Elevation	212.29	212.45	212.56	212.73	212.75	212.93	214.27
Top of Road (Low Point)	215.22	215.22	215.22	215.22	215.22	215.22	215.22
(2+4) Top of Road Freeboard (Min.)	2.94	2.79	2.70	2.53	2.52	2.34	0.98
(3) Top of Road Freeboard (Desired)	2.93	2.77	2.66	2.49	2.47	2.29	0.95
Top of Road Velocity	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(7) Flood depth	0.23	0.29	0.33	0.40	0.40	0.47	1.02

Table 4-8: New C1 Crossing (Tributary NW1-E) Steeles Avenue Crossing Hydraulic Performance Summary – Proposed Conditions

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	Yes
(3) Top of Road Freeboard (Desired)	100-Year	Yes
(4) Relief Flow (Max. Depth over roadway)	Regional	Yes
(5) Relief Flow (Velocity x Depth)	Regional	Yes
(7) Flood depth	100-Year	Yes

As seen above, under the proposed conditions, the new Steeles Avenue culvert will meet all MTO HDDS Criteria.

Due to removal of the existing Steeles Avenue culvert, the proposed water surface elevations at Section 70.2, located just upstream of the existing Steeles Avenue alignment will vastly improve.

4.4.2 Sixteen Mile Creek Bridge Crossing

The new Steeles Avenue proposed alignment will feature a new 26.5 m single span bridge over Sixteen Mile Creek. In the proposed conditions, the existing Steeles Avenue north road profile at the bridge location will be raised by 0.43 m.

WSP have undertaken a hydraulic analysis of the proposed new Steeles Avenue bridge and have developed two potential scenarios, as follows:

- Scenario 1: With Existing Steeles Avenue Bridge
- Scenario 2: Without Existing Steeles Avenue Bridge

Under the proposed condition with the new Steeles Avenue bridge, **Table 4-9** shows a comparison of Water Surface Elevations between the two scenarios.

Table 4-9: Sixteen Mile Creek - Water Surface Elevations Comparison

Location	Event	Existing Condition WSL (m)	Proposed Conditions Steeles Avenue: 26.5 m single span opening			
			Water Surface Level (WSL) without Elimination of Old Bridge (m)	WSL with Elimination of Old Bridge (m)	Difference (m)	
		A	B	C	B-A	C-A
Upstream (North) of Existing Steeles Ave. Bridge (Section 2246)	Regional	205.94	206.01	206.00	0.07	0.06
	100 Year	201.71	201.71	201.47	0.00	-0.24
	50 Year	201.61	201.63	201.35	0.02	-0.26
	25 Year	201.49	201.50	201.14	0.01	-0.35
	10 Year	201.28	201.28	200.93	0.00	-0.35
	5 Year	201.08	201.07	200.75	-0.01	-0.33
	2 Year	200.90	200.90	200.46	0.00	-0.44
Downstream (South) of Ex. Steeles Ave. Bridge, upstream of new Bridge (Section 2166)	Regional	205.94	206.00	206.00	0.06	0.06
	100 Year	201.12	201.37	201.37	0.25	0.25
	50 Year	200.82	201.17	201.17	0.35	0.35
	25 Year	200.67	200.96	200.96	0.29	0.29

Location	Event	Existing Condition WSL (m)	Proposed Conditions Steeles Avenue: 26.5 m single span opening			
			Water Surface Level (WSL) without Elimination of Old Bridge (m)	WSL with Elimination of Old Bridge (m)	Difference (m)	
		A	B	C	B-A	C-A
	10 Year	200.54	200.78	200.78	0.24	0.24
	5 Year	200.44	200.61	200.61	0.17	0.17
	2 Year	200.27	200.34	200.34	0.07	0.07
Upstream (West) of CNR (Section 1831)	Regional	205.92	205.98	205.98	0.06	0.06
	100 Year	201.04	201.04	201.04	0.00	0.00
	50 Year	200.69	200.69	200.69	0.00	0.00
	25 Year	200.28	200.28	200.28	0.00	0.00
	10 Year	199.74	199.74	199.74	0.00	0.00
	5 Year	199.33	199.33	199.33	0.00	0.00
	2 Year	198.69	198.69	198.69	0.00	0.00
Downstream (East) of CNR (Section 1721)	Regional	201.53	201.53	201.53	0.00	0.00
	100 Year	199.21	199.20	199.21	-0.01	0.00
	50 Year	199.02	199.02	199.02	0.00	0.00
	25 Year	198.84	198.84	198.84	0.00	0.00
	10 Year	198.59	198.59	198.59	0.00	0.00
	5 Year	198.41	198.41	198.41	0.00	0.00
	2 Year	198.10	198.10	198.10	0.00	0.00

Running the two Scenarios, the following can be concluded:

— Under Scenario 1:

- 1 Water level at both cross-sections (Section 2166 and Section 2246) between the new and old Steeles Avenue Bridge will rise.

- 2 The increase in WSL north of the old Steeles Avenue Bridge is insignificant (0.07 m for the regional storm event).
- 3 There will be no impact into private property, as the Region owns the land.
- 4 Upstream of the existing CNR culverts, there will be only a slight increase in Water Surface Elevation for the regional storm (0.06 m).

— Under Scenario 2:

- 1 There will be a significant hydraulic improvement north of the existing Steeles Avenue bridge (Section 2246), due to water level decreasing
- 2 There will be no changes in water elevations at the two cross-sections, between the new and old bridge, when compared with Scenario 1.

The new Steeles Avenue Bridge at Sixteen Mile Creek top of road freeboard, soffit clearance and other hydraulic parameters, for both scenarios, as they pertain to the MTO HDDS are identified in **Table 4-10** and **Table 4-11**. **Table 4-12** and **Table 4-13** illustrates whether the proposed New Steeles Avenue Bridge is meeting the MTO HDDS Criteria.

Table 4-10: New Sixteen Mile Creek Bridge – Scenario 1 Top of Road and Soffit Clearance

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	200.34	200.61	200.78	200.96	201.17	201.37	206.00
Energy Grade Line Elevation	200.37	200.66	200.85	201.05	201.27	201.42	206.00
Top of Road (Low Point)	201.59	201.59	201.59	201.59	201.59	201.59	201.59
(2+4) Top of Road Freeboard (Min.)	1.25	0.98	0.81	0.63	0.42	0.22	-4.41
(3) Top of Road Freeboard (Desired)	1.22	0.93	0.74	0.54	0.32	0.17	-4.41
Top of Road Velocity	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Soffit Elevation	201.47	201.47	201.47	201.47	201.47	201.47	201.47
(6) Soffit Clearance	1.13	0.86	0.69	0.51	0.30	0.10	-4.53

Table 4-11: New Sixteen Mile Creek Bridge – Scenario 2 Top of Road and Soffit Clearance

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	200.34	200.61	200.78	200.96	201.17	201.37	206.00
Energy Grade Line Elevation	200.37	200.66	200.85	201.05	201.27	201.42	206.00
Top of Road (Low Point)	201.59	201.59	201.59	201.59	201.59	201.59	201.59
(2+4) Top of Road Freeboard (Min.)	1.25	0.98	0.81	0.63	0.42	0.22	-4.41
(3) Top of Road Freeboard (Desired)	1.22	0.93	0.74	0.54	0.32	0.17	-4.41
Top of Road Velocity	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Soffit Elevation	201.47	201.47	201.47	201.47	201.47	201.47	201.47
(6) Soffit Clearance	1.13	0.86	0.69	0.51	0.30	0.10	-4.53

Table 4-12: New Sixteen Mile Creek Bridge – Scenario 1 Hydraulic Performance Summary

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	No
(3) Top of Road Freeboard (Desired)	100-Year	No
(4) Relief Flow (Max. Depth over roadway)	Regional	No
(5) Relief Flow (Velocity x Depth)	Regional	No
(6) Soffit Clearance	100-Year	No

Table 4-13: New Sixteen Mile Creek Bridge – Scenario 2 Hydraulic Performance Summary

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	No
(3) Top of Road Freeboard (Desired)	100-Year	No
(4) Relief Flow (Max. Depth over roadway)	Regional	No

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(5) Relief Flow (Velocity x Depth)	Regional	No
(6) Soffit Clearance	100-Year	No

As mentioned above, there are no major differences in how the proposed structure performs hydraulically, since the water levels at the two cross-sections located between the new and the old bridge will roughly be the same in both scenarios.

As mentioned in **Section 4.4**, even with a 0.43 m raise of the Steeles Avenue Road profile, at Station 6+154, the proposed structure will not meet any of the MTO HDDS criteria. It is not feasible to meet freeboard and clearance criterion due to site conditions. However, the road profile has been raised at the north end which results in the bridge having a 1.13 m clearance under a 2-year storm event, which is useful for maintenance purpose.

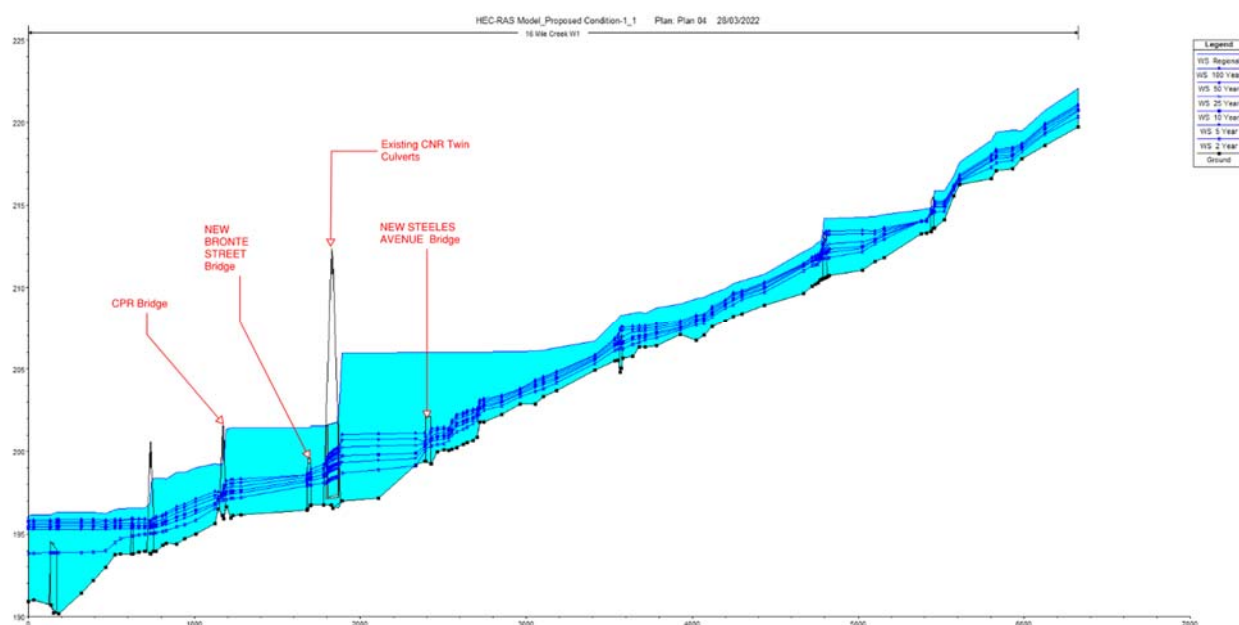


Figure 4: Water Surface Profile of Sixteen Mile Creek without the Existing Steeles Avenue Bridge

As shown in **Figure 4**, the existing CNR twin culverts are controlling the flows; therefore, the Regional Storm will overtop Steeles Avenue.

Table 4-14 illustrates the flooding depth over Steeles Avenue under proposed conditions. The road low point has an elevation of 201.59 m and as presented below; the Regional Storm will overtop Steeles Avenue by 4.41 m.

Table 4-14: Regional Storm Overtopping Depth over Steeles Avenue

Storm Event	Water Surface Elevation (m)	Overtopping Depth above Road Low Point Elevation (m)
2-yr	200.34	-1.25
5-yr	200.61	-0.98
10-yr	200.78	-0.81
25-yr	200.96	-0.63
50-yr	201.17	-0.42
100-yr	201.37	-0.22
Regional	206.00	4.41

The full results are included in **Appendix D**.

The above analyses described in **Section 4.4** show that all structures / crossings accommodate the 100-year storm event. Additionally, the recently Town of Milton MCEA study for Bronte Street included the Bronte Street Bridge which is designed to accommodate the 100-year storm event. The Town of Milton currently anticipates construction to be complete in Fall 2023.

4.5 Proposed Conditions – Opportunity for Future CNR Culverts Improvements

Through the consultation process with Conservation Halton, a future potential opportunity was identified to improve the water surface elevations within the study area, and specifically at the new Sixteen Mile Creek crossing along Steeles Avenue and CP Rail underpass, by potentially improving the CNR culverts. **These culverts located to the east of the study area are owned by a third party and fall outside the scope of the current EA.** However, modelling analysis has been undertaken for this scenario to highlight the potential improvements that could be achieved in the surrounding area through other capital works.

A preliminary drainage analysis was completed to understand the feasibility of the opportunity of replacing the CN culverts. It has been observed that by replacing the CNR culverts with a bridge the flow depths would improve. For the potential new CNR bridge, two options could be considered: one that features a single 26.5 m span and one that features a 1.8 m pier in the middle and two 12.5 m spans. Upon performing a

hydraulic analysis of the two options, it has been observed that there would be no major differences in Water Surface Elevations between the two bridges, therefore the pier option has been shown for illustration purposes only.

Similar to **Section 4.4**, the hydraulic analysis of the proposed Steeles Avenue Bridge along with the potential CNR culvert improvements considers two scenarios:

- Scenario 1: With Existing Steeles Avenue Bridge
- Scenario 2: Without Existing Steeles Avenue Bridge

Under the proposed conditions, **Table 4-15** shows a comparison of Water Surface Elevations between the two scenarios.

Table 4-15: Sixteen Mile Creek - Water Surface Elevations Comparison

Location	Event	Existing Condition WSL (m)	Proposed Conditions CNR: 25 m opening (26.8 m span with 1.8 m pier) Steeles Avenue: 26.5 m single span opening			
			WSL without Elimination of Old Bridge (m)	WSL with Elimination of Old Bridge (m)	Difference (m)	
		A	B	C	B-A	C-A
Upstream (North) of Existing Steeles Ave. Bridge (Section 2246)	Regional	205.94	202.83	202.78	-3.11	-3.16
	100 Year	201.71	201.71	201.48	0.00	-0.23
	50 Year	201.61	201.62	201.35	0.01	-0.26
	25 Year	201.49	201.50	201.14	0.01	-0.35
	10 Year	201.28	201.28	200.93	0.00	-0.35
	5 Year	201.08	201.07	200.75	-0.01	-0.33
	2 Year	200.90	200.90	200.46	0.00	-0.44
Downstream (South) of Ex. Steeles Ave. Bridge, upstream of new Bridge (Section 2166)	Regional	205.94	202.69	202.69	-3.25	-3.25
	100 Year	201.12	201.38	201.38	0.26	0.26
	50 Year	200.82	201.18	201.18	0.36	0.36
	25 Year	200.67	200.96	200.96	0.29	0.29
	10 Year	200.54	200.79	200.79	0.25	0.25

Location	Event	Existing Condition WSL (m)	Proposed Conditions CNR: 25 m opening (26.8 m span with 1.8 m pier) Steeles Avenue: 26.5 m single span opening			
			WSL without Elimination of Old Bridge (m)	WSL with Elimination of Old Bridge (m)	Difference (m)	
		A	B	C	B-A	C-A
	5 Year	200.44	200.61	200.61	0.17	0.17
	2 Year	200.27	200.34	200.34	0.07	0.07
Upstream (West) of CNR (Section 1831)	Regional	205.92	201.81	201.81	-4.11	-4.11
	100 Year	201.04	199.34	199.34	-1.70	-1.70
	50 Year	200.69	199.16	199.16	-1.53	-1.53
	25 Year	200.28	198.97	198.97	-1.31	-1.31
	10 Year	199.74	198.70	198.70	-1.04	-1.04
	5 Year	199.33	198.50	198.50	-0.83	-0.83
	2 Year	198.69	198.16	198.16	-0.53	-0.53
Downstream (East) of CNR (Section 1721)	Regional	201.53	201.53	201.53	0.00	0.00
	100 Year	199.21	199.21	199.21	0.00	0.00
	50 Year	199.02	199.02	199.02	0.00	0.00
	25 Year	198.84	198.84	198.84	0.00	0.00
	10 Year	198.59	198.59	198.59	0.00	0.00
	5 Year	198.41	198.41	198.41	0.00	0.00
	2 Year	198.10	198.10	198.10	0.00	0.00

The new Steeles Avenue Bridge at Sixteen Mile Creek top of road freeboard, soffit clearance and other hydraulic parameters, for both scenarios, as they pertain to the MTO HDDS are identified in **Table 4-16** and **Table 4-17**. **Table 4-18** and **Table 4-19** illustrates whether the proposed New Steeles Avenue Bridge is meeting the MTO HDDS Criteria.

Table 4-16: New Sixteen Mile Creek Bridge – Scenario 1 Top of Road and Soffit Clearance

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	200.34	200.61	200.79	200.96	201.18	201.38	202.69
Energy Grade Line Elevation	200.37	200.66	200.85	201.05	201.27	201.43	202.74
Top of Road (Low Point)	201.59	201.59	201.59	201.59	201.59	201.59	201.59
(2+4) Top of Road Freeboard (Min.)	1.25	0.98	0.80	0.63	0.41	0.21	-1.10
(3) Top of Road Freeboard (Desired)	1.22	0.93	0.74	0.54	0.32	0.16	-1.15
Top of Road Velocity	n/a	n/a	n/a	n/a	n/a	n/a	2.34
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	n/a	n/a	n/a	2.57
Soffit Elevation	201.47	201.47	201.47	201.47	201.47	201.47	201.47
(6) Soffit Clearance	1.13	0.86	0.68	0.51	0.29	0.09	-1.22

Table 4-17: New Sixteen Mile Creek Bridge – Scenario 2 Top of Road and Soffit Clearance

Description	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
Water Surface Elevation	200.34	200.61	200.79	200.96	201.18	201.38	202.69
Energy Grade Line Elevation	200.37	200.66	200.85	201.05	201.27	201.43	202.74
Top of Road (Low Point)	201.59	201.59	201.59	201.59	201.59	201.59	201.59
(2+4) Top of Road Freeboard (Min.)	1.25	0.98	0.80	0.63	0.41	0.21	-1.10
(3) Top of Road Freeboard (Desired)	1.22	0.93	0.74	0.54	0.32	0.16	-1.15
Top of Road Velocity	n/a	n/a	n/a	n/a	n/a	n/a	2.33
(5) Top of Road Velocity x Depth	n/a	n/a	n/a	n/a	n/a	n/a	2.56
Soffit Elevation	201.47	201.47	201.47	201.47	201.47	201.47	201.47
(6) Soffit Clearance	1.13	0.86	0.68	0.51	0.29	0.09	-1.22

Table 4-18: New Sixteen Mile Creek Bridge – Scenario 1 Hydraulic Performance Summary

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	No
(3) Top of Road Freeboard (Desired)	100-Year	No
(4) Relief Flow (Max. Depth over roadway)	Regional	No
(5) Relief Flow (Velocity x Depth)	Regional	Yes
(6) Soffit Clearance	100-Year	No

Table 4-19: New Sixteen Mile Creek Bridge – Scenario 2 Hydraulic Performance Summary

Criteria Description	Criteria Storm Events	Meets Criteria (Yes or No)
(2) Top of Road Freeboard (Min.)	100-Year	No
(3) Top of Road Freeboard (Desired)	100-Year	No
(4) Relief Flow (Max. Depth over roadway)	Regional	No
(5) Relief Flow (Velocity x Depth)	Regional	Yes
(6) Soffit Clearance	100-Year	No

Running the two scenarios, there would be no changes in water elevations between the new and old bridge. However, an improvement is found north of the existing bridge due to decreasing water levels with the removal of the existing structure.

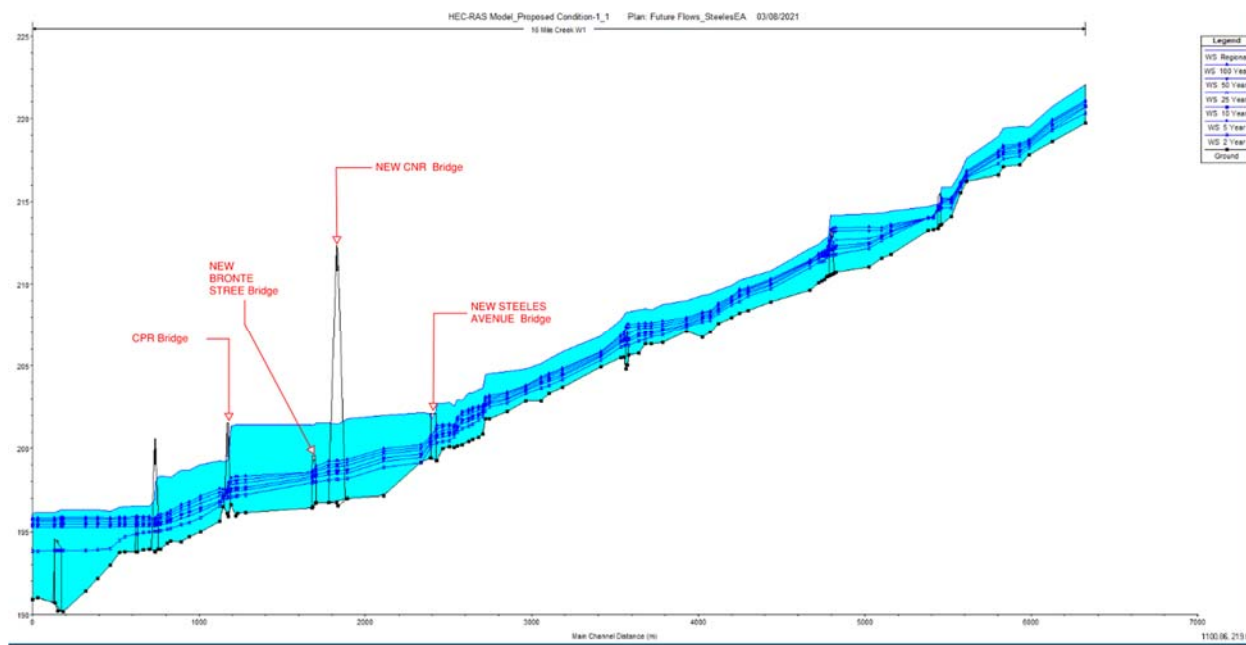


Figure 5: Water Surface Profile of Sixteen Mile Creek without the Existing Steeles Avenue Bridge

As shown in **Figure 4**, by replacing the CNR culverts with a bridge, the flooding point would shift to the CPR crossings, located downstream of the new CNR bridge. It is to be noted that the shift in flooding point will not create a worse situation than existing conditions. The downstream CPR would be controlling the flows; therefore, the Regional Storm would still overtop Steeles Avenue, however with a significant improvement as compared to maintaining the existing CNR culverts.

Figure 5 illustrates the flooding depth over Steeles Avenue under the proposed conditions with the CNR improvements. The road low point has an elevation of 201.59 m and as presented below; the 100-year storm event can be accommodated, and the Regional Storm is modelled to overtop Steeles Avenue by 1.1 m compared to 4.41 m without the improvements.

Table 4-20: Regional Storm Overtopping Depth over Steeles Avenue

Storm Event	Water Surface Elevation (m)	Overtopping Depth above Road Low Point Elevation (m)
2-yr	200.34	-1.25
5-yr	200.61	-0.98
10-yr	200.79	-0.80
25-yr	200.96	-0.63
50-yr	201.18	-0.41
100-yr	201.38	-0.21
Regional	202.69	1.10

Prior to any implementation of improvements at the CNR culverts, further analysis is required, including a review of constructability, and would be further investigated as part of other capital projects in the surrounding area. The full results are included in **Appendix D**.

4.6 Hydraulic Analysis Results of Proposed Culverts

Hydraulic design was completed for the three new culverts under proposed road conditions using the CulvertMaster hydraulic model. The hydraulic analysis spreadsheet and the CulvertMaster outputs are presented in **Appendix D**. The culvert analysis was undertaken for the 25- and 100-year design storm events.

Table 4-21 provides a summary of the hydraulic parameters and dimensions for the proposed crossing culverts, while **Table 4-22** provides a summary of the hydraulic analysis results for these culverts under the 25- and 100-year storm events. Culverts C2 and C1 are discussed in Section 4.4.1.

Table 4-21: Hydraulic Parameters of the Proposed Culverts

Culvert ID	Station	Dimensions	Material	Upstream Invert	Downstream Invert	Length	Slope
		(mm)		(m)	(m)	(m)	(%)
C3	0+040	375	CSP	206.758	206.700	13.00	0.45
C4	5+860	375	CSP	211.010	210.600	30.00	1.37
C5	6+060	750	CSP	203.700	203.620	15.50	0.52

Table 4-22: Hydraulic Analysis Results for the Proposed Culverts

Culvert ID	Station	Dimensions	Edge of Pavement Elevation	25 Year Storm		100 Year Storm		HW/D Ratio – 25 Year
				Headwater Elevation	Freeboard	Headwater Elevation	Freeboard	
		(mm)	(m)	(m)	(m)	(m)	(m)	
C3	0+040	375	207.56	207.12	0.44	207.19	0.37	0.97
C4	5+860	375	211.70	211.41	0.29	211.51	0.19	1.07
C5	6+060	750	204.80	204.46	0.34	204.65	0.15	1.01

In the detailed final design stage of this projects, culvert lengths and inverts will need to be adjusted accordingly to match the proposed conditions floor elevations within the vicinity of the culverts. Once accurate elevations are determined, the hydraulic performances of the proposed culverts can be enhanced to further meet the design criteria.

5 STORMWATER MANAGEMENT

5.1 Approach

The proposed improvements of Steeles Avenue will result in an increase of impervious areas compared to the existing conditions. Under current conditions, there are no SWM facilities in place for quality and quantity controls of the roadway runoff. Under proposed conditions, improvements to quality and quantity controls will be achieved by directing some of the roadway areas to a proposed dry pond and an underground pipe storage facility to provide peak flow control. Enhanced level of quality treatment of the roadway will be provided for all catchments by using OGSs, enhanced grassed swales, and LIDs where feasible.

The new urbanized roadway will be drained by a new storm sewer system to be located within the right-of-way. Storm sewer designs are going to be provided during the detailed design phase.

A list of stormwater best management practices (BMPs) was screened, with consideration of the general advantages and disadvantages, experience, and feasibility for the site-specific conditions, such as:

- Integration with the standard type of drainage (storm sewers and outside ditches)
- Space availability and practical outlet points
- Functionality of using small orifice sizes to control discharge rates

It was determined at the start of the study that the “do nothing” alternative is not an acceptable course of action. The proposed improvements of the roadway may potentially increase in pollutant loadings to the receiving watercourses and would result in negative effects such as reduced stream water quality, degraded aquatic habitat, flooding, and in-stream erosion, which necessitate provision of appropriate mitigation measures.

5.2 Proposed Dry Pond

The proposed stormwater management facility at Sta. 5+200 is a proposed dry pond to detain peak flows from proposed Catchment 200. As the proposed SWM pond is located in the Regional storm floodplain the CH Policy 2.24.5.1 (Conservation Halton Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Document) applies; further analysis is required at the detail design stage. For detail design requirements for a pond located within the regional flood plain,

additional design requirements can be found in the Conservation Halton 2021 Guidelines for Stormwater Management Engineering Submissions. The proposed dry pond facility details are summarized in **Table 5-1**.

Table 5-1: Proposed Dry Pond Facility Details

Description	Unit	Linear Dry SWM Facility					
Facility #	NHYD 700	2-year	5-year	10-year	25-year	50-year	100-year
Inflow	m ³ /s	0.21	0.29	0.35	0.42	0.47	0.52
Outflow	m ³ /s	0.03	0.04	0.05	0.06	0.07	0.08
Flow Reduction	%	-88%	-88%	-87%	-86%	-85%	-85%
Storage Volume	m ³	263	360	422	500	557	615
Storage Level	m	212.41	212.54	212.61	212.69	212.75	212.82
Controls	150 mm diameter Orifice @ Invert Elevation 212.00 m and 300 mm diameters Orifice @ Invert Elevation 212.75 m.						
Pond Details	Size (approximate at bottom) = 75 m x 7 m; Side slope 3H:1V Pond Bottom Elev. = 212.00 m, Pond Top Elev. = 213.50 m						

The Stage-Storage-Discharge relation of the SWM Pond is provided in **Appendix E**.

Within the vicinity of the proposed pond, the water surface elevation levels are 214.27 m for the Regional storm event. Given that the pond bottom elevation is set at 212.00 m, it is expected that an appropriate backflow prevention measure is designed and implemented during the detailed design phase. The design can potentially consider a flap gate to allow discharges, but when water levels on the face side rise above the invert during the Regional storm event, the flap closes to prevent backflow. This will prevent the rising waters from entering the system and protect the pond from potential flooding. Additionally, as currently designed, the pond holds back 95% of the rainfall event, a relative minor size increase during detail design would allow it to potentially hold back the entire rainfall event if required to do so under surcharge conditions. Therefore, an alternative solution would be to increase the footprint of the proposed pond by 10 to 20% to achieve extra storage or even replace it with an underground storage facility. Details of this will be further explored during the subsequent design phase.

5.3 Underground Pipe Storage Facility

The underground pipe storage facility with an internal diameter of 3000 x 1500 mm runs approximately from Sta. 5+960 to 6+100. This storage facility provides flow control to attenuate the post-development flows received from the roadway Catchments 210 and 215. The facility is proposed to discharge into an OGS for quality control and ultimately drains into Sixteen Mile Creek. The Regional event will need to be assessed during detail design. The pipe storage facility details are summarized in **Table 5-2**.

Table 5-2: Proposed Underground Pipe Storage Facility Details

Description	Unit	Pipe Storage Facility					
Facility #	NHYD 710	2-year	5-year	10-year	25-year	50-year	100-year
Inflow	m ³ /s	0.43	0.61	0.73	0.90	1.01	1.14
Outflow	m ³ /s	0.09	0.16	0.20	0.25	0.28	0.32
Flow Reduction	%	-78%	-75%	-73%	-73%	-72%	-72%
Storage Volume	m ³	499	667	782	937	1053	1172
Storage Level	m	201.97	202.17	202.31	202.49	202.63	202.77
Controls	175 mm diameter Orifice @ Invert Elevation 201.30 m and 375 mm diameters Orifice @ Invert Elevation 201.90 m.						
Underground Pipe Storage Details	Size = 3 m x 1.5 m Bottom Elev. = 201.30 m, Top Elev. = 203.30 m						

The Stage-Storage-Discharge relation of the underground pipe storage facility is provided in **Appendix E**.

5.4 Water Balance Requirements and Low Impact Development Practices

It is possible to provide bio-swales and infiltration galleries within the grassed swales proposed for the water balance requirements and potential Low Impact Development (LID) practices. This will be further reviewed during the detailed design phase.

6 CONCLUSIONS AND RECOMMENDATIONS

Based on the proceeding assessments, the following conclusions can be made:

- The study area is Steeles Avenue between Tremaine Road and Industrial Drive. The existing land use on both sides of Steeles Avenue include residential and commercial sites and mainly meadow with some wooded and long grassed areas. The predominant soil type in the study is Chinguacousy clay loam with a topography sloping towards the Northwest.
- The proposed road improvements include a four-lane roadway (each lane 3.5 m wide), a 1.4 m median, a 1.8 m bike lane, a 3.0 m boulevard, and a 3.0 m multi-use path in each direction. Another important improvement is the realignment of Steeles Avenue to the south.

Hydrologic Analysis:

- A SWMHYMO and Visual OTTHYMO based hydrologic models were developed to estimate runoff generated from the roadway pavements and from the external areas under existing conditions and to control flows from the road improvements to the pre-development levels in order to ensure that there will be no impact to the overall watershed hydrology.
- The pre-development flows for the study area were generated for the 2-year to 100-year storm events using the 24-hour Chicago storm distribution, all of which were used as the basis for the assessment of proposed conditions flows. The Town of Milton's rainfall IDF data was used to determine the flows and runoff volumes for the study area.
- Any localized increase in flows resulting from the roadway improvements will be controlled to the pre-development levels before discharging to the watercourses.

Hydraulic Analysis:

- Existing Conditions
 - The existing conditions hydraulic models for Sixteen Mile Creek and Tributary NW1-E, obtained from Conservation Halton have been revised to reflect the existing conditions.
 - There are three existing culverts (C1, C3 and C4) and a bridge over Sixteen Mile Creek within the study area limits that cross Steeles Avenue.

- Under existing conditions Regional Storm will overtop the CPR culvert (Culvert C2), located immediately downstream of Steeles Avenue Culvert C1.
- Due to Culvert C1, 5-year to Regional Storm flows will overtop Steeles Avenue.
- Under the existing conditions, the current Steeles Avenue Bridge, does not meet any of the MTO HDDS criteria for water crossings. The structure will be overtopped during the 25-year to Regional Storm events.
- Proposed Conditions
 - In the proposed conditions, due to the new Steeles Avenue alignment shifting south, a new 6.5 m wide x 2.6 m rise culvert is proposed, while the existing Steeles Avenue Culvert (C1) is being removed. New culvert has been sized to meet all MTO HDDS Criteria.
 - A new 26.5 m, clear span Steeles Avenue bridge have been proposed over the Sixteen Mile Creek, downstream of the existing bridge.
 - Two Scenarios have been developed under proposed conditions and have been modelled hydraulically; Scenario 1 – with retaining the existing bridge; Scenario 2 – without the existing bridge. Under Scenario 2 water levels will significantly improve north of Steeles Avenue.
 - All structures (underpass and Sixteen Mile Creek bridge) can accommodate the 100-year storm event. Additionally, the recently completed Bronte Street MCEA nearby is designed for the 100-year storm event. The new bridge will be overtopped by the Regional Storm due to the downstream CNR culvert controlling the flows; the proposed bridge will meet only the MTO HDDS Relief Flow (Velocity x Depth) criterion. It is not possible to meet freeboard and clearance criterion, due to site conditions, however the road profile has been raised by 0.43 m at the north end which results in the bridge having a 1.13 m clearance under the 2-year storm event, which is useful for maintenance purpose.
 - The design team has identified an opportunity to improve the water surface elevations within the surrounding area, and specifically at the new Sixteen Mile Creek crossing along Steeles Avenue, by improving the CNR culverts and replacing them with a bridge. **These culverts are owned by a third party and fall outside the scope of the current EA.** Modelling analysis has been undertaken to highlight the potential opportunity for improvements that **could** be achieved in the surrounding area through other capital works. Prior to any implementation of improvements at the CNR culverts, further analysis is required including a review of constructability and would be further investigated as part of other capital projects in the surrounding area.

Stormwater Management:

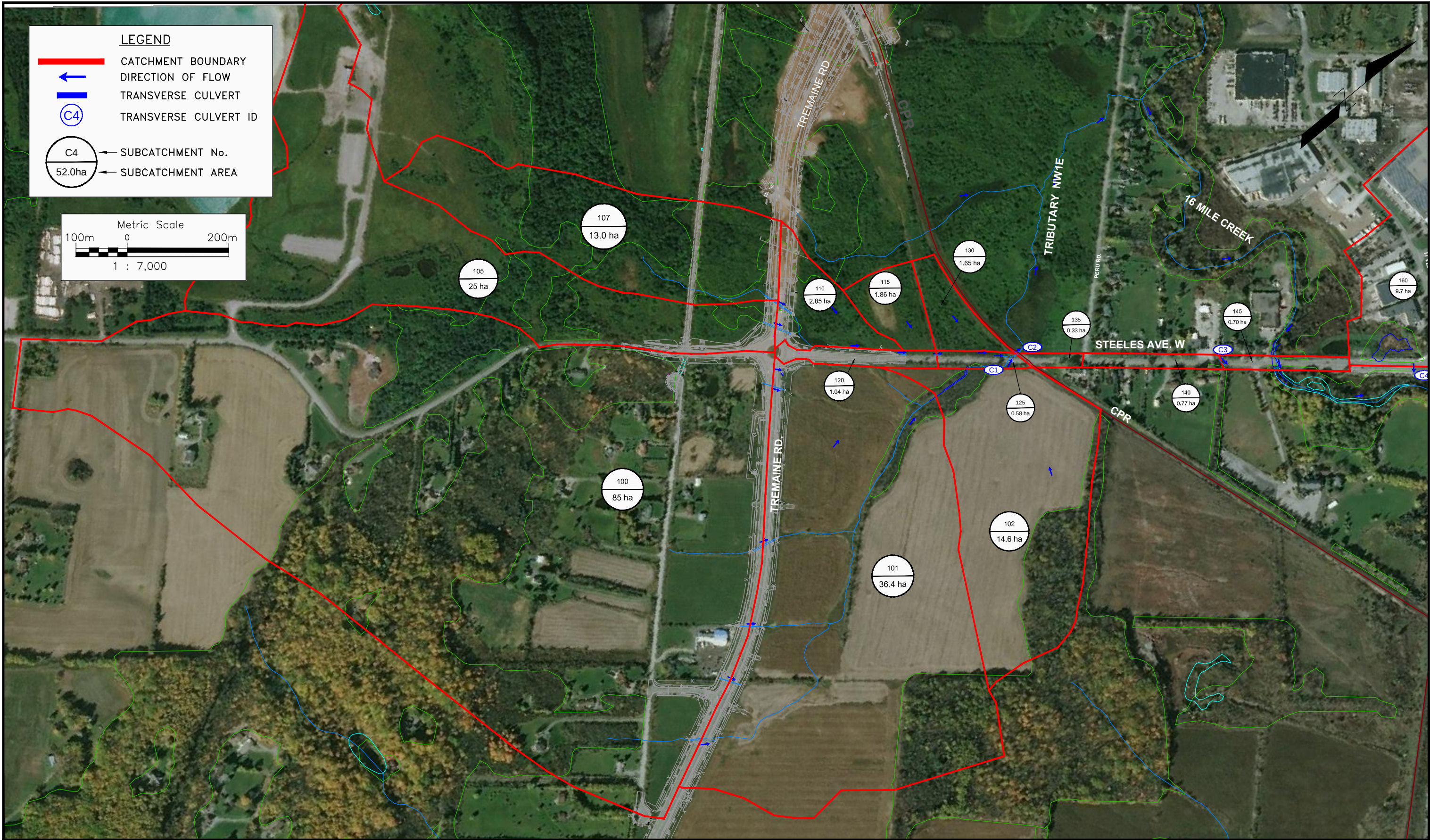
- The proposed improvements of Steeles Avenue will result in an increase of impervious areas compared to the existing conditions.
- Under proposed conditions, improvements to quality and quantity controls will be achieved by directing some of the roadway areas to a proposed dry pond and an underground pipe storage facility to provide peak flow control.
- The new urbanized roadway will be drained by a new storm sewer system to be located within the right-of-way. Storm sewer designs are going to be provided during the detailed design phase.
- Enhanced level of quality treatment of the roadway will be provided by using OGSs, enhanced grassed swales, and LIDs where feasible to function as a treatment train.

Based on the conclusions above, the following recommendations are made:

- As an improvement to the stormwater management strategy, direct runoff from catchments of increased imperviousness will be directed to the SWM pond and underground pipe storage facility for peak flow control.
- OGSs and enhanced grassed swales will be provided where feasible for runoff quality treatment.
- Water balance requirements and LID practices be reviewed during the detailed design phase.

Exhibit

DRAWING NAME: \\CORP.PBW\NET\CA\CAKTC100\COMMON\MIS\DRAWINGS\WATERRES\2017\17M-00979-00 STEELES AVE EA_EXISTING DRAINAGE MOSAIC_FINAL.JULY 2022 3:58 PM



EXISTING CONDITIONS DRAINAGE MOSAIC

STEELES AVENUE EA, HALTON REGION

EXHIBIT

1

CATCHMENT BOUNDARY

DIRECTION OF FLOW

TRANSVERSE CULVERT

C4

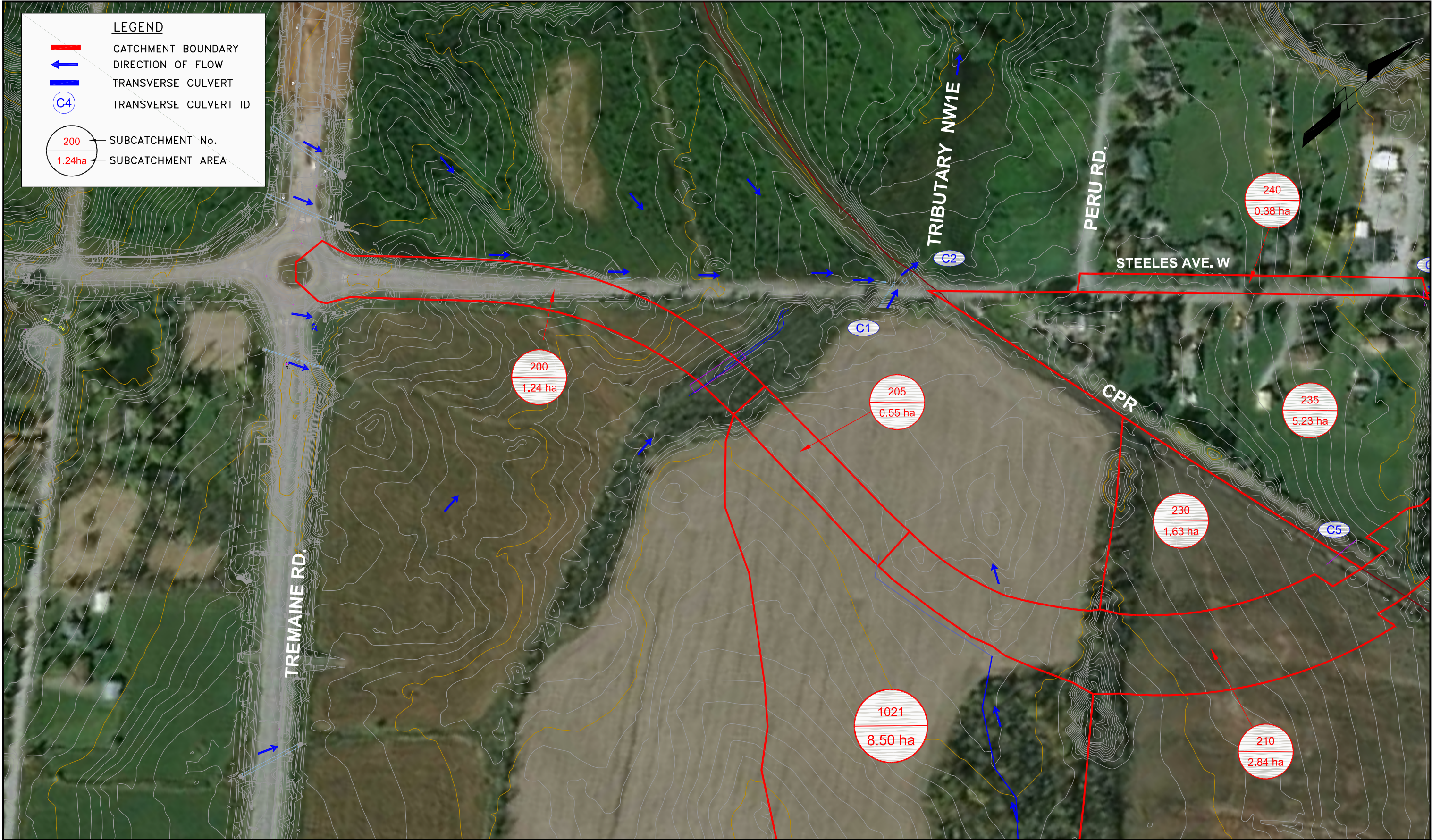
TRANSVERSE CULVERT ID

200

SUBCATCHMENT No.

1.24ha

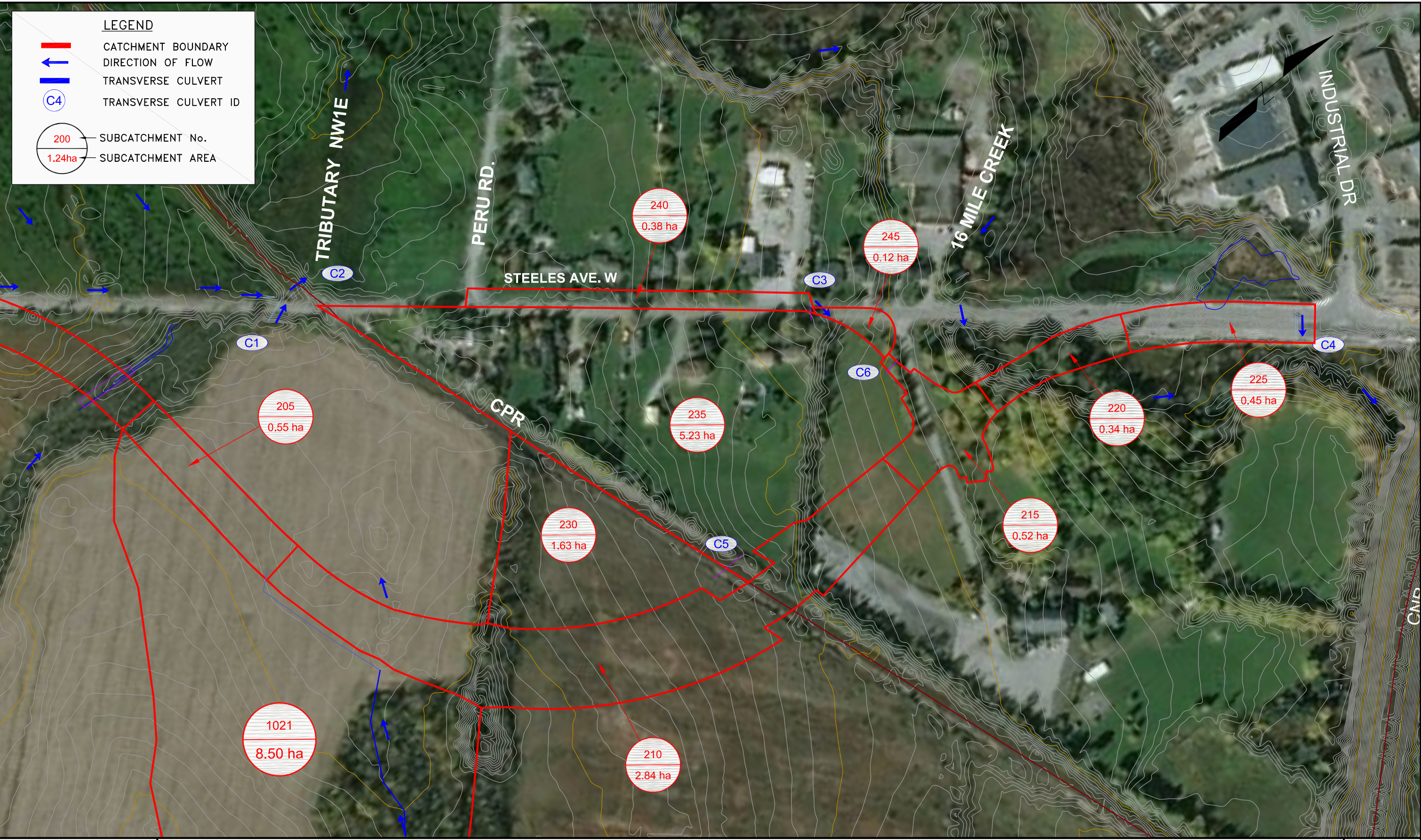
SUBCATCHMENT AREA



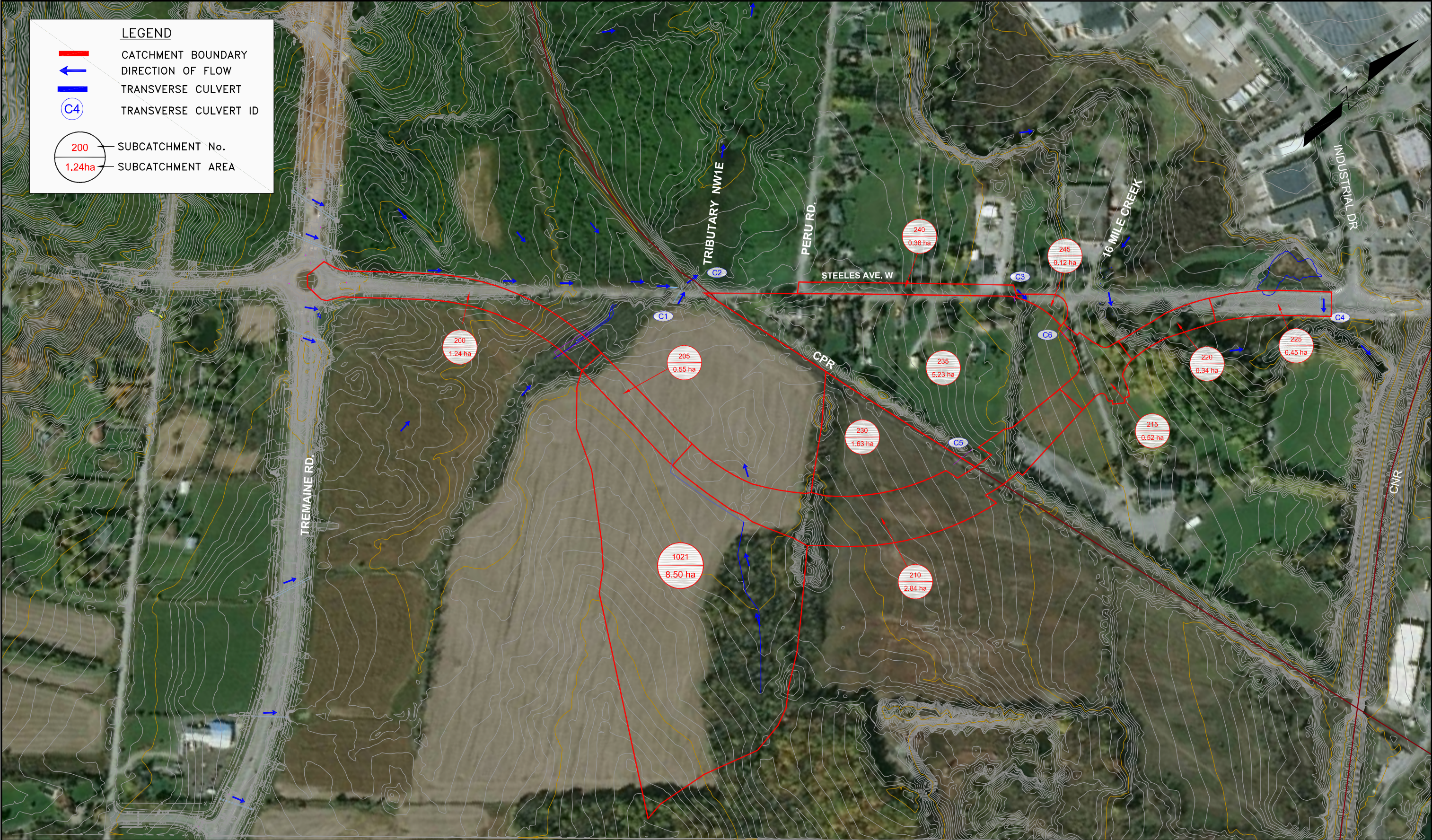
PRE-DEVELOPMENT PROPOSED DRAINAGE MOSAIC

STEELES AVENUE EA, HALTON REGION

DRAWING NAME: \\CORP.PBWAN.NET\CA\CAKTC100\COMMON\MIS\DRAWINGS\WATERRES\2017\17M-00979-00 STEELES AVE EA, MILTON\17M-00979-00 STEELES AVE EA_PREDEV PROPOSED DRAINAGE MOSAIC_JUN02021.DWG 2021 2:13 PM



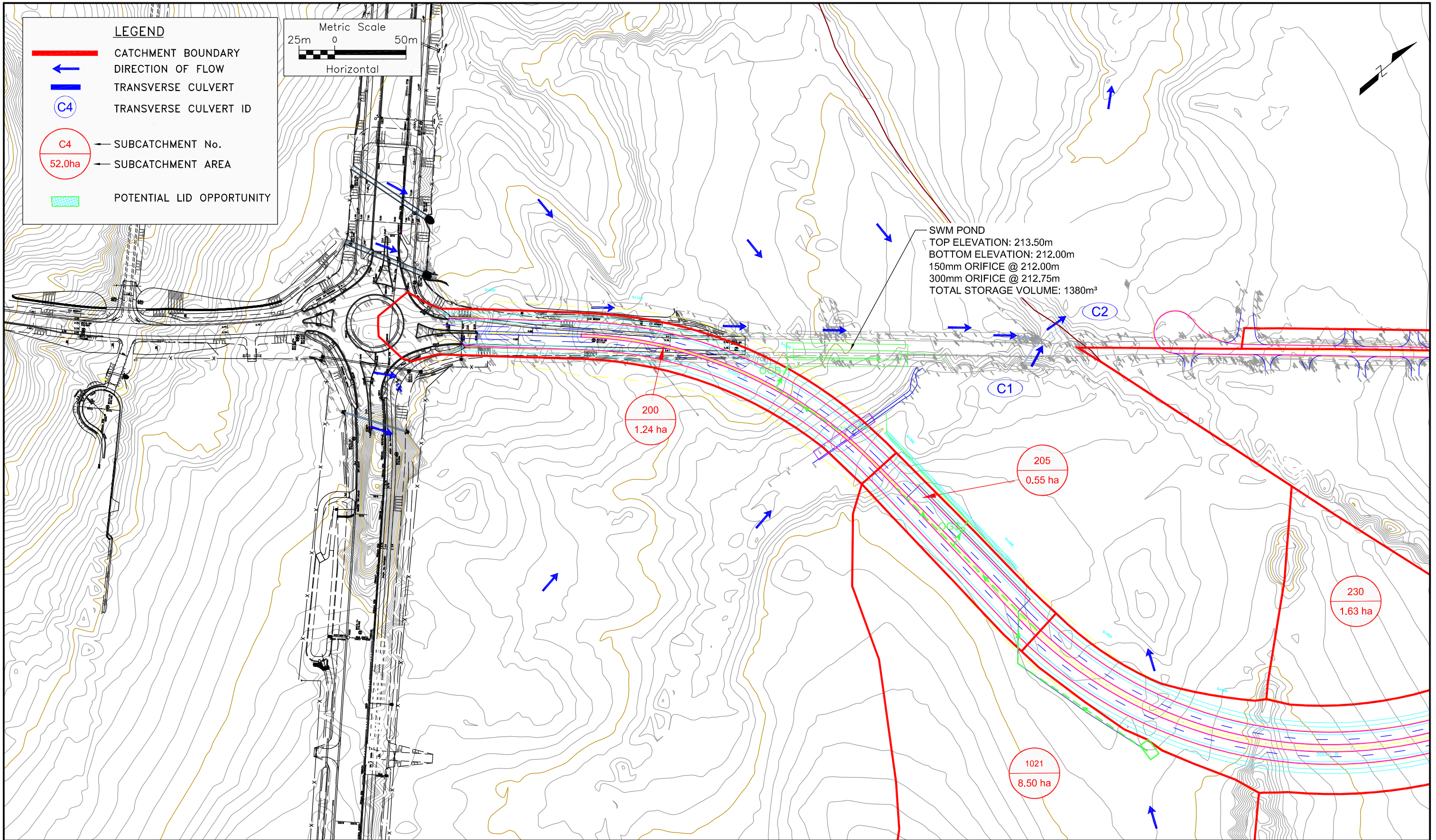
DRAWING NAME: \\CORP.PBWAN.NET\CA\CAKTC100\COMMON\MIS\DRAWINGS\WATERRES\2017\17M-00979-00 STEELES AVE EA, MILTON\DRAINAGE MOSAIC_JUN02022\TA0003, 2021 2:13 PM



PRE-DEVELOPMENT PROPOSED DRAINAGE MOSAIC

STEELES AVENUE EA, HALTON REGION

DRAWING NAME: \\CORP.PBWAN.NET\CA\CAKCTC100\COMMON\MIS\DRAWINGS\WATERRES\2017\17M-00979-00 STEELES AVE EA, MILTON\DRAWING\17M-00979-00 STEELES AVE EA_PROPOSED DRAINAGE MOSAIC_AUG_13_2021 5:13 PM



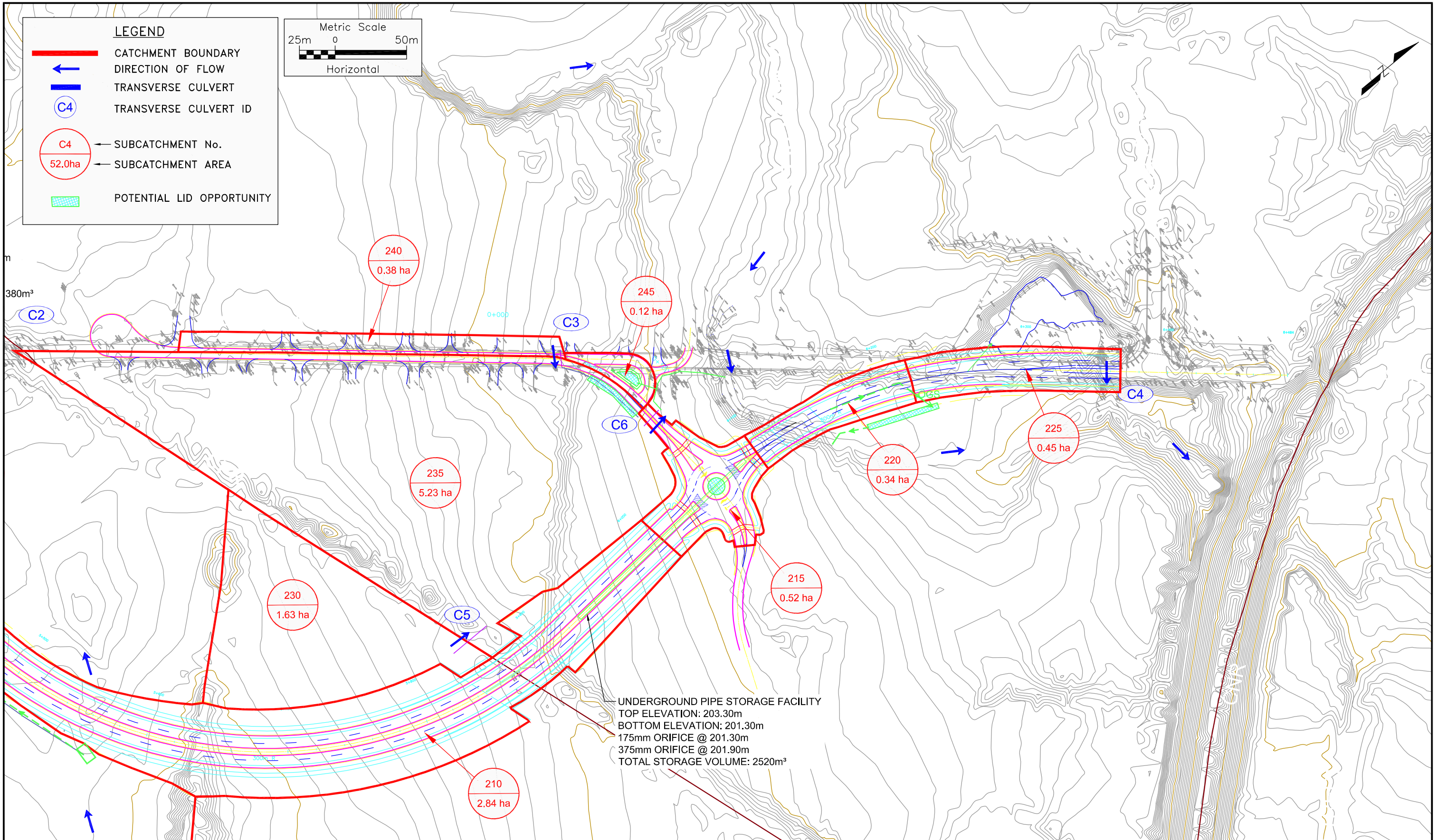
PROPOSED CONDITIONS DRAINAGE MOSAIC

STEELES AVENUE EA, HALTON REGION

EXHIBIT

5

DRAWING NAME: \\CORP.PBWAN.NET\CA\CAKTC100\COMMON\MIS\DRAWINGS\WATERRES\2017\17M-00979-00 STEELES AVE EA, MILTON\DRAWING\17M-00979-00 STEELES AVE EA_PROPOSED DRAINAGE MOSAIC_AUG_13_2021 5:13 PM



PROPOSED CONDITIONS DRAINAGE MOSAIC

STEELES AVENUE EA, HALTON REGION

EXHIBIT

6

APPENDIX

A

Existing Hydrological
Modelling

APPENDIX

A-1 MTO IDF



Active coordinate

43° 30' 45" N, 79° 54' 15" W (43.512500,-79.904167)

Retrieved: Thu, 02 Jul 2020 12:55:51 GMT



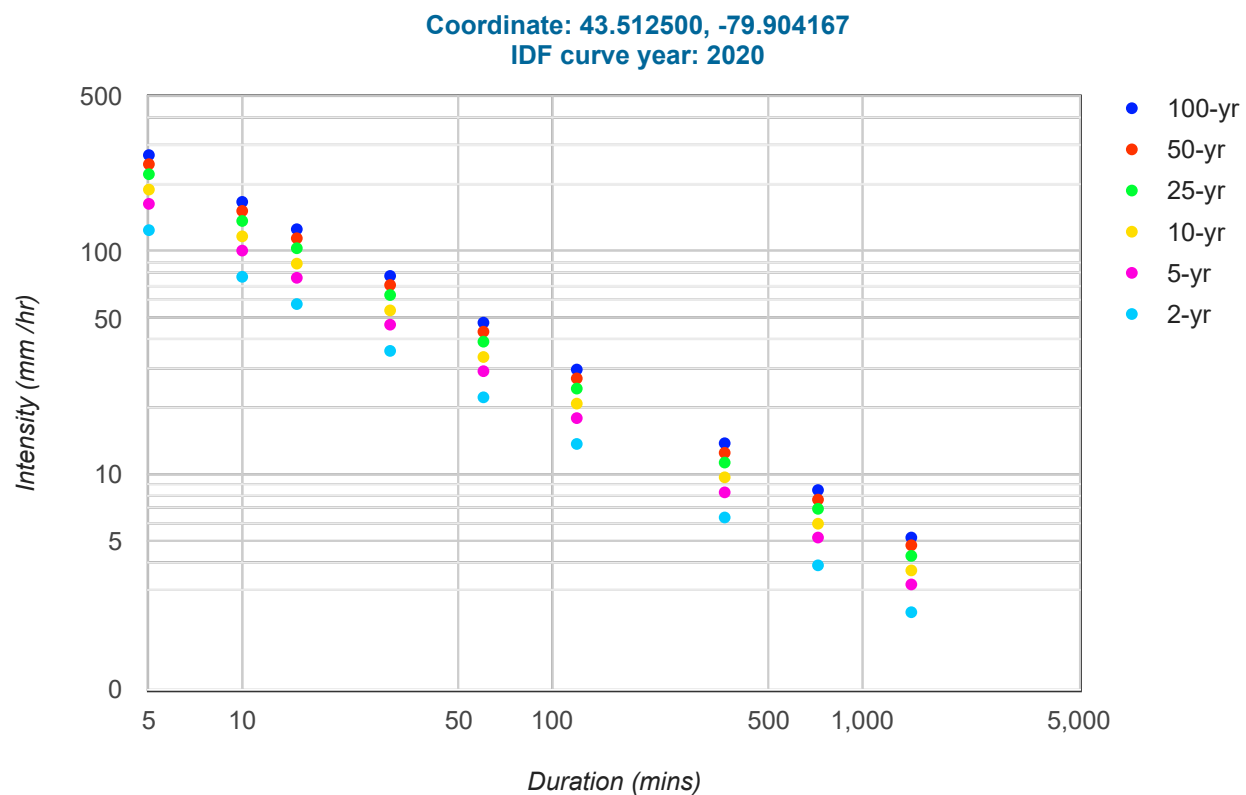
Location summary

These are the locations in the selection.

IDF Curve: 43° 30' 45" N, 79° 54' 15" W (43.512500,-79.904167)

Results

An IDF curve was found.



Coefficient summary**IDF Curve:** 43° 30' 45" N, 79° 54' 15" W (43.512500,-79.904167)

Retrieved: Thu, 02 Jul 2020 12:55:51 GMT

Data year: 2010**IDF curve year:** 2020**Statistics****Rainfall intensity (mm hr⁻¹)**

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	125.3	77.3	58.3	35.9	22.2	13.7	6.4	3.9	2.4
5-yr	164.5	101.4	76.5	47.1	29.1	17.9	8.3	5.2	3.2
10-yr	190.7	117.5	88.6	54.6	33.7	20.8	9.7	6.0	3.7
25-yr	223.6	137.8	103.9	64.0	39.5	24.3	11.3	7.0	4.3
50-yr	248.0	152.9	115.2	71.0	43.8	27.0	12.5	7.7	4.8
100-yr	272.5	167.9	126.5	78.0	48.1	29.6	13.8	8.5	5.2

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.4	12.9	14.6	18.0	22.2	27.4	38.4	46.8	57.6
5-yr	13.7	16.9	19.1	23.6	29.1	35.8	49.8	62.4	76.8
10-yr	15.9	19.6	22.2	27.3	33.7	41.6	58.2	72.0	88.8
25-yr	18.6	23.0	26.0	32.0	39.5	48.6	67.8	84.0	103.2
50-yr	20.7	25.5	28.8	35.5	43.8	54.0	75.0	92.4	115.2
100-yr	22.7	28.0	31.6	39.0	48.1	59.2	82.8	102.0	124.8

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Last Modified: September 2016

APPENDIX

A-2 Hydrological Parameters

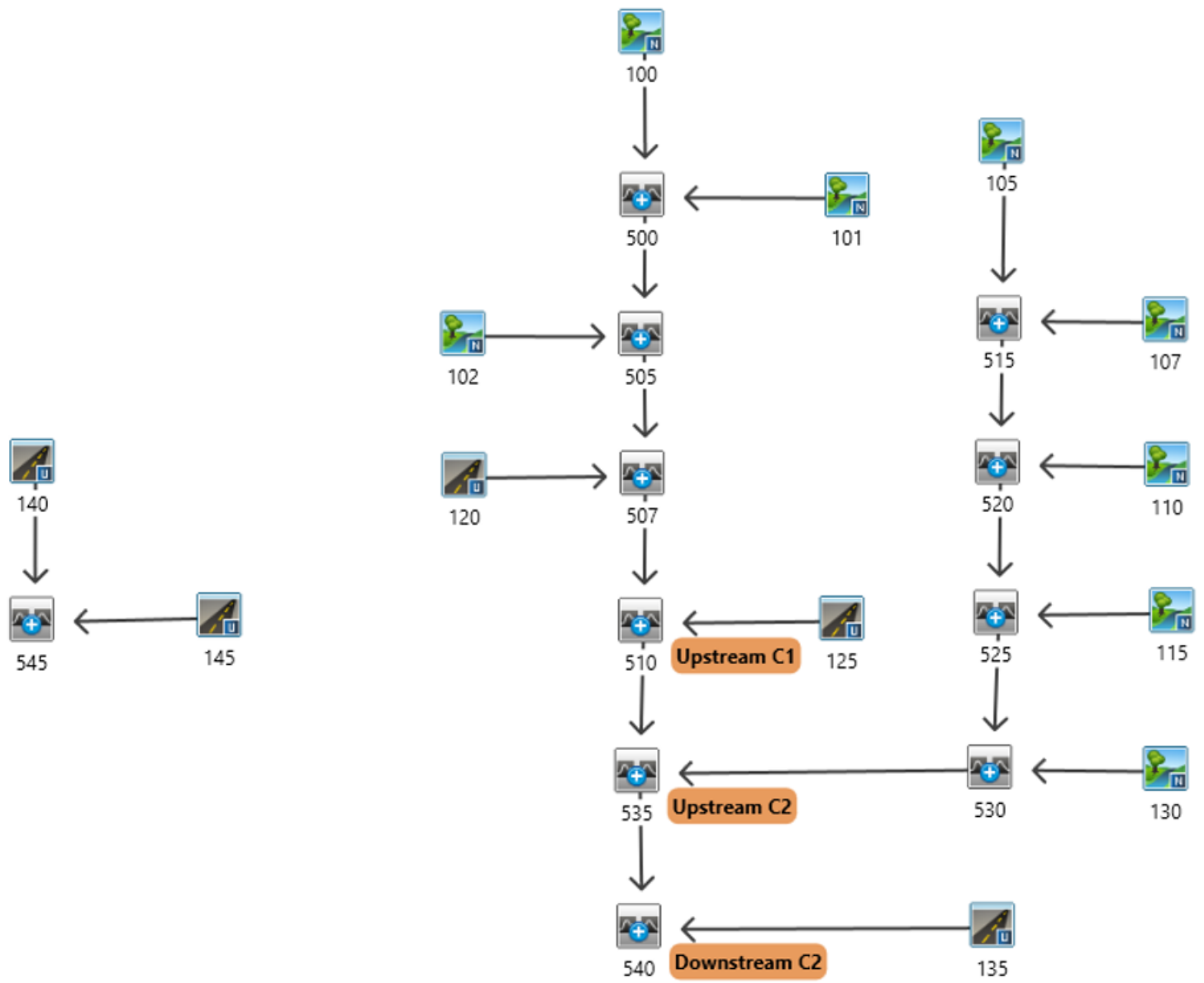


APPENDIX

A-3

Hydrologic Modelling Schematics





APPENDIX

A-4 Hydrologic Model Output



Steeles Ave_Road Corridor_PrControlled
=====

V V I SSSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voim.dat

Output filename:
C:\Users\talal.antar\AppData\Local\Civica\XH5\F3390F55-3fab-4680-a058-3ac14de3f0e0\0
8439001-82b9-4f44-881a-7028b8c95cfd\
Summary filename:
C:\Users\talal.antar\AppData\Local\Civica\XH5\F3390F55-3fab-4680-a058-3ac14de3f0e0\0
8439001-82b9-4f44-881a-7028b8c95cfd\
DATE: 08/24/2021 TIME: 11:17:42

USER:

COMMENTS: _____

** SIMULATION : Run 01 **

Steeles Ave_Road Corridor_PrControlled									
READ STORM					Filename: C:\Users\talal.antar\AppData ata\Local\Temp\ b2140514-9e14-44a2-868e-90c164931b6d\12912b25				
Ptotal= 47.70 mm					Comments: Milton02				
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	0.37	6.17	0.97	12.17	1.37	18.17	0.55		
0.33	0.38	6.33	1.03	12.33	1.31	18.33	0.54		
0.50	0.38	6.50	1.09	12.50	1.25	18.50	0.53		
0.67	0.39	6.67	1.16	12.67	1.20	18.67	0.52		
0.83	0.39	6.83	1.23	12.83	1.16	18.83	0.52		
1.00	0.40	7.00	1.33	13.00	1.11	19.00	0.51		
1.17	0.41	7.17	1.43	13.17	1.07	19.17	0.50		
1.33	0.42	7.33	1.56	13.33	1.04	19.33	0.50		
1.50	0.42	7.50	1.72	13.50	1.01	19.50	0.49		
1.67	0.43	7.67	1.92	13.67	0.97	19.67	0.48		
1.83	0.44	7.83	2.17	13.83	0.95	19.83	0.48		
2.00	0.45	8.00	2.51	14.00	0.92	20.00	0.47		
2.17	0.46	8.17	2.99	14.17	0.89	20.17	0.46		
2.33	0.47	8.33	3.73	14.33	0.87	20.33	0.46		
2.50	0.48	8.50	5.02	14.50	0.85	20.50	0.45		
2.67	0.49	8.67	7.86	14.67	0.82	20.67	0.45		
2.83	0.50	8.83	19.20	14.83	0.80	20.83	0.44		
3.00	0.51	9.00	80.06	15.00	0.79	21.00	0.44		
3.17	0.52	9.17	23.63	15.17	0.77	21.17	0.43		
3.33	0.54	9.33	11.65	15.33	0.75	21.33	0.43		
3.50	0.55	9.50	7.73	15.50	0.73	21.50	0.42		
3.67	0.57	9.67	5.80	15.67	0.72	21.67	0.42		
3.83	0.58	9.83	4.67	15.83	0.70	21.83	0.41		
4.00	0.60	10.00	3.92	16.00	0.69	22.00	0.41		
4.17	0.62	10.17	3.38	16.17	0.68	22.17	0.40		
4.33	0.63	10.33	2.98	16.33	0.66	22.33	0.40		
4.50	0.65	10.50	2.68	16.50	0.65	22.50	0.40		
4.67	0.68	10.67	2.43	16.67	0.64	22.67	0.39		
4.83	0.70	10.83	2.23	16.83	0.63	22.83	0.39		
5.00	0.72	11.00	2.06	17.00	0.62	23.00	0.38		
5.17	0.75	11.17	1.91	17.17	0.60	23.17	0.38		
5.33	0.78	11.33	1.79	17.33	0.59	23.33	0.38		
5.50	0.81	11.50	1.68	17.50	0.58	23.50	0.37		
5.67	0.85	11.67	1.59	17.67	0.58	23.67	0.37		
5.83	0.88	11.83	1.51	17.83	0.57	23.83	0.37		
6.00	0.93	12.00	1.43	18.00	0.56	24.00	0.36		

Steeles Ave_Road Corridor_PrControlled
Area (ha)= 0.77
Total Imp(%)= 36.00 Dir. Conn.(%)= 36.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.28	0.49
Dep. Storage (mm)=	2.00	5.30
Average Slope (%)=	1.00	2.00
Length (m)=	270.00	10.00
Mannings n =	0.013	0.340

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		

Steeles Ave_Road Corridor_PrControlled									
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44		
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44		
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44		
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44		
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		
Max.Eff.Inten.(mm/hr)=		80.06		23.98					
over (min)		5.00		15.00					
Storage Coeff. (min)=		5.07 (ii)		11.61 (ii)					
Unit Hyd. Tpeak (min)=		5.00		15.00					
Unit Hyd. peak (cms)=		0.21		0.09					
PEAK FLOW (cms)=		0.05		0.02		*TOTALS*			
						0.065 (iii)			

Steeles Ave_Road Corridor_PrControlled
TIME TO PEAK (hrs)= 9.00 9.17 9.00
RUNOFF VOLUME (mm)= 45.70 15.76 26.53
TOTAL RAINFALL (mm)= 47.70 47.70 47.70
RUNOFF COEFFICIENT = 0.96 0.33 0.56

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.0 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 (0145)
ID= 1 DT= 5.0 min
Area (ha)= 0.70
Total Imp(%)= 47.00 Dir. Conn.(%)= 47.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.33 0.37
Dep. Storage (mm)= 2.00 5.40
Average Slope (%)= 1.00 2.00
Length (m)= 150.00 10.00
Mannings n = 0.013 0.340

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 0.37 6.083 0.97 12.083 1.37 18.08 0.55
0.167 0.37 6.167 0.97 12.167 1.37 18.17 0.55
0.250 0.38 6.250 1.03 12.250 1.31 18.25 0.54
0.333 0.38 6.333 1.03 12.333 1.31 18.33 0.54
0.417 0.38 6.417 1.09 12.417 1.25 18.42 0.53
0.500 0.38 6.500 1.09 12.500 1.25 18.50 0.53
0.583 0.39 6.583 1.16 12.583 1.20 18.58 0.52
0.667 0.39 6.667 1.16 12.667 1.20 18.67 0.52
0.750 0.39 6.750 1.23 12.750 1.16 18.75 0.52
0.833 0.39 6.833 1.23 12.833 1.16 18.83 0.52
0.917 0.40 6.917 1.33 12.917 1.11 18.92 0.51
1.000 0.40 7.000 1.33 13.000 1.11 19.00 0.51
1.083 0.41 7.083 1.43 13.083 1.07 19.08 0.50
1.167 0.41 7.167 1.43 13.167 1.07 19.17 0.50
1.250 0.42 7.250 1.56 13.250 1.04 19.25 0.50
1.333 0.42 7.333 1.56 13.333 1.04 19.33 0.50
1.417 0.42 7.417 1.72 13.417 1.01 19.42 0.49

Page 5

Steeles Ave_Road Corridor_PrControlled
1.500 0.42 7.500 1.72 13.500 1.01 19.50 0.49
1.583 0.43 7.583 1.92 13.583 0.97 19.58 0.48
1.667 0.43 7.667 1.92 13.667 0.97 19.67 0.48
1.750 0.44 7.750 2.17 13.750 0.95 19.75 0.48
1.833 0.44 7.833 2.17 13.833 0.95 19.83 0.48
1.917 0.45 7.917 2.51 13.917 0.92 19.92 0.47
2.000 0.45 8.000 2.51 14.000 0.92 20.00 0.47
2.083 0.46 8.083 2.99 14.083 0.89 20.08 0.46
2.167 0.46 8.167 2.99 14.167 0.89 20.17 0.46
2.250 0.47 8.250 3.73 14.250 0.87 20.25 0.46
2.333 0.47 8.333 3.73 14.333 0.87 20.33 0.46
2.417 0.48 8.417 5.02 14.417 0.85 20.42 0.45
2.500 0.48 8.500 5.02 14.500 0.85 20.50 0.45
2.583 0.49 8.583 7.86 14.583 0.82 20.58 0.45
2.667 0.49 8.667 7.86 14.667 0.82 20.67 0.45
2.750 0.50 8.750 19.20 14.750 0.80 20.75 0.44
2.833 0.50 8.833 19.20 14.833 0.80 20.83 0.44
2.917 0.51 8.917 80.06 14.917 0.79 20.92 0.44
3.000 0.51 9.000 80.06 15.000 0.79 21.00 0.44
3.083 0.52 9.083 23.63 15.083 0.77 21.08 0.43
3.167 0.52 9.167 23.63 15.167 0.77 21.17 0.43
3.250 0.54 9.250 11.65 15.250 0.75 21.25 0.43
3.333 0.54 9.333 11.65 15.333 0.75 21.33 0.43
3.417 0.55 9.417 7.73 15.417 0.73 21.42 0.42
3.500 0.55 9.500 7.73 15.500 0.73 21.50 0.42
3.583 0.57 9.583 5.80 15.583 0.72 21.58 0.42
3.667 0.57 9.667 5.80 15.667 0.72 21.67 0.42
3.750 0.58 9.750 4.67 15.750 0.70 21.75 0.41
3.833 0.58 9.833 4.67 15.833 0.70 21.83 0.41
3.917 0.60 9.917 3.92 15.917 0.69 21.92 0.41
4.000 0.60 10.000 3.92 16.000 0.69 22.00 0.41
4.083 0.62 10.083 3.38 16.083 0.68 22.08 0.40
4.167 0.62 10.167 3.38 16.167 0.68 22.17 0.40
4.250 0.63 10.250 2.98 16.250 0.66 22.25 0.40
4.333 0.63 10.333 2.98 16.333 0.66 22.33 0.40
4.417 0.65 10.417 2.68 16.417 0.65 22.42 0.40
4.500 0.65 10.500 2.68 16.500 0.65 22.50 0.40
4.583 0.68 10.583 2.43 16.583 0.64 22.58 0.39
4.667 0.68 10.667 2.43 16.667 0.64 22.67 0.39
4.750 0.70 10.750 2.23 16.750 0.63 22.75 0.39
4.833 0.70 10.833 2.23 16.833 0.63 22.83 0.39
4.917 0.72 10.917 2.86 16.917 0.62 22.92 0.38
5.000 0.72 11.000 2.86 17.000 0.62 23.00 0.38
5.083 0.75 11.083 1.91 17.083 0.60 23.08 0.38
5.167 0.75 11.167 1.91 17.167 0.60 23.17 0.38
5.250 0.78 11.250 1.79 17.250 0.59 23.25 0.38
5.333 0.78 11.333 1.79 17.333 0.59 23.33 0.38
5.417 0.81 11.417 1.68 17.417 0.58 23.42 0.37

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Steeles Ave_Road Corridor_PrControlled
5.500 0.81 11.500 1.68 17.500 0.58 23.50 0.37
5.583 0.85 11.583 1.59 17.583 0.58 23.58 0.37
5.667 0.85 11.667 1.59 17.667 0.58 23.67 0.37
5.750 0.88 11.750 1.51 17.750 0.57 23.75 0.37
5.833 0.88 11.833 1.51 17.833 0.57 23.83 0.37
5.917 0.93 11.917 1.43 17.917 0.56 23.92 0.36
6.000 0.93 12.000 1.43 18.000 0.56 24.00 0.36
Max.Eff.Inten.(mm/hr)= 80.06 23.85
over (min)= 5.00 10.00
Storage Coeff. (min)= 3.56 (ii) 7.80 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.26 0.13
TOTALS
PEAK FLOW (cms)= 0.07 0.02 0.084 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 45.70 15.70 29.80
TOTAL RAINFALL (mm)= 47.70 47.70 47.70
RUNOFF COEFFICIENT = 0.96 0.33 0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.0 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 (0545)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0140): 0.77 0.065 9.00 26.53
+ ID2= 2 (0145): 0.70 0.084 9.00 29.80
=====

ID = 3 (0545): 1.47 0.149 9.00 28.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0100)
ID= 1 DT= 5.0 min
U.H. Tp(hrs)= 0.93
Area (ha)= 85.00 Curve Number (CN)= 77.0
Ia (mm)= 5.70 # of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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Steeles Ave_Road Corridor_PrControlled
--- TRANSFORMED HYETOGRAPH ---
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 0.37 6.083 0.97 12.083 1.37 18.08 0.55
0.167 0.37 6.167 0.97 12.167 1.37 18.17 0.55
0.250 0.38 6.250 1.03 12.250 1.31 18.25 0.54
0.333 0.38 6.333 1.03 12.333 1.31 18.33 0.54
0.417 0.38 6.417 1.09 12.417 1.25 18.42 0.53
0.500 0.38 6.500 1.09 12.500 1.25 18.50 0.53
0.583 0.39 6.583 1.16 12.583 1.20 18.58 0.52
0.667 0.39 6.667 1.16 12.667 1.20 18.67 0.52
0.750 0.39 6.750 1.23 12.750 1.16 18.75 0.52
0.833 0.39 6.833 1.23 12.833 1.16 18.83 0.52
0.917 0.40 6.917 1.33 12.917 1.11 18.92 0.51
1.000 0.40 7.000 1.33 13.000 1.11 19.00 0.51
1.083 0.41 7.083 1.43 13.083 1.07 19.08 0.50
1.167 0.41 7.167 1.43 13.167 1.07 19.17 0.50
1.250 0.42 7.250 1.56 13.250 1.04 19.25 0.50
1.333 0.42 7.333 1.56 13.333 1.04 19.33 0.50
1.417 0.42 7.417 1.72 13.417 1.01 19.42 0.49
1.500 0.42 7.500 1.72 13.500 1.01 19.50 0.49
1.583 0.43 7.583 1.92 13.583 0.97 19.58 0.48
1.667 0.43 7.667 1.92 13.667 0.97 19.67 0.48
1.750 0.44 7.750 2.17 13.750 0.95 19.75 0.48
1.833 0.44 7.833 2.17 13.833 0.95 19.83 0.48
1.917 0.45 7.917 2.51 13.917 0.92 19.92 0.47
2.000 0.45 8.000 2.51 14.000 0.92 20.00 0.47
2.083 0.46 8.083 2.99 14.083 0.89 20.08 0.46
2.167 0.46 8.167 2.99 14.167 0.89 20.17 0.46
2.250 0.47 8.250 3.73 14.250 0.87 20.25 0.46
2.333 0.47 8.333 3.73 14.333 0.87 20.33 0.46
2.417 0.48 8.417 5.02 14.417 0.85 20.42 0.45
2.500 0.48 8.500 5.02 14.500 0.85 20.50 0.45
2.583 0.49 8.583 7.86 14.583 0.82 20.58 0.45
2.667 0.49 8.667 7.86 14.667 0.82 20.67 0.45
2.750 0.50 8.750 19.20 14.750 0.80 20.75 0.44
2.833 0.50 8.833 19.20 14.833 0.80 20.83 0.44
2.917 0.51 8.917 80.06 14.917 0.79 20.92 0.44
3.000 0.51 9.000 80.06 15.000 0.79 21.00 0.44
3.083 0.52 9.083 23.63 15.083 0.77 21.08 0.43
3.167 0.52 9.167 23.63 15.167 0.77 21.17 0.43
3.250 0.54 9.250 11.65 15.250 0.75 21.25 0.43
3.333 0.54 9.333 11.65 15.333 0.75 21.33 0.43
3.417 0.55 9.417 7.73 15.417 0.73 21.42 0.42
3.500 0.55 9.500 7.73 15.500 0.73 21.50 0.42
3.583 0.57 9.583 5.80 15.583 0.72 21.58 0.42

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Steeles Ave_Road Corridor_PrControlled

3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Unit Hyd Qpeak (cms)= 3.491

PEAK FLOW (cms)= 1.039 (i)
TIME TO PEAK (hrs)= 10.083
RUNOFF VOLUME (mm)= 14.966
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.314

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

CALIB	
NASHYD (0101)	
ID= 1 DT= 5.0 min	

Area (ha)= 36.40 Curve Number (CN)= 84.0
Ia (mm)= 3.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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Steeles Ave_Road Corridor_PrControlled

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44		
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44		
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44		
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44		
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		

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3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.680 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 20.884
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.438

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

ADD HYD (0500)	
1 + 2 = 3	

ID1= 1 (0100): 85.00 1.039 10.08 14.97
+ ID2= 2 (0101): 36.40 0.680 10.00 20.88

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ID = 3 (0500): 121.40 1.714 10.08 16.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0102)	
ID= 1 DT= 5.0 min	

Area (ha)= 14.60 Curve Number (CN)= 83.0
Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.71

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		

Steeles Ave_Road Corridor_PrControlled								
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45	
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44	
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44	
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44	
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44	
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43	
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43	
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43	
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43	
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38	
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38	
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38	
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38	
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37	
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37	
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37	
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37	
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37	
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37	
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36	
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36	

Unit Hyd Qpeak (cms)= 0.785

PEAK FLOW (cms)= 0.273 (i)
TIME TO PEAK (hrs)= 9.833
RUNOFF VOLUME (mm)= 18.346
TOTAL RAINFALL (mm)= 47.700

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Steeles Ave_Road Corridor_PrControlled
RUNOFF COEFFICIENT = 0.385

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

ADD HYD (0505)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0102):	14.60	0.273	9.83	18.35
+ ID2= 2 (0500):	121.40	1.714	10.08	16.74
ID = 3 (0505):	136.00	1.976	10.00	16.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0120)		Area (ha)=	1.04
ID= 1	DT= 5.0 min	Total Imp(%)=	38.00
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.40	0.64
Dep. Storage	(mm)=	2.00	5.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	250.00	10.00
Mannings n	=	0.013	0.350

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.093	0.37	6.083	0.97	12.083	1.37	18.08	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50

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Steeles Ave_Road Corridor_PrControlled								
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50	
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50	
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50	
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49	
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49	
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48	
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48	
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48	
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48	
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47	
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47	
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46	
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46	
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46	
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46	
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45	
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45	
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45	
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45	
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44	
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44	
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44	
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44	
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43	
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43	
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43	
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43	
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38	

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Steeles Ave_Road Corridor_PrControlled				
5.167	0.75	11.167	1.91	17.167
5.250	0.78	11.250	1.79	17.250
5.333	0.78	11.333	1.79	17.333
5.417	0.81	11.417	1.68	17.417
5.500	0.81	11.500	1.68	17.500
5.583	0.85	11.583	1.59	17.583
5.667	0.85	11.667	1.59	17.667
5.750	0.88	11.750	1.51	17.750
5.833	0.88	11.833	1.51	17.833
5.917	0.93	11.917	1.43	17.917
6.000	0.93	12.000	1.43	18.000

Max.Eff.Inten.(mm/hr)= 80.06 24.79
over (min) 5.00 10.00
Storage Coeff. (min)= 4.84 (ii) 9.84 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.22 0.11
TOTALS
PEAK FLOW (cms)= 0.08 0.03 0.102 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 45.70 16.23 27.42
TOTAL RAINFALL (mm)= 47.70 47.70 47.70
RUNOFF COEFFICIENT = 0.96 0.34 0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 79.0 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 (0507)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0120):	1.04	0.102	9.00	27.42
+ ID2= 2 (0505):	136.00	1.976	10.00	16.91
ID = 3 (0507):	137.04	1.985	10.00	16.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0125)		Area (ha)=	0.58
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Steeles Ave_Road Corridor_PrControlled
[ID= 1 DT= 5.0 min | Total Imp(%)= 28.00 Dir. Conn.(%)= 28.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.16 0.42
Dep. Storage (mm)= 2.00 7.10
Average Slope (%)= 1.00 2.00
Length (m)= 167.00 10.00
Mannings n = 0.013 0.370

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.083 0.37 6.083 0.97 12.083 1.37 18.08 0.55
0.167 0.37 6.167 0.97 12.167 1.37 18.17 0.55
0.250 0.38 6.250 1.03 12.250 1.31 18.25 0.54
0.333 0.38 6.333 1.03 12.333 1.31 18.33 0.54
0.417 0.38 6.417 1.09 12.417 1.25 18.42 0.53
0.500 0.38 6.500 1.09 12.500 1.25 18.50 0.53
0.583 0.39 6.583 1.16 12.583 1.20 18.58 0.52
0.667 0.39 6.667 1.16 12.667 1.20 18.67 0.52
0.750 0.39 6.750 1.23 12.750 1.16 18.75 0.52
0.833 0.39 6.833 1.23 12.833 1.16 18.83 0.52
0.917 0.40 6.917 1.33 12.917 1.11 18.92 0.51
1.000 0.40 7.000 1.33 13.000 1.11 19.00 0.51
1.083 0.41 7.083 1.43 13.083 1.07 19.08 0.50
1.167 0.41 7.167 1.43 13.167 1.07 19.17 0.50
1.250 0.42 7.250 1.56 13.250 1.04 19.25 0.50
1.333 0.42 7.333 1.56 13.333 1.04 19.33 0.50
1.417 0.42 7.417 1.72 13.417 1.01 19.42 0.49
1.500 0.42 7.500 1.72 13.500 1.01 19.50 0.49
1.583 0.43 7.583 1.92 13.583 0.97 19.58 0.48
1.667 0.43 7.667 1.92 13.667 0.97 19.67 0.48
1.750 0.44 7.750 2.17 13.750 0.95 19.75 0.48
1.833 0.44 7.833 2.17 13.833 0.95 19.83 0.48
1.917 0.45 7.917 2.51 13.917 0.92 19.92 0.47
2.000 0.45 8.000 2.51 14.000 0.92 20.00 0.47
2.083 0.46 8.083 2.99 14.083 0.89 20.08 0.46
2.167 0.46 8.167 2.99 14.167 0.89 20.17 0.46
2.250 0.47 8.250 3.73 14.250 0.87 20.25 0.46
2.333 0.47 8.333 3.73 14.333 0.87 20.33 0.46
2.417 0.48 8.417 5.02 14.417 0.85 20.42 0.45
2.500 0.48 8.500 5.02 14.500 0.85 20.50 0.45
2.583 0.49 8.583 7.86 14.583 0.82 20.58 0.45
2.667 0.49 8.667 7.86 14.667 0.82 20.67 0.45
2.750 0.50 8.750 19.20 14.750 0.80 20.75 0.44

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Steeles Ave_Road Corridor_PrControlled
2.833 0.50 8.833 19.20 14.833 0.80 20.83 0.44
2.917 0.51 8.917 80.06 14.917 0.79 20.92 0.44
3.000 0.51 9.000 80.06 15.000 0.79 21.00 0.44
3.083 0.52 9.083 23.63 15.083 0.77 21.08 0.43
3.167 0.52 9.167 23.63 15.167 0.77 21.17 0.43
3.250 0.54 9.250 11.65 15.250 0.75 21.25 0.43
3.333 0.54 9.333 11.65 15.333 0.75 21.33 0.43
3.417 0.55 9.417 7.73 15.417 0.73 21.42 0.42
3.500 0.55 9.500 7.73 15.500 0.73 21.50 0.42
3.583 0.57 9.583 5.80 15.583 0.72 21.58 0.42
3.667 0.57 9.667 5.80 15.667 0.72 21.67 0.42
3.750 0.58 9.750 4.67 15.750 0.70 21.75 0.41
3.833 0.58 9.833 4.67 15.833 0.70 21.83 0.41
3.917 0.60 9.917 3.92 15.917 0.69 21.92 0.41
4.000 0.60 10.000 3.92 16.000 0.69 22.00 0.41
4.083 0.62 10.083 3.38 16.083 0.68 22.08 0.40
4.167 0.62 10.167 3.38 16.167 0.68 22.17 0.40
4.250 0.63 10.250 2.98 16.250 0.66 22.25 0.40
4.333 0.63 10.333 2.98 16.333 0.66 22.33 0.40
4.417 0.65 10.417 2.68 16.417 0.65 22.42 0.40
4.500 0.65 10.500 2.68 16.500 0.65 22.50 0.40
4.583 0.68 10.583 2.43 16.583 0.64 22.58 0.39
4.667 0.68 10.667 2.43 16.667 0.64 22.67 0.39
4.750 0.70 10.750 2.23 16.750 0.63 22.75 0.39
4.833 0.70 10.833 2.23 16.833 0.63 22.83 0.39
4.917 0.72 10.917 2.06 16.917 0.62 22.92 0.38
5.000 0.72 11.000 2.06 17.000 0.62 23.00 0.38
5.083 0.75 11.083 1.91 17.083 0.60 23.08 0.38
5.167 0.75 11.167 1.91 17.167 0.60 23.17 0.38
5.250 0.78 11.250 1.79 17.250 0.59 23.25 0.38
5.333 0.78 11.333 1.79 17.333 0.59 23.33 0.38
5.417 0.81 11.417 1.68 17.417 0.58 23.42 0.37
5.500 0.81 11.500 1.68 17.500 0.58 23.50 0.37
5.583 0.85 11.583 1.59 17.583 0.58 23.58 0.37
5.667 0.85 11.667 1.59 17.667 0.58 23.67 0.37
5.750 0.88 11.750 1.51 17.750 0.57 23.75 0.37
5.833 0.88 11.833 1.51 17.833 0.57 23.83 0.37
5.917 0.93 11.917 1.43 17.917 0.56 23.92 0.36
6.000 0.93 12.000 1.43 18.000 0.56 24.00 0.36

Max.Eff.Inten.(mm/hr)= 80.06 21.54
over (min)= 5.00 15.00
Storage Coeff. (min)= 3.80 (ii) 10.98 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.25 0.09

PEAK FLOW (cms)= 0.03 0.01 0.041 (iii)
TIME TO PEAK (hrs)= 9.00 9.17 9.00

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TOTALS

Steeles Ave_Road Corridor_PrControlled
RUNOFF VOLUME (mm)= 45.70 14.69 23.36
TOTAL RAINFALL (mm)= 47.70 47.70 47.70
RUNOFF COEFFICIENT = 0.96 0.31 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.0 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 (0510)]
[1 + 2 = 3]
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0125): 0.58 0.041 9.00 23.36
+ ID2= 2 (0507): 137.04 1.985 10.00 16.99
=====

ID = 3 (0510): 137.62 1.990 10.00 17.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

[CALIB]
[NASHDY (0105)]
[ID= 1 DT= 5.0 min]
Area (ha)= 25.00 Curve Number (CN)= 75.0
Ia (mm)= 6.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.083 0.37 6.083 0.97 12.083 1.37 18.08 0.55
0.167 0.37 6.167 0.97 12.167 1.37 18.17 0.55
0.250 0.38 6.250 1.03 12.250 1.31 18.25 0.54
0.333 0.38 6.333 1.03 12.333 1.31 18.33 0.54
0.417 0.38 6.417 1.09 12.417 1.25 18.42 0.53
0.500 0.38 6.500 1.09 12.500 1.25 18.50 0.53
0.583 0.39 6.583 1.16 12.583 1.20 18.58 0.52
0.667 0.39 6.667 1.16 12.667 1.20 18.67 0.52
0.750 0.39 6.750 1.23 12.750 1.16 18.75 0.52
0.833 0.39 6.833 1.23 12.833 1.16 18.83 0.52
0.917 0.40 6.917 1.33 12.917 1.11 18.92 0.51

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Steeles Ave_Road Corridor_PrControlled
1.000 0.40 7.000 1.33 13.000 1.11 19.00 0.51
1.083 0.41 7.083 1.43 13.083 1.07 19.08 0.50
1.167 0.41 7.167 1.43 13.167 1.07 19.17 0.50
1.250 0.42 7.250 1.56 13.250 1.04 19.25 0.50
1.333 0.42 7.333 1.56 13.333 1.04 19.33 0.50
1.417 0.42 7.417 1.72 13.417 1.01 19.42 0.49
1.500 0.42 7.500 1.72 13.500 1.01 19.50 0.49
1.583 0.43 7.583 1.92 13.583 0.97 19.58 0.48
1.667 0.43 7.667 1.92 13.667 0.97 19.67 0.48
1.750 0.44 7.750 2.17 13.750 0.95 19.75 0.48
1.833 0.44 7.833 2.17 13.833 0.95 19.83 0.48
1.917 0.45 7.917 2.51 13.917 0.92 19.92 0.47
2.000 0.45 8.000 2.51 14.000 0.92 20.00 0.47
2.083 0.46 8.083 2.99 14.083 0.89 20.08 0.46
2.167 0.46 8.167 2.99 14.167 0.89 20.17 0.46
2.250 0.47 8.250 3.73 14.250 0.87 20.25 0.46
2.333 0.47 8.333 3.73 14.333 0.87 20.33 0.46
2.417 0.48 8.417 5.02 14.417 0.85 20.42 0.45
2.500 0.48 8.500 5.02 14.500 0.85 20.50 0.45
2.583 0.49 8.583 7.86 14.583 0.82 20.58 0.45
2.667 0.49 8.667 7.86 14.667 0.82 20.67 0.45
2.750 0.50 8.750 19.20 14.750 0.80 20.75 0.44
2.833 0.50 8.833 19.20 14.833 0.80 20.83 0.44
2.917 0.51 8.917 80.06 14.917 0.79 20.92 0.44
3.000 0.51 9.000 80.06 15.000 0.79 21.00 0.44
3.083 0.52 9.083 23.63 15.083 0.77 21.08 0.43
3.167 0.52 9.167 23.63 15.167 0.77 21.17 0.43
3.250 0.54 9.250 11.65 15.250 0.75 21.25 0.43
3.333 0.54 9.333 11.65 15.333 0.75 21.33 0.43
3.417 0.55 9.417 7.73 15.417 0.73 21.42 0.42
3.500 0.55 9.500 7.73 15.500 0.73 21.50 0.42
3.583 0.57 9.583 5.80 15.583 0.72 21.58 0.42
3.667 0.57 9.667 5.80 15.667 0.72 21.67 0.42
3.750 0.58 9.750 4.67 15.750 0.70 21.75 0.41
3.833 0.58 9.833 4.67 15.833 0.70 21.83 0.41
3.917 0.60 9.917 3.92 15.917 0.69 21.92 0.41
4.000 0.60 10.000 3.92 16.000 0.69 22.00 0.41
4.083 0.62 10.083 3.38 16.083 0.68 22.08 0.40
4.167 0.62 10.167 3.38 16.167 0.68 22.17 0.40
4.250 0.63 10.250 2.98 16.250 0.66 22.25 0.40
4.333 0.63 10.333 2.98 16.333 0.66 22.33 0.40
4.417 0.65 10.417 2.68 16.417 0.65 22.42 0.40
4.500 0.65 10.500 2.68 16.500 0.65 22.50 0.40
4.583 0.68 10.583 2.43 16.583 0.64 22.58 0.39
4.667 0.68 10.667 2.43 16.667 0.64 22.67 0.39
4.750 0.70 10.750 2.23 16.750 0.63 22.75 0.39
4.833 0.70 10.833 2.23 16.833 0.63 22.83 0.39
4.917 0.72 10.917 2.06 16.917 0.62 22.92 0.38

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Steeles Ave_Road Corridor_PrControlled							
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Unit Hyd Qpeak (cms)= 1.910

PEAK FLOW (cms)= 0.415 (i)
 TIME TO PEAK (hrs)= 9.583
 RUNOFF VOLUME (mm)= 13.321
 TOTAL RAINFALL (mm)= 47.700
 RUNOFF COEFFICIENT = 0.279

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

CALIB			
NASHYD (0107)	Area (ha)= 13.00	Curve Number (CN)= 77.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.50	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.36		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51

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Steeles Ave_Road Corridor_PrControlled							
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38

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Steeles Ave_Road Corridor_PrControlled							
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.316 (i)
 TIME TO PEAK (hrs)= 9.333
 RUNOFF VOLUME (mm)= 15.080
 TOTAL RAINFALL (mm)= 47.700
 RUNOFF COEFFICIENT = 0.316

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

ADD HYD (0515)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0105):	25.00	0.415	9.58	13.32
+ ID2= 2 (0107):	13.00	0.316	9.33	15.08
=====				
ID = 3 (0515):	38.00	0.709	9.50	13.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0110)	Area (ha)= 2.85		
ID= 1 DT= 5.0 min	Total Imp(%)= 20.00	Dir. Conn.(%)= 20.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.57	2.28	
Dep. Storage (mm)=	2.00	9.40	
Average Slope (%)=	1.00	2.00	
Length (m)=	137.84	40.00	
Mannings n =	0.013	0.380	

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Steeles Ave_Road Corridor_PrControlled
 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42

Steeles Ave_Road Corridor_PrControlled									
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Max.Eff.Inten.(mm/hr)= 80.06 10.75
over (min) 5.00 30.00
Storage Coeff. (min)= 3.39 (ii) 25.53 (ii)
Unit Hyd. Tpeak (min)= 5.00 30.00
Unit Hyd. peak (cms)= 0.26 0.04

TOTALS
PEAK FLOW (cms)= 0.12 0.04 0.128 (iii)
TIME TO PEAK (hrs)= 9.00 9.42 9.00
RUNOFF VOLUME (mm)= 45.70 12.38 19.04
TOTAL RAINFALL (mm)= 47.70 47.70 47.70
RUNOFF COEFFICIENT = 0.96 0.26 0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

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Steeles Ave_Road Corridor_PrControlled
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 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 (0520)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0110):	2.85	0.128	9.00	19.04
+ ID2= 2 (0515):	38.00	0.709	9.50	13.92
ID = 3 (0520):	40.85	0.761	9.42	14.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0115)				
ID= 1 DT= 5.0 min	Area (ha)=	1.86	Curve Number (CN)=	81.0
	Ia (mm)=	4.60	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		

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Steeles Ave_Road Corridor_PrControlled									
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44		
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44		
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44		
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44		
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37		

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Steeles Ave_Road Corridor_PrControlled									
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 9.167
RUNOFF VOLUME (mm)= 18.057
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.379

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

ADD HYD (0525)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0115):	1.86	0.081	9.17	18.06
+ ID2= 2 (0520):	40.85	0.761	9.42	14.28
ID = 3 (0525):	42.71	0.812	9.42	14.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0130)				
ID= 1 DT= 5.0 min	Area (ha)=	1.65	Curve Number (CN)=	79.0
	Ia (mm)=	4.80	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.37		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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Steeles Ave_Road Corridor_PrControlled									
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44		
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44		
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44		
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44		
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40		

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Steeles Ave_Road Corridor_PrControlled									
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Unit Hyd Qpeak (cms)= 0.170

PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 9.333
RUNOFF VOLUME (mm)= 16.664
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.349

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

ADD HYD (0530)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0130):	1.65	0.044	9.33	16.66
+ ID2= 2 (0525):	42.71	0.812	9.42	14.44
=====				
ID = 3 (0530):	44.36	0.856	9.42	14.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0535)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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Steeles Ave_Road Corridor_PrControlled				
ID1= 1 (0510):	137.62	1.990	10.00	17.02
+ ID2= 2 (0530):	44.36	0.856	9.42	14.53
=====				
ID = 3 (0535):	181.98	2.582	9.83	16.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0135)			
ID= 1 DT= 5.0 min	Area (ha)= 0.33	Total Imp(%)= 36.00	Dir. Conn.(%)= 36.00

IMPERVIOUS			
PERVIOUS (i)			
Surface Area (ha)= 0.12	0.21		
Dep. Storage (mm)= 2.00	5.90		
Average Slope (%)= 1.00	2.00		
Length (m)= 121.00	10.00		
Mannings n = 0.013	0.350		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47

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Steeles Ave_Road Corridor_PrControlled								
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47	
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46	
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46	
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46	
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46	
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45	
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45	
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45	
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45	
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44	
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44	
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44	
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44	
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43	
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43	
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43	
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43	
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38	
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38	
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38	
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38	
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37	
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37	
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37	
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37	
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37	
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37	
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36	

Steeles Ave_Road Corridor_PrControlled
6.000 0.93 |12.000 1.43 |18.000 0.56 | 24.00 0.36

Max.Eff.Inten.(mm/hr)=	80.06	23.18	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.13 (ii)	9.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.27	0.11	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.032 (iii)
TIME TO PEAK (hrs)=	9.00	9.08	9.00
RUNOFF VOLUME (mm)=	45.70	15.40	26.29
TOTAL RAINFALL (mm)=	47.70	47.70	47.70
RUNOFF COEFFICIENT =	0.96	0.32	0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.0 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 (0540)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0135):	0.33	0.032	9.00	26.29
+ ID2= 2 (0535):	181.98	2.582	9.83	16.41
=====				
ID = 3 (0540):	182.31	2.585	9.83	16.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

APPENDIX

B

Proposed Hydrological Modelling

APPENDIX

B-1

Hydrological Parameters – Pre-Development



APPENDIX

B-2

Hydrological Parameters – Post-Development



APPENDIX

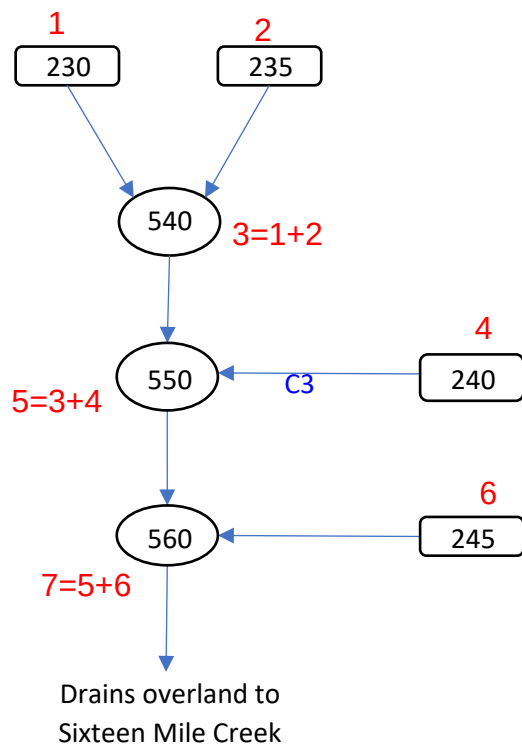
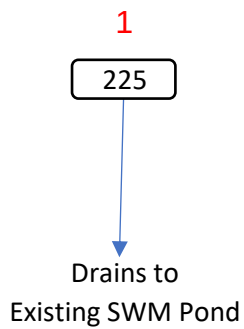
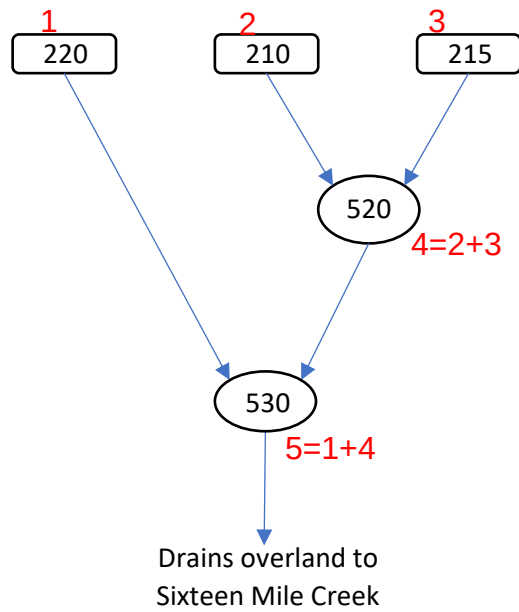
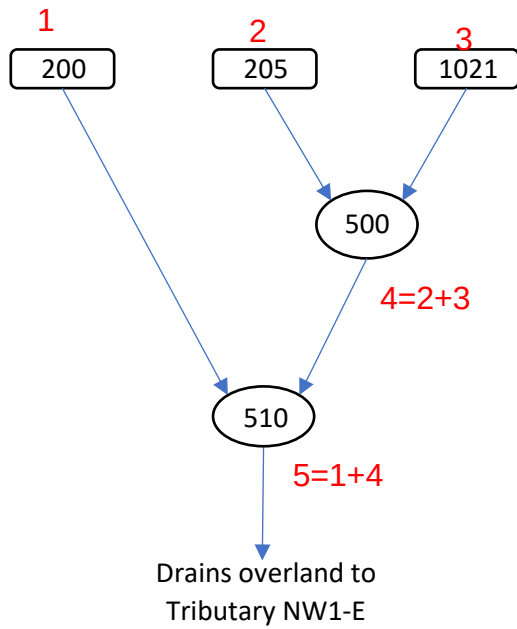
B-3

Hydrologic Modelling Schematics – Pre- Development



Steeles Avenue EA, Milton

Hydrologic Modelling Schematic for Road Corridor
Pre-Development Conditions



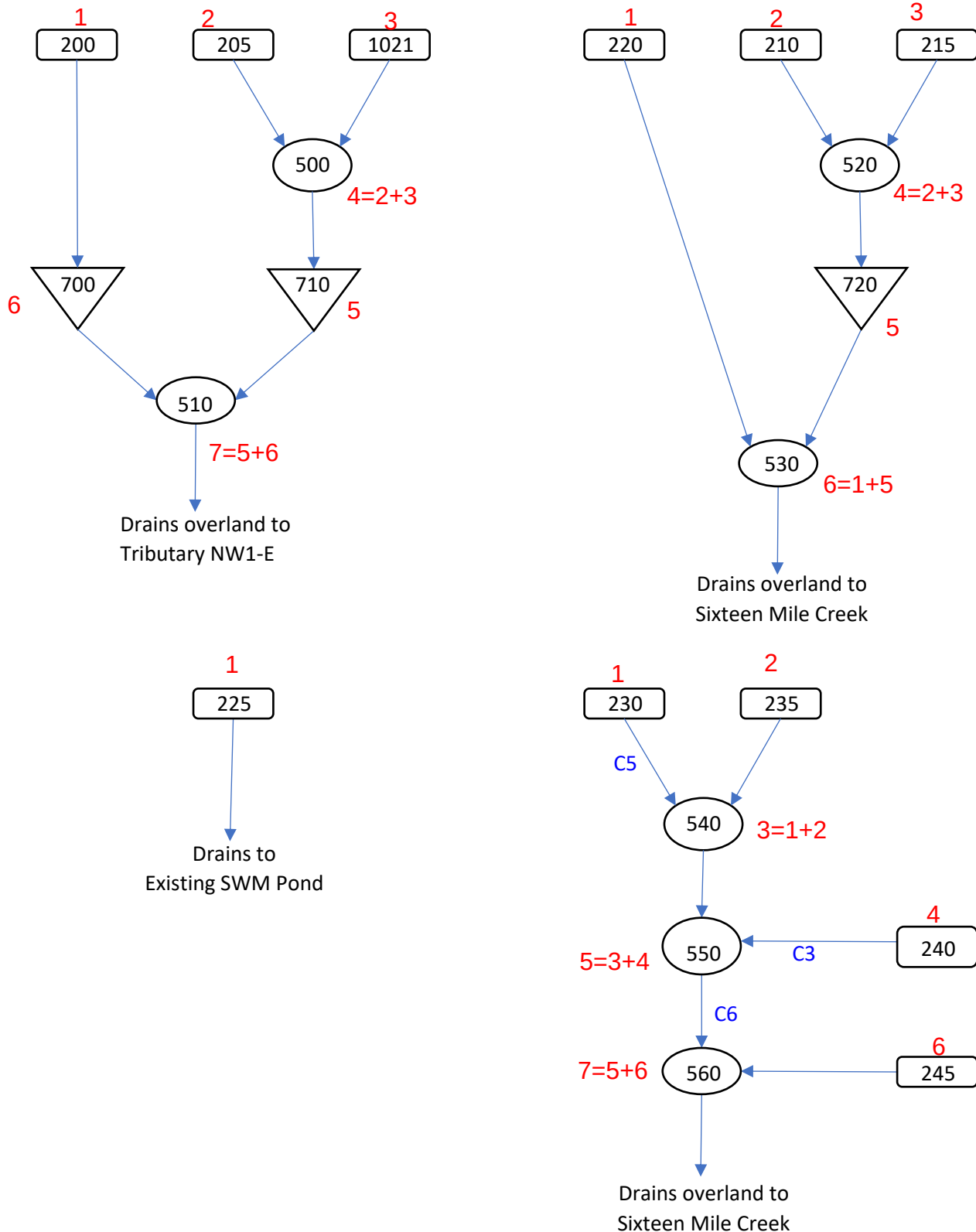
APPENDIX

B-4

Hydrologic Modelling Schematics – Post- Development



Hydrologic Modelling Schematic for Road Corridor Post-Development Conditions



APPENDIX

B-5

Hydrologic Model Output – Pre-Development



Steeles Ave_Road Corridor_PrControlled

```
SSSSS W W M M H H Y Y M M 000 999 999 =====
S W W W M M M M H H Y Y M M 0 0 9 9 9 9
SSSSS W W W M M M H H H H Y M M M 0 0 ## 9 9 9 9 Ver 4.05
S W W M M M H H H Y M M 0 0 9999 9999 Sept 2011
SSSSS W W M M H H Y M M 000 9 9 9 =====
StormWater Management HYdrologic Model 999 999 # 4313781
```

```
***** SWHYMO Ver/4.05 *****
***** A single event and continuous hydrologic simulation model *****
***** based on the principles of HYMO and its successors *****
***** OTTHYMO-83 and OTTHYMO-89. *****
***** Distributed by: J.F. Sabourin and Associates Inc. *****
***** Ottawa, Ontario: (613) 836-3884 *****
***** Gatineau, Quebec: (819) 243-6858 *****
***** E-Mail: swmhyo@jfsa.Com *****
```

```
++++++ Licensed user: McCormick Rankin Corporation ++++++
++++++ Kitchener SERIAL#:4313781 ++++++
*****
```

```
***** PROGRAM ARRAY DIMENSIONS *****
***** Maximum value for ID numbers : 10 *****
***** Max. number of rainfall points: 105408 *****
***** Max. number of flow points : 105408 *****
```

***** DETAILED OUTPUT *****

```
* DATE: 2021-07-23 TIME: 16:36:48 RUN COUNTER: 000424 *
*****
* Input filename: C:\SWM\Steeles\Stls_Ex.dat *
* Output filename: C:\SWM\Steeles\Stls_Ex.out *
* Summary filename: C:\SWM\Steeles\Stls_Ex.sum *
* User comments: *
* 1: *
* 2: *
* 3: *
```

Steeles Ave_Road Corridor_PrControlled

```
001:0001-----
*
*# Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *
*# Date : JUL 2021 *
*# Modeller : [TA/MB] *
*# Company : WSP *
```

```
***** HYDROLOGIC ASSESSMENT - PRE-DEVELOPMENT CONDITIONS *****
*# 2-YEAR TO 100-YEAR DESIGN STORMS *
*# 24-hour CHICAGO STORM DISTRIBUTION *
*# *****
```

| START | Project dir.: C:\SWM\Steeles\

----- Rainfall dir.: C:\SWM\Steeles\

```
TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 001
NSTORM= 1
# 1=Milton02.stm
```

001:0002-----

| READ STORM | Filename: 24 hr Chicago Storm, 2 year Storm Event
| Ptotal= 47.70 mm | Comments: 24 hr Chicago Storm, 2 year Storm Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.370	6.17	.970	12.17	1.370	18.17	.550
.33	.380	6.33	1.030	12.33	1.310	18.33	.540
.50	.380	6.50	1.090	12.50	1.250	18.50	.530
.67	.390	6.67	1.160	12.67	1.200	18.67	.520
.83	.390	6.83	1.230	12.83	1.160	18.83	.520
1.00	.400	7.00	1.330	13.00	1.110	19.00	.510
1.17	.410	7.17	1.430	13.17	1.070	19.17	.500
1.33	.420	7.33	1.560	13.33	1.040	19.33	.500
1.50	.420	7.50	1.720	13.50	1.010	19.50	.490

Steeles Ave_Road Corridor_PrControlled

1.67	.430	7.67	1.920	13.67	.970	19.67	.480
1.83	.440	7.83	2.170	13.83	.950	19.83	.480
2.00	.450	8.00	2.510	14.00	.920	20.00	.470
2.17	.460	8.17	2.990	14.17	.890	20.17	.460
2.33	.470	8.33	3.730	14.33	.870	20.33	.460
2.50	.480	8.50	5.020	14.50	.850	20.50	.450
2.67	.490	8.67	7.860	14.67	.820	20.67	.450
2.83	.500	8.83	19.200	14.83	.800	20.83	.440
3.00	.510	9.00	80.060	15.00	.790	21.00	.440
3.17	.520	9.17	23.630	15.17	.770	21.17	.430
3.33	.540	9.33	11.650	15.33	.750	21.33	.430
3.50	.550	9.50	7.730	15.50	.730	21.50	.420
3.67	.570	9.67	5.800	15.67	.720	21.67	.420
3.83	.580	9.83	4.670	15.83	.700	21.83	.410
4.00	.600	10.00	3.920	16.00	.690	22.00	.410
4.17	.620	10.17	3.380	16.17	.680	22.17	.400
4.33	.630	10.33	2.980	16.33	.660	22.33	.400
4.50	.650	10.50	2.680	16.50	.650	22.50	.400
4.67	.680	10.67	2.430	16.67	.640	22.67	.390
4.83	.700	10.83	2.230	16.83	.630	22.83	.390
5.00	.720	11.00	2.060	17.00	.620	23.00	.380
5.17	.750	11.17	1.910	17.17	.600	23.17	.380
5.33	.780	11.33	1.790	17.33	.590	23.33	.380
5.50	.810	11.50	1.680	17.50	.580	23.50	.370
5.67	.850	11.67	1.590	17.67	.580	23.67	.370
5.83	.880	11.83	1.510	17.83	.570	23.83	.370
6.00	.930	12.00	1.430	18.00	.560	24.00	.360

001:0003-----

```
***** ESTIMATING PRE-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *****
```

| CALIB STANDHYD | Area (ha)= 1.24
| 01:200 DT= 2.00 | Total Imp(%)= 38.00 Dir. Conn.(%)= 38.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.47	.77
Dep. Storage (mm)=	2.00	5.60
Average Slope (%)=	1.00	2.00
Length (m)=	91.00	40.00
Mannings n =	.013	.310

Steeles Ave_Road Corridor_PrControlled

```
Max.eff.Inten.(mm/hr)= 80.06 24.15
over (min) 2.00 16.00
Storage Coeff. (min)= 2.64 (ii) 16.81 (ii)
Unit Hyd. Tpeak (min)= 2.00 16.00
Unit Hyd. peak (cms)= .45 .07
*TOTALS*
PEAK FLOW (cms)= .10 .03 .116 (iii)
TIME TO PEAK (hrs)= 9.00 9.23 9.000
RUNOFF VOLUME (mm)= 45.70 19.59 29.511
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .41 .619
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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.

001:0004-----

| CALIB NASHYD | Area (ha)= .55 Curve Number (CN)=82.00
| 02:205 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= .260

Unit Hyd Qpeak (cms)= .081

```
PEAK FLOW (cms)= .020 (i)
TIME TO PEAK (hrs)= 9.267
RUNOFF VOLUME (mm)= 18.112
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .380
```

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

001:0005-----

| CALIB NASHYD | Area (ha)= 8.51 Curve Number (CN)=82.00
| 03:1021 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= .550

Steeles Ave_Road Corridor_PrControlled
Unit Hyd Qpeak (cms)= .591
PEAK FLOW (cms)= .191 (i)
TIME TO PEAK (hrs)= 9.633
RUNOFF VOLUME (mm)= 18.112
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .380

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

001:0006-----						
-						
*						

ADD HYD (500)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 02:205		.55	.020	9.27	18.11	.000

+ID2 03:1021		8.51	.191	9.63	18.11	.000

SUM 04:500		9.06	.203	9.60	18.11	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0007-----						
-						
*						

ADD HYD (510)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 01:200		1.24	.116	9.00	29.51	.000

+ID2 04:500		9.06	.203	9.60	18.11	.000

SUM 05:510		10.30	.232	9.50	19.48	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Steeles Ave_Road Corridor_PrControlled

001:0008-----			
-			
*			
* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E			

CALIB NASHYD			
02:210 DT= 2.00		Area (ha)= 2.84	Curve Number (CN)=77.00
		Ia (mm)= 5.900	# of Linear Res.(N)= 3.00
		U.H. Tp(hrs)= .330	

Unit Hyd Qpeak (cms)= .329

PEAK FLOW (cms)= .072 (i)
TIME TO PEAK (hrs)= 9.367
RUNOFF VOLUME (mm)= 14.848
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .311

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

001:0009-----			
-			
*			

CALIB NASHYD	Area (ha)= .52	Curve Number (CN)=77.00	
03:215 DT= 2.00	Ia (mm)= 5.900	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= .230		

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)= .016 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 14.848
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .311

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

001:0010-----			
-			
*			

Steeles Ave_Road Corridor_PrControlled						
ADD HYD (520)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 02:210		2.84	.072	9.37	14.85	.000

+ID2 03:215		.52	.016	9.23	14.85	.000

SUM 04:520		3.36	.087	9.33	14.85	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

001:0011-----
*
-----
| CALIB NASHYD | Area (ha)= .34 Curve Number (CN)=80.00
| 01:220 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= .240
| |
-----
Unit Hyd Qpeak (cms)= .054
-----
PEAK FLOW (cms)= .012 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 16.783
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .352

```

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

001:0012-----						
-						

ADD HYD (530)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 01:220		.34	.012	9.23	16.78	.000

+ID2 04:520		3.36	.087	9.33	14.85	.000

SUM 05:530		3.70	.098	9.30	15.03	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Steeles Ave_Road Corridor_PrControlled

001:0013-----			
-			
*			
* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK			

CALIB STANDHYD			
01:225 DT= 2.00		Area (ha)= .45	
		Total Imp(%)= 79.00	Dir. Conn.(%)= 79.00

Surface Area (ha)= .36		IMPERVIOUS	PERVIOUS (i)
Dep. Storage (mm)= 2.00			.09
Average Slope (%)= 1.00			5.00
Length (m)= 55.00			2.00
Mannings n = .013			40.00
			.250
Max.eff.Inten.(mm/hr)= 80.06			16.06
over (min)= 2.00			16.00
Storage Coeff. (min)= 1.95 (ii)			16.62 (ii)
Unit Hyd. Tpeak (min)= 2.00			16.00
Unit Hyd. peak (cms)= .54			.07
TOTALS			
PEAK FLOW (cms)= .08			.00
TIME TO PEAK (hrs)= 9.00			9.23
RUNOFF VOLUME (mm)= 45.70			13.82
TOTAL RAINFALL (mm)= 47.70			39.005
RUNOFF COEFFICIENT = .96			47.700
			.818
*** WARNING: Storage Coefficient is smaller than DT! Use a smaller DT or a larger area.			
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 74.0 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.			

001:0014-----			
-			
*			
* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND			

Steeles Ave_Road Corridor_PrControlled

 *
 | CALIB NASHYD | Area (ha)= 1.63 Curve Number (CN)=72.00
 | 01:230 DT= 2.00 | Ia (mm)= 7.400 # of Linear Res.(N)= 3.00
 | U.H. Tp(hrs)= .450

Unit Hyd Qpeak (cms)= .138
 PEAK FLOW (cms)= .025 (i)
 TIME TO PEAK (hrs)= 9.533
 RUNOFF VOLUME (mm)= 11.677
 TOTAL RAINFALL (mm)= 47.700
 RUNOFF COEFFICIENT = .245

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

001:0015-----
 -
 *

| CALIB NASHYD | Area (ha)= 5.23 Curve Number (CN)=81.00
 | 02:235 DT= 2.00 | Ia (mm)= 4.900 # of Linear Res.(N)= 3.00
 | U.H. Tp(hrs)= .460

Unit Hyd Qpeak (cms)= .434
 PEAK FLOW (cms)= .132 (i)
 TIME TO PEAK (hrs)= 9.500
 RUNOFF VOLUME (mm)= 17.892
 TOTAL RAINFALL (mm)= 47.700
 RUNOFF COEFFICIENT = .375

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

001:0016-----
 -
 *

ADD HYD (540)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:230		1.63	.025	9.53	11.68	.000
+ID2 02:235		5.23	.132	9.50	17.89	.000

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Steeles Ave_Road Corridor_PrControlled

SUM 03:540 6.86 .157 9.50 16.42 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0017-----
 -
 *

CALIB STANDHYD	Area (ha)	Total Imp(%)	Dir. Conn.(%)
04:240 DT= 2.00	.38	45.00	45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	.17	.21
Dep. Storage (mm)	2.00	5.00
Average Slope (%)	1.00	2.00
Length (m)	225.00	15.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	80.06	16.45
over (min)	4.00	12.00
Storage Coeff. (min)=	4.54 (ii)	12.61 (ii)
Unit Hyd. Tpeak (min)=	4.00	12.00
Unit Hyd. peak (cms)=	.26	.09

TOTALS

PEAK FLOW (cms)=	.03	.01	.037 (iii)
TIME TO PEAK (hrs)=	9.00	9.17	9.000
RUNOFF VOLUME (mm)=	45.70	12.45	27.413
TOTAL RAINFALL (mm)=	47.70	47.70	47.700
RUNOFF COEFFICIENT =	.96	.26	.575

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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.

001:0018-----
 -
 *

ADD HYD (550)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
---------------	----------	------	-------	-------	------	-----

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Steeles Ave_Road Corridor_PrControlled

ID1 03:540	(ha)	(cms)	(hrs)	(mm)	(cms)
	6.86	.157	9.50	16.42	.000

+ID2 04:240	.38	.037	9.00	27.41	.000
-------------	-----	------	------	-------	------

SUM 05:550	7.24	.164	9.50	16.99	.000
------------	------	------	------	-------	------

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0019-----
 -
 *

CALIB STANDHYD	Area (ha)	Total Imp(%)	Dir. Conn.(%)
06:245 DT= 2.00	.12	43.00	43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	.05	.07
Dep. Storage (mm)	2.00	5.00
Average Slope (%)	1.00	2.00
Length (m)	28.00	10.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	80.06	19.70
over (min)	2.00	8.00
Storage Coeff. (min)=	1.30 (ii)	7.19 (ii)
Unit Hyd. Tpeak (min)=	2.00	8.00
Unit Hyd. peak (cms)=	.67	.15

TOTALS

PEAK FLOW (cms)=	.01	.00	.013 (iii)
TIME TO PEAK (hrs)=	9.00	9.07	9.000
RUNOFF VOLUME (mm)=	45.70	12.45	26.748
TOTAL RAINFALL (mm)=	47.70	47.70	47.700
RUNOFF COEFFICIENT =	.96	.26	.561

*** WARNING: Storage Coefficient is smaller than DT!
 Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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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Steeles Ave_Road Corridor_PrControlled

001:0020-----
 -
 *

ADD HYD (560)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 05:550		7.24	.164	9.50	16.99	.000

+ID2 06:245	.12	.013	9.00	26.75	.000
-------------	-----	------	------	-------	------

SUM 07:560	7.36	.166	9.50	17.15	.000
------------	------	------	------	-------	------

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0021-----
 -
 *

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

** END OF RUN : 1

START	Project dir.: C:\SWM\Steeles\
-------	-------------------------------

	Rainfall dir.: C:\SWM\Steeles\
--	--------------------------------

TZERO = .00 hrs on 0
 METOUT= 2 (output = METRIC)
 NRUN = 002
 NSTORM= 1
 # 1=Milton05.stm

002:0002-----

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Steeles Ave_Road Corridor_PrControlled

*# Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *

*# Date : JUL 2021 *

*# Modeller : [TA/MB] *

*# Company : WSP *

*# HYDROLOGIC ASSESSMENT - PRE-DEVELOPMENT CONDITIONS *

*# 2-YEAR TO 100-YEAR DESIGN STORMS *

*# 24-hour CHICAGO STORM DISTRIBUTION *

002:0002-----

READ STORM Filename: 24-hr Chicago Storm, 5 year Event
Ptotal= 67.05 mm Comments: 24-hr Chicago Storm, 5 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.570	6.17	1.470	12.17	2.030	18.17	.840
.33	.580	6.33	1.540	12.33	1.940	18.33	.830
.50	.590	6.50	1.630	12.50	1.870	18.50	.810
.67	.600	6.67	1.730	12.67	1.790	18.67	.800
.83	.610	6.83	1.840	12.83	1.730	18.83	.790
1.00	.620	7.00	1.970	13.00	1.670	19.00	.780
1.17	.630	7.17	2.130	13.17	1.610	19.17	.770
1.33	.640	7.33	2.310	13.33	1.560	19.33	.760
1.50	.650	7.50	2.540	13.50	1.510	19.50	.750
1.67	.660	7.67	2.820	13.67	1.460	19.67	.740
1.83	.680	7.83	3.170	13.83	1.420	19.83	.730
2.00	.690	8.00	3.650	14.00	1.380	20.00	.720
2.17	.700	8.17	4.330	14.17	1.350	20.17	.710
2.33	.720	8.33	5.350	14.33	1.310	20.33	.700
2.50	.730	8.50	7.120	14.50	1.280	20.50	.700
2.67	.750	8.67	10.920	14.67	1.250	20.67	.690
2.83	.770	8.83	25.780	14.83	1.220	20.83	.680
3.00	.780	9.00	105.250	15.00	1.190	21.00	.670
3.17	.800	9.17	31.540	15.17	1.160	21.17	.660
3.33	.820	9.33	15.940	15.33	1.140	21.33	.660
3.50	.840	9.50	10.750	15.50	1.110	21.50	.650
3.67	.860	9.67	8.170	15.67	1.090	21.67	.640

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3.83	.890	9.83	6.630	15.83	1.070	21.83	.640
4.00	.910	10.00	5.600	16.00	1.050	22.00	.630
4.17	.940	10.17	4.870	16.17	1.030	22.17	.620
4.33	.960	10.33	4.320	16.33	1.010	22.33	.620
4.50	.990	10.50	3.890	16.50	.990	22.50	.610
4.67	1.030	10.67	3.540	16.67	.970	22.67	.600
4.83	1.060	10.83	3.260	16.83	.950	22.83	.600
5.00	1.100	11.00	3.020	17.00	.940	23.00	.590
5.17	1.140	11.17	2.810	17.17	.920	23.17	.590
5.33	1.180	11.33	2.640	17.33	.910	23.33	.580
5.50	1.230	11.50	2.490	17.50	.890	23.50	.580
5.67	1.280	11.67	2.350	17.67	.880	23.67	.570
5.83	1.330	11.83	2.230	17.83	.860	23.83	.570
6.00	1.400	12.00	2.130	18.00	.850	24.00	.560

002:0003-----

* **ESTIMATING PRE-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *

CALIB STANDHYD Area (ha)= 1.24
01:200 DT= 2.00 Total Imp(%)= 38.00 Dir. Conn.(%)= 38.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.47	.77
Dep. Storage (mm)=	2.00	5.60
Average Slope (%)=	1.00	2.00
Length (m)=	91.00	40.00
Mannings n =	.013	.310
Max. eff. Inten. (mm/hr)=	105.25	44.46
over (min)	2.00	14.00
Storage Coeff. (min)=	2.37 (ii)	13.47 (ii)
Unit Hyd. Tpeak (min)=	2.00	14.00
Unit Hyd. peak (cms)=	.48	.08
PEAK FLOW (cms)=	.14	.06
TIME TO PEAK (hrs)=	9.00	9.17
RUNOFF VOLUME (mm)=	65.05	34.38
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT =	.97	.51

TOTALS

PEAK FLOW (cms)= .168 (iii)

TIME TO PEAK (hrs)= 9.000

RUNOFF VOLUME (mm)= 46.034

TOTAL RAINFALL (mm)= 67.048

RUNOFF COEFFICIENT = .687

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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CN* = 84.0 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.

002:0004-----

CALIB NASHYD Area (ha)= .55 Curve Number (CN)=82.00
02:205 DT= 2.00 Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .260

Unit Hyd Qpeak (cms)= .081

PEAK FLOW (cms)= .036 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 32.215
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .480

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

002:0005-----

CALIB NASHYD Area (ha)= 8.51 Curve Number (CN)=82.00
03:1021 DT= 2.00 Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .550

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)= .337 (i)
TIME TO PEAK (hrs)= 9.600
RUNOFF VOLUME (mm)= 32.216
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .480

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

002:0006-----

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ADD HYD (500) ID: NHYD AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm) DWF (cms)

ID1 02:205 .55 .036 9.23 32.22 .000

+ID2 03:1021 8.51 .337 9.60 32.22 .000

SUM 04:500 9.06 .359 9.57 32.22 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0007-----

ADD HYD (510) ID: NHYD AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm) DWF (cms)

ID1 01:200 1.24 .168 9.00 46.03 .000

+ID2 04:500 9.06 .359 9.57 32.22 .000

SUM 05:510 10.30 .405 9.50 33.88 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0008-----

* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E *

CALIB NASHYD Area (ha)= 2.84 Curve Number (CN)=77.00
02:210 DT= 2.00 Ia (mm)= 5.900 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .330

Unit Hyd Qpeak (cms)= .329

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PEAK FLOW (cms)= .131 (i)
TIME TO PEAK (hrs)= 9.333
RUNOFF VOLUME (mm)= 27.289
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .407

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

002:0009

CALIB NASHYD	Area (ha)=	.52	Curve Number (CN)=77.00
03:215 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.230	

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)= .030 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 27.288
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .407

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

002:0010

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:210		2.84	.131	9.33	27.29	.000
+ID2 03:215		.52	.030	9.20	27.29	.000
SUM 04:520		3.36	.158	9.30	27.29	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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CALIB NASHYD	Area (ha)=	.34	Curve Number (CN)=80.00
01:220 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.240	

Unit Hyd Qpeak (cms)= .054

PEAK FLOW (cms)= .022 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 30.218
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .451

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

002:0012

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.022	9.23	30.22	.000
+ID2 04:520		3.36	.158	9.30	27.29	.000
SUM 05:530		3.70	.179	9.30	27.56	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0013

* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

CALIB STANDHYD	Area (ha)=	.45	Dir. Conn.(%)=	79.00
01:225 DT= 2.00	Total Imp(%)=	79.00		

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Surface Area (ha)=	.36	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.00	40.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	105.25	33.58
over (min)	2.00	12.00
Storage Coeff. (min)=	1.75 (ii)	12.67 (ii)
Unit Hyd. Tpeak (min)=	2.00	12.00
Unit Hyd. peak (cms)=	.58	.09

TOTALS

PEAK FLOW (cms)=	.10	.01	.107 (iii)
TIME TO PEAK (hrs)=	9.00	9.17	9.000
RUNOFF VOLUME (mm)=	65.05	25.45	56.732
TOTAL RAINFALL (mm)=	67.05	67.05	67.048
RUNOFF COEFFICIENT =	.97	.38	.846

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

CALIB NASHYD	Area (ha)=	1.63	Curve Number (CN)=72.00
01:230 DT= 2.00	Ia (mm)=	7.400	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.450	

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)= .048 (i)
TIME TO PEAK (hrs)= 9.500
RUNOFF VOLUME (mm)= 22.458
TOTAL RAINFALL (mm)= 67.048

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RUNOFF COEFFICIENT = .335

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

002:0015

CALIB NASHYD	Area (ha)=	5.23	Curve Number (CN)=81.00
02:235 DT= 2.00	Ia (mm)=	4.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.460	

Unit Hyd Qpeak (cms)= .434

PEAK FLOW (cms)= .231 (i)
TIME TO PEAK (hrs)= 9.500
RUNOFF VOLUME (mm)= 31.730
TOTAL RAINFALL (mm)= 67.048
RUNOFF COEFFICIENT = .473

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

002:0016

ADD HYD (540)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:230		1.63	.048	9.50	22.46	.000
+ID2 02:235		5.23	.231	9.50	31.73	.000
SUM 03:540		6.86	.279	9.50	29.53	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0017

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CALIB STANDHYD	Area (ha)=	.38
04:240 DT= 2.00	Total Imp(%)=	45.00 Dir. Conn.(%)= 45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.17	.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00
Mannings n	.013	.250
Max.eff.Inten.(mm/hr)=	105.25	33.57
over (min)	4.00	10.00
Storage Coeff. (min)=	4.07 (ii)	10.13 (ii)
Unit Hyd. Tpeak (min)=	4.00	10.00
Unit Hyd. peak (cms)=	.28	.11
		TOTALS
PEAK FLOW (cms)=	.05	.01
TIME TO PEAK (hrs)=	9.00	9.10
RUNOFF VOLUME (mm)=	65.05	23.22
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT	.97	.35
		.627

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (550)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 03:540		6.86	.279	9.50	29.53	.000
+ID2 04:240		.38	.054	9.00	42.04	.000
=====						
SUM 05:550		7.24	.290	9.47	30.18	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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002:0019-----

*

CALIB STANDHYD	Area (ha)=	.12
06:245 DT= 2.00	Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.05	.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n	.013	.250
Max.eff.Inten.(mm/hr)=	105.25	37.62
over (min)	2.00	6.00
Storage Coeff. (min)=	1.17 (ii)	5.71 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.70	.19
		TOTALS
PEAK FLOW (cms)=	.02	.01
TIME TO PEAK (hrs)=	9.00	9.03
RUNOFF VOLUME (mm)=	65.05	23.22
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT	.97	.35
		.615

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

003:0020-----

*

ADD HYD (560)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 05:550		7.24	.290	9.47	30.18	.000
+ID2 06:245		.12	.020	9.00	41.21	.000
=====						
SUM 07:560		7.36	.293	9.47	30.36	.000

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0021-----

*

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

002:0002-----

*

** END OF RUN : 2

START	Project dir.: C:\SWM\Steeles\
	Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 003
NSTORM= 1
1=Milton10.stm

003:0002-----

*# Project Name: STEELES AVENIUE EA, MILTON JOB NUMBER: [17M-00979-00] *

*# Date : JUL 2021 *

*# Modeller : [TA/MB] *

*# Company : WSP *

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003:0002-----

*

READ STORM	Filename: 24-hr Chicago Storm, 10 year Event
Ptotal= 80.06 mm	Comments: 24-hr Chicago Storm, 10 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.700	6.17	1.790	12.17	2.480	18.17	1.030
.33	.720	6.33	1.890	12.33	2.370	18.33	1.020
.50	.730	6.50	1.990	12.50	2.280	18.50	1.000
.67	.740	6.67	2.110	12.67	2.190	18.67	.990
.83	.750	6.83	2.250	12.83	2.110	18.83	.970
1.00	.760	7.00	2.410	13.00	2.040	19.00	.960
1.17	.780	7.17	2.590	13.17	1.970	19.17	.950
1.33	.790	7.33	2.820	13.33	1.910	19.33	.940
1.50	.800	7.50	3.090	13.50	1.850	19.50	.920
1.67	.820	7.67	3.420	13.67	1.790	19.67	.910
1.83	.830	7.83	3.850	13.83	1.740	19.83	.900
2.00	.850	8.00	4.420	14.00	1.690	20.00	.890
2.17	.870	8.17	5.230	14.17	1.650	20.17	.880
2.33	.890	8.33	6.450	14.33	1.610	20.33	.870
2.50	.900	8.50	8.540	14.50	1.560	20.50	.860
2.67	.920	8.67	13.030	14.67	1.530	20.67	.850
2.83	.940	8.83	30.360	14.83	1.490	20.83	.840
3.00	.960	9.00	121.810	15.00	1.460	21.00	.830
3.17	.990	9.17	37.050	15.17	1.420	21.17	.820
3.33	1.010	9.33	18.910	15.33	1.390	21.33	.810
3.50	1.040	9.50	12.830	15.50	1.360	21.50	.800
3.67	1.060	9.67	9.790	15.67	1.340	21.67	.790
3.83	1.090	9.83	7.970	15.83	1.310	21.83	.780
4.00	1.120	10.00	6.750	16.00	1.280	22.00	.780
4.17	1.150	10.17	5.880	16.17	1.260	22.17	.770
4.33	1.190	10.33	5.220	16.33	1.240	22.33	.760
4.50	1.220	10.50	4.700	16.50	1.210	22.50	.750
4.67	1.260	10.67	4.290	16.67	1.190	22.67	.750
4.83	1.300	10.83	3.950	16.83	1.170	22.83	.740
5.00	1.350	11.00	3.660	17.00	1.150	23.00	.730

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5.17	1.390	11.17	3.420	17.17	1.130	23.17	.720
5.33	1.450	11.33	3.210	17.33	1.110	23.33	.720
5.50	1.500	11.50	3.020	17.50	1.100	23.50	.710
5.67	1.570	11.67	2.860	17.67	1.080	23.67	.700
5.83	1.630	11.83	2.720	17.83	1.060	23.83	.700
6.00	1.710	12.00	2.590	18.00	1.050	24.00	.690

003:0003

ESTIMATING PRE-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA

CALIB STANDHYD	Area (ha)=	1.24
01:200 DT= 2.00	Total Imp(%)=	38.00 Dir. Conn.(%)= 38.00

Surface Area (ha)=	.47	.77
Dep. Storage (mm)=	2.00	5.60
Average Slope (%)=	1.00	2.00
Length (m)=	91.00	40.00
Mannings n	.013	.310

Max.eff.Inten.(mm/hr)=	121.81	63.01
over (min)	2.00	12.00
Storage Coeff. (min)=	2.23 (ii)	11.89 (ii)
Unit Hyd. Tpeak (min)=	2.00	12.00
Unit Hyd. peak (cms)=	.50	.09

PEAK FLOW (cms)=	.16	.09	.211 (iii)
TIME TO PEAK (hrs)=	9.00	9.13	9.000
RUNOFF VOLUME (mm)=	78.06	45.13	57.644
TOTAL RAINFALL (mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	.98	.56	.720

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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.

003:0004

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CALIB NASHYD	Area (ha)=	.55	Curve Number (CN)=82.00
02:205 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.260	

Unit Hyd Qpeak (cms)= .081

PEAK FLOW (cms)=	.047 (i)
TIME TO PEAK (hrs)=	9.233
RUNOFF VOLUME (mm)=	42.575
TOTAL RAINFALL (mm)=	80.058
RUNOFF COEFFICIENT	.532

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

003:0005

CALIB NASHYD	Area (ha)=	8.51	Curve Number (CN)=82.00
03:1021 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.550	

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)=	.445 (i)
TIME TO PEAK (hrs)=	9.600
RUNOFF VOLUME (mm)=	42.576
TOTAL RAINFALL (mm)=	80.058
RUNOFF COEFFICIENT	.532

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

003:0006

ADD HYD (500)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:205	.55	.047	9.23	42.58	.000
	+ID2 03:1021	8.51	.445	9.60	42.58	.000

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SUM 04:500 9.06 .474 9.57 42.58 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0007

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 01:200	1.24	.211	9.00	57.64	.000
	+ID2 04:500	9.06	.474	9.57	42.58	.000

SUM 05:510 10.30 .529 9.50 44.39 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0008

* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E

CALIB NASHYD	Area (ha)=	2.84	Curve Number (CN)=77.00
02:210 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.330	

Unit Hyd Qpeak (cms)= .329

PEAK FLOW (cms)=	.175 (i)
TIME TO PEAK (hrs)=	9.333
RUNOFF VOLUME (mm)=	36.656
TOTAL RAINFALL (mm)=	80.058
RUNOFF COEFFICIENT	.458

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

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Steeles Ave_Road Corridor_PrControlled

CALIB NASHYD	Area (ha)=	.52	Curve Number (CN)=77.00
03:215 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.230	

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)=	.040 (i)
TIME TO PEAK (hrs)=	9.200
RUNOFF VOLUME (mm)=	36.655
TOTAL RAINFALL (mm)=	80.058
RUNOFF COEFFICIENT	.458

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

003:0010

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:210	2.84	.175	9.33	36.66	.000
	+ID2 03:215	.52	.040	9.20	36.66	.000
	SUM 04:520	3.36	.212	9.30	36.66	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0011

CALIB NASHYD	Area (ha)=	.34	Curve Number (CN)=80.00
01:220 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.240	

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Steeles Ave_Road Corridor_PrControlled

Unit Hyd Qpeak (cms)= .054
PEAK FLOW (cms)= .029 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 40.185
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = .502

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

003:0012

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.029	9.20	40.18	.000
+ID2 04:520		3.36	.212	9.30	36.66	.000
=====						
SUM 05:530		3.70	.239	9.30	36.98	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0013

* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

CALIB STANDHYD	Area (ha)	PERVIOUS (i)
01:225 DT= 2.00	Total Imp(%)= 79.00	Dir. Conn.(%)= 79.00
=====		
Surface Area (ha)=	.36	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.00	40.00
Mannings n	= .013	.250

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Steeles Ave_Road Corridor_PrControlled

Max.eff.Inten.(mm/hr)= 121.81 44.87
over (min) 2.00 12.00
Storage Coeff. (min)= 1.65 (ii) 11.37 (ii)
Unit Hyd. Tpeak (min)= 2.00 12.00
Unit Hyd. peak (cms)= .60 .10
TOTALS
PEAK FLOW (cms)= .12 .01 .125 (iii)
TIME TO PEAK (hrs)= 9.00 9.13 9.000
RUNOFF VOLUME (mm)= 78.06 34.29 68.867
TOTAL RAINFALL (mm)= 80.06 80.06 80.058
RUNOFF COEFFICIENT = .98 .43 .860

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 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.

003:0014

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

CALIB NASHYD	Area (ha)	Curve Number (CN)=72.00
01:230 DT= 2.00	Ia (mm)= 7.400	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .450		

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)= .066 (i)
TIME TO PEAK (hrs)= 9.500
RUNOFF VOLUME (mm)= 30.794
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = .385

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

003:0015

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Steeles Ave_Road Corridor_PrControlled

Unit Hyd Qpeak (cms)= .434
PEAK FLOW (cms)= .304 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 41.924
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = .524

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

003:0016

ADD HYD (540)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:230		1.63	.066	9.50	30.79	.000
+ID2 02:235		5.23	.304	9.47	41.92	.000
=====						
SUM 03:540		6.86	.370	9.47	39.28	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0017

CALIB STANDHYD	Area (ha)	PERVIOUS (i)
04:240 DT= 2.00	Total Imp(%)= 45.00	Dir. Conn.(%)= 45.00
=====		
Surface Area (ha)=	.17	.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00

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Steeles Ave_Road Corridor_PrControlled

Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 121.81 45.23
over (min) 4.00 10.00
Storage Coeff. (min)= 3.84 (ii) 9.22 (ii)
Unit Hyd. Tpeak (min)= 4.00 10.00
Unit Hyd. peak (cms)= .29 .12
TOTALS
PEAK FLOW (cms)= .05 .02 .065 (iii)
TIME TO PEAK (hrs)= 9.00 9.10 9.000
RUNOFF VOLUME (mm)= 78.06 31.51 52.456
TOTAL RAINFALL (mm)= 80.06 80.06 80.058
RUNOFF COEFFICIENT = .97 .39 .655

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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.

003:0018

ADD HYD (550)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 03:540		6.86	.370	9.47	39.28	.000
+ID2 04:240		.38	.065	9.00	52.46	.000
=====						
SUM 05:550		7.24	.384	9.47	39.97	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0019

CALIB STANDHYD	Area (ha)	PERVIOUS (i)
06:245 DT= 2.00	Total Imp(%)= 43.00	Dir. Conn.(%)= 43.00
=====		
Surface Area (ha)=	.12	.15
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00

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Steeles Ave_Road Corridor_PrControlled
Surface Area (ha)= .05 .07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 28.00 10.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 121.81 50.04
over (min) 2.00 6.00
Storage Coeff. (min)= 1.10 (ii) 5.15 (ii)
Unit Hyd. Tpeak (min)= 2.00 6.00
Unit Hyd. peak (cms)= .71 .21

TOTALS
PEAK FLOW (cms)= .02 .01 .024 (iii)
TIME TO PEAK (hrs)= 9.00 9.03 9.000
RUNOFF VOLUME (mm)= 78.06 31.51 51.524
TOTAL RAINFALL (mm)= 80.06 80.06 80.058
RUNOFF COEFFICIENT = .98 .39 .644

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

003:0020-----
*
| ADD HYD (560) | ID: NYHD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 05:550 7.24 .384 9.47 39.97 .000
+ID2 06:245 .12 .024 9.00 51.52 .000
=====

SUM 07:560 7.36 .387 9.47 40.16 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0021-----
-

Steeles Ave_Road Corridor_PrControlled

*
* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK
*

003:0002-----
-

** END OF RUN : 3

| START | Project dir.: C:\SWM\Steeles\

Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 004
NSTORM= 1
1=Milton25.stm

004:0002-----
-

* Project Name: STEELES AVENIUE EA, MILTON JOB NUMBER: [17M-00979-00] *
*
* Date : JUL 2021 *
* Modeller : [TA/MB] *
* Company : WSP *
*
* HYDROLOGIC ASSESSMENT - PRE-DEVELOPMENT CONDITIONS *
* 2-YEAR TO 100-YEAR DESIGN STORMS *

Steeles Ave_Road Corridor_PrControlled
24-hour CHICAGO STORM DISTRIBUTION
*
*

004:0002-----
-

| READ STORM | Filename: 24-hr Chicago Storm, 25 year Event
| Ptotal= 97.01 mm | Comments: 24-hr Chicago Storm, 25 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.890	6.17	2.240	12.17	3.080	18.17	1.300
.33	.900	6.33	2.350	12.33	2.950	18.33	1.280
.50	.920	6.50	2.480	12.50	2.830	18.50	1.260
.67	.930	6.67	2.630	12.67	2.730	18.67	1.240
.83	.950	6.83	2.800	12.83	2.630	18.83	1.230
1.00	.960	7.00	2.990	13.00	2.540	19.00	1.210
1.17	.980	7.17	3.220	13.17	2.450	19.17	1.190
1.33	1.000	7.33	3.490	13.33	2.380	19.33	1.180
1.50	1.020	7.50	3.820	13.50	2.300	19.50	1.160
1.67	1.030	7.67	4.220	13.67	2.240	19.67	1.150
1.83	1.050	7.83	4.750	13.83	2.170	19.83	1.130
2.00	1.070	8.00	5.440	14.00	2.110	20.00	1.120
2.17	1.090	8.17	6.410	14.17	2.060	20.17	1.110
2.33	1.120	8.33	7.870	14.33	2.010	20.33	1.090
2.50	1.140	8.50	10.360	14.50	1.960	20.50	1.080
2.67	1.160	8.67	15.660	14.67	1.910	20.67	1.070
2.83	1.190	8.83	35.890	14.83	1.870	20.83	1.060
3.00	1.210	9.00	143.010	15.00	1.820	21.00	1.050
3.17	1.240	9.17	43.680	15.17	1.780	21.17	1.030
3.33	1.270	9.33	22.560	15.33	1.750	21.33	1.020
3.50	1.300	9.50	15.420	15.50	1.710	21.50	1.010
3.67	1.340	9.67	11.840	15.67	1.680	21.67	1.000
3.83	1.370	9.83	9.680	15.83	1.640	21.83	.990
4.00	1.410	10.00	8.230	16.00	1.610	22.00	.980
4.17	1.450	10.17	7.180	16.17	1.580	22.17	.970
4.33	1.490	10.33	6.390	16.33	1.550	22.33	.960
4.50	1.530	10.50	5.770	16.50	1.520	22.50	.950
4.67	1.580	10.67	5.270	16.67	1.500	22.67	.940
4.83	1.630	10.83	4.860	16.83	1.470	22.83	.930
5.00	1.690	11.00	4.520	17.00	1.450	23.00	.920
5.17	1.750	11.17	4.220	17.17	1.420	23.17	.920
5.33	1.810	11.33	3.970	17.33	1.400	23.33	.910
5.50	1.880	11.50	3.740	17.50	1.380	23.50	.900

Steeles Ave_Road Corridor_PrControlled

5.67	1.960	11.67	3.550	17.67	1.360	23.67	.890
5.83	2.040	11.83	3.370	17.83	1.340	23.83	.880
6.00	2.130	12.00	3.220	18.00	1.320	24.00	.870

004:0003-----
-

* **ESTIMATING PRE-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *

| CALIB STANDHYD | Area (ha)= 1.24
| 01:200 DT= 2.00 | Total Imp(%)= 38.00 Dir. Conn.(%)= 38.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.47	.77
Dep. Storage (mm)=	2.00	5.60
Average Slope (%)=	1.00	2.00
Length (m)=	91.00	40.00
Mannings n =	.013	.310

Max.eff.Inten.(mm/hr)=	143.01	92.21
over (min)	2.00	10.00
Storage Coeff. (min)=	2.09 (ii)	10.39 (ii)
Unit Hyd. Tpeak (min)=	2.00	10.00
Unit Hyd. peak (cms)=	.52	.11

TOTALS
PEAK FLOW (cms)= .19 .12 .276 (iii)
TIME TO PEAK (hrs)= 9.00 9.10 9.000
RUNOFF VOLUME (mm)= 95.01 59.77 73.163
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .62 .754

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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.

004:0004-----
-

Steeles Ave_Road Corridor_PrControlled
| CALIB NASHYD | Area (ha)= .55 Curve Number (CN)=82.00
| 02:205 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .260

Unit Hyd Qpeak (cms)= .081

PEAK FLOW (cms)= .063 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 56.777
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .585

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

004:0005-----
-
*

| CALIB NASHYD | Area (ha)= 8.51 Curve Number (CN)=82.00
| 03:1021 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .550

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)= .588 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 56.778
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .585

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

004:0006-----
-
*

| ADD HYD (500) | ID: NHYD AREA QPEAK TPEAK R.V. DWF

ID1 02:205 .55 .063 9.23 56.78 .000

+ID2 03:1021 8.51 .588 9.57 56.78 .000

=====

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Steeles Ave_Road Corridor_PrControlled

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0007-----
-
*

| ADD HYD (510) | ID: NHYD AREA QPEAK TPEAK R.V. DWF

ID1 01:200 1.24 .276 9.00 73.16 .000

+ID2 04:500 9.06 .627 9.53 56.78 .000

=====

SUM 05:510 10.30 .692 9.50 58.75 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0008-----
-
*
* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E
*

| CALIB NASHYD | Area (ha)= 2.84 Curve Number (CN)=77.00
| 02:210 DT= 2.00 | Ia (mm)= 5.900 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .330

Unit Hyd Qpeak (cms)= .329

PEAK FLOW (cms)= .236 (i)
TIME TO PEAK (hrs)= 9.333
RUNOFF VOLUME (mm)= 49.713
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .512

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

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Steeles Ave_Road Corridor_PrControlled
004:0009-----
-
*

| CALIB NASHYD | Area (ha)= .52 Curve Number (CN)=77.00
| 03:215 DT= 2.00 | Ia (mm)= 5.900 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .230

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)= .054 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 49.712
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .512

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

004:0010-----
-
*

| ADD HYD (520) | ID: NHYD AREA QPEAK TPEAK R.V. DWF

ID1 02:210 2.84 .236 9.33 49.71 .000

+ID2 03:215 .52 .054 9.20 49.71 .000

=====

SUM 04:520 3.36 .286 9.30 49.71 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0011-----
-
*

| CALIB NASHYD | Area (ha)= .34 Curve Number (CN)=80.00
| 01:220 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .240

Unit Hyd Qpeak (cms)= .054

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Steeles Ave_Road Corridor_PrControlled
PEAK FLOW (cms)= .038 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 53.938
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .556

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

004:0012-----
-
*

| ADD HYD (530) | ID: NHYD AREA QPEAK TPEAK R.V. DWF

ID1 01:220 .34 .038 9.20 53.94 .000

+ID2 04:520 3.36 .286 9.30 49.71 .000

=====

SUM 05:530 3.70 .322 9.27 50.10 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0013-----
-
*
* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK
*

| CALIB STANDHYD | Area (ha)= .45
| 01:225 DT= 2.00 | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .36 .09
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 55.00 40.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 143.01 67.64
over (min) 2.00 10.00
Storage Coeff. (min)= 1.55 (ii) 9.80 (ii)

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Steeles Ave_Road Corridor_PrControlled
Unit Hyd. Tpeak (min)= 2.00 10.00
Unit Hyd. peak (cms)= .62 .11
TOTALS
PEAK FLOW (cms)= .14 .01 .149 (iii)
TIME TO PEAK (hrs)= 9.00 9.10 9.000
RUNOFF VOLUME (mm)= 95.01 46.71 84.866
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .48 .875
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

004:0014-----
*
* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

*
| CALIB NASHYD | Area (ha)= 1.63 Curve Number (CN)=72.00
| 01:230 DT= 2.00 | Ia (mm)= 7.400 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= .450

Unit Hyd Qpeak (cms)= .138
PEAK FLOW (cms)= .092 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 42.624
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .439

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

004:0015-----
*
*
| CALIB NASHYD | Area (ha)= 5.23 Curve Number (CN)=81.00
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Steeles Ave_Road Corridor_PrControlled
| 02:235 DT= 2.00 | Ia (mm)= 4.900 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= .460
Unit Hyd Qpeak (cms)= .434
PEAK FLOW (cms)= .401 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 55.931
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .577

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

004:0016-----
*
| ADD HYD (540) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:230 1.63 .092 9.47 42.62 .000
+ID2 02:235 5.23 .401 9.47 55.93 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0017-----
*
| CALIB STANDHYD | Area (ha)= .38
| 04:240 DT= 2.00 | Total Imp(%)= 45.00 Dir. Conn.(%)= 45.00
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .17 .21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 225.00 15.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 143.01 64.56
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Steeles Ave_Road Corridor_PrControlled
over (min)= 4.00 8.00
Storage Coeff. (min)= 3.60 (ii) 8.27 (ii)
Unit Hyd. Tpeak (min)= 4.00 8.00
Unit Hyd. peak (cms)= .30 .14
TOTALS
PEAK FLOW (cms)= .06 .02 .084 (iii)
TIME TO PEAK (hrs)= 9.00 9.07 9.000
RUNOFF VOLUME (mm)= 95.01 43.25 66.540
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .686

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0018-----
*
| ADD HYD (550) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 03:540 6.86 .493 9.47 52.77 .000
+ID2 04:240 .38 .084 9.00 66.54 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0019-----
*
*
| CALIB STANDHYD | Area (ha)= .12
| 06:245 DT= 2.00 | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .05 .07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
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Steeles Ave_Road Corridor_PrControlled
Length (m)= 28.00 10.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 143.01 69.89
over (min)= 2.00 4.00
Storage Coeff. (min)= 1.03 (ii) 4.58 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .73 .26
TOTALS
PEAK FLOW (cms)= .02 .01 .031 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 95.01 43.25 65.505
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .675
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0020-----
*
| ADD HYD (560) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 05:550 7.24 .510 9.47 53.49 .000
+ID2 06:245 .12 .031 9.00 65.50 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0021-----
*
* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK
*
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Steeles Ave_Road Corridor_PrControlled
=====

SUM 04:500	9.06	.744	9.53	68.06	.000
------------	------	------	------	-------	------

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0007

=====

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:200		1.24	.317	9.00	85.28	.000
+ID2 04:500		9.06	.744	9.53	68.06	.000
=====						
SUM 05:510		10.30	.817	9.50	70.13	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0008

* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E

=====

CALIB NASHYD	Area (ha)=	2.84	Curve Number (CN)=77.00
02:210 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.330	

Unit Hyd Qpeak (cms)= .329

PEAK FLOW (cms)= .283 (i)
TIME TO PEAK (hrs)= 9.333
RUNOFF VOLUME (mm)= 60.221
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = .547

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

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Steeles Ave_Road Corridor_PrControlled

005:0009

=====

CALIB NASHYD	Area (ha)=	.52	Curve Number (CN)=77.00
03:215 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.230	

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)= .065 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 60.221
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = .547

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

005:0010

=====

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:210		2.84	.283	9.33	60.22	.000
+ID2 03:215		.52	.065	9.20	60.22	.000
=====						
SUM 04:520		3.36	.342	9.30	60.22	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0011

=====

CALIB NASHYD	Area (ha)=	.34	Curve Number (CN)=80.00
01:220 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.240	

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Unit Hyd Qpeak (cms)= .054

PEAK FLOW (cms)= .045 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 64.922
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = .590

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

005:0012

=====

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.045	9.20	64.92	.000
+ID2 04:520		3.36	.342	9.30	60.22	.000
=====						
SUM 05:530		3.70	.385	9.27	60.65	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0013

* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

=====

CALIB STANDHYD	Area (ha)=	.45
01:225 DT= 2.00	Total Imp(%)=	79.00 Dir. Conn.(%)= 79.00

=====

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.36	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.00	40.00
Mannings n =	.013	.250

Max.eff.Inten.(mm/hr)= 158.18 81.30

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Steeles Ave_Road Corridor_PrControlled

over (min) 2.00 10.00
Storage Coeff. (min)= 1.49 (ii) 9.15 (ii)
Unit Hyd. Tpeak (min)= 2.00 10.00
Unit Hyd. peak (cms)= .63 .12

PEAK FLOW (cms)= .16 .01 .166 (iii)
TIME TO PEAK (hrs)= 9.00 9.10 9.000
RUNOFF VOLUME (mm)= 108.01 56.76 97.247
TOTAL RAINFALL (mm)= 110.01 110.01 110.008
RUNOFF COEFFICIENT = .98 .52 .884

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

005:0014

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

=====

CALIB NASHYD	Area (ha)=	1.63	Curve Number (CN)=72.00
01:230 DT= 2.00	Ia (mm)=	7.400	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.450	

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)= .112 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 52.280
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = .475

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

005:0015

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Steeles Ave_Road Corridor_PrControlled

TOTALS

PEAK FLOW	(cms)=	.07	.03	.096 (iii)
TIME TO PEAK	(hrs)=	9.00	9.07	9.000
RUNOFF VOLUME	(mm)=	108.01	52.82	77.656
TOTAL RAINFALL	(mm)=	110.01	110.01	110.008
RUNOFF COEFFICIENT	=	.98	.48	.706

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

005:0018-----								
-								
*								

	ADD HYD (550	)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
				(ha)	(cms)	(hrs)	(mm)	(cms)
	ID1	03:540		6.86	.587	9.47	63.57	.000
	+ID2	04:240		.38	.096	9.00	77.66	.000
=====								
	SUM	05:550		7.24	.606	9.47	64.30	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

005:0019-----
-
*
-----
| CALIB STANDHYD | Area (ha)= .12
| 06:245 DT= 2.00 | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

```

Surface Area (ha)= IMPERVIOUS .05 PERVIOUS (i) .07

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Steeles Ave_Road Corridor_PrControlled

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

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*****
*****
*
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005:0002-----
*-----

005:0002

* _____

```
| START | Project dir.: C:\SWM\Steelses\
----- Rainfall dir.: C:\SWM\Steelses\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 006
NSTORM= 1
# 1=Milton1H.stm
```

```

-
006:0002-----
-
*#####

```

Steeles Ave_Road Corridor_PrControlled
*# Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *
*# Date : JUL 2021 *
*# Modeller : [TA/MB] *
*# Company : WSP *

*# HYDROLOGIC ASSESSMENT - PRE-DEVELOPMENT CONDITIONS *
*# 2-YEAR TO 100-YEAR DESIGN STORMS *
*# 24-hour CHICAGO STORM DISTRIBUTION *

*#

006:0002-----

READ STORM Ptotal= 122.40 mm
Filename: 24-hr Chicago Storm, 100 year Event
Comments: 24-hr Chicago Storm, 100 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.180	6.17	2.920	12.17	3.990	18.17	1.710
.33	1.200	6.33	3.070	12.33	3.830	18.33	1.680
.50	1.220	6.50	3.230	12.50	3.680	18.50	1.660
.67	1.240	6.67	3.420	12.67	3.540	18.67	1.640
.83	1.260	6.83	3.630	12.83	3.420	18.83	1.620
1.00	1.280	7.00	3.880	13.00	3.300	19.00	1.590
1.17	1.300	7.17	4.170	13.17	3.200	19.17	1.570
1.33	1.320	7.33	4.510	13.33	3.100	19.33	1.550
1.50	1.340	7.50	4.930	13.50	3.010	19.50	1.530
1.67	1.370	7.67	5.440	13.67	2.920	19.67	1.520
1.83	1.390	7.83	6.100	13.83	2.840	19.83	1.500
2.00	1.420	8.00	6.970	14.00	2.760	20.00	1.480
2.17	1.450	8.17	8.170	14.17	2.690	20.17	1.460
2.33	1.470	8.33	9.990	14.33	2.620	20.33	1.450
2.50	1.500	8.50	13.060	14.50	2.560	20.50	1.430
2.67	1.530	8.67	19.520	14.67	2.500	20.67	1.410
2.83	1.570	8.83	43.870	14.83	2.440	20.83	1.400
3.00	1.600	9.00	174.100	15.00	2.390	21.00	1.380
3.17	1.640	9.17	53.210	15.17	2.340	21.17	1.370
3.33	1.680	9.33	27.870	15.33	2.290	21.33	1.350
3.50	1.720	9.50	19.240	15.50	2.240	21.50	1.340
3.67	1.760	9.67	14.870	15.67	2.200	21.67	1.320
3.83	1.800	9.83	12.220	15.83	2.150	21.83	1.310
4.00	1.850	10.00	10.430	16.00	2.110	22.00	1.300

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4.17	1.900	10.17	9.140	16.17	2.070	22.17	1.280
4.33	1.960	10.33	8.160	16.33	2.040	22.33	1.270
4.50	2.010	10.50	7.390	16.50	2.000	22.50	1.260
4.67	2.070	10.67	6.760	16.67	1.970	22.67	1.250
4.83	2.140	10.83	6.250	16.83	1.930	22.83	1.240
5.00	2.210	11.00	5.810	17.00	1.900	23.00	1.220
5.17	2.290	11.17	5.440	17.17	1.870	23.17	1.210
5.33	2.370	11.33	5.120	17.33	1.840	23.33	1.200
5.50	2.460	11.50	4.840	17.50	1.810	23.50	1.190
5.67	2.560	11.67	4.590	17.67	1.790	23.67	1.180
5.83	2.670	11.83	4.370	17.83	1.760	23.83	1.170
6.00	2.790	12.00	4.170	18.00	1.730	24.00	1.160

006:0003-----

* **ESTIMATING PRE-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *

CALIB STANDHYD
01:200 DT= 2.00
Area (ha)= 1.24
Total Imp(%)= 38.00 Dir. Conn.(%)= 38.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.47	.77
Dep. Storage (mm)=	2.00	5.60
Average Slope (%)=	1.00	2.00
Length (m)=	91.00	40.00
Mannings n =	.013	.310
Max.eff.Inten.(mm/hr)=	174.10	124.93
over (min)	2.00	10.00
Storage Coeff. (min)=	1.93 (ii)	9.28 (ii)
Unit Hyd. Tpeak (min)=	2.00	10.00
Unit Hyd. peak (cms)=	.55	.12
PEAK FLOW (cms)=	.23	.17
TIME TO PEAK (hrs)=	9.00	9.10
RUNOFF VOLUME (mm)=	120.40	82.59
TOTAL RAINFALL (mm)=	122.40	122.40
RUNOFF COEFFICIENT =	.98	.67
*** WARNING: Storage Coefficient is smaller than DT!		
Use a smaller DT or a larger area.		

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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Steeles Ave_Road Corridor_PrControlled
CN* = 84.0 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.

006:0004-----

CALIB NASHYD
02:205 DT= 2.00
Area (ha)= .55
Ia (mm)= 5.600
U.H. Tp(hrs)= .260
Curve Number (CN)=82.00
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= .081
PEAK FLOW (cms)= .086 (i)
TIME TO PEAK (hrs)= 9.233
RUNOFF VOLUME (mm)= 79.060
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .646

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

006:0005-----

CALIB NASHYD
03:1021 DT= 2.00
Area (ha)= 8.51
Ia (mm)= 5.600
U.H. Tp(hrs)= .550
Curve Number (CN)=82.00
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= .591
PEAK FLOW (cms)= .809 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 79.061
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .646

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

006:0006-----

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Steeles Ave_Road Corridor_PrControlled

ADD HYD (500)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:205		.55	.086	9.23	79.06	.000
+ID2 03:1021		8.51	.809	9.57	79.06	.000
SUM 04:500		9.06	.862	9.53	79.06	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0007-----

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:200		1.24	.359	9.00	96.96	.000
+ID2 04:500		9.06	.862	9.53	79.06	.000
SUM 05:510		10.30	.944	9.50	81.22	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0008-----

* HYD 510 GIVES FLOW DRAINING OVERLAND TO TRIBUTARY NW1-E

* CALIB NASHYD
02:210 DT= 2.00
Area (ha)= 2.84
Ia (mm)= 5.900
U.H. Tp(hrs)= .330
Curve Number (CN)=77.00
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= .329

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Steeles Ave_Road Corridor_PrControlled

PEAK FLOW (cms)= .331 (i)
TIME TO PEAK (hrs)= 9.300
RUNOFF VOLUME (mm)= 70.554
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .576

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

006:0009

CALIB NASHYD	Area (ha)=	.52	Curve Number (CN)=77.00
03:215 DT= 2.00	Ia (mm)=	5.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.230	

Unit Hyd Qpeak (cms)= .086

PEAK FLOW (cms)= .076 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 70.554
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .576

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

006:0010

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:210		2.84	.331	9.30	70.55	.000
+ID2 03:215		.52	.076	9.20	70.55	.000
SUM 04:520		3.36	.401	9.30	70.55	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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Steeles Ave_Road Corridor_PrControlled

CALIB NASHYD	Area (ha)=	.34	Curve Number (CN)=80.00
01:220 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.240	

Unit Hyd Qpeak (cms)= .054

PEAK FLOW (cms)= .053 (i)
TIME TO PEAK (hrs)= 9.200
RUNOFF VOLUME (mm)= 75.664
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .618

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

006:0012

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.053	9.20	75.66	.000
+ID2 04:520		3.36	.401	9.30	70.55	.000
SUM 05:530		3.70	.451	9.27	71.02	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0013

* HYD 530 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

CALIB STANDHYD	Area (ha)=	.45	Dir. Conn.(%)=	79.00
01:225 DT= 2.00	Total Imp(%)=	79.00		

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Steeles Ave_Road Corridor_PrControlled

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.36	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.00	40.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	174.10	99.20
over (min)	2.00	8.00
Storage Coeff. (min)=	1.43 (ii)	8.51 (ii)
Unit Hyd. Tpeak (min)=	2.00	8.00
Unit Hyd. peak (cms)=	.64	.14

PEAK FLOW (cms)=	.17	.02	.186 (iii)
TIME TO PEAK (hrs)=	9.00	9.07	9.000
RUNOFF VOLUME (mm)=	120.40	66.70	109.124
TOTAL RAINFALL (mm)=	122.40	122.40	122.402
RUNOFF COEFFICIENT =	.98	.54	.892

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

006:0014

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

CALIB NASHYD	Area (ha)=	1.63	Curve Number (CN)=72.00
01:230 DT= 2.00	Ia (mm)=	7.400	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.450	

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)= .132 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 61.864
TOTAL RAINFALL (mm)= 122.402

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RUNOFF COEFFICIENT = .505

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

006:0015

CALIB NASHYD	Area (ha)=	5.23	Curve Number (CN)=81.00
02:235 DT= 2.00	Ia (mm)=	4.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.460	

Unit Hyd Qpeak (cms)= .434

PEAK FLOW (cms)= .552 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 77.968
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .637

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

006:0016

ADD HYD (540)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:230		1.63	.132	9.47	61.86	.000
+ID2 02:235		5.23	.552	9.47	77.97	.000
SUM 03:540		6.86	.684	9.47	74.14	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0017

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Steeles Ave_Road Corridor_PrControlled

CALIB STANDHYD	Area (ha)=	.38
04:240 DT= 2.00	Total Imp(%)=	45.00 Dir. Conn.(%)= 45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.17	.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00
Mannings n	.013	.250
Max.eff.Inten.(mm/hr)=	174.10	91.49
over (min)	4.00	8.00
Storage Coeff. (min)=	3.33 (ii)	7.39 (ii)
Unit Hyd. Tpeak (min)=	4.00	8.00
Unit Hyd. peak (cms)=	.31	.15
		TOTALS
PEAK FLOW (cms)=	.08	.04
TIME TO PEAK (hrs)=	9.00	9.07
RUNOFF VOLUME (mm)=	120.40	62.32
TOTAL RAINFALL (mm)=	122.40	122.402
RUNOFF COEFFICIENT	.98	.51
		.723

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0018-----

*

ADD HYD (550)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
		(ha)	(cms)	(hrs)	(mm)	(cms)
	ID1 03:540	6.86	.684	9.47	74.14	.000
	+ID2 04:240	.38	.110	9.00	88.46	.000
	SUM 05:550	7.24	.705	9.47	74.89	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Steeles Ave_Road Corridor_PrControlled

006:0019-----

*

CALIB STANDHYD	Area (ha)=	.12
06:245 DT= 2.00	Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.05	.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n	.013	.250
Max.eff.Inten.(mm/hr)=	174.10	97.84
over (min)	2.00	4.00
Storage Coeff. (min)=	.95 (ii)	4.05 (ii)
Unit Hyd. Tpeak (min)=	2.00	4.00
Unit Hyd. peak (cms)=	.75	.28
		TOTALS
PEAK FLOW (cms)=	.02	.02
TIME TO PEAK (hrs)=	9.00	9.00
RUNOFF VOLUME (mm)=	120.40	62.32
TOTAL RAINFALL (mm)=	122.40	122.402
RUNOFF COEFFICIENT	.98	.51
		.713

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0020-----

*

ADD HYD (560)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
		(ha)	(cms)	(hrs)	(mm)	(cms)
	ID1 05:550	7.24	.705	9.47	74.89	.000
	+ID2 06:245	.12	.041	9.00	87.30	.000
	SUM 07:560	7.36	.711	9.43	75.10	.000

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Steeles Ave_Road Corridor_PrControlled

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0021-----

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* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

006:0002-----

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006:0002-----

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006:0002-----

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006:0002-----

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FINISH

WARNINGS / ERRORS / NOTES

Simulation ended on 2021-07-23 at 16:36:51

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Steeles Ave_Road Corridor_PrControlled

APPENDIX

B-6

**Hydrologic Model Output –
Post-Development
Uncontrolled**

Steeles Ave_Road Corridor_PrControlled

SSSSS W W M M H H Y Y M M 000 999 999 =====
S W W W M M M M H H Y Y M M M 0 0 9 9 9 9
SSSSS W W W M M M M M H H Y Y M M M 0 0 ## 9 9 9 9 Ver 4.05
S W W M M M H H Y M M 0 0 9999 9999 Sept 2011
SSSSS W W M M H H Y M M 000 9 9 =====
StormWater Management HYdrologic Model 9 9 9 9 # 4313781
999 999 =====

***** SWHYMO Ver/4.05 *****
***** A single event and continuous hydrologic simulation model *****
***** based on the principles of HYMO and its successors *****
***** OTTHYMO-83 and OTTHYMO-89. *****
***** Distributed by: J.F. Sabourin and Associates Inc. *****
***** Ottawa, Ontario: (613) 836-3884 *****
***** Gatineau, Quebec: (819) 243-6858 *****
***** E-Mail: swmhymo@jfsa.Com *****

+++++ Licensed user: McCormick Rankin Corporation +++++
+++++ Kitchener SERIAL#:4313781 +++++

***** +++++ PROGRAM ARRAY DIMENSIONS +++++ *****
***** Maximum value for ID numbers : 10 *****
***** Max. number of rainfall points: 105408 *****
***** Max. number of flow points : 105408 *****

***** D E T A I L E D O U T P U T *****

* DATE: 2021-07-26 TIME: 17:40:49 RUN COUNTER: 000425 *

* Input filename: C:\SWM\Steeles\Stls_PrU.dat *
* Output filename: C:\SWM\Steeles\Stls_PrU.out *
* Summary filename: C:\SWM\Steeles\Stls_PrU.sum *
* User comments: *
* 1: *
* 2: *
* 3: *

Page 1

Steeles Ave_Road Corridor_PrControlled

001:0001-----

* Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *
* Date : JUL 2021 *
* Modeller : [TA/MB] *
* Company : WSP *

* HYDROLOGIC ASSESSMENT - POST-DEVELOPMENT CONDITIONS UNCONTROLLED *
* 2-YEAR TO 100-YEAR DESIGN STORMS *
* 24-hour CHICAGO STORM DISTRIBUTION *

| START | Project dir.: C:\SWM\Steeles\
----- Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 001
NSTORM= 1
1=Milton02.stm

001:0002-----
*
*
| READ STORM | Filename: 24 hr Chicago Storm, 2 year Storm Event
| Ptotal= 47.70 mm | Comments: 24 hr Chicago Storm, 2 year Storm Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.370	6.17	.970	12.17	1.370	18.17	.550
.33	.380	6.33	1.030	12.33	1.310	18.33	.540
.50	.380	6.50	1.090	12.50	1.250	18.50	.530
.67	.390	6.67	1.160	12.67	1.200	18.67	.520
.83	.390	6.83	1.230	12.83	1.160	18.83	.520
1.00	.400	7.00	1.330	13.00	1.110	19.00	.510
1.17	.410	7.17	1.430	13.17	1.070	19.17	.500
1.33	.420	7.33	1.560	13.33	1.040	19.33	.500
1.50	.420	7.50	1.720	13.50	1.010	19.50	.490

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Steeles Ave_Road Corridor_PrControlled

1.67	.430	7.67	1.920	13.67	.970	19.67	.480
1.83	.440	7.83	2.170	13.83	.950	19.83	.480
2.00	.450	8.00	2.510	14.00	.920	20.00	.470
2.17	.460	8.17	2.990	14.17	.890	20.17	.460
2.33	.470	8.33	3.730	14.33	.870	20.33	.460
2.50	.480	8.50	5.020	14.50	.850	20.50	.450
2.67	.490	8.67	7.860	14.67	.820	20.67	.450
2.83	.500	8.83	19.200	14.83	.800	20.83	.440
3.00	.510	9.00	80.060	15.00	.790	21.00	.440
3.17	.520	9.17	23.630	15.17	.770	21.17	.430
3.33	.540	9.33	11.650	15.33	.750	21.33	.430
3.50	.550	9.50	7.730	15.50	.730	21.50	.420
3.67	.570	9.67	5.800	15.67	.720	21.67	.420
3.83	.580	9.83	4.670	15.83	.700	21.83	.410
4.00	.600	10.00	3.920	16.00	.690	22.00	.410
4.17	.620	10.17	3.380	16.17	.680	22.17	.400
4.33	.630	10.33	2.980	16.33	.660	22.33	.400
4.50	.650	10.50	2.680	16.50	.650	22.50	.400
4.67	.680	10.67	2.430	16.67	.640	22.67	.390
4.83	.700	10.83	2.230	16.83	.630	22.83	.390
5.00	.720	11.00	2.060	17.00	.620	23.00	.380
5.17	.750	11.17	1.910	17.17	.600	23.17	.380
5.33	.780	11.33	1.790	17.33	.590	23.33	.380
5.50	.810	11.50	1.680	17.50	.580	23.50	.370
5.67	.850	11.67	1.590	17.67	.580	23.67	.370
5.83	.880	11.83	1.510	17.83	.570	23.83	.370
6.00	.930	12.00	1.430	18.00	.560	24.00	.360

001:0003-----

*

* **ESTIMATING POST-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *
* UNCONTROLLED SCENARIO *

| CALIB STANDHYD | Area (ha)= 1.24
| 01:200 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	.17
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	250.00	5.00
Mannings n =	.013	.250

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Steeles Ave_Road Corridor_PrControlled

Max.eff.Inten.(mm/hr)= 80.06 21.31
over (min) 4.00 8.00
Storage Coeff. (min)= 4.84 (ii) 8.60 (ii)
Unit Hyd. Tpeak (min)= 4.00 8.00
Unit Hyd. peak (cms)= .25 .13

TOTALS
PEAK FLOW (cms)= .21 .01 .212 (iii)
TIME TO PEAK (hrs)= 9.00 9.10 9.000
RUNOFF VOLUME (mm)= 45.70 13.34 41.170
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .28 .863

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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.

001:0004-----

*
*
| CALIB STANDHYD | Area (ha)= .55
| 02:205 DT= 2.00 | Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.46	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	130.00	5.00
Mannings n =	.013	.250

Max.eff.Inten.(mm/hr)= 80.06 19.70
over (min) 4.00 8.00
Storage Coeff. (min)= 3.27 (ii) 7.15 (ii)
Unit Hyd. Tpeak (min)= 4.00 8.00
Unit Hyd. peak (cms)= .32 .15

TOTALS
PEAK FLOW (cms)= .10 .00 .099 (iii)
TIME TO PEAK (hrs)= 9.00 9.07 9.000
RUNOFF VOLUME (mm)= 45.70 12.45 40.048
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .26 .840

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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Steeles Ave_Road Corridor_PrControlled
CN* = 71.0 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.

001:0005

CALIB NASHYD | Area (ha)= 8.51 Curve Number (CN)=82.00
03:1021 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .550

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)= .191 (i)
TIME TO PEAK (hrs)= 9.633
RUNOFF VOLUME (mm)= 18.112
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = .380

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

001:0006

ADD HYD (500) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 02:205 .55 .099 9.00 40.05 .000
+ID2 03:1021 8.51 .191 9.63 18.11 .000
SUM 04:500 9.06 .199 9.60 19.44 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0007

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Steeles Ave_Road Corridor_PrControlled

ADD HYD (510) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:200 1.24 .212 9.00 41.17 .000
+ID2 04:500 9.06 .199 9.60 19.44 .000
SUM 05:510 10.30 .342 9.00 22.06 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0008

* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E

CALIB STANDHYD | Area (ha)= 2.84
02:210 DT= 2.00 | Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.70 1.14
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 460.00 15.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 80.06 14.27
over (min) 6.00 16.00
Storage Coeff. (min)= 6.98 (ii) 15.51 (ii)
Unit Hyd. Tpeak (min)= 6.00 16.00
Unit Hyd. peak (cms)= .17 .07
PEAK FLOW (cms)= .28 .03 *TOTALS*
TIME TO PEAK (hrs)= 9.03 9.23 9.033
RUNOFF VOLUME (mm)= 45.70 12.45 32.400
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .26 .679

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

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

001:0009

CALIB STANDHYD | Area (ha)= .52
03:215 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .45 .07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 80.06 19.70
over (min) 2.00 8.00
Storage Coeff. (min)= 2.03 (ii) 7.92 (ii)
Unit Hyd. Tpeak (min)= 2.00 8.00
Unit Hyd. peak (cms)= .53 .14
PEAK FLOW (cms)= .10 .00 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.07 9.000
RUNOFF VOLUME (mm)= 45.70 12.45 41.045
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .26 .860

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

001:0010

ADD HYD (520) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 02:210 2.84 .299 9.03 32.40 .000
+ID2 03:215 .52 .101 9.00 41.04 .000

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Steeles Ave_Road Corridor_PrControlled

SUM 04:520 3.36 .389 9.00 33.74 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0011

CALIB STANDHYD | Area (ha)= .34
01:220 DT= 2.00 | Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .30 .04
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 115.00 5.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 80.06 21.07
over (min) 4.00 6.00
Storage Coeff. (min)= 3.04 (ii) 6.82 (ii)
Unit Hyd. Tpeak (min)= 4.00 6.00
Unit Hyd. peak (cms)= .33 .17
PEAK FLOW (cms)= .06 .00 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.03 9.000
RUNOFF VOLUME (mm)= 45.70 12.45 42.042
TOTAL RAINFALL (mm)= 47.70 47.70 47.700
RUNOFF COEFFICIENT = .96 .26 .881

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

001:0012

ADD HYD (530) | ID: NHYD AREA QPEAK TPEAK R.V. DWF

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

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

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

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

RUNOFF COEFFICIENT      =      .96      .26
*** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.

```

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Steeles Ave_Road Corridor_PrControlled

002:0005

*

CALIB NASHYD	Area (ha)=	8.51	Curve Number (CN)=82.00
03:1021 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.550	

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)=	.337 (i)
TIME TO PEAK (hrs)=	9.600
RUNOFF VOLUME (mm)=	32.216
TOTAL RAINFALL (mm)=	67.048
RUNOFF COEFFICIENT	= .480

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

002:0006

*

ADD HYD (500)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:205		.55	.137	9.00	57.94	.000
+ID2 03:1021		8.51	.337	9.60	32.22	.000
SUM 04:500		9.06	.349	9.60	33.78	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0007

*

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:200		1.24	.290	9.00	59.40	.000

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Steeles Ave_Road Corridor_PrControlled	+ID2 04:500	9.06	.349	9.60	33.78	.000
--	-------------	------	------	------	-------	------

SUM 05:510	10.30	.499	9.00	36.86	.000
------------	-------	------	------	-------	------

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0008

*

* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E

*

*

CALIB STANDHYD	Area (ha)=	2.84
02:210 DT= 2.00	Total Imp(%)=	60.00
	Dir. Conn.(%)=	60.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.70	1.14
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	460.00	15.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	105.25	30.14
over (min)	6.00	12.00
Storage Coeff. (min)=	6.25 (ii)	12.58 (ii)
Unit Hyd. Tpeak (min)=	6.00	12.00
Unit Hyd. peak (cms)=	.18	.09

PEAK FLOW (cms)=	.39	.06	*TOTALS*
TIME TO PEAK (hrs)=	9.03	9.17	.431 (iii)
RUNOFF VOLUME (mm)=	65.05	23.22	48.318
TOTAL RAINFALL (mm)=	67.05	67.05	67.048
RUNOFF COEFFICIENT	= .97	.35	.721

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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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Steeles Ave_Road Corridor_PrControlled

002:0009

*

CALIB STANDHYD	Area (ha)=	.52
03:215 DT= 2.00	Total Imp(%)=	86.00
	Dir. Conn.(%)=	86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.45	.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	59.00	10.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	105.25	37.62
over (min)	2.00	6.00
Storage Coeff. (min)=	1.82 (ii)	6.37 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.57	.18

PEAK FLOW (cms)=	.13	.01	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.03	.135 (iii)
RUNOFF VOLUME (mm)=	65.05	23.22	59.193
TOTAL RAINFALL (mm)=	67.05	67.05	67.048
RUNOFF COEFFICIENT	= .97	.35	.883

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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

*

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:210		2.84	.431	9.03	48.32	.000
+ID2 03:215		.52	.135	9.00	59.19	.000
SUM 04:520		3.36	.549	9.00	50.00	.000

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Steeles Ave_Road Corridor_PrControlled

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0011

*

CALIB STANDHYD	Area (ha)=	.34
01:220 DT= 2.00	Total Imp(%)=	89.00
	Dir. Conn.(%)=	89.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.30	.04
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	115.00	5.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	105.25	37.62
over (min)	2.00	6.00
Storage Coeff. (min)=	2.72 (ii)	5.72 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.44	.19

PEAK FLOW (cms)=	.09	.00	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.03	.089 (iii)
RUNOFF VOLUME (mm)=	65.05	23.22	60.447
TOTAL RAINFALL (mm)=	67.05	67.05	67.048
RUNOFF COEFFICIENT	= .97	.35	.902

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 71.0 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 (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.089	9.00	60.45	.000

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Steeles Ave_Road Corridor_PrControlled
+ID2 04:520 3.36 .549 9.00 50.00 .000

SUM 05:530 3.70 .639 9.00 50.96 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0013-----
-
*

* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK

*

CALIB STANDHYD	Area (ha)=	.45		
01:225 DT= 2.00	Total Imp(%)=	93.00	Dir. Conn.(%)=	93.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.42	.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	105.00	5.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	105.25	41.76
over (min)	2.00	6.00
Storage Coeff. (min)=	2.58 (ii)	5.45 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.46	.20

		TOTALS
PEAK FLOW (cms)=	.12	.00
TIME TO PEAK (hrs)=	9.00	9.03
RUNOFF VOLUME (mm)=	65.05	25.45
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT	.97	.38

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

Steeles Ave_Road Corridor_PrControlled

002:0014-----
-
*

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

*

CALIB NASHYD	Area (ha)=	1.63	Curve Number (CN)=72.00
01:230 DT= 2.00	Ia (mm)=	7.400	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.450	

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)=	.048 (i)
TIME TO PEAK (hrs)=	9.500
RUNOFF VOLUME (mm)=	22.458
TOTAL RAINFALL (mm)=	67.048
RUNOFF COEFFICIENT	.335

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

002:0015-----
-
*

CALIB NASHYD	Area (ha)=	5.23	Curve Number (CN)=81.00
02:235 DT= 2.00	Ia (mm)=	4.900	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.460	

Unit Hyd Qpeak (cms)= .434

PEAK FLOW (cms)=	.231 (i)
TIME TO PEAK (hrs)=	9.500
RUNOFF VOLUME (mm)=	31.730
TOTAL RAINFALL (mm)=	67.048
RUNOFF COEFFICIENT	.473

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

002:0016-----
-
*

Steeles Ave_Road Corridor_PrControlled
+ ADD HYD (540) ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:230 1.63 .048 9.50 22.46 .000
+ID2 02:235 5.23 .231 9.50 31.73 .000
=====

SUM 03:540 6.86 .279 9.50 29.53 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0017-----
-
*

CALIB STANDHYD	Area (ha)=	.38		
04:240 DT= 2.00	Total Imp(%)=	45.00	Dir. Conn.(%)=	45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.17	.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	105.25	33.57
over (min)	4.00	10.00
Storage Coeff. (min)=	4.07 (ii)	10.13 (ii)
Unit Hyd. Tpeak (min)=	4.00	10.00
Unit Hyd. peak (cms)=	.28	.11

		TOTALS
PEAK FLOW (cms)=	.05	.01
TIME TO PEAK (hrs)=	9.00	9.10
RUNOFF VOLUME (mm)=	65.05	23.22
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT	.97	.35

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

Steeles Ave_Road Corridor_PrControlled

002:0018-----
-
*

ADD HYD (550) ID: NHYD AREA QPEAK TPEAK R.V. DWF	(ha) (cms) (hrs) (mm) (cms)
ID1 03:540	6.86 .279 9.50 29.53 .000

+ID2 04:240 .38 .054 9.00 42.04 .000

=====

SUM 05:550 7.24 .290 9.47 30.18 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0019-----
-
*

CALIB STANDHYD	Area (ha)=	.12		
06:245 DT= 2.00	Total Imp(%)=	75.00	Dir. Conn.(%)=	75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.09	.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	105.25	37.62
over (min)	2.00	6.00
Storage Coeff. (min)=	1.17 (ii)	5.71 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.70	.19

		TOTALS
PEAK FLOW (cms)=	.03	.00
TIME TO PEAK (hrs)=	9.00	9.03
RUNOFF VOLUME (mm)=	65.05	23.22
TOTAL RAINFALL (mm)=	67.05	67.05
RUNOFF COEFFICIENT	.97	.35

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 Ia = Dep. Storage (Above)

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

002:0020-----						
*-----						
ADD HYD (560) ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF	
	(ha)	(cms)	(hrs)	(mm)	(cms)	
ID1 05:550	7.24	.290	9.47	30.18	.000	

+ID2 06:245	.12	.028	9.00	54.59	.000	
=====						
SUM 07:560	7.36	.293	9.47	30.58	.000	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

002:0021-----						
*-----						
* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK						
*-----						

*-----						
002:0002-----						
*-----						
** END OF RUN : 2						

| START | Project dir.: C:\SWM\Steeles\

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Steeles Ave_Road Corridor_PrControlled
Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 003
NSTORM= 1
1=Milton10.stm

003:0002-----
*-----

*# Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *
*# Date : JUL 2021 *
*# Modeller : [TA/MB] *
*# Company : WSP *
*# *

*# HYDROLOGIC ASSESSMENT - POST-DEVELOPMENT CONDITIONS UNCONTROLLED *
*# 2-YEAR TO 100-YEAR DESIGN STORMS *
*# 24-hour CHICAGO STORM DISTRIBUTION *
*# *

*# *
*-----

| READ STORM | Filename: 24-hr Chicago Storm, 10 year Event
| Ptotal= 80.06 mm | Comments: 24-hr Chicago Storm, 10 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.700	6.17	1.790	12.17	2.480	18.17	1.030
.33	.720	6.33	1.890	12.33	2.370	18.33	1.020
.50	.730	6.50	1.990	12.50	2.280	18.50	1.000
.67	.740	6.67	2.110	12.67	2.190	18.67	.990
.83	.750	6.83	2.250	12.83	2.110	18.83	.970
1.00	.760	7.00	2.410	13.00	2.040	19.00	.960
1.17	.780	7.17	2.590	13.17	1.970	19.17	.950
1.33	.790	7.33	2.820	13.33	1.910	19.33	.940
1.50	.800	7.50	3.090	13.50	1.850	19.50	.920
1.67	.820	7.67	3.420	13.67	1.790	19.67	.910
1.83	.830	7.83	3.850	13.83	1.740	19.83	.900
2.00	.850	8.00	4.420	14.00	1.690	20.00	.890

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Steeles Ave_Road Corridor_PrControlled									
2.17	.870	8.17	5.230	14.17	1.650	20.17	.880		
2.33	.890	8.33	6.450	14.33	1.610	20.33	.870		
2.50	.900	8.50	8.540	14.50	1.560	20.50	.860		
2.67	.920	8.67	13.030	14.67	1.530	20.67	.850		
2.83	.940	8.83	30.360	14.83	1.490	20.83	.840		
3.00	.960	9.00	121.810	15.00	1.460	21.00	.830		
3.17	.990	9.17	37.050	15.17	1.420	21.17	.820		
3.33	1.010	9.33	18.910	15.33	1.390	21.33	.810		
3.50	1.040	9.50	12.830	15.50	1.360	21.50	.800		
3.67	1.060	9.67	9.790	15.67	1.340	21.67	.790		
3.83	1.090	9.83	7.970	15.83	1.310	21.83	.780		
4.00	1.120	10.00	6.750	16.00	1.280	22.00	.780		
4.17	1.150	10.17	5.880	16.17	1.260	22.17	.770		
4.33	1.190	10.33	5.220	16.33	1.240	22.33	.760		
4.50	1.220	10.50	4.700	16.50	1.210	22.50	.750		
4.67	1.260	10.67	4.290	16.67	1.190	22.67	.750		
4.83	1.300	10.83	3.950	16.83	1.170	22.83	.740		
5.00	1.350	11.00	3.660	17.00	1.150	23.00	.730		
5.17	1.390	11.17	3.420	17.17	1.130	23.17	.720		
5.33	1.450	11.33	3.210	17.33	1.110	23.33	.720		
5.50	1.500	11.50	3.020	17.50	1.100	23.50	.710		
5.67	1.570	11.67	2.860	17.67	1.080	23.67	.700		
5.83	1.630	11.83	2.720	17.83	1.060	23.83	.700		
6.00	1.710	12.00	2.590	18.00	1.050	24.00	.690		

003:0003-----									
*-----									

* **ESTIMATING POST-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA**									
* UNCONTROLLED SCENARIO									

*-----									
CALIB STANDHYD	Area	(ha)=	1.24						
01:200 DT= 2.00	Total Imp(%)=	86.00	Dir. Conn.(%)=	86.00					

IMPERVIOUS				PERVIOUS (i)			
Surface Area	(ha)=	1.07	.17				
Dep. Storage	(mm)=	2.00	5.00				
Average Slope	(%)=	1.00	2.00				
Length	(m)=	250.00	5.00				
Mannings n	=	.013	.250				
Max.eff.Inten.(mm/hr)=	over (min)	121.81	53.38				
		4.00	6.00				

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Steeles Ave_Road Corridor_PrControlled

Storage Coeff. (min)= 4.09 (ii) 6.70 (ii)
Unit Hyd. Tpeak (min)= 4.00 6.00
Unit Hyd. peak (cms)= .28 .17
TOTALS
PEAK FLOW (cms)= .33 .02 .345 (iii)
TIME TO PEAK (hrs)= 9.00 9.03 9.000
RUNOFF VOLUME (mm)= 78.06 33.33 71.797
TOTAL RAINFALL (mm)= 80.06 80.06 80.058
RUNOFF COEFFICIENT = .97 .42 .897
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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.

003:0004-----				
*-----				

CALIB STANDHYD		Area	(ha)=	.55
02:205 DT= 2.00		Total Imp(%)=	83.00	Dir. Conn.(%)= 83.00
*-----				
		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.46	.09	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	130.00	5.00	
Mannings n	=	.013	.250	
Max.eff.Inten.(mm/hr)=		121.81	50.04	
over (min)		2.00	6.00	
Storage Coeff.	(min)=	2.76 (ii)	5.44 (ii)	
Unit Hyd. Tpeak	(min)=	2.00	6.00	
Unit Hyd. peak	(cms)=	.44	.20	
				TOTALS
PEAK FLOW	(cms)=	.15	.01	.160 (iii)
TIME TO PEAK	(hrs)=	9.00	9.03	9.000
RUNOFF VOLUME	(mm)=	78.06	31.51	70.145
TOTAL RAINFALL	(mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	=	.97	.39	.876

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

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Steeles Ave_Road Corridor_PrControlled
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

003:0005

*

CALIB NASHYD	Area (ha)=	8.51	Curve Number (CN)=82.00
03:1021 DT= 2.00	Ia (mm)=	5.600	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)=	.550	

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)=	.445 (i)
TIME TO PEAK (hrs)=	9.600
RUNOFF VOLUME (mm)=	42.576
TOTAL RAINFALL (mm)=	80.058
RUNOFF COEFFICIENT	= .532

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

003:0006

*

ADD HYD (500)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:205	.55	.160	9.00	70.14	.000
	+ID2 03:1021	8.51	.445	9.60	42.58	.000
	SUM 04:500	9.06	.460	9.57	44.25	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0007

*

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
---------------	----------	-----------	-------------	-------------	-----------	-----------

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Steeles Ave_Road Corridor_PrControlled					
ID1 01:200	1.24	.345	9.00	71.80	.000
+ID2 04:500	9.06	.460	9.57	44.25	.000
SUM 05:510	10.30	.609	9.00	47.57	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0008

*

* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E

*

CALIB STANDHYD	Area (ha)=	2.84
02:210 DT= 2.00	Total Imp(%)=	60.00
	Dir. Conn.(%)=	60.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.70	1.14
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	460.00	15.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	121.81	40.57
over (min)	6.00	12.00
Storage Coeff. (min)=	5.90 (ii)	11.52 (ii)
Unit Hyd. Tpeak (min)=	6.00	12.00
Unit Hyd. peak (cms)=	.19	.10

PEAK FLOW (cms)=	.46	.08	*TOTALS*
TIME TO PEAK (hrs)=	9.03	9.13	.519 (iii)
RUNOFF VOLUME (mm)=	78.06	31.51	9.033
TOTAL RAINFALL (mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	= .97	.39	.742

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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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Steeles Ave_Road Corridor_PrControlled

003:0009

*

CALIB STANDHYD	Area (ha)=	.52
03:215 DT= 2.00	Total Imp(%)=	86.00
	Dir. Conn.(%)=	86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.45	.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	59.00	10.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	121.81	50.04
over (min)	2.00	6.00
Storage Coeff. (min)=	1.72 (ii)	5.77 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.58	.19

PEAK FLOW (cms)=	.15	.01	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.03	.158 (iii)
RUNOFF VOLUME (mm)=	78.06	31.51	71.541
TOTAL RAINFALL (mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	= .98	.39	.894

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

003:0010

*

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:210	2.84	.519	9.03	59.44	.000
	+ID2 03:215	.52	.158	9.00	71.54	.000

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Steeles Ave_Road Corridor_PrControlled					
SUM 04:520	3.36	.658	9.00	61.31	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0011

*

CALIB STANDHYD	Area (ha)=	.34
01:220 DT= 2.00	Total Imp(%)=	89.00
	Dir. Conn.(%)=	89.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.30	.04
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	115.00	5.00
Mannings n	= .013	.250

Max.eff.Inten.(mm/hr)=	121.81	50.04
over (min)	2.00	6.00
Storage Coeff. (min)=	2.57 (ii)	5.24 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.46	.20

PEAK FLOW (cms)=	.10	.00	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.03	.105 (iii)
RUNOFF VOLUME (mm)=	78.06	31.51	72.938
TOTAL RAINFALL (mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	= .98	.39	.911

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

003:0012

*

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
---------------	----------	-----------	-------------	-------------	-----------	-----------

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK

* THIS 330 GIVES FLOWS DRAINING TO SIXTEEN HILL CREEK

IMPERVIOUS PERVIOUS (i)

				TOTALS
PEAK FLOW	(cms)=	.14	.00	.144 (iii)
TIME TO PEAK	(hrs)=	9.00	9.00	9.000
RUNOFF VOLUME	(mm)=	78.06	34.29	74.994
TOTAL RAINFALL	(mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	=	.98	.43	.937

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

PEAK FLOW	(cms)=	.066 (i)
TIME TO PEAK	(hrs)=	9.500
RUNOFF VOLUME	(mm)=	30.794
TOTAL RAINFALL	(mm)=	80.058
RUNOFF COEFFICIENT	=	.385

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

003:0015-----

PEAK FLOW	(cms)=	.304 (i)
TIME TO PEAK	(hrs)=	9.467
RUNOFF VOLUME	(mm)=	41.924
TOTAL RAINFALL	(mm)=	80.058
RUNOFF COEFFICIENT	=	.524

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

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0017-----

IMPERVIOUS PERVIOUS (i)

				TOTALS
PEAK FLOW	(cms)=	.05	.02	.065 (iii)
TIME TO PEAK	(hrs)=	9.00	9.10	9.000
RUNOFF VOLUME	(mm)=	78.06	31.51	52.456
TOTAL RAINFALL	(mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	=	.97	.39	.655

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:
CN* = 71.0 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.

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

003:0019-----

	PERV1003	PERV1003 (1)
Surface Area (ha)=	.09	.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n =	.013	.250

Max. eff. Inten. (mm/hr)=	121.81	50.04
over (min)	2.00	6.00
Storage Coeff. (min)=	1.10 (ii)	5.15 (ii)
Unit Hyd. Tpeak (min)=	2.00	6.00
Unit Hyd. peak (cms)=	.71	.21

PEAK FLOW	(cms)=	.03	.00	.033 (iii)
TIME TO PEAK	(hrs)=	9.00	9.03	9.000
RUNOFF VOLUME	(mm)=	78.06	31.51	66.420
TOTAL RAINFALL	(mm)=	80.06	80.06	80.058
RUNOFF COEFFICIENT	=	.98	.39	.830

```
*** WARNING: Storage Coefficient is smaller than DT!
            Use a smaller DT or a larger area.
```

Steeles Ave Road Corridor PrControlled

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003:0020-----
-----
*
-----
| ADD HYD (560) | ID: NHYD      AREA      QPEAK      TPEAK      R.V.      DWf
|                |              (ha)      (cms)      (hrs)      (mm)      (cms)
ID1 05:550      7.24      .384      9.47      39.97      .000
+ID2 06:245      .12      .033      9.00      66.42      .000
=====
SUM 07:560      7.36      .388      9.47      40.40      .000
=====

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-
003:0021-----
-
*
* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK
*
*****
*****
*
-
-
003:0002-----
-
*
*
-
-
003:0002-----
-
*
* ** END OF RUN : 3
*****

```

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```

| START | Project dir.: C:\SWM\Steeles\
----- Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 004
NSTORM= 1
# 1=Milton25.stm

```

```
004:0002-----
*****
## Project Name: STEELES AVENIUE EA, MILTON          JOB NUMBER: [17M-00979-00] *
*                                                     *
* Date      : JUL 2021                               *
* Modeller  : [TA/MB]                                *
* Company   : WSP                                     *
*                                                     *
*****
## HYDROLOGIC ASSESSMENT - POST-DEVELOPMENT CONDITIONS UNCONTROLLED *
## 2-YEAR TO 100-YEAR DESIGN STORMS                             *
## 24-hour CHICAGO STORM DISTRIBUTION                          *
##                                                             *
*****
##
-
-
004:0002-----
-
-
-----|
| READ STORM | Filename: 24-hr Chicago Storm, 25 year Event
| Ptotal= 97.01 mm | Comments: 24-hr Chicago Storm, 25 year Event
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	.890	6.17	2.240	12.17	3.080	18.17	1.300
.33	.900	6.33	2.350	12.33	2.950	18.33	1.280
.50	.920	6.50	2.480	12.50	2.830	18.50	1.260
.67	.930	6.67	2.630	12.67	2.730	18.67	1.240
.83	.950	6.83	2.800	12.83	2.630	18.83	1.230

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	Steeles Ave	Road Corridor	PrControlled		
1.00	.960	7.00	2.990	13.00	2.540
1.17	.980	7.17	3.220	13.17	2.450
1.33	1.000	7.33	3.490	13.33	2.380
1.50	1.020	7.50	3.820	13.50	2.300
1.67	1.030	7.67	4.220	13.67	2.240
1.83	1.050	7.83	4.750	13.83	2.170
2.00	1.070	8.00	5.440	14.00	2.110
2.17	1.090	8.17	6.410	14.17	2.060
2.33	1.120	8.33	7.870	14.33	2.010
2.50	1.140	8.50	10.360	14.50	1.960
2.67	1.160	8.67	15.660	14.67	1.910
2.83	1.190	8.83	35.890	14.83	1.870
3.00	1.210	9.00	143.010	15.00	1.820
3.17	1.240	9.17	43.680	15.17	1.780
3.33	1.270	9.33	22.560	15.33	1.750
3.50	1.300	9.50	15.420	15.50	1.710
3.67	1.340	9.67	11.840	15.67	1.680
3.83	1.370	9.83	9.680	15.83	1.640
4.00	1.410	10.00	8.230	16.00	1.610
4.17	1.450	10.17	7.180	16.17	1.580
4.33	1.490	10.33	6.390	16.33	1.550
4.50	1.530	10.50	5.770	16.50	1.520
4.67	1.580	10.67	5.270	16.67	1.500
4.83	1.630	10.83	4.860	16.83	1.470
5.00	1.690	11.00	4.520	17.00	1.450
5.17	1.750	11.17	4.220	17.17	1.420
5.33	1.810	11.33	3.970	17.33	1.400
5.50	1.880	11.50	3.740	17.50	1.380
5.67	1.960	11.67	3.550	17.67	1.360
5.83	2.040	11.83	3.370	17.83	1.340
6.00	2.130	12.00	3.220	18.00	1.320

```

-
004:0003-----
-
*
*****|
*      **ESTIMATING POST-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA**      *
*              UNCONTROLLED SCENARIO                                         *
*****|
*
-----|
| CALIB STANDHYD | Area (ha)= 1.24
| 01:200 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

```

Surface Area	(ha)=	IMPERVIOUS 1.07	PERVIOUS (i) .17
--------------	-------	--------------------	---------------------

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	Steeles Ave. Road	Corridor	PrControlled
Dep. Storage (mm)=	2.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	250.00	5.00	
Mannings n =	.013	.250	
Max. eff. Inten. (mm/hr)=	143.01	71.43	
over (min)	4.00	6.00	
Storage Coeff. (min)=	3.84 (ii)	6.16 (ii)	
Unit Hyd. Tpeak (min)=	4.00	6.00	
Unit Hyd. peak (cms)=	.29	.18	
			TOTALS
PEAK FLOW (cms)=	.39	.03	.414 (iii)
TIME TO PEAK (hrs)=	9.00	9.03	9.000
RUNOFF VOLUME (mm)=	95.01	45.52	88.082
TOTAL RAINFALL (mm)=	97.01	97.01	97.010
RUNOFF COEFFICIENT =	.98	.47	.908

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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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-----
004:0004-----
-----
*
-----
CALIB STANDHYD      Area      (ha)=      .55
02:205   DT= 2.00   Total Imp(%)=    83.00   Dir. Conn.(%)=    83.00
-----
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.46	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	130.00	5.00
Mannings n =	.013	.250
Max. eff. Inten. (mm/hr)=	143.01	69.89
over (min)	2.00	4.00
Storage Coeff. (min)=	2.59 (ii)	4.93 (ii)
Unit Hyd. Tpeak (min)=	2.00	4.00
Unit Hyd. peak (cms)=	.46	.24
		TOTALS
PEAK FLOW (cms)=	.18	.01
TIME TO PEAK (hrs)=	9.00	9.00
RUNOFF VOLUME (mm)=	95.01	43.25
		.193 (iii)
		86.210

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Steeles Ave_Road Corridor_PrControlled
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .889

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0005

CALIB NASHYD | Area (ha)= 8.51 Curve Number (CN)=82.00
03:1021 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .550

Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)= .588 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 56.778
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .585

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

004:0006

ADD HYD (500) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 02:205 .55 .193 9.00 86.21 .000
+ID2 03:1021 8.51 .588 9.57 56.78 .000
SUM 04:500 9.06 .607 9.57 58.56 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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Steeles Ave_Road Corridor_PrControlled

004:0007

ADD HYD (510) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:200 1.24 .414 9.00 88.08 .000
+ID2 04:500 9.06 .607 9.57 58.56 .000
SUM 05:510 10.30 .757 9.00 62.12 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0008

* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E

CALIB STANDHYD | Area (ha)= 2.84
02:210 DT= 2.00 | Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.70 1.14
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 460.00 15.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 143.01 61.59
over (min)= 6.00 10.00
Storage Coeff. (min)= 5.53 (ii) 10.29 (ii)
Unit Hyd. Tpeak (min)= 6.00 10.00
Unit Hyd. peak (cms)= .20 .11
PEAK FLOW (cms)= .55 .12 *TOTALS*
TIME TO PEAK (hrs)= 9.03 9.10 .649 (iii)
RUNOFF VOLUME (mm)= 95.01 43.24 94.305
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .766

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0009

CALIB STANDHYD | Area (ha)= .52
03:215 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .45 .07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 143.01 67.32
over (min)= 2.00 6.00
Storage Coeff. (min)= 1.61 (ii) 5.21 (ii)
Unit Hyd. Tpeak (min)= 2.00 6.00
Unit Hyd. peak (cms)= .60 .21
PEAK FLOW (cms)= .18 .01 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.03 9.000
RUNOFF VOLUME (mm)= 95.01 43.25 87.763
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .905
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0010

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Steeles Ave_Road Corridor_PrControlled

ADD HYD (520) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 02:210 2.84 .649 9.03 74.30 .000
+ID2 03:215 .52 .187 9.00 87.76 .000
SUM 04:520 3.36 .815 9.00 76.39 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0011

CALIB STANDHYD | Area (ha)= .34
01:220 DT= 2.00 | Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .30 .04
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 115.00 5.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 143.01 69.89
over (min)= 2.00 4.00
Storage Coeff. (min)= 2.41 (ii) 4.75 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .48 .25
PEAK FLOW (cms)= .12 .01 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 95.01 43.25 89.316
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .921

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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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Steeles Ave_Road Corridor_PrControlled

004:0012-----						
-						
*						

ADD HYD (530)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 01:220		.34	.125	9.00	89.32	.000

+ID2 04:520		3.36	.815	9.00	76.39	.000
=====						
SUM 05:530		3.70	.939	9.00	77.58	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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004:0013-----
-
*
* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK
*
*****
*
-----
| CALIB STANDHYD | Area (ha)= .45
| 01:225 DT= 2.00 | Total Imp(%)= 93.00 Dir. Conn.(%)= 93.00
-----

```

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.42	.03	
Dep. Storage (mm)=	2.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	105.00	5.00	
Mannings n =	.013	.250	

Max.eff.Inten.(mm/hr)=	143.01	76.21	
over (min)	2.00	4.00	
Storage Coeff. (min)=	2.28 (ii)	4.54 (ii)	
Unit Hyd. Tpeak (min)=	2.00	4.00	
Unit Hyd. peak (cms)=	.50	.26	

			TOTALS
PEAK FLOW (cms)=	.16	.01	.170 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.000
RUNOFF VOLUME (mm)=	95.01	46.71	91.629
TOTAL RAINFALL (mm)=	97.01	97.01	97.010
RUNOFF COEFFICIENT =	.98	.48	.945

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

```

004:0014-----
-
*
* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND
*
*****
*
-----
| CALIB NASHYD | Area (ha)= 1.63 Curve Number (CN)=72.00
| 01:230 DT= 2.00 | Ia (mm)= 7.400 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= .450
-----
Unit Hyd Qpeak (cms)= .138
-----
PEAK FLOW (cms)= .092 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 42.624
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .439

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

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004:0015-----
-
*
-----
| CALIB NASHYD | Area (ha)= 5.23 Curve Number (CN)=81.00
| 02:235 DT= 2.00 | Ia (mm)= 4.900 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= .460
| |
Unit Hyd Qpeak (cms)= .434
PEAK FLOW (cms)= .401 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 55.931
TOTAL RAINFALL (mm)= 97.010
RUNOFF COEFFICIENT = .577

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Steeles Ave_Road Corridor_PrControlled

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

004:0016-----						
-						
*						

ADD HYD (540)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 01:230		1.63	.092	9.47	42.62	.000

+ID2 02:235		5.23	.401	9.47	55.93	.000
=====						
SUM 03:540		6.86	.493	9.47	52.77	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0017					
-					
*					

CALIB STANDHYD		Area (ha)=	.38		
04:240 DT= 2.00		Total Imp(%)=	45.00	Dir. Conn.(%)=	45.00

		IMPERVIOUS	PERVIOUS (i)		
Surface Area	(ha)=	.17	.21		
Dep. Storage	(mm)=	2.00	5.00		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	225.00	15.00		
Mannings n	=	.013	.250		

Max.eff.Inten.(mm/hr)=		143.01	64.56		
over (min)		4.00	8.00		
Storage Coeff. (min)=		3.60 (ii)	8.27 (ii)		
Unit Hyd. Tpeak (min)=		4.00	8.00		
Unit Hyd. peak (cms)=		.30	.14		

		TOTALS			
PEAK FLOW	(cms)=	.06	.02	.084 (iii)	
TIME TO PEAK	(hrs)=	9.00	9.07	9.000	
RUNOFF VOLUME	(mm)=	95.01	43.25	66.540	
TOTAL RAINFALL	(mm)=	97.01	97.01	97.010	
RUNOFF COEFFICIENT	=	.98	.45	.686	

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

004:0018-----						
-						
*						

ADD HYD (550)	ID: NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
-----		(ha)	(cms)	(hrs)	(mm)	(cms)
ID1 03:540		6.86	.493	9.47	52.77	.000

+ID2 04:240		.38	.084	9.00	66.54	.000
=====						
SUM 05:550		7.24	.510	9.47	53.49	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0019-----				
-				
*				

CALIB STANDHYD	Area (ha)=	.12		
06:245 DT= 2.00	Total Imp(%)=	75.00	Dir. Conn.(%)=	75.00

	IMPERVIOUS	PERVIOUS (i)		
Surface Area (ha)=	.09	.03		
Dep. Storage (mm)=	2.00	5.00		
Average Slope (%)=	1.00	2.00		
Length (m)=	28.00	10.00		
Mannings n =	.013	.250		

Max.eff.Inten.(mm/hr)=	143.01	69.89		
over (min)	2.00	4.00		
Storage Coeff. (min)=	1.03 (ii)	4.58 (ii)		
Unit Hyd. Tpeak (min)=	2.00	4.00		
Unit Hyd. peak (cms)=	.73	.26		

	TOTALS			
PEAK FLOW (cms)=	.04	.00	.040 (iii)	

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Steeles Ave_Road Corridor_PrControlled
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 95.01 43.25 82.069
TOTAL RAINFALL (mm)= 97.01 97.01 97.010
RUNOFF COEFFICIENT = .98 .45 .846

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:
CN* = 71.0 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.

004:0020-----

ADD HYD (560)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 05:550		7.24	.510	9.47	53.49	.000
+ID2 06:245		.12	.040	9.00	82.07	.000
SUM 07:560		7.36	.514	9.47	53.96	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

004:0021-----

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

004:0002-----

Steeles Ave_Road Corridor_PrControlled

004:0002-----

** END OF RUN : 4

START Project dir.: C:\SWM\Steeles\

Rainfall dir.: C:\SWM\Steeles\

TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 005
NSTORM= 1
1=Milton50.stm

005:0002-----

Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00]
Date : JUL 2021
Modeller : [TA/MB]
Company : WSP

HYDROLOGIC ASSESSMENT - POST-DEVELOPMENT CONDITIONS UNCONTROLLED
2-YEAR TO 100-YEAR DESIGN STORMS
24-hour CHICAGO STORM DISTRIBUTION

005:0002-----

Steeles Ave_Road Corridor_PrControlled

READ STORM Ptotal= 110.01 mm
Filename: 24-hr Chicago Storm, 50 year Event
Comments: 24-hr Chicago Storm, 50 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.050	6.17	2.600	12.17	3.560	18.17	1.510
.33	1.060	6.33	2.730	12.33	3.410	18.33	1.490
.50	1.080	6.50	2.880	12.50	3.280	18.50	1.470
.67	1.090	6.67	3.040	12.67	3.160	18.67	1.450
.83	1.110	6.83	3.240	12.83	3.040	18.83	1.430
1.00	1.130	7.00	3.460	13.00	2.940	19.00	1.410
1.17	1.150	7.17	3.720	13.17	2.850	19.17	1.400
1.33	1.170	7.33	4.030	13.33	2.760	19.33	1.380
1.50	1.190	7.50	4.400	13.50	2.670	19.50	1.360
1.67	1.210	7.67	4.860	13.67	2.600	19.67	1.340
1.83	1.230	7.83	5.450	13.83	2.520	19.83	1.330
2.00	1.260	8.00	6.230	14.00	2.460	20.00	1.310
2.17	1.280	8.17	7.320	14.17	2.390	20.17	1.300
2.33	1.310	8.33	8.960	14.33	2.330	20.33	1.280
2.50	1.330	8.50	11.740	14.50	2.280	20.50	1.270
2.67	1.360	8.67	17.620	14.67	2.220	20.67	1.250
2.83	1.390	8.83	39.830	14.83	2.170	20.83	1.240
3.00	1.420	9.00	158.180	15.00	2.120	21.00	1.220
3.17	1.450	9.17	48.360	15.17	2.080	21.17	1.210
3.33	1.490	9.33	25.220	15.33	2.030	21.33	1.200
3.50	1.520	9.50	17.360	15.50	1.990	21.50	1.190
3.67	1.560	9.67	13.390	15.67	1.950	21.67	1.170
3.83	1.600	9.83	10.980	15.83	1.910	21.83	1.160
4.00	1.640	10.00	9.360	16.00	1.880	22.00	1.150
4.17	1.690	10.17	8.190	16.17	1.840	22.17	1.140
4.33	1.740	10.33	7.310	16.33	1.810	22.33	1.130
4.50	1.790	10.50	6.610	16.50	1.780	22.50	1.120
4.67	1.840	10.67	6.050	16.67	1.750	22.67	1.100
4.83	1.900	10.83	5.580	16.83	1.720	22.83	1.090
5.00	1.960	11.00	5.190	17.00	1.690	23.00	1.080
5.17	2.030	11.17	4.860	17.17	1.660	23.17	1.070
5.33	2.110	11.33	4.570	17.33	1.630	23.33	1.060
5.50	2.190	11.50	4.320	17.50	1.610	23.50	1.050
5.67	2.280	11.67	4.090	17.67	1.580	23.67	1.050
5.83	2.370	11.83	3.890	17.83	1.560	23.83	1.040
6.00	2.480	12.00	3.720	18.00	1.540	24.00	1.030

005:0003-----

Steeles Ave_Road Corridor_PrControlled

ESTIMATING POST-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA
UNCONTROLLED SCENARIO

CALIB STANDHYD Area (ha)= 1.24
01:200 DT= 2.00 Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	.17
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	250.00	5.00
Mannings n =	.013	.250
Max.eff.Inten.(mm/hr)=	158.18	85.33
over (min)	4.00	6.00
Storage Coeff. (min)=	3.69 (ii)	5.84 (ii)
Unit Hyd. Tpeak (min)=	4.00	6.00
Unit Hyd. peak (cms)=	.29	.19
PEAK FLOW (cms)=	.44	.03
TIME TO PEAK (hrs)=	9.00	9.03
RUNOFF VOLUME (mm)=	108.01	55.42
TOTAL RAINFALL (mm)=	110.01	110.01
RUNOFF COEFFICIENT =	.98	.50

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:
CN* = 73.0 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.

005:0004-----

CALIB STANDHYD Area (ha)= .55
02:205 DT= 2.00 Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.46	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00

Steeles Ave_Road Corridor_PrControlled
Length (m)= 130.00 5.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 158.18 83.52
over (min) 2.00 4.00
Storage Coeff. (min)= 2.49 (ii) 4.67 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .47 .25
TOTALS
PEAK FLOW (cms)= .20 .02 .215 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 108.01 52.82 98.626
TOTAL RAINFALL (mm)= 110.01 110.01 110.008
RUNOFF COEFFICIENT = .98 .48 .897

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

005:0005-----
*
| CALIB NASHYD | Area (ha)= 8.51 Curve Number (CN)=82.00
| 03:1021 DT= 2.00 | Ia (mm)= 5.600 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= .550

Unit Hyd Qpeak (cms)= .591
PEAK FLOW (cms)= .698 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 68.062
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = .619

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

005:0006-----
*
| ADD HYD (500) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
Page 53

Steeles Ave_Road Corridor_PrControlled
(ha) (cms) (hrs) (mm) (cms)
ID1 02:205 .55 .215 9.00 98.63 .000
+ID2 03:1021 8.51 .698 9.57 68.06 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0007-----
*
| ADD HYD (510) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:200 1.24 .464 9.00 100.65 .000
+ID2 04:500 9.06 .718 9.57 69.92 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0008-----
*
* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E
*

| CALIB STANDHYD | Area (ha)= 2.84
| 02:210 DT= 2.00 | Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.70 1.14
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 460.00 15.00
Mannings n = .013 .250
Page 54

Steeles Ave_Road Corridor_PrControlled
Max.eff.Inten.(mm/hr)= 158.18 74.43
over (min) 6.00 10.00
Storage Coeff. (min)= 5.31 (ii) 9.72 (ii)
Unit Hyd. Tpeak (min)= 6.00 10.00
Unit Hyd. peak (cms)= .20 .12
TOTALS
PEAK FLOW (cms)= .61 .15 .739 (iii)
TIME TO PEAK (hrs)= 9.03 9.10 9.033
RUNOFF VOLUME (mm)= 108.00 52.82 85.934
TOTAL RAINFALL (mm)= 110.01 110.01 110.008
RUNOFF COEFFICIENT = .98 .48 .781

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

005:0009-----
*
| CALIB STANDHYD | Area (ha)= .52
| 03:215 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .45 .07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 158.18 83.52
over (min) 2.00 4.00
Storage Coeff. (min)= 1.55 (ii) 4.85 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .62 .25
TOTALS
PEAK FLOW (cms)= .20 .01 .210 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 108.01 52.82 100.282
TOTAL RAINFALL (mm)= 110.01 110.01 110.008
RUNOFF COEFFICIENT = .98 .48 .912

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

Steeles Ave_Road Corridor_PrControlled
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

005:0010-----
*
| ADD HYD (520) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 02:210 2.84 .739 9.03 85.93 .000
+ID2 03:215 .52 .210 9.00 100.28 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0011-----
*
| CALIB STANDHYD | Area (ha)= .34
| 01:220 DT= 2.00 | Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .30 .04
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 115.00 5.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 158.18 83.52
over (min) 2.00 4.00
Storage Coeff. (min)= 2.31 (ii) 4.49 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .49 .26
TOTALS
PEAK FLOW (cms)= .13 .01 .139 (iii)

Steeles Ave_Road Corridor_PrControlled

TIME TO PEAK (hrs)=	9.00	9.00	9.000
RUNOFF VOLUME (mm)=	108.01	52.82	101.938
TOTAL RAINFALL (mm)=	110.01	110.01	110.008
RUNOFF COEFFICIENT =	.98	.48	.927

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

005:0012

ADD HYD (530)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:220		.34	.139	9.00	101.94	.000
+ID2 04:520		3.36	.925	9.00	88.15	.000
SUM 05:530		3.70	1.064	9.00	89.42	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0013

* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK

CALIB STANDHYD	Area (ha)	Total Imp(%)	Dir. Conn.(%)
01:225 DT= 2.00	.45	93.00	93.00

IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.42	.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	105.00	5.00
Mannings n	.013	.250

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Steeles Ave_Road Corridor_PrControlled

Max.eff.Inten.(mm/hr)=	158.18	90.56
over (min)	2.00	4.00
Storage Coeff. (min)=	2.19 (ii)	4.30 (ii)
Unit Hyd. Tpeak (min)=	2.00	4.00
Unit Hyd. peak (cms)=	.51	.27
PEAK FLOW (cms)=	.18	.01
TIME TO PEAK (hrs)=	9.00	9.00
RUNOFF VOLUME (mm)=	108.01	56.77
TOTAL RAINFALL (mm)=	110.01	110.01
RUNOFF COEFFICIENT =	.98	.52

TOTALS
.189 (iii)
9.000
104.421
110.008
.949

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

005:0014

* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

CALIB NASHYD	Area (ha)	Curve Number (CN)
01:230 DT= 2.00	1.63	72.00
U.H. Tp(hrs)=	.450	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= .138

PEAK FLOW (cms)=	.112 (i)
TIME TO PEAK (hrs)=	9.467
RUNOFF VOLUME (mm)=	52.280
TOTAL RAINFALL (mm)=	110.008
RUNOFF COEFFICIENT =	.475

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

005:0015

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Steeles Ave_Road Corridor_PrControlled

CALIB NASHYD	Area (ha)	Curve Number (CN)
02:235 DT= 2.00	5.23	81.00
U.H. Tp(hrs)=	.460	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= .434

PEAK FLOW (cms)=	.476 (i)
TIME TO PEAK (hrs)=	9.467
RUNOFF VOLUME (mm)=	67.083
TOTAL RAINFALL (mm)=	110.008
RUNOFF COEFFICIENT =	.610

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

005:0016

ADD HYD (540)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:230		1.63	.112	9.47	52.28	.000
+ID2 02:235		5.23	.476	9.47	67.08	.000
SUM 03:540		6.86	.587	9.47	63.57	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0017

CALIB STANDHYD	Area (ha)	Total Imp(%)	Dir. Conn.(%)
04:240 DT= 2.00	.38	45.00	45.00

IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.17	.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00
Mannings n	.013	.250

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Steeles Ave_Road Corridor_PrControlled

Max.eff.Inten.(mm/hr)=	158.18	77.70
over (min)	4.00	8.00
Storage Coeff. (min)=	3.46 (ii)	7.79 (ii)
Unit Hyd. Tpeak (min)=	4.00	8.00
Unit Hyd. peak (cms)=	.31	.14
PEAK FLOW (cms)=	.07	.03
TIME TO PEAK (hrs)=	9.00	9.07
RUNOFF VOLUME (mm)=	108.01	52.82
TOTAL RAINFALL (mm)=	110.01	110.01
RUNOFF COEFFICIENT =	.98	.48

TOTALS
.096 (iii)
9.000
77.656
110.008
.706

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (550)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 03:540		6.86	.587	9.47	63.57	.000
+ID2 04:240		.38	.096	9.00	77.66	.000
SUM 05:550		7.24	.606	9.47	64.30	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0019

CALIB STANDHYD	Area (ha)	Total Imp(%)	Dir. Conn.(%)
06:245 DT= 2.00	.12	75.00	75.00

IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.09	.03

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Steeles Ave_Road Corridor_PrControlled

Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 28.00 10.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 158.18 83.52
over (min)= 2.00 4.00
Storage Coeff. (min)= .99 (ii) 4.29 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .74 .27

TOTALS
PEAK FLOW (cms)= .04 .01 .045 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 108.01 52.82 94.212
TOTAL RAINFALL (mm)= 110.01 110.01 110.008
RUNOFF COEFFICIENT = .98 .48 .856

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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-----
-
*
| ADD HYD (560) | ID: NYHD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 05:550 7.24 .606 9.47 64.30 .000
+ID2 06:245 .12 .045 9.00 94.21 .000
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

005:0021-----
-
*
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Steeles Ave_Road Corridor_PrControlled

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK
*

*

-
005:0002-----
-
*

-
005:0002-----
-
*

-
005:0002-----
-
*
** END OF RUN : 5

| START | Project dir.: C:\SWM\Steeles\

Rainfall dir.: C:\SWM\Steeles\
TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 006
NSTORM= 1
1=MiltonIH.stm

006:0002-----
-
*

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Steeles Ave_Road Corridor_PrControlled

*# Project Name: STEELES AVENUE EA, MILTON JOB NUMBER: [17M-00979-00] *
*
*# Date : JUL 2021 *
*# Modeller : [TA/MB] *
*# Company : WSP *
*# *

*# HYDROLOGIC ASSESSMENT - POST-DEVELOPMENT CONDITIONS UNCONTROLLED *
*# 2-YEAR TO 100-YEAR DESIGN STORMS *
*# 24-hour CHICAGO STORM DISTRIBUTION *
*# *

006:0002-----
-
*

| READ STORM | Filename: 24-hr Chicago Storm, 100 year Event
| Ptotal= 122.40 mm | Comments: 24-hr Chicago Storm, 100 year Event

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.180	6.17	2.920	12.17	3.990	18.17	1.710
.33	1.200	6.33	3.070	12.33	3.830	18.33	1.680
.50	1.220	6.50	3.230	12.50	3.680	18.50	1.660
.67	1.240	6.67	3.420	12.67	3.540	18.67	1.640
.83	1.260	6.83	3.630	12.83	3.420	18.83	1.620
1.00	1.280	7.00	3.880	13.00	3.300	19.00	1.590
1.17	1.300	7.17	4.170	13.17	3.200	19.17	1.570
1.33	1.320	7.33	4.510	13.33	3.100	19.33	1.550
1.50	1.340	7.50	4.930	13.50	3.010	19.50	1.530
1.67	1.370	7.67	5.440	13.67	2.920	19.67	1.520
1.83	1.390	7.83	6.100	13.83	2.840	19.83	1.500
2.00	1.420	8.00	6.970	14.00	2.760	20.00	1.480
2.17	1.450	8.17	8.170	14.17	2.690	20.17	1.460
2.33	1.470	8.33	9.990	14.33	2.620	20.33	1.450
2.50	1.500	8.50	13.060	14.50	2.560	20.50	1.430
2.67	1.530	8.67	19.520	14.67	2.500	20.67	1.410
2.83	1.570	8.83	43.870	14.83	2.440	20.83	1.400
3.00	1.600	9.00	174.100	15.00	2.390	21.00	1.380
3.17	1.640	9.17	53.210	15.17	2.340	21.17	1.370
3.33	1.680	9.33	27.870	15.33	2.290	21.33	1.350
3.50	1.720	9.50	19.240	15.50	2.240	21.50	1.340
3.67	1.760	9.67	14.870	15.67	2.200	21.67	1.320
3.83	1.800	9.83	12.220	15.83	2.150	21.83	1.310
4.00	1.850	10.00	10.430	16.00	2.110	22.00	1.300

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Steeles Ave_Road Corridor_PrControlled

4.17	1.900	10.17	9.140	16.17	2.070	22.17	1.280
4.33	1.960	10.33	8.160	16.33	2.040	22.33	1.270
4.50	2.010	10.50	7.390	16.50	2.000	22.50	1.260
4.67	2.070	10.67	6.760	16.67	1.970	22.67	1.250
4.83	2.140	10.83	6.250	16.83	1.930	22.83	1.240
5.00	2.210	11.00	5.810	17.00	1.900	23.00	1.220
5.17	2.290	11.17	5.440	17.17	1.870	23.17	1.210
5.33	2.370	11.33	5.120	17.33	1.840	23.33	1.200
5.50	2.460	11.50	4.840	17.50	1.810	23.50	1.190
5.67	2.560	11.67	4.590	17.67	1.790	23.67	1.180
5.83	2.670	11.83	4.370	17.83	1.760	23.83	1.170
6.00	2.790	12.00	4.170	18.00	1.730	24.00	1.160

006:0003-----
-
*

* **ESTIMATING POST-DEVELOPMENT RUNOFF FROM FUTURE ROADWAY AREA** *
* UNCONTROLLED SCENARIO *

| CALIB STANDHYD | Area (ha)= 1.24
| 01:200 DT= 2.00 | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.07 .17
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 250.00 5.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 174.10 99.89
over (min)= 4.00 6.00
Storage Coeff. (min)= 3.55 (ii) 5.57 (ii)
Unit Hyd. Tpeak (min)= 4.00 6.00
Unit Hyd. peak (cms)= .30 .20

TOTALS
PEAK FLOW (cms)= .48 .04 .517 (iii)
TIME TO PEAK (hrs)= 9.00 9.03 9.000
RUNOFF VOLUME (mm)= 120.40 65.21 112.676
TOTAL RAINFALL (mm)= 122.40 122.40 122.402
RUNOFF COEFFICIENT = .98 .53 .921

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 Ia = Dep. Storage (Above)

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

006:0004

CALIB STANDHYD	Area (ha)=	.55	Dir. Conn.(%)=	83.00
02:205 DT= 2.00	Total Imp(%)=	83.00		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.46	.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	130.00	5.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	174.10	97.84
over (min)	2.00	4.00
Storage Coeff. (min)=	2.40 (ii)	4.44 (ii)
Unit Hyd. Tpeak (min)=	2.00	4.00
Unit Hyd. peak (cms)=	.48	.26

PEAK FLOW (cms)=	.22	.02	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.00	.239 (iii)
RUNOFF VOLUME (mm)=	120.40	62.32	110.529
TOTAL RAINFALL (mm)=	122.40	122.40	122.402
RUNOFF COEFFICIENT	.98	.51	.903

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0005

CALIB NASHYD	Area (ha)=	8.51	Curve Number (CN)=82.00
03:1021 DT= 2.00	Ia (mm)=	5.600	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	.550	

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Steeles Ave_Road Corridor_PrControlled
Unit Hyd Qpeak (cms)= .591

PEAK FLOW (cms)= .809 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 79.061
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .646

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

006:0006

ADD HYD (500)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:205		.55	.239	9.00	110.53	.000
+ID2 03:1021		8.51	.809	9.57	79.06	.000
SUM 04:500		9.06	.832	9.57	80.97	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0007

ADD HYD (510)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 01:200		1.24	.517	9.00	112.68	.000
+ID2 04:500		9.06	.832	9.57	80.97	.000
SUM 05:510		10.30	.982	9.00	84.79	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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Steeles Ave_Road Corridor_PrControlled

006:0008

* HYD 510 GIVES FLOW DRAINING TO TRIBUTARY NW1-E

CALIB STANDHYD	Area (ha)=	2.84	Dir. Conn.(%)=	60.00
02:210 DT= 2.00	Total Imp(%)=	60.00		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.70	1.14
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	460.00	15.00
Mannings n	.013	.250

Max.eff.Inten.(mm/hr)=	174.10	87.90
over (min)	6.00	10.00
Storage Coeff. (min)=	5.11 (ii)	9.24 (ii)
Unit Hyd. Tpeak (min)=	6.00	10.00
Unit Hyd. peak (cms)=	.21	.12

PEAK FLOW (cms)=	.68	.18	*TOTALS*
TIME TO PEAK (hrs)=	9.03	9.10	.835 (iii)
RUNOFF VOLUME (mm)=	120.40	62.32	97.171
TOTAL RAINFALL (mm)=	122.40	122.40	122.402
RUNOFF COEFFICIENT	.98	.51	.794

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0009

CALIB STANDHYD	Area (ha)=	.52	Dir. Conn.(%)=	86.00
03:215 DT= 2.00	Total Imp(%)=	86.00		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.45	.07
Dep. Storage (mm)=	2.00	5.00

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Steeles Ave_Road Corridor_PrControlled

Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = .013 .250
Max.eff.Inten.(mm/hr)= 174.10 97.84
over (min) 2.00 4.00
Storage Coeff. (min)= 1.49 (ii) 4.59 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .63 .26
PEAK FLOW (cms)= .22 .02
TIME TO PEAK (hrs)= 9.00 9.00
RUNOFF VOLUME (mm)= 120.40 62.32
TOTAL RAINFALL (mm)= 122.40 122.40
RUNOFF COEFFICIENT = .98 .51
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0010

ADD HYD (520)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1 02:210		2.84	.835	9.03	97.17	.000
+ID2 03:215		.52	.232	9.00	112.27	.000
SUM 04:520		3.36	1.042	9.00	99.51	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0011

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Steeles Ave_Road Corridor_PrControlled
| CALIB STANDHYD | Area (ha)= .34
| 01:220 DT= 2.00 | Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .30 .04
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 115.00 5.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 174.10 97.84
over (min)= 2.00 4.00
Storage Coeff. (min)= 2.23 (ii) 4.27 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .50 .27

PEAK FLOW (cms)= .15 .01 *TOTALS*
TIME TO PEAK (hrs)= 9.00 .154 (iii) 9.000
RUNOFF VOLUME (mm)= 120.40 62.33 114.013
TOTAL RAINFALL (mm)= 122.40 122.40 122.402
RUNOFF COEFFICIENT = .98 .51 .931

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0012-----

*
| ADD HYD (530) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:220 .34 .154 9.00 114.01 .000
+ID2 04:520 3.36 1.042 9.00 99.51 .000
=====

SUM 05:530 3.70 1.195 9.00 100.84 .000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Steeles Ave_Road Corridor_PrControlled
006:0013-----

*
* HYD 530 GIVES FLOWS DRAINING TO SIXTEEN MILE CREEK

| CALIB STANDHYD | Area (ha)= .45
| 01:225 DT= 2.00 | Total Imp(%)= 93.00 Dir. Conn.(%)= 93.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .42 .03
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 105.00 5.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 174.10 105.56
over (min)= 2.00 4.00
Storage Coeff. (min)= 2.11 (ii) 4.09 (ii)
Unit Hyd. Tpeak (min)= 2.00 4.00
Unit Hyd. peak (cms)= .52 .28

PEAK FLOW (cms)= .20 .01 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.00 9.000
RUNOFF VOLUME (mm)= 120.40 66.70 116.643
TOTAL RAINFALL (mm)= 122.40 122.40 122.402
RUNOFF COEFFICIENT = .98 .54 .953

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

006:0014-----

*
* HYD 225 GIVES FLOWS DRAINING TO EXISTING SWM POND

| CALIB NASHYD | Area (ha)= 1.63 Curve Number (CN)=72.00
| 01:230 DT= 2.00 | Ia (mm)= 7.400 # of Linear Res.(N)= 3.00

Steeles Ave_Road Corridor_PrControlled
U.H. Tp(hrs)= .450

Unit Hyd Qpeak (cms)= .138
PEAK FLOW (cms)= .132 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 61.864
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .505

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

006:0015-----

*
| CALIB NASHYD | Area (ha)= 5.23 Curve Number (CN)=81.00
| 02:235 DT= 2.00 | Ia (mm)= 4.900 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .460

Unit Hyd Qpeak (cms)= .434
PEAK FLOW (cms)= .552 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 77.968
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = .637

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

006:0016-----

*
| ADD HYD (540) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 01:230 1.63 .132 9.47 61.86 .000
+ID2 02:235 5.23 .552 9.47 77.97 .000
=====

SUM 03:540 6.86 .684 9.47 74.14 .000

Steeles Ave_Road Corridor_PrControlled
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0017-----

*
| CALIB STANDHYD | Area (ha)= .38
| 04:240 DT= 2.00 | Total Imp(%)= 45.00 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= .17 .21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 225.00 15.00
Mannings n = .013 .250

Max.eff.Inten.(mm/hr)= 174.10 91.49
over (min)= 4.00 8.00
Storage Coeff. (min)= 3.33 (ii) 7.39 (ii)
Unit Hyd. Tpeak (min)= 4.00 8.00
Unit Hyd. peak (cms)= .31 .15

PEAK FLOW (cms)= .08 .04 *TOTALS*
TIME TO PEAK (hrs)= 9.00 9.07 9.000
RUNOFF VOLUME (mm)= 120.40 62.32 88.460
TOTAL RAINFALL (mm)= 122.40 122.40 122.402
RUNOFF COEFFICIENT = .98 .51 .723

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0018-----

*
| ADD HYD (550) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
(ha) (cms) (hrs) (mm) (cms)
ID1 03:540 6.86 .684 9.47 74.14 .000
+ID2 04:240 .38 .110 9.00 88.46 .000

Steeles Ave_Road Corridor_PrControlled
=====

SUM 05:550	7.24	.705	9.47	74.89	.000
------------	------	------	------	-------	------

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0019-----

*

CALIB STANDHYD	Area (ha)=	.12
06:245 DT= 2.00	Total Imp(%)=	75.00 Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.09	.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n	=	.013 .250

Max.eff.Inten.(mm/hr)=	174.10	97.84
over (min)	2.00	4.00
Storage Coeff. (min)=	.95 (ii)	4.05 (ii)
Unit Hyd. Tpeak (min)=	2.00	4.00
Unit Hyd. peak (cms)=	.75	.28

		TOTALS
PEAK FLOW (cms)=	.04	.01 .050 (iii)
TIME TO PEAK (hrs)=	9.00	9.00 9.000
RUNOFF VOLUME (mm)=	120.40	62.32 105.883
TOTAL RAINFALL (mm)=	122.40	122.40 122.402
RUNOFF COEFFICIENT	=	.98 .51 .865

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

006:0020-----

*

Steeles Ave_Road Corridor_PrControlled

ADD HYD (560)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
-----	-----	-----	-----	-----	-----	-----
ID1 05:550		7.24	.705	9.47	74.89	.000
+ID2 06:245		.12	.050	9.00	105.88	.000
SUM 07:560		7.36	.711	9.43	75.40	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

006:0021-----

*

* HYD 560 GIVES FLOWS DRAINING OVERLAND TO SIXTEEN MILE CREEK

*

*

006:0002-----

*

006:0002-----

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006:0002-----

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006:0002-----

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006:0002-----

*

FINISH

Steeles Ave_Road Corridor_PrControlled

*

WARNINGS / ERRORS / NOTES

001:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

002:0009 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

002:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

003:0009 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

003:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

004:0009 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

004:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

005:0009 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

005:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

006:0009 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

006:0019 CALIB STANDHYD

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

Simulation ended on 2021-07-26 at 17:40:52

=====

APPENDIX

B-7

Hydrologic Model Output – Post-Development Controlled



Steeles Ave_Road Corridor_PrControlled

** SIMULATION: Run 08 **

READ STORM Filename: C:\Users\talal.antar\AppData
 ata\Local\Temp\
 8dbe9d67-4e73-438d-a649-484e75a477a1\89753df2
Ptotal= 47.70 mm Comments: Milton002

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.37	6.17	0.97	12.17	1.37	18.17	0.55
0.33	0.38	6.33	1.03	12.33	1.31	18.33	0.54
0.50	0.38	6.50	1.09	12.50	1.25	18.50	0.53
0.67	0.39	6.67	1.16	12.67	1.20	18.67	0.52
0.83	0.39	6.83	1.23	12.83	1.16	18.83	0.52
1.00	0.40	7.00	1.33	13.00	1.11	19.00	0.51
1.17	0.41	7.17	1.43	13.17	1.07	19.17	0.50
1.33	0.42	7.33	1.56	13.33	1.04	19.33	0.50
1.50	0.42	7.50	1.72	13.50	1.01	19.50	0.49
1.67	0.43	7.67	1.92	13.67	0.97	19.67	0.48
1.83	0.44	7.83	2.17	13.83	0.95	19.83	0.48
2.00	0.45	8.00	2.51	14.00	0.92	20.00	0.47
2.17	0.46	8.17	2.99	14.17	0.89	20.17	0.46
2.33	0.47	8.33	3.73	14.33	0.87	20.33	0.46
2.50	0.48	8.50	5.02	14.50	0.85	20.50	0.45
2.67	0.49	8.67	7.86	14.67	0.82	20.67	0.45
2.83	0.50	8.83	19.20	14.83	0.80	20.83	0.44
3.00	0.51	9.00	80.06	15.00	0.79	21.00	0.44
3.17	0.52	9.17	23.63	15.17	0.77	21.17	0.43
3.33	0.54	9.33	11.65	15.33	0.75	21.33	0.43
3.50	0.55	9.50	7.73	15.50	0.73	21.50	0.42
3.67	0.57	9.67	5.80	15.67	0.72	21.67	0.42
3.83	0.58	9.83	4.67	15.83	0.70	21.83	0.41
4.00	0.60	10.00	3.92	16.00	0.69	22.00	0.41
4.17	0.62	10.17	3.38	16.17	0.68	22.17	0.40
4.33	0.63	10.33	2.98	16.33	0.66	22.33	0.40
4.50	0.65	10.50	2.68	16.50	0.65	22.50	0.40
4.67	0.68	10.67	2.43	16.67	0.64	22.67	0.39
4.83	0.70	10.83	2.23	16.83	0.63	22.83	0.39
5.00	0.72	11.00	2.06	17.00	0.62	23.00	0.38
5.17	0.75	11.17	1.91	17.17	0.60	23.17	0.38
5.33	0.78	11.33	1.79	17.33	0.59	23.33	0.38
5.50	0.81	11.50	1.68	17.50	0.58	23.50	0.37
5.67	0.85	11.67	1.59	17.67	0.58	23.67	0.37
5.83	0.88	11.83	1.51	17.83	0.57	23.83	0.37
6.00	0.93	12.00	1.43	18.00	0.56	24.00	0.36

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CALIB
NASHVD (1021)
ID= 1 DT= 2.0 min
Area (ha)= 8.51
Ia (mm)= 5.60
U.H. Tp(hrs)= 0.55
Curve Number (CN)= 82.0
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50

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Steeles Ave_Road Corridor_PrControlled

1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45
2.433	0.48	8.433	5.02	14.433	0.85	20.43	0.45
2.467	0.48	8.467	5.02	14.467	0.85	20.47	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.533	0.49	8.533	7.86	14.533	0.82	20.53	0.45
2.567	0.49	8.567	7.86	14.567	0.82	20.57	0.45
2.600	0.49	8.600	7.86	14.600	0.82	20.60	0.45
2.633	0.49	8.633	7.86	14.633	0.82	20.63	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.700	0.50	8.700	19.20	14.700	0.80	20.70	0.44

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Steeles Ave_Road Corridor_PrControlled

2.733	0.50	8.733	19.20	14.733	0.80	20.73	0.44
2.767	0.50	8.767	19.20	14.767	0.80	20.77	0.44
2.800	0.50	8.800	19.20	14.800	0.80	20.80	0.44
2.833	0.50	8.833	19.21	14.833	0.80	20.83	0.44
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42
3.567	0.57	9.567					

Steeles Ave_Road Corridor_PrControlled								
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40	
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40	
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40	
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39	
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39	
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39	
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39	
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39	
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39	
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38	
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38	
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38	
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38	
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38	
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38	
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38	
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38	
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38	
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38	
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38	
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38	
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38	
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37	
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37	
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37	
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37	
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37	
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37	
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37	
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37	
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37	
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37	
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37	
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37	
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37	
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37	
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37	
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36	
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36	

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Steeles Ave_Road Corridor_PrControlled								
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36	
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36	
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36	
Unit Hyd Qpeak (cms)= 0.591								
PEAK FLOW (cms)= 0.190 (i)								
TIME TO PEAK (hrs)= 9.633								
RUNOFF VOLUME (mm)= 18.112								
TOTAL RAINFALL (mm)= 47.700								
RUNOFF COEFFICIENT = 0.380								

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

CALIB			
STANDHYD (0205)			
ID= 1	DT= 2.0 min	Area (ha)= 0.55	Total Imp(%)= 83.00
Dir. Conn.(%)= 83.00			

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	0.46	0.09		
Dep. Storage	(mm)=	2.00	5.00		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	130.00	5.00		
Mannings n	=	0.013	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55		
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55		
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55		
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54		
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54		
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54		
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53		
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53		
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53		
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		

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Steeles Ave_Road Corridor_PrControlled								
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52	
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52	
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52	
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52	
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52	
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52	
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52	
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52	
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52	
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52	
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51	
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51	
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51	
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51	
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51	
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50	
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50	
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50	
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50	
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50	
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50	
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50	
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50	
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50	
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50	
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49	
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49	
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49	
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49	
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49	
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48	
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48	
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48	
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48	
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48	
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48	
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48	
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48	
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48	
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48	
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47	
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47	
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47	
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47	
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47	
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46	
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46	
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46	

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Steeles Ave_Road Corridor_PrControlled								
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46	
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46	
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46	

Steeles Ave_Road Corridor_PrControlled									
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41		
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41		
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41		
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41		
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41		
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40		
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40		
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40		
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40		
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40		
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40		
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40		
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40		
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40		
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39		
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39		
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39		
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39		
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39		
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39		
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38		
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38		
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38		
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38		
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38		
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38		
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38		
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38		
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38		
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38		

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Steeles Ave_Road Corridor_PrControlled									
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37		
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37		
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37		
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37		
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37		
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37		
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37		
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37		
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37		
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36		
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36		
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36		
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Max.Eff.Inten.(mm/hr)=	80.06	18.25		
over (min)	5.00	6.00		
Storage Coeff. (min)=	3.27 (ii)	4.44 (ii)		
Unit Hyd. Tpeak (min)=	4.00	6.00		
Unit Hyd. peak (cms)=	0.32	0.23		

PEAK FLOW (cms)=	0.10	0.00	0.100 (iii)	
TIME TO PEAK (hrs)=	9.00	9.03	9.00	
RUNOFF VOLUME (mm)=	45.70	12.45	40.04	
TOTAL RAINFALL (mm)=	47.70	47.70	47.70	
RUNOFF COEFFICIENT =	0.96	0.26	0.84	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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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Steeles Ave_Road Corridor_PrControlled				
+ ID2= 2 (0205):	0.55	0.100	9.00	40.04
ID = 3 (0500):	9.06	0.199	9.60	19.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0200)	Area (ha)=	1.24		
ID= 1 DT= 2.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)=	86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	0.17
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	250.00	5.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55		
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55		
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55		
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54		
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54		
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54		
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53		
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53		
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53		
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52		
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52		
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52		
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52		
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52		
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52		
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52		

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Steeles Ave_Road Corridor_PrControlled								
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52	
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51	
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51	
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51	
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51	
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51	
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50	
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50	
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50	
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50	
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50	
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50	
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50	
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50	
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50	
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50	
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49	
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49	
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49	
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49	
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49	
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48	
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48	
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48	
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48	
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48	
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48	
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48	
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48	
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48	
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48	
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47	
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47	
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47	
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47	
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47	
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46	
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46	
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46	
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46	
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46	
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46	
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46	
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46	
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46	
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46	
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45	
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45	

	Steeles	Ave_Road	Corridor_PrControlled				
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38

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	Steeles	Ave_Road	Corridor_PrControlled				
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36
Max.Eff.Inten.(mm/hr)= 80.06 18.25							
over (min) 5.00 15.00							
Storage Coeff. (min)= 6.98 (ii) 10.62 (ii)							
Unit Hyd. Tpeak (min)= 5.00 15.00							
Unit Hyd. peak (cms)= 0.17 0.09							
TOTALS							
PEAK FLOW (cms)= 0.31 0.03 0.325 (iii)							
TIME TO PEAK (hrs)= 9.00 9.17 9.00							
RUNOFF VOLUME (mm)= 45.70 12.45 32.40							
TOTAL RAINFALL (mm)= 47.70 47.70 47.70							
RUNOFF COEFFICIENT = 0.96 0.26 0.68							
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:							
CN* = 71.0 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 (0215)	
ID= 1 DT= 2.0 min	

Area (ha)=	0.52
Total Imp(%)=	86.00
Dir. Conn.(%)=	86.00
IMPERVIOUS PERVIOUS (i)	
Surface Area (ha)=	0.45 0.07
Dep. Storage (mm)=	2.00 5.00
Average Slope (%)=	1.00 2.00
Length (m)=	59.00 10.00
Mannings n	0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

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	Steeles	Ave_Road	Corridor_PrControlled				
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48

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Steeles Ave Road Corridor PrControlled							
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45
2.433	0.48	8.433	5.02	14.433	0.85	20.43	0.45
2.467	0.48	8.467	5.02	14.467	0.85	20.47	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.533	0.49	8.533	7.86	14.533	0.82	20.53	0.45
2.567	0.49	8.567	7.86	14.567	0.82	20.57	0.45
2.600	0.49	8.600	7.86	14.600	0.82	20.60	0.45
2.633	0.49	8.633	7.86	14.633	0.82	20.63	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.700	0.50	8.700	19.20	14.700	0.80	20.70	0.44
2.733	0.50	8.733	19.20	14.733	0.80	20.73	0.44
2.767	0.50	8.767	19.20	14.767	0.80	20.77	0.44
2.800	0.50	8.800	19.20	14.800	0.80	20.80	0.44
2.833	0.50	8.833	19.21	14.833	0.80	20.83	0.44
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43

Steeles Ave_Road Corridor_PrControlled									
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43		
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43		
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42		
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42		
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42		
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42		
3.567	0.57	9.567	5.80	15.567	0.72	21.57	0.42		
3.600	0.57	9.600	5.80	15.600	0.72	21.60	0.42		
3.633	0.57	9.633	5.80	15.633	0.72	21.63	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.700	0.58	9.700	4.67	15.700	0.70	21.70	0.41		
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41		
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41		
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41		
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41		
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41		
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40		
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40		
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40		
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40		
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40		
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40		
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40		
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40		
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40		
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39		
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39		
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39		
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39		
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39		
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39		
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39		

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Steeles Ave_Road Corridor_PrControlled									
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38		
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38		
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38		
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38		
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38		
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38		
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38		
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38		
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38		
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37		
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37		
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37		
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37		
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37		
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37		
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37		
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37		
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37		
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36		
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36		
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36		
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		
Max.Eff.Inten.(mm/hr)= 80.06 18.25									
over (min) 5.00 4.00									
Storage Coeff. (min)= 2.03 (ii) 3.66 (ii)									
Unit Hyd. Tpeak (min)= 4.00 4.00									
Unit Hyd. peak (cms)= 0.40 0.30									
TOTALS									
PEAK FLOW (cms)= 0.10 0.00 0.102 (iii)									
TIME TO PEAK (hrs)= 9.00 9.00 9.00									
RUNOFF VOLUME (mm)= 45.70 12.45 41.04									
TOTAL RAINFALL (mm)= 47.70 47.70 47.70									
RUNOFF COEFFICIENT = 0.96 0.26 0.86									

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)				
1	2	3		
ID1= 1 (0210):	2.84	0.325	9.00	32.40
+ ID2= 2 (0215):	0.52	0.102	9.00	41.04
=====				
ID = 3 (0520):	3.36	0.427	9.00	33.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0710)				
IN= 2--> OUT= 1				
DT= 2.0 min				
OVERFLOW IS OFF				
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.3237	0.1197
	0.0411	0.0357	0.4116	0.1260
	0.1964	0.0777	0.0000	0.0000
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0520)	3.360	0.427	9.00	33.74
OUTFLOW: ID= 1 (0710)	3.360	0.094	9.40	33.67

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.91
TIME SHIFT OF PEAK FLOW (min)= 24.00
MAXIMUM STORAGE USED (ha.m.)= 0.0499

CALIB				
STANDHYD (0220)				
ID= 1 DT= 2.0 min				
IMPERVIOUS PERVIOUS (i)				
Surface Area (ha)=	0.30	0.04		
Dep. Storage (mm)=	2.00	5.00		

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Steeles Ave_Road Corridor_PrControlled

Average Slope (%)=	1.00	2.00
Length (m)=	115.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---									
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55		
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55		
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55		
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54		
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54		
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54		
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53		
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53		
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53		
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52		
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52		
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52		
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52		
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52		
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52		
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51		
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51		
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51		
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50		
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50		
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50		
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50		
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50		
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50		

		Steeles	Ave_Road	Corridor_Pr	Controlled			
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50	
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50	
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49	
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49	
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49	
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49	
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49	
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48	
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48	
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48	
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48	
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48	
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48	
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48	
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48	
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48	
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48	
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47	
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47	
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47	
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47	
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47	
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46	
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46	
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46	
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46	
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46	
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46	
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46	
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46	
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46	
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46	
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45	
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45	
2.433	0.48	8.433	5.02	14.433	0.85	20.43	0.45	
2.467	0.48	8.467	5.02	14.467	0.85	20.47	0.45	
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45	
2.533	0.49	8.533	7.86	14.533	0.82	20.53	0.45	
2.567	0.49	8.567	7.86	14.567	0.82	20.57	0.45	
2.600	0.49	8.600	7.86	14.600	0.82	20.60	0.45	
2.633	0.49	8.633	7.86	14.633	0.82	20.63	0.45	
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45	
2.700	0.50	8.700	19.20	14.700	0.80	20.70	0.44	
2.733	0.50	8.733	19.20	14.733	0.80	20.73	0.44	
2.767	0.50	8.767	19.20	14.767	0.80	20.77	0.44	
2.800	0.50	8.800	19.20	14.800	0.80	20.80	0.44	
2.833	0.50	8.833	19.21	14.833	0.80	20.83	0.44	
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44	

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		Steeles	Ave_Road	Corridor_Pr	Controlled			
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44	
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44	
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44	
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44	
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43	
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43	
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43	
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43	
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43	
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43	
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43	
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43	
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43	
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43	
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42	
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42	
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42	
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42	
3.567	0.57	9.567	5.80	15.567	0.72	21.57	0.42	
3.600	0.57	9.600	5.80	15.600	0.72	21.60	0.42	
3.633	0.57	9.633	5.80	15.633	0.72	21.63	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.700	0.58	9.700	4.67	15.700	0.70	21.70	0.41	
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41	
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41	
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41	
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41	
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41	
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40	
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40	
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40	
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40	
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40	
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40	
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40	
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40	
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40	
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40	

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		Steeles	Ave_Road	Corridor_Pr	Controlled			
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39	
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39	
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39	
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39	
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39	
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39	
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38	
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38	
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38	
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38	
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38	
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38	
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38	
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38	
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38	
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38	
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38	
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38	
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38	
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37	
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37	
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37	
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37	
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37	
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37	
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37	
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37	
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37	
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37	
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37	
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37	
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37	
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37	
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37	
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36	
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36	</

Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44		
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44		
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44		
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44		
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42		
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42		
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42		
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42		
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41		

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Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Max.Eff.Inten.(mm/hr)=	80.06	20.59	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.88 (ii)	3.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.28	0.25	

PEAK FLOW (cms)=	0.09	0.00	*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.00	0.093 (iii)
RUNOFF VOLUME (mm)=	45.70	13.82	43.46
TOTAL RAINFALL (mm)=	47.70	47.70	47.70
RUNOFF COEFFICIENT =	0.96	0.29	0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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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Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled	
CALIB	NASHYD (0230)	Area (ha)=	1.63	Curve Number (CN)=	72.0	Ia (mm)=	7.40	# of Linear Res.(N)=	3.00
ID= 1	DT= 2.0 min	U.H. Tp(hrs)=	0.45						

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME RAIN		TIME RAIN		TIME RAIN		TIME RAIN		TIME RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55		
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55		
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55		
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55		
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55		
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54		
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54		
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54		
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53		
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53		
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53		
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52		
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52		
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52		
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52		
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52		
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52		
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51		
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51		
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51		
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50		
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50		
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50		
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50		
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50		

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Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled		Steeles Ave_Road Corridor_PrControlled	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50		
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		</

Steeles Ave_Road Corridor_PrControlled								
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44	
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44	
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44	
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44	
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44	
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43	
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43	
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43	
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43	
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43	
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43	
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43	
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43	
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43	
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43	
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42	
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42	
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42	
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42	
3.567	0.57	9.567	5.80	15.567	0.72	21.57	0.42	
3.600	0.57	9.600	5.80	15.600	0.72	21.60	0.42	
3.633	0.57	9.633	5.80	15.633	0.72	21.63	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.700	0.58	9.700	4.67	15.700	0.70	21.70	0.41	
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41	
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41	
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41	
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41	
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41	
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40	
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40	
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40	
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40	
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40	
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40	
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40	
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40	
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40	

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Steeles Ave_Road Corridor_PrControlled								
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39	
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39	
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39	
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39	
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39	
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39	
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38	
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38	
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38	
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38	
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38	
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38	
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38	
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38	
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38	
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38	
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38	
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38	
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38	
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37	
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37	
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37	
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37	
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37	
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37	
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37	
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37	
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37	
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37	
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37	
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37	
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37	
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37	
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37	
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36	
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36	
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36	
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36	
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36	

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Steeles Ave_Road Corridor_PrControlled
Unit Hyd Qpeak (cms)= 0.138
PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 9.533
RUNOFF VOLUME (mm)= 11.677
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.245

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

| CALIB |
| NASHYD (0235) | Area (ha)= 5.23 Curve Number (CN)= 81.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.46

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.37	6.083	0.97	12.083	1.37	18.08	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.250	0.38	6.250	1.03	12.250	1.31	18.25	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.417	0.38	6.417	1.09	12.417	1.25	18.42	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.583	0.39	6.583	1.16	12.583	1.20	18.58	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.750	0.39	6.750	1.23	12.750	1.16	18.75	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.917	0.40	6.917	1.33	12.917	1.11	18.92	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.083	0.41	7.083	1.43	13.083	1.07	19.08	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.250	0.42	7.250	1.56	13.250	1.04	19.25	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.417	0.42	7.417	1.72	13.417	1.01	19.42	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.583	0.43	7.583	1.92	13.583	0.97	19.58	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.750	0.44	7.750	2.17	13.750	0.95	19.75	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.917	0.45	7.917	2.51	13.917	0.92	19.92	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.083	0.46	8.083	2.99	14.083	0.89	20.08	0.46

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Steeles Ave_Road Corridor_PrControlled							
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.250	0.47	8.250	3.73	14.250	0.87	20.25	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.417	0.48	8.417	5.02	14.417	0.85	20.42	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.583	0.49	8.583	7.86	14.583	0.82	20.58	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.750	0.50	8.750	19.20	14.750	0.80	20.75	0.44
2.833	0.50	8.833	19.20	14.833	0.80	20.83	0.44
2.917	0.51	8.917	80.06	14.917	0.79	20.92	0.44
3.000	0.51	9.000	80.06	15.000	0.79	21.00	0.44
3.083	0.52	9.083	23.63	15.083	0.77	21.08	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.250	0.54	9.250	11.65	15.250	0.75	21.25	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.417	0.55	9.417	7.73	15.417	0.73	21.42	0.42
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42
3.583	0.57	9.583	5.80	15.583	0.72	21.58	0.42
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.750	0.58	9.750	4.67	15.750	0.70	21.75	0.41
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41
3.917	0.60	9.917	3.92	15.917	0.69	21.92	0.41
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41
4.083	0.62	10.083	3.38	16.083	0.68	22.08	0.40
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40
4.250	0.63	10.250	2.98	16.250	0.66	22.25	0.40
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40
4.417	0.65	10.417	2.68	16.417	0.65	22.42	0.40
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40
4.583	0.68	10.583	2.43	16.583	0.64	22.58	0.39
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39
4.750	0.70	10.750	2.23	16.750	0.63	22.75	0.39
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39
4.917	0.72	10.917	2.06	16.917	0.62	22.92	0.38
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38
5.083	0.75	11.083	1.91	17.083	0.60	23.08	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.250	0.78	11.250	1.79	17.250	0.59	23.25	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.417	0.81	11.417	1.68	17.417	0.58	23.42	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.583	0.85	11.583	1.59	17.583	0.58	23.58	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.750	0.88	11.750	1.51	17.750	0.57	23.75	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.917	0.93	11.917	1.43	17.917	0.56	23.92	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Steeles Ave_Road Corridor_PrControlled
Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.132 (i)
TIME TO PEAK (hrs)= 9.500
RUNOFF VOLUME (mm)= 17.891
TOTAL RAINFALL (mm)= 47.700
RUNOFF COEFFICIENT = 0.375

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

ADD HYD (0540)					
1	2	3			
ID1= 1 (0230):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
+ ID2= 2 (0235):	1.63	0.025	9.53	11.68	
	5.23	0.132	9.50	17.89	
=====					
ID = 3 (0540):	6.86	0.156	9.50	16.41	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0240)			
ID= 1 DT= 2.0 min	Area (ha)= 0.38	Total Imp(%)= 45.00	Dir. Conn.(%)= 45.00
=====			
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.17	0.21	
Dep. Storage (mm)=	2.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	225.00	15.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54

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Steeles Ave_Road Corridor_PrControlled									
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54		
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54		
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54		
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53		
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53		
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53		
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53		
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53		
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52		
0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52		
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52		
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52		
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52		
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52		
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52		
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52		
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52		
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52		
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51		
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51		
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51		
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51		
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51		
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50		
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50		
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50		
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50		
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50		
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50		
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50		
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50		
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50		
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50		
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49		
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49		
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49		
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49		
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49		
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48		
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48		
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48		
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48		
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48		
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48		
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48		
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48		
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48		
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48		

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Steeles Ave_Road Corridor_PrControlled									
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47		
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47		
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47		
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47		
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47		
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46		
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46		
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46		
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46		
2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46		
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46		
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46		
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46		
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46		
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46		
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45		
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45		
2.433	0.48	8.433	5.02	14.433	0.85	20.43	0.45		
2.467	0.48	8.467	5.02	14.467	0.85	20.47	0.45		
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45		
2.533	0.49	8.533	7.86	14.533	0.82	20.53	0.45		
2.567	0.49	8.567	7.86	14.567	0.82	20.57	0.45		
2.600	0.49	8.600	7.86	14.600	0.82	20.60	0.45		
2.633	0.49	8.633	7.86	14.633	0.82	20.63	0.45		
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45		
2.700	0.50	8.700	19.20	14.700	0.80	20.70	0.44		
2.733	0.50	8.733	19.20	14.733	0.80	20.73	0.44		
2.767	0.50	8.767	19.20	14.767	0.80	20.77	0.44		
2.800	0.50	8.800	19.20	14.800	0.80	20.80	0.44		
2.833	0.50	8.833	19.21	14.833	0.80	20.83	0.44		
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44		
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44		
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44		
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44		
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44		
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43		
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43		
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43		
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43		
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43		
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43		
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43		
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43		
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43		
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43		
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42		
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42		
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42		

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Steeles Ave_Road Corridor_PrControlled								
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42	
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42	
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42	
3.567	0.57	9.567	5.80	15.567	0.72	21.57	0.42	
3.600	0.57	9.600	5.80	15.600	0.72	21.60	0.42	
3.633	0.57	9.633	5.80	15.633	0.72	21.63	0.42	
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42	
3.700	0.58	9.700	4.67	15.700	0.70	21.70	0.41	
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41	
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41	
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41	
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41	
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41	
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41	
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41	
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41	
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41	
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40	
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40	
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40	
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40	
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40	
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40	
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40	
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40	
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40	
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40	
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40	
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40	
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40	
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40	
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40	
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39	
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39	
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39	
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39	
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39	
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39	
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39	
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39	
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39	
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39	
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38	
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38	
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38	
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38	
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38	
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38	

Steeles Ave_Road Corridor_PrControlled

5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36

Max.Eff.Inten.(mm/hr)=	80.06	18.25
over (min)	5.00	10.00
Storage Coeff. (min)=	4.54 (ii)	9.18 (ii)
Unit Hyd. Tpeak (min)=	4.00	10.00
Unit Hyd. peak (cms)=	0.26	0.12
PEAK FLOW (cms)=	0.03	0.01
TIME TO PEAK (hrs)=	9.00	9.10
RUNOFF VOLUME (mm)=	45.70	12.45
TOTAL RAINFALL (mm)=	47.70	47.70
RUNOFF COEFFICIENT	0.96	0.26

TOTALS	0.038 (iii)
	9.00
	27.40
	47.70
	0.57

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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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ADD HYD (0550)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0240):	0.38	0.038	9.00	27.40
+ ID2= 2 (0540):	6.86	0.156	9.50	16.41
ID = 3 (0550):	7.24	0.163	9.50	16.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0245)
ID= 1 DT= 2.0 min

Area (ha)=	0.12
Total Imp(%)=	75.00
Dir. Conn.(%)=	75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.37	6.033	0.97	12.033	1.37	18.03	0.55
0.067	0.37	6.067	0.97	12.067	1.37	18.07	0.55
0.100	0.37	6.100	0.97	12.100	1.37	18.10	0.55
0.133	0.37	6.133	0.97	12.133	1.37	18.13	0.55
0.167	0.37	6.167	0.97	12.167	1.37	18.17	0.55
0.200	0.38	6.200	1.03	12.200	1.31	18.20	0.54
0.233	0.38	6.233	1.03	12.233	1.31	18.23	0.54
0.267	0.38	6.267	1.03	12.267	1.31	18.27	0.54
0.300	0.38	6.300	1.03	12.300	1.31	18.30	0.54
0.333	0.38	6.333	1.03	12.333	1.31	18.33	0.54
0.367	0.38	6.367	1.09	12.367	1.25	18.37	0.53
0.400	0.38	6.400	1.09	12.400	1.25	18.40	0.53
0.433	0.38	6.433	1.09	12.433	1.25	18.43	0.53
0.467	0.38	6.467	1.09	12.467	1.25	18.47	0.53
0.500	0.38	6.500	1.09	12.500	1.25	18.50	0.53
0.533	0.39	6.533	1.16	12.533	1.20	18.53	0.52

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Steeles Ave_Road Corridor_PrControlled

0.567	0.39	6.567	1.16	12.567	1.20	18.57	0.52
0.600	0.39	6.600	1.16	12.600	1.20	18.60	0.52
0.633	0.39	6.633	1.16	12.633	1.20	18.63	0.52
0.667	0.39	6.667	1.16	12.667	1.20	18.67	0.52
0.700	0.39	6.700	1.23	12.700	1.16	18.70	0.52
0.733	0.39	6.733	1.23	12.733	1.16	18.73	0.52
0.767	0.39	6.767	1.23	12.767	1.16	18.77	0.52
0.800	0.39	6.800	1.23	12.800	1.16	18.80	0.52
0.833	0.39	6.833	1.23	12.833	1.16	18.83	0.52
0.867	0.40	6.867	1.33	12.867	1.11	18.87	0.51
0.900	0.40	6.900	1.33	12.900	1.11	18.90	0.51
0.933	0.40	6.933	1.33	12.933	1.11	18.93	0.51
0.967	0.40	6.967	1.33	12.967	1.11	18.97	0.51
1.000	0.40	7.000	1.33	13.000	1.11	19.00	0.51
1.033	0.41	7.033	1.43	13.033	1.07	19.03	0.50
1.067	0.41	7.067	1.43	13.067	1.07	19.07	0.50
1.100	0.41	7.100	1.43	13.100	1.07	19.10	0.50
1.133	0.41	7.133	1.43	13.133	1.07	19.13	0.50
1.167	0.41	7.167	1.43	13.167	1.07	19.17	0.50
1.200	0.42	7.200	1.56	13.200	1.04	19.20	0.50
1.233	0.42	7.233	1.56	13.233	1.04	19.23	0.50
1.267	0.42	7.267	1.56	13.267	1.04	19.27	0.50
1.300	0.42	7.300	1.56	13.300	1.04	19.30	0.50
1.333	0.42	7.333	1.56	13.333	1.04	19.33	0.50
1.367	0.42	7.367	1.72	13.367	1.01	19.37	0.49
1.400	0.42	7.400	1.72	13.400	1.01	19.40	0.49
1.433	0.42	7.433	1.72	13.433	1.01	19.43	0.49
1.467	0.42	7.467	1.72	13.467	1.01	19.47	0.49
1.500	0.42	7.500	1.72	13.500	1.01	19.50	0.49
1.533	0.43	7.533	1.92	13.533	0.97	19.53	0.48
1.567	0.43	7.567	1.92	13.567	0.97	19.57	0.48
1.600	0.43	7.600	1.92	13.600	0.97	19.60	0.48
1.633	0.43	7.633	1.92	13.633	0.97	19.63	0.48
1.667	0.43	7.667	1.92	13.667	0.97	19.67	0.48
1.700	0.44	7.700	2.17	13.700	0.95	19.70	0.48
1.733	0.44	7.733	2.17	13.733	0.95	19.73	0.48
1.767	0.44	7.767	2.17	13.767	0.95	19.77	0.48
1.800	0.44	7.800	2.17	13.800	0.95	19.80	0.48
1.833	0.44	7.833	2.17	13.833	0.95	19.83	0.48
1.867	0.45	7.867	2.51	13.867	0.92	19.87	0.47
1.900	0.45	7.900	2.51	13.900	0.92	19.90	0.47
1.933	0.45	7.933	2.51	13.933	0.92	19.93	0.47
1.967	0.45	7.967	2.51	13.967	0.92	19.97	0.47
2.000	0.45	8.000	2.51	14.000	0.92	20.00	0.47
2.033	0.46	8.033	2.99	14.033	0.89	20.03	0.46
2.067	0.46	8.067	2.99	14.067	0.89	20.07	0.46
2.100	0.46	8.100	2.99	14.100	0.89	20.10	0.46
2.133	0.46	8.133	2.99	14.133	0.89	20.13	0.46

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Steeles Ave_Road Corridor_PrControlled

2.167	0.46	8.167	2.99	14.167	0.89	20.17	0.46
2.200	0.47	8.200	3.73	14.200	0.87	20.20	0.46
2.233	0.47	8.233	3.73	14.233	0.87	20.23	0.46
2.267	0.47	8.267	3.73	14.267	0.87	20.27	0.46
2.300	0.47	8.300	3.73	14.300	0.87	20.30	0.46
2.333	0.47	8.333	3.73	14.333	0.87	20.33	0.46
2.367	0.48	8.367	5.02	14.367	0.85	20.37	0.45
2.400	0.48	8.400	5.02	14.400	0.85	20.40	0.45
2.433	0.48	8.433	5.02	14.433	0.85	20.43	0.45
2.467	0.48	8.467	5.02	14.467	0.85	20.47	0.45
2.500	0.48	8.500	5.02	14.500	0.85	20.50	0.45
2.533	0.49	8.533	7.86	14.533	0.82	20.53	0.45
2.567	0.49	8.567	7.86	14.567	0.82	20.57	0.45
2.600	0.49	8.600	7.86	14.600	0.82	20.60	0.45
2.633	0.49	8.633	7.86	14.633	0.82	20.63	0.45
2.667	0.49	8.667	7.86	14.667	0.82	20.67	0.45
2.700	0.50	8.700	19.20	14.700	0.80	20.70	0.44
2.733	0.50	8.733	19.20	14.733	0.80	20.73	0.44
2.767	0.50	8.767	19.20	14.767	0.80	20.77	0.44
2.800	0.50	8.800	19.20	14.800	0.80	20.80	0.44
2.833	0.50	8.833	19.21	14.833	0.80	20.83	0.44
2.867	0.51	8.867	80.06	14.867	0.79	20.87	0.44
2.900	0.51	8.900	80.06	14.900	0.79	20.90	0.44
2.933	0.51	8.933	80.06	14.933	0.79	20.93	0.44
2.967	0.51	8.967	80.06	14.967	0.79	20.97	0.44
3.000	0.51	9.000	80.05	15.000	0.79	21.00	0.44
3.033	0.52	9.033	23.63	15.033	0.77	21.03	0.43
3.067	0.52	9.067	23.63	15.067	0.77	21.07	0.43
3.100	0.52	9.100	23.63	15.100	0.77	21.10	0.43
3.133	0.52	9.133	23.63	15.133	0.77	21.13	0.43
3.167	0.52	9.167	23.63	15.167	0.77	21.17	0.43
3.200	0.54	9.200	11.65	15.200	0.75	21.20	0.43
3.233	0.54	9.233	11.65	15.233	0.75	21.23	0.43
3.267	0.54	9.267	11.65	15.267	0.75	21.27	0.43
3.300	0.54	9.300	11.65	15.300	0.75	21.30	0.43
3.333	0.54	9.333	11.65	15.333	0.75	21.33	0.43
3.367	0.55	9.367	7.73	15.367	0.73	21.37	0.42
3.400	0.55	9.400	7.73	15.400	0.73	21.40	0.42
3.433	0.55	9.433	7.73	15.433	0.73	21.43	0.42
3.467	0.55	9.467	7.73	15.467	0.73	21.47	0.42
3.500	0.55	9.500	7.73	15.500	0.73	21.50	0.42
3.533	0.57	9.533	5.80	15.533	0.72	21.53	0.42
3.567	0.57	9.567	5.80	15.567	0.72	21.57	0.42
3.600	0.57	9.600	5.80	15.600	0.72	21.60	0.42
3.633	0.57	9.633	5.80	15.633	0.72	21.63	0.42
3.667	0.57	9.667	5.80	15.667	0.72	21.67	0.42
3.700	0.58	9.700	4.67	15.700	0.70	21.70	0.41
3.733	0.58	9.733	4.67	15.733	0.70	21.73	0.41

Steeles Ave_Road Corridor_PrControlled									
3.767	0.58	9.767	4.67	15.767	0.70	21.77	0.41		
3.800	0.58	9.800	4.67	15.800	0.70	21.80	0.41		
3.833	0.58	9.833	4.67	15.833	0.70	21.83	0.41		
3.867	0.60	9.867	3.92	15.867	0.69	21.87	0.41		
3.900	0.60	9.900	3.92	15.900	0.69	21.90	0.41		
3.933	0.60	9.933	3.92	15.933	0.69	21.93	0.41		
3.967	0.60	9.967	3.92	15.967	0.69	21.97	0.41		
4.000	0.60	10.000	3.92	16.000	0.69	22.00	0.41		
4.033	0.62	10.033	3.38	16.033	0.68	22.03	0.40		
4.067	0.62	10.067	3.38	16.067	0.68	22.07	0.40		
4.100	0.62	10.100	3.38	16.100	0.68	22.10	0.40		
4.133	0.62	10.133	3.38	16.133	0.68	22.13	0.40		
4.167	0.62	10.167	3.38	16.167	0.68	22.17	0.40		
4.200	0.63	10.200	2.98	16.200	0.66	22.20	0.40		
4.233	0.63	10.233	2.98	16.233	0.66	22.23	0.40		
4.267	0.63	10.267	2.98	16.267	0.66	22.27	0.40		
4.300	0.63	10.300	2.98	16.300	0.66	22.30	0.40		
4.333	0.63	10.333	2.98	16.333	0.66	22.33	0.40		
4.367	0.65	10.367	2.68	16.367	0.65	22.37	0.40		
4.400	0.65	10.400	2.68	16.400	0.65	22.40	0.40		
4.433	0.65	10.433	2.68	16.433	0.65	22.43	0.40		
4.467	0.65	10.467	2.68	16.467	0.65	22.47	0.40		
4.500	0.65	10.500	2.68	16.500	0.65	22.50	0.40		
4.533	0.68	10.533	2.43	16.533	0.64	22.53	0.39		
4.567	0.68	10.567	2.43	16.567	0.64	22.57	0.39		
4.600	0.68	10.600	2.43	16.600	0.64	22.60	0.39		
4.633	0.68	10.633	2.43	16.633	0.64	22.63	0.39		
4.667	0.68	10.667	2.43	16.667	0.64	22.67	0.39		
4.700	0.70	10.700	2.23	16.700	0.63	22.70	0.39		
4.733	0.70	10.733	2.23	16.733	0.63	22.73	0.39		
4.767	0.70	10.767	2.23	16.767	0.63	22.77	0.39		
4.800	0.70	10.800	2.23	16.800	0.63	22.80	0.39		
4.833	0.70	10.833	2.23	16.833	0.63	22.83	0.39		
4.867	0.72	10.867	2.06	16.867	0.62	22.87	0.38		
4.900	0.72	10.900	2.06	16.900	0.62	22.90	0.38		
4.933	0.72	10.933	2.06	16.933	0.62	22.93	0.38		
4.967	0.72	10.967	2.06	16.967	0.62	22.97	0.38		
5.000	0.72	11.000	2.06	17.000	0.62	23.00	0.38		
5.033	0.75	11.033	1.91	17.033	0.60	23.03	0.38		
5.067	0.75	11.067	1.91	17.067	0.60	23.07	0.38		
5.100	0.75	11.100	1.91	17.100	0.60	23.10	0.38		
5.133	0.75	11.133	1.91	17.133	0.60	23.13	0.38		
5.167	0.75	11.167	1.91	17.167	0.60	23.17	0.38		
5.200	0.78	11.200	1.79	17.200	0.59	23.20	0.38		
5.233	0.78	11.233	1.79	17.233	0.59	23.23	0.38		
5.267	0.78	11.267	1.79	17.267	0.59	23.27	0.38		
5.300	0.78	11.300	1.79	17.300	0.59	23.30	0.38		
5.333	0.78	11.333	1.79	17.333	0.59	23.33	0.38		

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Steeles Ave_Road Corridor_PrControlled									
5.367	0.81	11.367	1.68	17.367	0.58	23.37	0.37		
5.400	0.81	11.400	1.68	17.400	0.58	23.40	0.37		
5.433	0.81	11.433	1.68	17.433	0.58	23.43	0.37		
5.467	0.81	11.467	1.68	17.467	0.58	23.47	0.37		
5.500	0.81	11.500	1.68	17.500	0.58	23.50	0.37		
5.533	0.85	11.533	1.59	17.533	0.58	23.53	0.37		
5.567	0.85	11.567	1.59	17.567	0.58	23.57	0.37		
5.600	0.85	11.600	1.59	17.600	0.58	23.60	0.37		
5.633	0.85	11.633	1.59	17.633	0.58	23.63	0.37		
5.667	0.85	11.667	1.59	17.667	0.58	23.67	0.37		
5.700	0.88	11.700	1.51	17.700	0.57	23.70	0.37		
5.733	0.88	11.733	1.51	17.733	0.57	23.73	0.37		
5.767	0.88	11.767	1.51	17.767	0.57	23.77	0.37		
5.800	0.88	11.800	1.51	17.800	0.57	23.80	0.37		
5.833	0.88	11.833	1.51	17.833	0.57	23.83	0.37		
5.867	0.93	11.867	1.43	17.867	0.56	23.87	0.36		
5.900	0.93	11.900	1.43	17.900	0.56	23.90	0.36		
5.933	0.93	11.933	1.43	17.933	0.56	23.93	0.36		
5.967	0.93	11.967	1.43	17.967	0.56	23.97	0.36		
6.000	0.93	12.000	1.43	18.000	0.56	24.00	0.36		

Max.Eff.Inten.(mm/hr)=	80.06	18.25	
over (min)	5.00	4.00	
Storage Coeff. (min)=	1.30 (ii)	3.46 (ii)	
Unit Hyd. Tpeak (min)=	4.00	4.00	
Unit Hyd. peak (cms)=	0.48	0.31	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.022 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	45.70	12.45	37.38
TOTAL RAINFALL (mm)=	47.70	47.70	47.70
RUNOFF COEFFICIENT =	0.96	0.26	0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PEROUS LOSSES:
CN* = 71.0 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 (0560)				
1 + 2 = 3				
ID1= 1 (0245):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	0.12	0.022	9.00	37.38

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Steeles Ave_Road Corridor_PrControlled				
+ ID2= 2 (0550):	7.24	0.163	9.50	16.99
ID = 3 (0560):	7.36	0.165	9.50	17.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION:Run 09 **

READ STORM	Filename: C:\Users\talal.antar\AppData\Local\Temp\8dbe9d67-4e73-438d-a649-484e75a477a1\6994927a
Ptotal= 67.05 mm	Comments: Milton005

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.57	6.17	1.47	12.17	2.03	18.17	0.84
0.33	0.58	6.33	1.54	12.33	1.94	18.33	0.83
0.50	0.59	6.50	1.63	12.50	1.87	18.50	0.81
0.67	0.60	6.67	1.73	12.67	1.79	18.67	0.80
0.83	0.61	6.83	1.84	12.83	1.73	18.83	0.79
1.00	0.62	7.00	1.97	13.00	1.67	19.00	0.78
1.17	0.63	7.17	2.13	13.17	1.61	19.17	0.77
1.33	0.64	7.33	2.31	13.33	1.56	19.33	0.76
1.50	0.65	7.50	2.54	13.50	1.51	19.50	0.75
1.67	0.66	7.67	2.82	13.67	1.46	19.67	0.74
1.83	0.68	7.83	3.17	13.83	1.42	19.83	0.73
2.00	0.69	8.00	3.65	14.00	1.38	20.00	0.72
2.17	0.70	8.17	4.33	14.17	1.35	20.17	0.71
2.33	0.72	8.33	5.35	14.33	1.31	20.33	0.70
2.50	0.73	8.50	7.12	14.50	1.28	20.50	0.70
2.67	0.75	8.67	10.92	14.67	1.25	20.67	0.69
2.83	0.77	8.83	25.78	14.83	1.22	20.83	0.68
3.00	0.78	9.00	105.25	15.00	1.19	21.00	0.67
3.17	0.80	9.17	31.54	15.17	1.16	21.17	0.66
3.33	0.82	9.33	15.94	15.33	1.14	21.33	0.66
3.50	0.84	9.50	10.75	15.50	1.11	21.50	0.65
3.67	0.86	9.67	8.17	15.67	1.09	21.67	0.64
3.83	0.89	9.83	6.63	15.83	1.07	21.83	0.64
4.00	0.91	10.00	5.60	16.00	1.05	22.00	0.63
4.17	0.94	10.17	4.87	16.17	1.03	22.17	0.62
4.33	0.96	10.33	4.32	16.33	1.01	22.33	0.62
4.50	0.99	10.50	3.89	16.50	0.99	22.50	0.61
4.67	1.03	10.67	3.54	16.67	0.97	22.67	0.60
4.83	1.06	10.83	3.26	16.83	0.95	22.83	0.60
5.00	1.10	11.00	3.02	17.00	0.94	23.00	0.59

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Steeles Ave_Road Corridor_PrControlled									
5.17	1.14	11.17	2.81	17.17	0.92	23.17	0.59		
5.33	1.18	11.33	2.64	17.33	0.91	23.33	0.58		
5.50	1.23	11.50	2.49	17.50	0.89	23.50	0.58		
5.67	1.28	11.67	2.35	17.67	0.88	23.67	0.57		
5.83	1.33	11.83	2.23	17.83	0.86	23.83	0.57		
6.00	1.40	12.00	2.13	18.00	0.85	24.00	0.56		

CALIB NASHYD (1021)				
ID= 1 DT= 2.0 min	Area (ha)	Ia (mm)	U.H. Tp (hrs)	Curve Number (CN)= 82.0
	8.51	5.60	0.55	# of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---									
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84		
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84		
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84		
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84		
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84		
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83		
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83		
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83		
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83		
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83		
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81		
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81		
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81		
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81		
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81		
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80		
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80		
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80		
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80		
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80		
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79		
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79		
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79		
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79		
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79		
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78		
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78		

	Steeles	Ave_Road	Corridor_Pr	Controlled			
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59
5.133	1.14	11.133	2.81	17.133	0.92	23.13	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.200	1.18	11.200	2.64	17.200	0.91	23.20	0.58
5.233	1.18	11.233	2.64	17.233	0.91	23.23	0.58
5.267	1.18	11.267	2.64	17.267	0.91	23.27	0.58
5.300	1.18	11.300	2.64	17.300	0.91	23.30	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.367	1.23	11.367	2.49	17.367	0.89	23.37	0.58
5.400	1.23	11.400	2.49	17.400	0.89	23.40	0.58
5.433	1.23	11.433	2.49	17.433	0.89	23.43	0.58
5.467	1.23	11.467	2.49	17.467	0.89	23.47	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.533	1.28	11.533	2.35	17.533	0.88	23.53	0.57
5.567	1.28	11.567	2.35	17.567	0.88	23.57	0.57
5.600	1.28	11.600	2.35	17.600	0.88	23.60	0.57
5.633	1.28	11.633	2.35	17.633	0.88	23.63	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.700	1.33	11.700	2.23	17.700	0.86	23.70	0.57

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	Steeles	Ave_Road	Corridor_Pr	Controlled		
5.733	1.33	11.733	2.23	17.733	0.86	23.73
5.767	1.33	11.767	2.23	17.767	0.86	23.77
5.800	1.33	11.800	2.23	17.800	0.86	23.80
5.833	1.33	11.833	2.23	17.833	0.86	23.83
5.867	1.40	11.867	2.13	17.867	0.85	23.87
5.900	1.40	11.900	2.13	17.900	0.85	23.90
5.933	1.40	11.933	2.13	17.933	0.85	23.93
5.967	1.40	11.967	2.13	17.967	0.85	23.97
6.000	1.40	12.000	2.13	18.000	0.85	24.00

		Steeles	Ave_Road	Corridor_Pr	Controlled			
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83	
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81	
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81	
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81	
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81	
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81	
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80	
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80	
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80	
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80	
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80	
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79	
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79	
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79	
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79	
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79	
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78	
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78	
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78	
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78	
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78	
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77	
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77	
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77	
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77	
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77	
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76	
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76	
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76	
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76	
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76	
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75	
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75	
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75	
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75	
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75	
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74	
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74	
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74	
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74	
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74	
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73	
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73	
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73	
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73	
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73	
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72	
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72	

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		Steeles	Ave_Road	Corridor_Pr	Controlled			
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72	
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72	
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72	
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71	
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71	
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71	
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71	
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71	
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70	
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70	
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70	
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70	
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70	
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70	
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70	
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70	
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70	
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70	
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69	
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69	
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69	
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69	
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69	
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68	
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68	
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68	
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68	
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68	
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67	
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67	
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67	
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67	
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67	
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66	
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66	
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66	
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66	
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66	
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66	
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66	
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66	
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66	
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66	
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65	
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65	
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65	
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65	
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65	

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	Steeles	Ave Road	Corridor	Pr	Controlled		
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59

Steeles Ave_Road Corridor_PrControlled

ADD HYD (0500)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1021):	8.51	0.337	9.60	32.22
+ ID2= 2 (0205):	0.55	0.136	9.00	57.93
=====				
ID = 3 (0500):	9.06	0.349	9.57	33.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0200)
ID= 1 DT= 2.0 min

Area (ha)=	1.24
Total Imp(%)=	86.00
Dir. Conn.(%)=	86.00

	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	1.07	0.17
Dep. Storage	2.00	5.00
Average Slope	1.00	2.00
Length	250.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80

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Steeles Ave_Road Corridor_PrControlled

0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70

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2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64

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3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59
5.133	1.14	11.133	2.81	17.133	0.92	23.13	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.200	1.18	11.200	2.64	17.200	0.91	23.20	0.58
5.233	1.18	11.233	2.64	17.233	0.91	23.23	0.58
5.267	1.18	11.267	2.64	17.267	0.91	23.27	0.58
5.300	1.18	11.300	2.64	17.300	0.91	23.30	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.367	1.23	11.367	2.49	17.367	0.89	23.37	0.58
5.400	1.23	11.400	2.49	17.400	0.89	23.40	0.58

Steeles Ave_Road Corridor_PrControlled							
5.433	1.23	11.433	2.49	17.433	0.89	23.43	0.58
5.467	1.23	11.467	2.49	17.467	0.89	23.47	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.533	1.28	11.533	2.35	17.533	0.88	23.53	0.57
5.567	1.28	11.567	2.35	17.567	0.88	23.57	0.57
5.600	1.28	11.600	2.35	17.600	0.88	23.60	0.57
5.633	1.28	11.633	2.35	17.633	0.88	23.63	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.700	1.33	11.700	2.23	17.700	0.86	23.70	0.57
5.733	1.33	11.733	2.23	17.733	0.86	23.73	0.57
5.767	1.33	11.767	2.23	17.767	0.86	23.77	0.57
5.800	1.33	11.800	2.23	17.800	0.86	23.80	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.867	1.40	11.867	2.13	17.867	0.85	23.87	0.56
5.900	1.40	11.900	2.13	17.900	0.85	23.90	0.56
5.933	1.40	11.933	2.13	17.933	0.85	23.93	0.56
5.967	1.40	11.967	2.13	17.967	0.85	23.97	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Max.Eff.Inten.(mm/hr)= 105.25 36.08
over (min) 5.00 6.00
Storage Coeff. (min)= 4.34 (ii) 5.30 (ii)
Unit Hyd. Tpeak (min)= 4.00 6.00
Unit Hyd. peak (cms)= 0.26 0.20

PEAK FLOW (cms)= 0.28 0.01 0.293 (iii)
TIME TO PEAK (hrs)= 9.00 9.03 9.00
RUNOFF VOLUME (mm)= 65.05 24.68 59.39
TOTAL RAINFALL (mm)= 67.05 67.05 67.05
RUNOFF COEFFICIENT = 0.97 0.37 0.89

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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.

RESERVOIR(0700)
IN= 2---> OUT= 1
DT= 2.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1046	0.0782
0.0306	0.0325	0.2016	0.1380

AREA	QPEAK	TPEAK	R.V.
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Steeles Ave_Road Corridor_PrControlled			
	(ha)	(cms)	(hrs)
INFLOW : ID= 2 (0200)	1.240	0.293	9.00
OUTFLOW: ID= 1 (0700)	1.240	0.036	9.53

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.36
TIME SHIFT OF PEAK FLOW (min)= 32.00
MAXIMUM STORAGE USED (ha.m.)= 0.0360

ADD HYD (0510)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0500):	9.06	0.349	9.57	33.78
+ ID2= 2 (0700):	1.24	0.036	9.53	59.18
ID = 3 (0510):	10.30	0.386	9.57	36.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0210)
ID= 1 DT= 5.0 min

Area (ha)= 2.84
Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.70	1.14
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	460.00	15.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.57	6.083	1.47	12.083	2.03	18.08	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.250	0.58	6.250	1.54	12.250	1.94	18.25	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.417	0.59	6.417	1.63	12.417	1.87	18.42	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.583	0.60	6.583	1.73	12.583	1.79	18.58	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.750	0.61	6.750	1.84	12.750	1.73	18.75	0.79

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Steeles Ave_Road Corridor_PrControlled							
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.917	0.62	6.917	1.97	12.917	1.67	18.92	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.083	0.63	7.083	2.13	13.083	1.61	19.08	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.250	0.64	7.250	2.31	13.250	1.56	19.25	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.417	0.65	7.417	2.54	13.417	1.51	19.42	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.583	0.66	7.583	2.82	13.583	1.46	19.58	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.750	0.68	7.750	3.17	13.750	1.42	19.75	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.917	0.69	7.917	3.65	13.917	1.38	19.92	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.083	0.70	8.083	4.33	14.083	1.35	20.08	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.250	0.72	8.250	5.35	14.250	1.31	20.25	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.417	0.73	8.417	7.12	14.417	1.28	20.42	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.583	0.75	8.583	10.92	14.583	1.25	20.58	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.750	0.77	8.750	25.78	14.750	1.22	20.75	0.68
2.833	0.77	8.833	25.78	14.833	1.22	20.83	0.68
2.917	0.78	8.917	105.25	14.917	1.19	20.92	0.67
3.000	0.78	9.000	105.25	15.000	1.19	21.00	0.67
3.083	0.80	9.083	31.54	15.083	1.16	21.08	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.250	0.82	9.250	15.94	15.250	1.14	21.25	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.417	0.84	9.417	10.75	15.417	1.11	21.42	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.583	0.86	9.583	8.17	15.583	1.09	21.58	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.750	0.89	9.750	6.63	15.750	1.07	21.75	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.917	0.91	9.917	5.60	15.917	1.05	21.92	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.083	0.94	10.083	4.87	16.083	1.03	22.08	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.250	0.96	10.250	4.32	16.250	1.01	22.25	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.417	0.99	10.417	3.89	16.417	0.99	22.42	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.583	1.03	10.583	3.54	16.583	0.97	22.58	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.750	1.06	10.750	3.26	16.750	0.95	22.75	0.60

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Steeles Ave_Road Corridor_PrControlled							
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.917	1.10	10.917	3.02	16.917	0.94	22.92	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.083	1.14	11.083	2.81	17.083	0.92	23.08	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.250	1.18	11.250	2.64	17.250	0.91	23.25	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.417	1.23	11.417	2.49	17.417	0.89	23.42	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.583	1.28	11.583	2.35	17.583	0.88	23.58	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.750	1.33	11.750	2.23	17.750	0.86	23.75	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.917	1.40	11.917	2.13	17.917	0.85	23.92	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Max.Eff.Inten.(mm/hr)= 105.25 33.57
over (min) 5.00 10.00
Storage Coeff. (min)= 6.25 (ii) 9.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.19 0.12

PEAK FLOW (cms)= 0.42 0.07 0.476 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 65.05 23.22 48.32
TOTAL RAINFALL (mm)= 67.05 67.05 67.05
RUNOFF COEFFICIENT = 0.97 0.35 0.72

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0215)
ID= 1 DT= 2.0 min

Area (ha)= 0.52
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.45	0.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	59.00	10.00
Mannings n =	0.013	0.250

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Steeles Ave_Road Corridor_PrControlled
NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75

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Steeles Ave_Road Corridor_PrControlled							
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67

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Steeles Ave_Road Corridor_PrControlled							
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60

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Steeles Ave_Road Corridor_PrControlled							
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60

Steeles Ave_Road Corridor_PrControlled

TOTALS

PEAK FLOW (cms)=	0.13	0.01	0.137 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	65.05	23.22	59.19
TOTAL RAINFALL (mm)=	67.05	67.05	67.05
RUNOFF COEFFICIENT =	0.97	0.35	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0210):	2.84	0.476	9.00	48.32
+ ID2= 2 (0215):	0.52	0.137	9.00	59.19
ID = 3 (0520):	3.36	0.613	9.00	50.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0710)	OVERFLOW IS OFF		
IN= 2---> OUT= 1			
DT= 2.0 min			
OUTFLOW (cms)	STORAGE (ha.m.)		
0.0000	0.0000		
0.0411	0.0357		
0.1964	0.0777		
OUTFLOW (cms)	STORAGE (ha.m.)		
0.3237	0.1197		
0.4116	0.1260		
0.0000	0.0000		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3.360	0.613	9.00	50.00
3.360	0.156	9.33	49.93

PEAK FLOW REDUCTION [Qout/Qin](%)= 25.38
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.0667

Steeles Ave_Road Corridor_PrControlled

CALIB	Area (ha)=	0.34
STANDHYD (0220)	Total Imp(%)=	89.00
ID= 1 DT= 2.0 min	Dir. Conn.(%)=	89.00

IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.30
Dep. Storage (mm)=	2.00
Average Slope (%)=	1.00
Length (m)=	115.00
Mannings n	0.013
	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77

Steeles Ave_Road Corridor_PrControlled

1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69

Steeles Ave_Road Corridor_PrControlled

2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067					

	Steels	Ave	Rd	Corridor	Pr	Controlled	
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59
5.133	1.14	11.133	2.81	17.133	0.92	23.13	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.200	1.18	11.200	2.64	17.200	0.91	23.20	0.58
5.233	1.18	11.233	2.64	17.233	0.91	23.23	0.58
5.267	1.18	11.267	2.64	17.267	0.91	23.27	0.58
5.300	1.18	11.300	2.64	17.300	0.91	23.30	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.367	1.23	11.367	2.49	17.367	0.89	23.37	0.58
5.400	1.23	11.400	2.49	17.400	0.89	23.40	0.58
5.433	1.23	11.433	2.49	17.433	0.89	23.43	0.58
5.467	1.23	11.467	2.49	17.467	0.89	23.47	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.533	1.28	11.533	2.35	17.533	0.88	23.53	0.57
5.567	1.28	11.567	2.35	17.567	0.88	23.57	0.57
5.600	1.28	11.600	2.35	17.600	0.88	23.60	0.57
5.633	1.28	11.633	2.35	17.633	0.88	23.63	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.700	1.33	11.700	2.23	17.700	0.86	23.70	0.57
5.733	1.33	11.733	2.23	17.733	0.86	23.73	0.57
5.767	1.33	11.767	2.23	17.767	0.86	23.77	0.57
5.800	1.33	11.800	2.23	17.800	0.86	23.80	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57

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	Steales	Ave_Road	Corridor	PrControlled		
5.867	1.40	11.867	2.13	17.867	0.85	23.87 0.56
5.900	1.40	11.900	2.13	17.900	0.85	23.90 0.56
5.933	1.40	11.933	2.13	17.933	0.85	23.93 0.56
5.967	1.40	11.967	2.13	17.967	0.85	23.97 0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00 0.56
Max.Eff.Inten.(mm/hr)=		105.25		33.57		
over (min)		5.00		4.00		
Storage Coeff. (min)=		2.72	(ii)	3.58	(ii)	
Unit Hyd. Tpeak (min)=		4.00		4.00		
Unit Hyd. peak (cms)=		0.35		0.30		
					TOTALS	
PEAK FLOW (cms)=	0.09		0.00		0.089	(iii)
TIME TO PEAK (hrs)=	9.00		9.00		9.00	
RUNOFF VOLUME (mm)=	65.05		23.22		60.44	
TOTAL RAINFALL (mm)=	67.05		67.05		67.05	
RUNOFF COEFFICIENT =	0.97		0.35		0.90	

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:
CN* = 71.0 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 (0530)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)

ID1= 1 (0220):	0.34	0.089	9.00	60.44
+ ID2= 2 (0730):	3.36	0.156	9.33	49.93
=====				
ID = 3 (0530)	3.70	0.173	9.20	50.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0225)	Area (ha)=	0.45	
ID= 1 DT= 5.0 min	Total Imp(%)=	93.00	Dir. Conn.(%)= 93.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.42	0.03
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	105.00	5.00

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HETEROGRAPHY -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.57	6.083	1.47	12.083	2.03	18.08	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.250	0.58	6.250	1.54	12.250	1.94	18.25	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.417	0.59	6.417	1.63	12.417	1.87	18.42	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.583	0.60	6.583	1.73	12.583	1.79	18.58	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.750	0.61	6.750	1.84	12.750	1.73	18.75	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.917	0.62	6.917	1.97	12.917	1.67	18.92	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.083	0.63	7.083	2.13	13.083	1.61	19.08	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.250	0.64	7.250	2.31	13.250	1.56	19.25	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.417	0.65	7.417	2.54	13.417	1.51	19.42	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.583	0.66	7.583	2.82	13.583	1.46	19.58	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.750	0.68	7.750	3.17	13.750	1.42	19.75	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.917	0.69	7.917	3.65	13.917	1.38	19.92	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.083	0.70	8.083	4.33	14.083	1.35	20.08	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.250	0.72	8.250	5.35	14.250	1.31	20.25	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.417	0.73	8.417	7.12	14.417	1.28	20.42	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.583	0.75	8.583	10.92	14.583	1.25	20.58	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.750	0.77	8.750	25.78	14.750	1.22	20.75	0.68
2.833	0.77	8.833	25.78	14.833	1.22	20.83	0.68
2.917	0.78	8.917	105.25	14.917	1.19	20.92	0.67
3.000	0.78	9.000	105.25	15.000	1.19	21.00	0.67
3.083	0.80	9.083	31.54	15.083	1.16	21.08	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.250	0.82	9.250	15.94	15.250	1.14	21.25	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66

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	Steeles	Ave_Road	Corridor_PrControlled				
3.417	0.84	9.417	10.75	15.417	1.11	21.42	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.583	0.86	9.583	8.17	15.583	1.09	21.58	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.750	0.89	9.750	6.63	15.750	1.07	21.75	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.917	0.91	9.917	5.60	15.917	1.05	21.92	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.083	0.94	10.083	4.87	16.083	1.03	22.08	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.250	0.96	10.250	4.32	16.250	1.01	22.25	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.417	0.99	10.417	3.89	16.417	0.99	22.42	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.583	1.03	10.583	3.54	16.583	0.97	22.58	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.750	1.06	10.750	3.26	16.750	0.95	22.75	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.917	1.10	10.917	3.02	16.917	0.94	22.92	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.083	1.14	11.083	2.81	17.083	0.92	23.08	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.250	1.18	11.250	2.64	17.250	0.91	23.25	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.417	1.23	11.417	2.49	17.417	0.89	23.42	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.583	1.28	11.583	2.35	17.583	0.88	23.58	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.750	1.33	11.750	2.23	17.750	0.86	23.75	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.917	1.40	11.917	2.13	17.917	0.85	23.92	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Max. Eff. Inten. (mm/hr)=	105.25	37.43	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.58 (ii)	3.28 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.29	0.27	
			TOTALS
PEAK FLOW (cms)=	0.12	0.00	0.124 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	65.05	25.45	62.28
TOTAL RAINFALL (mm)=	67.05	67.05	67.05
RUNOFF COEFFICIENT =	0.97	0.38	0.93

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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
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(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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Steeles Ave_Road Corridor_PrControlled
CN* = 74.0 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 (0230)	Area (ha)=	1.63	Curve Number (CN)=	72.0	
ID= 1 DT= 2.0 min	Ia (mm)=	7.40	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.45			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78

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1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69

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2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62

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4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59
5.133	1.14	11.133	2.81	17.133	0.92	23.13	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.200	1.18	11.200	2.64	17.200	0.91	23.20	0.58
5.233	1.18	11.233	2.64	17.233	0.91	23.23	0.58
5.267	1.18	11.267	2.64	17.267	0.91	23.27	0.58
5.300	1.18	11.300	2.64	17.300	0.91	23.30	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.367	1.23	11.367	2.49	17.367	0.89	23.37	0.58
5.400	1.23	11.400	2.49	17.400	0.89	23.40	0.58
5.433	1.23	11.433	2.49	17.433	0.89	23.43	0.58
5.467	1.23	11.467	2.49	17.467	0.89	23.47	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.533	1.28	11.533	2.35	17.533	0.88	23.53	0.57
5.567	1.28	11.567	2.35	17.567	0.88	23.57	0.57
5.600	1.28	11.600	2.35	17.600	0.88	23.60	0.57
5.633	1.28	11.633	2.35	17.633	0.88	23.63	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.700	1.33	11.700	2.23	17.700	0.86	23.70	0.57
5.733	1.33	11.733	2.23	17.733	0.86	23.73	0.57
5.767	1.33	11.767	2.23	17.767	0.86	23.77	0.57
5.800	1.33	11.800	2.23	17.800	0.86	23.80	0.57

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5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.867	1.40	11.867	2.13	17.867	0.85	23.87	0.56
5.900	1.40	11.900	2.13	17.900	0.85	23.90	0.56
5.933	1.40	11.933	2.13	17.933	0.85	23.93	0.56
5.967	1.40	11.967	2.13	17.967	0.85	23.97	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Unit Hyd Qpeak (cms)= 0.138

PEAK FLOW (cms)= 0.048 (i)
 TIME TO PEAK (hrs)= 9.500
 RUNOFF VOLUME (mm)= 22.457
 TOTAL RAINFALL (mm)= 67.048
 RUNOFF COEFFICIENT = 0.335

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

CALIB							
NASHYD (0235)	Area (ha)=	5.23	Curve Number (CN)=	81.0			
ID= 1 DT= 5.0 min	Ia (mm)=	4.90	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.46					

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.57	6.083	1.47	12.083	2.03	18.08	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.250	0.58	6.250	1.54	12.250	1.94	18.25	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.417	0.59	6.417	1.63	12.417	1.87	18.42	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.583	0.60	6.583	1.73	12.583	1.79	18.58	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.750	0.61	6.750	1.84	12.750	1.73	18.75	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.917	0.62	6.917	1.97	12.917	1.67	18.92	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.083	0.63	7.083	2.13	13.083	1.61	19.08	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.250	0.64	7.250	2.31	13.250	1.56	19.25	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.417	0.65	7.417	2.54	13.417	1.51	19.42	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75

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1.583	0.66	7.583	2.82	13.583	1.46	19.58	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.750	0.68	7.750	3.17	13.750	1.42	19.75	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.917	0.69	7.917	3.65	13.917	1.38	19.92	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.083	0.70	8.083	4.33	14.083	1.35	20.08	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.250	0.72	8.250	5.35	14.250	1.31	20.25	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.417	0.73	8.417	7.12	14.417	1.28	20.42	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.583	0.75	8.583	10.92	14.583	1.25	20.58	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.750	0.77	8.750	25.78	14.750	1.22	20.75	0.68
2.833	0.77	8.833	25.78	14.833	1.22	20.83	0.68
2.917	0.78	8.917	105.25	14.917	1.19	20.92	0.67
3.000	0.78	9.000	105.25	15.000	1.19	21.00	0.67
3.083	0.80	9.083	31.54	15.083	1.16	21.08	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.250	0.82	9.250	15.94	15.250	1.14	21.25	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.417	0.84	9.417	10.75	15.417	1.11	21.42	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.583	0.86	9.583	8.17	15.583	1.09	21.58	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.750	0.89	9.750	6.63	15.750	1.07	21.75	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.917	0.91	9.917	5.60	15.917	1.05	21.92	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.083	0.94	10.083	4.87	16.083	1.03	22.08	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.250	0.96	10.250	4.32	16.250	1.01	22.25	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.417	0.99	10.417	3.89	16.417	0.99	22.42	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.583	1.03	10.583	3.54	16.583	0.97	22.58	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.750	1.06	10.750	3.26	16.750	0.95	22.75	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.917	1.10	10.917	3.02	16.917	0.94	22.92	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.083	1.14	11.083	2.81	17.083	0.92	23.08	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.250	1.18	11.250	2.64	17.250	0.91	23.25	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.417	1.23	11.417	2.49	17.417	0.89	23.42	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58

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Steeles Ave_Road Corridor_PrControlled							
5.583	1.28	11.583	2.35	17.583	0.88	23.58	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.750	1.33	11.750	2.23	17.750	0.86	23.75	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.917	1.40	11.917	2.13	17.917	0.85	23.92	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.230 (i)
 TIME TO PEAK (hrs)= 9.500
 RUNOFF VOLUME (mm)= 31.727
 TOTAL RAINFALL (mm)= 67.048
 RUNOFF COEFFICIENT = 0.473

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

ADD HYD (0540)							
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 1 (0230):	1.63	0.048	9.50	22.46			
+ ID2= 2 (0235):	5.23	0.230	9.50	31.73			
ID = 3 (0540):	6.86	0.278	9.50	29.52			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
STANDHYD (0240)	Area (ha)=	0.38					
ID= 1 DT= 2.0 min	Total Imp(%)=	45.00	Dir. Conn.(%)=	45.00			

IMPERVIOUS				PERVIOUS (i)			
Surface Area (ha)=	0.17			0.21			
Dep. Storage (mm)=	2.00			5.00			
Average Slope (%)=	1.00			2.00			
Length (m)=	225.00			15.00			
Mannings n =	0.013			0.250			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

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Steeles Ave_Road Corridor_PrControlled							
0.033	0.57	6.033	1.47	12.033	2.03	18.03	0.84
0.067	0.57	6.067	1.47	12.067	2.03	18.07	0.84
0.100	0.57	6.100	1.47	12.100	2.03	18.10	0.84
0.133	0.57	6.133	1.47	12.133	2.03	18.13	0.84
0.167	0.57	6.167	1.47	12.167	2.03	18.17	0.84
0.200	0.58	6.200	1.54	12.200	1.94	18.20	0.83
0.233	0.58	6.233	1.54	12.233	1.94	18.23	0.83
0.267	0.58	6.267	1.54	12.267	1.94	18.27	0.83
0.300	0.58	6.300	1.54	12.300	1.94	18.30	0.83
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74

	Steeles	Ave_Road	Corridor_Pr	Controlled			
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59
5.133	1.14	11.133	2.81	17.133	0.92	23.13	0.59
5.167	1.14	11.167	2.81	17.167	0.92	23.17	0.59
5.200	1.18	11.200	2.64	17.200	0.91	23.20	0.58
5.233	1.18	11.233	2.64	17.233	0.91	23.23	0.58
5.267	1.18	11.267	2.64	17.267	0.91	23.27	0.58
5.300	1.18	11.300	2.64	17.300	0.91	23.30	0.58
5.333	1.18	11.333	2.64	17.333	0.91	23.33	0.58
5.367	1.23	11.367	2.49	17.367	0.89	23.37	0.58
5.400	1.23	11.400	2.49	17.400	0.89	23.40	0.58
5.433	1.23	11.433	2.49	17.433	0.89	23.43	0.58
5.467	1.23	11.467	2.49	17.467	0.89	23.47	0.58
5.500	1.23	11.500	2.49	17.500	0.89	23.50	0.58
5.533	1.28	11.533	2.35	17.533	0.88	23.53	0.57
5.567	1.28	11.567	2.35	17.567	0.88	23.57	0.57
5.600	1.28	11.600	2.35	17.600	0.88	23.60	0.57
5.633	1.28	11.633	2.35	17.633	0.88	23.63	0.57
5.667	1.28	11.667	2.35	17.667	0.88	23.67	0.57
5.700	1.33	11.700	2.23	17.700	0.86	23.70	0.57
5.733	1.33	11.733	2.23	17.733	0.86	23.73	0.57
5.767	1.33	11.767	2.23	17.767	0.86	23.77	0.57
5.800	1.33	11.800	2.23	17.800	0.86	23.80	0.57
5.833	1.33	11.833	2.23	17.833	0.86	23.83	0.57
5.867	1.40	11.867	2.13	17.867	0.85	23.87	0.56
5.900	1.40	11.900	2.13	17.900	0.85	23.90	0.56
5.933	1.40	11.933	2.13	17.933	0.85	23.93	0.56
5.967	1.40	11.967	2.13	17.967	0.85	23.97	0.56
6.000	1.40	12.000	2.13	18.000	0.85	24.00	0.56

Max.Eff.Inten.(mm/hr)= 105.25
over (min) 5.00
Storage Coeff. (min)= 4.07 (ii)
Unit Hyd. Tpeak (min)= 4.00
Unit Hyd. peak (cms)= 0.28

TOTALS
0.055 (iii)
9.00
65.05
67.05
0.97

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ADD HYD (0550)				
1 + 2 = 3				
ID1= 1 (0240):	0.38	0.055	9.00	42.03
+ ID2= 2 (0540):	6.86	0.278	9.50	29.52
ID = 3 (0550):	7.24	0.289	9.43	30.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	Area (ha)=	0.12
CALIB		
STANDHYD (0245)		
ID= 1 DT= 2.0 min	Total Imp(%)=	75.00
	Dir. Conn.(%)=	75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n =	0.013	0.250

		Steeles	Ave_Road	Corridor_Pr	Controlled			
0.333	0.58	6.333	1.54	12.333	1.94	18.33	0.83	
0.367	0.59	6.367	1.63	12.367	1.87	18.37	0.81	
0.400	0.59	6.400	1.63	12.400	1.87	18.40	0.81	
0.433	0.59	6.433	1.63	12.433	1.87	18.43	0.81	
0.467	0.59	6.467	1.63	12.467	1.87	18.47	0.81	
0.500	0.59	6.500	1.63	12.500	1.87	18.50	0.81	
0.533	0.60	6.533	1.73	12.533	1.79	18.53	0.80	
0.567	0.60	6.567	1.73	12.567	1.79	18.57	0.80	
0.600	0.60	6.600	1.73	12.600	1.79	18.60	0.80	
0.633	0.60	6.633	1.73	12.633	1.79	18.63	0.80	
0.667	0.60	6.667	1.73	12.667	1.79	18.67	0.80	
0.700	0.61	6.700	1.84	12.700	1.73	18.70	0.79	
0.733	0.61	6.733	1.84	12.733	1.73	18.73	0.79	
0.767	0.61	6.767	1.84	12.767	1.73	18.77	0.79	
0.800	0.61	6.800	1.84	12.800	1.73	18.80	0.79	
0.833	0.61	6.833	1.84	12.833	1.73	18.83	0.79	
0.867	0.62	6.867	1.97	12.867	1.67	18.87	0.78	
0.900	0.62	6.900	1.97	12.900	1.67	18.90	0.78	
0.933	0.62	6.933	1.97	12.933	1.67	18.93	0.78	
0.967	0.62	6.967	1.97	12.967	1.67	18.97	0.78	
1.000	0.62	7.000	1.97	13.000	1.67	19.00	0.78	
1.033	0.63	7.033	2.13	13.033	1.61	19.03	0.77	
1.067	0.63	7.067	2.13	13.067	1.61	19.07	0.77	
1.100	0.63	7.100	2.13	13.100	1.61	19.10	0.77	
1.133	0.63	7.133	2.13	13.133	1.61	19.13	0.77	
1.167	0.63	7.167	2.13	13.167	1.61	19.17	0.77	
1.200	0.64	7.200	2.31	13.200	1.56	19.20	0.76	
1.233	0.64	7.233	2.31	13.233	1.56	19.23	0.76	
1.267	0.64	7.267	2.31	13.267	1.56	19.27	0.76	
1.300	0.64	7.300	2.31	13.300	1.56	19.30	0.76	
1.333	0.64	7.333	2.31	13.333	1.56	19.33	0.76	
1.367	0.65	7.367	2.54	13.367	1.51	19.37	0.75	
1.400	0.65	7.400	2.54	13.400	1.51	19.40	0.75	
1.433	0.65	7.433	2.54	13.433	1.51	19.43	0.75	
1.467	0.65	7.467	2.54	13.467	1.51	19.47	0.75	
1.500	0.65	7.500	2.54	13.500	1.51	19.50	0.75	
1.533	0.66	7.533	2.82	13.533	1.46	19.53	0.74	
1.567	0.66	7.567	2.82	13.567	1.46	19.57	0.74	
1.600	0.66	7.600	2.82	13.600	1.46	19.60	0.74	
1.633	0.66	7.633	2.82	13.633	1.46	19.63	0.74	
1.667	0.66	7.667	2.82	13.667	1.46	19.67	0.74	
1.700	0.68	7.700	3.17	13.700	1.42	19.70	0.73	
1.733	0.68	7.733	3.17	13.733	1.42	19.73	0.73	
1.767	0.68	7.767	3.17	13.767	1.42	19.77	0.73	
1.800	0.68	7.800	3.17	13.800	1.42	19.80	0.73	
1.833	0.68	7.833	3.17	13.833	1.42	19.83	0.73	
1.867	0.69	7.867	3.65	13.867	1.38	19.87	0.72	
1.900	0.69	7.900	3.65	13.900	1.38	19.90	0.72	

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		Steeles	Ave_Road	Corridor_Pr	Controlled			
1.933	0.69	7.933	3.65	13.933	1.38	19.93	0.72	
1.967	0.69	7.967	3.65	13.967	1.38	19.97	0.72	
2.000	0.69	8.000	3.65	14.000	1.38	20.00	0.72	
2.033	0.70	8.033	4.33	14.033	1.35	20.03	0.71	
2.067	0.70	8.067	4.33	14.067	1.35	20.07	0.71	
2.100	0.70	8.100	4.33	14.100	1.35	20.10	0.71	
2.133	0.70	8.133	4.33	14.133	1.35	20.13	0.71	
2.167	0.70	8.167	4.33	14.167	1.35	20.17	0.71	
2.200	0.72	8.200	5.35	14.200	1.31	20.20	0.70	
2.233	0.72	8.233	5.35	14.233	1.31	20.23	0.70	
2.267	0.72	8.267	5.35	14.267	1.31	20.27	0.70	
2.300	0.72	8.300	5.35	14.300	1.31	20.30	0.70	
2.333	0.72	8.333	5.35	14.333	1.31	20.33	0.70	
2.367	0.73	8.367	7.12	14.367	1.28	20.37	0.70	
2.400	0.73	8.400	7.12	14.400	1.28	20.40	0.70	
2.433	0.73	8.433	7.12	14.433	1.28	20.43	0.70	
2.467	0.73	8.467	7.12	14.467	1.28	20.47	0.70	
2.500	0.73	8.500	7.12	14.500	1.28	20.50	0.70	
2.533	0.75	8.533	10.92	14.533	1.25	20.53	0.69	
2.567	0.75	8.567	10.92	14.567	1.25	20.57	0.69	
2.600	0.75	8.600	10.92	14.600	1.25	20.60	0.69	
2.633	0.75	8.633	10.92	14.633	1.25	20.63	0.69	
2.667	0.75	8.667	10.92	14.667	1.25	20.67	0.69	
2.700	0.77	8.700	25.78	14.700	1.22	20.70	0.68	
2.733	0.77	8.733	25.78	14.733	1.22	20.73	0.68	
2.767	0.77	8.767	25.78	14.767	1.22	20.77	0.68	
2.800	0.77	8.800	25.78	14.800	1.22	20.80	0.68	
2.833	0.77	8.833	25.79	14.833	1.22	20.83	0.68	
2.867	0.78	8.867	105.25	14.867	1.19	20.87	0.67	
2.900	0.78	8.900	105.25	14.900	1.19	20.90	0.67	
2.933	0.78	8.933	105.25	14.933	1.19	20.93	0.67	
2.967	0.78	8.967	105.25	14.967	1.19	20.97	0.67	
3.000	0.78	9.000	105.24	15.000	1.19	21.00	0.67	
3.033	0.80	9.033	31.54	15.033	1.16	21.03	0.66	
3.067	0.80	9.067	31.54	15.067	1.16	21.07	0.66	
3.100	0.80	9.100	31.54	15.100	1.16	21.10	0.66	
3.133	0.80	9.133	31.54	15.133	1.16	21.13	0.66	
3.167	0.80	9.167	31.54	15.167	1.16	21.17	0.66	
3.200	0.82	9.200	15.94	15.200	1.14	21.20	0.66	
3.233	0.82	9.233	15.94	15.233	1.14	21.23	0.66	
3.267	0.82	9.267	15.94	15.267	1.14	21.27	0.66	
3.300	0.82	9.300	15.94	15.300	1.14	21.30	0.66	
3.333	0.82	9.333	15.94	15.333	1.14	21.33	0.66	
3.367	0.84	9.367	10.75	15.367	1.11	21.37	0.65	
3.400	0.84	9.400	10.75	15.400	1.11	21.40	0.65	
3.433	0.84	9.433	10.75	15.433	1.11	21.43	0.65	
3.467	0.84	9.467	10.75	15.467	1.11	21.47	0.65	
3.500	0.84	9.500	10.75	15.500	1.11	21.50	0.65	

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	Steeles	Ave Road	Corridor	PrControlled			
3.533	0.86	9.533	8.17	15.533	1.09	21.53	0.64
3.567	0.86	9.567	8.17	15.567	1.09	21.57	0.64
3.600	0.86	9.600	8.17	15.600	1.09	21.60	0.64
3.633	0.86	9.633	8.17	15.633	1.09	21.63	0.64
3.667	0.86	9.667	8.17	15.667	1.09	21.67	0.64
3.700	0.89	9.700	6.63	15.700	1.07	21.70	0.64
3.733	0.89	9.733	6.63	15.733	1.07	21.73	0.64
3.767	0.89	9.767	6.63	15.767	1.07	21.77	0.64
3.800	0.89	9.800	6.63	15.800	1.07	21.80	0.64
3.833	0.89	9.833	6.63	15.833	1.07	21.83	0.64
3.867	0.91	9.867	5.60	15.867	1.05	21.87	0.63
3.900	0.91	9.900	5.60	15.900	1.05	21.90	0.63
3.933	0.91	9.933	5.60	15.933	1.05	21.93	0.63
3.967	0.91	9.967	5.60	15.967	1.05	21.97	0.63
4.000	0.91	10.000	5.60	16.000	1.05	22.00	0.63
4.033	0.94	10.033	4.87	16.033	1.03	22.03	0.62
4.067	0.94	10.067	4.87	16.067	1.03	22.07	0.62
4.100	0.94	10.100	4.87	16.100	1.03	22.10	0.62
4.133	0.94	10.133	4.87	16.133	1.03	22.13	0.62
4.167	0.94	10.167	4.87	16.167	1.03	22.17	0.62
4.200	0.96	10.200	4.32	16.200	1.01	22.20	0.62
4.233	0.96	10.233	4.32	16.233	1.01	22.23	0.62
4.267	0.96	10.267	4.32	16.267	1.01	22.27	0.62
4.300	0.96	10.300	4.32	16.300	1.01	22.30	0.62
4.333	0.96	10.333	4.32	16.333	1.01	22.33	0.62
4.367	0.99	10.367	3.89	16.367	0.99	22.37	0.61
4.400	0.99	10.400	3.89	16.400	0.99	22.40	0.61
4.433	0.99	10.433	3.89	16.433	0.99	22.43	0.61
4.467	0.99	10.467	3.89	16.467	0.99	22.47	0.61
4.500	0.99	10.500	3.89	16.500	0.99	22.50	0.61
4.533	1.03	10.533	3.54	16.533	0.97	22.53	0.60
4.567	1.03	10.567	3.54	16.567	0.97	22.57	0.60
4.600	1.03	10.600	3.54	16.600	0.97	22.60	0.60
4.633	1.03	10.633	3.54	16.633	0.97	22.63	0.60
4.667	1.03	10.667	3.54	16.667	0.97	22.67	0.60
4.700	1.06	10.700	3.26	16.700	0.95	22.70	0.60
4.733	1.06	10.733	3.26	16.733	0.95	22.73	0.60
4.767	1.06	10.767	3.26	16.767	0.95	22.77	0.60
4.800	1.06	10.800	3.26	16.800	0.95	22.80	0.60
4.833	1.06	10.833	3.26	16.833	0.95	22.83	0.60
4.867	1.10	10.867	3.02	16.867	0.94	22.87	0.59
4.900	1.10	10.900	3.02	16.900	0.94	22.90	0.59
4.933	1.10	10.933	3.02	16.933	0.94	22.93	0.59
4.967	1.10	10.967	3.02	16.967	0.94	22.97	0.59
5.000	1.10	11.000	3.02	17.000	0.94	23.00	0.59
5.033	1.14	11.033	2.81	17.033	0.92	23.03	0.59
5.067	1.14	11.067	2.81	17.067	0.92	23.07	0.59
5.100	1.14	11.100	2.81	17.100	0.92	23.10	0.59

Steeles Ave_Road Corridor_PrControlled

ADD HYD (0560)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0245):	0.12	0.029	9.00	54.59
+ ID2= 2 (0550):	7.24	0.289	9.43	30.18
=====				
ID = 3 (0560):	7.36	0.292	9.43	30.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION:Run 10 **

READ STORM
Ptotal= 80.06 mm

Filename: C:\Users\talal.antar\AppData
Local\Temp\
8dbe9d67-4e73-438d-a649-484e75a477a1\c1eec890
Comments: Milton010

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.70	6.17	1.79	12.17	2.48	18.17	1.03
0.33	0.72	6.33	1.89	12.33	2.37	18.33	1.02
0.50	0.73	6.50	1.99	12.50	2.28	18.50	1.00
0.67	0.74	6.67	2.11	12.67	2.19	18.67	0.99
0.83	0.75	6.83	2.25	12.83	2.11	18.83	0.97
1.00	0.76	7.00	2.41	13.00	2.04	19.00	0.96
1.17	0.78	7.17	2.59	13.17	1.97	19.17	0.95
1.33	0.79	7.33	2.82	13.33	1.91	19.33	0.94
1.50	0.80	7.50	3.09	13.50	1.85	19.50	0.92
1.67	0.82	7.67	3.42	13.67	1.79	19.67	0.91
1.83	0.83	7.83	3.85	13.83	1.74	19.83	0.90
2.00	0.85	8.00	4.42	14.00	1.69	20.00	0.89
2.17	0.87	8.17	5.23	14.17	1.65	20.17	0.88
2.33	0.89	8.33	6.45	14.33	1.61	20.33	0.87
2.50	0.90	8.50	8.54	14.50	1.56	20.50	0.86
2.67	0.92	8.67	13.03	14.67	1.53	20.67	0.85
2.83	0.94	8.83	30.36	14.83	1.49	20.83	0.84
3.00	0.96	9.00	121.81	15.00	1.46	21.00	0.83
3.17	0.99	9.17	37.05	15.17	1.42	21.17	0.82
3.33	1.01	9.33	18.91	15.33	1.39	21.33	0.81
3.50	1.04	9.50	12.83	15.50	1.36	21.50	0.80
3.67	1.06	9.67	9.79	15.67	1.34	21.67	0.79
3.83	1.09	9.83	7.97	15.83	1.31	21.83	0.78

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4.00	1.12	10.00	6.75	16.00	1.28	22.00	0.78
4.17	1.15	10.17	5.88	16.17	1.26	22.17	0.77
4.33	1.19	10.33	5.22	16.33	1.24	22.33	0.76
4.50	1.22	10.50	4.70	16.50	1.21	22.50	0.75
4.67	1.26	10.67	4.29	16.67	1.19	22.67	0.75
4.83	1.30	10.83	3.95	16.83	1.17	22.83	0.74
5.00	1.35	11.00	3.66	17.00	1.15	23.00	0.73
5.17	1.39	11.17	3.42	17.17	1.13	23.17	0.72
5.33	1.45	11.33	3.21	17.33	1.11	23.33	0.72
5.50	1.50	11.50	3.02	17.50	1.10	23.50	0.71
5.67	1.57	11.67	2.86	17.67	1.08	23.67	0.70
5.83	1.63	11.83	2.72	17.83	1.06	23.83	0.70
6.00	1.71	12.00	2.59	18.00	1.05	24.00	0.69

CALIB
NASHYD (1021)
ID= 1 DT= 2.0 min

Area (ha)= 8.51
Ia (mm)= 5.60
U.H. Tp(hrs)= 0.55
Curve Number (CN)= 82.0
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99

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0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87

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Steeles Ave_Road Corridor_PrControlled

2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.367	1.04	9.367	12.83				

	Steeles	Ave_Road	Corridor_PrControlled				
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71

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	Steeles	Ave_Road	Corridor_PrControlled				
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91

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	Steeles	Ave_Road	Corridor_PrControlled				
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Unit Hyd Qpeak (cms)= 0.591

PEAK FLOW (cms)= 0.444 (i)
TIME TO PEAK (hrs)= 9.600
RUNOFF VOLUME (mm)= 42.576
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = 0.532

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

CALIB	Area (ha)=	0.55
STANDHYD (0205)	Total Imp(%)=	83.00
ID= 1 DT= 2.0 min	Dir. Conn.(%)=	83.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.46	0.09
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	130.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03

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	Steeles	Ave_Road	Corridor_PrControlled				
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81

Steeles Ave_Road Corridor_PrControlled								
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81	
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81	
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80	
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80	
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80	
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80	
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80	
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79	
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79	
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79	
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79	
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79	
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78	
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78	
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78	
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78	
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78	
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78	
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78	
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78	
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78	
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78	
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77	
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77	
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77	
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77	
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77	
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76	
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76	
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76	
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76	
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76	
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75	
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75	
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75	
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75	
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75	
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75	
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75	
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75	
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75	
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75	
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74	
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74	
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74	
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74	
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74	
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73	

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Steeles Ave_Road Corridor_PrControlled								
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73	
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73	
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73	
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73	
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72	
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72	
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72	
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72	
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72	
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72	
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72	
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72	
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72	
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72	
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71	
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71	
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71	
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71	
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71	
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70	
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70	
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70	
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70	
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70	
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70	
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70	
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70	
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70	
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70	
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69	
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69	
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69	
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69	
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69	

Max.Eff.Inten.(mm/hr)=	121.81	45.22	
over (min)	5.00	4.00	
Storage Coeff. (min)=	2.76 (ii)	3.76 (ii)	
Unit Hyd. Tpeak (min)=	4.00	4.00	
Unit Hyd. peak (cms)=	0.35	0.29	
			TOTALS
PEAK FLOW (cms)=	0.15	0.01	0.161 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	78.06	31.51	70.14
TOTAL RAINFALL (mm)=	80.06	80.06	80.06
RUNOFF COEFFICIENT =	0.98	0.39	0.88

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Steeles Ave_Road Corridor_PrControlled
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0500)				
1	2	3		
ID1= 1 (1021):	8.51	0.444	9.60	42.58
+ ID2= 2 (0205):	0.55	0.161	9.00	70.14
=====				
ID = 3 (0500):	9.06	0.460	9.57	44.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0200)	Area (ha)=	1.24	
ID= 1 DT= 2.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00
IMPERVIOUS PVIOUS (i)			
Surface Area (ha)=	1.07	0.17	
Dep. Storage (mm)=	2.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	250.00	5.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00

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Steeles Ave_Road Corridor_PrControlled								
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00	
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00	
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00	
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00	
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99	
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99	
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99	
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99	
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99	
0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97	
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97	
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97	
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97	
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97	
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96	
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96	
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96	
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96	
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96	
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95	
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95	
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95	
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95	
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95	
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94	
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94	
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94	
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94	
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94	
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92	
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92	
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92	
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92	
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92	
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91	
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91	
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91	
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91	
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91	
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90	
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90	
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90	
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90	
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90	
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89	
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89	
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89	
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89	

		Steeles	Ave_Road	Corridor_PrControlled			
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79

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		Steeles	Ave_Road	Corridor_PrControlled			
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72

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		Steeles	Ave_Road	Corridor_PrControlled			
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Max.Eff.Inten.(mm/hr)=	121.81	48.39	
over (min)	5.00	6.00	
Storage Coeff. (min)=	4.09 (ii)	5.00 (ii)	
Unit Hyd. Tpeak (min)=	4.00	6.00	
Unit Hyd. peak (cms)=	0.28	0.21	

PEAK FLOW (cms)=	0.33	0.02	0.347 (iii)
TIME TO PEAK (hrs)=	9.00	9.03	9.00
RUNOFF VOLUME (mm)=	78.06	33.33	71.79
TOTAL RAINFALL (mm)=	80.06	80.06	80.06
RUNOFF COEFFICIENT =	0.97	0.42	0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
CN* = 73.0	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.	

| RESERVOIR(0700)| OVERFLOW IS OFF

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Steeles Ave_Road Corridor_PrControlled					
IN= 2----> OUT= 1					
DT= 2.0 min					
		OUTFLOW	STORAGE	OUTFLOW	STORAGE
		(cms)	(ha.m.)	(cms)	(ha.m.)
		0.0000	0.0000	0.1046	0.0782
		0.0306	0.0325	0.2016	0.1380
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0200)		1.240	0.347	9.00	71.79
OUTFLOW: ID= 1 (0700)		1.240	0.046	9.47	71.58
PEAK FLOW REDUCTION [Qout/Qin](%)= 13.33					
TIME SHIFT OF PEAK FLOW (min)= 28.00					
MAXIMUM STORAGE USED (ha.m.)= 0.0422					

ADD HYD (0510)					
1 + 2 = 3					

		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0500):		9.06	0.460	9.57	44.25
+ ID2= 2 (0700):		1.24	0.046	9.47	71.58

ID = 3 (0510):		10.30	0.506	9.57	47.54
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.					

CALIB					
STANDHYD (0210)		Area (ha)=	2.84		
ID= 1 DT= 5.0 min		Total Imp(%)=	60.00	Dir. Conn.(%)=	60.00

		IMPERVIOUS	PERVIOUS (i)		
Surface Area		(ha)=	1.70	1.14	
Dep. Storage		(mm)=	2.00	5.00	
Average Slope		(%)=	1.00	2.00	
Length		(m)=	460.00	15.00	
Mannings n		=	0.013	0.250	

Steeles Ave_Road Corridor_PrControlled							
0.250	0.72	6.250	1.89	12.250	2.37	18.25	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.417	0.73	6.417	1.99	12.417	2.28	18.42	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.583	0.74	6.583	2.11	12.583	2.19	18.58	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.750	0.75	6.750	2.25	12.750	2.11	18.75	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.917	0.76	6.917	2.41	12.917	2.04	18.92	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.083	0.78	7.083	2.59	13.083	1.97	19.08	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.250	0.79	7.250	2.82	13.250	1.91	19.25	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.417	0.80	7.417	3.09	13.417	1.85	19.42	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.583	0.82	7.583	3.42	13.583	1.79	19.58	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.750	0.83	7.750	3.85	13.750	1.74	19.75	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.917	0.85	7.917	4.42	13.917	1.69	19.92	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.083	0.87	8.083	5.23	14.083	1.65	20.08	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.250	0.89	8.250	6.45	14.250	1.61	20.25	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.417	0.90	8.417	8.54	14.417	1.56	20.42	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.583	0.92	8.583	13.03	14.583	1.53	20.58	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.750	0.94	8.750	30.36	14.750	1.49	20.75	0.84
2.833	0.94	8.833	30.36	14.833	1.49	20.83	0.84
2.917	0.96	8.917	121.81	14.917	1.46	20.92	0.83
3.000	0.96	9.000	121.81	15.000	1.46	21.00	0.83
3.083	0.99	9.083	37.05	15.083	1.42	21.08	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.250	1.01	9.250	18.91	15.250	1.39	21.25	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.417	1.04	9.417	12.83	15.417	1.36	21.42	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.583	1.06	9.583	9.79	15.583	1.34	21.58	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.750	1.09	9.750	7.97	15.750	1.31	21.75	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.917	1.12	9.917	6.75	15.917	1.28	21.92	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.083	1.15	10.083	5.88	16.083	1.26	22.08	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77

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Steeles Ave_Road Corridor_PrControlled							
4.250	1.19	10.250	5.22	16.250	1.24	22.25	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.417	1.22	10.417	4.70	16.417	1.21	22.42	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.583	1.26	10.583	4.29	16.583	1.19	22.58	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.750	1.30	10.750	3.95	16.750	1.17	22.75	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.917	1.35	10.917	3.66	16.917	1.15	22.92	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.083	1.39	11.083	3.42	17.083	1.13	23.08	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.250	1.45	11.250	3.21	17.250	1.11	23.25	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.417	1.50	11.417	3.02	17.417	1.10	23.42	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.583	1.57	11.583	2.86	17.583	1.08	23.58	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.750	1.63	11.750	2.72	17.750	1.06	23.75	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.917	1.71	11.917	2.59	17.917	1.05	23.92	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Max.Eff.Inten.(mm/hr)= 121.81 45.22
over (min) 5.00 10.00
Storage Coeff. (min)= 5.90 (ii) 8.98 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.19 0.12

PEAK FLOW (cms)= 0.49 0.10 0.574 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 78.06 31.51 59.44
TOTAL RAINFALL (mm)= 80.06 80.06 80.06
RUNOFF COEFFICIENT = 0.98 0.39 0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0215)
ID= 1 DT= 2.0 min
Area (ha)= 0.52
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

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Steeles Ave_Road Corridor_PrControlled							
IMPERVIOUS							
PERVIOUS (i)							
Surface Area (ha)=	0.45	0.07					
Dep. Storage (mm)=	2.00	5.00					
Average Slope (%)=	1.00	2.00					
Length (m)=	59.00	10.00					
Mannings n	0.013	0.250					

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95

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Steeles Ave_Road Corridor_PrControlled							
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84

Steeles Ave_Road Corridor_PrControlled									
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84		
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84		
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83		
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83		
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83		
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83		
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83		
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82		
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82		
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82		
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82		
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82		
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81		
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81		
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81		
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81		
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81		
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80		
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80		
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80		
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80		
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80		
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79		
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79		
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79		
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79		
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79		
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78		
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78		
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78		
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78		
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78		
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78		
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78		
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78		
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78		
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78		
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77		
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77		
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77		
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77		
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77		
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76		
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76		
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76		
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76		
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76		
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75		

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Steeles Ave_Road Corridor_PrControlled									
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75		
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75		
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75		
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75		
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75		
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75		
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75		
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75		
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75		
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74		
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74		
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74		
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74		
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74		
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73		
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73		
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73		
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73		
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73		
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72		
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72		
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72		
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72		
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72		
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72		
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72		
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72		
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72		
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72		
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71		
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71		
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71		
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71		
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71		
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70		
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70		
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70		
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70		
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70		
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70		
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70		
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70		
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70		
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70		
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69		
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69		
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69		
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69		

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Steeles Ave_Road Corridor_PrControlled									
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69		
Max.Eff.Inten.(mm/hr)= 121.81 45.22									
over (min) 5.00 4.00									
Storage Coeff. (min)= 1.72 (ii) 3.09 (ii)									
Unit Hyd. Tpeak (min)= 4.00 4.00									
Unit Hyd. peak (cms)= 0.43 0.33									
TOTALS									
PEAK FLOW (cms)= 0.15 0.01 0.160 (iii)									
TIME TO PEAK (hrs)= 9.00 9.00									
RUNOFF VOLUME (mm)= 78.06 31.51 71.54									
TOTAL RAINFALL (mm)= 80.06 80.06 80.06									
RUNOFF COEFFICIENT = 0.98 0.39 0.89									

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)									
1 + 2 = 3									
AREA QPEAK TPEAK R.V.									
(ha) (cms) (hrs) (mm)									
ID1= 1 (0210): 2.84 0.574 9.00 59.44									
+ ID2= 2 (0215): 0.52 0.160 9.00 71.54									
=====									
ID = 3 (0520): 3.36 0.734 9.00 61.31									

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0710)		OVERFLOW IS OFF			
IN= 2----> OUT= 1					
DT= 2.0 min					
OUTFLOW		STORAGE	OUTFLOW		STORAGE
(cms)		(ha.m.)	(cms)		(ha.m.)
0.0000		0.0000	0.3237		0.1197
0.0411		0.0357	0.4116		0.1260
0.1964		0.0777	0.0000		0.0000
AREA		QPEAK	TPEAK		R.V.
(ha)		(cms)	(hrs)		(mm)
INFLOW : ID= 2 (0520)	3.360	0.734	9.00		61.31
OUTFLOW: ID= 1 (0710)	3.360	0.198	9.33		61.24

		Steeles	Ave_Road	Corridor_PrControlled			
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86

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		Steeles	Ave_Road	Corridor_PrControlled			
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78

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		Steeles	Ave_Road	Corridor_PrControlled			
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70

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		Steeles	Ave_Road	Corridor_PrControlled			
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Steeles Ave_Road Corridor_PrControlled
[ID= 1 DT= 5.0 min | Total Imp(%)= 93.00 Dir. Conn.(%)= 93.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.42 0.03
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 105.00 5.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.083 0.70 6.083 1.79 12.083 2.48 18.08 1.03
0.167 0.70 6.167 1.79 12.167 2.48 18.17 1.03
0.250 0.72 6.250 1.89 12.250 2.37 18.25 1.02
0.333 0.72 6.333 1.89 12.333 2.37 18.33 1.02
0.417 0.73 6.417 1.99 12.417 2.28 18.42 1.00
0.500 0.73 6.500 1.99 12.500 2.28 18.50 1.00
0.583 0.74 6.583 2.11 12.583 2.19 18.58 0.99
0.667 0.74 6.667 2.11 12.667 2.19 18.67 0.99
0.750 0.75 6.750 2.25 12.750 2.11 18.75 0.97
0.833 0.75 6.833 2.25 12.833 2.11 18.83 0.97
0.917 0.76 6.917 2.41 12.917 2.04 18.92 0.96
1.000 0.76 7.000 2.41 13.000 2.04 19.00 0.96
1.083 0.78 7.083 2.59 13.083 1.97 19.08 0.95
1.167 0.78 7.167 2.59 13.167 1.97 19.17 0.95
1.250 0.79 7.250 2.82 13.250 1.91 19.25 0.94
1.333 0.79 7.333 2.82 13.333 1.91 19.33 0.94
1.417 0.80 7.417 3.09 13.417 1.85 19.42 0.92
1.500 0.80 7.500 3.09 13.500 1.85 19.50 0.92
1.583 0.82 7.583 3.42 13.583 1.79 19.58 0.91
1.667 0.82 7.667 3.42 13.667 1.79 19.67 0.91
1.750 0.83 7.750 3.85 13.750 1.74 19.75 0.90
1.833 0.83 7.833 3.85 13.833 1.74 19.83 0.90
1.917 0.85 7.917 4.42 13.917 1.69 19.92 0.89
2.000 0.85 8.000 4.42 14.000 1.69 20.00 0.89
2.083 0.87 8.083 5.23 14.083 1.65 20.08 0.88
2.167 0.87 8.167 5.23 14.167 1.65 20.17 0.88
2.250 0.89 8.250 6.45 14.250 1.61 20.25 0.87
2.333 0.89 8.333 6.45 14.333 1.61 20.33 0.87
2.417 0.90 8.417 8.54 14.417 1.56 20.42 0.86
2.500 0.90 8.500 8.54 14.500 1.56 20.50 0.86
2.583 0.92 8.583 13.03 14.583 1.53 20.58 0.85
2.667 0.92 8.667 13.03 14.667 1.53 20.67 0.85
2.750 0.94 8.750 30.36 14.750 1.49 20.75 0.84

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Steeles Ave_Road Corridor_PrControlled

2.833 0.94 8.833 30.36 14.833 1.49 20.83 0.84
2.917 0.96 8.917 121.81 14.917 1.46 20.92 0.83
3.000 0.96 9.000 121.81 15.000 1.46 21.00 0.83
3.083 0.99 9.083 37.05 15.083 1.42 21.08 0.82
3.167 0.99 9.167 37.05 15.167 1.42 21.17 0.82
3.250 1.01 9.250 18.91 15.250 1.39 21.25 0.81
3.333 1.01 9.333 18.91 15.333 1.39 21.33 0.81
3.417 1.04 9.417 12.83 15.417 1.36 21.42 0.80
3.500 1.04 9.500 12.83 15.500 1.36 21.50 0.80
3.583 1.06 9.583 9.79 15.583 1.34 21.58 0.79
3.667 1.06 9.667 9.79 15.667 1.34 21.67 0.79
3.750 1.09 9.750 7.97 15.750 1.31 21.75 0.78
3.833 1.09 9.833 7.97 15.833 1.31 21.83 0.78
3.917 1.12 9.917 6.75 15.917 1.28 21.92 0.78
4.000 1.12 10.000 6.75 16.000 1.28 22.00 0.78
4.083 1.15 10.083 5.88 16.083 1.26 22.08 0.77
4.167 1.15 10.167 5.88 16.167 1.26 22.17 0.77
4.250 1.19 10.250 5.22 16.250 1.24 22.25 0.76
4.333 1.19 10.333 5.22 16.333 1.24 22.33 0.76
4.417 1.22 10.417 4.70 16.417 1.21 22.42 0.75
4.500 1.22 10.500 4.70 16.500 1.21 22.50 0.75
4.583 1.26 10.583 4.29 16.583 1.19 22.58 0.75
4.667 1.26 10.667 4.29 16.667 1.19 22.67 0.75
4.750 1.30 10.750 3.95 16.750 1.17 22.75 0.74
4.833 1.30 10.833 3.95 16.833 1.17 22.83 0.74
4.917 1.35 10.917 3.66 16.917 1.15 22.92 0.73
5.000 1.35 11.000 3.66 17.000 1.15 23.00 0.73
5.083 1.39 11.083 3.42 17.083 1.13 23.08 0.72
5.167 1.39 11.167 3.42 17.167 1.13 23.17 0.72
5.250 1.45 11.250 3.21 17.250 1.11 23.25 0.72
5.333 1.45 11.333 3.21 17.333 1.11 23.33 0.72
5.417 1.50 11.417 3.02 17.417 1.10 23.42 0.71
5.500 1.50 11.500 3.02 17.500 1.10 23.50 0.71
5.583 1.57 11.583 2.86 17.583 1.08 23.58 0.70
5.667 1.57 11.667 2.86 17.667 1.08 23.67 0.70
5.750 1.63 11.750 2.72 17.750 1.06 23.75 0.70
5.833 1.63 11.833 2.72 17.833 1.06 23.83 0.70
5.917 1.71 11.917 2.59 17.917 1.05 23.92 0.69
6.000 1.71 12.000 2.59 18.000 1.05 24.00 0.69

Max.Eff.Inten.(mm/hr)= 121.81 50.07
over (min) 5.00
Storage Coeff. (min)= 2.43 (ii) 3.10 (ii)
Unit Hyd. Tpeak (min)= 5.00
Unit Hyd. peak (cms)= 0.30 0.27

TOTALS
0.144 (iii)
9.00

PEAK FLOW (cms)= 0.14 0.00 0.144 (iii)
TIME TO PEAK (hrs)= 9.00 9.00

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Steeles Ave_Road Corridor_PrControlled
RUNOFF VOLUME (mm)= 78.06 34.29 74.99
TOTAL RAINFALL (mm)= 80.06 80.06 80.06
RUNOFF COEFFICIENT = 0.98 0.43 0.94

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0230)]
[ID= 1 DT= 2.0 min | Area (ha)= 1.63 Curve Number (CN)= 72.0
[U.H. Tp(hrs)= 0.45 # of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.033 0.70 6.033 1.79 12.033 2.48 18.03 1.03
0.067 0.70 6.067 1.79 12.067 2.48 18.07 1.03
0.100 0.70 6.100 1.79 12.100 2.48 18.10 1.03
0.133 0.70 6.133 1.79 12.133 2.48 18.13 1.03
0.167 0.70 6.167 1.79 12.167 2.48 18.17 1.03
0.200 0.72 6.200 1.89 12.200 2.37 18.20 1.02
0.233 0.72 6.233 1.89 12.233 2.37 18.23 1.02
0.267 0.72 6.267 1.89 12.267 2.37 18.27 1.02
0.300 0.72 6.300 1.89 12.300 2.37 18.30 1.02
0.333 0.72 6.333 1.89 12.333 2.37 18.33 1.02
0.367 0.73 6.367 1.99 12.367 2.28 18.37 1.00
0.400 0.73 6.400 1.99 12.400 2.28 18.40 1.00
0.433 0.73 6.433 1.99 12.433 2.28 18.43 1.00
0.467 0.73 6.467 1.99 12.467 2.28 18.47 1.00
0.500 0.73 6.500 1.99 12.500 2.28 18.50 1.00
0.533 0.74 6.533 2.11 12.533 2.19 18.53 0.99
0.567 0.74 6.567 2.11 12.567 2.19 18.57 0.99
0.600 0.74 6.600 2.11 12.600 2.19 18.60 0.99
0.633 0.74 6.633 2.11 12.633 2.19 18.63 0.99
0.667 0.74 6.667 2.11 12.667 2.19 18.67 0.99
0.700 0.75 6.700 2.25 12.700 2.11 18.70 0.97
0.733 0.75 6.733 2.25 12.733 2.11 18.73 0.97
0.767 0.75 6.767 2.25 12.767 2.11 18.77 0.97

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Steeles Ave_Road Corridor_PrControlled

0.800 0.75 6.800 2.25 12.800 2.11 18.80 0.97
0.833 0.75 6.833 2.25 12.833 2.11 18.83 0.97
0.867 0.76 6.867 2.41 12.867 2.04 18.87 0.96
0.900 0.76 6.900 2.41 12.900 2.04 18.90 0.96
0.933 0.76 6.933 2.41 12.933 2.04 18.93 0.96
0.967 0.76 6.967 2.41 12.967 2.04 18.97 0.96
1.000 0.76 7.000 2.41 13.000 2.04 19.00 0.96
1.033 0.78 7.033 2.59 13.033 1.97 19.03 0.95
1.067 0.78 7.067 2.59 13.067 1.97 19.07 0.95
1.100 0.78 7.100 2.59 13.100 1.97 19.10 0.95
1.133 0.78 7.133 2.59 13.133 1.97 19.13 0.95
1.167 0.78 7.167 2.59 13.167 1.97 19.17 0.95
1.200 0.79 7.200 2.82 13.200 1.91 19.20 0.94
1.233 0.79 7.233 2.82 13.233 1.91 19.23 0.94
1.267 0.79 7.267 2.82 13.267 1.91 19.27 0.94
1.300 0.79 7.300 2.82 13.300 1.91 19.30 0.94
1.333 0.79 7.333 2.82 13.333 1.91 19.33 0.94
1.367 0.80 7.367 3.09 13.367 1.85 19.37 0.92
1.400 0.80 7.400 3.09 13.400 1.85 19.40 0.92
1.433 0.80 7.433 3.09 13.433 1.85 19.43 0.92
1.467 0.80 7.467 3.09 13.467 1.85 19.47 0.92
1.500 0.80 7.500 3.09 13.500 1.85 19.50 0.92
1.533 0.82 7.533 3.42 13.533 1.79 19.53 0.91
1.567 0.82 7.567 3.42 13.567 1.79 19.57 0.91
1.600 0.82 7.600 3.42 13.600 1.79 19.60 0.91
1.633 0.82 7.633 3.42 13.633 1.79 19.63 0.91
1.667 0.82 7.667 3.42 13.667 1.79 19.67 0.91
1.700 0.83 7.700 3.85 13.700 1.74 19.70 0.90
1.733 0.83 7.733 3.85 13.733 1.74 19.73 0.90
1.767 0.83 7.767 3.85 13.767 1.74 19.77 0.90
1.800 0.83 7.800 3.85 13.800 1.74 19.80 0.90
1.833 0.83 7.833 3.85 13.833 1.74 19.83 0.90
1.867 0.85 7.867 4.42 13.867 1.69 19.87 0.89
1.900 0.85 7.900 4.42 13.900 1.69 19.90 0.89
1.933 0.85 7.933 4.42 13.933 1.69 19.93 0.89
1.967 0.85 7.967 4.42 13.967 1.69 19.97 0.89
2.000 0.85 8.000 4.42 14.000 1.69 20.00 0.89
2.033 0.87 8.033 5.23 14.033 1.65 20.03 0.88
2.067 0.87 8.067 5.23 14.067 1.65 20.07 0.88
2.100 0.87 8.100 5.23 14.100 1.65 20.10 0.88
2.133 0.87 8.133 5.23 14.133 1.65 20.13 0.88
2.167 0.87 8.167 5.23 14.167 1.65 20.17 0.88
2.200 0.89 8.200 6.45 14.200 1.61 20.20 0.87
2.233 0.89 8.233 6.45 14.233 1.61 20.23 0.87
2.267 0.89 8.267 6.45 14.267 1.61 20.27 0.87
2.300 0.89 8.300 6.45 14.300 1.61 20.30 0.87
2.333 0.89 8.333 6.45 14.333 1.61 20.33 0.87
2.367 0.90 8.367 8.54 14.367 1.56 20.37 0.86

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		Steeles	Ave_Road	Corridor_PrControlled			
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78

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		Steeles	Ave_Road	Corridor_PrControlled			
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70

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		Steeles	Ave_Road	Corridor_PrControlled			
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Unit Hyd Qpeak (cms)= 0.138

PEAK FLOW (cms)= 0.066 (i)
TIME TO PEAK (hrs)= 9.500
RUNOFF VOLUME (mm)= 30.793
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = 0.385

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

CALIB					
NASHYD (0235)	Area (ha)=	5.23	Curve Number (CN)=	81.0	
ID= 1 DT= 5.0 min	Ia (mm)=	4.90	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.46			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.70	6.083	1.79	12.083	2.48	18.08	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.250	0.72	6.250	1.89	12.250	2.37	18.25	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.417	0.73	6.417	1.99	12.417	2.28	18.42	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.583	0.74	6.583	2.11	12.583	2.19	18.58	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.750	0.75	6.750	2.25	12.750	2.11	18.75	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.917	0.76	6.917	2.41	12.917	2.04	18.92	0.96

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	Steeles	Ave. Road	Corridor	PrControlled			
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.083	0.78	7.083	2.59	13.083	1.97	19.08	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.250	0.79	7.250	2.82	13.250	1.91	19.25	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.417	0.80	7.417	3.09	13.417	1.85	19.42	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.583	0.82	7.583	3.42	13.583	1.79	19.58	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.750	0.83	7.750	3.85	13.750	1.74	19.75	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.917	0.85	7.917	4.42	13.917	1.69	19.92	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.083	0.87	8.083	5.23	14.083	1.65	20.08	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.250	0.89	8.250	6.45	14.250	1.61	20.25	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.417	0.90	8.417	8.54	14.417	1.56	20.42	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.583	0.92	8.583	13.03	14.583	1.53	20.58	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.750	0.94	8.750	30.36	14.750	1.49	20.75	0.84
2.833	0.94	8.833	30.36	14.833	1.49	20.83	0.84
2.917	0.96	8.917	121.81	14.917	1.46	20.92	0.83
3.000	0.96	9.000	121.81	15.000	1.46	21.00	0.83
3.083	0.99	9.083	37.05	15.083	1.42	21.08	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.250	1.01	9.250	18.91	15.250	1.39	21.25	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.417	1.04	9.417	12.83	15.417	1.36	21.42	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.583	1.06	9.583	9.79	15.583	1.34	21.58	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.750	1.09	9.750	7.97	15.750	1.31	21.75	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.917	1.12	9.917	6.75	15.917	1.28	21.92	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.083	1.15	10.083	5.88	16.083	1.26	22.08	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.250	1.19	10.250	5.22	16.250	1.24	22.25	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.417	1.22	10.417	4.70	16.417	1.21	22.42	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.583	1.26	10.583	4.29	16.583	1.19	22.58	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.750	1.30	10.750	3.95	16.750	1.17	22.75	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.917	1.35	10.917	3.66	16.917	1.15	22.92	0.73

Steeles Ave_Road Corridor_PrControlled

5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.083	1.39	11.083	3.42	17.083	1.13	23.08	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.250	1.45	11.250	3.21	17.250	1.11	23.25	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.417	1.50	11.417	3.02	17.417	1.10	23.42	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.583	1.57	11.583	2.86	17.583	1.08	23.58	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.750	1.63	11.750	2.72	17.750	1.06	23.75	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.917	1.71	11.917	2.59	17.917	1.05	23.92	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.303 (i)
TIME TO PEAK (hrs)= 9.417
RUNOFF VOLUME (mm)= 41.921
TOTAL RAINFALL (mm)= 80.058
RUNOFF COEFFICIENT = 0.524

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

ADD HYD (0540)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0230):	1.63	0.066	9.50	30.79
+ ID2= 2 (0235):	5.23	0.303	9.42	41.92
ID = 3 (0540):	6.86	0.368	9.47	39.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0240)
ID= 1 DT= 2.0 min

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	225.00	15.00
Mannings n =	0.013	0.250

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NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92

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1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83

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3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75

	Steeles	Ave_Road	Corridor_Pr	Controlled			
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69

Max.Eff.Inten.(mm/hr)= 121.81 45.22
over (min) 5.00 8.00
Storage Coeff. (min)= 3.84 (ii) 7.76 (ii)
Unit Hyd. Tpeak (min)= 4.00 8.00

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	Steeles	Ave_Road	Corridor_Pr	Controlled	
Unit Hyd. peak (cms)=	0.29	0.14			
PEAK FLOW (cms)=	0.05	0.02			*TOTALS*
TIME TO PEAK (hrs)=	9.00	9.07			9.00
RUNOFF VOLUME (mm)=	78.06	31.51			52.44
TOTAL RAINFALL (mm)=	80.06	80.06			80.06
RUNOFF COEFFICIENT =	0.97	0.39			0.66

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0550)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0240):	0.38	0.069	9.00	52.44	
+ ID2= 2 (0540):	6.86	0.368	9.47	39.28	
ID = 3 (0550):	7.24	0.382	9.43	39.97	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	CALIB	Area (ha)=	0.12
STANDHYD (0245)		Total Imp(%)=	75.00
ID= 1 DT= 2.0 min		Dir. Conn.(%)=	75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	28.00	10.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.70	6.033	1.79	12.033	2.48	18.03	1.03
0.067	0.70	6.067	1.79	12.067	2.48	18.07	1.03

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
0.100	0.70	6.100	1.79	12.100	2.48	18.10	1.03
0.133	0.70	6.133	1.79	12.133	2.48	18.13	1.03
0.167	0.70	6.167	1.79	12.167	2.48	18.17	1.03
0.200	0.72	6.200	1.89	12.200	2.37	18.20	1.02
0.233	0.72	6.233	1.89	12.233	2.37	18.23	1.02
0.267	0.72	6.267	1.89	12.267	2.37	18.27	1.02
0.300	0.72	6.300	1.89	12.300	2.37	18.30	1.02
0.333	0.72	6.333	1.89	12.333	2.37	18.33	1.02
0.367	0.73	6.367	1.99	12.367	2.28	18.37	1.00
0.400	0.73	6.400	1.99	12.400	2.28	18.40	1.00
0.433	0.73	6.433	1.99	12.433	2.28	18.43	1.00
0.467	0.73	6.467	1.99	12.467	2.28	18.47	1.00
0.500	0.73	6.500	1.99	12.500	2.28	18.50	1.00
0.533	0.74	6.533	2.11	12.533	2.19	18.53	0.99
0.567	0.74	6.567	2.11	12.567	2.19	18.57	0.99
0.600	0.74	6.600	2.11	12.600	2.19	18.60	0.99
0.633	0.74	6.633	2.11	12.633	2.19	18.63	0.99
0.667	0.74	6.667	2.11	12.667	2.19	18.67	0.99
0.700	0.75	6.700	2.25	12.700	2.11	18.70	0.97
0.733	0.75	6.733	2.25	12.733	2.11	18.73	0.97
0.767	0.75	6.767	2.25	12.767	2.11	18.77	0.97
0.800	0.75	6.800	2.25	12.800	2.11	18.80	0.97
0.833	0.75	6.833	2.25	12.833	2.11	18.83	0.97
0.867	0.76	6.867	2.41	12.867	2.04	18.87	0.96
0.900	0.76	6.900	2.41	12.900	2.04	18.90	0.96
0.933	0.76	6.933	2.41	12.933	2.04	18.93	0.96
0.967	0.76	6.967	2.41	12.967	2.04	18.97	0.96
1.000	0.76	7.000	2.41	13.000	2.04	19.00	0.96
1.033	0.78	7.033	2.59	13.033	1.97	19.03	0.95
1.067	0.78	7.067	2.59	13.067	1.97	19.07	0.95
1.100	0.78	7.100	2.59	13.100	1.97	19.10	0.95
1.133	0.78	7.133	2.59	13.133	1.97	19.13	0.95
1.167	0.78	7.167	2.59	13.167	1.97	19.17	0.95
1.200	0.79	7.200	2.82	13.200	1.91	19.20	0.94
1.233	0.79	7.233	2.82	13.233	1.91	19.23	0.94
1.267	0.79	7.267	2.82	13.267	1.91	19.27	0.94
1.300	0.79	7.300	2.82	13.300	1.91	19.30	0.94
1.333	0.79	7.333	2.82	13.333	1.91	19.33	0.94
1.367	0.80	7.367	3.09	13.367	1.85	19.37	0.92
1.400	0.80	7.400	3.09	13.400	1.85	19.40	0.92
1.433	0.80	7.433	3.09	13.433	1.85	19.43	0.92
1.467	0.80	7.467	3.09	13.467	1.85	19.47	0.92
1.500	0.80	7.500	3.09	13.500	1.85	19.50	0.92
1.533	0.82	7.533	3.42	13.533	1.79	19.53	0.91
1.567	0.82	7.567	3.42	13.567	1.79	19.57	0.91
1.600	0.82	7.600	3.42	13.600	1.79	19.60	0.91
1.633	0.82	7.633	3.42	13.633	1.79	19.63	0.91
1.667	0.82	7.667	3.42	13.667	1.79	19.67	0.91

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
1.700	0.83	7.700	3.85	13.700	1.74	19.70	0.90
1.733	0.83	7.733	3.85	13.733	1.74	19.73	0.90
1.767	0.83	7.767	3.85	13.767	1.74	19.77	0.90
1.800	0.83	7.800	3.85	13.800	1.74	19.80	0.90
1.833	0.83	7.833	3.85	13.833	1.74	19.83	0.90
1.867	0.85	7.867	4.42	13.867	1.69	19.87	0.89
1.900	0.85	7.900	4.42	13.900	1.69	19.90	0.89
1.933	0.85	7.933	4.42	13.933	1.69	19.93	0.89
1.967	0.85	7.967	4.42	13.967	1.69	19.97	0.89
2.000	0.85	8.000	4.42	14.000	1.69	20.00	0.89
2.033	0.87	8.033	5.23	14.033	1.65	20.03	0.88
2.067	0.87	8.067	5.23	14.067	1.65	20.07	0.88
2.100	0.87	8.100	5.23	14.100	1.65	20.10	0.88
2.133	0.87	8.133	5.23	14.133	1.65	20.13	0.88
2.167	0.87	8.167	5.23	14.167	1.65	20.17	0.88
2.200	0.89	8.200	6.45	14.200	1.61	20.20	0.87
2.233	0.89	8.233	6.45	14.233	1.61	20.23	0.87
2.267	0.89	8.267	6.45	14.267	1.61	20.27	0.87
2.300	0.89	8.300	6.45	14.300	1.61	20.30	0.87
2.333	0.89	8.333	6.45	14.333	1.61	20.33	0.87
2.367	0.90	8.367	8.54	14.367	1.56	20.37	0.86
2.400	0.90	8.400	8.54	14.400	1.56	20.40	0.86
2.433	0.90	8.433	8.54	14.433	1.56	20.43	0.86
2.467	0.90	8.467	8.54	14.467	1.56	20.47	0.86
2.500	0.90	8.500	8.54	14.500	1.56	20.50	0.86
2.533	0.92	8.533	13.03	14.533	1.53	20.53	0.85
2.567	0.92	8.567	13.03	14.567	1.53	20.57	0.85
2.600	0.92	8.600	13.03	14.600	1.53	20.60	0.85
2.633	0.92	8.633	13.03	14.633	1.53	20.63	0.85
2.667	0.92	8.667	13.03	14.667	1.53	20.67	0.85
2.700	0.94	8.700	30.36	14.700	1.49	20.70	0.84
2.733	0.94	8.733	30.36	14.733	1.49	20.73	0.84
2.767	0.94	8.767	30.36	14.767	1.49	20.77	0.84
2.800	0.94	8.800	30.36	14.800	1.49	20.80	0.84
2.833	0.94	8.833	30.37	14.833	1.49	20.83	0.84
2.867	0.96	8.867	121.81	14.867	1.46	20.87	0.83
2.900	0.96	8.900	121.81	14.900	1.46	20.90	0.83
2.933	0.96	8.933	121.81	14.933	1.46	20.93	0.83
2.967	0.96	8.967	121.81	14.967	1.46	20.97	0.83
3.000	0.96	9.000	121.79	15.000	1.46	21.00	0.83
3.033	0.99	9.033	37.05	15.033	1.42	21.03	0.82
3.067	0.99	9.067	37.05	15.067	1.42	21.07	0.82
3.100	0.99	9.100	37.05	15.100	1.42	21.10	0.82
3.133	0.99	9.133	37.05	15.133	1.42	21.13	0.82
3.167	0.99	9.167	37.05	15.167	1.42	21.17	0.82
3.200	1.01	9.200	18.91	15.200	1.39	21.20	0.81
3.233	1.01	9.233	18.91	15.233	1.39	21.23	0.81
3.267	1.01	9.267	18.91	15.267	1.39	21.27	0.81

Steeles Ave_Road Corridor_PrControlled									
3.300	1.01	9.300	18.91	15.300	1.39	21.30	0.81		
3.333	1.01	9.333	18.91	15.333	1.39	21.33	0.81		
3.367	1.04	9.367	12.83	15.367	1.36	21.37	0.80		
3.400	1.04	9.400	12.83	15.400	1.36	21.40	0.80		
3.433	1.04	9.433	12.83	15.433	1.36	21.43	0.80		
3.467	1.04	9.467	12.83	15.467	1.36	21.47	0.80		
3.500	1.04	9.500	12.83	15.500	1.36	21.50	0.80		
3.533	1.06	9.533	9.79	15.533	1.34	21.53	0.79		
3.567	1.06	9.567	9.79	15.567	1.34	21.57	0.79		
3.600	1.06	9.600	9.79	15.600	1.34	21.60	0.79		
3.633	1.06	9.633	9.79	15.633	1.34	21.63	0.79		
3.667	1.06	9.667	9.79	15.667	1.34	21.67	0.79		
3.700	1.09	9.700	7.97	15.700	1.31	21.70	0.78		
3.733	1.09	9.733	7.97	15.733	1.31	21.73	0.78		
3.767	1.09	9.767	7.97	15.767	1.31	21.77	0.78		
3.800	1.09	9.800	7.97	15.800	1.31	21.80	0.78		
3.833	1.09	9.833	7.97	15.833	1.31	21.83	0.78		
3.867	1.12	9.867	6.75	15.867	1.28	21.87	0.78		
3.900	1.12	9.900	6.75	15.900	1.28	21.90	0.78		
3.933	1.12	9.933	6.75	15.933	1.28	21.93	0.78		
3.967	1.12	9.967	6.75	15.967	1.28	21.97	0.78		
4.000	1.12	10.000	6.75	16.000	1.28	22.00	0.78		
4.033	1.15	10.033	5.88	16.033	1.26	22.03	0.77		
4.067	1.15	10.067	5.88	16.067	1.26	22.07	0.77		
4.100	1.15	10.100	5.88	16.100	1.26	22.10	0.77		
4.133	1.15	10.133	5.88	16.133	1.26	22.13	0.77		
4.167	1.15	10.167	5.88	16.167	1.26	22.17	0.77		
4.200	1.19	10.200	5.22	16.200	1.24	22.20	0.76		
4.233	1.19	10.233	5.22	16.233	1.24	22.23	0.76		
4.267	1.19	10.267	5.22	16.267	1.24	22.27	0.76		
4.300	1.19	10.300	5.22	16.300	1.24	22.30	0.76		
4.333	1.19	10.333	5.22	16.333	1.24	22.33	0.76		
4.367	1.22	10.367	4.70	16.367	1.21	22.37	0.75		
4.400	1.22	10.400	4.70	16.400	1.21	22.40	0.75		
4.433	1.22	10.433	4.70	16.433	1.21	22.43	0.75		
4.467	1.22	10.467	4.70	16.467	1.21	22.47	0.75		
4.500	1.22	10.500	4.70	16.500	1.21	22.50	0.75		
4.533	1.26	10.533	4.29	16.533	1.19	22.53	0.75		
4.567	1.26	10.567	4.29	16.567	1.19	22.57	0.75		
4.600	1.26	10.600	4.29	16.600	1.19	22.60	0.75		
4.633	1.26	10.633	4.29	16.633	1.19	22.63	0.75		
4.667	1.26	10.667	4.29	16.667	1.19	22.67	0.75		
4.700	1.30	10.700	3.95	16.700	1.17	22.70	0.74		
4.733	1.30	10.733	3.95	16.733	1.17	22.73	0.74		
4.767	1.30	10.767	3.95	16.767	1.17	22.77	0.74		
4.800	1.30	10.800	3.95	16.800	1.17	22.80	0.74		
4.833	1.30	10.833	3.95	16.833	1.17	22.83	0.74		
4.867	1.35	10.867	3.66	16.867	1.15	22.87	0.73		

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Steeles Ave_Road Corridor_PrControlled									
4.900	1.35	10.900	3.66	16.900	1.15	22.90	0.73		
4.933	1.35	10.933	3.66	16.933	1.15	22.93	0.73		
4.967	1.35	10.967	3.66	16.967	1.15	22.97	0.73		
5.000	1.35	11.000	3.66	17.000	1.15	23.00	0.73		
5.033	1.39	11.033	3.42	17.033	1.13	23.03	0.72		
5.067	1.39	11.067	3.42	17.067	1.13	23.07	0.72		
5.100	1.39	11.100	3.42	17.100	1.13	23.10	0.72		
5.133	1.39	11.133	3.42	17.133	1.13	23.13	0.72		
5.167	1.39	11.167	3.42	17.167	1.13	23.17	0.72		
5.200	1.45	11.200	3.21	17.200	1.11	23.20	0.72		
5.233	1.45	11.233	3.21	17.233	1.11	23.23	0.72		
5.267	1.45	11.267	3.21	17.267	1.11	23.27	0.72		
5.300	1.45	11.300	3.21	17.300	1.11	23.30	0.72		
5.333	1.45	11.333	3.21	17.333	1.11	23.33	0.72		
5.367	1.50	11.367	3.02	17.367	1.10	23.37	0.71		
5.400	1.50	11.400	3.02	17.400	1.10	23.40	0.71		
5.433	1.50	11.433	3.02	17.433	1.10	23.43	0.71		
5.467	1.50	11.467	3.02	17.467	1.10	23.47	0.71		
5.500	1.50	11.500	3.02	17.500	1.10	23.50	0.71		
5.533	1.57	11.533	2.86	17.533	1.08	23.53	0.70		
5.567	1.57	11.567	2.86	17.567	1.08	23.57	0.70		
5.600	1.57	11.600	2.86	17.600	1.08	23.60	0.70		
5.633	1.57	11.633	2.86	17.633	1.08	23.63	0.70		
5.667	1.57	11.667	2.86	17.667	1.08	23.67	0.70		
5.700	1.63	11.700	2.72	17.700	1.06	23.70	0.70		
5.733	1.63	11.733	2.72	17.733	1.06	23.73	0.70		
5.767	1.63	11.767	2.72	17.767	1.06	23.77	0.70		
5.800	1.63	11.800	2.72	17.800	1.06	23.80	0.70		
5.833	1.63	11.833	2.72	17.833	1.06	23.83	0.70		
5.867	1.71	11.867	2.59	17.867	1.05	23.87	0.69		
5.900	1.71	11.900	2.59	17.900	1.05	23.90	0.69		
5.933	1.71	11.933	2.59	17.933	1.05	23.93	0.69		
5.967	1.71	11.967	2.59	17.967	1.05	23.97	0.69		
6.000	1.71	12.000	2.59	18.000	1.05	24.00	0.69		
Max.Eff.Inten.(mm/hr)= 121.81 45.22									
over (min) 5.00 4.00									
Storage Coeff. (min)= 1.10 (ii) 2.93 (ii)									
Unit Hyd. Tpeak (min)= 4.00 4.00									
Unit Hyd. peak (cms)= 0.50 0.34									
TOTALS									
PEAK FLOW (cms)= 0.03 0.00 0.034 (iii)									
TIME TO PEAK (hrs)= 9.00 9.00 9.00									
RUNOFF VOLUME (mm)= 78.06 31.51 66.41									
TOTAL RAINFALL (mm)= 80.06 80.06 80.06									
RUNOFF COEFFICIENT = 0.98 0.39 0.83									

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

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Steeles Ave_Road Corridor_PrControlled

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0560)				
1	2	3		
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0245):	0.12	0.034	9.00	66.41
+ ID2= 2 (0550):	7.24	0.382	9.43	39.97
ID = 3 (0560):	7.36	0.386	9.43	40.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION: Run 11 **

READ STORM	Filename:
	C:\Users\talal.antar\AppData\Local\Temp\8dbe9d67-4e73-438d-a649-484e75a477a1\7a763216
Ptotal= 97.01 mm	Comments: Milton025

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	0.89	6.17	2.24	12.17	3.08	18.17	1.30
0.33	0.90	6.33	2.35	12.33	2.95	18.33	1.28
0.50	0.92	6.50	2.48	12.50	2.83	18.50	1.26
0.67	0.93	6.67	2.63	12.67	2.73	18.67	1.24
0.83	0.95	6.83	2.80	12.83	2.63	18.83	1.23
1.00	0.96	7.00	2.99	13.00	2.54	19.00	1.21
1.17	0.98	7.17	3.22	13.17	2.45	19.17	1.19
1.33	1.00	7.33	3.49	13.33	2.38	19.33	1.18
1.50	1.02	7.50	3.82	13.50	2.30	19.50	1.16
1.67	1.03	7.67	4.22	13.67	2.24	19.67	1.15
1.83	1.05	7.83	4.75	13.83	2.17	19.83	1.13
2.00	1.07	8.00	5.44	14.00	2.11	20.00	1.12
2.17	1.09	8.17	6.41	14.17	2.06	20.17	1.11
2.33	1.12	8.33	7.87	14.33	2.01	20.33	1.09
2.50	1.14	8.50	10.36	14.50	1.96	20.50	1.08
2.67	1.16	8.67	15.66	14.67	1.91	20.67	1.07

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Steeles Ave_Road Corridor_PrControlled									
2.83	1.19	8.83	35.89	14.83	1.87	20.83	1.06		
3.00	1.21	9.00	143.01	15.00	1.82	21.00	1.05		
3.17	1.24	9.17	43.68	15.17	1.78	21.17	1.03		
3.33	1.27	9.33	22.56	15.33	1.75	21.33	1.02		
3.50	1.30	9.50	15.42	15.50	1.71	21.50	1.01		
3.67	1.34	9.67	11.84	15.67	1.68	21.67	1.00		
3.83	1.37	9.83	9.68	15.83	1.64	21.83	0.99		
4.00	1.41	10.00	8.23	16.00	1.61	22.00	0.98		
4.17	1.45	10.17	7.18	16.17	1.58	22.17	0.97		
4.33	1.49	10.33	6.39	16.33	1.55	22.33	0.96		
4.50	1.53	10.50	5.59	16.50	1.52	22.50	0.95		
4.67	1.58	10.67	5.27	16.67	1.50	22.67	0.94		
4.83	1.63	10.83	4.86	16.83	1.47	22.83	0.93		
5.00	1.69	11.00	4.52	17.00	1.45	23.00	0.92		
5.17	1.75	11.17	4.22	17.17	1.42	23.17	0.92		
5.33	1.81	11.33	3.97	17.33	1.40	23.33	0.91		
5.50	1.88	11.50	3.74	17.50	1.38	23.50	0.90		
5.67	1.96	11.67	3.55	17.67	1.36	23.67	0.89		
5.83	2.04	11.83	3.37	17.83	1.34	23.83	0.88		
6.00	2.13	12.00	3.22	18.00	1.32	24.00	0.87		

		Steeles	Ave_Road	Corridor_PrControlled			
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24
0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.867	0.96	6.867	2.99	12.867	2.54	18.87	1.21
0.900	0.96	6.900	2.99	12.900	2.54	18.90	1.21
0.933	0.96	6.933	2.99	12.933	2.54	18.93	1.21
0.967	0.96	6.967	2.99	12.967	2.54	18.97	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.033	0.98	7.033	3.22	13.033	2.45	19.03	1.19
1.067	0.98	7.067	3.22	13.067	2.45	19.07	1.19
1.100	0.98	7.100	3.22	13.100	2.45	19.10	1.19
1.133	0.98	7.133	3.22	13.133	2.45	19.13	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16
1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11

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		Steeles	Ave_Road	Corridor_PrControlled			
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07
2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.01	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.01	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.01	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.01	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03
3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00

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		Steeles	Ave_Road	Corridor_PrControlled			
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91

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		Steeles	Ave_Road	Corridor_PrControlled			
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87
Unit Hyd Qpeak (cms)= 0.591							
PEAK FLOW (cms)= 0.588 (i)							
TIME TO PEAK (hrs)= 9.567							
RUNOFF VOLUME (mm)= 56.777							
TOTAL RAINFALL (mm)= 97.009							
RUNOFF COEFFCIENT = 0.585							
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.							

CALIB							
STANDHYD (0205)							
= 1 DT= 2.0 min							

IMPERVIOUS PERVIOUS (i)							
Surface Area	(ha)=	0.46	0.09				
Dep. Storage	(mm)=	2.00	5.00				
Average Slope	(%)=	1.00	2.00				
Length	(m)=	130.00	5.00				
Mannings n	=	0.013	0.250				
NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.							

Steeles Ave_Road Corridor_PrControlled

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.89	6.033	2.24	12.033	3.08	18.03	1.30
0.067	0.89	6.067	2.24	12.067	3.08	18.07	1.30
0.100	0.89	6.100	2.24	12.100	3.08	18.10	1.30
0.133	0.89	6.133	2.24	12.133	3.08	18.13	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.200	0.90	6.200	2.35	12.200	2.95	18.20	1.28
0.233	0.90	6.233	2.35	12.233	2.95	18.23	1.28
0.267	0.90	6.267	2.35	12.267	2.95	18.27	1.28
0.300	0.90	6.300	2.35	12.300	2.95	18.30	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.367	0.92	6.367	2.48	12.367	2.83	18.37	1.26
0.400	0.92	6.400	2.48	12.400	2.83	18.40	1.26
0.433	0.92	6.433	2.48	12.433	2.83	18.43	1.26
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24
0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.867	0.96	6.867	2.99	12.867	2.54	18.87	1.21
0.900	0.96	6.900	2.99	12.900	2.54	18.90	1.21
0.933	0.96	6.933	2.99	12.933	2.54	18.93	1.21
0.967	0.96	6.967	2.99	12.967	2.54	18.97	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.033	0.98	7.033	3.22	13.033	2.45	19.03	1.19
1.067	0.98	7.067	3.22	13.067	2.45	19.07	1.19
1.100	0.98	7.100	3.22	13.100	2.45	19.10	1.19
1.133	0.98	7.133	3.22	13.133	2.45	19.13	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16

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1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07
2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.01	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.01	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.01	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.01	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03

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3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94

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4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87
Max.Eff.Inten.(mm/hr)=	143.01		61.59				
over (min)	5.00		4.00				
Storage Coeff. (min)=	2.59	(ii)	3.52	(ii)			
Unit Hyd. Tpeak (min)=	4.00		4.00				
Unit Hyd. peak (cms)=	0.36		0.30				

Steeles Ave_Road Corridor_PrControlled
PEAK FLOW (cms)= 0.18 0.02 0.192 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.00
RUNOFF VOLUME (mm)= 95.01 43.25 86.21
TOTAL RAINFALL (mm)= 97.01 97.01 97.01
RUNOFF COEFFICIENT = 0.98 0.45 0.89

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 1a = 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 (0500)
1 + 2 = 3
ID1= 1 (1021): 8.51 0.588 9.57 56.78
+ ID2= 2 (0205): 0.55 0.192 9.00 86.21
=====

ID = 3 (0500): 9.06 0.607 9.57 58.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0200)
ID= 1 DT= 2.0 min
Area (ha)= 1.24
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.07 0.17
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 250.00 5.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.033 0.89 6.033 2.24 12.033 3.08 18.03 1.30
0.067 0.89 6.067 2.24 12.067 3.08 18.07 1.30
0.100 0.89 6.100 2.24 12.100 3.08 18.10 1.30
0.133 0.89 6.133 2.24 12.133 3.08 18.13 1.30

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0.167 0.89 6.167 2.24 12.167 3.08 18.17 1.30
0.200 0.90 6.200 2.35 12.200 2.95 18.20 1.28
0.233 0.90 6.233 2.35 12.233 2.95 18.23 1.28
0.267 0.90 6.267 2.35 12.267 2.95 18.27 1.28
0.300 0.90 6.300 2.35 12.300 2.95 18.30 1.28
0.333 0.90 6.333 2.35 12.333 2.95 18.33 1.28
0.367 0.92 6.367 2.48 12.367 2.83 18.37 1.26
0.400 0.92 6.400 2.48 12.400 2.83 18.40 1.26
0.433 0.92 6.433 2.48 12.433 2.83 18.43 1.26
0.467 0.92 6.467 2.48 12.467 2.83 18.47 1.26
0.500 0.92 6.500 2.48 12.500 2.83 18.50 1.26
0.533 0.93 6.533 2.63 12.533 2.73 18.53 1.24
0.567 0.93 6.567 2.63 12.567 2.73 18.57 1.24
0.600 0.93 6.600 2.63 12.600 2.73 18.60 1.24
0.633 0.93 6.633 2.63 12.633 2.73 18.63 1.24
0.667 0.93 6.667 2.63 12.667 2.73 18.67 1.24
0.700 0.95 6.700 2.80 12.700 2.63 18.70 1.23
0.733 0.95 6.733 2.80 12.733 2.63 18.73 1.23
0.767 0.95 6.767 2.80 12.767 2.63 18.77 1.23
0.800 0.95 6.800 2.80 12.800 2.63 18.80 1.23
0.833 0.95 6.833 2.80 12.833 2.63 18.83 1.23
0.867 0.96 6.867 2.99 12.867 2.54 18.87 1.21
0.900 0.96 6.900 2.99 12.900 2.54 18.90 1.21
0.933 0.96 6.933 2.99 12.933 2.54 18.93 1.21
0.967 0.96 6.967 2.99 12.967 2.54 18.97 1.21
1.000 0.96 7.000 2.99 13.000 2.54 19.00 1.21
1.033 0.98 7.033 3.22 13.033 2.45 19.03 1.19
1.067 0.98 7.067 3.22 13.067 2.45 19.07 1.19
1.100 0.98 7.100 3.22 13.100 2.45 19.10 1.19
1.133 0.98 7.133 3.22 13.133 2.45 19.13 1.19
1.167 0.98 7.167 3.22 13.167 2.45 19.17 1.19
1.200 1.00 7.200 3.49 13.200 2.38 19.20 1.18
1.233 1.00 7.233 3.49 13.233 2.38 19.23 1.18
1.267 1.00 7.267 3.49 13.267 2.38 19.27 1.18
1.300 1.00 7.300 3.49 13.300 2.38 19.30 1.18
1.333 1.00 7.333 3.49 13.333 2.38 19.33 1.18
1.367 1.02 7.367 3.82 13.367 2.30 19.37 1.16
1.400 1.02 7.400 3.82 13.400 2.30 19.40 1.16
1.433 1.02 7.433 3.82 13.433 2.30 19.43 1.16
1.467 1.02 7.467 3.82 13.467 2.30 19.47 1.16
1.500 1.02 7.500 3.82 13.500 2.30 19.50 1.16
1.533 1.03 7.533 4.22 13.533 2.24 19.53 1.15
1.567 1.03 7.567 4.22 13.567 2.24 19.57 1.15
1.600 1.03 7.600 4.22 13.600 2.24 19.60 1.15
1.633 1.03 7.633 4.22 13.633 2.24 19.63 1.15
1.667 1.03 7.667 4.22 13.667 2.24 19.67 1.15
1.700 1.05 7.700 4.75 13.700 2.17 19.70 1.13
1.733 1.05 7.733 4.75 13.733 2.17 19.73 1.13

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Steeles Ave_Road Corridor_PrControlled
1.767 1.05 7.767 4.75 13.767 2.17 19.77 1.13
1.800 1.05 7.800 4.75 13.800 2.17 19.80 1.13
1.833 1.05 7.833 4.75 13.833 2.17 19.83 1.13
1.867 1.07 7.867 5.44 13.867 2.11 19.87 1.12
1.900 1.07 7.900 5.44 13.900 2.11 19.90 1.12
1.933 1.07 7.933 5.44 13.933 2.11 19.93 1.12
1.967 1.07 7.967 5.44 13.967 2.11 19.97 1.12
2.000 1.07 8.000 5.44 14.000 2.11 20.00 1.12
2.033 1.09 8.033 6.41 14.033 2.06 20.03 1.11
2.067 1.09 8.067 6.41 14.067 2.06 20.07 1.11
2.100 1.09 8.100 6.41 14.100 2.06 20.10 1.11
2.133 1.09 8.133 6.41 14.133 2.06 20.13 1.11
2.167 1.09 8.167 6.41 14.167 2.06 20.17 1.11
2.200 1.12 8.200 7.87 14.200 2.01 20.20 1.09
2.233 1.12 8.233 7.87 14.233 2.01 20.23 1.09
2.267 1.12 8.267 7.87 14.267 2.01 20.27 1.09
2.300 1.12 8.300 7.87 14.300 2.01 20.30 1.09
2.333 1.12 8.333 7.87 14.333 2.01 20.33 1.09
2.367 1.14 8.367 10.36 14.367 1.96 20.37 1.08
2.400 1.14 8.400 10.36 14.400 1.96 20.40 1.08
2.433 1.14 8.433 10.36 14.433 1.96 20.43 1.08
2.467 1.14 8.467 10.36 14.467 1.96 20.47 1.08
2.500 1.14 8.500 10.36 14.500 1.96 20.50 1.08
2.533 1.16 8.533 15.66 14.533 1.91 20.53 1.07
2.567 1.16 8.567 15.66 14.567 1.91 20.57 1.07
2.600 1.16 8.600 15.66 14.600 1.91 20.60 1.07
2.633 1.16 8.633 15.66 14.633 1.91 20.63 1.07
2.667 1.16 8.667 15.66 14.667 1.91 20.67 1.07
2.700 1.19 8.700 35.89 14.700 1.87 20.70 1.06
2.733 1.19 8.733 35.89 14.733 1.87 20.73 1.06
2.767 1.19 8.767 35.89 14.767 1.87 20.77 1.06
2.800 1.19 8.800 35.89 14.800 1.87 20.80 1.06
2.833 1.19 8.833 35.90 14.833 1.87 20.83 1.06
2.867 1.21 8.867 143.01 14.867 1.82 20.87 1.05
2.900 1.21 8.900 143.01 14.900 1.82 20.90 1.05
2.933 1.21 8.933 143.01 14.933 1.82 20.93 1.05
2.967 1.21 8.967 143.01 14.967 1.82 20.97 1.05
3.000 1.21 9.000 142.99 15.000 1.82 21.00 1.05
3.033 1.24 9.033 43.68 15.033 1.78 21.03 1.03
3.067 1.24 9.067 43.68 15.067 1.78 21.07 1.03
3.100 1.24 9.100 43.68 15.100 1.78 21.10 1.03
3.133 1.24 9.133 43.68 15.133 1.78 21.13 1.03
3.167 1.24 9.167 43.68 15.167 1.78 21.17 1.03
3.200 1.27 9.200 22.56 15.200 1.75 21.20 1.02
3.233 1.27 9.233 22.56 15.233 1.75 21.23 1.02
3.267 1.27 9.267 22.56 15.267 1.75 21.27 1.02
3.300 1.27 9.300 22.56 15.300 1.75 21.30 1.02
3.333 1.27 9.333 22.56 15.333 1.75 21.33 1.02

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Steeles Ave_Road Corridor_PrControlled
3.367 1.30 9.367 15.42 15.367 1.71 21.37 1.01
3.400 1.30 9.400 15.42 15.400 1.71 21.40 1.01
3.433 1.30 9.433 15.42 15.433 1.71 21.43 1.01
3.467 1.30 9.467 15.42 15.467 1.71 21.47 1.01
3.500 1.30 9.500 15.42 15.500 1.71 21.50 1.01
3.533 1.34 9.533 11.84 15.533 1.68 21.53 1.00
3.567 1.34 9.567 11.84 15.567 1.68 21.57 1.00
3.600 1.34 9.600 11.84 15.600 1.68 21.60 1.00
3.633 1.34 9.633 11.84 15.633 1.68 21.63 1.00
3.667 1.34 9.667 11.84 15.667 1.68 21.67 1.00
3.700 1.37 9.700 9.68 15.700 1.64 21.70 0.99
3.733 1.37 9.733 9.68 15.733 1.64 21.73 0.99
3.767 1.37 9.767 9.68 15.767 1.64 21.77 0.99
3.800 1.37 9.800 9.68 15.800 1.64 21.80 0.99
3.833 1.37 9.833 9.68 15.833 1.64 21.83 0.99
3.867 1.41 9.867 8.23 15.867 1.61 21.87 0.98
3.900 1.41 9.900 8.23 15.900 1.61 21.90 0.98
3.933 1.41 9.933 8.23 15.933 1.61 21.93 0.98
3.967 1.41 9.967 8.23 15.967 1.61 21.97 0.98
4.000 1.41 10.000 8.23 16.000 1.61 22.00 0.98
4.033 1.45 10.033 7.18 16.033 1.58 22.03 0.97
4.067 1.45 10.067 7.18 16.067 1.58 22.07 0.97
4.100 1.45 10.100 7.18 16.100 1.58 22.10 0.97
4.133 1.45 10.133 7.18 16.133 1.58 22.13 0.97
4.167 1.45 10.167 7.18 16.167 1.58 22.17 0.97
4.200 1.49 10.200 6.39 16.200 1.55 22.20 0.96
4.233 1.49 10.233 6.39 16.233 1.55 22.23 0.96
4.267 1.49 10.267 6.39 16.267 1.55 22.27 0.96
4.300 1.49 10.300 6.39 16.300 1.55 22.30 0.96
4.333 1.49 10.333 6.39 16.333 1.55 22.33 0.96
4.367 1.53 10.367 5.77 16.367 1.52 22.37 0.95
4.400 1.53 10.400 5.77 16.400 1.52 22.40 0.95
4.433 1.53 10.433 5.77 16.433 1.52 22.43 0.95
4.467 1.53 10.467 5.77 16.467 1.52 22.47 0.95
4.500 1.53 10.500 5.77 16.500 1.52 22.50 0.95
4.533 1.58 10.533 5.27 16.533 1.50 22.53 0.94
4.567 1.58 10.567 5.27 16.567 1.50 22.57 0.94
4.600 1.58 10.600 5.27 16.600 1.50 22.60 0.94
4.633 1.58 10.633 5.27 16.633 1.50 22.63 0.94
4.667 1.58 10.667 5.27 16.667 1.50 22.67 0.94
4.700 1.63 10.700 4.86 16.700 1.47 22.70 0.93
4.733 1.63 10.733 4.86 16.733 1.47 22.73 0.93
4.767 1.63 10.767 4.86 16.767 1.47 22.77 0.93
4.800 1.63 10.800 4.86 16.800 1.47 22.80 0.93
4.833 1.63 10.833 4.86 16.833 1.47 22.83 0.93
4.867 1.69 10.867 4.52 16.867 1.45 22.87 0.92
4.900 1.69 10.900 4.52 16.900 1.45 22.90 0.92
4.933 1.69 10.933 4.52 16.933 1.45 22.93 0.92

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CALIB	
STANDHYD (0215)	Area (ha)= 0.52
ID= 1 DT= 2.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.45	0.07
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	59.00	10.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.89	6.033	2.24	12.033	3.08	18.03	1.30
0.067	0.89	6.067	2.24	12.067	3.08	18.07	1.30
0.100	0.89	6.100	2.24	12.100	3.08	18.10	1.30
0.133	0.89	6.133	2.24	12.133	3.08	18.13	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.200	0.90	6.200	2.35	12.200	2.95	18.20	1.28
0.233	0.90	6.233	2.35	12.233	2.95	18.23	1.28
0.267	0.90	6.267	2.35	12.267	2.95	18.27	1.28
0.300	0.90	6.300	2.35	12.300	2.95	18.30	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.367	0.92	6.367	2.48	12.367	2.83	18.37	1.26
0.400	0.92	6.400	2.48	12.400	2.83	18.40	1.26
0.433	0.92	6.433	2.48	12.433	2.83	18.43	1.26
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24
0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.867	0.96	6.867	2.99	12.867	2.54	18.87	1.21
0.900	0.96	6.900	2.99	12.900	2.54	18.90	1.21
0.933	0.96	6.933	2.99	12.933	2.54	18.93	1.21

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0.967	0.96	6.967	2.99	12.967	2.54	18.97	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.033	0.98	7.033	3.22	13.033	2.45	19.03	1.19
1.067	0.98	7.067	3.22	13.067	2.45	19.07	1.19
1.100	0.98	7.100	3.22	13.100	2.45	19.10	1.19
1.133	0.98	7.133	3.22	13.133	2.45	19.13	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16
1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07

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2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.01	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.01	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.01	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.01	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03
3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97

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4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88

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5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87

Max.Eff.Inten.(mm/hr)= 143.01
over (min) 5.00
Storage Coeff. (min)= 1.61 (ii)
Unit Hyd. Tpeak (min)= 4.00
Unit Hyd. peak (cms)= 0.45

TOTALS

PEAK FLOW (cms)= 0.18 0.01 0.190 (iii)
TIME TO PEAK (hrs)= 9.00 9.00
RUNOFF VOLUME (mm)= 95.01 43.25 87.76
TOTAL RAINFALL (mm)= 97.01 97.01 97.01
RUNOFF COEFFICIENT = 0.98 0.45 0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0210):	2.84	0.706	9.00	74.30
+ ID2= 2 (0215):	0.52	0.190	9.00	87.76
=====				
ID = 3 (0520):	3.36	0.895	9.00	76.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0710)
IN= 2---> OUT= 1
DT= 2.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.3237	0.1197

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0.0411	0.0357	0.4116	0.1260
0.1964	0.0777	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0520)	3.360	0.895	9.00	76.38
OUTFLOW: ID= 1 (0710)	3.360	0.245	9.30	76.32

PEAK FLOW REDUCTION [Qout/Qin](%)= 27.33
TIME SHIFT OF PEAK FLOW (min)= 18.00
MAXIMUM STORAGE USED (ha.m.)= 0.0937

CALIB
STANDHYD (0220)
ID= 1 DT= 2.0 min

Area (ha)= 0.34
Total Imp(%)= 89.00
Dir. Conn.(%)= 89.00

	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	0.30	0.04
Dep. Storage	2.00	5.00
Average Slope	1.00	2.00
Length	115.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.89	6.033	2.24	12.033	3.08	18.03	1.30
0.067	0.89	6.067	2.24	12.067	3.08	18.07	1.30
0.100	0.89	6.100	2.24	12.100	3.08	18.10	1.30
0.133	0.89	6.133	2.24	12.133	3.08	18.13	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.200	0.90	6.200	2.35	12.200	2.95	18.20	1.28
0.233	0.90	6.233	2.35	12.233	2.95	18.23	1.28
0.267	0.90	6.267	2.35	12.267	2.95	18.27	1.28
0.300	0.90	6.300	2.35	12.300	2.95	18.30	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.367	0.92	6.367	2.48	12.367	2.83	18.37	1.26
0.400	0.92	6.400	2.48	12.400	2.83	18.40	1.26
0.433	0.92	6.433	2.48	12.433	2.83	18.43	1.26
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24

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0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.867	0.96	6.867	2.99	12.867	2.54	18.87	1.21
0.900	0.96	6.900	2.99	12.900	2.54	18.90	1.21
0.933	0.96	6.933	2.99	12.933	2.54	18.93	1.21
0.967	0.96	6.967	2.99	12.967	2.54	18.97	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.033	0.98	7.033	3.22	13.033	2.45	19.03	1.19
1.067	0.98	7.067	3.22	13.067	2.45	19.07	1.19
1.100	0.98	7.100	3.22	13.100	2.45	19.10	1.19
1.133	0.98	7.133	3.22	13.133	2.45	19.13	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16
1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11

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2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07
2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.01	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.01	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.01	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.01	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03
3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99

Steeles Ave_Road Corridor_PrControlled								
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99	
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99	
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98	
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98	
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98	
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98	
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98	
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97	
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97	
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97	
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97	
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97	
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96	
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96	
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96	
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96	
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96	
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95	
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95	
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95	
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95	
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95	
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94	
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94	
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94	
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94	
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94	
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93	
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93	
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93	
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93	
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93	
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92	
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92	
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92	
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92	
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92	
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92	
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92	
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92	
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92	
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92	
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91	
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91	
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91	
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91	
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91	
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90	

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5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90	
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90	
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90	
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90	
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89	
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89	
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89	
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89	
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89	
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88	
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88	
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88	
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88	
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88	
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87	
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87	
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87	
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87	
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87	

Max.Eff.Inten.(mm/hr)=	143.01	61.59	
over (min)	5.00	4.00	
Storage Coeff. (min)=	2.41 (ii)	3.17 (ii)	
Unit Hyd. Tpeak (min)=	4.00	4.00	
Unit Hyd. peak (cms)=	0.37	0.32	
			TOTALS
PEAK FLOW (cms)=	0.12	0.01	0.124 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	95.01	43.25	89.31
TOTAL RAINFALL (mm)=	97.01	97.01	97.01
RUNOFF COEFFICIENT =	0.98	0.45	0.92

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0530)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	0.34	0.124	9.00	89.31
+ ID2= 2 (0710):	3.36	0.245	9.30	76.32
=====				

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Steeles Ave_Road Corridor_PrControlled
ID = 3 (0530): 3.70 0.282 9.03 77.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0225)			
ID= 1 DT= 5.0 min			
	Area (ha)=	0.45	
	Total Imp(%)=	93.00	Dir. Conn.(%)= 93.00
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.42	0.03	
Dep. Storage (mm)=	2.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	105.00	5.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.89	6.083	2.24	12.083	3.08	18.08	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.250	0.90	6.250	2.35	12.250	2.95	18.25	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.417	0.92	6.417	2.48	12.417	2.83	18.42	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.583	0.93	6.583	2.63	12.583	2.73	18.58	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.750	0.95	6.750	2.80	12.750	2.63	18.75	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.917	0.96	6.917	2.99	12.917	2.54	18.92	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.083	0.98	7.083	3.22	13.083	2.45	19.08	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.250	1.00	7.250	3.49	13.250	2.38	19.25	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.417	1.02	7.417	3.82	13.417	2.30	19.42	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.583	1.03	7.583	4.22	13.583	2.24	19.58	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.750	1.05	7.750	4.75	13.750	2.17	19.75	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.917	1.07	7.917	5.44	13.917	2.11	19.92	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.083	1.09	8.083	6.41	14.083	2.06	20.08	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11

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Steeles Ave_Road Corridor_PrControlled								
2.250	1.12	8.250	7.87	14.250	2.01	20.25	1.09	
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09	
2.417	1.14	8.417	10.36	14.417	1.96	20.42	1.08	
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08	
2.583	1.16	8.583	15.66	14.583	1.91	20.58	1.07	
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07	
2.750	1.19	8.750	35.89	14.750	1.87	20.75	1.06	
2.833	1.19	8.833	35.89	14.833	1.87	20.83	1.06	
2.917	1.21	8.917	143.01	14.917	1.82	20.92	1.05	
3.000	1.21	9.000	143.01	15.000	1.82	21.00	1.05	
3.083	1.24	9.083	43.68	15.083	1.78	21.08	1.03	
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03	
3.250	1.27	9.250	22.56	15.250	1.75	21.25	1.02	
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02	
3.417	1.30	9.417	15.42	15.417	1.71	21.42	1.01	
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01	
3.583	1.34	9.583	11.84	15.583	1.68	21.58	1.00	
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00	
3.750	1.37	9.750	9.68	15.750	1.64	21.75	0.99	
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99	
3.917	1.41	9.917	8.23	15.917	1.61	21.92	0.98	
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98	
4.083	1.45	10.083	7.18	16.083	1.58	22.08	0.97	
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97	
4.250	1.49	10.250	6.39	16.250	1.55	22.25	0.96	
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96	
4.417	1.53	10.417	5.77	16.417	1.52	22.42	0.95	
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95	
4.583	1.58	10.583	5.27	16.583	1.50	22.58	0.94	
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94	
4.750	1.63	10.750	4.86	16.750	1.47	22.75	0.93	
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93	
4.917	1.69	10.917	4.52	16.917	1.45	22.92	0.92	
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92	
5.083	1.75	11.083	4.22	17.083	1.42	23.08	0.92	
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92	
5.250	1.81	11.250	3.97	17.250	1.40	23.25	0.91	
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91	
5.417	1.88	11.417	3.74	17.417	1.38	23.42	0.90	
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90	
5.583	1.96	11.583	3.55	17.583	1.36	23.58	0.89	
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89	
5.750	2.04	11.750	3.37	17.750	1.34	23.75	0.88	
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88	
5.917	2.13	11.917	3.22	17.917	1.32	23.92	0.87	
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87	

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Steeles Ave_Road Corridor_PrControlled							
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87

Unit Hyd Qpeak (cms)= 0.138

PEAK FLOW (cms)= 0.092 (i)
 TIME TO PEAK (hrs)= 9.467
 RUNOFF VOLUME (mm)= 42.623
 TOTAL RAINFALL (mm)= 97.009
 RUNOFF COEFFICIENT = 0.439

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

CALIB							
NASHYD (0235)	Area (ha)=	5.23	Curve Number (CN)=	81.0			
ID= 1 DT= 5.0 min	Ia (mm)=	4.90	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.46					

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.89	6.083	2.24	12.083	3.08	18.08	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.250	0.90	6.250	2.35	12.250	2.95	18.25	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28

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Steeles Ave_Road Corridor_PrControlled							
0.417	0.92	6.417	2.48	12.417	2.83	18.42	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.583	0.93	6.583	2.63	12.583	2.73	18.58	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.750	0.95	6.750	2.80	12.750	2.63	18.75	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.917	0.96	6.917	2.99	12.917	2.54	18.92	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.083	0.98	7.083	3.22	13.083	2.45	19.08	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.250	1.00	7.250	3.49	13.250	2.38	19.25	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.417	1.02	7.417	3.82	13.417	2.30	19.42	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.583	1.03	7.583	4.22	13.583	2.24	19.58	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.750	1.05	7.750	4.75	13.750	2.17	19.75	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.917	1.07	7.917	5.44	13.917	2.11	19.92	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.083	1.09	8.083	6.41	14.083	2.06	20.08	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.250	1.12	8.250	7.87	14.250	2.01	20.25	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.417	1.14	8.417	10.36	14.417	1.96	20.42	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.583	1.16	8.583	15.66	14.583	1.91	20.58	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.750	1.19	8.750	35.89	14.750	1.87	20.75	1.06
2.833	1.19	8.833	35.89	14.833	1.87	20.83	1.06
2.917	1.21	8.917	143.01	14.917	1.82	20.92	1.05
3.000	1.21	9.000	143.01	15.000	1.82	21.00	1.05
3.083	1.24	9.083	43.68	15.083	1.78	21.08	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.250	1.27	9.250	22.56	15.250	1.75	21.25	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.417	1.30	9.417	15.42	15.417	1.71	21.42	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.583	1.34	9.583	11.84	15.583	1.68	21.58	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.750	1.37	9.750	9.68	15.750	1.64	21.75	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.917	1.41	9.917	8.23	15.917	1.61	21.92	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.083	1.45	10.083	7.18	16.083	1.58	22.08	0.97
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.250	1.49	10.250	6.39	16.250	1.55	22.25	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96

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Steeles Ave_Road Corridor_PrControlled							
4.417	1.53	10.417	5.77	16.417	1.52	22.42	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.583	1.58	10.583	5.27	16.583	1.50	22.58	0.94
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.750	1.63	10.750	4.86	16.750	1.47	22.75	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.917	1.69	10.917	4.52	16.917	1.45	22.92	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.083	1.75	11.083	4.22	17.083	1.42	23.08	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.250	1.81	11.250	3.97	17.250	1.40	23.25	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.417	1.88	11.417	3.74	17.417	1.38	23.42	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.583	1.96	11.583	3.55	17.583	1.36	23.58	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.750	2.04	11.750	3.37	17.750	1.34	23.75	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.917	2.13	11.917	3.22	17.917	1.32	23.92	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87

Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.400 (i)
 TIME TO PEAK (hrs)= 9.417
 RUNOFF VOLUME (mm)= 55.927
 TOTAL RAINFALL (mm)= 97.010
 RUNOFF COEFFICIENT = 0.577

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

ADD HYD (0540)							
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 1 (0230):	1.63	0.092	9.47	42.62			
+ ID2= 2 (0235):	5.23	0.400	9.42	55.93			
ID = 3 (0540):	6.86	0.491	9.43	52.77			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
STANDHYD (0240)	Area (ha)=	0.38					
ID= 1 DT= 2.0 min	Total Imp(%)=	45.00	Dir. Conn.(%)=	45.00			

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Steeles Ave_Road Corridor_PrControlled

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	0.17	0.21		
Dep. Storage	(mm)=	2.00	5.00		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	225.00	15.00		
Mannings n	=	0.013	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.89	6.033	2.24	12.033	3.08	18.03	1.30
0.067	0.89	6.067	2.24	12.067	3.08	18.07	1.30
0.100	0.89	6.100	2.24	12.100	3.08	18.10	1.30
0.133	0.89	6.133	2.24	12.133	3.08	18.13	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.200	0.90	6.200	2.35	12.200	2.95	18.20	1.28
0.233	0.90	6.233	2.35	12.233	2.95	18.23	1.28
0.267	0.90	6.267	2.35	12.267	2.95	18.27	1.28
0.300	0.90	6.300	2.35	12.300	2.95	18.30	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.367	0.92	6.367	2.48	12.367	2.83	18.37	1.26
0.400	0.92	6.400	2.48	12.400	2.83	18.40	1.26
0.433	0.92	6.433	2.48	12.433	2.83	18.43	1.26
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24
0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23

	Steeles	Ave_Road	Corridor_PrControlled				
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16
1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07
2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06

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	Steeles	Ave_Road	Corridor_PrControlled				
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.81	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.81	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.81	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.81	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03
3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96

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	Steeles	Ave_Road	Corridor_PrControlled				
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94
4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87

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	Steeles	Ave_Road	Corridor_PrControlled				
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Steeles Ave_Road Corridor_PrControlled

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.89	6.033	2.24	12.033	3.08	18.03	1.30
0.067	0.89	6.067	2.24	12.067	3.08	18.07	1.30
0.100	0.89	6.100	2.24	12.100	3.08	18.10	1.30
0.133	0.89	6.133	2.24	12.133	3.08	18.13	1.30
0.167	0.89	6.167	2.24	12.167	3.08	18.17	1.30
0.200	0.90	6.200	2.35	12.200	2.95	18.20	1.28
0.233	0.90	6.233	2.35	12.233	2.95	18.23	1.28
0.267	0.90	6.267	2.35	12.267	2.95	18.27	1.28
0.300	0.90	6.300	2.35	12.300	2.95	18.30	1.28
0.333	0.90	6.333	2.35	12.333	2.95	18.33	1.28
0.367	0.92	6.367	2.48	12.367	2.83	18.37	1.26
0.400	0.92	6.400	2.48	12.400	2.83	18.40	1.26
0.433	0.92	6.433	2.48	12.433	2.83	18.43	1.26
0.467	0.92	6.467	2.48	12.467	2.83	18.47	1.26
0.500	0.92	6.500	2.48	12.500	2.83	18.50	1.26
0.533	0.93	6.533	2.63	12.533	2.73	18.53	1.24
0.567	0.93	6.567	2.63	12.567	2.73	18.57	1.24
0.600	0.93	6.600	2.63	12.600	2.73	18.60	1.24
0.633	0.93	6.633	2.63	12.633	2.73	18.63	1.24
0.667	0.93	6.667	2.63	12.667	2.73	18.67	1.24
0.700	0.95	6.700	2.80	12.700	2.63	18.70	1.23
0.733	0.95	6.733	2.80	12.733	2.63	18.73	1.23
0.767	0.95	6.767	2.80	12.767	2.63	18.77	1.23
0.800	0.95	6.800	2.80	12.800	2.63	18.80	1.23
0.833	0.95	6.833	2.80	12.833	2.63	18.83	1.23
0.867	0.96	6.867	2.99	12.867	2.54	18.87	1.21
0.900	0.96	6.900	2.99	12.900	2.54	18.90	1.21
0.933	0.96	6.933	2.99	12.933	2.54	18.93	1.21
0.967	0.96	6.967	2.99	12.967	2.54	18.97	1.21
1.000	0.96	7.000	2.99	13.000	2.54	19.00	1.21
1.033	0.98	7.033	3.22	13.033	2.45	19.03	1.19
1.067	0.98	7.067	3.22	13.067	2.45	19.07	1.19
1.100	0.98	7.100	3.22	13.100	2.45	19.10	1.19
1.133	0.98	7.133	3.22	13.133	2.45	19.13	1.19
1.167	0.98	7.167	3.22	13.167	2.45	19.17	1.19
1.200	1.00	7.200	3.49	13.200	2.38	19.20	1.18
1.233	1.00	7.233	3.49	13.233	2.38	19.23	1.18
1.267	1.00	7.267	3.49	13.267	2.38	19.27	1.18
1.300	1.00	7.300	3.49	13.300	2.38	19.30	1.18
1.333	1.00	7.333	3.49	13.333	2.38	19.33	1.18
1.367	1.02	7.367	3.82	13.367	2.30	19.37	1.16
1.400	1.02	7.400	3.82	13.400	2.30	19.40	1.16
1.433	1.02	7.433	3.82	13.433	2.30	19.43	1.16

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Steeles Ave_Road Corridor_PrControlled

1.467	1.02	7.467	3.82	13.467	2.30	19.47	1.16
1.500	1.02	7.500	3.82	13.500	2.30	19.50	1.16
1.533	1.03	7.533	4.22	13.533	2.24	19.53	1.15
1.567	1.03	7.567	4.22	13.567	2.24	19.57	1.15
1.600	1.03	7.600	4.22	13.600	2.24	19.60	1.15
1.633	1.03	7.633	4.22	13.633	2.24	19.63	1.15
1.667	1.03	7.667	4.22	13.667	2.24	19.67	1.15
1.700	1.05	7.700	4.75	13.700	2.17	19.70	1.13
1.733	1.05	7.733	4.75	13.733	2.17	19.73	1.13
1.767	1.05	7.767	4.75	13.767	2.17	19.77	1.13
1.800	1.05	7.800	4.75	13.800	2.17	19.80	1.13
1.833	1.05	7.833	4.75	13.833	2.17	19.83	1.13
1.867	1.07	7.867	5.44	13.867	2.11	19.87	1.12
1.900	1.07	7.900	5.44	13.900	2.11	19.90	1.12
1.933	1.07	7.933	5.44	13.933	2.11	19.93	1.12
1.967	1.07	7.967	5.44	13.967	2.11	19.97	1.12
2.000	1.07	8.000	5.44	14.000	2.11	20.00	1.12
2.033	1.09	8.033	6.41	14.033	2.06	20.03	1.11
2.067	1.09	8.067	6.41	14.067	2.06	20.07	1.11
2.100	1.09	8.100	6.41	14.100	2.06	20.10	1.11
2.133	1.09	8.133	6.41	14.133	2.06	20.13	1.11
2.167	1.09	8.167	6.41	14.167	2.06	20.17	1.11
2.200	1.12	8.200	7.87	14.200	2.01	20.20	1.09
2.233	1.12	8.233	7.87	14.233	2.01	20.23	1.09
2.267	1.12	8.267	7.87	14.267	2.01	20.27	1.09
2.300	1.12	8.300	7.87	14.300	2.01	20.30	1.09
2.333	1.12	8.333	7.87	14.333	2.01	20.33	1.09
2.367	1.14	8.367	10.36	14.367	1.96	20.37	1.08
2.400	1.14	8.400	10.36	14.400	1.96	20.40	1.08
2.433	1.14	8.433	10.36	14.433	1.96	20.43	1.08
2.467	1.14	8.467	10.36	14.467	1.96	20.47	1.08
2.500	1.14	8.500	10.36	14.500	1.96	20.50	1.08
2.533	1.16	8.533	15.66	14.533	1.91	20.53	1.07
2.567	1.16	8.567	15.66	14.567	1.91	20.57	1.07
2.600	1.16	8.600	15.66	14.600	1.91	20.60	1.07
2.633	1.16	8.633	15.66	14.633	1.91	20.63	1.07
2.667	1.16	8.667	15.66	14.667	1.91	20.67	1.07
2.700	1.19	8.700	35.89	14.700	1.87	20.70	1.06
2.733	1.19	8.733	35.89	14.733	1.87	20.73	1.06
2.767	1.19	8.767	35.89	14.767	1.87	20.77	1.06
2.800	1.19	8.800	35.89	14.800	1.87	20.80	1.06
2.833	1.19	8.833	35.90	14.833	1.87	20.83	1.06
2.867	1.21	8.867	143.01	14.867	1.82	20.87	1.05
2.900	1.21	8.900	143.01	14.900	1.82	20.90	1.05
2.933	1.21	8.933	143.01	14.933	1.82	20.93	1.05
2.967	1.21	8.967	143.01	14.967	1.82	20.97	1.05
3.000	1.21	9.000	142.99	15.000	1.82	21.00	1.05
3.033	1.24	9.033	43.68	15.033	1.78	21.03	1.03

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Steeles Ave_Road Corridor_PrControlled

3.067	1.24	9.067	43.68	15.067	1.78	21.07	1.03
3.100	1.24	9.100	43.68	15.100	1.78	21.10	1.03
3.133	1.24	9.133	43.68	15.133	1.78	21.13	1.03
3.167	1.24	9.167	43.68	15.167	1.78	21.17	1.03
3.200	1.27	9.200	22.56	15.200	1.75	21.20	1.02
3.233	1.27	9.233	22.56	15.233	1.75	21.23	1.02
3.267	1.27	9.267	22.56	15.267	1.75	21.27	1.02
3.300	1.27	9.300	22.56	15.300	1.75	21.30	1.02
3.333	1.27	9.333	22.56	15.333	1.75	21.33	1.02
3.367	1.30	9.367	15.42	15.367	1.71	21.37	1.01
3.400	1.30	9.400	15.42	15.400	1.71	21.40	1.01
3.433	1.30	9.433	15.42	15.433	1.71	21.43	1.01
3.467	1.30	9.467	15.42	15.467	1.71	21.47	1.01
3.500	1.30	9.500	15.42	15.500	1.71	21.50	1.01
3.533	1.34	9.533	11.84	15.533	1.68	21.53	1.00
3.567	1.34	9.567	11.84	15.567	1.68	21.57	1.00
3.600	1.34	9.600	11.84	15.600	1.68	21.60	1.00
3.633	1.34	9.633	11.84	15.633	1.68	21.63	1.00
3.667	1.34	9.667	11.84	15.667	1.68	21.67	1.00
3.700	1.37	9.700	9.68	15.700	1.64	21.70	0.99
3.733	1.37	9.733	9.68	15.733	1.64	21.73	0.99
3.767	1.37	9.767	9.68	15.767	1.64	21.77	0.99
3.800	1.37	9.800	9.68	15.800	1.64	21.80	0.99
3.833	1.37	9.833	9.68	15.833	1.64	21.83	0.99
3.867	1.41	9.867	8.23	15.867	1.61	21.87	0.98
3.900	1.41	9.900	8.23	15.900	1.61	21.90	0.98
3.933	1.41	9.933	8.23	15.933	1.61	21.93	0.98
3.967	1.41	9.967	8.23	15.967	1.61	21.97	0.98
4.000	1.41	10.000	8.23	16.000	1.61	22.00	0.98
4.033	1.45	10.033	7.18	16.033	1.58	22.03	0.97
4.067	1.45	10.067	7.18	16.067	1.58	22.07	0.97
4.100	1.45	10.100	7.18	16.100	1.58	22.10	0.97
4.133	1.45	10.133	7.18	16.133	1.58	22.13	0.97
4.167	1.45	10.167	7.18	16.167	1.58	22.17	0.97
4.200	1.49	10.200	6.39	16.200	1.55	22.20	0.96
4.233	1.49	10.233	6.39	16.233	1.55	22.23	0.96
4.267	1.49	10.267	6.39	16.267	1.55	22.27	0.96
4.300	1.49	10.300	6.39	16.300	1.55	22.30	0.96
4.333	1.49	10.333	6.39	16.333	1.55	22.33	0.96
4.367	1.53	10.367	5.77	16.367	1.52	22.37	0.95
4.400	1.53	10.400	5.77	16.400	1.52	22.40	0.95
4.433	1.53	10.433	5.77	16.433	1.52	22.43	0.95
4.467	1.53	10.467	5.77	16.467	1.52	22.47	0.95
4.500	1.53	10.500	5.77	16.500	1.52	22.50	0.95
4.533	1.58	10.533	5.27	16.533	1.50	22.53	0.94
4.567	1.58	10.567	5.27	16.567	1.50	22.57	0.94
4.600	1.58	10.600	5.27	16.600	1.50	22.60	0.94
4.633	1.58	10.633	5.27	16.633	1.50	22.63	0.94

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Steeles Ave_Road Corridor_PrControlled

4.667	1.58	10.667	5.27	16.667	1.50	22.67	0.94
4.700	1.63	10.700	4.86	16.700	1.47	22.70	0.93
4.733	1.63	10.733	4.86	16.733	1.47	22.73	0.93
4.767	1.63	10.767	4.86	16.767	1.47	22.77	0.93
4.800	1.63	10.800	4.86	16.800	1.47	22.80	0.93
4.833	1.63	10.833	4.86	16.833	1.47	22.83	0.93
4.867	1.69	10.867	4.52	16.867	1.45	22.87	0.92
4.900	1.69	10.900	4.52	16.900	1.45	22.90	0.92
4.933	1.69	10.933	4.52	16.933	1.45	22.93	0.92
4.967	1.69	10.967	4.52	16.967	1.45	22.97	0.92
5.000	1.69	11.000	4.52	17.000	1.45	23.00	0.92
5.033	1.75	11.033	4.22	17.033	1.42	23.03	0.92
5.067	1.75	11.067	4.22	17.067	1.42	23.07	0.92
5.100	1.75	11.100	4.22	17.100	1.42	23.10	0.92
5.133	1.75	11.133	4.22	17.133	1.42	23.13	0.92
5.167	1.75	11.167	4.22	17.167	1.42	23.17	0.92
5.200	1.81	11.200	3.97	17.200	1.40	23.20	0.91
5.233	1.81	11.233	3.97	17.233	1.40	23.23	0.91
5.267	1.81	11.267	3.97	17.267	1.40	23.27	0.91
5.300	1.81	11.300	3.97	17.300	1.40	23.30	0.91
5.333	1.81	11.333	3.97	17.333	1.40	23.33	0.91
5.367	1.88	11.367	3.74	17.367	1.38	23.37	0.90
5.400	1.88	11.400	3.74	17.400	1.38	23.40	0.90
5.433	1.88	11.433	3.74	17.433	1.38	23.43	0.90
5.467	1.88	11.467	3.74	17.467	1.38	23.47	0.90
5.500	1.88	11.500	3.74	17.500	1.38	23.50	0.90
5.533	1.96	11.533	3.55	17.533	1.36	23.53	0.89
5.567	1.96	11.567	3.55	17.567	1.36	23.57	0.89
5.600	1.96	11.600	3.55	17.600	1.36	23.60	0.89
5.633	1.96	11.633	3.55	17.633	1.36	23.63	0.89
5.667	1.96	11.667	3.55	17.667	1.36	23.67	0.89
5.700	2.04	11.700	3.37	17.700	1.34	23.70	0.88
5.733	2.04	11.733	3.37	17.733	1.34	23.73	0.88
5.767	2.04	11.767	3.37	17.767	1.34	23.77	0.88
5.800	2.04	11.800	3.37	17.800	1.34	23.80	0.88
5.833	2.04	11.833	3.37	17.833	1.34	23.83	0.88
5.867	2.13	11.867	3.22	17.867	1.32	23.87	0.87
5.900	2.13	11.900	3.22	17.900	1.32	23.90	0.87
5.933	2.13	11.933	3.22	17.933	1.32	23.93	0.87
5.967	2.13	11.967	3.22	17.967	1.32	23.97	0.87
6.000	2.13	12.000	3.22	18.000	1.32	24.00	0.87
Max.Eff.Inten.(mm/hr)=	143.01			61.59			
over (min)	5.00			4.00			
Storage Coeff. (min)=	1.03	(ii)		2.75	(ii)		
Unit Hyd. Tpeak (min)=	4.00			4.00			
Unit Hyd. peak (cms)=	0.51			0.35			
TOTALS							

Steeles Ave_Road Corridor_PrControlled
PEAK FLOW (cms)= 0.04 0.01 0.041 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.00
RUNOFF VOLUME (mm)= 95.01 43.25 82.06
TOTAL RAINFALL (mm)= 97.01 97.01 97.01
RUNOFF COEFFICIENT = 0.98 0.45 0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0560)
1 + 2 = 3
ID1= 1 (0245): 0.12 0.041 9.00 82.06
+ ID2= 2 (0550): 7.24 0.508 9.43 53.49
ID = 3 (0560): 7.36 0.513 9.43 53.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION:Run 12 **

READ STORM
Filename: C:\Users\talal.antar\AppData
ata\Local\Temp\
8dbe9d67-4e73-438d-a649-484e75a477a1\aa1a6519
Ptotal=110.01 mm
Comments: Milton050

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	1.05	6.17	2.60	12.17	3.56	18.17	1.51
0.33	1.06	6.33	2.73	12.33	3.41	18.33	1.49
0.50	1.08	6.50	2.88	12.50	3.28	18.50	1.47
0.67	1.09	6.67	3.04	12.67	3.16	18.67	1.45
0.83	1.11	6.83	3.24	12.83	3.04	18.83	1.43
1.00	1.13	7.00	3.46	13.00	2.94	19.00	1.41
1.17	1.15	7.17	3.72	13.17	2.85	19.17	1.40
1.33	1.17	7.33	4.03	13.33	2.76	19.33	1.38
1.50	1.19	7.50	4.40	13.50	2.67	19.50	1.36

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Steeles Ave_Road Corridor_PrControlled	1.67	1.21	7.67	4.86	13.67	2.60	19.67	1.34
1.83	1.23	7.83	5.45	13.83	2.52	19.83	1.33	
2.00	1.26	8.00	6.23	14.00	2.46	20.00	1.31	
2.17	1.28	8.17	7.32	14.17	2.39	20.17	1.30	
2.33	1.31	8.33	8.96	14.33	2.33	20.33	1.28	
2.50	1.33	8.50	11.74	14.50	2.28	20.50	1.27	
2.67	1.36	8.67	17.62	14.67	2.22	20.67	1.25	
2.83	1.39	8.83	39.83	14.83	2.17	20.83	1.24	
3.00	1.42	9.00	158.18	15.00	2.12	21.00	1.22	
3.17	1.45	9.17	48.36	15.17	2.08	21.17	1.21	
3.33	1.49	9.33	25.22	15.33	2.03	21.33	1.20	
3.50	1.52	9.50	17.36	15.50	1.99	21.50	1.19	
3.67	1.56	9.67	13.39	15.67	1.95	21.67	1.17	
3.83	1.60	9.83	10.98	15.83	1.91	21.83	1.16	
4.00	1.64	10.00	9.36	16.00	1.88	22.00	1.15	
4.17	1.69	10.17	8.19	16.17	1.84	22.17	1.14	
4.33	1.74	10.33	7.31	16.33	1.81	22.33	1.13	
4.50	1.79	10.50	6.61	16.50	1.78	22.50	1.12	
4.67	1.84	10.67	6.05	16.67	1.75	22.67	1.10	
4.83	1.90	10.83	5.58	16.83	1.72	22.83	1.09	
5.00	1.96	11.00	5.19	17.00	1.69	23.00	1.08	
5.17	2.03	11.17	4.86	17.17	1.66	23.17	1.07	
5.33	2.11	11.33	4.57	17.33	1.63	23.33	1.06	
5.50	2.19	11.50	4.32	17.50	1.61	23.50	1.05	
5.67	2.28	11.67	4.09	17.67	1.58	23.67	1.05	
5.83	2.37	11.83	3.89	17.83	1.56	23.83	1.04	
6.00	2.48	12.00	3.72	18.00	1.54	24.00	1.03	

CALIB
NASHYD (1021)
ID= 1 DT= 2.0 min
Area (ha)= 8.51
Ia (mm)= 5.60
U.H. Tp(hrs)= 0.55
Curve Number (CN)= 82.0
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49

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Steeles Ave_Road Corridor_PrControlled	0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49	
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49	
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49	
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47	
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47	
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47	
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47	
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47	
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45	
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45	
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45	
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45	
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45	
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43	
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43	
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43	
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43	
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43	
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41	
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41	
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41	
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41	
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41	
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40	
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40	
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40	
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40	
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40	
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38	
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38	
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38	
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38	
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38	
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36	
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36	
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36	
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36	
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36	
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34	
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34	
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34	
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34	
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34	
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33	
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33	
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33	
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33	

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Steeles Ave_Road Corridor_PrControlled	1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31	
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31	
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31	
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31	
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31	
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30	
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30	
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30	
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30	
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30	
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28	
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28	
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28	
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28	
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28	
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27	
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27	
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27	
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27	
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27	
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25	
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25	
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25	
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25	
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25	
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24	
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24	
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24	
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24	
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24	
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22	
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22	
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22	
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22	
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22	
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21	
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21	
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21	
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21	
3.167	1.45	9.167	48.35	15.167	2.08	21.17</		

	Steeles	Ave_Road	Corridor_PrControlled				
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08

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	Steeles	Ave_Road	Corridor_PrControlled				
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Unit Hyd Qpeak (cms)= 0.591

PEAK FLOW (cms)= 0.697 (i)
TIME TO PEAK (hrs)= 9.567
RUNOFF VOLUME (mm)= 68.061
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = 0.619

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

CALIB	Area (ha)= 0.55
STANDHYD (0205)	Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00
ID= 1 DT= 2.0 min	

IMPERVIOUS PERVIOUS (i)

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	Steeles	Ave_Road	Corridor_PrControlled
Surface Area	(ha)= 0.46	0.09	
Dep. Storage	(mm)= 2.00	5.00	
Average Slope	(%)= 1.00	2.00	
Length	(m)= 130.00	5.00	
Mannings n	= 0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38

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	Steeles	Ave_Road	Corridor_PrControlled				
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24

Steeles Ave_Road Corridor_PrControlled								
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24	
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22	
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22	
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22	
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22	
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22	
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21	
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21	
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21	
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21	
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21	
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20	
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20	
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20	
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20	
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20	
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19	
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19	
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19	
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19	
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19	
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17	
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17	
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17	
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17	
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17	
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16	
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16	
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16	
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16	
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16	
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15	
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15	
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15	
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15	
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15	
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14	
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14	
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14	
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14	
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14	
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13	
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13	
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13	
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13	
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13	
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12	
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12	

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Steeles Ave_Road Corridor_PrControlled								
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12	
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12	
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12	
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10	
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10	
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10	
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10	
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10	
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09	
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09	
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09	
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09	
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09	
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08	
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08	
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08	
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08	
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08	
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07	
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07	
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07	
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07	
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07	
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06	
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06	
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06	
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06	
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06	
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05	
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05	
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05	
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05	
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05	
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05	
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05	
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05	
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05	
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05	
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04	
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04	
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04	
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04	
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04	
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03	
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03	
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03	
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03	
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03	

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Steeles Ave_Road Corridor_PrControlled				
Max.Eff.Inten.(mm/hr)=	158.18	74.43		
over (min)	5.00	4.00		
Storage Coeff. (min)=	2.49 (ii)	3.38 (ii)		
Unit Hyd. Tpeak (min)=	4.00	4.00		
Unit Hyd. peak (cms)=	0.37	0.31		
			TOTALS	
PEAK FLOW (cms)=	0.20	0.02	0.215 (iii)	
TIME TO PEAK (hrs)=	9.00	9.00	9.00	
RUNOFF VOLUME (mm)=	108.01	52.82	98.62	
TOTAL RAINFALL (mm)=	110.01	110.01	110.01	
RUNOFF COEFFICIENT =	0.98	0.48	0.90	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:				
CN* = 71.0 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 (0500)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1021):	8.51	0.697	9.57	68.06
+ ID2= 2 (0205):	0.55	0.215	9.00	98.62
=====				
ID = 3 (0500):	9.06	0.719	9.53	69.92
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.				

CALIB				
STANDHYD (0200)				
ID= 1 DT= 2.0 min				
	Area	(ha)=	1.24	
	Total Imp(%)=	86.00	Dir. Conn.(%)=	86.00
	IMPERVIOUS	PERVIOUS (i)		
Surface Area (ha)=	1.07	0.17		
Dep. Storage (mm)=	2.00	5.00		
Average Slope (%)=	1.00	2.00		
Length (m)=	250.00	5.00		
Mannings n =	0.013	0.250		
NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.				

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Steeles Ave_Road Corridor_PrControlled								
---- TRANSFORMED HYETOGRAPH ----								
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51	
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51	
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51	
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51	
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51	
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49	
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49	
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49	
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49	
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49	
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47	
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47	
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47	
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47	
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47	
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45	
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45	
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45	
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45	
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45	
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43	
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43	
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43	
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43	
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43	
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41	
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41	
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41	
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41	
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41	
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40	
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40	
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40	
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40	
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40	
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38	
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38	
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38	
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38	
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38	
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36	
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36	
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36	
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36	
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36	

		Steeles	Ave_Road	Corridor_PrControlled			
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21

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		Steeles	Ave_Road	Corridor_PrControlled			
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09

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		Steeles	Ave_Road	Corridor_PrControlled			
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Max.Eff.Inten.(mm/hr)= 158.18
over (min) 5.00
Storage Coeff. (min)= 3.69 (ii)
Unit Hyd. Tpeak (min)= 4.00
Unit Hyd. peak (cms)= 0.29

TOTALS
0.467 (iii)
9.00

PEAK FLOW (cms)= 0.44
TIME TO PEAK (hrs)= 9.00

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	Steeles	Ave_Road	Corridor_PrControlled
RUNOFF VOLUME (mm)=	108.00	55.42	100.64
TOTAL RAINFALL (mm)=	110.01	110.01	110.01
RUNOFF COEFFICIENT =	0.98	0.50	0.91

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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.

RESERVOIR(0700)	OVERFLOW IS OFF			
IN= 2--> OUT= 1				
DT= 2.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.1046	0.0782
	0.0306	0.0325	0.2016	0.1380

Steeles Ave_Road Corridor_PrControlled
Surface Area (ha)= 1.70 1.14
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 460.00 15.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.05	6.083	2.60	12.083	3.56	18.08	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.250	1.06	6.250	2.73	12.250	3.41	18.25	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.417	1.08	6.417	2.88	12.417	3.28	18.42	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.583	1.09	6.583	3.04	12.583	3.16	18.58	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.750	1.11	6.750	3.24	12.750	3.04	18.75	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.917	1.13	6.917	3.46	12.917	2.94	18.92	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.083	1.15	7.083	3.72	13.083	2.85	19.08	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.250	1.17	7.250	4.03	13.250	2.76	19.25	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.417	1.19	7.417	4.40	13.417	2.67	19.42	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.583	1.21	7.583	4.86	13.583	2.60	19.58	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.750	1.23	7.750	5.45	13.750	2.52	19.75	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.917	1.26	7.917	6.23	13.917	2.46	19.92	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.083	1.28	8.083	7.32	14.083	2.39	20.08	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.250	1.31	8.250	8.96	14.250	2.33	20.25	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.417	1.33	8.417	11.74	14.417	2.28	20.42	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.583	1.36	8.583	17.62	14.583	2.22	20.58	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.750	1.39	8.750	39.83	14.750	2.17	20.75	1.24
2.833	1.39	8.833	39.83	14.833	2.17	20.83	1.24
2.917	1.42	8.917	158.18	14.917	2.12	20.92	1.22
3.000	1.42	9.000	158.18	15.000	2.12	21.00	1.22

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Steeles Ave_Road Corridor_PrControlled							
3.083	1.45	9.083	48.36	15.083	2.08	21.08	1.21
3.167	1.45	9.167	48.36	15.167	2.08	21.17	1.21
3.250	1.49	9.250	25.22	15.250	2.03	21.25	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.417	1.52	9.417	17.36	15.417	1.99	21.42	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.583	1.56	9.583	13.39	15.583	1.95	21.58	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.750	1.60	9.750	10.98	15.750	1.91	21.75	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.917	1.64	9.917	9.36	15.917	1.88	21.92	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.083	1.69	10.083	8.19	16.083	1.84	22.08	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.250	1.74	10.250	7.31	16.250	1.81	22.25	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.417	1.79	10.417	6.61	16.417	1.78	22.42	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.583	1.84	10.583	6.05	16.583	1.75	22.58	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.750	1.90	10.750	5.58	16.750	1.72	22.75	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.917	1.96	10.917	5.19	16.917	1.69	22.92	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.083	2.03	11.083	4.86	17.083	1.66	23.08	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.250	2.11	11.250	4.57	17.250	1.63	23.25	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.417	2.19	11.417	4.32	17.417	1.61	23.42	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.583	2.28	11.583	4.09	17.583	1.58	23.58	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.750	2.37	11.750	3.89	17.750	1.56	23.75	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.917	2.48	11.917	3.72	17.917	1.54	23.92	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Max.Eff.Inten.(mm/hr)= 158.18 74.43
over (min) 5.00 10.00
Storage Coeff. (min)= 5.31 (ii) 8.09 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.21 0.13

PEAK FLOW (cms)= 0.66 0.16 *TOTALS* 0.803 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 108.01 52.82 85.93
TOTAL RAINFALL (mm)= 110.01 110.01 110.01
RUNOFF COEFFICIENT = 0.98 0.48 0.78

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Steeles Ave_Road Corridor_PrControlled

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0215)
ID= 1 DT= 2.0 min

Area (ha)= 0.52
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.45 0.07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43

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Steeles Ave_Road Corridor_PrControlled							
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28

Steeles Ave_Road Corridor_PrControlled								
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28	
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27	
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27	
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27	
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27	
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27	
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25	
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25	
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25	
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25	
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25	
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24	
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24	
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24	
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24	
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24	
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22	
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22	
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22	
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22	
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22	
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21	
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21	
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21	
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21	
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21	
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20	
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20	
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20	
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20	
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20	
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19	
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19	
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19	
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19	
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19	
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17	
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17	
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17	
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17	
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17	
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16	
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16	
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16	
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16	
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16	
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15	
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15	

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Steeles Ave_Road Corridor_PrControlled								
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15	
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15	
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15	
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14	
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14	
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14	
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14	
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14	
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13	
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13	
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13	
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13	
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13	
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12	
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12	
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12	
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12	
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12	
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10	
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10	
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10	
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10	
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10	
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09	
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09	
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09	
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09	
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09	
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08	
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08	
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08	
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08	
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08	
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07	
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07	
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07	
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07	
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07	
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06	
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06	
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06	
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06	
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06	
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05	
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05	
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05	
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05	
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05	

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Steeles Ave_Road Corridor_PrControlled								
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05	
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05	
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05	
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05	
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05	
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04	
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04	
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04	
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04	
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04	
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03	
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03	
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03	
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03	
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03	

Max.Eff.Inten.(mm/hr)= 158.18 74.43
over (min) 5.00 4.00
Storage Coeff. (min)= 1.55 (ii) 2.79 (ii)
Unit Hyd. Tpeak (min)= 4.00 4.00
Unit Hyd. peak (cms)= 0.45 0.35

TOTALS
PEAK FLOW (cms)= 0.20 0.02 0.211 (iii)
TIME TO PEAK (hrs)= 9.00 9.00
RUNOFF VOLUME (mm)= 100.01 52.82 100.28
TOTAL RAINFALL (mm)= 110.01 110.01 110.01
RUNOFF COEFFICIENT = 0.98 0.48 0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)				
1	2	3		
ID1= 1 (0210):	2.84	0.803	9.00	85.93
+ ID2= 2 (0215):	0.52	0.211	9.00	100.28
ID = 3 (0520):	3.36	1.014	9.00	88.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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Steeles Ave_Road Corridor_PrControlled				
RESERVOIR(0710)				
IN= 2---> OUT= 1				
DT= 2.0 min				
OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
0.0000	0.0000	0.3237	0.1197	
0.0411	0.0357	0.4116	0.1260	
0.1964	0.0777	0.0000	0.0000	
INFLOW : ID= 2 (0520)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
OUTFLOW: ID= 1 (0710)	3.360	1.014	9.00	88.15
	3.360	0.280	9.30	88.09
PEAK FLOW REDUCTION [Qout/Qin](%)= 27.60				
TIME SHIFT OF PEAK FLOW (min)= 18.00				
MAXIMUM STORAGE USED (ha.m.)= 0.1053				
CALIB				
STANDHYD (0220)				
ID= 1 DT= 2.0 min	Area (ha)= 0.34	Total Imp(%)= 89.00	Dir. Conn.(%)= 89.00	
Surface Area (ha)= 0.30	IMPERVIOUS	PERVIOUS (i)		
Dep. Storage (mm)= 2.00				
Average Slope (%)= 1.00				
Length (m)= 115.00				
Mannings n = 0.013				

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

	Steeles	Ave_Road	Corridor_PrControlled				
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31

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	Steeles	Ave_Road	Corridor_PrControlled				
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17

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	Steeles	Ave_Road	Corridor_PrControlled				
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07

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	Steeles	Ave_Road	Corridor	PrControlled			
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03
Max.Eff.Inten. (mm/hr)=	158.18	74.43					
over (min)	5.00	4.00					
Storage Coeff. (min)=	2.31	3.04	(ii)				
Unit Hyd. Tpeak (min)=	4.00	4.00					
Unit Hyd. peak (cms)=	0.38	0.33					
TOTALS							
PEAK FLOW (cms)=	0.13	0.01	0.138 (iii)				
TIME TO PEAK (hrs)=	9.00	9.00					
RUNOFF VOLUME (mm)=	108.01	52.82	101.93				
TOTAL RAINFALL (mm)=	110.01	110.01	110.01				
RUNOFF COEFFICIENT	= 0.98	0.48	0.93				
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:							
CN* = 71.0 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.							

Steeles Ave_Road Corridor_PrControlled

ADD HYD (0530)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	0.34	0.138	9.00	101.93
+ ID2= 2 (0710):	3.36	0.280	9.30	88.09
=====				
ID = 3 (0530):	3.70	0.327	9.03	89.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0225)
ID= 1 DT= 5.0 min

Area (ha)=	0.45
Total Imp(%)=	93.00
Dir. Conn.(%)=	93.00

	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	0.42	0.03
Dep. Storage	2.00	5.00
Average Slope	1.00	2.00
Length	105.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.05	6.083	2.60	12.083	3.56	18.08	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.250	1.06	6.250	2.73	12.250	3.41	18.25	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.417	1.08	6.417	2.88	12.417	3.28	18.42	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.583	1.09	6.583	3.04	12.583	3.16	18.58	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.750	1.11	6.750	3.24	12.750	3.04	18.75	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.917	1.13	6.917	3.46	12.917	2.94	18.92	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.083	1.15	7.083	3.72	13.083	2.85	19.08	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.250	1.17	7.250	4.03	13.250	2.76	19.25	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.417	1.19	7.417	4.40	13.417	2.67	19.42	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.583	1.21	7.583	4.86	13.583	2.60	19.58	1.34

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1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.750	1.23	7.750	5.45	13.750	2.52	19.75	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.917	1.26	7.917	6.23	13.917	2.46	19.92	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.083	1.28	8.083	7.32	14.083	2.39	20.08	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.250	1.31	8.250	8.96	14.250	2.33	20.25	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.417	1.33	8.417	11.74	14.417	2.28	20.42	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.583	1.36	8.583	17.62	14.583	2.22	20.58	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.750	1.39	8.750	39.83	14.750	2.17	20.75	1.24
2.833	1.39	8.833	39.83	14.833	2.17	20.83	1.24
2.917	1.42	8.917	158.18	14.917	2.12	20.92	1.22
3.000	1.42	9.000	158.18	15.000	2.12	21.00	1.22
3.083	1.45	9.083	48.36	15.083	2.08	21.08	1.21
3.167	1.45	9.167	48.36	15.167	2.08	21.17	1.21
3.250	1.49	9.250	25.22	15.250	2.03	21.25	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.417	1.52	9.417	17.36	15.417	1.99	21.42	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.583	1.56	9.583	13.39	15.583	1.95	21.58	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.750	1.60	9.750	10.98	15.750	1.91	21.75	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.917	1.64	9.917	9.36	15.917	1.88	21.92	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.083	1.69	10.083	8.19	16.083	1.84	22.08	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.250	1.74	10.250	7.31	16.250	1.81	22.25	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.417	1.79	10.417	6.61	16.417	1.78	22.42	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.583	1.84	10.583	6.05	16.583	1.75	22.58	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.750	1.90	10.750	5.58	16.750	1.72	22.75	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.917	1.96	10.917	5.19	16.917	1.69	22.92	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.083	2.03	11.083	4.86	17.083	1.66	23.08	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.250	2.11	11.250	4.57	17.250	1.63	23.25	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.417	2.19	11.417	4.32	17.417	1.61	23.42	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.583	2.28	11.583	4.09	17.583	1.58	23.58	1.05

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5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.750	2.37	11.750	3.89	17.750	1.56	23.75	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.917	2.48	11.917	3.72	17.917	1.54	23.92	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Max.Eff.Inten.(mm/hr)=	158.18	81.30
over (min)	5.00	5.00
Storage Coeff. (min)=	2.19 (ii)	2.79 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.31	0.28

TOTALS

PEAK FLOW (cms)=	0.18	0.01	0.190 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	
RUNOFF VOLUME (mm)=	108.01	56.77	104.42
TOTAL RAINFALL (mm)=	110.01	110.01	110.01
RUNOFF COEFFICIENT =	0.98	0.52	0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0230)
ID= 1 DT= 2.0 min

Area (ha)=	1.63	Curve Number (CN)=	72.0
Ia (mm)=	7.40	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.45		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49

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0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733							

	Steeles	Ave_Road	Corridor_PrControlled				
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19

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	Steeles	Ave_Road	Corridor_PrControlled				
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07

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	Steeles	Ave_Road	Corridor_PrControlled				
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Unit Hyd Qpeak (cms)= 0.138

PEAK FLOW (cms)= 0.112 (i)
 TIME TO PEAK (hrs)= 9.467
 RUNOFF VOLUME (mm)= 52.279
 TOTAL RAINFALL (mm)= 110.008
 RUNOFF COEFFICIENT = 0.475

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

CALIB	Area (ha)=	5.23	Curve Number (CN)=	81.0
NASHYD (0235)	Ia (mm)=	4.90	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.46		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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Steeles Ave Road Corridor PrControlled							
---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.05	6.083	2.60	12.083	3.56	18.08	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.250	1.06	6.250	2.73	12.250	3.41	18.25	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.417	1.08	6.417	2.88	12.417	3.28	18.42	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.583	1.09	6.583	3.04	12.583	3.16	18.58	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.750	1.11	6.750	3.24	12.750	3.04	18.75	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.917	1.13	6.917	3.46	12.917	2.94	18.92	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.083	1.15	7.083	3.72	13.083	2.85	19.08	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.250	1.17	7.250	4.03	13.250	2.76	19.25	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.417	1.19	7.417	4.40	13.417	2.67	19.42	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.583	1.21	7.583	4.86	13.583	2.60	19.58	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.750	1.23	7.750	5.45	13.750	2.52	19.75	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.917	1.26	7.917	6.23	13.917	2.46	19.92	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.083	1.28	8.083	7.32	14.083	2.39	20.08	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.250	1.31	8.250	8.96	14.250	2.33	20.25	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.417	1.33	8.417	11.74	14.417	2.28	20.42	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.583	1.36	8.583	17.62	14.583	2.22	20.58	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.750	1.39	8.750	39.83	14.750	2.17	20.75	1.24
2.833	1.39	8.833	39.83	14.833	2.17	20.83	1.24
2.917	1.42	8.917	158.18	14.917	2.12	20.92	1.22
3.000	1.42	9.000	158.18	15.000	2.12	21.00	1.22
3.083	1.45	9.083	48.36	15.083	2.08	21.08	1.21
3.167	1.45	9.167	48.36	15.167	2.08	21.17	1.21
3.250	1.49	9.250	25.22	15.250	2.03	21.25	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.417	1.52	9.417	17.36	15.417	1.99	21.42	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19
3.583	1.56	9.583	13.39	15.583	1.95	21.58	1.17
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17
3.750	1.60	9.750	10.98	15.750	1.91	21.75	1.16

Steeles Ave_Road Corridor_PrControlled

3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16
3.917	1.64	9.917	9.36	15.917	1.88	21.92	1.15
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15
4.083	1.69	10.083	8.19	16.083	1.84	22.08	1.14
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14
4.250	1.74	10.250	7.31	16.250	1.81	22.25	1.13
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13
4.417	1.79	10.417	6.61	16.417	1.78	22.42	1.12
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12
4.583	1.84	10.583	6.05	16.583	1.75	22.58	1.10
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10
4.750	1.90	10.750	5.58	16.750	1.72	22.75	1.09
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09
4.917	1.96	10.917	5.19	16.917	1.69	22.92	1.08
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08
5.083	2.03	11.083	4.86	17.083	1.66	23.08	1.07
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07
5.250	2.11	11.250	4.57	17.250	1.63	23.25	1.06
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06
5.417	2.19	11.417	4.32	17.417	1.61	23.42	1.05
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05
5.583	2.28	11.583	4.09	17.583	1.58	23.58	1.05
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05
5.750	2.37	11.750	3.89	17.750	1.56	23.75	1.04
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04
5.917	2.48	11.917	3.72	17.917	1.54	23.92	1.03
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03

Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.475 (i)
TIME TO PEAK (hrs)= 9.417
RUNOFF VOLUME (mm)= 67.078
TOTAL RAINFALL (mm)= 110.008
RUNOFF COEFFICIENT = 0.610

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

ADD HYD (0540)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0230):	1.63	0.112	9.47	52.28
+ ID2= 2 (0235):	5.23	0.475	9.42	67.08
ID = 3 (0540):	6.86	0.585	9.43	63.56

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Steeles Ave_Road Corridor_PrControlled

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0240)
ID= 1 DT= 2.0 min

Area (ha)= 0.38
Total Imp(%)= 45.00 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.17 0.21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 225.00 15.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.05	6.033	2.60	12.033	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.067	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41

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Steeles Ave_Road Corridor_PrControlled

0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27

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2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19

	Steels	Ave Road	Corridor	PrControlled		
4.133	1.69	10.133	8.19	16.133	1.84	22.13
4.167	1.69	10.167	8.19	16.167	1.84	22.17
4.200	1.74	10.200	7.31	16.200	1.81	22.20
4.233	1.74	10.233	7.31	16.233	1.81	22.23
4.267	1.74	10.267	7.31	16.267	1.81	22.27
4.300	1.74	10.300	7.31	16.300	1.81	22.30
4.333	1.74	10.333	7.31	16.333	1.81	22.33
4.367	1.79	10.367	6.61	16.367	1.78	22.37
4.400	1.79	10.400	6.61	16.400	1.78	22.40
4.433	1.79	10.433	6.61	16.433	1.78	22.43
4.467	1.79	10.467	6.61	16.467	1.78	22.47
4.500	1.79	10.500	6.61	16.500	1.78	22.50
4.533	1.84	10.533	6.05	16.533	1.75	22.53
4.567	1.84	10.567	6.05	16.567	1.75	22.57
4.600	1.84	10.600	6.05	16.600	1.75	22.60
4.633	1.84	10.633	6.05	16.633	1.75	22.63
4.667	1.84	10.667	6.05	16.667	1.75	22.67
4.700	1.90	10.700	5.58	16.700	1.72	22.70
4.733	1.90	10.733	5.58	16.733	1.72	22.73
4.767	1.90	10.767	5.58	16.767	1.72	22.77
4.800	1.90	10.800	5.58	16.800	1.72	22.80
4.833	1.90	10.833	5.58	16.833	1.72	22.83
4.867	1.96	10.867	5.19	16.867	1.69	22.87
4.900	1.96	10.900	5.19	16.900	1.69	22.90
4.933	1.96	10.933	5.19	16.933	1.69	22.93
4.967	1.96	10.967	5.19	16.967	1.69	22.97
5.000	1.96	11.000	5.19	17.000	1.69	23.00
5.033	2.03	11.033	4.86	17.033	1.66	23.03
5.067	2.03	11.067	4.86	17.067	1.66	23.07
5.100	2.03	11.100	4.86	17.100	1.66	23.10
5.133	2.03	11.133	4.86	17.133	1.66	23.13
5.167	2.03	11.167	4.86	17.167	1.66	23.17
5.200	2.11	11.200	4.57	17.200	1.63	23.20
5.233	2.11	11.233	4.57	17.233	1.63	23.23
5.267	2.11	11.267	4.57	17.267	1.63	23.27
5.300	2.11	11.300	4.57	17.300	1.63	23.30
5.333	2.11	11.333	4.57	17.333	1.63	23.33
5.367	2.19	11.367	4.32	17.367	1.61	23.37
5.400	2.19	11.400	4.32	17.400	1.61	23.40
5.433	2.19	11.433	4.32	17.433	1.61	23.43
5.467	2.19	11.467	4.32	17.467	1.61	23.47
5.500	2.19	11.500	4.32	17.500	1.61	23.50
5.533	2.28	11.533	4.09	17.533	1.58	23.53
5.567	2.28	11.567	4.09	17.567	1.58	23.57
5.600	2.28	11.600	4.09	17.600	1.58	23.60
5.633	2.28	11.633	4.09	17.633	1.58	23.63
5.667	2.28	11.667	4.09	17.667	1.58	23.67
5.700	2.37	11.700	3.89	17.700	1.56	23.70

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	Steales	Ave_Road	Corridor	PrControlled		
5.733	2.37	11.733	3.89	17.733	1.56	23.73
5.767	2.37	11.767	3.89	17.767	1.56	23.77
5.800	2.37	11.800	3.89	17.800	1.56	23.80
5.833	2.37	11.833	3.89	17.833	1.56	23.83
5.867	2.48	11.867	3.72	17.867	1.54	23.87
5.900	2.48	11.900	3.72	17.900	1.54	23.90
5.933	2.48	11.933	3.72	17.933	1.54	23.93
5.967	2.48	11.967	3.72	17.967	1.54	23.97
6.000	2.48	12.000	3.72	18.000	1.54	24.00
Max.Eff.Inten.(mm/hr)=		158.18		74.43		
over (min)		5.00		8.00		
Storage Coeff. (min)=		3.46 (ii)		6.99 (ii)		
Unit Hyd. Tpeak (min)=		4.00		8.00		
Unit Hyd. peak (cms)=		0.31		0.15		
					TOTALS	
PEAK FLOW (cms)=		0.07		0.03		0.098 (iii)
TIME TO PEAK (hrs)=		9.00		9.07		9.00
RUNOFF VOLUME (mm)=		108.01		52.82		77.64
TOTAL RAINFALL (mm)=		110.01		110.01		110.01
RUNOFF COEFFICIENT =		0.98		0.48		0.71

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 71.0 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 (0550)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0240):	0.38	0.098	9.00	77.64
+ ID2= 2 (0540):	6.86	0.585	9.43	63.56
=====				
ID = 3 (0550):	7.24	0.605	9.43	64.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0245)	Area (ha)=	0.12	
ID= 1 DT= 2.0 min	Total Imp(%)=	75.00	Dir. Conn.(%)= 75.00

IMPERVIOUS PERVIOUS (i)

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	Steeles Ave Road	Corridor_PrControlled
Surface Area	(ha)=	0.09 0.03
Dep. Storage	(mm)=	2.00 5.00
Average Slope	(%)=	1.00 2.00
Length	(m)=	28.00 10.00
Mannings n	=	0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

--- TRANSFORMED HETEROGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.05	6.033	2.60	12.833	3.56	18.03	1.51
0.067	1.05	6.067	2.60	12.867	3.56	18.07	1.51
0.100	1.05	6.100	2.60	12.100	3.56	18.10	1.51
0.133	1.05	6.133	2.60	12.133	3.56	18.13	1.51
0.167	1.05	6.167	2.60	12.167	3.56	18.17	1.51
0.200	1.06	6.200	2.73	12.200	3.41	18.20	1.49
0.233	1.06	6.233	2.73	12.233	3.41	18.23	1.49
0.267	1.06	6.267	2.73	12.267	3.41	18.27	1.49
0.300	1.06	6.300	2.73	12.300	3.41	18.30	1.49
0.333	1.06	6.333	2.73	12.333	3.41	18.33	1.49
0.367	1.08	6.367	2.88	12.367	3.28	18.37	1.47
0.400	1.08	6.400	2.88	12.400	3.28	18.40	1.47
0.433	1.08	6.433	2.88	12.433	3.28	18.43	1.47
0.467	1.08	6.467	2.88	12.467	3.28	18.47	1.47
0.500	1.08	6.500	2.88	12.500	3.28	18.50	1.47
0.533	1.09	6.533	3.04	12.533	3.16	18.53	1.45
0.567	1.09	6.567	3.04	12.567	3.16	18.57	1.45
0.600	1.09	6.600	3.04	12.600	3.16	18.60	1.45
0.633	1.09	6.633	3.04	12.633	3.16	18.63	1.45
0.667	1.09	6.667	3.04	12.667	3.16	18.67	1.45
0.700	1.11	6.700	3.24	12.700	3.04	18.70	1.43
0.733	1.11	6.733	3.24	12.733	3.04	18.73	1.43
0.767	1.11	6.767	3.24	12.767	3.04	18.77	1.43
0.800	1.11	6.800	3.24	12.800	3.04	18.80	1.43
0.833	1.11	6.833	3.24	12.833	3.04	18.83	1.43
0.867	1.13	6.867	3.46	12.867	2.94	18.87	1.41
0.900	1.13	6.900	3.46	12.900	2.94	18.90	1.41
0.933	1.13	6.933	3.46	12.933	2.94	18.93	1.41
0.967	1.13	6.967	3.46	12.967	2.94	18.97	1.41
1.000	1.13	7.000	3.46	13.000	2.94	19.00	1.41
1.033	1.15	7.033	3.72	13.033	2.85	19.03	1.40
1.067	1.15	7.067	3.72	13.067	2.85	19.07	1.40
1.100	1.15	7.100	3.72	13.100	2.85	19.10	1.40
1.133	1.15	7.133	3.72	13.133	2.85	19.13	1.40
1.167	1.15	7.167	3.72	13.167	2.85	19.17	1.40
1.200	1.17	7.200	4.03	13.200	2.76	19.20	1.38

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Steelcase Ave. Road Corridor, PRControlled							
1.233	1.17	7.233	4.03	13.233	2.76	19.23	1.38
1.267	1.17	7.267	4.03	13.267	2.76	19.27	1.38
1.300	1.17	7.300	4.03	13.300	2.76	19.30	1.38
1.333	1.17	7.333	4.03	13.333	2.76	19.33	1.38
1.367	1.19	7.367	4.40	13.367	2.67	19.37	1.36
1.400	1.19	7.400	4.40	13.400	2.67	19.40	1.36
1.433	1.19	7.433	4.40	13.433	2.67	19.43	1.36
1.467	1.19	7.467	4.40	13.467	2.67	19.47	1.36
1.500	1.19	7.500	4.40	13.500	2.67	19.50	1.36
1.533	1.21	7.533	4.86	13.533	2.60	19.53	1.34
1.567	1.21	7.567	4.86	13.567	2.60	19.57	1.34
1.600	1.21	7.600	4.86	13.600	2.60	19.60	1.34
1.633	1.21	7.633	4.86	13.633	2.60	19.63	1.34
1.667	1.21	7.667	4.86	13.667	2.60	19.67	1.34
1.700	1.23	7.700	5.45	13.700	2.52	19.70	1.33
1.733	1.23	7.733	5.45	13.733	2.52	19.73	1.33
1.767	1.23	7.767	5.45	13.767	2.52	19.77	1.33
1.800	1.23	7.800	5.45	13.800	2.52	19.80	1.33
1.833	1.23	7.833	5.45	13.833	2.52	19.83	1.33
1.867	1.26	7.867	6.23	13.867	2.46	19.87	1.31
1.900	1.26	7.900	6.23	13.900	2.46	19.90	1.31
1.933	1.26	7.933	6.23	13.933	2.46	19.93	1.31
1.967	1.26	7.967	6.23	13.967	2.46	19.97	1.31
2.000	1.26	8.000	6.23	14.000	2.46	20.00	1.31
2.033	1.28	8.033	7.32	14.033	2.39	20.03	1.30
2.067	1.28	8.067	7.32	14.067	2.39	20.07	1.30
2.100	1.28	8.100	7.32	14.100	2.39	20.10	1.30
2.133	1.28	8.133	7.32	14.133	2.39	20.13	1.30
2.167	1.28	8.167	7.32	14.167	2.39	20.17	1.30
2.200	1.31	8.200	8.96	14.200	2.33	20.20	1.28
2.233	1.31	8.233	8.96	14.233	2.33	20.23	1.28
2.267	1.31	8.267	8.96	14.267	2.33	20.27	1.28
2.300	1.31	8.300	8.96	14.300	2.33	20.30	1.28
2.333	1.31	8.333	8.96	14.333	2.33	20.33	1.28
2.367	1.33	8.367	11.74	14.367	2.28	20.37	1.27
2.400	1.33	8.400	11.74	14.400	2.28	20.40	1.27
2.433	1.33	8.433	11.74	14.433	2.28	20.43	1.27
2.467	1.33	8.467	11.74	14.467	2.28	20.47	1.27
2.500	1.33	8.500	11.74	14.500	2.28	20.50	1.27
2.533	1.36	8.533	17.62	14.533	2.22	20.53	1.25
2.567	1.36	8.567	17.62	14.567	2.22	20.57	1.25
2.600	1.36	8.600	17.62	14.600	2.22	20.60	1.25
2.633	1.36	8.633	17.62	14.633	2.22	20.63	1.25
2.667	1.36	8.667	17.62	14.667	2.22	20.67	1.25
2.700	1.39	8.700	39.83	14.700	2.17	20.70	1.24
2.733	1.39	8.733	39.83	14.733	2.17	20.73	1.24
2.767	1.39	8.767	39.83	14.767	2.17	20.77	1.24
2.800	1.39	8.800	39.83	14.800	2.17	20.80	1.24

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Steeles Ave_Road Corridor_PrControlled								
2.833	1.39	8.833	39.84	14.833	2.17	20.83	1.24	
2.867	1.42	8.867	158.18	14.867	2.12	20.87	1.22	
2.900	1.42	8.900	158.18	14.900	2.12	20.90	1.22	
2.933	1.42	8.933	158.18	14.933	2.12	20.93	1.22	
2.967	1.42	8.967	158.18	14.967	2.12	20.97	1.22	
3.000	1.42	9.000	158.16	15.000	2.12	21.00	1.22	
3.033	1.45	9.033	48.36	15.033	2.08	21.03	1.21	
3.067	1.45	9.067	48.36	15.067	2.08	21.07	1.21	
3.100	1.45	9.100	48.36	15.100	2.08	21.10	1.21	
3.133	1.45	9.133	48.36	15.133	2.08	21.13	1.21	
3.167	1.45	9.167	48.35	15.167	2.08	21.17	1.21	
3.200	1.49	9.200	25.22	15.200	2.03	21.20	1.20	
3.233	1.49	9.233	25.22	15.233	2.03	21.23	1.20	
3.267	1.49	9.267	25.22	15.267	2.03	21.27	1.20	
3.300	1.49	9.300	25.22	15.300	2.03	21.30	1.20	
3.333	1.49	9.333	25.22	15.333	2.03	21.33	1.20	
3.367	1.52	9.367	17.36	15.367	1.99	21.37	1.19	
3.400	1.52	9.400	17.36	15.400	1.99	21.40	1.19	
3.433	1.52	9.433	17.36	15.433	1.99	21.43	1.19	
3.467	1.52	9.467	17.36	15.467	1.99	21.47	1.19	
3.500	1.52	9.500	17.36	15.500	1.99	21.50	1.19	
3.533	1.56	9.533	13.39	15.533	1.95	21.53	1.17	
3.567	1.56	9.567	13.39	15.567	1.95	21.57	1.17	
3.600	1.56	9.600	13.39	15.600	1.95	21.60	1.17	
3.633	1.56	9.633	13.39	15.633	1.95	21.63	1.17	
3.667	1.56	9.667	13.39	15.667	1.95	21.67	1.17	
3.700	1.60	9.700	10.98	15.700	1.91	21.70	1.16	
3.733	1.60	9.733	10.98	15.733	1.91	21.73	1.16	
3.767	1.60	9.767	10.98	15.767	1.91	21.77	1.16	
3.800	1.60	9.800	10.98	15.800	1.91	21.80	1.16	
3.833	1.60	9.833	10.98	15.833	1.91	21.83	1.16	
3.867	1.64	9.867	9.36	15.867	1.88	21.87	1.15	
3.900	1.64	9.900	9.36	15.900	1.88	21.90	1.15	
3.933	1.64	9.933	9.36	15.933	1.88	21.93	1.15	
3.967	1.64	9.967	9.36	15.967	1.88	21.97	1.15	
4.000	1.64	10.000	9.36	16.000	1.88	22.00	1.15	
4.033	1.69	10.033	8.19	16.033	1.84	22.03	1.14	
4.067	1.69	10.067	8.19	16.067	1.84	22.07	1.14	
4.100	1.69	10.100	8.19	16.100	1.84	22.10	1.14	
4.133	1.69	10.133	8.19	16.133	1.84	22.13	1.14	
4.167	1.69	10.167	8.19	16.167	1.84	22.17	1.14	
4.200	1.74	10.200	7.31	16.200	1.81	22.20	1.13	
4.233	1.74	10.233	7.31	16.233	1.81	22.23	1.13	
4.267	1.74	10.267	7.31	16.267	1.81	22.27	1.13	
4.300	1.74	10.300	7.31	16.300	1.81	22.30	1.13	
4.333	1.74	10.333	7.31	16.333	1.81	22.33	1.13	
4.367	1.79	10.367	6.61	16.367	1.78	22.37	1.12	
4.400	1.79	10.400	6.61	16.400	1.78	22.40	1.12	

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Steeles Ave_Road Corridor_PrControlled								
4.433	1.79	10.433	6.61	16.433	1.78	22.43	1.12	
4.467	1.79	10.467	6.61	16.467	1.78	22.47	1.12	
4.500	1.79	10.500	6.61	16.500	1.78	22.50	1.12	
4.533	1.84	10.533	6.05	16.533	1.75	22.53	1.10	
4.567	1.84	10.567	6.05	16.567	1.75	22.57	1.10	
4.600	1.84	10.600	6.05	16.600	1.75	22.60	1.10	
4.633	1.84	10.633	6.05	16.633	1.75	22.63	1.10	
4.667	1.84	10.667	6.05	16.667	1.75	22.67	1.10	
4.700	1.90	10.700	5.58	16.700	1.72	22.70	1.09	
4.733	1.90	10.733	5.58	16.733	1.72	22.73	1.09	
4.767	1.90	10.767	5.58	16.767	1.72	22.77	1.09	
4.800	1.90	10.800	5.58	16.800	1.72	22.80	1.09	
4.833	1.90	10.833	5.58	16.833	1.72	22.83	1.09	
4.867	1.96	10.867	5.19	16.867	1.69	22.87	1.08	
4.900	1.96	10.900	5.19	16.900	1.69	22.90	1.08	
4.933	1.96	10.933	5.19	16.933	1.69	22.93	1.08	
4.967	1.96	10.967	5.19	16.967	1.69	22.97	1.08	
5.000	1.96	11.000	5.19	17.000	1.69	23.00	1.08	
5.033	2.03	11.033	4.86	17.033	1.66	23.03	1.07	
5.067	2.03	11.067	4.86	17.067	1.66	23.07	1.07	
5.100	2.03	11.100	4.86	17.100	1.66	23.10	1.07	
5.133	2.03	11.133	4.86	17.133	1.66	23.13	1.07	
5.167	2.03	11.167	4.86	17.167	1.66	23.17	1.07	
5.200	2.11	11.200	4.57	17.200	1.63	23.20	1.06	
5.233	2.11	11.233	4.57	17.233	1.63	23.23	1.06	
5.267	2.11	11.267	4.57	17.267	1.63	23.27	1.06	
5.300	2.11	11.300	4.57	17.300	1.63	23.30	1.06	
5.333	2.11	11.333	4.57	17.333	1.63	23.33	1.06	
5.367	2.19	11.367	4.32	17.367	1.61	23.37	1.05	
5.400	2.19	11.400	4.32	17.400	1.61	23.40	1.05	
5.433	2.19	11.433	4.32	17.433	1.61	23.43	1.05	
5.467	2.19	11.467	4.32	17.467	1.61	23.47	1.05	
5.500	2.19	11.500	4.32	17.500	1.61	23.50	1.05	
5.533	2.28	11.533	4.09	17.533	1.58	23.53	1.05	
5.567	2.28	11.567	4.09	17.567	1.58	23.57	1.05	
5.600	2.28	11.600	4.09	17.600	1.58	23.60	1.05	
5.633	2.28	11.633	4.09	17.633	1.58	23.63	1.05	
5.667	2.28	11.667	4.09	17.667	1.58	23.67	1.05	
5.700	2.37	11.700	3.89	17.700	1.56	23.70	1.04	
5.733	2.37	11.733	3.89	17.733	1.56	23.73	1.04	
5.767	2.37	11.767	3.89	17.767	1.56	23.77	1.04	
5.800	2.37	11.800	3.89	17.800	1.56	23.80	1.04	
5.833	2.37	11.833	3.89	17.833	1.56	23.83	1.04	
5.867	2.48	11.867	3.72	17.867	1.54	23.87	1.03	
5.900	2.48	11.900	3.72	17.900	1.54	23.90	1.03	
5.933	2.48	11.933	3.72	17.933	1.54	23.93	1.03	
5.967	2.48	11.967	3.72	17.967	1.54	23.97	1.03	
6.000	2.48	12.000	3.72	18.000	1.54	24.00	1.03	

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Steeles Ave_Road Corridor_PrControlled

Max.Eff.Inten.(mm/hr)=	158.18	74.43	
over (min)	5.00	4.00	
Storage Coeff. (min)=	0.99 (ii)	2.64 (ii)	
Unit Hyd. Tpeak (min)=	4.00	4.00	
Unit Hyd. peak (cms)=	0.51	0.36	
			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.046 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	108.01	52.82	94.20
TOTAL RAINFALL (mm)=	110.01	110.01	110.01
RUNOFF COEFFICIENT =	0.98	0.48	0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0560)					
1 + 2 = 3					
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0245):		0.12	0.046	9.00	94.20
+ ID2= 2 (0550):		7.24	0.605	9.43	64.30
=====					
ID = 3 (0560):		7.36	0.610	9.43	64.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION:Run 13 **

READ STORM		Filename: C:\Users\talal.antar\AppData\Local\Temp\8dbe9d67-4e73-438d-a649-484e75a477a1\13b4830f			
Ptotal=122.40 mm		Comments: Milton100			

TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	1.18	6.17	2.92	12.17	3.99
0.33	1.20	6.33	3.07	12.33	3.83
					18.33
					1.71
					1.68

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Steeles Ave_Road Corridor_PrControlled									
0.50	1.22	6.50	3.23	12.50	3.68	18.50	1.66		
0.67	1.24	6.67	3.42	12.67	3.54	18.67	1.64		
0.83	1.26	6.83	3.63	12.83	3.42	18.83	1.62		
1.00	1.28	7.00	3.88	13.00	3.30	19.00	1.59		
1.17	1.30	7.17	4.17	13.17	3.20	19.17	1.57		
1.33	1.32	7.33	4.51	13.33	3.10	19.33	1.55		
1.50	1.34	7.50	4.93	13.50	3.01	19.50	1.53		
1.67	1.37	7.67	5.44	13.67	2.92	19.67	1.52		
1.83	1.39	7.83	6.10	13.83	2.84	19.83	1.50		
2.00	1.42	8.00	6.97	14.00	2.76	20.00	1.48		
2.17	1.45	8.17	8.17	14.17	2.69	20.17	1.46		
2.33	1.47	8.33	9.99	14.33	2.62	20.33	1.45		
2.50	1.50	8.50	13.06	14.50	2.56	20.50	1.43		
2.67	1.53	8.67	19.52	14.67	2.50	20.67	1.41		
2.83	1.57	8.83	43.87	14.83	2.44	20.83	1.40		
3.00	1.60	9.00	174.10	15.00	2.39	21.00	1.38		
3.17	1.64	9.17	53.21	15.17	2.34	21.17	1.37		
3.33	1.68	9.33	27.87	15.33	2.29	21.33	1.35		
3.50	1.72	9.50	19.24	15.50	2.24	21.50	1.34		
3.67	1.76	9.67	14.87	15.67	2.20	21.67	1.32		
3.83	1.80	9.83	12.22	15.83	2.15	21.83	1.31		
4.00	1.85	10.00	10.43	16.00	2.11	22.00	1.30		
4.17	1.90	10.17	9.14	16.17	2.07	22.17	1.28		
4.33	1.96	10.33	8.16	16.33	2.04	22.33	1.27		
4.50	2.01	10.50	7.39	16.50	2.00	22.50	1.26		
4.67	2.07	10.67	6.76	16.67	1.97	22.67	1.25		
4.83	2.14	10.83	6.25	16.83	1.93	22.83	1.24		
5.00	2.21	11.00	5.81	17.00	1.90	23.00	1.22		
5.17	2.29	11.17	5.44	17.17	1.87	23.17	1.21		
5.33	2.37	11.33	5.12	17.33	1.84	23.33	1.20		
5.50	2.46	11.50	4.84	17.50	1.81	23.50	1.19		
5.67	2.56	11.67	4.59	17.67	1.79	23.67	1.18		
5.83	2.67	11.83	4.37	17.83	1.76	23.83	1.17		
6.00	2.79	12.00	4.17	18.00	1.73	24.00	1.16		

CALIB

NASHYD (1021)

ID= 1 DT= 2.0 min

Area (ha)= 8.51

Ia (mm)= 5.60

U.H. Tp(hrs)= 0.55

Curve Number (CN)= 82.0

of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TRANSFORMED HYETOGRAPH

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
------	------	------	------	------	------	------	------

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		Steeles	Ave_Road	Corridor_PrControlled			Steeles	Ave_Road	Corridor_PrControlled		
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71				
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71				
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71				
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71				
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71				
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68				
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68				
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68				
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68				
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68				
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66				
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66				
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66				
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66				
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66				
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64				
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64				
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64				
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64				
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64				
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62				
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62				
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62				
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62				
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62				
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59				
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59				
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59				
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59				
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59				
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57				
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57				
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57				
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57				
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57				
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55				
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55				
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55				
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55				
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55				
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53				
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53				
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53				
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53				
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53				
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52				
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52				

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		Steeles	Ave_Road	Corridor_PrControlled			Steeles	Ave_Road	Corridor_PrControlled		
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52				
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52				
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52				
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50				
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50				
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50				
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50				
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50				
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48				
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48				
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48				
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48				
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48				
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46				
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46				
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46				
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46				
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46				
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45				
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45				
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45				
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45				
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45				
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43				
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43				
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43				
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43				
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43				
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41				
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41				
2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41				
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41				
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41				
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40				
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40				
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40				
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40				
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40				
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38				
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38				
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38				
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38				
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38				
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37				
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37				
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37				
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37				
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37				

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	Steeles	Ave Road	Corridor	PrControlled			
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24

Steeles Ave_Road Corridor_PrControlled

CALIB
STANDHYD (0205)
ID= 1 DT= 2.0 min

Area (ha)= 0.55
Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00

IMPERVIOUS PVIOUS (i)
Surface Area (ha)= 0.46 0.09
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 130.00 5.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59

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1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41

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2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28

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4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17

	Steeles	Ave_Road	Corridor_PrControlled				
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)= 174.10 87.90
over (min) 5.00 4.00
Storage Coeff. (min)= 2.40 (ii) 3.26 (ii)
Unit Hyd. Tpeak (min)= 4.00 4.00
Unit Hyd. peak (cms)= 0.37 0.32

TOTALS
PEAK FLOW (cms)= 0.22 0.02 0.239 (iii)
TIME TO PEAK (hrs)= 9.00 9.00 9.00
RUNOFF VOLUME (mm)= 120.40 62.32 110.53
TOTAL RAINFALL (mm)= 122.40 122.40 122.40
RUNOFF COEFFICIENT = 0.98 0.51 0.90

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0500)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1021):	8.51	0.808	9.57	79.06
+ ID2= 2 (0205):	0.55	0.239	9.00	110.53
ID = 3 (0500):	9.06	0.833	9.53	80.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	1.24
STANDHYD (0200)	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00
ID= 1 DT= 2.0 min			

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.07 0.17
Dep. Storage (mm)= 2.00 5.00

	Steeles	Ave_Road	Corridor_PrControlled
Average Slope (%)=	1.00	2.00	
Length (m)=	250.00	5.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.033	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.067	1.71
0.100	1.18	6.100	2.92	12.100	3.99	18.100	1.71
0.133	1.18	6.133	2.92	12.133	3.99	18.133	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.167	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.200	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.233	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.267	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.300	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.333	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.367	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.400	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.433	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.467	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.500	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.533	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.567	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.600	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.633	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.667	1.64
0.700	1.26	6.700	3.63	12.700	3.42	18.700	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.733	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.767	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.800	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.833	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.867	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.900	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.933	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.967	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.000	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.033	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.067	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.100	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.133	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.167	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.200	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.233	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.267	1.55

Steeles	Ave_Road	Corridor_PrControlled				
1.300	1.32	7.300	4.51	13.300	3.10	19.300
1.333	1.32	7.333	4.51	13.333	3.10	19.333
1.367	1.34	7.367	4.93	13.367	3.01	19.367
1.400	1.34	7.400	4.93	13.400	3.01	19.400
1.433	1.34	7.433	4.93	13.433	3.01	19.433
1.467	1.34	7.467	4.93	13.467	3.01	19.467
1.500	1.34	7.500	4.93	13.500	3.01	19.500
1.533	1.37	7.533	5.44	13.533	2.92	19.533
1.567	1.37	7.567	5.44	13.567	2.92	19.567
1.600	1.37	7.600	5.44	13.600	2.92	19.600
1.633	1.37	7.633	5.44	13.633	2.92	19.633
1.667	1.37	7.667	5.44	13.667	2.92	19.667
1.700	1.39	7.700	6.10	13.700	2.84	19.700
1.733	1.39	7.733	6.10	13.733	2.84	19.733
1.767	1.39	7.767	6.10	13.767	2.84	19.767
1.800	1.39	7.800	6.10	13.800	2.84	19.800
1.833	1.39	7.833	6.10	13.833	2.84	19.833
1.867	1.42	7.867	6.97	13.867	2.76	19.867
1.900	1.42	7.900	6.97	13.900	2.76	19.900
1.933	1.42	7.933	6.97	13.933	2.76	19.933
1.967	1.42	7.967	6.97	13.967	2.76	19.967
2.000	1.42	8.000	6.97	14.000	2.76	20.000
2.033	1.45	8.033	8.17	14.033	2.69	20.033
2.067	1.45	8.067	8.17	14.067	2.69	20.067
2.100	1.45	8.100	8.17	14.100	2.69	20.100
2.133	1.45	8.133	8.17	14.133	2.69	20.133
2.167	1.45	8.167	8.17	14.167	2.69	20.167
2.200	1.47	8.200	9.99	14.200	2.62	20.200
2.233	1.47	8.233	9.99	14.233	2.62	20.233
2.267	1.47	8.267	9.99	14.267	2.62	20.267
2.300	1.47	8.300	9.99	14.300	2.62	20.300
2.333	1.47	8.333	9.99	14.333	2.62	20.333
2.367	1.50	8.367	13.06	14.367	2.56	20.367
2.400	1.50	8.400	13.06	14.400	2.56	20.400
2.433	1.50	8.433	13.06	14.433	2.56	20.433
2.467	1.50	8.467	13.06	14.467	2.56	20.467
2.500	1.50	8.500	13.06	14.500	2.56	20.500
2.533	1.53	8.533	19.52	14.533	2.50	20.533
2.567	1.53	8.567	19.52	14.567	2.50	20.567
2.600	1.53	8.600	19.52	14.600	2.50	20.600
2.633	1.53	8.633	19.52	14.633	2.50	20.633
2.667	1.53	8.667	19.52	14.667	2.50	20.667
2.700	1.57	8.700	43.87	14.700	2.44	20.700
2.733	1.57	8.733	43.87	14.733	2.44	20.733
2.767	1.57	8.767	43.87	14.767	2.44	20.767
2.800	1.57	8.800	43.87	14.800	2.44	20.800
2.833	1.57	8.833	43.89	14.833	2.44	20.833
2.867	1.60	8.867	174.10	14.867	2.39	20.867

Steeles Ave Road Corridor PrControlled							
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26

Steeles Ave_Road Corridor_PrControlled							
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)= 174.10 92.93

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Steeles Ave_Road Corridor_PrControlled			
over (min)	5.00	6.00	
Storage Coeff. (min)=	3.55 (ii)	4.33 (ii)	
Unit Hyd. Tpeak (min)=	4.00	6.00	
Unit Hyd. peak (cms)=	0.30	0.23	
PEAK FLOW (cms)=	0.48	0.04	*TOTALS* (iii)
TIME TO PEAK (hrs)=	9.00	9.03	9.00
RUNOFF VOLUME (mm)=	120.40	65.21	112.67
TOTAL RAINFALL (mm)=	122.40	122.40	122.40
RUNOFF COEFFICIENT =	0.98	0.53	0.92

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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.

RESERVOIR (0700)			
IN= 2---> OUT= 1			
DT= 2.0 min			
OVERFLOW IS OFF			
OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1046	0.0782
0.0306	0.0325	0.2016	0.1380
AREA QPEAK TPEAK R.V.			
(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0200)	1.240	0.520	9.00
OUTFLOW: ID= 1 (0700)	1.240	0.078	9.40
PEAK FLOW REDUCTION [Qout/Qin](%)= 14.91			
TIME SHIFT OF PEAK FLOW (min)= 24.00			
MAXIMUM STORAGE USED (ha.m.)= 0.0615			

ADD HYD (0510)			
1 + 2 = 3			
ID1= 1 (0500):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
ID2= 2 (0700):	9.06	0.833	9.53
	1.24	0.078	9.40
ID = 3 (0510):	10.30	0.910	9.53
			84.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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Steeles Ave_Road Corridor_PrControlled

CALIB			
STANDHYD (0210)			
ID= 1 DT= 5.0 min			
Area	(ha)=	2.84	
Total Imp	(%)=	60.00	Dir. Conn.(%)= 60.00
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.70	1.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	460.00	15.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.18	6.083	2.92	12.083	3.99	18.08	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.250	1.20	6.250	3.07	12.250	3.83	18.25	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.417	1.22	6.417	3.23	12.417	3.68	18.42	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.583	1.24	6.583	3.42	12.583	3.54	18.58	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.750	1.26	6.750	3.63	12.750	3.42	18.75	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.917	1.28	6.917	3.88	12.917	3.30	18.92	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.083	1.30	7.083	4.17	13.083	3.20	19.08	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.250	1.32	7.250	4.51	13.250	3.10	19.25	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.417	1.34	7.417	4.93	13.417	3.01	19.42	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.583	1.37	7.583	5.44	13.583	2.92	19.58	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.750	1.39	7.750	6.10	13.750	2.84	19.75	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.917	1.42	7.917	6.97	13.917	2.76	19.92	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.083	1.45	8.083	8.17	14.083	2.69	20.08	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.250	1.47	8.250	9.99	14.250	2.62	20.25	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.417	1.50	8.417	13.06	14.417	2.56	20.42	1.43

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Steeles Ave_Road Corridor_PrControlled							
1.50	8.500	13.06	14.500	2.56	20.50	1.43	
1.53	8.583	19.52	14.583	2.50	20.58	1.41	
1.53	8.667	19.52	14.667	2.50	20.67	1.41	
1.57	8.750	43.87	14.750	2.44	20.75	1.40	
1.57	8.833	43.87	14.833	2.44	20.83	1.40	
1.60	8.917	174.10	14.917	2.39	20.92	1.38	
1.60	9.000	174.10	15.000	2.39	21.00	1.38	
1.64	9.083	53.21	15.083	2.34	21.08	1.37	
1.64	9.167	53.21	15.167	2.34	21.17	1.37	
1.68	9.250	27.87	15.250	2.29	21.25	1.35	
1.68	9.333	27.87	15.333	2.29	21.33	1.35	
1.72	9.417	19.24	15.417	2.24	21.42	1.34	
1.72	9.500	19.24	15.500	2.24	21.50	1.34	
1.76	9.583	14.87	15.583	2.20	21.58	1.32	
1.76	9.667	14.87	15.667	2.20	21.67	1.32	
1.80	9.750	12.22	15.750	2.15	21.75	1.31	
1.80	9.833	12.22	15.833	2.15	21.83	1.31	
1.85	9.917	10.43	15.917	2.11	21.92	1.30	
1.85	10.000	10.43	16.000	2.11	22.00	1.30	
1.90	10.083	9.14	16.083	2.07	22.08	1.28	
1.90	10.167	9.14	16.167	2.07	22.17	1.28	
1.96	10.250	8.16	16.250	2.04	22.25	1.27	
1.96	10.333	8.16	16.333	2.04	22.33	1.27	
2.01	10.417	7.39	16.417	2.00	22.42	1.26	
2.01	10.500	7.39	16.500	2.00	22.50	1.26	
2.07	10.583	6.76	16.583	1.97	22.58	1.25	
2.07	10.667	6.76	16.667	1.97	22.67	1.25	
2.14	10.750	6.25	16.750	1.93	22.75	1.24	
2.14	10.833	6.25	16.833	1.93	22.83	1.24	
2.21	10.917	5.81	16.917	1.90	22.92	1.22	
2.21	11.000	5.81	17.000	1.90	23.00	1.22	
2.29	11.083	5.44	17.083	1.87	23.08	1.21	
2.29	11.167	5.44	17.167	1.87	23.17	1.21	
2.37	11.250	5.12	17.250	1.84	23.25	1.20	
2.37	11.333	5.12	17.333	1.84	23.33	1.20	
2.46	11.417	4.84	17.417	1.81	23.42	1.19	
2.46	11.500	4.84	17.500	1.81	23.50	1.19	
2.56	11.583	4.59	17.583	1.79	23.58	1.18	
2.56	11.667	4.59	17.667	1.79	23.67	1.18	
2.67	11.750	4.37	17.750	1.76	23.75	1.17	
2.67	11.833	4.37	17.833	1.76	23.83	1.17	
2.79	11.917	4.17	17.917	1.73	23.92	1.16	
2.79	12.000	4.17	18.000	1.73	24.00	1.16	

Steeles Ave_Road Corridor_PrControlled
Unit Hyd. peak (cms)= 0.21 0.13
PEAK FLOW (cms)= 0.73 0.20 0.906 (iii)
TIME TO PEAK (hrs)= 9.00 9.08 9.00
RUNOFF VOLUME (mm)= 120.40 62.33 97.17
TOTAL RAINFALL (mm)= 122.40 122.40 122.40
RUNOFF COEFFICIENT = 0.98 0.51 0.79

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0215)
ID= 1 DT= 2.0 min

Area (ha)= 0.52
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.45 0.07
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 59.00 10.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.033 1.18 6.033 2.92 12.033 3.99 18.03 1.71
0.067 1.18 6.067 2.92 12.067 3.99 18.07 1.71
0.100 1.18 6.100 2.92 12.100 3.99 18.10 1.71
0.133 1.18 6.133 2.92 12.133 3.99 18.13 1.71
0.167 1.18 6.167 2.92 12.167 3.99 18.17 1.71
0.200 1.20 6.200 3.07 12.200 3.83 18.20 1.68
0.233 1.20 6.233 3.07 12.233 3.83 18.23 1.68
0.267 1.20 6.267 3.07 12.267 3.83 18.27 1.68
0.300 1.20 6.300 3.07 12.300 3.83 18.30 1.68
0.333 1.20 6.333 3.07 12.333 3.83 18.33 1.68
0.367 1.22 6.367 3.23 12.367 3.68 18.37 1.66
0.400 1.22 6.400 3.23 12.400 3.68 18.40 1.66
0.433 1.22 6.433 3.23 12.433 3.68 18.43 1.66
0.467 1.22 6.467 3.23 12.467 3.68 18.47 1.66

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Steeles Ave_Road Corridor_PrControlled
0.500 1.22 6.500 3.23 12.500 3.68 18.50 1.66
0.533 1.24 6.533 3.42 12.533 3.54 18.53 1.64
0.567 1.24 6.567 3.42 12.567 3.54 18.57 1.64
0.600 1.24 6.600 3.42 12.600 3.54 18.60 1.64
0.633 1.24 6.633 3.42 12.633 3.54 18.63 1.64
0.667 1.24 6.667 3.42 12.667 3.54 18.67 1.64
0.700 1.26 6.700 3.63 12.700 3.42 18.70 1.62
0.733 1.26 6.733 3.63 12.733 3.42 18.73 1.62
0.767 1.26 6.767 3.63 12.767 3.42 18.77 1.62
0.800 1.26 6.800 3.63 12.800 3.42 18.80 1.62
0.833 1.26 6.833 3.63 12.833 3.42 18.83 1.62
0.867 1.28 6.867 3.88 12.867 3.30 18.87 1.59
0.900 1.28 6.900 3.88 12.900 3.30 18.90 1.59
0.933 1.28 6.933 3.88 12.933 3.30 18.93 1.59
0.967 1.28 6.967 3.88 12.967 3.30 18.97 1.59
1.000 1.28 7.000 3.88 13.000 3.30 19.00 1.59
1.033 1.30 7.033 4.17 13.033 3.20 19.03 1.57
1.067 1.30 7.067 4.17 13.067 3.20 19.07 1.57
1.100 1.30 7.100 4.17 13.100 3.20 19.10 1.57
1.133 1.30 7.133 4.17 13.133 3.20 19.13 1.57
1.167 1.30 7.167 4.17 13.167 3.20 19.17 1.57
1.200 1.32 7.200 4.51 13.200 3.10 19.20 1.55
1.233 1.32 7.233 4.51 13.233 3.10 19.23 1.55
1.267 1.32 7.267 4.51 13.267 3.10 19.27 1.55
1.300 1.32 7.300 4.51 13.300 3.10 19.30 1.55
1.333 1.32 7.333 4.51 13.333 3.10 19.33 1.55
1.367 1.34 7.367 4.93 13.367 3.01 19.37 1.53
1.400 1.34 7.400 4.93 13.400 3.01 19.40 1.53
1.433 1.34 7.433 4.93 13.433 3.01 19.43 1.53
1.467 1.34 7.467 4.93 13.467 3.01 19.47 1.53
1.500 1.34 7.500 4.93 13.500 3.01 19.50 1.53
1.533 1.37 7.533 5.44 13.533 2.92 19.53 1.52
1.567 1.37 7.567 5.44 13.567 2.92 19.57 1.52
1.600 1.37 7.600 5.44 13.600 2.92 19.60 1.52
1.633 1.37 7.633 5.44 13.633 2.92 19.63 1.52
1.667 1.37 7.667 5.44 13.667 2.92 19.67 1.52
1.700 1.39 7.700 6.10 13.700 2.84 19.70 1.50
1.733 1.39 7.733 6.10 13.733 2.84 19.73 1.50
1.767 1.39 7.767 6.10 13.767 2.84 19.77 1.50
1.800 1.39 7.800 6.10 13.800 2.84 19.80 1.50
1.833 1.39 7.833 6.10 13.833 2.84 19.83 1.50
1.867 1.42 7.867 6.97 13.867 2.76 19.87 1.48
1.900 1.42 7.900 6.97 13.900 2.76 19.90 1.48
1.933 1.42 7.933 6.97 13.933 2.76 19.93 1.48
1.967 1.42 7.967 6.97 13.967 2.76 19.97 1.48
2.000 1.42 8.000 6.97 14.000 2.76 20.00 1.48
2.033 1.45 8.033 8.17 14.033 2.69 20.03 1.46
2.067 1.45 8.067 8.17 14.067 2.69 20.07 1.46

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Steeles Ave_Road Corridor_PrControlled
2.100 1.45 8.100 8.17 14.100 2.69 20.10 1.46
2.133 1.45 8.133 8.17 14.133 2.69 20.13 1.46
2.167 1.45 8.167 8.17 14.167 2.69 20.17 1.46
2.200 1.47 8.200 9.99 14.200 2.62 20.20 1.45
2.233 1.47 8.233 9.99 14.233 2.62 20.23 1.45
2.267 1.47 8.267 9.99 14.267 2.62 20.27 1.45
2.300 1.47 8.300 9.99 14.300 2.62 20.30 1.45
2.333 1.47 8.333 9.99 14.333 2.62 20.33 1.45
2.367 1.50 8.367 13.06 14.367 2.56 20.37 1.43
2.400 1.50 8.400 13.06 14.400 2.56 20.40 1.43
2.433 1.50 8.433 13.06 14.433 2.56 20.43 1.43
2.467 1.50 8.467 13.06 14.467 2.56 20.47 1.43
2.500 1.50 8.500 13.06 14.500 2.56 20.50 1.43
2.533 1.53 8.533 19.52 14.533 2.50 20.53 1.41
2.567 1.53 8.567 19.52 14.567 2.50 20.57 1.41
2.600 1.53 8.600 19.52 14.600 2.50 20.60 1.41
2.633 1.53 8.633 19.52 14.633 2.50 20.63 1.41
2.667 1.53 8.667 19.52 14.667 2.50 20.67 1.41
2.700 1.57 8.700 43.87 14.700 2.44 20.70 1.40
2.733 1.57 8.733 43.87 14.733 2.44 20.73 1.40
2.767 1.57 8.767 43.87 14.767 2.44 20.77 1.40
2.800 1.57 8.800 43.87 14.800 2.44 20.80 1.40
2.833 1.57 8.833 43.89 14.833 2.44 20.83 1.40
2.867 1.60 8.867 174.10 14.867 2.39 20.87 1.38
2.900 1.60 8.900 174.10 14.900 2.39 20.90 1.38
2.933 1.60 8.933 174.10 14.933 2.39 20.93 1.38
2.967 1.60 8.967 174.10 14.967 2.39 20.97 1.38
3.000 1.60 9.000 174.08 15.000 2.39 21.00 1.38
3.033 1.64 9.033 53.21 15.033 2.34 21.03 1.37
3.067 1.64 9.067 53.21 15.067 2.34 21.07 1.37
3.100 1.64 9.100 53.21 15.100 2.34 21.10 1.37
3.133 1.64 9.133 53.21 15.133 2.34 21.13 1.37
3.167 1.64 9.167 53.20 15.167 2.34 21.17 1.37
3.200 1.68 9.200 27.87 15.200 2.29 21.20 1.35
3.233 1.68 9.233 27.87 15.233 2.29 21.23 1.35
3.267 1.68 9.267 27.87 15.267 2.29 21.27 1.35
3.300 1.68 9.300 27.87 15.300 2.29 21.30 1.35
3.333 1.68 9.333 27.87 15.333 2.29 21.33 1.35
3.367 1.72 9.367 19.24 15.367 2.24 21.37 1.34
3.400 1.72 9.400 19.24 15.400 2.24 21.40 1.34
3.433 1.72 9.433 19.24 15.433 2.24 21.43 1.34
3.467 1.72 9.467 19.24 15.467 2.24 21.47 1.34
3.500 1.72 9.500 19.24 15.500 2.24 21.50 1.34
3.533 1.76 9.533 14.87 15.533 2.20 21.53 1.32
3.567 1.76 9.567 14.87 15.567 2.20 21.57 1.32
3.600 1.76 9.600 14.87 15.600 2.20 21.60 1.32
3.633 1.76 9.633 14.87 15.633 2.20 21.63 1.32
3.667 1.76 9.667 14.87 15.667 2.20 21.67 1.32

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Steeles Ave_Road Corridor_PrControlled
3.700 1.80 9.700 12.22 15.700 2.15 21.70 1.31
3.733 1.80 9.733 12.22 15.733 2.15 21.73 1.31
3.767 1.80 9.767 12.22 15.767 2.15 21.77 1.31
3.800 1.80 9.800 12.22 15.800 2.15 21.80 1.31
3.833 1.80 9.833 12.22 15.833 2.15 21.83 1.31
3.867 1.85 9.867 10.43 15.867 2.11 21.87 1.30
3.900 1.85 9.900 10.43 15.900 2.11 21.90 1.30
3.933 1.85 9.933 10.43 15.933 2.11 21.93 1.30
3.967 1.85 9.967 10.43 15.967 2.11 21.97 1.30
4.000 1.85 10.000 10.43 16.000 2.11 22.00 1.30
4.033 1.90 10.033 9.14 16.033 2.07 22.03 1.28
4.067 1.90 10.067 9.14 16.067 2.07 22.07 1.28
4.100 1.90 10.100 9.14 16.100 2.07 22.10 1.28
4.133 1.90 10.133 9.14 16.133 2.07 22.13 1.28
4.167 1.90 10.167 9.14 16.167 2.07 22.17 1.28
4.200 1.96 10.200 8.16 16.200 2.04 22.20 1.27
4.233 1.96 10.233 8.16 16.233 2.04 22.23 1.27
4.267 1.96 10.267 8.16 16.267 2.04 22.27 1.27
4.300 1.96 10.300 8.16 16.300 2.04 22.30 1.27
4.333 1.96 10.333 8.16 16.333 2.04 22.33 1.27
4.367 2.01 10.367 7.39 16.367 2.00 22.37 1.26
4.400 2.01 10.400 7.39 16.400 2.00 22.40 1.26
4.433 2.01 10.433 7.39 16.433 2.00 22.43 1.26
4.467 2.01 10.467 7.39 16.467 2.00 22.47 1.26
4.500 2.01 10.500 7.39 16.500 2.00 22.50 1.26
4.533 2.07 10.533 6.76 16.533 1.97 22.53 1.25
4.567 2.07 10.567 6.76 16.567 1.97 22.57 1.25
4.600 2.07 10.600 6.76 16.600 1.97 22.60 1.25
4.633 2.07 10.633 6.76 16.633 1.97 22.63 1.25
4.667 2.07 10.667 6.76 16.667 1.97 22.67 1.25
4.700 2.14 10.700 6.25 16.700 1.93 22.70 1.24
4.733 2.14 10.733 6.25 16.733 1.93 22.73 1.24
4.767 2.14 10.767 6.25 16.767 1.93 22.77 1.24
4.800 2.14 10.800 6.25 16.800 1.93 22.80 1.24
4.833 2.14 10.833 6.25 16.833 1.93 22.83 1.24
4.867 2.21 10.867 5.81 16.867 1.90 22.87 1.22
4.900 2.21 10.900 5.81 16.900 1.90 22.90 1.22
4.933 2.21 10.933 5.81 16.933 1.90 22.93 1.22
4.967 2.21 10.967 5.81 16.967 1.90 22.97 1.22
5.000 2.21 11.000 5.81 17.000 1.90 23.00 1.22
5.033 2.29 11.033 5.44 17.033 1.87 23.03 1.21
5.067 2.29 11.067 5.44 17.067 1.87 23.07 1.21
5.100 2.29 11.100 5.44 17.100 1.87 23.10 1.21
5.133 2.29 11.133 5.44 17.133 1.87 23.13 1.21
5.167 2.29 11.167 5.44 17.167 1.87 23.17 1.21
5.200 2.37 11.200 5.12 17.200 1.84 23.20 1.20
5.233 2.37 11.233 5.12 17.233 1.84 23.23 1.20
5.267 2.37 11.267 5.12 17.267 1.84 23.27 1.20

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		Steeles Ave_Road	Corridor_PrControlled				
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)= 174.10
over (min) 5.00
Storage Coeff. (min)= 1.49 (ii)
Unit Hyd. Tpeak (min)= 4.00
Unit Hyd. peak (cms)= 0.46

PEAK FLOW (cms)= 0.22
TIME TO PEAK (hrs)= 9.00
RUNOFF VOLUME (mm)= 120.40
TOTAL RAINFALL (mm)= 122.40
RUNOFF COEFFICIENT = 0.98

TOTALS

0.234 (iii)
9.00
112.27
122.40
0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 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 (0520)
1 + 2 = 3

AREA QPEAK TPEAK R.V.

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		Steeles Ave_Road	Corridor_PrControlled				
		(ha)	(cms)	(hrs)	(mm)		
ID1= 1 (0210):	2.84	0.906	9.00	97.17			
+ ID2= 2 (0215):	0.52	0.234	9.00	112.27			
ID = 3 (0520):	3.36	1.140	9.00	99.50			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0710)
IN= 2---> OUT= 1
DT= 2.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.3237	0.1197
0.0411	0.0357	0.4116	0.1260
0.1964	0.0777	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0520)	3.360	1.140	9.00	99.50
OUTFLOW: ID= 1 (0710)	3.360	0.316	9.30	99.44

PEAK FLOW REDUCTION [Qout/Qin](%)= 27.71
TIME SHIFT OF PEAK FLOW (min)= 18.00
MAXIMUM STORAGE USED (ha.m.)= 0.1172

CALIB
STANDHYD (0220)
ID= 1 DT= 2.0 min

Area (ha)= 0.34
Total Imp(%)= 89.00
Dir. Conn.(%)= 89.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.30	0.04
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	115.00	5.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71

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		Steeles Ave_Road	Corridor_PrControlled				
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50

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		Steeles Ave_Road	Corridor_PrControlled				
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41
2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37

		Steeles Ave_Road	Corridor_PrControlled				
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22

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		Steeles Ave_Road	Corridor_PrControlled				
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)=	174.10	87.90
over (min)	5.00	4.00
Storage Coeff. (min)=	2.23 (ii)	2.93 (ii)
Unit Hyd. Tpeak (min)=	4.00	4.00
Unit Hyd. peak (cms)=	0.39	0.34

PEAK FLOW (cms)=	0.14	0.01	0.153 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	120.40	62.32	114.01
TOTAL RAINFALL (mm)=	122.40	122.40	122.40
RUNOFF COEFFICIENT =	0.98	0.51	0.93

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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Steeles Ave_Road Corridor_PrControlled
 CN* = 71.0 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 (0530)		AREA	QPEAK	TPEAK	R.V.
	1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0220):			0.34	0.153	9.00	114.01
+ ID2= 2 (0710):			3.36	0.316	9.30	99.44
=====						
ID = 3 (0530):			3.70	0.368	9.03	100.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	CALIB		Area	(ha)=	0.45
	STANDHYD (0225)		Total Imp(%)=	93.00	Dir. Conn.(%)= 93.00
	ID= 1 DT= 5.0 min				

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.42	0.03
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	105.00	5.00
Mannings n	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

		TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.18	6.083	2.92	12.083	3.99	18.08	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.250	1.20	6.250	3.07	12.250	3.83	18.25	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.417	1.22	6.417	3.23	12.417	3.68	18.42	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.583	1.24	6.583	3.42	12.583	3.54	18.58	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.750	1.26	6.750	3.63	12.750	3.42	18.75	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.917	1.28	6.917	3.88	12.917	3.30	18.92	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59

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	Steeles Ave_Road		Corridor_PrControlled				
1.083	1.30	7.083	4.17	13.083	3.20	19.08	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.250	1.32	7.250	4.51	13.250	3.10	19.25	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.417	1.34	7.417	4.93	13.417	3.01	19.42	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.583	1.37	7.583	5.44	13.583	2.92	19.58	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.750	1.39	7.750	6.10	13.750	2.84	19.75	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.917	1.42	7.917	6.97	13.917	2.76	19.92	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.083	1.45	8.083	8.17	14.083	2.69	20.08	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.250	1.47	8.250	9.99	14.250	2.62	20.25	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.417	1.50	8.417	13.06	14.417	2.56	20.42	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.583	1.53	8.583	19.52	14.583	2.50	20.58	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.750	1.57	8.750	43.87	14.750	2.44	20.75	1.40
2.833	1.57	8.833	43.87	14.833	2.44	20.83	1.40
2.917	1.60	8.917	174.10	14.917	2.39	20.92	1.38
3.000	1.60	9.000	174.10	15.000	2.39	21.00	1.38
3.083	1.64	9.083	53.21	15.083	2.34	21.08	1.37
3.167	1.64	9.167	53.21	15.167	2.34	21.17	1.37
3.250	1.68	9.250	27.87	15.250	2.29	21.25	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.417	1.72	9.417	19.24	15.417	2.24	21.42	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.583	1.76	9.583	14.87	15.583	2.20	21.58	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.750	1.80	9.750	12.22	15.750	2.15	21.75	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.917	1.85	9.917	10.43	15.917	2.11	21.92	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.083	1.90	10.083	9.14	16.083	2.07	22.08	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.250	1.96	10.250	8.16	16.250	2.04	22.25	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.417	2.01	10.417	7.39	16.417	2.00	22.42	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.583	2.07	10.583	6.76	16.583	1.97	22.58	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.750	2.14	10.750	6.25	16.750	1.93	22.75	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.917	2.21	10.917	5.81	16.917	1.90	22.92	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22

	Steeles	Ave_Road	Corridor_PrControlled				
5.083	2.29	11.083	5.44	17.083	1.87	23.08	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.250	2.37	11.250	5.12	17.250	1.84	23.25	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.417	2.46	11.417	4.84	17.417	1.81	23.42	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.583	2.56	11.583	4.59	17.583	1.79	23.58	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.750	2.67	11.750	4.37	17.750	1.76	23.75	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.917	2.79	11.917	4.17	17.917	1.73	23.92	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)= 174.10 95.55
over (min) 5.00 5.00
Storage Coeff. (min)= 2.11 (ii) 2.68 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.31 0.29

PEAK FLOW (cms)= 0.20 0.01 0.210 (iii)
TIME TO PEAK (hrs)= 9.00 9.00
RUNOFF VOLUME (mm)= 120.40 66.70 116.64
TOTAL RAINFALL (mm)= 122.40 122.40 122.40
RUNOFF COEFFICIENT = 0.98 0.54 0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0230)
NASHYD (0230)
ID= 1 DT= 2.0 min
Area (ha)= 1.63 Curve Number (CN)= 72.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71

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	Steeles	Ave_Road	Corridor_PrControlled				
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52

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	Steeles	Ave_Road	Corridor_PrControlled				
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41
2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35

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	Steeles	Ave_Road	Corridor_PrControlled				
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22

Steeles Ave_Road Corridor_PrControlled							
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Unit Hyd Qpeak (cms)= 0.138

PEAK FLOW (cms)= 0.132 (i)
TIME TO PEAK (hrs)= 9.467
RUNOFF VOLUME (mm)= 61.863
TOTAL RAINFALL (mm)= 122.401
RUNOFF COEFFICIENT = 0.505

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

Steeles Ave_Road Corridor_PrControlled
| NASHYD (0235) | Area (ha)= 5.23 Curve Number (CN)= 81.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
----- U.H. Tp(hrs)= 0.46

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.18	6.083	2.92	12.083	3.99	18.08	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.250	1.20	6.250	3.07	12.250	3.83	18.25	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.417	1.22	6.417	3.23	12.417	3.68	18.42	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.583	1.24	6.583	3.42	12.583	3.54	18.58	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.750	1.26	6.750	3.63	12.750	3.42	18.75	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.917	1.28	6.917	3.88	12.917	3.30	18.92	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.083	1.30	7.083	4.17	13.083	3.20	19.08	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.250	1.32	7.250	4.51	13.250	3.10	19.25	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.417	1.34	7.417	4.93	13.417	3.01	19.42	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.583	1.37	7.583	5.44	13.583	2.92	19.58	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.750	1.39	7.750	6.10	13.750	2.84	19.75	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.917	1.42	7.917	6.97	13.917	2.76	19.92	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.083	1.45	8.083	8.17	14.083	2.69	20.08	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.250	1.47	8.250	9.99	14.250	2.62	20.25	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.417	1.50	8.417	13.06	14.417	2.56	20.42	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.583	1.53	8.583	19.52	14.583	2.50	20.58	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.750	1.57	8.750	43.87	14.750	2.44	20.75	1.40
2.833	1.57	8.833	43.87	14.833	2.44	20.83	1.40
2.917	1.60	8.917	174.10	14.917	2.39	20.92	1.38
3.000	1.60	9.000	174.10	15.000	2.39	21.00	1.38
3.083	1.64	9.083	53.21	15.083	2.34	21.08	1.37
3.167	1.64	9.167	53.21	15.167	2.34	21.17	1.37

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Steeles Ave_Road Corridor_PrControlled							
3.250	1.68	9.250	27.87	15.250	2.29	21.25	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.417	1.72	9.417	19.24	15.417	2.24	21.42	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.583	1.76	9.583	14.87	15.583	2.20	21.58	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.750	1.80	9.750	12.22	15.750	2.15	21.75	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.917	1.85	9.917	10.43	15.917	2.11	21.92	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.083	1.90	10.083	9.14	16.083	2.07	22.08	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.250	1.96	10.250	8.16	16.250	2.04	22.25	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.417	2.01	10.417	7.39	16.417	2.00	22.42	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.583	2.07	10.583	6.76	16.583	1.97	22.58	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.750	2.14	10.750	6.25	16.750	1.93	22.75	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.917	2.21	10.917	5.81	16.917	1.90	22.92	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.083	2.29	11.083	5.44	17.083	1.87	23.08	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.250	2.37	11.250	5.12	17.250	1.84	23.25	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.417	2.46	11.417	4.84	17.417	1.81	23.42	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.583	2.56	11.583	4.59	17.583	1.79	23.58	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.750	2.67	11.750	4.37	17.750	1.76	23.75	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.917	2.79	11.917	4.17	17.917	1.73	23.92	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Unit Hyd Qpeak (cms)= 0.434

PEAK FLOW (cms)= 0.551 (i)
TIME TO PEAK (hrs)= 9.417
RUNOFF VOLUME (mm)= 77.962
TOTAL RAINFALL (mm)= 122.402
RUNOFF COEFFICIENT = 0.637

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

Steeles Ave_Road Corridor_PrControlled

| ADD HYD (0540) |
1 + 2 = 3
ID1= 1 (0230): AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
+ ID2= 2 (0235): 5.23 0.551 9.42 77.96
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| STANDHYD (0240) | Area (ha)= 0.38
| ID= 1 DT= 2.0 min | Total Imp(%)= 45.00 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.17 0.21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 225.00 15.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59
1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41
2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28
4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19

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	Steeles	Ave_Road	Corridor_Pr	Controlled			
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Steeles Ave_Road Corridor_PrControlled

CALIB
STANDHYD (0245)
ID= 1 DT= 2.0 min

Area (ha)= 0.12
Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.09 0.03
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 28.00 10.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	1.18	6.033	2.92	12.033	3.99	18.03	1.71
0.067	1.18	6.067	2.92	12.067	3.99	18.07	1.71
0.100	1.18	6.100	2.92	12.100	3.99	18.10	1.71
0.133	1.18	6.133	2.92	12.133	3.99	18.13	1.71
0.167	1.18	6.167	2.92	12.167	3.99	18.17	1.71
0.200	1.20	6.200	3.07	12.200	3.83	18.20	1.68
0.233	1.20	6.233	3.07	12.233	3.83	18.23	1.68
0.267	1.20	6.267	3.07	12.267	3.83	18.27	1.68
0.300	1.20	6.300	3.07	12.300	3.83	18.30	1.68
0.333	1.20	6.333	3.07	12.333	3.83	18.33	1.68
0.367	1.22	6.367	3.23	12.367	3.68	18.37	1.66
0.400	1.22	6.400	3.23	12.400	3.68	18.40	1.66
0.433	1.22	6.433	3.23	12.433	3.68	18.43	1.66
0.467	1.22	6.467	3.23	12.467	3.68	18.47	1.66
0.500	1.22	6.500	3.23	12.500	3.68	18.50	1.66
0.533	1.24	6.533	3.42	12.533	3.54	18.53	1.64
0.567	1.24	6.567	3.42	12.567	3.54	18.57	1.64
0.600	1.24	6.600	3.42	12.600	3.54	18.60	1.64
0.633	1.24	6.633	3.42	12.633	3.54	18.63	1.64
0.667	1.24	6.667	3.42	12.667	3.54	18.67	1.64
0.700	1.26	6.700	3.63	12.700	3.42	18.70	1.62
0.733	1.26	6.733	3.63	12.733	3.42	18.73	1.62
0.767	1.26	6.767	3.63	12.767	3.42	18.77	1.62
0.800	1.26	6.800	3.63	12.800	3.42	18.80	1.62
0.833	1.26	6.833	3.63	12.833	3.42	18.83	1.62
0.867	1.28	6.867	3.88	12.867	3.30	18.87	1.59
0.900	1.28	6.900	3.88	12.900	3.30	18.90	1.59
0.933	1.28	6.933	3.88	12.933	3.30	18.93	1.59
0.967	1.28	6.967	3.88	12.967	3.30	18.97	1.59

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1.000	1.28	7.000	3.88	13.000	3.30	19.00	1.59
1.033	1.30	7.033	4.17	13.033	3.20	19.03	1.57
1.067	1.30	7.067	4.17	13.067	3.20	19.07	1.57
1.100	1.30	7.100	4.17	13.100	3.20	19.10	1.57
1.133	1.30	7.133	4.17	13.133	3.20	19.13	1.57
1.167	1.30	7.167	4.17	13.167	3.20	19.17	1.57
1.200	1.32	7.200	4.51	13.200	3.10	19.20	1.55
1.233	1.32	7.233	4.51	13.233	3.10	19.23	1.55
1.267	1.32	7.267	4.51	13.267	3.10	19.27	1.55
1.300	1.32	7.300	4.51	13.300	3.10	19.30	1.55
1.333	1.32	7.333	4.51	13.333	3.10	19.33	1.55
1.367	1.34	7.367	4.93	13.367	3.01	19.37	1.53
1.400	1.34	7.400	4.93	13.400	3.01	19.40	1.53
1.433	1.34	7.433	4.93	13.433	3.01	19.43	1.53
1.467	1.34	7.467	4.93	13.467	3.01	19.47	1.53
1.500	1.34	7.500	4.93	13.500	3.01	19.50	1.53
1.533	1.37	7.533	5.44	13.533	2.92	19.53	1.52
1.567	1.37	7.567	5.44	13.567	2.92	19.57	1.52
1.600	1.37	7.600	5.44	13.600	2.92	19.60	1.52
1.633	1.37	7.633	5.44	13.633	2.92	19.63	1.52
1.667	1.37	7.667	5.44	13.667	2.92	19.67	1.52
1.700	1.39	7.700	6.10	13.700	2.84	19.70	1.50
1.733	1.39	7.733	6.10	13.733	2.84	19.73	1.50
1.767	1.39	7.767	6.10	13.767	2.84	19.77	1.50
1.800	1.39	7.800	6.10	13.800	2.84	19.80	1.50
1.833	1.39	7.833	6.10	13.833	2.84	19.83	1.50
1.867	1.42	7.867	6.97	13.867	2.76	19.87	1.48
1.900	1.42	7.900	6.97	13.900	2.76	19.90	1.48
1.933	1.42	7.933	6.97	13.933	2.76	19.93	1.48
1.967	1.42	7.967	6.97	13.967	2.76	19.97	1.48
2.000	1.42	8.000	6.97	14.000	2.76	20.00	1.48
2.033	1.45	8.033	8.17	14.033	2.69	20.03	1.46
2.067	1.45	8.067	8.17	14.067	2.69	20.07	1.46
2.100	1.45	8.100	8.17	14.100	2.69	20.10	1.46
2.133	1.45	8.133	8.17	14.133	2.69	20.13	1.46
2.167	1.45	8.167	8.17	14.167	2.69	20.17	1.46
2.200	1.47	8.200	9.99	14.200	2.62	20.20	1.45
2.233	1.47	8.233	9.99	14.233	2.62	20.23	1.45
2.267	1.47	8.267	9.99	14.267	2.62	20.27	1.45
2.300	1.47	8.300	9.99	14.300	2.62	20.30	1.45
2.333	1.47	8.333	9.99	14.333	2.62	20.33	1.45
2.367	1.50	8.367	13.06	14.367	2.56	20.37	1.43
2.400	1.50	8.400	13.06	14.400	2.56	20.40	1.43
2.433	1.50	8.433	13.06	14.433	2.56	20.43	1.43
2.467	1.50	8.467	13.06	14.467	2.56	20.47	1.43
2.500	1.50	8.500	13.06	14.500	2.56	20.50	1.43
2.533	1.53	8.533	19.52	14.533	2.50	20.53	1.41
2.567	1.53	8.567	19.52	14.567	2.50	20.57	1.41

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2.600	1.53	8.600	19.52	14.600	2.50	20.60	1.41
2.633	1.53	8.633	19.52	14.633	2.50	20.63	1.41
2.667	1.53	8.667	19.52	14.667	2.50	20.67	1.41
2.700	1.57	8.700	43.87	14.700	2.44	20.70	1.40
2.733	1.57	8.733	43.87	14.733	2.44	20.73	1.40
2.767	1.57	8.767	43.87	14.767	2.44	20.77	1.40
2.800	1.57	8.800	43.87	14.800	2.44	20.80	1.40
2.833	1.57	8.833	43.89	14.833	2.44	20.83	1.40
2.867	1.60	8.867	174.10	14.867	2.39	20.87	1.38
2.900	1.60	8.900	174.10	14.900	2.39	20.90	1.38
2.933	1.60	8.933	174.10	14.933	2.39	20.93	1.38
2.967	1.60	8.967	174.10	14.967	2.39	20.97	1.38
3.000	1.60	9.000	174.08	15.000	2.39	21.00	1.38
3.033	1.64	9.033	53.21	15.033	2.34	21.03	1.37
3.067	1.64	9.067	53.21	15.067	2.34	21.07	1.37
3.100	1.64	9.100	53.21	15.100	2.34	21.10	1.37
3.133	1.64	9.133	53.21	15.133	2.34	21.13	1.37
3.167	1.64	9.167	53.20	15.167	2.34	21.17	1.37
3.200	1.68	9.200	27.87	15.200	2.29	21.20	1.35
3.233	1.68	9.233	27.87	15.233	2.29	21.23	1.35
3.267	1.68	9.267	27.87	15.267	2.29	21.27	1.35
3.300	1.68	9.300	27.87	15.300	2.29	21.30	1.35
3.333	1.68	9.333	27.87	15.333	2.29	21.33	1.35
3.367	1.72	9.367	19.24	15.367	2.24	21.37	1.34
3.400	1.72	9.400	19.24	15.400	2.24	21.40	1.34
3.433	1.72	9.433	19.24	15.433	2.24	21.43	1.34
3.467	1.72	9.467	19.24	15.467	2.24	21.47	1.34
3.500	1.72	9.500	19.24	15.500	2.24	21.50	1.34
3.533	1.76	9.533	14.87	15.533	2.20	21.53	1.32
3.567	1.76	9.567	14.87	15.567	2.20	21.57	1.32
3.600	1.76	9.600	14.87	15.600	2.20	21.60	1.32
3.633	1.76	9.633	14.87	15.633	2.20	21.63	1.32
3.667	1.76	9.667	14.87	15.667	2.20	21.67	1.32
3.700	1.80	9.700	12.22	15.700	2.15	21.70	1.31
3.733	1.80	9.733	12.22	15.733	2.15	21.73	1.31
3.767	1.80	9.767	12.22	15.767	2.15	21.77	1.31
3.800	1.80	9.800	12.22	15.800	2.15	21.80	1.31
3.833	1.80	9.833	12.22	15.833	2.15	21.83	1.31
3.867	1.85	9.867	10.43	15.867	2.11	21.87	1.30
3.900	1.85	9.900	10.43	15.900	2.11	21.90	1.30
3.933	1.85	9.933	10.43	15.933	2.11	21.93	1.30
3.967	1.85	9.967	10.43	15.967	2.11	21.97	1.30
4.000	1.85	10.000	10.43	16.000	2.11	22.00	1.30
4.033	1.90	10.033	9.14	16.033	2.07	22.03	1.28
4.067	1.90	10.067	9.14	16.067	2.07	22.07	1.28
4.100	1.90	10.100	9.14	16.100	2.07	22.10	1.28
4.133	1.90	10.133	9.14	16.133	2.07	22.13	1.28
4.167	1.90	10.167	9.14	16.167	2.07	22.17	1.28

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Steeles Ave_Road Corridor_PrControlled

4.200	1.96	10.200	8.16	16.200	2.04	22.20	1.27
4.233	1.96	10.233	8.16	16.233	2.04	22.23	1.27
4.267	1.96	10.267	8.16	16.267	2.04	22.27	1.27
4.300	1.96	10.300	8.16	16.300	2.04	22.30	1.27
4.333	1.96	10.333	8.16	16.333	2.04	22.33	1.27
4.367	2.01	10.367	7.39	16.367	2.00	22.37	1.26
4.400	2.01	10.400	7.39	16.400	2.00	22.40	1.26
4.433	2.01	10.433	7.39	16.433	2.00	22.43	1.26
4.467	2.01	10.467	7.39	16.467	2.00	22.47	1.26
4.500	2.01	10.500	7.39	16.500	2.00	22.50	1.26
4.533	2.07	10.533	6.76	16.533	1.97	22.53	1.25
4.567	2.07	10.567	6.76	16.567	1.97	22.57	1.25
4.600	2.07	10.600	6.76	16.600	1.97	22.60	1.25
4.633	2.07	10.633	6.76	16.633	1.97	22.63	1.25
4.667	2.07	10.667	6.76	16.667	1.97	22.67	1.25
4.700	2.14	10.700	6.25	16.700	1.93	22.70	1.24
4.733	2.14	10.733	6.25	16.733	1.93	22.73	1.24
4.767	2.14	10.767	6.25	16.767	1.93	22.77	1.24
4.800	2.14	10.800	6.25	16.800	1.93	22.80	1.24
4.833	2.14	10.833	6.25	16.833	1.93	22.83	1.24
4.867	2.21	10.867	5.81	16.867	1.90	22.87	1.22
4.900	2.21	10.900	5.81	16.900	1.90	22.90	1.22
4.933	2.21	10.933	5.81	16.933	1.90	22.93	1.22
4.967	2.21	10.967	5.81	16.967	1.90	22.97	1.22
5.000	2.21	11.000	5.81	17.000	1.90	23.00	1.22
5.033	2.29	11.033	5.44	17.033	1.87	23.03	1.21
5.067	2.29	11.067	5.44	17.067	1.87	23.07	1.21
5.100	2.29	11.100	5.44	17.100	1.87	23.10	1.21
5.133	2.29	11.133	5.44	17.133	1.87	23.13	1.21
5.167	2.29	11.167	5.44	17.167	1.87	23.17	1.21
5.200	2.37	11.200	5.12	17.200	1.84	23.20	1.20
5.233	2.37	11.233	5.12	17.233	1.84	23.23	1.20
5.267	2.37	11.267	5.12	17.267	1.84	23.27	1.20
5.300	2.37	11.300	5.12	17.300	1.84	23.30	1.20
5.333	2.37	11.333	5.12	17.333	1.84	23.33	1.20
5.367	2.46	11.367	4.84	17.367	1.81	23.37	1.19
5.400	2.46	11.400	4.84	17.400	1.81	23.40	1.19
5.433	2.46	11.433	4.84	17.433	1.81	23.43	1.19
5.467	2.46	11.467	4.84	17.467	1.81	23.47	1.19
5.500	2.46	11.500	4.84	17.500	1.81	23.50	1.19
5.533	2.56	11.533	4.59	17.533	1.79	23.53	1.18
5.567	2.56	11.567	4.59	17.567	1.79	23.57	1.18
5.600	2.56	11.600	4.59	17.600	1.79	23.60	1.18
5.633	2.56	11.633	4.59	17.633	1.79	23.63	1.18
5.667	2.56	11.667	4.59	17.667	1.79	23.67	1.18
5.700	2.67	11.700	4.37	17.700	1.76	23.70	1.17
5.733	2.67	11.733	4.37	17.733	1.76	23.73	1.17
5.767	2.67	11.767	4.37	17.767	1.76	23.77	1.17

		Steeles Ave_Road	Corridor_PrControlled				
5.800	2.67	11.800	4.37	17.800	1.76	23.80	1.17
5.833	2.67	11.833	4.37	17.833	1.76	23.83	1.17
5.867	2.79	11.867	4.17	17.867	1.73	23.87	1.16
5.900	2.79	11.900	4.17	17.900	1.73	23.90	1.16
5.933	2.79	11.933	4.17	17.933	1.73	23.93	1.16
5.967	2.79	11.967	4.17	17.967	1.73	23.97	1.16
6.000	2.79	12.000	4.17	18.000	1.73	24.00	1.16

Max.Eff.Inten.(mm/hr)= 174.10 87.90
 over (min) 5.00 4.00
 Storage Coeff. (min)= 0.95 (ii) 2.54 (ii)
 Unit Hyd. Tpeak (min)= 4.00 4.00
 Unit Hyd. peak (cms)= 0.52 0.36

 TOTALS
 PEAK FLOW (cms)= 0.04 0.01 0.051 (iii)
 TIME TO PEAK (hrs)= 9.00 9.00 9.00
 RUNOFF VOLUME (mm)= 120.40 62.32 105.87
 TOTAL RAINFALL (mm)= 122.40 122.40 122.40
 RUNOFF COEFFICIENT = 0.98 0.51 0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 71.0 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 ( 0560) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0245):   AREA   QPEAK   TPEAK   R.V.
                  (ha)   (cms)   (hrs)   (mm)
+ ID2= 2 ( 0550):   0.12   0.051   9.00   105.87
                  7.24   0.704   9.43   74.89
=====
ID = 3 ( 0560):   7.36   0.710   9.43   75.39
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

APPENDIX

C

Existing Hydraulic Modelling

Steeles Avenue EA

Project:	NW1E_Trib_Existing Model Update4	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\Trib_NW1E_Ex_Rev4.prj
Plan:	Revised Existing	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\Trib_NW1E_Ex_Rev4.p01
Geometry:	Revised Existing Geometry Jul 2020	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\Trib_NW1E_Ex_Rev4.g01
Steady Flow:	Revised Flow Jul 2020	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\Trib_NW1E_Ex_Rev4.f01

Sixteen Mile Creek Tributary NW1-E

Existing Conditions Hydraulic Model - Extended and Updated

River	Reach	River Station	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m ²)	Top Width (m)	Froude #
Tributary NW1-E	Reach 1	70.33	2-yr	1.04	216.75	217.05	216.95	217.06	0.45	2.40	16.63	0.34
Tributary NW1-E	Reach 1	70.33	5-yr	1.90	216.75	217.12	216.99	217.13	0.57	3.71	21.31	0.37
Tributary NW1-E	Reach 1	70.33	10-yr	2.55	216.75	217.16	217.03	217.18	0.65	4.60	23.96	0.39
Tributary NW1-E	Reach 1	70.33	25-yr	3.44	216.75	217.20	217.07	217.23	0.74	5.79	27.11	0.41
Tributary NW1-E	Reach 1	70.33	50-yr	4.13	216.75	217.24	217.09	217.27	0.79	6.72	29.35	0.42
Tributary NW1-E	Reach 1	70.33	100-yr	4.84	216.75	217.26	217.12	217.29	0.87	7.29	30.62	0.45
Tributary NW1-E	Reach 1	70.33	Regional	9.09	216.75	217.38	217.24	217.44	1.16	11.60	38.99	0.52
Tributary NW1-E	Reach 1	70.32	2-yr	1.04	216.05	216.25	216.24	216.27	0.67	1.55	20.39	0.78
Tributary NW1-E	Reach 1	70.32	5-yr	1.90	216.05	216.28	216.27	216.32	0.83	2.32	23.56	0.81
Tributary NW1-E	Reach 1	70.32	10-yr	2.55	216.05	216.31	216.29	216.35	0.91	2.92	25.73	0.79
Tributary NW1-E	Reach 1	70.32	25-yr	3.44	216.05	216.33	216.32	216.39	1.01	3.65	28.41	0.81
Tributary NW1-E	Reach 1	70.32	50-yr	4.13	216.05	216.35	216.33	216.41	1.10	4.13	30.40	0.83
Tributary NW1-E	Reach 1	70.32	100-yr	4.84	216.05	216.38	216.35	216.44	1.08	5.18	34.68	0.75
Tributary NW1-E	Reach 1	70.32	Regional	9.09	216.05	216.49	216.45	216.56	1.26	9.68	49.87	0.72
Tributary NW1-E	Reach 1	70.31	2-yr	1.04	214.75	215.06	214.96	215.07	0.58	2.07	19.11	0.41
Tributary NW1-E	Reach 1	70.31	5-yr	1.90	214.75	215.13	215.03	215.15	0.71	3.89	30.66	0.43
Tributary NW1-E	Reach 1	70.31	10-yr	2.55	214.75	215.17	215.07	215.20	0.79	5.25	38.32	0.45
Tributary NW1-E	Reach 1	70.31	25-yr	3.44	214.75	215.22	215.12	215.25	0.86	7.22	47.75	0.46
Tributary NW1-E	Reach 1	70.31	50-yr	4.13	214.75	215.25	215.15	215.28	0.91	8.80	53.49	0.46
Tributary NW1-E	Reach 1	70.31	100-yr	4.84	214.75	215.26	215.17	215.30	1.00	9.83	73.68	0.50
Tributary NW1-E	Reach 1	70.31	Regional	9.09	214.75	215.35	215.29	215.40	1.26	17.25	90.07	0.57
Tributary NW1-E	Reach 1	70.30	2-yr	1.04	213.78	214.04	214.04	214.10	1.11	0.94	7.45	1.00
Tributary NW1-E	Reach 1	70.30	5-yr	1.90	213.78	214.10	214.10	214.18	1.22	1.56	10.88	1.02
Tributary NW1-E	Reach 1	70.30	10-yr	2.55	213.78	214.14	214.14	214.22	1.26	2.03	12.86	1.01
Tributary NW1-E	Reach 1	70.30	25-yr	3.44	213.78	214.18	214.18	214.27	1.35	2.55	14.31	1.02
Tributary NW1-E	Reach 1	70.30	50-yr	4.13	213.78	214.20	214.20	214.31	1.43	2.88	15.10	1.05
Tributary NW1-E	Reach 1	70.30	100-yr	4.84	213.78	214.25	214.25	214.34	1.32	4.11	42.37	0.90
Tributary NW1-E	Reach 1	70.30	Regional	9.09	213.78	214.36	214.36	214.45	1.44	9.72	58.40	0.80
Tributary NW1-E	Reach 1	70.29	2-yr	1.04	212.76	213.29	212.98	213.30	0.13	8.31	26.12	0.07
Tributary NW1-E	Reach 1	70.29	5-yr	1.90	212.76	213.41	213.03	213.41	0.16	11.81	37.08	0.09
Tributary NW1-E	Reach 1	70.29	10-yr	2.55	212.76	213.45	213.05	213.45	0.19	13.38	39.82	0.10
Tributary NW1-E	Reach 1	70.29	25-yr	3.44	212.76	213.49	213.08	213.49	0.24	15.18	43.39	0.11
Tributary NW1-E	Reach 1	70.29	50-yr	4.13	212.76	213.52	213.10	213.53	0.26	16.64	45.75	0.12
Tributary NW1-E	Reach 1	70.29	100-yr	4.84	212.76	213.55	213.11	213.55	0.29	17.90	47.60	0.13
Tributary NW1-E	Reach 1	70.29	Regional	9.09	212.76	214.23	213.20	214.23	0.20	62.70	79.95	0.06
Tributary NW1-E	Reach 1	70.28	2-yr	1.04	212.35	213.29	212.52	213.29	0.05	25.57	45.18	0.02
Tributary NW1-E	Reach 1	70.28	5-yr	1.90	212.35	213.40	212.58	213.40	0.08	30.67	47.16	0.03
Tributary NW1-E	Reach 1	70.28	10-yr	2.55	212.35	213.44	212.60	213.45	0.10	32.58	47.88	0.03
Tributary NW1-E	Reach 1	70.28	25-yr	3.44	212.35	213.49	212.62	213.49	0.12	34.61	48.63	0.04
Tributary NW1-E	Reach 1	70.28	50-yr	4.13	212.35	213.52	212.64	213.52	0.14	36.17	49.22	0.05
Tributary NW1-E	Reach 1	70.28	100-yr	4.84	212.35	213.54	212.66	213.55	0.16	37.45	49.76	0.05
Tributary NW1-E	Reach 1	70.28	Regional	9.09	212.35	214.22	212.75	214.22	0.17	85.66	84.85	0.04
Tributary NW1-E	Reach 1	70.27	2-yr	1.71	211.78	213.29	212.04	213.29	0.06	57.71	64.80	0.02
Tributary NW1-E	Reach 1	70.27	5-yr	3.04	211.78	213.40	212.11	213.40	0.09	64.93	66.25	0.02
Tributary NW1-E	Reach 1	70.27	10-yr	4.04	211.78	213.44	212.16	213.44	0.12	67.58	66.79	0.03
Tributary NW1-E	Reach 1	70.27	25-yr	5.38	211.78	213.49	212.21	213.49	0.15	70.38	67.35	0.04
Tributary NW1-E	Reach 1	70.27	50-yr	6.41	211.78	213.52	212.24	213.52	0.18	72.50	67.78	0.05
Tributary NW1-E	Reach 1	70.27	100-yr	7.46	211.78	213.54	212.28	213.54	0.20	74.24	68.13	0.05
Tributary NW1-E	Reach 1	70.27	Regional	13.08	211.78	214.22	212.41	214.22	0.22	123.58	76.82	0.05

Steeles Avenue EA

Project:	HEC-RAS Model_Updated Existing	C:\... \HEC-RAS\16Mile_Hydraulics_Jul 2021\SixteenMileCreek_Updated_Ex.prj
Plan:	Future Flows_SteelesEA	C:\... \HEC-RAS\16Mile_Hydraulics_Jul 2021\SixteenMileCreek_Updated_Ex.p02
Geometry:	Sixteen Mile Creek_SteelesEACropped	C:\... \HEC-RAS\16Mile_Hydraulics_Jul 2021\SixteenMileCreek_Updated_Ex.g01
Steady Flow:	Future Flows_Steeles EA	C:\... \HEC-RAS\16Mile_Hydraulics_Jul 2021\SixteenMileCreek_Updated_Ex.f01

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	6800	Regional	242.00	219.74	222.05	221.82	222.40	3.33	149.31	119.96	0.73
W1	6800	100 Year	66.14	219.74	221.10	220.91	221.31	2.27	43.95	65.14	0.67
W1	6800	50 Year	55.36	219.74	221.00	220.80	221.19	2.14	38.53	51.11	0.66
W1	6800	25 Year	44.17	219.74	220.88	220.73	221.05	1.98	32.66	49.72	0.64
W1	6800	10 Year	30.75	219.74	220.72	220.58	220.86	1.74	24.81	47.68	0.61
W1	6800	5 Year	21.90	219.74	220.69	220.40	220.77	1.30	23.46	47.54	0.46
W1	6800	2 Year	10.46	219.74	220.35	220.18	220.42	1.21	8.68	27.78	0.55
W1	3626	Regional	243.04	205.64	208.29	207.33	208.47	2.35	223.09	322.72	0.48
W1	3626	100 Year	67.05	205.64	207.54	206.85	207.58	1.01	110.02	103.63	0.25
W1	3626	50 Year	56.76	205.64	207.39	206.75	207.42	0.95	95.68	86.29	0.25
W1	3626	25 Year	45.27	205.64	206.99	206.60	207.15	1.79	25.71	71.75	0.55
W1	3626	10 Year	31.56	205.64	206.64	206.42	206.81	1.83	17.26	63.52	0.65
W1	3626	5 Year	22.49	205.64	206.48	206.28	206.61	1.61	13.93	61.23	0.62
W1	3626	2 Year	10.80	205.64	206.23	206.07	206.31	1.19	9.10	52.68	0.55
W1	3610		Bridge								
W1	3598	Regional	243.04	205.54	208.12	207.46	208.28	2.32	211.78	238.16	0.48
W1	3598	100 Year	67.05	205.54	207.07	206.58	207.15	1.49	73.56	80.36	0.42
W1	3598	50 Year	56.76	205.54	206.91	206.50	207.03	1.68	44.74	76.45	0.50
W1	3598	25 Year	45.27	205.54	206.79	206.40	206.89	1.52	38.94	72.20	0.48
W1	3598	10 Year	31.56	205.54	206.61	206.27	206.68	1.32	30.52	66.75	0.45
W1	3598	5 Year	22.49	205.54	206.46	206.16	206.52	1.14	24.93	62.04	0.43
W1	3598	2 Year	10.80	205.54	206.21	205.97	206.25	0.87	15.40	49.77	0.38
W1	3579	Regional	243.04	205.47	207.91	207.61	208.17	3.05	166.61	174.15	0.64
W1	3579	100 Year	67.05	205.47	206.86	206.62	207.05	2.27	50.44	69.53	0.65
W1	3579	50 Year	56.76	205.47	206.77	206.52	206.94	2.12	44.43	63.83	0.63
W1	3579	25 Year	45.27	205.47	206.66	206.42	206.80	1.92	37.66	59.60	0.60
W1	3579	10 Year	31.56	205.47	206.49	206.26	206.60	1.67	28.34	50.30	0.57
W1	3579	5 Year	22.49	205.47	206.36	206.16	206.45	1.44	22.44	45.16	0.53
W1	3579	2 Year	10.80	205.47	206.14	205.95	206.19	1.05	13.65	35.20	0.46
W1	3459	Regional	243.04	204.94	206.70	206.37	207.40	4.27	96.24	132.11	1.08
W1	3459	100 Year	67.05	204.94	205.87	205.85	206.17	2.67	34.86	55.07	0.97
W1	3459	50 Year	56.76	204.94	205.79	205.79	206.07	2.54	30.77	54.56	0.97
W1	3459	25 Year	45.27	204.94	205.71	205.70	205.95	2.37	25.94	53.66	0.97
W1	3459	10 Year	31.56	204.94	205.60	205.59	205.79	2.05	20.57	52.74	0.92
W1	3459	5 Year	22.49	204.94	205.51	205.51	205.67	1.86	15.69	51.35	0.92
W1	3459	2 Year	10.80	204.94	205.33	205.32	205.45	1.59	7.86	32.92	0.97
W1	3124	Regional	243.04	203.66	206.26	204.88	206.32	1.93	280.53	137.28	0.39
W1	3124	100 Year	67.05	203.66	204.85	204.24	204.88	1.40	101.15	113.70	0.44
W1	3124	50 Year	56.76	203.66	204.75	204.19	204.79	1.31	90.58	111.22	0.43
W1	3124	25 Year	45.27	203.66	204.64	204.12	204.67	1.20	78.06	107.94	0.42
W1	3124	10 Year	31.56	203.66	204.49	204.05	204.51	1.09	54.75	103.66	0.42
W1	3124	5 Year	22.49	203.66	204.36	203.99	204.38	0.94	44.32	98.27	0.40

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	3124	2 Year	10.80	203.66	204.15	203.91	204.16	0.67	28.61	86.89	0.37
W1	3036	Regional	243.04	203.31	206.08	204.88	206.19	2.15	229.32	109.14	0.43
W1	3036	100 Year	67.05	203.31	204.54	204.16	204.62	1.78	72.18	93.16	0.56
W1	3036	50 Year	56.76	203.31	204.45	204.11	204.53	1.68	64.22	91.91	0.55
W1	3036	25 Year	45.27	203.31	204.34	204.02	204.41	1.56	54.17	87.99	0.55
W1	3036	10 Year	31.56	203.31	204.18	203.92	204.24	1.40	40.62	82.74	0.55
W1	3036	5 Year	22.49	203.31	204.05	203.83	204.10	1.29	30.50	63.24	0.55
W1	3036	2 Year	10.80	203.31	203.82	203.70	203.86	1.14	17.08	54.40	0.58
W1	2943	Regional	243.04	202.89	206.04	204.75	206.10	1.90	313.28	158.48	0.35
W1	2943	100 Year	67.05	202.89	204.31	203.95	204.41	2.06	74.58	88.42	0.58
W1	2943	50 Year	56.76	202.89	204.23	203.88	204.32	1.92	67.97	85.78	0.55
W1	2943	25 Year	45.27	202.89	204.13	203.80	204.21	1.73	59.74	82.92	0.52
W1	2943	10 Year	31.56	202.89	203.99	203.69	204.05	1.48	48.05	77.56	0.48
W1	2943	5 Year	22.49	202.89	203.87	203.57	203.91	1.28	39.01	73.00	0.44
W1	2943	2 Year	10.80	202.89	203.64	203.43	203.67	0.98	23.31	62.48	0.39
W1	2859	Regional	243.04	202.89	206.00	204.21	206.03	1.32	417.52	182.17	0.24
W1	2859	100 Year	67.05	202.89	203.82	203.64	203.92	2.32	66.66	121.90	0.78
W1	2859	50 Year	56.76	202.89	203.76	203.58	203.85	2.20	59.16	118.38	0.76
W1	2859	25 Year	45.27	202.89	203.69	203.54	203.77	2.01	50.95	115.54	0.73
W1	2859	10 Year	31.56	202.89	203.57	203.39	203.64	1.82	37.65	103.33	0.72
W1	2859	5 Year	22.49	202.89	203.47	203.29	203.53	1.64	28.59	93.99	0.70
W1	2859	2 Year	10.80	202.89	203.31	203.15	203.35	1.15	17.13	47.69	0.58
W1	2741	Regional	243.04	202.21	205.99	203.82	206.01	1.12	526.04	199.00	0.19
W1	2741	100 Year	67.05	202.21	203.40	203.05	203.50	2.03	78.62	116.70	0.62
W1	2741	50 Year	56.76	202.21	203.31	203.05	203.40	1.98	68.12	112.83	0.64
W1	2741	25 Year	45.27	202.21	203.21	203.00	203.30	1.90	56.30	108.78	0.65
W1	2741	10 Year	31.56	202.21	203.05	202.88	203.13	1.68	41.06	87.43	0.63
W1	2741	5 Year	22.49	202.21	202.94	202.81	203.00	1.51	30.43	81.44	0.61
W1	2741	2 Year	10.80	202.21	202.75	202.69	202.80	1.26	17.45	70.71	0.61
W1	2636	Regional	243.04	201.79	205.97	203.47	205.99	1.26	458.42	156.34	0.20
W1	2636	100 Year	67.05	201.79	203.20	202.81	203.27	1.79	87.97	101.49	0.50
W1	2636	50 Year	56.76	201.79	203.09	202.74	203.16	1.73	77.20	99.44	0.50
W1	2636	25 Year	45.27	201.79	202.97	202.66	203.03	1.64	64.90	96.67	0.50
W1	2636	10 Year	31.56	201.79	202.81	202.58	202.86	1.44	50.21	88.92	0.48
W1	2636	5 Year	22.49	201.79	202.69	202.50	202.73	1.29	39.88	85.11	0.45
W1	2636	2 Year	10.80	201.79	202.51	202.31	202.54	0.96	25.13	81.21	0.38
W1	2609.75	Regional	243.04	201.80	205.96	203.38	205.98	1.11	436.14	151.01	0.18
W1	2609.75	100 Year	67.05	201.80	203.10	202.73	203.17	1.57	82.65	99.16	0.48
W1	2609.75	50 Year	56.76	201.80	202.99	202.67	203.06	1.53	71.42	97.82	0.49
W1	2609.75	25 Year	45.27	201.80	202.85	202.60	202.92	1.49	58.26	95.59	0.51
W1	2609.75	10 Year	31.56	201.80	202.68	202.53	202.74	1.43	41.59	91.50	0.56
W1	2609.75	5 Year	22.49	201.80	202.53	202.45	202.61	1.47	28.76	85.67	0.63
W1	2609.75	2 Year	10.80	201.80	202.27	202.27	202.40	1.68	8.96	45.85	0.91
W1	2505.52	Regional	243.04	200.88	205.94	203.60	205.97	1.16	506.71	179.52	0.18
W1	2505.52	100 Year	67.05	200.88	202.59	202.53	202.92	2.96	35.55	47.94	0.90

Updated Hydraulic Model at CNR and Bronte Street
Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	2505.52	50 Year	56.76	200.88	202.50	202.45	202.80	2.81	31.56	46.55	0.89
W1	2505.52	25 Year	45.27	200.88	202.38	202.34	202.65	2.63	26.57	44.97	0.89
W1	2505.52	10 Year	31.56	200.88	202.21	202.20	202.45	2.39	19.94	43.05	0.90
W1	2505.52	5 Year	22.49	200.88	202.10	202.10	202.30	2.13	15.52	41.66	0.87
W1	2505.52	2 Year	10.80	200.88	201.90	201.90	202.05	1.73	7.95	38.60	0.86
W1	2449.89	Regional	243.04	200.68	205.95	202.97	205.96	0.88	669.52	207.15	0.13
W1	2449.89	100 Year	67.05	200.68	202.57	202.20	202.66	1.74	75.95	101.27	0.47
W1	2449.89	50 Year	56.76	200.68	202.45	202.14	202.54	1.67	66.12	84.51	0.48
W1	2449.89	25 Year	45.27	200.68	202.31	202.06	202.40	1.61	54.35	82.52	0.49
W1	2449.89	10 Year	31.56	200.68	202.09	201.93	202.18	1.59	36.90	79.35	0.54
W1	2449.89	5 Year	22.49	200.68	201.92	201.78	202.03	1.60	24.10	75.62	0.60
W1	2449.89	2 Year	10.80	200.68	201.70	201.55	201.78	1.28	10.30	47.00	0.58
W1	2406.87	Regional	243.04	200.53	205.94	202.84	205.95	0.85	717.78	216.32	0.12
W1	2406.87	100 Year	67.05	200.53	202.45	201.98	202.55	1.75	74.69	103.14	0.47
W1	2406.87	50 Year	56.76	200.53	202.34	201.91	202.43	1.68	64.22	92.21	0.47
W1	2406.87	25 Year	45.27	200.53	202.19	201.83	202.28	1.58	51.43	82.82	0.47
W1	2406.87	10 Year	31.56	200.53	201.96	201.70	202.04	1.49	36.09	54.13	0.50
W1	2406.87	5 Year	22.49	200.53	201.77	201.61	201.85	1.45	26.01	52.24	0.54
W1	2406.87	2 Year	10.80	200.53	201.46	201.39	201.56	1.50	10.23	48.79	0.69
W1	2371	Regional	243.04	200.40	205.94	202.91	205.95	0.50	743.50	245.09	0.07
W1	2371	100 Year	67.05	200.40	202.34	201.95	202.47	1.92	63.69	82.70	0.50
W1	2371	50 Year	56.76	200.40	202.23	201.83	202.35	1.82	55.40	73.44	0.49
W1	2371	25 Year	45.27	200.40	202.08	201.70	202.19	1.73	44.53	70.59	0.49
W1	2371	10 Year	31.56	200.40	201.82	201.55	201.93	1.65	28.36	45.06	0.52
W1	2371	5 Year	22.49	200.40	201.63	201.42	201.73	1.53	20.76	35.81	0.54
W1	2371	2 Year	10.80	200.40	201.34	201.16	201.41	1.27	10.83	31.85	0.54
W1	2323	Regional	243.04	200.23	205.94	202.82	205.95	0.59	764.97	256.39	0.08
W1	2323	100 Year	67.05	200.23	202.24	201.82	202.38	1.96	65.30	79.97	0.48
W1	2323	50 Year	56.76	200.23	202.13	201.66	202.26	1.86	56.54	76.02	0.47
W1	2323	25 Year	45.27	200.23	201.97	201.57	202.10	1.76	45.26	70.72	0.47
W1	2323	10 Year	31.56	200.23	201.71	201.39	201.82	1.63	29.91	47.40	0.49
W1	2323	5 Year	22.49	200.23	201.51	201.24	201.61	1.48	21.68	39.19	0.48
W1	2323	2 Year	10.80	200.23	201.20	200.94	201.27	1.18	10.45	31.63	0.47
W1	2299	Regional	243.04	200.15	205.94	202.69	205.95	0.51	764.78	249.32	0.07
W1	2299	100 Year	67.05	200.15	201.88	201.88	202.26	2.82	32.80	61.51	0.82
W1	2299	50 Year	56.76	200.15	201.76	201.76	202.13	2.76	25.60	54.46	0.85
W1	2299	25 Year	45.27	200.15	201.51	201.51	201.95	2.92	15.77	22.69	0.99
W1	2299	10 Year	31.56	200.15	201.31	201.31	201.67	2.62	12.04	16.87	0.99
W1	2299	5 Year	22.49	200.15	201.15	201.15	201.45	2.39	9.40	16.11	1.00
W1	2299	2 Year	10.80	200.15	200.93	200.91	201.10	1.82	5.94	15.01	0.92
W1	2274	Regional	243.04	200.06	205.94	202.52	205.95	0.54	757.98	235.07	0.08
W1	2274	100 Year	67.05	200.06	201.58	201.37	201.85	2.34	31.09	44.84	0.73
W1	2274	50 Year	56.76	200.06	201.50	201.28	201.74	2.15	27.63	43.53	0.69
W1	2274	25 Year	45.27	200.06	201.41	201.15	201.59	1.91	23.86	31.35	0.64
W1	2274	10 Year	31.56	200.06	201.21	201.00	201.36	1.69	18.72	25.38	0.63
W1	2274	5 Year	22.49	200.06	201.01	200.87	201.15	1.63	13.83	23.96	0.68

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	2274	2 Year	10.80	200.06	200.87	200.68	200.93	1.03	10.53	22.89	0.48
W1	2246	Regional	243.04	200.09	205.94	200.78	205.94	0.23	2053.03	420.67	0.03
W1	2246	100 Year	67.05	200.09	201.71	200.78	201.71	0.19	544.27	303.38	0.06
W1	2246	50 Year	56.76	200.09	201.61	200.78	201.61	0.16	514.23	302.38	0.05
W1	2246	25 Year	45.27	200.09	201.49	200.78	201.49	0.13	479.11	299.13	0.04
W1	2246	10 Year	31.56	200.09	201.28	200.78	201.28	0.09	415.79	294.51	0.04
W1	2246	5 Year	22.49	200.09	201.08	200.78	201.08	0.07	356.96	289.12	0.03
W1	2246	2 Year	10.80	200.09	200.90	200.78	200.90	0.03	305.76	275.01	0.02
W1	2227		Mult Open			Steeles Avenue Crossing					
W1	2204	Regional	243.04	199.96	205.94	201.46	205.94	0.36	1727.37	456.23	0.05
W1	2204	100 Year	67.05	199.96	201.09	201.07	201.48	2.93	29.14	83.74	0.94
W1	2204	50 Year	56.76	199.96	200.98	200.98	201.35	2.83	25.32	82.91	0.96
W1	2204	25 Year	45.27	199.96	200.86	200.86	201.19	2.66	21.25	82.02	0.97
W1	2204	10 Year	31.56	199.96	200.73	200.73	200.98	2.32	16.59	81.00	0.93
W1	2204	5 Year	22.49	199.96	200.61	200.61	200.83	2.08	12.67	80.13	0.92
W1	2204	2 Year	10.80	199.96	200.42	200.40	200.56	1.68	6.55	63.91	0.91
W1	2166	Regional	243.04	199.27	205.94	201.51	205.94	0.37	1625.59	466.32	0.05
W1	2166	100 Year	67.05	199.27	201.12	200.64	201.19	1.46	60.89	61.82	0.39
W1	2166	50 Year	56.76	199.27	200.82	200.58	200.93	1.76	43.05	58.65	0.52
W1	2166	25 Year	45.27	199.27	200.67	200.51	200.78	1.80	33.95	57.18	0.57
W1	2166	10 Year	31.56	199.27	200.54	200.39	200.63	1.59	26.77	56.43	0.54
W1	2166	5 Year	22.49	199.27	200.44	200.30	200.52	1.40	21.48	52.21	0.51
W1	2166	2 Year	10.80	199.27	200.27	200.14	200.32	1.04	13.40	43.12	0.43
W1	2126	Regional	243.04	199.41	205.94	201.08	205.94	0.36	1755.44	450.60	0.05
W1	2126	100 Year	67.05	199.41	201.10	200.39	201.13	1.10	119.87	161.28	0.31
W1	2126	50 Year	56.76	199.41	200.75	200.34	200.80	1.35	76.24	96.07	0.44
W1	2126	25 Year	45.27	199.41	200.28	200.28	200.47	2.41	33.54	86.94	1.11
W1	2126	10 Year	31.56	199.41	200.22	200.22	200.35	2.04	27.74	85.48	1.00
W1	2126	5 Year	22.49	199.41	200.16	200.16	200.27	1.80	22.75	82.83	0.91
W1	2126	2 Year	10.80	199.41	200.00	200.00	200.10	1.61	11.34	56.08	0.90
W1	2072	Regional	243.04	199.16	205.94	199.44	205.94	0.24	2406.59	492.56	0.03
W1	2072	100 Year	67.05	199.16	201.11	199.03	201.11	0.24	507.28	271.07	0.06
W1	2072	50 Year	56.76	199.16	200.78	199.00	200.78	0.24	420.11	259.17	0.07
W1	2072	25 Year	45.27	199.16	200.39	198.95	200.39	0.23	320.75	253.80	0.08
W1	2072	10 Year	31.56	199.16	199.92	198.89	199.92	0.20	201.81	234.49	0.10
W1	2072	5 Year	22.49	199.16	199.59	198.83	199.59	0.18	129.98	194.51	0.12
W1	2072	2 Year	10.80	199.16	199.14	198.74	199.14		52.60	134.89	0.00
W1	1849	Regional	243.04	197.15	205.94	200.42	205.94	0.27	2030.89	571.55	0.03
W1	1849	100 Year	67.05	197.15	201.07	199.39	201.09	0.84	147.16	130.60	0.15
W1	1849	50 Year	56.76	197.15	200.73	199.21	200.76	0.84	122.22	89.41	0.16
W1	1849	25 Year	45.27	197.15	200.33	198.99	200.36	0.85	94.05	69.72	0.18
W1	1849	10 Year	31.56	197.15	199.83	198.76	199.86	0.87	59.52	65.35	0.21
W1	1849	5 Year	22.49	197.15	199.45	198.58	199.49	0.89	36.27	59.90	0.24
W1	1849	2 Year	10.80	197.15	198.89	198.29	198.92	0.79	13.62	17.22	0.28

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1831	Regional	243.04	197.02	205.92	200.31	205.93	0.64	753.67	613.71	0.07
W1	1831	100 Year	67.05	197.02	201.04	198.97	201.06	0.76	140.25	329.66	0.14
W1	1831	50 Year	56.76	197.02	200.69	198.86	200.71	0.76	109.89	254.36	0.15
W1	1831	25 Year	45.27	197.02	200.28	198.71	200.30	0.77	80.22	208.09	0.17
W1	1831	10 Year	31.56	197.02	199.74	198.48	199.77	0.77	48.18	116.90	0.20
W1	1831	5 Year	22.49	197.02	199.33	198.30	199.36	0.75	32.93	71.42	0.21
W1	1831	2 Year	10.80	197.02	198.69	197.99	198.71	0.69	15.67	19.32	0.24
W1	1772		Mult Open		CNR Crossing						
W1	1721	Regional	243.04	196.75	201.53	199.27	201.64	1.72	220.22	207.06	0.27
W1	1721	100 Year	67.05	196.75	199.21	198.38	199.27	1.25	79.94	127.31	0.30
W1	1721	50 Year	56.76	196.75	199.02	198.31	199.08	1.21	69.76	122.70	0.31
W1	1721	25 Year	45.27	196.75	198.84	198.22	198.89	1.12	59.45	112.62	0.31
W1	1721	10 Year	31.56	196.75	198.59	198.08	198.63	0.99	46.04	104.59	0.30
W1	1721	5 Year	22.49	196.75	198.41	197.87	198.44	0.89	35.95	96.39	0.29
W1	1721	2 Year	10.80	196.75	198.10	197.58	198.13	0.71	19.52	76.41	0.28
W1	1645	Regional	243.04	196.74	201.54	199.58	201.58	1.11	481.32	245.81	0.18
W1	1645	100 Year	67.05	196.74	198.93	198.40	199.12	1.94	34.48	105.04	0.51
W1	1645	50 Year	56.76	196.74	198.75	198.30	198.93	1.87	30.28	84.23	0.53
W1	1645	25 Year	45.27	196.74	198.59	198.18	198.74	1.70	26.64	73.25	0.51
W1	1645	10 Year	31.56	196.74	198.39	198.02	198.50	1.44	21.93	59.52	0.47
W1	1645	5 Year	22.49	196.74	198.23	197.89	198.31	1.23	18.27	50.75	0.44
W1	1645	2 Year	10.80	196.74	197.96	197.61	198.00	0.90	11.95	33.02	0.39
W1	1630		Mult Open		Bronte Street Crossing						
W1	1619	Regional	243.04	196.45	201.43	198.60	201.44	0.70	886.27	338.01	0.11
W1	1619	100 Year	67.05	196.45	198.55	198.39	198.58	1.16	141.36	201.17	0.32
W1	1619	50 Year	56.76	196.45	198.55	198.28	198.82	2.37	26.06	200.98	0.65
W1	1619	25 Year	45.27	196.45	198.44	198.15	198.65	2.10	23.38	195.82	0.60
W1	1619	10 Year	31.56	196.45	198.28	197.95	198.42	1.71	19.69	187.19	0.53
W1	1619	5 Year	22.49	196.45	198.15	197.75	198.25	1.41	16.70	171.27	0.46
W1	1619	2 Year	10.80	196.45	197.92	197.40	197.96	0.92	12.16	113.00	0.33
W1	1223	Regional	243.04	196.15	201.41	197.96	201.42	0.62	709.06	255.88	0.09
W1	1223	100 Year	67.05	196.15	198.31	197.44	198.33	0.90	155.13	117.85	0.23
W1	1223	50 Year	56.76	196.15	198.12	197.40	198.13	0.91	132.58	117.18	0.25
W1	1223	25 Year	45.27	196.15	197.91	197.35	197.92	0.91	108.09	116.29	0.27
W1	1223	10 Year	31.56	196.15	197.65	197.27	197.67	0.90	78.84	115.16	0.29
W1	1223	5 Year	22.49	196.15	197.48	197.21	197.50	0.89	58.72	114.38	0.31
W1	1223	2 Year	10.80	196.15	197.20	197.05	197.23	0.94	27.56	112.82	0.39
W1	1109	Regional	243.04	196.10	201.41	197.68	201.41	0.51	916.89	300.35	0.07
W1	1109	100 Year	67.05	196.10	198.28	197.21	198.29	0.61	225.89	159.28	0.15
W1	1109	50 Year	56.76	196.10	198.09	197.17	198.10	0.60	194.83	158.30	0.15
W1	1109	25 Year	45.27	196.10	197.87	197.12	197.88	0.58	160.97	157.25	0.16
W1	1109	10 Year	31.56	196.10	197.62	197.05	197.62	0.55	120.38	155.93	0.17
W1	1109	5 Year	22.49	196.10	197.44	197.01	197.44	0.51	92.45	154.91	0.17
W1	1109	2 Year	10.80	196.10	197.15	196.77	197.16	0.47	48.57	152.07	0.19

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	1083	Regional	243.04	195.95	201.41	197.46	201.41	0.37	1352.50	394.28	0.05
W1	1083	100 Year	67.05	195.95	198.28	197.09	198.28	0.41	372.70	250.82	0.09
W1	1083	50 Year	56.76	195.95	198.08	197.06	198.09	0.41	323.43	250.01	0.10
W1	1083	25 Year	45.27	195.95	197.87	197.02	197.87	0.39	269.56	249.12	0.10
W1	1083	10 Year	31.56	195.95	197.61	196.92	197.61	0.37	204.80	248.08	0.10
W1	1083	5 Year	22.49	195.95	197.43	196.71	197.43	0.34	160.21	247.41	0.10
W1	1083	2 Year	10.80	195.95	197.14	196.51	197.14	0.30	89.94	246.21	0.10
W1	1053	Regional	243.04	196.65	201.34	198.07	201.39	1.23	291.29	312.88	0.18
W1	1053	100 Year	67.05	196.65	198.22	197.32	198.26	1.06	93.13	160.91	0.28
W1	1053	50 Year	56.76	196.65	198.02	197.26	198.06	1.04	80.69	159.74	0.29
W1	1053	25 Year	45.27	196.65	197.81	197.19	197.84	0.99	67.11	158.51	0.30
W1	1053	10 Year	31.56	196.65	197.55	197.09	197.58	0.91	50.89	157.31	0.32
W1	1053	5 Year	22.49	196.65	197.38	197.03	197.40	0.83	39.82	156.45	0.33
W1	1053	2 Year	10.80	196.65	197.10	196.92	197.12	0.72	22.12	153.55	0.37
W1	1032		Bridge								
W1	1006	Regional	243.04	196.53	199.22	198.10	199.36	1.85	200.24	235.27	0.37
W1	1006	100 Year	67.05	196.53	197.53	197.37	197.68	1.86	46.58	162.48	0.65
W1	1006	50 Year	56.76	196.53	197.31	197.31	197.55	2.22	31.35	160.96	0.89
W1	1006	25 Year	45.27	196.53	197.23	197.23	197.45	2.09	25.54	160.32	0.90
W1	1006	10 Year	31.56	196.53	197.11	197.11	197.30	1.93	17.07	158.32	0.94
W1	1006	5 Year	22.49	196.53	197.01	197.01	197.18	1.79	12.55	156.27	0.98
W1	1006	2 Year	10.80	196.53	196.88	196.88	196.98	1.43	7.54	153.50	0.99
W1	985	Regional	243.04	195.62	199.26	196.91	199.29	1.07	474.60	243.48	0.21
W1	985	100 Year	67.05	195.62	197.57	196.75	197.58	0.73	150.97	142.10	0.21
W1	985	50 Year	56.76	195.62	197.38	196.75	197.39	0.70	132.32	137.99	0.22
W1	985	25 Year	45.27	195.62	197.16	196.75	197.17	0.66	110.25	106.57	0.23
W1	985	10 Year	31.56	195.62	196.86	196.75	196.87	0.62	81.32	93.96	0.25
W1	985	5 Year	22.49	195.62	196.75	196.75	196.76	0.47	71.57	88.26	0.20
W1	985	2 Year	10.80	195.62	196.58	196.44	196.71	1.63	6.61	77.86	0.73
W1	923	Regional	243.04	194.99	199.01	198.42	199.20	2.24	239.12	247.57	0.43
W1	923	100 Year	67.05	194.99	197.14	196.70	197.42	2.36	28.45	25.18	0.65
W1	923	50 Year	56.76	194.99	196.95	196.56	197.22	2.29	24.76	22.82	0.65
W1	923	25 Year	45.27	194.99	196.74	196.37	196.98	2.18	20.74	19.73	0.65
W1	923	10 Year	31.56	194.99	196.45	196.14	196.65	1.98	15.95	15.80	0.63
W1	923	5 Year	22.49	194.99	196.23	195.96	196.39	1.79	12.56	14.57	0.62
W1	923	2 Year	10.80	194.99	195.85	195.65	195.96	1.46	7.40	12.58	0.61
W1	874	Regional	243.04	194.70	198.70	198.01	199.06	3.22	198.03	207.35	0.53
W1	874	100 Year	67.05	194.70	196.79	196.33	197.12	2.60	28.73	30.99	0.62
W1	874	50 Year	56.76	194.70	196.63	196.18	196.93	2.42	25.73	28.91	0.60
W1	874	25 Year	45.27	194.70	196.45	196.01	196.69	2.19	22.11	26.09	0.58
W1	874	10 Year	31.56	194.70	196.18	195.77	196.36	1.88	17.36	17.00	0.55
W1	874	5 Year	22.49	194.70	195.95	195.59	196.09	1.66	13.75	14.71	0.54
W1	874	2 Year	10.80	194.70	195.56	195.28	195.64	1.30	8.34	12.77	0.51
W1	835	Regional	243.04	194.38	198.70	197.73	198.95	2.49	193.36	175.68	0.45
W1	835	100 Year	67.05	194.38	196.65	196.16	196.92	2.31	29.03	29.32	0.61

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	835	50 Year	56.76	194.38	196.49	196.02	196.73	2.19	25.89	27.18	0.60
W1	835	25 Year	45.27	194.38	196.29	195.84	196.50	2.04	22.24	23.37	0.59
W1	835	10 Year	31.56	194.38	196.02	195.57	196.19	1.79	17.59	16.56	0.56
W1	835	5 Year	22.49	194.38	195.80	195.39	195.93	1.59	14.13	14.65	0.52
W1	835	2 Year	10.80	194.38	195.42	195.07	195.50	1.19	9.06	12.43	0.45
W1	808	Regional	243.04	194.43	198.26	197.70	198.80	3.53	128.74	109.10	0.60
W1	808	100 Year	67.05	194.43	196.26	195.93	196.61	2.66	26.34	20.07	0.68
W1	808	50 Year	56.76	194.43	196.13	195.79	196.44	2.46	23.84	19.38	0.66
W1	808	25 Year	45.27	194.43	195.97	195.63	196.22	2.22	20.80	18.33	0.63
W1	808	10 Year	31.56	194.43	195.75	195.41	195.93	1.87	16.97	17.02	0.58
W1	808	5 Year	22.49	194.43	195.56	195.24	195.69	1.63	13.78	15.86	0.56
W1	808	2 Year	10.80	194.43	195.19	194.97	195.28	1.29	8.37	13.96	0.53
W1	778	Regional	243.04	194.31	198.29	197.51	198.71	3.23	139.00	97.11	0.54
W1	778	100 Year	67.05	194.31	196.16	195.83	196.51	2.63	27.81	25.67	0.68
W1	778	50 Year	56.76	194.31	196.03	195.70	196.34	2.46	24.40	24.56	0.66
W1	778	25 Year	45.27	194.31	195.88	195.51	196.13	2.22	20.78	22.74	0.63
W1	778	10 Year	31.56	194.31	195.68	195.26	195.85	1.84	17.14	16.02	0.57
W1	778	5 Year	22.49	194.31	195.49	195.08	195.62	1.57	14.37	14.45	0.50
W1	778	2 Year	10.80	194.31	195.15	194.81	195.21	1.13	9.55	13.29	0.43
W1	741	Regional	243.04	193.95	198.31	197.17	198.59	2.58	151.20	80.02	0.45
W1	741	100 Year	67.05	193.95	196.04	195.65	196.31	2.36	31.61	25.45	0.62
W1	741	50 Year	56.76	193.95	195.89	195.52	196.14	2.23	28.00	24.83	0.61
W1	741	25 Year	45.27	193.95	195.74	195.36	195.95	2.02	24.31	24.12	0.58
W1	741	10 Year	31.56	193.95	195.56	195.13	195.70	1.66	20.07	22.82	0.51
W1	741	5 Year	22.49	193.95	195.40	194.94	195.50	1.40	16.44	21.20	0.46
W1	741	2 Year	10.80	193.95	195.07	194.67	195.12	1.01	10.66	14.67	0.38
W1	722	Regional	243.04	193.94	198.30	196.91	198.54	2.46	150.23	81.10	0.42
W1	722	100 Year	67.05	193.94	195.98	195.63	196.21	2.25	35.92	32.83	0.61
W1	722	50 Year	56.76	193.94	195.82	195.52	196.05	2.17	31.10	32.02	0.62
W1	722	25 Year	45.27	193.94	195.67	195.39	195.86	2.01	26.35	30.66	0.60
W1	722	10 Year	31.56	193.94	195.50	195.15	195.64	1.68	21.30	29.22	0.54
W1	722	5 Year	22.49	193.94	195.33	194.93	195.44	1.47	16.53	27.35	0.51
W1	722	2 Year	10.80	193.94	195.02	194.65	195.08	1.08	10.04	14.08	0.41
W1	705		Bridge								
W1	675	Regional	243.04	193.95	196.55	195.79	196.73	1.76	129.14	118.77	0.39
W1	675	100 Year	67.05	193.95	195.91	195.21	195.94	0.82	83.73	86.53	0.21
W1	675	50 Year	56.76	193.95	195.79	195.16	195.82	0.79	75.68	84.79	0.21
W1	675	25 Year	45.27	193.95	195.66	195.11	195.69	0.74	66.70	82.89	0.20
W1	675	10 Year	31.56	193.95	195.49	195.03	195.51	0.66	54.59	80.73	0.19
W1	675	5 Year	22.49	193.95	195.32	194.96	195.33	0.64	42.57	78.13	0.20
W1	675	2 Year	10.80	193.95	194.99	194.49	195.01	0.72	20.21	72.00	0.25
W1	645	Regional	243.04	193.89	196.55	195.60	196.63	1.54	193.16	148.82	0.34
W1	645	100 Year	67.05	193.89	195.90	195.11	195.92	0.72	119.79	103.00	0.18
W1	645	50 Year	56.76	193.89	195.78	195.07	195.80	0.69	107.94	101.63	0.18
W1	645	25 Year	45.27	193.89	195.66	195.01	195.67	0.64	94.85	100.77	0.17

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
			(m3/s)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
W1	645	10 Year	31.56	193.89	195.48	194.94	195.49	0.57	77.36	99.53	0.16
W1	645	5 Year	22.49	193.89	195.30	194.88	195.31	0.55	59.97	98.06	0.16
W1	645	2 Year	10.80	193.89	194.97	194.50	194.98	0.61	28.08	89.80	0.21
W1	613	Regional	243.04	193.80	196.56	195.36	196.58	1.08	354.64	233.70	0.21
W1	613	100 Year	67.05	193.80	195.90	194.94	195.90	0.52	210.21	208.98	0.12
W1	613	50 Year	56.76	193.80	195.78	194.94	195.79	0.50	188.75	197.98	0.12
W1	613	25 Year	45.27	193.80	195.65	194.94	195.66	0.46	165.11	183.63	0.11
W1	613	10 Year	31.56	193.80	195.48	194.88	195.48	0.40	134.39	170.70	0.10
W1	613	5 Year	22.49	193.80	195.30	194.69	195.30	0.38	104.86	164.43	0.10
W1	613	2 Year	10.80	193.80	194.89	194.39	194.94	1.01	11.01	122.77	0.33
W1	607		Bridge								
W1	603	Regional	243.04	193.79	196.50	195.21	196.54	1.17	293.57	173.12	0.23
W1	603	100 Year	67.05	193.79	195.89	194.90	195.89	0.48	202.72	144.95	0.11
W1	603	50 Year	56.76	193.79	195.77	194.90	195.78	0.45	185.98	144.35	0.10
W1	603	25 Year	45.27	193.79	195.64	194.90	195.65	0.41	167.44	143.71	0.10
W1	603	10 Year	31.56	193.79	195.47	194.90	195.47	0.34	142.63	142.84	0.09
W1	603	5 Year	22.49	193.79	195.29	194.68	195.30	0.31	117.53	141.96	0.08
W1	603	2 Year	10.80	193.79	194.69	194.37	194.78	1.30	8.48	134.24	0.46
W1	590	Regional	243.04	193.74	196.48	195.17	196.52	1.04	278.32	158.93	0.22
W1	590	100 Year	67.05	193.74	195.88	194.78	195.89	0.43	195.84	136.76	0.10
W1	590	50 Year	56.76	193.74	195.77	194.77	195.77	0.40	180.08	136.29	0.10
W1	590	25 Year	45.27	193.74	195.64	194.77	195.65	0.36	162.63	135.77	0.09
W1	590	10 Year	31.56	193.74	195.47	194.77	195.47	0.30	139.27	135.06	0.08
W1	590	5 Year	22.49	193.74	195.29	194.66	195.29	0.27	115.56	134.27	0.08
W1	590	2 Year	10.80	193.74	194.45	194.35	194.61	1.78	6.08	60.32	0.76
W1	513	Regional	243.04	192.98	196.23	195.77	196.46	1.88	116.45	82.21	0.39
W1	513	100 Year	67.05	192.98	195.85	194.85	195.88	0.78	84.87	80.44	0.17
W1	513	50 Year	56.76	192.98	195.73	194.78	195.76	0.75	75.87	79.50	0.17
W1	513	25 Year	45.27	192.98	195.61	194.68	195.64	0.64	65.07	62.07	0.15
W1	513	10 Year	31.56	192.98	195.45	194.54	195.46	0.52	56.81	58.17	0.13
W1	513	5 Year	22.49	192.98	195.28	194.19	195.29	0.45	48.35	49.96	0.11
W1	513	2 Year	10.80	192.98	193.97	193.86	194.14	1.78	6.06	10.37	0.74
W1	421	Regional	243.04	192.18	196.32	194.76	196.37	0.81	244.61	143.23	0.15
W1	421	100 Year	67.05	192.18	195.86	194.32	195.87	0.29	195.99	103.42	0.06
W1	421	50 Year	56.76	192.18	195.75	194.32	195.75	0.27	184.29	102.71	0.05
W1	421	25 Year	45.27	192.18	195.62	194.18	195.62	0.24	171.54	102.10	0.05
W1	421	10 Year	31.56	192.18	195.45	193.98	195.46	0.19	154.63	101.31	0.04
W1	421	5 Year	22.49	192.18	195.28	193.60	195.28	0.16	137.18	100.47	0.03
W1	421	2 Year	10.80	192.18	193.89	193.26	193.93	0.90	13.00	44.14	0.29
W1	333	Regional	243.04	191.41	196.31	194.91	196.35	1.02	264.68	127.64	0.19
W1	333	100 Year	67.05	191.41	195.86	193.98	195.86	0.37	209.57	120.88	0.07
W1	333	50 Year	56.76	191.41	195.74	193.80	195.75	0.34	195.90	120.51	0.07
W1	333	25 Year	45.27	191.41	195.62	193.58	195.62	0.30	180.96	120.10	0.06
W1	333	10 Year	31.56	191.41	195.45	193.29	195.46	0.24	161.10	119.53	0.05
W1	333	5 Year	22.49	191.41	195.28	193.06	195.28	0.20	140.50	118.89	0.04

Updated Hydraulic Model at CNR and Bronte Street

Revised Existing Conditions

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	333	2 Year	10.80	191.41	193.86	192.68	193.88	0.65	16.59	21.18	0.18
W1	230	Regional	243.04	190.18	196.30	194.69	196.33	1.05	344.65	149.72	0.18
W1	230	100 Year	67.05	190.18	195.85	193.10	195.86	0.38	278.20	147.49	0.07
W1	230	50 Year	56.76	190.18	195.74	192.90	195.75	0.34	261.61	146.05	0.06
W1	230	25 Year	45.27	190.18	195.62	192.67	195.62	0.30	243.60	144.51	0.05
W1	230	10 Year	31.56	190.18	195.45	192.36	195.45	0.23	219.85	142.85	0.04
W1	230	5 Year	22.49	190.18	195.28	192.10	195.28	0.19	195.31	141.63	0.04
W1	230	2 Year	10.80	190.18	193.86	191.68	193.87	0.41	26.53	71.97	0.09
W1	189	Culvert									
W1	165	Regional	243.04	191.02	196.15	195.48	196.31	2.55	182.64	122.51	0.38
W1	165	100 Year	67.05	191.02	195.83	193.55	195.85	0.87	147.11	105.03	0.13
W1	165	50 Year	56.76	191.02	195.72	193.31	195.74	0.80	135.67	102.16	0.12
W1	165	25 Year	45.27	191.02	195.60	193.02	195.62	0.70	123.52	99.58	0.11
W1	165	10 Year	31.56	191.02	195.44	192.62	195.45	0.56	107.75	96.02	0.09
W1	165	5 Year	22.49	191.02	195.27	192.32	195.28	0.46	91.79	91.20	0.08
W1	165	2 Year	10.80	191.02	193.84	191.84	193.86	0.63	17.28	8.95	0.13
W1	138	Regional	243.04	190.87	196.11	195.54	196.30	2.75	189.39	126.96	0.41
W1	138	100 Year	67.05	190.87	195.83	193.45	195.85	0.91	155.48	115.08	0.14
W1	138	50 Year	56.76	190.87	195.72	193.21	195.74	0.84	142.90	113.79	0.13
W1	138	25 Year	45.27	190.87	195.60	192.92	195.62	0.74	129.33	111.89	0.12
W1	138	10 Year	31.56	190.87	195.44	192.51	195.45	0.59	111.67	108.96	0.09
W1	138	5 Year	22.49	190.87	195.27	192.20	195.28	0.48	93.47	105.33	0.08
W1	138	2 Year	10.80	190.87	193.84	191.72	193.86	0.58	20.91	19.69	0.12

Sixteen Mile Creek Tributary NW1-E
Existing Conditions Hydraulic Model - Extended and Updated

River	Reach	River Station	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m ²)	Top Width (m)	Froude #
Tributary NW1-E	Reach 1	70.25	2-yr	1.71	211.50	213.29	211.72	213.29	0.04	92.83	80.28	0.01
Tributary NW1-E	Reach 1	70.25	5-yr	3.04	211.50	213.40	211.80	213.40	0.06	101.92	84.77	0.01
Tributary NW1-E	Reach 1	70.25	10-yr	4.04	211.50	213.44	211.83	213.44	0.08	105.33	86.68	0.02
Tributary NW1-E	Reach 1	70.25	25-yr	5.38	211.50	213.49	211.87	213.49	0.10	108.97	88.69	0.02
Tributary NW1-E	Reach 1	70.25	50-yr	6.41	211.50	213.52	211.89	213.52	0.12	111.78	90.25	0.03
Tributary NW1-E	Reach 1	70.25	100-yr	7.46	211.50	213.54	211.92	213.54	0.13	114.09	91.53	0.03
Tributary NW1-E	Reach 1	70.25	Regional	13.08	211.50	214.22	212.01	214.22	0.17	202.09	167.44	0.03
Tributary NW1-E	Reach 1	70.24	2-yr	1.71	211.23	213.29	211.35	213.29	0.02	171.71	260.26	0.00
Tributary NW1-E	Reach 1	70.24	5-yr	3.04	211.23	213.40	211.38	213.40	0.03	200.67	265.07	0.01
Tributary NW1-E	Reach 1	70.24	10-yr	4.04	211.23	213.44	211.42	213.44	0.03	211.26	266.80	0.01
Tributary NW1-E	Reach 1	70.24	25-yr	5.38	211.23	213.49	211.43	213.49	0.04	222.40	268.57	0.01
Tributary NW1-E	Reach 1	70.24	50-yr	6.41	211.23	213.52	211.44	213.52	0.05	230.86	269.85	0.01
Tributary NW1-E	Reach 1	70.24	100-yr	7.46	211.23	213.54	211.46	213.54	0.06	237.73	270.86	0.01
Tributary NW1-E	Reach 1	70.24	Regional	13.08	211.23	214.22	211.53	214.22	0.06	439.84	334.05	0.01
Tributary NW1-E	Reach 1	70.23	2-yr	1.99	210.95	213.29	211.36	213.29	0.03	183.43	285.82	0.01
Tributary NW1-E	Reach 1	70.23	5-yr	3.53	210.95	213.40	211.44	213.40	0.04	215.54	298.12	0.01
Tributary NW1-E	Reach 1	70.23	10-yr	4.67	210.95	213.44	211.49	213.44	0.06	227.45	300.40	0.01
Tributary NW1-E	Reach 1	70.23	25-yr	6.22	210.95	213.49	211.55	213.49	0.07	240.00	303.40	0.02
Tributary NW1-E	Reach 1	70.23	50-yr	7.41	210.95	213.52	211.59	213.52	0.08	249.56	306.13	0.02
Tributary NW1-E	Reach 1	70.23	100-yr	8.62	210.95	213.54	211.62	213.54	0.09	257.37	308.36	0.02
Tributary NW1-E	Reach 1	70.23	Regional	14.90	210.95	214.22	211.80	214.22	0.08	483.07	352.57	0.02
Tributary NW1-E	Reach 1	70.22	2-yr	1.99	210.43	213.29	210.95	213.29	0.06	31.73	196.91	0.01
Tributary NW1-E	Reach 1	70.22	5-yr	3.53	210.43	213.40	211.19	213.40	0.11	38.08	226.01	0.02
Tributary NW1-E	Reach 1	70.22	10-yr	4.67	210.43	213.44	211.34	213.44	0.14	40.59	232.63	0.03
Tributary NW1-E	Reach 1	70.22	25-yr	6.22	210.43	213.48	211.53	213.49	0.18	43.41	239.32	0.04
Tributary NW1-E	Reach 1	70.22	50-yr	7.41	210.43	213.51	211.67	213.52	0.21	45.58	243.71	0.05
Tributary NW1-E	Reach 1	70.22	100-yr	8.62	210.43	213.54	211.80	213.54	0.23	47.34	248.00	0.05
Tributary NW1-E	Reach 1	70.22	Regional	14.90	210.43	214.22	212.39	214.22	0.09	423.16	319.96	0.02
Tributary NW1-E	Reach 1	70.21		Culvert	Existing Steeles Avenue							
Tributary NW1-E	Reach 1	70.20	2-yr	1.99	210.31	211.19	210.90	211.29	1.43	1.39	4.60	0.51
Tributary NW1-E	Reach 1	70.20	5-yr	3.53	210.31	211.48	211.14	211.66	1.85	1.90	5.05	0.57
Tributary NW1-E	Reach 1	70.20	10-yr	4.67	210.31	211.70	211.29	211.91	2.04	2.29	5.42	0.57
Tributary NW1-E	Reach 1	70.20	25-yr	6.22	210.31	211.99	211.48	212.24	2.23	2.79	6.77	0.56
Tributary NW1-E	Reach 1	70.20	50-yr	7.41	210.31	212.20	211.61	212.48	2.35	3.16	10.69	0.56
Tributary NW1-E	Reach 1	70.20	100-yr	8.62	210.31	212.74	211.74	212.75	0.53	36.87	79.38	0.14
Tributary NW1-E	Reach 1	70.20	Regional	14.90	210.31	214.21	212.34	214.22	0.16	310.15	340.18	0.03
Tributary NW1-E	Reach 1	70.19	2-yr	2.58	210.33	211.21	210.75	211.25	0.89	2.89	5.83	0.31
Tributary NW1-E	Reach 1	70.19	5-yr	4.63	210.33	211.52	210.94	211.59	1.17	3.95	6.26	0.35
Tributary NW1-E	Reach 1	70.19	10-yr	6.16	210.33	211.75	211.05	211.84	1.30	4.74	6.55	0.35
Tributary NW1-E	Reach 1	70.19	25-yr	8.23	210.33	212.05	211.20	212.16	1.43	5.75	6.96	0.35
Tributary NW1-E	Reach 1	70.19	50-yr	9.83	210.33	212.27	211.31	212.38	1.52	6.48	7.25	0.35
Tributary NW1-E	Reach 1	70.19	100-yr	11.46	210.33	212.60	211.41	212.72	1.50	7.63	8.45	0.32
Tributary NW1-E	Reach 1	70.19	Regional	19.67	210.33	214.05	211.86	214.18	1.57	12.55	244.90	0.26
Tributary NW1-E	Reach 1	70.18		Culvert	CPR							
Tributary NW1-E	Reach 1	70.17	2-yr	2.58	210.30	211.08	210.75	211.14	1.06	2.44	7.68	0.40
Tributary NW1-E	Reach 1	70.17	5-yr	4.63	210.30	211.22	210.94	211.35	1.60	2.90	8.08	0.55
Tributary NW1-E	Reach 1	70.17	10-yr	6.16	210.30	211.29	211.06	211.48	1.97	3.13	8.38	0.65
Tributary NW1-E	Reach 1	70.17	25-yr	8.23	210.30	211.36	211.20	211.66	2.44	3.37	8.76	0.78
Tributary NW1-E	Reach 1	70.17	50-yr	9.83	210.30	211.40	211.32	211.80	2.78	3.54	9.07	0.87

Sixteen Mile Creek Tributary NW1-E
Existing Conditions Hydraulic Model - Extended and Updated

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
Tributary NW1-E	Reach 1	70.17	100-yr	11.46	210.30	211.44	211.41	211.94	3.15	3.64	9.27	0.97
Tributary NW1-E	Reach 1	70.17	Regional	19.67	210.30	211.87	211.87	212.62	3.83	5.13	11.85	1.00
Tributary NW1-E	Reach 1	70.16	2-yr	2.59	210.29	210.92	210.78	210.95	0.83	3.13	20.38	0.67
Tributary NW1-E	Reach 1	70.16	5-yr	4.63	210.29	210.98	210.95	211.03	1.00	4.65	26.78	0.76
Tributary NW1-E	Reach 1	70.16	10-yr	6.17	210.29	211.02	210.99	211.08	1.09	5.67	28.87	0.78
Tributary NW1-E	Reach 1	70.16	25-yr	8.24	210.29	211.06	211.03	211.13	1.19	6.95	31.02	0.80
Tributary NW1-E	Reach 1	70.16	50-yr	9.84	210.29	211.09	211.05	211.17	1.27	7.73	33.04	0.84
Tributary NW1-E	Reach 1	70.16	100-yr	11.47	210.29	211.11	211.08	211.20	1.33	8.65	34.90	0.85
Tributary NW1-E	Reach 1	70.16	Regional	19.70	210.29	211.20	211.20	211.34	1.66	11.87	40.58	0.98
Tributary NW1-E	Reach 1	70.15	2-yr	2.59	209.84	210.06	210.06	210.12	1.07	2.48	24.91	0.99
Tributary NW1-E	Reach 1	70.15	5-yr	4.63	209.84	210.12	210.12	210.19	1.19	4.40	34.45	0.92
Tributary NW1-E	Reach 1	70.15	10-yr	6.17	209.84	210.16	210.16	210.24	1.31	5.53	38.21	0.95
Tributary NW1-E	Reach 1	70.15	25-yr	8.24	209.84	210.19	210.19	210.29	1.44	7.01	42.62	0.97
Tributary NW1-E	Reach 1	70.15	50-yr	9.84	209.84	210.22	210.22	210.32	1.46	8.46	46.51	0.94
Tributary NW1-E	Reach 1	70.15	100-yr	11.47	209.84	210.25	210.25	210.36	1.53	9.60	49.38	0.96
Tributary NW1-E	Reach 1	70.15	Regional	19.70	209.84	210.38	210.38	210.48	1.57	19.61	92.61	0.85
Tributary NW1-E	Reach 1	70.14	2-yr	2.59	208.74	209.15	209.01	209.16	0.49	5.26	25.77	0.35
Tributary NW1-E	Reach 1	70.14	5-yr	4.63	208.74	209.26	209.08	209.27	0.55	8.48	32.73	0.34
Tributary NW1-E	Reach 1	70.14	10-yr	6.17	208.74	209.33	209.12	209.34	0.57	10.81	36.95	0.34
Tributary NW1-E	Reach 1	70.14	25-yr	8.24	208.74	209.40	209.17	209.42	0.60	13.76	41.69	0.33
Tributary NW1-E	Reach 1	70.14	50-yr	9.84	208.74	209.45	209.20	209.47	0.61	16.03	45.00	0.33
Tributary NW1-E	Reach 1	70.14	100-yr	11.47	208.74	209.50	209.23	209.52	0.63	18.24	48.00	0.33
Tributary NW1-E	Reach 1	70.14	Regional	19.70	208.74	209.69	209.34	209.71	0.70	28.25	59.48	0.32
Tributary NW1-E	Reach 1	70.13	2-yr	2.59	208.57	209.05	208.89	209.06	0.58	4.43	18.62	0.38
Tributary NW1-E	Reach 1	70.13	5-yr	4.63	208.57	209.16	208.98	209.18	0.68	6.79	23.05	0.40
Tributary NW1-E	Reach 1	70.13	10-yr	6.17	208.57	209.23	209.03	209.26	0.73	8.49	25.78	0.40
Tributary NW1-E	Reach 1	70.13	25-yr	8.24	208.57	209.30	209.08	209.34	0.78	10.54	28.72	0.41
Tributary NW1-E	Reach 1	70.13	50-yr	9.84	208.57	209.36	209.12	209.39	0.81	12.16	30.85	0.41
Tributary NW1-E	Reach 1	70.13	100-yr	11.47	208.57	209.41	209.16	209.44	0.84	13.67	32.71	0.41
Tributary NW1-E	Reach 1	70.13	Regional	19.70	208.57	209.59	209.30	209.63	0.98	20.20	40.05	0.44
Tributary NW1-E	Reach 1	70.12	2-yr	2.59	208.03	208.44	208.44	208.55	1.42	1.83	8.84	1.00
Tributary NW1-E	Reach 1	70.12	5-yr	4.63	208.03	208.55	208.55	208.68	1.60	2.90	11.14	1.00
Tributary NW1-E	Reach 1	70.12	10-yr	6.17	208.03	208.61	208.61	208.76	1.71	3.61	12.42	1.01
Tributary NW1-E	Reach 1	70.12	25-yr	8.24	208.03	208.68	208.68	208.85	1.80	4.57	13.98	1.01
Tributary NW1-E	Reach 1	70.12	50-yr	9.84	208.03	208.74	208.74	208.91	1.79	5.48	16.67	1.00
Tributary NW1-E	Reach 1	70.12	100-yr	11.47	208.03	208.79	208.79	208.96	1.81	6.32	18.91	1.00
Tributary NW1-E	Reach 1	70.12	Regional	19.70	208.03	208.94	208.94	209.16	2.05	9.79	27.18	1.01
Tributary NW1-E	Reach 1	70.11	2-yr	2.59	206.96	207.69	207.46	207.72	0.75	3.46	9.52	0.40
Tributary NW1-E	Reach 1	70.11	5-yr	4.63	206.96	207.86	207.59	207.90	0.88	5.29	11.76	0.42
Tributary NW1-E	Reach 1	70.11	10-yr	6.17	206.96	207.95	207.67	208.00	0.96	6.43	12.96	0.44
Tributary NW1-E	Reach 1	70.11	25-yr	8.24	206.96	208.06	207.75	208.11	1.05	7.84	14.32	0.45
Tributary NW1-E	Reach 1	70.11	50-yr	9.84	206.96	208.12	207.81	208.19	1.11	8.85	16.32	0.47
Tributary NW1-E	Reach 1	70.11	100-yr	11.47	206.96	208.18	207.87	208.25	1.17	9.94	20.71	0.48
Tributary NW1-E	Reach 1	70.11	Regional	19.70	206.96	208.41	208.09	208.50	1.37	17.38	37.28	0.50
Tributary NW1-E	Reach 1	70.10	2-yr	2.59	206.57	207.51	207.22	207.54	0.83	3.82	14.65	0.37
Tributary NW1-E	Reach 1	70.10	5-yr	4.63	206.57	207.68	207.40	207.72	1.01	6.93	23.43	0.40
Tributary NW1-E	Reach 1	70.10	10-yr	6.17	206.57	207.74	207.51	207.80	1.17	8.58	26.78	0.44
Tributary NW1-E	Reach 1	70.10	25-yr	8.24	206.57	207.85	207.61	207.91	1.26	11.78	31.92	0.44
Tributary NW1-E	Reach 1	70.10	50-yr	9.84	206.57	207.92	207.68	207.99	1.31	14.10	33.57	0.44
Tributary NW1-E	Reach 1	70.10	100-yr	11.47	206.57	207.98	207.74	208.05	1.37	16.11	34.94	0.45
Tributary NW1-E	Reach 1	70.10	Regional	19.70	206.57	208.13	207.94	208.25	1.84	21.79	38.56	0.56

Sixteen Mile Creek Tributary NW1-E
Existing Conditions Hydraulic Model - Extended and Updated

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
RIVER-1	Reach-3	70.09	2-yr	2.91	206.97	207.28	207.20	207.30	0.69	4.23	25.84	0.54
RIVER-1	Reach-3	70.09	5-yr	6.47	206.97	207.36	207.30	207.41	0.98	6.64	31.95	0.68
RIVER-1	Reach-3	70.09	10-yr	9.36	206.97	207.45	207.36	207.50	0.95	9.88	38.70	0.60
RIVER-1	Reach-3	70.09	20-yr	13.50	206.97	207.49	207.42	207.56	1.19	11.30	41.30	0.73
RIVER-1	Reach-3	70.09	50-yr	17.51	206.97	207.54	207.48	207.63	1.29	13.53	44.13	0.74
RIVER-1	Reach-3	70.09	100-yr	21.37	206.97	207.58	207.52	207.68	1.38	15.51	45.91	0.75
RIVER-1	Reach-3	70.09	Regional	31.44	206.97	207.66	207.60	207.80	1.66	19.03	47.41	0.82
RIVER-1	Reach-3	70.08	2-yr	2.91	206.30	206.28	206.28	206.44		1.63	5.44	0.00
RIVER-1	Reach-3	70.08	5-yr	6.47	206.30	206.47	206.47	206.55	1.33	5.16	30.85	1.24
RIVER-1	Reach-3	70.08	10-yr	9.36	206.30	206.47	206.47	206.64	1.95	5.07	30.55	1.83
RIVER-1	Reach-3	70.08	20-yr	13.50	206.30	206.60	206.60	206.73	1.93	9.76	39.99	1.25
RIVER-1	Reach-3	70.08	50-yr	17.51	206.30	206.65	206.65	206.81	2.13	11.74	41.26	1.26
RIVER-1	Reach-3	70.08	100-yr	21.37	206.30	206.69	206.69	206.88	2.30	13.45	42.33	1.27
RIVER-1	Reach-3	70.08	Regional	31.44	206.30	206.82	206.82	207.04	2.47	19.11	45.70	1.16
RIVER-1	Reach-3	70.07	2-yr	2.91	205.49	206.04	205.86	206.05	0.51	8.20	47.80	0.31
RIVER-1	Reach-3	70.07	5-yr	6.47	205.49	206.18	205.99	206.20	0.62	16.68	68.34	0.32
RIVER-1	Reach-3	70.07	10-yr	9.36	205.49	206.27	206.05	206.29	0.68	22.89	72.46	0.32
RIVER-1	Reach-3	70.07	20-yr	13.50	205.49	206.38	206.12	206.40	0.74	30.95	75.28	0.31
RIVER-1	Reach-3	70.07	50-yr	17.51	205.49	206.47	206.16	206.49	0.79	38.10	77.43	0.31
RIVER-1	Reach-3	70.07	100-yr	21.37	205.49	206.55	206.20	206.58	0.84	44.52	79.31	0.31
RIVER-1	Reach-3	70.07	Regional	31.44	205.49	206.75	206.28	206.77	0.93	60.06	83.68	0.31
RIVER-1	Reach-3	70.06	2-yr	2.91	205.44	205.92	205.81	205.94	0.66	6.73	35.05	0.43
RIVER-1	Reach-3	70.06	5-yr	6.47	205.44	206.07	205.92	206.09	0.84	12.11	40.28	0.44
RIVER-1	Reach-3	70.06	10-yr	9.36	205.44	206.15	205.96	206.18	0.96	15.65	43.21	0.46
RIVER-1	Reach-3	70.06	20-yr	13.50	205.44	206.26	206.03	206.31	1.08	20.78	47.14	0.46
RIVER-1	Reach-3	70.06	50-yr	17.51	205.44	206.36	206.08	206.41	1.17	25.39	50.04	0.46
RIVER-1	Reach-3	70.06	100-yr	21.37	205.44	206.44	206.14	206.49	1.24	29.58	52.09	0.46
RIVER-1	Reach-3	70.06	Regional	31.44	205.44	206.63	206.25	206.69	1.40	39.93	58.06	0.46
RIVER-1	Reach-3	70.05	2-yr	2.91	205.37	205.58	205.58	205.66	1.24	2.42	16.09	0.99
RIVER-1	Reach-3	70.05	5-yr	6.47	205.37	205.70	205.70	205.82	1.59	4.34	18.13	0.98
RIVER-1	Reach-3	70.05	10-yr	9.36	205.37	205.78	205.77	205.93	1.72	5.96	19.67	0.93
RIVER-1	Reach-3	70.05	20-yr	13.50	205.37	205.86	205.86	206.06	1.99	7.61	21.14	0.98
RIVER-1	Reach-3	70.05	50-yr	17.51	205.37	205.94	205.94	206.17	2.17	9.26	22.50	0.99
RIVER-1	Reach-3	70.05	100-yr	21.37	205.37	206.01	206.01	206.26	2.30	10.85	23.75	0.99
RIVER-1	Reach-3	70.05	Regional	31.44	205.37	206.17	206.17	206.47	2.54	14.98	26.59	0.97
RIVER-1	Reach-3	70.04	2-yr	3.76	205.00	205.05	204.85	205.06	0.28	11.24	70.16	0.47
RIVER-1	Reach-3	70.04	5-yr	8.33	205.00	205.50	204.99	205.50	0.20	57.03	130.52	0.14
RIVER-1	Reach-3	70.04	10-yr	12.03	205.00	205.87	205.04	205.88	0.15	112.94	160.61	0.08
RIVER-1	Reach-3	70.04	20-yr	17.31	205.00	205.95	205.08	205.95	0.20	125.42	163.94	0.10
RIVER-1	Reach-3	70.04	50-yr	21.43	205.00	206.02	205.11	206.02	0.24	137.35	175.23	0.11
RIVER-1	Reach-3	70.04	100-yr	26.14	205.00	206.09	205.13	206.10	0.28	149.92	177.95	0.12
RIVER-1	Reach-3	70.04	Regional	36.93	205.00	206.32	205.19	206.32	0.33	190.38	182.09	0.12
RIVER-1	Reach-3	70.03	2-yr	3.76	203.75	204.83	204.63	204.93	1.45	2.60	4.63	0.62
RIVER-1	Reach-3	70.03	5-yr	8.33	203.75	205.48	205.09	205.49	0.51	43.59	102.43	0.17
RIVER-1	Reach-3	70.03	10-yr	12.03	203.75	205.87	205.16	205.87	0.35	92.70	148.71	0.10
RIVER-1	Reach-3	70.03	20-yr	17.31	203.75	205.95	205.25	205.95	0.44	104.13	155.40	0.13
RIVER-1	Reach-3	70.03	50-yr	21.43	203.75	206.02	205.31	206.02	0.50	115.44	176.00	0.14
RIVER-1	Reach-3	70.03	100-yr	26.14	203.75	206.09	205.34	206.09	0.55	128.01	181.72	0.15
RIVER-1	Reach-3	70.03	Regional	36.93	203.75	206.31	205.44	206.32	0.60	170.84	200.01	0.15
RIVER-1	Reach-3	70.01	2-yr	3.76	203.92	204.52	204.52	204.82	2.43	1.55	2.60	1.01

Sisteen Mile Creek Tributary NW1-E

Existing Conditions Hydraulic Model - Extended and Updated

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
RIVER-1	Reach-3	70.01	5-yr	8.33	203.92	204.95	204.95	205.43	3.08	2.84	3.54	0.97
RIVER-1	Reach-3	70.01	10-yr	12.03	203.92	205.25	205.25	205.81	3.38	4.01	4.52	0.94
RIVER-1	Reach-3	70.01	20-yr	17.31	203.92	205.76	205.76	205.93	2.26	22.42	68.15	0.53
RIVER-1	Reach-3	70.01	50-yr	21.43	203.92	205.82	205.82	206.00	2.46	26.18	69.05	0.57
RIVER-1	Reach-3	70.01	100-yr	26.14	203.92	205.87	205.87	206.07	2.65	30.18	70.77	0.61
RIVER-1	Reach-3	70.01	Regional	36.93	203.92	206.26	205.98	206.31	1.71	82.09	185.63	0.36

APPENDIX

D

Proposed Hydraulic
Modelling

APPENDIX

D-1 Hydraulic Modelling



Steeles Avenue EA

Project:	HEC-RAS Model_Proposed Condition-1	C:\...16Mile_Hydraulics_Aug 2021_Final\SisteenMileCreek_Pr1.prj
Plan:	Plan 03	C:\...aaaa\16Mile_Hydraulics_Aug 2021_Final\SisteenMileCreek_Pr1.p03
Geometry:	Sixteen Mile Creek_SteelesEACropped_ExCN	C:\...aaaa\16Mile_Hydraulics_Aug 2021_Final\SisteenMileCreek_Pr1.g02
Steady Flow:	Future Flows_Steeles EA	C:\...aaaa\16Mile_Hydraulics_Aug 2021_Final\SisteenMileCreek_Pr1.f01

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	6800	Regional	242.00	219.74	222.05	221.82	222.40	3.33	149.31	119.96	0.73
W1	6800	100 Year	66.14	219.74	221.10	220.91	221.31	2.27	43.95	65.14	0.67
W1	6800	50 Year	55.36	219.74	221.00	220.80	221.19	2.14	38.53	51.11	0.66
W1	6800	25 Year	44.17	219.74	220.88	220.73	221.05	1.98	32.66	49.72	0.64
W1	6800	10 Year	30.75	219.74	220.72	220.58	220.86	1.74	24.81	47.68	0.61
W1	6800	5 Year	21.90	219.74	220.69	220.40	220.77	1.30	23.46	47.54	0.46
W1	6800	2 Year	10.46	219.74	220.35	220.18	220.42	1.21	8.68	27.78	0.55
W1	3626	Regional	243.04	205.64	208.29	207.33	208.47	2.35	223.20	322.86	0.48
W1	3626	100 Year	67.05	205.64	207.54	206.85	207.58	1.01	109.96	103.56	0.25
W1	3626	50 Year	56.76	205.64	207.39	206.75	207.42	0.95	95.67	86.27	0.25
W1	3626	25 Year	45.27	205.64	206.99	206.60	207.15	1.79	25.70	71.75	0.55
W1	3626	10 Year	31.56	205.64	206.64	206.42	206.81	1.83	17.26	63.52	0.65
W1	3626	5 Year	22.49	205.64	206.48	206.28	206.61	1.62	13.88	61.19	0.63
W1	3626	2 Year	10.80	205.64	206.23	206.07	206.30	1.20	8.99	52.42	0.55
W1	3610	Bridge									
W1	3598	Regional	243.04	205.54	208.12	207.46	208.28	2.32	211.69	238.07	0.48
W1	3598	100 Year	67.05	205.54	207.07	206.58	207.15	1.49	73.55	80.36	0.42
W1	3598	50 Year	56.76	205.54	206.91	206.50	207.03	1.68	44.73	76.45	0.50
W1	3598	25 Year	45.27	205.54	206.79	206.40	206.89	1.52	38.94	72.19	0.48
W1	3598	10 Year	31.56	205.54	206.61	206.27	206.68	1.32	30.51	66.75	0.45
W1	3598	5 Year	22.49	205.54	206.46	206.16	206.52	1.14	24.93	62.04	0.43
W1	3598	2 Year	10.80	205.54	206.21	205.97	206.25	0.87	15.38	49.62	0.38
W1	3579	Regional	243.04	205.47	207.91	207.62	208.17	3.05	166.54	174.04	0.64
W1	3579	100 Year	67.05	205.47	206.86	206.62	207.05	2.27	50.43	69.52	0.65
W1	3579	50 Year	56.76	205.47	206.77	206.52	206.94	2.12	44.43	63.83	0.63
W1	3579	25 Year	45.27	205.47	206.66	206.42	206.80	1.92	37.65	59.60	0.60
W1	3579	10 Year	31.56	205.47	206.49	206.27	206.60	1.67	28.34	50.30	0.57
W1	3579	5 Year	22.49	205.47	206.36	206.16	206.45	1.44	22.44	45.16	0.53
W1	3579	2 Year	10.80	205.47	206.14	205.95	206.19	1.05	13.61	35.18	0.46
W1	3459	Regional	243.04	204.94	206.70	206.37	207.40	4.27	96.27	132.18	1.08
W1	3459	100 Year	67.05	204.94	205.87	205.85	206.17	2.67	34.87	55.07	0.97
W1	3459	50 Year	56.76	204.94	205.79	205.79	206.07	2.54	30.78	54.56	0.97
W1	3459	25 Year	45.27	204.94	205.71	205.70	205.95	2.37	25.95	53.66	0.97
W1	3459	10 Year	31.56	204.94	205.60	205.59	205.79	2.05	20.58	52.74	0.92
W1	3459	5 Year	22.49	204.94	205.51	205.51	205.67	1.86	15.69	51.35	0.92
W1	3459	2 Year	10.80	204.94	205.33	205.32	205.45	1.58	7.91	32.98	0.97
W1	3124	Regional	243.04	203.66	206.30	204.88	206.36	1.89	286.11	137.53	0.38
W1	3124	100 Year	67.05	203.66	204.85	204.24	204.88	1.40	101.15	113.70	0.44
W1	3124	50 Year	56.76	203.66	204.75	204.19	204.79	1.31	90.58	111.22	0.43
W1	3124	25 Year	45.27	203.66	204.64	204.12	204.67	1.21	78.06	107.94	0.42
W1	3124	10 Year	31.56	203.66	204.49	204.05	204.51	1.09	54.74	103.65	0.42
W1	3124	5 Year	22.49	203.66	204.36	203.99	204.38	0.94	44.32	98.27	0.40
W1	3124	2 Year	10.80	203.66	204.15	203.91	204.16	0.67	28.61	86.89	0.37
W1	3036	Regional	243.04	203.31	206.13	204.88	206.24	2.10	235.00	109.55	0.41
W1	3036	100 Year	67.05	203.31	204.54	204.16	204.62	1.78	72.18	93.16	0.56
W1	3036	50 Year	56.76	203.31	204.45	204.11	204.53	1.68	64.22	91.91	0.55
W1	3036	25 Year	45.27	203.31	204.34	204.02	204.41	1.56	54.17	87.99	0.55
W1	3036	10 Year	31.56	203.31	204.18	203.92	204.24	1.40	40.62	82.74	0.55

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	3036	5 Year	22.49	203.31	204.05	203.83	204.10	1.29	30.50	63.24	0.55
W1	3036	2 Year	10.80	203.31	203.82	203.70	203.86	1.14	17.08	54.40	0.58
W1	2943	Regional	243.04	202.89	206.09	204.75	206.15	1.85	322.31	158.70	0.34
W1	2943	100 Year	67.05	202.89	204.31	203.94	204.41	2.06	74.58	88.42	0.58
W1	2943	50 Year	56.76	202.89	204.23	203.88	204.32	1.92	67.97	85.78	0.55
W1	2943	25 Year	45.27	202.89	204.13	203.82	204.21	1.73	59.73	82.92	0.52
W1	2943	10 Year	31.56	202.89	203.99	203.69	204.05	1.48	48.05	77.56	0.48
W1	2943	5 Year	22.49	202.89	203.87	203.57	203.91	1.28	39.01	73.00	0.44
W1	2943	2 Year	10.80	202.89	203.64	203.43	203.67	0.98	23.32	62.49	0.39
W1	2859	Regional	243.04	202.89	206.06	204.21	206.09	1.28	428.47	182.32	0.23
W1	2859	100 Year	67.05	202.89	203.82	203.65	203.92	2.32	66.66	121.90	0.78
W1	2859	50 Year	56.76	202.89	203.76	203.58	203.85	2.20	59.16	118.38	0.76
W1	2859	25 Year	45.27	202.89	203.69	203.54	203.77	2.01	50.95	115.54	0.73
W1	2859	10 Year	31.56	202.89	203.57	203.39	203.64	1.82	37.65	103.33	0.72
W1	2859	5 Year	22.49	202.89	203.47	203.29	203.53	1.64	28.59	93.99	0.70
W1	2859	2 Year	10.80	202.89	203.31	203.15	203.35	1.15	17.13	47.69	0.58
W1	2741	Regional	243.04	202.21	206.05	203.82	206.07	1.09	538.21	199.09	0.18
W1	2741	100 Year	67.05	202.21	203.40	203.05	203.50	2.03	78.61	116.70	0.62
W1	2741	50 Year	56.76	202.21	203.31	203.05	203.40	1.98	68.12	112.83	0.63
W1	2741	25 Year	45.27	202.21	203.21	203.00	203.30	1.90	56.30	108.78	0.65
W1	2741	10 Year	31.56	202.21	203.05	202.88	203.12	1.68	41.06	87.44	0.63
W1	2741	5 Year	22.49	202.21	202.94	202.81	203.00	1.51	30.44	81.44	0.61
W1	2741	2 Year	10.80	202.21	202.75	202.69	202.80	1.26	17.45	70.71	0.61
W1	2636	Regional	243.04	201.79	206.03	203.47	206.06	1.23	468.19	156.43	0.19
W1	2636	100 Year	67.05	201.79	203.20	202.81	203.27	1.79	87.96	101.48	0.50
W1	2636	50 Year	56.76	201.79	203.09	202.74	203.16	1.73	77.20	99.44	0.50
W1	2636	25 Year	45.27	201.79	202.97	202.66	203.03	1.64	64.90	96.67	0.50
W1	2636	10 Year	31.56	201.79	202.81	202.58	202.86	1.44	50.20	88.92	0.48
W1	2636	5 Year	22.49	201.79	202.69	202.50	202.73	1.29	39.87	85.11	0.45
W1	2636	2 Year	10.80	201.79	202.51	202.31	202.54	0.96	25.13	81.21	0.38
W1	2609.75	Regional	243.04	201.80	206.02	203.38	206.05	1.08	445.71	151.25	0.17
W1	2609.75	100 Year	67.05	201.80	203.10	202.73	203.17	1.57	82.63	99.16	0.48
W1	2609.75	50 Year	56.76	201.80	202.99	202.67	203.06	1.53	71.41	97.82	0.49
W1	2609.75	25 Year	45.27	201.80	202.85	202.60	202.92	1.49	58.25	95.59	0.51
W1	2609.75	10 Year	31.56	201.80	202.68	202.53	202.74	1.43	41.58	91.49	0.56
W1	2609.75	5 Year	22.49	201.80	202.53	202.45	202.61	1.47	28.75	85.67	0.63
W1	2609.75	2 Year	10.80	201.80	202.27	202.27	202.40	1.68	8.96	45.81	0.91
W1	2505.52	Regional	243.04	200.88	206.01	203.60	206.03	1.14	518.22	179.92	0.17
W1	2505.52	100 Year	67.05	200.88	202.59	202.53	202.92	2.96	35.56	47.95	0.90
W1	2505.52	50 Year	56.76	200.88	202.50	202.45	202.80	2.81	31.55	46.55	0.89
W1	2505.52	25 Year	45.27	200.88	202.38	202.34	202.65	2.63	26.57	44.97	0.89
W1	2505.52	10 Year	31.56	200.88	202.21	202.20	202.45	2.39	19.95	43.05	0.90
W1	2505.52	5 Year	22.49	200.88	202.10	202.10	202.30	2.13	15.52	41.66	0.87
W1	2505.52	2 Year	10.80	200.88	201.90	201.90	202.05	1.73	7.95	38.60	0.86
W1	2449.89	Regional	243.04	200.68	206.01	202.97	206.02	0.87	682.78	207.94	0.13
W1	2449.89	100 Year	67.05	200.68	202.57	202.20	202.66	1.74	75.94	101.26	0.47
W1	2449.89	50 Year	56.76	200.68	202.45	202.14	202.54	1.67	66.08	84.50	0.48
W1	2449.89	25 Year	45.27	200.68	202.31	202.06	202.40	1.61	54.34	82.52	0.49
W1	2449.89	10 Year	31.56	200.68	202.09	201.93	202.18	1.59	36.89	79.35	0.54
W1	2449.89	5 Year	22.49	200.68	201.92	201.78	202.03	1.60	24.10	75.62	0.60
W1	2449.89	2 Year	10.80	200.68	201.70	201.55	201.78	1.28	10.29	47.00	0.58
W1	2406.87	Regional	243.04	200.53	206.01	202.84	206.02	0.83	731.67	216.58	0.12

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2406.87	100 Year	67.05	200.53	202.45	201.98	202.55	1.75	74.68	103.12	0.47
W1	2406.87	50 Year	56.76	200.53	202.34	201.91	202.43	1.68	64.14	92.17	0.47
W1	2406.87	25 Year	45.27	200.53	202.19	201.83	202.28	1.58	51.41	82.81	0.47
W1	2406.87	10 Year	31.56	200.53	201.96	201.70	202.04	1.49	36.09	54.13	0.50
W1	2406.87	5 Year	22.49	200.53	201.77	201.61	201.85	1.45	26.00	52.24	0.54
W1	2406.87	2 Year	10.80	200.53	201.46	201.39	201.56	1.50	10.23	48.79	0.69
W1	2371	Regional	243.04	200.40	206.01	202.90	206.02	0.49	759.26	246.16	0.07
W1	2371	100 Year	67.05	200.40	202.34	201.95	202.47	1.92	63.68	82.69	0.50
W1	2371	50 Year	56.76	200.40	202.23	201.83	202.35	1.83	55.30	73.42	0.49
W1	2371	25 Year	45.27	200.40	202.08	201.69	202.19	1.73	44.50	70.58	0.49
W1	2371	10 Year	31.56	200.40	201.82	201.55	201.93	1.65	28.36	45.06	0.52
W1	2371	5 Year	22.49	200.40	201.63	201.42	201.73	1.53	20.76	35.81	0.54
W1	2371	2 Year	10.80	200.40	201.34	201.16	201.41	1.27	10.83	31.85	0.54
W1	2323	Regional	243.04	200.23	206.01	202.82	206.01	0.58	781.62	262.37	0.08
W1	2323	100 Year	67.05	200.23	202.24	201.82	202.38	1.96	65.29	79.96	0.48
W1	2323	50 Year	56.76	200.23	202.13	201.66	202.26	1.87	56.37	75.95	0.48
W1	2323	25 Year	45.27	200.23	201.97	201.57	202.10	1.76	45.23	70.69	0.47
W1	2323	10 Year	31.56	200.23	201.71	201.39	201.82	1.64	29.90	47.39	0.49
W1	2323	5 Year	22.49	200.23	201.51	201.24	201.61	1.48	21.68	39.19	0.48
W1	2323	2 Year	10.80	200.23	201.20	200.94	201.27	1.18	10.45	31.63	0.47
W1	2299	Regional	243.04	200.15	206.00	202.69	206.01	0.50	780.91	251.32	0.07
W1	2299	100 Year	67.05	200.15	201.88	201.88	202.26	2.82	32.79	61.51	0.82
W1	2299	50 Year	56.76	200.15	201.76	201.76	202.13	2.73	26.01	54.82	0.84
W1	2299	25 Year	45.27	200.15	201.52	201.52	201.95	2.92	15.78	22.76	0.99
W1	2299	10 Year	31.56	200.15	201.31	201.31	201.66	2.62	12.04	16.87	0.99
W1	2299	5 Year	22.49	200.15	201.15	201.15	201.45	2.39	9.40	16.11	1.00
W1	2299	2 Year	10.80	200.15	200.93	200.91	201.10	1.82	5.94	15.01	0.92
W1	2274	Regional	243.04	200.06	206.00	202.51	206.01	0.53	773.16	235.95	0.07
W1	2274	100 Year	67.05	200.06	201.58	201.38	201.85	2.34	31.15	44.86	0.72
W1	2274	50 Year	56.76	200.06	201.53	201.27	201.75	2.08	29.14	44.15	0.66
W1	2274	25 Year	45.27	200.06	201.41	201.15	201.59	1.89	24.04	32.39	0.63
W1	2274	10 Year	31.56	200.06	201.22	201.00	201.36	1.68	18.83	25.41	0.62
W1	2274	5 Year	22.49	200.06	201.00	200.87	201.14	1.65	13.63	23.90	0.70
W1	2274	2 Year	10.80	200.06	200.87	200.68	200.93	1.03	10.52	22.89	0.48
W1	2246	Regional	243.04	200.09	206.01	200.78	206.01	0.23	2080.13	422.74	0.03
W1	2246	100 Year	67.05	200.09	201.71	200.78	201.71	0.19	544.51	303.39	0.06
W1	2246	50 Year	56.76	200.09	201.63	200.78	201.64	0.16	522.04	303.09	0.05
W1	2246	25 Year	45.27	200.09	201.50	200.78	201.50	0.13	480.60	299.24	0.04
W1	2246	10 Year	31.56	200.09	201.28	200.78	201.28	0.09	416.86	294.61	0.04
W1	2246	5 Year	22.49	200.09	201.07	200.78	201.07	0.07	355.02	288.94	0.03
W1	2246	2 Year	10.80	200.09	200.90	200.78	200.90	0.03	305.73	274.99	0.02
W1	2227		Mult Open		Existing Steeles Avenue Bridge						
W1	2204	Regional	243.04	199.96	206.00	201.47	206.00	0.36	1756.78	457.37	0.05
W1	2204	100 Year	67.05	199.96	201.42	201.07	201.46	1.18	105.59	150.83	0.33
W1	2204	50 Year	56.76	199.96	201.21	200.98	201.42	2.19	33.23	84.62	0.66
W1	2204	25 Year	45.27	199.96	201.01	200.87	201.22	2.19	26.15	83.09	0.73
W1	2204	10 Year	31.56	199.96	200.83	200.73	201.01	1.96	20.01	81.75	0.73
W1	2204	5 Year	22.49	199.96	200.66	200.61	200.83	1.88	14.29	80.49	0.80
W1	2204	2 Year	10.80	199.96	200.40	200.40	200.56	1.79	6.09	61.33	0.99
W1	2166	Regional	243.04	199.27	206.00	201.50	206.00	0.37	1656.75	468.43	0.05
W1	2166	100 Year	67.05	199.27	201.37	200.68	201.42	1.16	78.43	94.76	0.28
W1	2166	50 Year	56.76	199.27	201.17	200.60	201.27	1.49	43.27	62.38	0.38

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2166	25 Year	45.27	199.27	200.96	200.50	201.05	1.45	35.80	60.09	0.40
W1	2166	10 Year	31.56	199.27	200.78	200.38	200.85	1.23	29.80	58.21	0.36
W1	2166	5 Year	22.49	199.27	200.61	200.28	200.66	1.10	24.10	56.85	0.35
W1	2166	2 Year	10.80	199.27	200.34	200.00	200.37	0.87	15.04	45.60	0.32
W1	2146		Mult Open		New Steeles Avenue Bridge						
W1	2126	Regional	243.04	199.41	206.00	201.07	206.00	0.36	1781.96	454.35	0.05
W1	2126	100 Year	67.05	199.41	201.10	200.67	201.13	1.10	117.27	161.23	0.31
W1	2126	50 Year	56.76	199.41	200.59	200.59	200.95	2.84	24.79	93.02	1.02
W1	2126	25 Year	45.27	199.41	200.49	200.49	200.80	2.62	21.21	91.17	1.01
W1	2126	10 Year	31.56	199.41	200.34	200.34	200.59	2.37	16.06	88.06	1.03
W1	2126	5 Year	22.49	199.41	200.24	200.24	200.44	2.07	12.99	86.11	1.00
W1	2126	2 Year	10.80	199.41	200.03	200.03	200.18	1.80	7.04	61.99	0.98
W1	2072	Regional	243.04	199.16	206.00	199.44	206.00	0.23	2435.50	494.30	0.03
W1	2072	100 Year	67.05	199.16	201.11	199.03	201.11	0.24	507.30	271.08	0.06
W1	2072	50 Year	56.76	199.16	200.78	199.00	200.78	0.24	420.11	259.17	0.07
W1	2072	25 Year	45.27	199.16	200.39	198.95	200.39	0.23	320.86	253.82	0.08
W1	2072	10 Year	31.56	199.16	199.92	198.89	199.92	0.20	201.90	234.69	0.10
W1	2072	5 Year	22.49	199.16	199.59	198.83	199.59	0.18	130.01	194.52	0.12
W1	2072	2 Year	10.80	199.16	199.14	198.74	199.14		52.59	134.88	0.00
W1	1849	Regional	243.04	197.15	205.99	200.42	206.00	0.26	2061.45	578.42	0.03
W1	1849	100 Year	67.05	197.15	201.07	199.39	201.09	0.84	147.16	130.61	0.15
W1	1849	50 Year	56.76	197.15	200.73	199.21	200.76	0.84	122.22	89.41	0.16
W1	1849	25 Year	45.27	197.15	200.33	198.99	200.36	0.85	94.09	69.73	0.18
W1	1849	10 Year	31.56	197.15	199.83	198.76	199.86	0.87	59.55	65.37	0.21
W1	1849	5 Year	22.49	197.15	199.45	198.58	199.49	0.89	36.29	59.90	0.24
W1	1849	2 Year	10.80	197.15	198.89	198.28	198.92	0.79	13.62	17.22	0.28
W1	1831	Regional	243.04	197.02	205.98	200.25	205.99	0.58	763.44	618.61	0.07
W1	1831	100 Year	67.05	197.02	201.04	199.00	201.06	0.71	140.40	329.78	0.14
W1	1831	50 Year	56.76	197.02	200.69	198.87	200.71	0.71	110.04	254.50	0.15
W1	1831	25 Year	45.27	197.02	200.28	198.70	200.30	0.72	80.35	208.16	0.16
W1	1831	10 Year	31.56	197.02	199.74	198.49	199.77	0.73	48.27	117.00	0.19
W1	1831	5 Year	22.49	197.02	199.33	198.30	199.36	0.72	32.99	71.62	0.21
W1	1831	2 Year	10.80	197.02	198.69	197.99	198.71	0.69	15.67	19.32	0.24
W1	1772		Mult Open		CNR Bridge						
W1	1721	Regional	243.04	196.75	201.53	199.27	201.64	1.72	220.25	207.07	0.27
W1	1721	100 Year	67.05	196.75	199.20	198.38	199.26	1.25	79.67	127.17	0.30
W1	1721	50 Year	56.76	196.75	199.02	198.31	199.08	1.21	69.75	122.69	0.31
W1	1721	25 Year	45.27	196.75	198.84	198.22	198.89	1.12	59.40	112.57	0.31
W1	1721	10 Year	31.56	196.75	198.59	198.08	198.63	0.99	46.06	104.60	0.30
W1	1721	5 Year	22.49	196.75	198.41	197.87	198.44	0.89	35.94	96.38	0.29
W1	1721	2 Year	10.80	196.75	198.10	197.58	198.13	0.71	19.52	76.40	0.28
W1	1645	Regional	243.04	196.74	201.54	199.58	201.58	1.11	481.43	245.88	0.18
W1	1645	100 Year	67.05	196.74	198.92	198.40	199.11	1.96	34.28	104.49	0.52
W1	1645	50 Year	56.76	196.74	198.75	198.30	198.93	1.87	30.28	84.19	0.53
W1	1645	25 Year	45.27	196.74	198.59	198.18	198.74	1.70	26.63	73.23	0.51
W1	1645	10 Year	31.56	196.74	198.39	198.02	198.50	1.44	21.93	59.54	0.47
W1	1645	5 Year	22.49	196.74	198.23	197.89	198.31	1.23	18.26	50.69	0.45
W1	1645	2 Year	10.80	196.74	197.96	197.60	198.00	0.90	11.94	33.00	0.39
W1	1630		Mult Open		Bronte Street Bridge						
W1	1619	Regional	243.04	196.45	201.43	198.60	201.44	0.70	886.27	338.01	0.11

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1619	100 Year	67.05	196.45	198.55	198.39	198.58	1.16	141.36	201.17	0.32
W1	1619	50 Year	56.76	196.45	198.55	198.28	198.82	2.37	26.06	200.98	0.65
W1	1619	25 Year	45.27	196.45	198.44	198.15	198.65	2.10	23.38	195.82	0.60
W1	1619	10 Year	31.56	196.45	198.28	197.95	198.42	1.71	19.69	187.19	0.53
W1	1619	5 Year	22.49	196.45	198.15	197.75	198.25	1.41	16.70	171.27	0.46
W1	1619	2 Year	10.80	196.45	197.92	197.40	197.96	0.92	12.16	113.00	0.33
W1	1223	Regional	243.04	196.15	201.41	197.96	201.42	0.62	709.06	255.88	0.09
W1	1223	100 Year	67.05	196.15	198.31	197.44	198.33	0.90	155.13	117.85	0.23
W1	1223	50 Year	56.76	196.15	198.12	197.40	198.13	0.91	132.58	117.18	0.25
W1	1223	25 Year	45.27	196.15	197.91	197.35	197.92	0.91	108.09	116.29	0.27
W1	1223	10 Year	31.56	196.15	197.65	197.27	197.67	0.90	78.84	115.16	0.29
W1	1223	5 Year	22.49	196.15	197.48	197.21	197.50	0.89	58.72	114.38	0.31
W1	1223	2 Year	10.80	196.15	197.20	197.05	197.23	0.94	27.56	112.82	0.39
W1	1109	Regional	243.04	196.10	201.41	197.68	201.41	0.51	916.89	300.35	0.07
W1	1109	100 Year	67.05	196.10	198.28	197.21	198.29	0.61	225.89	159.28	0.15
W1	1109	50 Year	56.76	196.10	198.09	197.17	198.10	0.60	194.83	158.30	0.15
W1	1109	25 Year	45.27	196.10	197.87	197.12	197.88	0.58	160.97	157.25	0.16
W1	1109	10 Year	31.56	196.10	197.62	197.05	197.62	0.55	120.38	155.93	0.17
W1	1109	5 Year	22.49	196.10	197.44	197.01	197.44	0.51	92.45	154.91	0.17
W1	1109	2 Year	10.80	196.10	197.15	196.77	197.16	0.47	48.57	152.07	0.19
W1	1083	Regional	243.04	195.95	201.41	197.46	201.41	0.37	1352.50	394.28	0.05
W1	1083	100 Year	67.05	195.95	198.28	197.09	198.28	0.41	372.70	250.82	0.09
W1	1083	50 Year	56.76	195.95	198.08	197.06	198.09	0.41	323.43	250.01	0.10
W1	1083	25 Year	45.27	195.95	197.87	197.02	197.87	0.39	269.56	249.12	0.10
W1	1083	10 Year	31.56	195.95	197.61	196.92	197.61	0.37	204.80	248.08	0.10
W1	1083	5 Year	22.49	195.95	197.43	196.71	197.43	0.34	160.21	247.41	0.10
W1	1083	2 Year	10.80	195.95	197.14	196.51	197.14	0.30	89.94	246.21	0.10
W1	1053	Regional	243.04	196.65	201.34	198.07	201.39	1.23	291.29	312.88	0.18
W1	1053	100 Year	67.05	196.65	198.22	197.32	198.26	1.06	93.13	160.91	0.28
W1	1053	50 Year	56.76	196.65	198.02	197.26	198.06	1.04	80.69	159.74	0.29
W1	1053	25 Year	45.27	196.65	197.81	197.19	197.84	0.99	67.11	158.51	0.30
W1	1053	10 Year	31.56	196.65	197.55	197.09	197.58	0.91	50.89	157.31	0.32
W1	1053	5 Year	22.49	196.65	197.38	197.03	197.40	0.83	39.82	156.45	0.33
W1	1053	2 Year	10.80	196.65	197.10	196.92	197.12	0.72	22.12	153.55	0.37
W1	1032		Bridge								
W1	1006	Regional	243.04	196.53	199.22	198.10	199.36	1.85	200.24	235.27	0.37
W1	1006	100 Year	67.05	196.53	197.53	197.37	197.68	1.86	46.58	162.48	0.65
W1	1006	50 Year	56.76	196.53	197.31	197.31	197.55	2.22	31.35	160.96	0.89
W1	1006	25 Year	45.27	196.53	197.23	197.23	197.45	2.09	25.54	160.32	0.90
W1	1006	10 Year	31.56	196.53	197.11	197.11	197.30	1.93	17.07	158.32	0.94
W1	1006	5 Year	22.49	196.53	197.01	197.01	197.18	1.79	12.55	156.27	0.98
W1	1006	2 Year	10.80	196.53	196.88	196.88	196.98	1.43	7.54	153.50	0.99
W1	985	Regional	243.04	195.62	199.26	196.91	199.29	1.07	474.60	243.48	0.21
W1	985	100 Year	67.05	195.62	197.57	196.75	197.58	0.73	150.97	142.10	0.21
W1	985	50 Year	56.76	195.62	197.38	196.75	197.39	0.70	132.32	137.99	0.22
W1	985	25 Year	45.27	195.62	197.16	196.75	197.17	0.66	110.25	106.57	0.23
W1	985	10 Year	31.56	195.62	196.86	196.75	196.87	0.62	81.32	93.96	0.25
W1	985	5 Year	22.49	195.62	196.75	196.75	196.76	0.47	71.57	88.26	0.20
W1	985	2 Year	10.80	195.62	196.58	196.44	196.71	1.63	6.61	77.86	0.73
W1	923	Regional	243.04	194.99	199.01	198.42	199.20	2.24	239.12	247.57	0.43
W1	923	100 Year	67.05	194.99	197.14	196.70	197.42	2.36	28.45	25.18	0.65
W1	923	50 Year	56.76	194.99	196.95	196.56	197.22	2.29	24.76	22.82	0.65

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	923	25 Year	45.27	194.99	196.74	196.37	196.98	2.18	20.74	19.73	0.65
W1	923	10 Year	31.56	194.99	196.45	196.14	196.65	1.98	15.95	15.80	0.63
W1	923	5 Year	22.49	194.99	196.23	195.96	196.39	1.79	12.56	14.57	0.62
W1	923	2 Year	10.80	194.99	195.85	195.65	195.96	1.46	7.40	12.58	0.61
W1	874	Regional	243.04	194.70	198.70	198.01	199.06	3.22	198.03	207.35	0.53
W1	874	100 Year	67.05	194.70	196.79	196.33	197.12	2.60	28.73	30.99	0.62
W1	874	50 Year	56.76	194.70	196.63	196.18	196.93	2.42	25.73	28.91	0.60
W1	874	25 Year	45.27	194.70	196.45	196.01	196.69	2.19	22.11	26.09	0.58
W1	874	10 Year	31.56	194.70	196.18	195.77	196.36	1.88	17.36	17.00	0.55
W1	874	5 Year	22.49	194.70	195.95	195.59	196.09	1.66	13.75	14.71	0.54
W1	874	2 Year	10.80	194.70	195.56	195.28	195.64	1.30	8.34	12.77	0.51
W1	835	Regional	243.04	194.38	198.70	197.73	198.95	2.49	193.36	175.68	0.45
W1	835	100 Year	67.05	194.38	196.65	196.16	196.92	2.31	29.03	29.32	0.61
W1	835	50 Year	56.76	194.38	196.49	196.02	196.73	2.19	25.89	27.18	0.60
W1	835	25 Year	45.27	194.38	196.29	195.84	196.50	2.04	22.24	23.37	0.59
W1	835	10 Year	31.56	194.38	196.02	195.57	196.19	1.79	17.59	16.56	0.56
W1	835	5 Year	22.49	194.38	195.80	195.39	195.93	1.59	14.13	14.65	0.52
W1	835	2 Year	10.80	194.38	195.42	195.07	195.50	1.19	9.06	12.43	0.45
W1	808	Regional	243.04	194.43	198.26	197.70	198.80	3.53	128.74	109.10	0.60
W1	808	100 Year	67.05	194.43	196.26	195.93	196.61	2.66	26.34	20.07	0.68
W1	808	50 Year	56.76	194.43	196.13	195.79	196.44	2.46	23.84	19.38	0.66
W1	808	25 Year	45.27	194.43	195.97	195.63	196.22	2.22	20.80	18.33	0.63
W1	808	10 Year	31.56	194.43	195.75	195.41	195.93	1.87	16.97	17.02	0.58
W1	808	5 Year	22.49	194.43	195.56	195.24	195.69	1.63	13.78	15.86	0.56
W1	808	2 Year	10.80	194.43	195.19	194.97	195.28	1.29	8.37	13.96	0.53
W1	778	Regional	243.04	194.31	198.29	197.51	198.71	3.23	139.00	97.11	0.54
W1	778	100 Year	67.05	194.31	196.16	195.83	196.51	2.63	27.81	25.67	0.68
W1	778	50 Year	56.76	194.31	196.03	195.70	196.34	2.46	24.40	24.56	0.66
W1	778	25 Year	45.27	194.31	195.88	195.51	196.13	2.22	20.78	22.74	0.63
W1	778	10 Year	31.56	194.31	195.68	195.26	195.85	1.84	17.14	16.02	0.57
W1	778	5 Year	22.49	194.31	195.49	195.08	195.62	1.57	14.37	14.45	0.50
W1	778	2 Year	10.80	194.31	195.15	194.81	195.21	1.13	9.55	13.29	0.43
W1	741	Regional	243.04	193.95	198.31	197.17	198.59	2.58	151.20	80.02	0.45
W1	741	100 Year	67.05	193.95	196.04	195.65	196.31	2.36	31.61	25.45	0.62
W1	741	50 Year	56.76	193.95	195.89	195.52	196.14	2.23	28.00	24.83	0.61
W1	741	25 Year	45.27	193.95	195.74	195.36	195.95	2.02	24.31	24.12	0.58
W1	741	10 Year	31.56	193.95	195.56	195.13	195.70	1.66	20.07	22.82	0.51
W1	741	5 Year	22.49	193.95	195.40	194.94	195.50	1.40	16.44	21.20	0.46
W1	741	2 Year	10.80	193.95	195.07	194.67	195.12	1.01	10.66	14.67	0.38
W1	722	Regional	243.04	193.94	198.30	196.91	198.54	2.46	150.23	81.10	0.42
W1	722	100 Year	67.05	193.94	195.98	195.63	196.21	2.25	35.92	32.83	0.61
W1	722	50 Year	56.76	193.94	195.82	195.52	196.05	2.17	31.10	32.02	0.62
W1	722	25 Year	45.27	193.94	195.67	195.39	195.86	2.01	26.35	30.66	0.60
W1	722	10 Year	31.56	193.94	195.50	195.15	195.64	1.68	21.30	29.22	0.54
W1	722	5 Year	22.49	193.94	195.33	194.93	195.44	1.47	16.53	27.35	0.51
W1	722	2 Year	10.80	193.94	195.02	194.65	195.08	1.08	10.04	14.08	0.41
W1	705		Bridge								
W1	675	Regional	243.04	193.95	196.55	195.79	196.73	1.76	129.14	118.77	0.39
W1	675	100 Year	67.05	193.95	195.91	195.21	195.94	0.82	83.73	86.53	0.21
W1	675	50 Year	56.76	193.95	195.79	195.16	195.82	0.79	75.68	84.79	0.21
W1	675	25 Year	45.27	193.95	195.66	195.11	195.69	0.74	66.70	82.89	0.20
W1	675	10 Year	31.56	193.95	195.49	195.03	195.51	0.66	54.59	80.73	0.19

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	675	5 Year	22.49	193.95	195.32	194.96	195.33	0.64	42.57	78.13	0.20
W1	675	2 Year	10.80	193.95	194.99	194.49	195.01	0.72	20.21	72.00	0.25
W1	645	Regional	243.04	193.89	196.55	195.60	196.63	1.54	193.16	148.82	0.34
W1	645	100 Year	67.05	193.89	195.90	195.11	195.92	0.72	119.79	103.00	0.18
W1	645	50 Year	56.76	193.89	195.78	195.07	195.80	0.69	107.94	101.63	0.18
W1	645	25 Year	45.27	193.89	195.66	195.01	195.67	0.64	94.85	100.77	0.17
W1	645	10 Year	31.56	193.89	195.48	194.94	195.49	0.57	77.36	99.53	0.16
W1	645	5 Year	22.49	193.89	195.30	194.88	195.31	0.55	59.97	98.06	0.16
W1	645	2 Year	10.80	193.89	194.97	194.50	194.98	0.61	28.08	89.80	0.21
W1	613	Regional	243.04	193.80	196.56	195.36	196.58	1.08	354.64	233.70	0.21
W1	613	100 Year	67.05	193.80	195.90	194.94	195.90	0.52	210.21	208.98	0.12
W1	613	50 Year	56.76	193.80	195.78	194.94	195.79	0.50	188.75	197.98	0.12
W1	613	25 Year	45.27	193.80	195.65	194.94	195.66	0.46	165.11	183.63	0.11
W1	613	10 Year	31.56	193.80	195.48	194.88	195.48	0.40	134.39	170.70	0.10
W1	613	5 Year	22.49	193.80	195.30	194.69	195.30	0.38	104.86	164.43	0.10
W1	613	2 Year	10.80	193.80	194.89	194.39	194.94	1.01	11.01	122.77	0.33
W1	607	Bridge									
W1	603	Regional	243.04	193.79	196.50	195.21	196.54	1.17	293.57	173.12	0.23
W1	603	100 Year	67.05	193.79	195.89	194.90	195.89	0.48	202.72	144.95	0.11
W1	603	50 Year	56.76	193.79	195.77	194.90	195.78	0.45	185.98	144.35	0.10
W1	603	25 Year	45.27	193.79	195.64	194.90	195.65	0.41	167.44	143.71	0.10
W1	603	10 Year	31.56	193.79	195.47	194.90	195.47	0.34	142.63	142.84	0.09
W1	603	5 Year	22.49	193.79	195.29	194.68	195.30	0.31	117.53	141.96	0.08
W1	603	2 Year	10.80	193.79	194.69	194.37	194.78	1.30	8.48	134.24	0.46
W1	590	Regional	243.04	193.74	196.48	195.17	196.52	1.04	278.32	158.93	0.22
W1	590	100 Year	67.05	193.74	195.88	194.78	195.89	0.43	195.84	136.76	0.10
W1	590	50 Year	56.76	193.74	195.77	194.77	195.77	0.40	180.08	136.29	0.10
W1	590	25 Year	45.27	193.74	195.64	194.77	195.65	0.36	162.63	135.77	0.09
W1	590	10 Year	31.56	193.74	195.47	194.77	195.47	0.30	139.27	135.06	0.08
W1	590	5 Year	22.49	193.74	195.29	194.66	195.29	0.27	115.56	134.27	0.08
W1	590	2 Year	10.80	193.74	194.45	194.35	194.61	1.78	6.08	60.32	0.76
W1	513	Regional	243.04	192.98	196.23	195.77	196.46	1.88	116.45	82.21	0.39
W1	513	100 Year	67.05	192.98	195.85	194.85	195.88	0.78	84.87	80.44	0.17
W1	513	50 Year	56.76	192.98	195.73	194.78	195.76	0.75	75.87	79.50	0.17
W1	513	25 Year	45.27	192.98	195.61	194.68	195.64	0.64	65.07	62.07	0.15
W1	513	10 Year	31.56	192.98	195.45	194.54	195.46	0.52	56.81	58.17	0.13
W1	513	5 Year	22.49	192.98	195.28	194.19	195.29	0.45	48.35	49.96	0.11
W1	513	2 Year	10.80	192.98	193.97	193.86	194.14	1.78	6.06	10.37	0.74
W1	421	Regional	243.04	192.18	196.32	194.76	196.37	0.81	244.61	143.23	0.15
W1	421	100 Year	67.05	192.18	195.86	194.32	195.87	0.29	195.99	103.42	0.06
W1	421	50 Year	56.76	192.18	195.75	194.32	195.75	0.27	184.29	102.71	0.05
W1	421	25 Year	45.27	192.18	195.62	194.18	195.62	0.24	171.54	102.10	0.05
W1	421	10 Year	31.56	192.18	195.45	193.98	195.46	0.19	154.63	101.31	0.04
W1	421	5 Year	22.49	192.18	195.28	193.60	195.28	0.16	137.18	100.47	0.03
W1	421	2 Year	10.80	192.18	193.89	193.26	193.93	0.90	13.00	44.14	0.29
W1	333	Regional	243.04	191.41	196.31	194.91	196.35	1.02	264.68	127.64	0.19
W1	333	100 Year	67.05	191.41	195.86	193.98	195.86	0.37	209.57	120.88	0.07
W1	333	50 Year	56.76	191.41	195.74	193.80	195.75	0.34	195.90	120.51	0.07
W1	333	25 Year	45.27	191.41	195.62	193.58	195.62	0.30	180.96	120.10	0.06
W1	333	10 Year	31.56	191.41	195.45	193.29	195.46	0.24	161.10	119.53	0.05
W1	333	5 Year	22.49	191.41	195.28	193.06	195.28	0.20	140.50	118.89	0.04
W1	333	2 Year	10.80	191.41	193.86	192.68	193.88	0.65	16.59	21.18	0.18

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	230	Regional	243.04	190.18	196.30	194.69	196.33	1.05	344.65	149.72	0.18
W1	230	100 Year	67.05	190.18	195.85	193.10	195.86	0.38	278.20	147.49	0.07
W1	230	50 Year	56.76	190.18	195.74	192.90	195.75	0.34	261.61	146.05	0.06
W1	230	25 Year	45.27	190.18	195.62	192.67	195.62	0.30	243.60	144.51	0.05
W1	230	10 Year	31.56	190.18	195.45	192.36	195.45	0.23	219.85	142.85	0.04
W1	230	5 Year	22.49	190.18	195.28	192.10	195.28	0.19	195.31	141.63	0.04
W1	230	2 Year	10.80	190.18	193.86	191.68	193.87	0.41	26.53	71.97	0.09
W1	189	Culvert									
W1	165	Regional	243.04	191.02	196.15	195.48	196.31	2.55	182.64	122.51	0.38
W1	165	100 Year	67.05	191.02	195.83	193.55	195.85	0.87	147.11	105.03	0.13
W1	165	50 Year	56.76	191.02	195.72	193.31	195.74	0.80	135.67	102.16	0.12
W1	165	25 Year	45.27	191.02	195.60	193.02	195.62	0.70	123.52	99.58	0.11
W1	165	10 Year	31.56	191.02	195.44	192.62	195.45	0.56	107.75	96.02	0.09
W1	165	5 Year	22.49	191.02	195.27	192.32	195.28	0.46	91.79	91.20	0.08
W1	165	2 Year	10.80	191.02	193.84	191.84	193.86	0.63	17.28	8.95	0.13
W1	138	Regional	243.04	190.87	196.11	195.54	196.30	2.75	189.39	126.96	0.41
W1	138	100 Year	67.05	190.87	195.83	193.45	195.85	0.91	155.48	115.08	0.14
W1	138	50 Year	56.76	190.87	195.72	193.21	195.74	0.84	142.90	113.79	0.13
W1	138	25 Year	45.27	190.87	195.60	192.92	195.62	0.74	129.33	111.89	0.12
W1	138	10 Year	31.56	190.87	195.44	192.51	195.45	0.59	111.67	108.96	0.09
W1	138	5 Year	22.49	190.87	195.27	192.20	195.28	0.48	93.47	105.33	0.08
W1	138	2 Year	10.80	190.87	193.84	191.72	193.86	0.58	20.91	19.69	0.12

Steeles Avenue EA

Project:	HEC-RAS Model_Proposed Condition-1_1	C:\...\16Mile_Hydraulics_Aug 2021_Final\SixteenMileCreek_Pr1_1.prj
Plan:	Plan 04	C:\...\aaaa\16Mile_Hydraulics_Aug 2021_Final\SixteenMileCreek_Pr1_1.p04
Geometry:	Sixteen Mile Creek_SteelesEACropped-EXCN	C:\...\aaaa\16Mile_Hydraulics_Aug 2021_Final\SixteenMileCreek_Pr1_1.g02
Steady Flow:	Future Flows_Steeles EA	C:\...\aaaa\16Mile_Hydraulics_Aug 2021_Final\SixteenMileCreek_Pr1_1.f01

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	6800	Regional	242.00	219.74	222.05	221.82	222.40	3.33	149.31	119.96	0.73
W1	6800	100 Year	66.14	219.74	221.10	220.91	221.31	2.27	43.95	65.14	0.67
W1	6800	50 Year	55.36	219.74	221.00	220.80	221.19	2.14	38.53	51.11	0.66
W1	6800	25 Year	44.17	219.74	220.88	220.73	221.05	1.98	32.66	49.72	0.64
W1	6800	10 Year	30.75	219.74	220.72	220.58	220.86	1.74	24.81	47.68	0.61
W1	6800	5 Year	21.90	219.74	220.69	220.40	220.77	1.30	23.46	47.54	0.46
W1	6800	2 Year	10.46	219.74	220.35	220.18	220.42	1.21	8.68	27.78	0.55
W1	3626	Regional	243.04	205.64	208.29	207.33	208.47	2.35	223.20	322.86	0.48
W1	3626	100 Year	67.05	205.64	207.54	206.85	207.58	1.01	109.96	103.56	0.25
W1	3626	50 Year	56.76	205.64	207.39	206.75	207.42	0.95	95.67	86.27	0.25
W1	3626	25 Year	45.27	205.64	206.99	206.60	207.15	1.79	25.70	71.75	0.55
W1	3626	10 Year	31.56	205.64	206.64	206.42	206.81	1.83	17.26	63.52	0.65
W1	3626	5 Year	22.49	205.64	206.48	206.28	206.61	1.62	13.88	61.19	0.63
W1	3626	2 Year	10.80	205.64	206.23	206.07	206.30	1.20	8.99	52.42	0.55
W1	3610	Bridge									
W1	3598	Regional	243.04	205.54	208.12	207.46	208.28	2.32	211.70	238.07	0.48
W1	3598	100 Year	67.05	205.54	207.07	206.58	207.15	1.49	73.55	80.36	0.42
W1	3598	50 Year	56.76	205.54	206.91	206.50	207.03	1.68	44.73	76.45	0.50
W1	3598	25 Year	45.27	205.54	206.79	206.40	206.89	1.52	38.94	72.19	0.48
W1	3598	10 Year	31.56	205.54	206.61	206.27	206.68	1.32	30.51	66.75	0.45
W1	3598	5 Year	22.49	205.54	206.46	206.16	206.52	1.14	24.93	62.04	0.43
W1	3598	2 Year	10.80	205.54	206.21	205.97	206.25	0.87	15.38	49.62	0.38
W1	3579	Regional	243.04	205.47	207.91	207.62	208.17	3.05	166.56	174.06	0.64
W1	3579	100 Year	67.05	205.47	206.86	206.62	207.05	2.27	50.43	69.52	0.65
W1	3579	50 Year	56.76	205.47	206.77	206.52	206.94	2.12	44.43	63.83	0.63
W1	3579	25 Year	45.27	205.47	206.66	206.42	206.80	1.92	37.65	59.60	0.60
W1	3579	10 Year	31.56	205.47	206.49	206.27	206.60	1.67	28.34	50.30	0.57
W1	3579	5 Year	22.49	205.47	206.36	206.16	206.45	1.44	22.44	45.16	0.53
W1	3579	2 Year	10.80	205.47	206.14	205.95	206.19	1.05	13.61	35.18	0.46
W1	3459	Regional	243.04	204.94	206.70	206.37	207.40	4.27	96.26	132.15	1.08
W1	3459	100 Year	67.05	204.94	205.87	205.85	206.17	2.67	34.87	55.07	0.97
W1	3459	50 Year	56.76	204.94	205.79	205.79	206.07	2.54	30.78	54.56	0.97
W1	3459	25 Year	45.27	204.94	205.71	205.70	205.95	2.37	25.95	53.66	0.97
W1	3459	10 Year	31.56	204.94	205.60	205.59	205.79	2.05	20.58	52.74	0.92
W1	3459	5 Year	22.49	204.94	205.51	205.51	205.67	1.86	15.69	51.35	0.92
W1	3459	2 Year	10.80	204.94	205.33	205.32	205.45	1.58	7.91	32.98	0.97
W1	3124	Regional	243.04	203.66	206.29	204.88	206.36	1.89	285.66	137.51	0.38
W1	3124	100 Year	67.05	203.66	204.85	204.24	204.88	1.40	101.15	113.70	0.44
W1	3124	50 Year	56.76	203.66	204.75	204.19	204.79	1.31	90.58	111.22	0.43
W1	3124	25 Year	45.27	203.66	204.64	204.12	204.67	1.21	78.06	107.94	0.42
W1	3124	10 Year	31.56	203.66	204.49	204.05	204.51	1.09	54.74	103.65	0.42

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	3124	5 Year	22.49	203.66	204.36	203.99	204.38	0.94	44.32	98.27	0.40
W1	3124	2 Year	10.80	203.66	204.15	203.91	204.16	0.67	28.61	86.89	0.37
W1	3036	Regional	243.04	203.31	206.13	204.88	206.23	2.10	234.55	109.52	0.42
W1	3036	100 Year	67.05	203.31	204.54	204.16	204.62	1.78	72.18	93.16	0.56
W1	3036	50 Year	56.76	203.31	204.45	204.11	204.53	1.68	64.22	91.91	0.55
W1	3036	25 Year	45.27	203.31	204.34	204.02	204.41	1.56	54.17	87.99	0.55
W1	3036	10 Year	31.56	203.31	204.18	203.92	204.24	1.40	40.62	82.74	0.55
W1	3036	5 Year	22.49	203.31	204.05	203.83	204.10	1.29	30.50	63.24	0.55
W1	3036	2 Year	10.80	203.31	203.82	203.70	203.86	1.14	17.08	54.40	0.58
W1	2943	Regional	243.04	202.89	206.09	204.75	206.15	1.85	321.59	158.69	0.34
W1	2943	100 Year	67.05	202.89	204.31	203.94	204.41	2.06	74.58	88.42	0.58
W1	2943	50 Year	56.76	202.89	204.23	203.88	204.32	1.92	67.97	85.78	0.55
W1	2943	25 Year	45.27	202.89	204.13	203.82	204.21	1.73	59.73	82.92	0.52
W1	2943	10 Year	31.56	202.89	203.99	203.69	204.05	1.48	48.05	77.56	0.48
W1	2943	5 Year	22.49	202.89	203.87	203.57	203.91	1.28	39.01	73.00	0.44
W1	2943	2 Year	10.80	202.89	203.64	203.43	203.67	0.98	23.32	62.49	0.39
W1	2859	Regional	243.04	202.89	206.06	204.21	206.08	1.28	427.59	182.31	0.23
W1	2859	100 Year	67.05	202.89	203.82	203.65	203.92	2.32	66.66	121.90	0.78
W1	2859	50 Year	56.76	202.89	203.76	203.58	203.85	2.20	59.16	118.38	0.76
W1	2859	25 Year	45.27	202.89	203.69	203.54	203.77	2.01	50.95	115.54	0.73
W1	2859	10 Year	31.56	202.89	203.57	203.39	203.64	1.82	37.65	103.33	0.72
W1	2859	5 Year	22.49	202.89	203.47	203.29	203.53	1.64	28.59	93.99	0.70
W1	2859	2 Year	10.80	202.89	203.31	203.15	203.35	1.15	17.13	47.69	0.58
W1	2741	Regional	243.04	202.21	206.05	203.82	206.07	1.09	537.24	199.08	0.18
W1	2741	100 Year	67.05	202.21	203.40	203.05	203.50	2.03	78.61	116.70	0.62
W1	2741	50 Year	56.76	202.21	203.31	203.05	203.40	1.98	68.12	112.83	0.63
W1	2741	25 Year	45.27	202.21	203.21	203.00	203.30	1.90	56.30	108.78	0.65
W1	2741	10 Year	31.56	202.21	203.05	202.88	203.12	1.68	41.06	87.44	0.63
W1	2741	5 Year	22.49	202.21	202.94	202.81	203.00	1.51	30.44	81.44	0.61
W1	2741	2 Year	10.80	202.21	202.75	202.69	202.80	1.26	17.45	70.71	0.61
W1	2636	Regional	243.04	201.79	206.03	203.47	206.05	1.23	467.42	156.42	0.19
W1	2636	100 Year	67.05	201.79	203.20	202.81	203.27	1.79	87.96	101.48	0.50
W1	2636	50 Year	56.76	201.79	203.09	202.74	203.16	1.73	77.20	99.44	0.50
W1	2636	25 Year	45.27	201.79	202.97	202.66	203.03	1.64	64.90	96.67	0.50
W1	2636	10 Year	31.56	201.79	202.81	202.58	202.86	1.44	50.20	88.92	0.48
W1	2636	5 Year	22.49	201.79	202.69	202.50	202.73	1.29	39.87	85.11	0.45
W1	2636	2 Year	10.80	201.79	202.51	202.31	202.54	0.96	25.13	81.21	0.38
W1	2609.75	Regional	243.04	201.80	206.01	203.38	206.04	1.09	444.95	151.23	0.17
W1	2609.75	100 Year	67.05	201.80	203.10	202.73	203.17	1.57	82.63	99.16	0.48
W1	2609.75	50 Year	56.76	201.80	202.99	202.67	203.06	1.53	71.41	97.82	0.49
W1	2609.75	25 Year	45.27	201.80	202.85	202.60	202.92	1.49	58.25	95.59	0.51
W1	2609.75	10 Year	31.56	201.80	202.68	202.53	202.74	1.43	41.58	91.49	0.56
W1	2609.75	5 Year	22.49	201.80	202.53	202.45	202.61	1.47	28.75	85.67	0.63
W1	2609.75	2 Year	10.80	201.80	202.27	202.27	202.40	1.68	8.96	45.81	0.91
W1	2505.52	Regional	243.04	200.88	206.00	203.60	206.03	1.14	517.31	179.89	0.17

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2505.52	100 Year	67.05	200.88	202.59	202.53	202.92	2.96	35.55	47.94	0.90
W1	2505.52	50 Year	56.76	200.88	202.50	202.45	202.80	2.81	31.54	46.54	0.89
W1	2505.52	25 Year	45.27	200.88	202.38	202.34	202.65	2.63	26.57	44.97	0.89
W1	2505.52	10 Year	31.56	200.88	202.21	202.20	202.45	2.39	19.95	43.05	0.90
W1	2505.52	5 Year	22.49	200.88	202.10	202.10	202.30	2.13	15.52	41.66	0.87
W1	2505.52	2 Year	10.80	200.88	201.90	201.90	202.05	1.73	7.95	38.60	0.86
W1	2449.89	Regional	243.04	200.68	206.00	202.97	206.02	0.87	681.73	207.88	0.13
W1	2449.89	100 Year	67.05	200.68	202.57	202.20	202.66	1.74	75.91	101.24	0.47
W1	2449.89	50 Year	56.76	200.68	202.45	202.14	202.54	1.67	66.05	84.49	0.48
W1	2449.89	25 Year	45.27	200.68	202.31	202.06	202.39	1.61	54.33	82.51	0.49
W1	2449.89	10 Year	31.56	200.68	202.09	201.93	202.18	1.59	36.89	79.35	0.54
W1	2449.89	5 Year	22.49	200.68	201.92	201.78	202.03	1.60	24.09	75.61	0.60
W1	2449.89	2 Year	10.80	200.68	201.70	201.55	201.78	1.28	10.31	47.03	0.57
W1	2406.87	Regional	243.04	200.53	206.00	202.84	206.01	0.83	730.57	216.56	0.12
W1	2406.87	100 Year	67.05	200.53	202.45	201.98	202.55	1.75	74.63	103.08	0.47
W1	2406.87	50 Year	56.76	200.53	202.34	201.91	202.43	1.68	64.10	92.14	0.47
W1	2406.87	25 Year	45.27	200.53	202.19	201.83	202.28	1.58	51.38	82.80	0.47
W1	2406.87	10 Year	31.56	200.53	201.96	201.70	202.04	1.49	36.09	54.13	0.50
W1	2406.87	5 Year	22.49	200.53	201.77	201.61	201.85	1.45	25.97	52.23	0.54
W1	2406.87	2 Year	10.80	200.53	201.46	201.39	201.56	1.50	10.20	48.78	0.69
W1	2371	Regional	243.04	200.40	206.00	202.90	206.01	0.49	758.01	246.07	0.07
W1	2371	100 Year	67.05	200.40	202.34	201.95	202.47	1.92	63.62	82.63	0.50
W1	2371	50 Year	56.76	200.40	202.23	201.83	202.35	1.83	55.24	73.41	0.49
W1	2371	25 Year	45.27	200.40	202.08	201.69	202.19	1.73	44.47	70.58	0.49
W1	2371	10 Year	31.56	200.40	201.82	201.55	201.93	1.65	28.36	45.06	0.52
W1	2371	5 Year	22.49	200.40	201.63	201.42	201.73	1.53	20.72	35.79	0.54
W1	2371	2 Year	10.80	200.40	201.33	201.16	201.41	1.28	10.76	31.83	0.54
W1	2323	Regional	243.04	200.23	206.00	202.82	206.01	0.58	780.28	261.81	0.08
W1	2323	100 Year	67.05	200.23	202.24	201.82	202.38	1.96	65.20	79.92	0.48
W1	2323	50 Year	56.76	200.23	202.12	201.66	202.26	1.87	56.28	75.91	0.48
W1	2323	25 Year	45.27	200.23	201.97	201.57	202.10	1.76	45.17	70.63	0.47
W1	2323	10 Year	31.56	200.23	201.71	201.39	201.82	1.64	29.90	47.39	0.49
W1	2323	5 Year	22.49	200.23	201.51	201.24	201.61	1.48	21.59	39.17	0.49
W1	2323	2 Year	10.80	200.23	201.19	200.94	201.26	1.19	10.21	31.45	0.48
W1	2299	Regional	243.04	200.15	206.00	202.69	206.01	0.50	779.62	251.16	0.07
W1	2299	100 Year	67.05	200.15	201.88	201.88	202.26	2.82	32.79	61.51	0.82
W1	2299	50 Year	56.76	200.15	201.76	201.76	202.13	2.73	26.01	54.82	0.84
W1	2299	25 Year	45.27	200.15	201.52	201.52	201.95	2.92	15.78	22.76	0.99
W1	2299	10 Year	31.56	200.15	201.31	201.31	201.66	2.62	12.04	16.87	0.99
W1	2299	5 Year	22.49	200.15	201.16	201.15	201.45	2.36	9.53	16.15	0.98
W1	2299	2 Year	10.80	200.15	200.98	200.91	201.11	1.62	6.65	15.32	0.79
W1	2274	Regional	243.04	200.06	206.00	202.51	206.01	0.53	771.95	235.89	0.07
W1	2274	100 Year	67.05	200.06	201.38	201.38	201.81	2.91	23.06	27.65	0.99
W1	2274	50 Year	56.76	200.06	201.27	201.27	201.67	2.80	20.30	25.84	1.01
W1	2274	25 Year	45.27	200.06	201.15	201.15	201.50	2.63	17.25	24.95	1.01
W1	2274	10 Year	31.56	200.06	201.00	201.00	201.28	2.35	13.44	23.85	1.00

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2274	5 Year	22.49	200.06	200.87	200.87	201.11	2.14	10.49	22.88	1.01
W1	2274	2 Year	10.80	200.06	200.68	200.68	200.83	1.70	6.36	21.25	0.99
W1	2246	Regional	243.04	200.09	206.00	199.92	206.00	0.23	2077.97	422.57	0.03
W1	2246	100 Year	67.05	200.09	201.47	199.37	201.47	0.19	473.27	298.71	0.07
W1	2246	50 Year	56.76	200.09	201.35	199.33	201.35	0.17	436.70	296.04	0.06
W1	2246	25 Year	45.27	200.09	201.14	199.27	201.14	0.14	374.64	290.75	0.06
W1	2246	10 Year	31.56	200.09	200.93	199.19	200.93	0.09	313.86	281.06	0.05
W1	2246	5 Year	22.49	200.09	200.75	199.13	200.75	0.09	265.31	258.33	0.05
W1	2246	2 Year	10.80	200.09	200.46	199.04	200.46	0.04	200.92	204.84	0.03
W1	2204	Regional	243.04	199.96	206.00	201.47	206.00	0.36	1755.10	457.31	0.05
W1	2204	100 Year	67.05	199.96	201.42	200.71	201.46	1.18	105.59	150.83	0.33
W1	2204	50 Year	56.76	199.96	201.30	200.66	201.33	1.11	91.05	85.85	0.32
W1	2204	25 Year	45.27	199.96	201.09	200.47	201.12	1.10	73.16	83.70	0.35
W1	2204	10 Year	31.56	199.96	200.88	200.46	200.91	1.00	56.30	82.17	0.36
W1	2204	5 Year	22.49	199.96	200.70	200.37	200.73	0.97	41.69	80.81	0.40
W1	2204	2 Year	10.80	199.96	200.42	200.26	200.45	0.92	19.91	64.70	0.50
W1	2166	Regional	243.04	199.27	206.00	201.50	206.00	0.37	1655.02	468.31	0.05
W1	2166	100 Year	67.05	199.27	201.37	200.68	201.42	1.16	78.43	94.76	0.28
W1	2166	50 Year	56.76	199.27	201.17	200.60	201.27	1.49	43.27	62.38	0.38
W1	2166	25 Year	45.27	199.27	200.96	200.50	201.05	1.45	35.80	60.09	0.40
W1	2166	10 Year	31.56	199.27	200.78	200.38	200.85	1.23	29.80	58.21	0.36
W1	2166	5 Year	22.49	199.27	200.61	200.28	200.66	1.10	24.10	56.85	0.35
W1	2166	2 Year	10.80	199.27	200.34	200.00	200.37	0.87	15.04	45.60	0.32
W1	2146		Mult Open		New Steeles Avenue Bridge						
W1	2126	Regional	243.04	199.41	205.99	201.07	205.99	0.36	1780.27	454.11	0.05
W1	2126	100 Year	67.05	199.41	201.10	200.67	201.13	1.10	117.27	161.23	0.31
W1	2126	50 Year	56.76	199.41	200.59	200.59	200.95	2.84	24.79	93.02	1.02
W1	2126	25 Year	45.27	199.41	200.49	200.49	200.80	2.62	21.21	91.17	1.01
W1	2126	10 Year	31.56	199.41	200.34	200.34	200.59	2.37	16.06	88.06	1.03
W1	2126	5 Year	22.49	199.41	200.24	200.24	200.44	2.07	12.99	86.11	1.00
W1	2126	2 Year	10.80	199.41	200.03	200.03	200.18	1.80	7.04	61.99	0.98
W1	2072	Regional	243.04	199.16	205.99	199.44	205.99	0.23	2433.66	494.19	0.03
W1	2072	100 Year	67.05	199.16	201.11	199.03	201.11	0.24	507.30	271.08	0.06
W1	2072	50 Year	56.76	199.16	200.78	199.00	200.78	0.24	420.11	259.17	0.07
W1	2072	25 Year	45.27	199.16	200.39	198.95	200.39	0.23	320.86	253.82	0.08
W1	2072	10 Year	31.56	199.16	199.92	198.89	199.92	0.20	201.90	234.69	0.10
W1	2072	5 Year	22.49	199.16	199.59	198.83	199.59	0.18	130.01	194.52	0.12
W1	2072	2 Year	10.80	199.16	199.14	198.74	199.14		52.59	134.88	0.00
W1	1849	Regional	243.04	197.15	205.99	200.42	205.99	0.26	2059.51	578.12	0.03
W1	1849	100 Year	67.05	197.15	201.07	199.39	201.09	0.84	147.16	130.61	0.15
W1	1849	50 Year	56.76	197.15	200.73	199.21	200.76	0.84	122.22	89.41	0.16
W1	1849	25 Year	45.27	197.15	200.33	198.99	200.36	0.85	94.09	69.73	0.18
W1	1849	10 Year	31.56	197.15	199.83	198.76	199.86	0.87	59.55	65.37	0.21
W1	1849	5 Year	22.49	197.15	199.45	198.58	199.49	0.89	36.29	59.90	0.24
W1	1849	2 Year	10.80	197.15	198.89	198.28	198.92	0.79	13.62	17.22	0.28

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1831	Regional	243.04	197.02	205.98	200.25	205.99	0.59	762.83	618.16	0.07
W1	1831	100 Year	67.05	197.02	201.04	199.00	201.06	0.71	140.40	329.78	0.14
W1	1831	50 Year	56.76	197.02	200.69	198.87	200.71	0.71	110.04	254.50	0.15
W1	1831	25 Year	45.27	197.02	200.28	198.70	200.30	0.72	80.35	208.16	0.16
W1	1831	10 Year	31.56	197.02	199.74	198.49	199.77	0.73	48.27	117.00	0.19
W1	1831	5 Year	22.49	197.02	199.33	198.30	199.36	0.72	32.99	71.62	0.21
W1	1831	2 Year	10.80	197.02	198.69	197.99	198.71	0.69	15.67	19.32	0.24
W1	1772		Mult Open		CNR Bridge						
W1	1721	Regional	243.04	196.75	201.53	199.27	201.64	1.72	220.22	207.06	0.27
W1	1721	100 Year	67.05	196.75	199.21	198.38	199.27	1.25	79.94	127.31	0.30
W1	1721	50 Year	56.76	196.75	199.02	198.31	199.08	1.21	69.76	122.70	0.31
W1	1721	25 Year	45.27	196.75	198.84	198.22	198.89	1.12	59.45	112.62	0.31
W1	1721	10 Year	31.56	196.75	198.59	198.08	198.63	0.99	46.04	104.59	0.30
W1	1721	5 Year	22.49	196.75	198.41	197.87	198.44	0.89	35.95	96.39	0.29
W1	1721	2 Year	10.80	196.75	198.10	197.58	198.13	0.71	19.52	76.41	0.28
W1	1645	Regional	243.04	196.74	201.54	199.58	201.58	1.11	481.32	245.81	0.18
W1	1645	100 Year	67.05	196.74	198.93	198.40	199.12	1.94	34.48	105.04	0.51
W1	1645	50 Year	56.76	196.74	198.75	198.30	198.93	1.87	30.28	84.23	0.53
W1	1645	25 Year	45.27	196.74	198.59	198.18	198.74	1.70	26.64	73.25	0.51
W1	1645	10 Year	31.56	196.74	198.39	198.02	198.50	1.44	21.93	59.52	0.47
W1	1645	5 Year	22.49	196.74	198.23	197.89	198.31	1.23	18.27	50.75	0.44
W1	1645	2 Year	10.80	196.74	197.96	197.61	198.00	0.90	11.95	33.02	0.39
W1	1630		Mult Open								
W1	1619	Regional	243.04	196.45	201.43	198.60	201.44	0.70	886.27	338.01	0.11
W1	1619	100 Year	67.05	196.45	198.55	198.39	198.58	1.16	141.36	201.17	0.32
W1	1619	50 Year	56.76	196.45	198.55	198.28	198.82	2.37	26.06	200.98	0.65
W1	1619	25 Year	45.27	196.45	198.44	198.15	198.65	2.10	23.38	195.82	0.60
W1	1619	10 Year	31.56	196.45	198.28	197.95	198.42	1.71	19.69	187.19	0.53
W1	1619	5 Year	22.49	196.45	198.15	197.75	198.25	1.41	16.70	171.27	0.46
W1	1619	2 Year	10.80	196.45	197.92	197.40	197.96	0.92	12.16	113.00	0.33
W1	1223	Regional	243.04	196.15	201.41	197.96	201.42	0.62	709.06	255.88	0.09
W1	1223	100 Year	67.05	196.15	198.31	197.44	198.33	0.90	155.13	117.85	0.23
W1	1223	50 Year	56.76	196.15	198.12	197.40	198.13	0.91	132.58	117.18	0.25
W1	1223	25 Year	45.27	196.15	197.91	197.35	197.92	0.91	108.09	116.29	0.27
W1	1223	10 Year	31.56	196.15	197.65	197.27	197.67	0.90	78.84	115.16	0.29
W1	1223	5 Year	22.49	196.15	197.48	197.21	197.50	0.89	58.72	114.38	0.31
W1	1223	2 Year	10.80	196.15	197.20	197.05	197.23	0.94	27.56	112.82	0.39
W1	1109	Regional	243.04	196.10	201.41	197.68	201.41	0.51	916.89	300.35	0.07
W1	1109	100 Year	67.05	196.10	198.28	197.21	198.29	0.61	225.89	159.28	0.15
W1	1109	50 Year	56.76	196.10	198.09	197.17	198.10	0.60	194.83	158.30	0.15
W1	1109	25 Year	45.27	196.10	197.87	197.12	197.88	0.58	160.97	157.25	0.16
W1	1109	10 Year	31.56	196.10	197.62	197.05	197.62	0.55	120.38	155.93	0.17
W1	1109	5 Year	22.49	196.10	197.44	197.01	197.44	0.51	92.45	154.91	0.17
W1	1109	2 Year	10.80	196.10	197.15	196.77	197.16	0.47	48.57	152.07	0.19

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1083	Regional	243.04	195.95	201.41	197.46	201.41	0.37	1352.50	394.28	0.05
W1	1083	100 Year	67.05	195.95	198.28	197.09	198.28	0.41	372.70	250.82	0.09
W1	1083	50 Year	56.76	195.95	198.08	197.06	198.09	0.41	323.43	250.01	0.10
W1	1083	25 Year	45.27	195.95	197.87	197.02	197.87	0.39	269.56	249.12	0.10
W1	1083	10 Year	31.56	195.95	197.61	196.92	197.61	0.37	204.80	248.08	0.10
W1	1083	5 Year	22.49	195.95	197.43	196.71	197.43	0.34	160.21	247.41	0.10
W1	1083	2 Year	10.80	195.95	197.14	196.51	197.14	0.30	89.94	246.21	0.10
W1	1053	Regional	243.04	196.65	201.34	198.07	201.39	1.23	291.29	312.88	0.18
W1	1053	100 Year	67.05	196.65	198.22	197.32	198.26	1.06	93.13	160.91	0.28
W1	1053	50 Year	56.76	196.65	198.02	197.26	198.06	1.04	80.69	159.74	0.29
W1	1053	25 Year	45.27	196.65	197.81	197.19	197.84	0.99	67.11	158.51	0.30
W1	1053	10 Year	31.56	196.65	197.55	197.09	197.58	0.91	50.89	157.31	0.32
W1	1053	5 Year	22.49	196.65	197.38	197.03	197.40	0.83	39.82	156.45	0.33
W1	1053	2 Year	10.80	196.65	197.10	196.92	197.12	0.72	22.12	153.55	0.37
W1	1032	Bridge									
W1	1006	Regional	243.04	196.53	199.22	198.10	199.36	1.85	200.24	235.27	0.37
W1	1006	100 Year	67.05	196.53	197.53	197.37	197.68	1.86	46.58	162.48	0.65
W1	1006	50 Year	56.76	196.53	197.31	197.31	197.55	2.22	31.35	160.96	0.89
W1	1006	25 Year	45.27	196.53	197.23	197.23	197.45	2.09	25.54	160.32	0.90
W1	1006	10 Year	31.56	196.53	197.11	197.11	197.30	1.93	17.07	158.32	0.94
W1	1006	5 Year	22.49	196.53	197.01	197.01	197.18	1.79	12.55	156.27	0.98
W1	1006	2 Year	10.80	196.53	196.88	196.88	196.98	1.43	7.54	153.50	0.99
W1	985	Regional	243.04	195.62	199.26	196.91	199.29	1.07	474.60	243.48	0.21
W1	985	100 Year	67.05	195.62	197.57	196.75	197.58	0.73	150.97	142.10	0.21
W1	985	50 Year	56.76	195.62	197.38	196.75	197.39	0.70	132.32	137.99	0.22
W1	985	25 Year	45.27	195.62	197.16	196.75	197.17	0.66	110.25	106.57	0.23
W1	985	10 Year	31.56	195.62	196.86	196.75	196.87	0.62	81.32	93.96	0.25
W1	985	5 Year	22.49	195.62	196.75	196.75	196.76	0.47	71.57	88.26	0.20
W1	985	2 Year	10.80	195.62	196.58	196.44	196.71	1.63	6.61	77.86	0.73
W1	923	Regional	243.04	194.99	199.01	198.42	199.20	2.24	239.12	247.57	0.43
W1	923	100 Year	67.05	194.99	197.14	196.70	197.42	2.36	28.45	25.18	0.65
W1	923	50 Year	56.76	194.99	196.95	196.56	197.22	2.29	24.76	22.82	0.65
W1	923	25 Year	45.27	194.99	196.74	196.37	196.98	2.18	20.74	19.73	0.65
W1	923	10 Year	31.56	194.99	196.45	196.14	196.65	1.98	15.95	15.80	0.63
W1	923	5 Year	22.49	194.99	196.23	195.96	196.39	1.79	12.56	14.57	0.62
W1	923	2 Year	10.80	194.99	195.85	195.65	195.96	1.46	7.40	12.58	0.61
W1	874	Regional	243.04	194.70	198.70	198.01	199.06	3.22	198.03	207.35	0.53
W1	874	100 Year	67.05	194.70	196.79	196.33	197.12	2.60	28.73	30.99	0.62
W1	874	50 Year	56.76	194.70	196.63	196.18	196.93	2.42	25.73	28.91	0.60
W1	874	25 Year	45.27	194.70	196.45	196.01	196.69	2.19	22.11	26.09	0.58
W1	874	10 Year	31.56	194.70	196.18	195.77	196.36	1.88	17.36	17.00	0.55
W1	874	5 Year	22.49	194.70	195.95	195.59	196.09	1.66	13.75	14.71	0.54
W1	874	2 Year	10.80	194.70	195.56	195.28	195.64	1.30	8.34	12.77	0.51
W1	835	Regional	243.04	194.38	198.70	197.73	198.95	2.49	193.36	175.68	0.45

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	835	100 Year	67.05	194.38	196.65	196.16	196.92	2.31	29.03	29.32	0.61
W1	835	50 Year	56.76	194.38	196.49	196.02	196.73	2.19	25.89	27.18	0.60
W1	835	25 Year	45.27	194.38	196.29	195.84	196.50	2.04	22.24	23.37	0.59
W1	835	10 Year	31.56	194.38	196.02	195.57	196.19	1.79	17.59	16.56	0.56
W1	835	5 Year	22.49	194.38	195.80	195.39	195.93	1.59	14.13	14.65	0.52
W1	835	2 Year	10.80	194.38	195.42	195.07	195.50	1.19	9.06	12.43	0.45
W1	808	Regional	243.04	194.43	198.26	197.70	198.80	3.53	128.74	109.10	0.60
W1	808	100 Year	67.05	194.43	196.26	195.93	196.61	2.66	26.34	20.07	0.68
W1	808	50 Year	56.76	194.43	196.13	195.79	196.44	2.46	23.84	19.38	0.66
W1	808	25 Year	45.27	194.43	195.97	195.63	196.22	2.22	20.80	18.33	0.63
W1	808	10 Year	31.56	194.43	195.75	195.41	195.93	1.87	16.97	17.02	0.58
W1	808	5 Year	22.49	194.43	195.56	195.24	195.69	1.63	13.78	15.86	0.56
W1	808	2 Year	10.80	194.43	195.19	194.97	195.28	1.29	8.37	13.96	0.53
W1	778	Regional	243.04	194.31	198.29	197.51	198.71	3.23	139.00	97.11	0.54
W1	778	100 Year	67.05	194.31	196.16	195.83	196.51	2.63	27.81	25.67	0.68
W1	778	50 Year	56.76	194.31	196.03	195.70	196.34	2.46	24.40	24.56	0.66
W1	778	25 Year	45.27	194.31	195.88	195.51	196.13	2.22	20.78	22.74	0.63
W1	778	10 Year	31.56	194.31	195.68	195.26	195.85	1.84	17.14	16.02	0.57
W1	778	5 Year	22.49	194.31	195.49	195.08	195.62	1.57	14.37	14.45	0.50
W1	778	2 Year	10.80	194.31	195.15	194.81	195.21	1.13	9.55	13.29	0.43
W1	741	Regional	243.04	193.95	198.31	197.17	198.59	2.58	151.20	80.02	0.45
W1	741	100 Year	67.05	193.95	196.04	195.65	196.31	2.36	31.61	25.45	0.62
W1	741	50 Year	56.76	193.95	195.89	195.52	196.14	2.23	28.00	24.83	0.61
W1	741	25 Year	45.27	193.95	195.74	195.36	195.95	2.02	24.31	24.12	0.58
W1	741	10 Year	31.56	193.95	195.56	195.13	195.70	1.66	20.07	22.82	0.51
W1	741	5 Year	22.49	193.95	195.40	194.94	195.50	1.40	16.44	21.20	0.46
W1	741	2 Year	10.80	193.95	195.07	194.67	195.12	1.01	10.66	14.67	0.38
W1	722	Regional	243.04	193.94	198.30	196.91	198.54	2.46	150.23	81.10	0.42
W1	722	100 Year	67.05	193.94	195.98	195.63	196.21	2.25	35.92	32.83	0.61
W1	722	50 Year	56.76	193.94	195.82	195.52	196.05	2.17	31.10	32.02	0.62
W1	722	25 Year	45.27	193.94	195.67	195.39	195.86	2.01	26.35	30.66	0.60
W1	722	10 Year	31.56	193.94	195.50	195.15	195.64	1.68	21.30	29.22	0.54
W1	722	5 Year	22.49	193.94	195.33	194.93	195.44	1.47	16.53	27.35	0.51
W1	722	2 Year	10.80	193.94	195.02	194.65	195.08	1.08	10.04	14.08	0.41
W1	705	Bridge									
W1	675	Regional	243.04	193.95	196.55	195.79	196.73	1.76	129.14	118.77	0.39
W1	675	100 Year	67.05	193.95	195.91	195.21	195.94	0.82	83.73	86.53	0.21
W1	675	50 Year	56.76	193.95	195.79	195.16	195.82	0.79	75.68	84.79	0.21
W1	675	25 Year	45.27	193.95	195.66	195.11	195.69	0.74	66.70	82.89	0.20
W1	675	10 Year	31.56	193.95	195.49	195.03	195.51	0.66	54.59	80.73	0.19
W1	675	5 Year	22.49	193.95	195.32	194.96	195.33	0.64	42.57	78.13	0.20
W1	675	2 Year	10.80	193.95	194.99	194.49	195.01	0.72	20.21	72.00	0.25
W1	645	Regional	243.04	193.89	196.55	195.60	196.63	1.54	193.16	148.82	0.34
W1	645	100 Year	67.05	193.89	195.90	195.11	195.92	0.72	119.79	103.00	0.18
W1	645	50 Year	56.76	193.89	195.78	195.07	195.80	0.69	107.94	101.63	0.18

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	645	25 Year	45.27	193.89	195.66	195.01	195.67	0.64	94.85	100.77	0.17
W1	645	10 Year	31.56	193.89	195.48	194.94	195.49	0.57	77.36	99.53	0.16
W1	645	5 Year	22.49	193.89	195.30	194.88	195.31	0.55	59.97	98.06	0.16
W1	645	2 Year	10.80	193.89	194.97	194.50	194.98	0.61	28.08	89.80	0.21
W1	613	Regional	243.04	193.80	196.56	195.36	196.58	1.08	354.64	233.70	0.21
W1	613	100 Year	67.05	193.80	195.90	194.94	195.90	0.52	210.21	208.98	0.12
W1	613	50 Year	56.76	193.80	195.78	194.94	195.79	0.50	188.75	197.98	0.12
W1	613	25 Year	45.27	193.80	195.65	194.94	195.66	0.46	165.11	183.63	0.11
W1	613	10 Year	31.56	193.80	195.48	194.88	195.48	0.40	134.39	170.70	0.10
W1	613	5 Year	22.49	193.80	195.30	194.69	195.30	0.38	104.86	164.43	0.10
W1	613	2 Year	10.80	193.80	194.89	194.39	194.94	1.01	11.01	122.77	0.33
W1	607	Bridge									
W1	603	Regional	243.04	193.79	196.50	195.21	196.54	1.17	293.57	173.12	0.23
W1	603	100 Year	67.05	193.79	195.89	194.90	195.89	0.48	202.72	144.95	0.11
W1	603	50 Year	56.76	193.79	195.77	194.90	195.78	0.45	185.98	144.35	0.10
W1	603	25 Year	45.27	193.79	195.64	194.90	195.65	0.41	167.44	143.71	0.10
W1	603	10 Year	31.56	193.79	195.47	194.90	195.47	0.34	142.63	142.84	0.09
W1	603	5 Year	22.49	193.79	195.29	194.68	195.30	0.31	117.53	141.96	0.08
W1	603	2 Year	10.80	193.79	194.69	194.37	194.78	1.30	8.48	134.24	0.46
W1	590	Regional	243.04	193.74	196.48	195.17	196.52	1.04	278.32	158.93	0.22
W1	590	100 Year	67.05	193.74	195.88	194.78	195.89	0.43	195.84	136.76	0.10
W1	590	50 Year	56.76	193.74	195.77	194.77	195.77	0.40	180.08	136.29	0.10
W1	590	25 Year	45.27	193.74	195.64	194.77	195.65	0.36	162.63	135.77	0.09
W1	590	10 Year	31.56	193.74	195.47	194.77	195.47	0.30	139.27	135.06	0.08
W1	590	5 Year	22.49	193.74	195.29	194.66	195.29	0.27	115.56	134.27	0.08
W1	590	2 Year	10.80	193.74	194.45	194.35	194.61	1.78	6.08	60.32	0.76
W1	513	Regional	243.04	192.98	196.23	195.77	196.46	1.88	116.45	82.21	0.39
W1	513	100 Year	67.05	192.98	195.85	194.85	195.88	0.78	84.87	80.44	0.17
W1	513	50 Year	56.76	192.98	195.73	194.78	195.76	0.75	75.87	79.50	0.17
W1	513	25 Year	45.27	192.98	195.61	194.68	195.64	0.64	65.07	62.07	0.15
W1	513	10 Year	31.56	192.98	195.45	194.54	195.46	0.52	56.81	58.17	0.13
W1	513	5 Year	22.49	192.98	195.28	194.19	195.29	0.45	48.35	49.96	0.11
W1	513	2 Year	10.80	192.98	193.97	193.86	194.14	1.78	6.06	10.37	0.74
W1	421	Regional	243.04	192.18	196.32	194.76	196.37	0.81	244.61	143.23	0.15
W1	421	100 Year	67.05	192.18	195.86	194.32	195.87	0.29	195.99	103.42	0.06
W1	421	50 Year	56.76	192.18	195.75	194.32	195.75	0.27	184.29	102.71	0.05
W1	421	25 Year	45.27	192.18	195.62	194.18	195.62	0.24	171.54	102.10	0.05
W1	421	10 Year	31.56	192.18	195.45	193.98	195.46	0.19	154.63	101.31	0.04
W1	421	5 Year	22.49	192.18	195.28	193.60	195.28	0.16	137.18	100.47	0.03
W1	421	2 Year	10.80	192.18	193.89	193.26	193.93	0.90	13.00	44.14	0.29
W1	333	Regional	243.04	191.41	196.31	194.91	196.35	1.02	264.68	127.64	0.19
W1	333	100 Year	67.05	191.41	195.86	193.98	195.86	0.37	209.57	120.88	0.07
W1	333	50 Year	56.76	191.41	195.74	193.80	195.75	0.34	195.90	120.51	0.07
W1	333	25 Year	45.27	191.41	195.62	193.58	195.62	0.30	180.96	120.10	0.06
W1	333	10 Year	31.56	191.41	195.45	193.29	195.46	0.24	161.10	119.53	0.05

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	333	5 Year	22.49	191.41	195.28	193.06	195.28	0.20	140.50	118.89	0.04
W1	333	2 Year	10.80	191.41	193.86	192.68	193.88	0.65	16.59	21.18	0.18
W1	230	Regional	243.04	190.18	196.30	194.69	196.33	1.05	344.65	149.72	0.18
W1	230	100 Year	67.05	190.18	195.85	193.10	195.86	0.38	278.20	147.49	0.07
W1	230	50 Year	56.76	190.18	195.74	192.90	195.75	0.34	261.61	146.05	0.06
W1	230	25 Year	45.27	190.18	195.62	192.67	195.62	0.30	243.60	144.51	0.05
W1	230	10 Year	31.56	190.18	195.45	192.36	195.45	0.23	219.85	142.85	0.04
W1	230	5 Year	22.49	190.18	195.28	192.10	195.28	0.19	195.31	141.63	0.04
W1	230	2 Year	10.80	190.18	193.86	191.68	193.87	0.41	26.53	71.97	0.09
W1	189		Culvert								
W1	165	Regional	243.04	191.02	196.15	195.48	196.31	2.55	182.64	122.51	0.38
W1	165	100 Year	67.05	191.02	195.83	193.55	195.85	0.87	147.11	105.03	0.13
W1	165	50 Year	56.76	191.02	195.72	193.31	195.74	0.80	135.67	102.16	0.12
W1	165	25 Year	45.27	191.02	195.60	193.02	195.62	0.70	123.52	99.58	0.11
W1	165	10 Year	31.56	191.02	195.44	192.62	195.45	0.56	107.75	96.02	0.09
W1	165	5 Year	22.49	191.02	195.27	192.32	195.28	0.46	91.79	91.20	0.08
W1	165	2 Year	10.80	191.02	193.84	191.84	193.86	0.63	17.28	8.95	0.13
W1	138	Regional	243.04	190.87	196.11	195.54	196.30	2.75	189.39	126.96	0.41
W1	138	100 Year	67.05	190.87	195.83	193.45	195.85	0.91	155.48	115.08	0.14
W1	138	50 Year	56.76	190.87	195.72	193.21	195.74	0.84	142.90	113.79	0.13
W1	138	25 Year	45.27	190.87	195.60	192.92	195.62	0.74	129.33	111.89	0.12
W1	138	10 Year	31.56	190.87	195.44	192.51	195.45	0.59	111.67	108.96	0.09
W1	138	5 Year	22.49	190.87	195.27	192.20	195.28	0.48	93.47	105.33	0.08
W1	138	2 Year	10.80	190.87	193.84	191.72	193.86	0.58	20.91	19.69	0.12

APPENDIX

D-1

Hydraulic Modelling With CNR Culvert Improvements



Steeles Avenue EA

Project:	HEC-RAS Model_Proposed Condition-1_1	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1_1.prj
Plan:	Future Flows_SteelesEA	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1_1.p02
Geometry:	Sixteen Mile Creek_SteelesEACropped	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1_1.g01
Steady Flow:	Future Flows_Steeles EA	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1_1.f01

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	6800	Regional	242.00	219.74	222.05	221.82	222.40	3.33	149.31	119.96	0.73
W1	6800	100 Year	66.14	219.74	221.10	220.91	221.31	2.27	43.95	65.14	0.67
W1	6800	50 Year	55.36	219.74	221.00	220.80	221.19	2.14	38.53	51.11	0.66
W1	6800	25 Year	44.17	219.74	220.88	220.73	221.05	1.98	32.66	49.72	0.64
W1	6800	10 Year	30.75	219.74	220.72	220.58	220.86	1.74	24.81	47.68	0.61
W1	6800	5 Year	21.90	219.74	220.69	220.40	220.77	1.30	23.46	47.54	0.46
W1	6800	2 Year	10.46	219.74	220.35	220.18	220.42	1.21	8.68	27.78	0.55
W1	3626	Regional	243.04	205.64	208.29	207.33	208.47	2.35	222.22	321.72	0.49
W1	3626	100 Year	67.05	205.64	207.54	206.85	207.58	1.01	110.02	103.63	0.25
W1	3626	50 Year	56.76	205.64	207.39	206.75	207.42	0.95	95.68	86.29	0.25
W1	3626	25 Year	45.27	205.64	206.99	206.60	207.15	1.79	25.71	71.75	0.55
W1	3626	10 Year	31.56	205.64	206.64	206.42	206.81	1.83	17.26	63.52	0.65
W1	3626	5 Year	22.49	205.64	206.48	206.28	206.61	1.61	13.93	61.23	0.62
W1	3626	2 Year	10.80	205.64	206.23	206.07	206.31	1.19	9.10	52.68	0.55
W1	3610		Bridge								
W1	3598	Regional	243.04	205.54	208.10	207.46	208.26	2.35	206.94	229.30	0.49
W1	3598	100 Year	67.05	205.54	207.07	206.58	207.15	1.49	73.56	80.36	0.42
W1	3598	50 Year	56.76	205.54	206.91	206.50	207.03	1.68	44.74	76.45	0.50
W1	3598	25 Year	45.27	205.54	206.79	206.40	206.89	1.52	38.94	72.20	0.48
W1	3598	10 Year	31.56	205.54	206.61	206.27	206.68	1.32	30.52	66.75	0.45
W1	3598	5 Year	22.49	205.54	206.46	206.16	206.52	1.14	24.93	62.04	0.43
W1	3598	2 Year	10.80	205.54	206.21	205.97	206.25	0.87	15.40	49.77	0.38
W1	3579	Regional	243.04	205.47	207.84	207.61	208.14	3.22	157.39	153.30	0.69
W1	3579	100 Year	67.05	205.47	206.86	206.62	207.05	2.27	50.44	69.53	0.65
W1	3579	50 Year	56.76	205.47	206.77	206.52	206.94	2.12	44.43	63.83	0.63
W1	3579	25 Year	45.27	205.47	206.66	206.42	206.80	1.92	37.66	59.60	0.60
W1	3579	10 Year	31.56	205.47	206.49	206.26	206.60	1.67	28.34	50.30	0.57
W1	3579	5 Year	22.49	205.47	206.36	206.16	206.45	1.44	22.44	45.16	0.53
W1	3579	2 Year	10.80	205.47	206.14	205.95	206.19	1.05	13.65	35.20	0.46
W1	3459	Regional	243.04	204.94	206.80	206.37	207.38	3.92	110.19	153.06	0.96
W1	3459	100 Year	67.05	204.94	205.87	205.85	206.17	2.67	34.86	55.07	0.97
W1	3459	50 Year	56.76	204.94	205.79	205.79	206.07	2.54	30.77	54.56	0.97
W1	3459	25 Year	45.27	204.94	205.71	205.70	205.95	2.37	25.94	53.66	0.97
W1	3459	10 Year	31.56	204.94	205.60	205.59	205.79	2.05	20.57	52.74	0.92
W1	3459	5 Year	22.49	204.94	205.51	205.51	205.67	1.86	15.69	51.35	0.92
W1	3459	2 Year	10.80	204.94	205.33	205.32	205.45	1.59	7.86	32.92	0.97
W1	3124	Regional	243.04	203.66	205.86	204.88	205.96	2.35	227.27	131.87	0.52
W1	3124	100 Year	67.05	203.66	204.85	204.24	204.88	1.40	101.15	113.70	0.44
W1	3124	50 Year	56.76	203.66	204.75	204.19	204.79	1.31	90.58	111.22	0.43
W1	3124	25 Year	45.27	203.66	204.64	204.12	204.67	1.20	78.06	107.94	0.42
W1	3124	10 Year	31.56	203.66	204.49	204.05	204.51	1.09	54.75	103.66	0.42

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	3124	5 Year	22.49	203.66	204.36	203.99	204.38	0.94	44.32	98.27	0.40
W1	3124	2 Year	10.80	203.66	204.15	203.91	204.16	0.67	28.61	86.89	0.37
W1	3036	Regional	243.04	203.31	205.42	204.88	205.65	3.04	159.58	103.03	0.70
W1	3036	100 Year	67.05	203.31	204.54	204.16	204.62	1.78	72.18	93.16	0.56
W1	3036	50 Year	56.76	203.31	204.45	204.11	204.53	1.68	64.22	91.91	0.55
W1	3036	25 Year	45.27	203.31	204.34	204.02	204.41	1.56	54.17	87.99	0.55
W1	3036	10 Year	31.56	203.31	204.18	203.92	204.24	1.40	40.62	82.74	0.55
W1	3036	5 Year	22.49	203.31	204.05	203.83	204.10	1.29	30.50	63.24	0.55
W1	3036	2 Year	10.80	203.31	203.82	203.70	203.86	1.14	17.08	54.40	0.58
W1	2943	Regional	243.04	202.89	205.14	204.75	205.35	3.37	179.08	136.95	0.74
W1	2943	100 Year	67.05	202.89	204.31	203.95	204.41	2.06	74.58	88.42	0.58
W1	2943	50 Year	56.76	202.89	204.23	203.88	204.32	1.92	67.97	85.78	0.55
W1	2943	25 Year	45.27	202.89	204.13	203.80	204.21	1.73	59.74	82.92	0.52
W1	2943	10 Year	31.56	202.89	203.99	203.69	204.05	1.48	48.06	77.56	0.48
W1	2943	5 Year	22.49	202.89	203.87	203.57	203.91	1.28	39.01	73.00	0.44
W1	2943	2 Year	10.80	202.89	203.64	203.43	203.67	0.98	23.31	62.48	0.39
W1	2859	Regional	243.04	202.89	204.79	204.21	204.91	2.77	207.59	162.09	0.64
W1	2859	100 Year	67.05	202.89	203.82	203.64	203.92	2.32	66.66	121.90	0.78
W1	2859	50 Year	56.76	202.89	203.76	203.58	203.85	2.20	59.16	118.38	0.76
W1	2859	25 Year	45.27	202.89	203.69	203.54	203.77	2.01	50.95	115.54	0.73
W1	2859	10 Year	31.56	202.89	203.57	203.39	203.64	1.82	37.65	103.33	0.72
W1	2859	5 Year	22.49	202.89	203.47	203.29	203.53	1.64	28.59	93.99	0.70
W1	2859	2 Year	10.80	202.89	203.31	203.15	203.35	1.15	17.13	47.69	0.58
W1	2741	Regional	243.04	202.21	204.66	203.82	204.75	2.27	273.16	179.07	0.47
W1	2741	100 Year	67.05	202.21	203.40	203.05	203.50	2.03	78.62	116.70	0.62
W1	2741	50 Year	56.76	202.21	203.31	203.05	203.40	1.98	68.12	112.83	0.63
W1	2741	25 Year	45.27	202.21	203.21	203.00	203.30	1.90	56.30	108.78	0.65
W1	2741	10 Year	31.56	202.21	203.05	202.88	203.13	1.68	41.06	87.44	0.63
W1	2741	5 Year	22.49	202.21	202.94	202.81	203.00	1.51	30.43	81.44	0.61
W1	2741	2 Year	10.80	202.21	202.75	202.69	202.80	1.26	17.45	70.71	0.61
W1	2636	Regional	243.04	201.79	204.53	203.47	204.64	2.38	248.17	134.29	0.47
W1	2636	100 Year	67.05	201.79	203.20	202.81	203.27	1.79	87.98	101.49	0.50
W1	2636	50 Year	56.76	201.79	203.09	202.74	203.16	1.73	77.21	99.44	0.50
W1	2636	25 Year	45.27	201.79	202.97	202.66	203.03	1.64	64.90	96.67	0.50
W1	2636	10 Year	31.56	201.79	202.81	202.58	202.86	1.44	50.21	88.92	0.48
W1	2636	5 Year	22.49	201.79	202.69	202.50	202.73	1.29	39.88	85.11	0.45
W1	2636	2 Year	10.80	201.79	202.51	202.31	202.54	0.96	25.13	81.21	0.38
W1	2609.75	Regional	243.04	201.80	204.46	203.39	204.57	2.10	231.21	115.79	0.43
W1	2609.75	100 Year	67.05	201.80	203.10	202.73	203.17	1.57	82.65	99.16	0.48
W1	2609.75	50 Year	56.76	201.80	202.99	202.67	203.06	1.53	71.42	97.82	0.49
W1	2609.75	25 Year	45.27	201.80	202.85	202.60	202.92	1.49	58.26	95.59	0.51
W1	2609.75	10 Year	31.56	201.80	202.68	202.53	202.74	1.43	41.59	91.50	0.56
W1	2609.75	5 Year	22.49	201.80	202.53	202.45	202.61	1.47	28.76	85.67	0.63
W1	2609.75	2 Year	10.80	201.80	202.27	202.27	202.40	1.68	8.96	45.85	0.91
W1	2505.52	Regional	243.04	200.88	203.60	203.60	204.33	4.72	90.51	116.77	1.04

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2505.52	100 Year	67.05	200.88	202.59	202.53	202.92	2.96	35.54	47.94	0.90
W1	2505.52	50 Year	56.76	200.88	202.50	202.45	202.80	2.81	31.55	46.55	0.89
W1	2505.52	25 Year	45.27	200.88	202.38	202.34	202.65	2.63	26.57	44.97	0.89
W1	2505.52	10 Year	31.56	200.88	202.21	202.20	202.45	2.39	19.94	43.05	0.90
W1	2505.52	5 Year	22.49	200.88	202.10	202.10	202.30	2.13	15.52	41.66	0.87
W1	2505.52	2 Year	10.80	200.88	201.90	201.90	202.05	1.73	7.95	38.60	0.86
W1	2449.89	Regional	243.04	200.68	203.56	202.97	203.72	2.58	222.58	169.83	0.54
W1	2449.89	100 Year	67.05	200.68	202.57	202.20	202.66	1.74	75.92	101.25	0.47
W1	2449.89	50 Year	56.76	200.68	202.45	202.14	202.54	1.67	66.10	84.50	0.48
W1	2449.89	25 Year	45.27	200.68	202.31	202.06	202.40	1.61	54.34	82.51	0.49
W1	2449.89	10 Year	31.56	200.68	202.09	201.93	202.18	1.59	36.90	79.35	0.54
W1	2449.89	5 Year	22.49	200.68	201.92	201.78	202.03	1.60	24.09	75.62	0.60
W1	2449.89	2 Year	10.80	200.68	201.70	201.55	201.78	1.28	10.31	47.03	0.57
W1	2406.87	Regional	243.04	200.53	203.35	202.84	203.57	2.97	186.22	144.12	0.62
W1	2406.87	100 Year	67.05	200.53	202.45	201.98	202.55	1.75	74.64	103.09	0.47
W1	2406.87	50 Year	56.76	200.53	202.34	201.91	202.43	1.68	64.18	92.19	0.47
W1	2406.87	25 Year	45.27	200.53	202.19	201.83	202.28	1.58	51.40	82.81	0.47
W1	2406.87	10 Year	31.56	200.53	201.96	201.70	202.04	1.49	36.09	54.13	0.50
W1	2406.87	5 Year	22.49	200.53	201.77	201.61	201.85	1.45	25.98	52.23	0.54
W1	2406.87	2 Year	10.80	200.53	201.46	201.39	201.56	1.50	10.20	48.78	0.69
W1	2371	Regional	243.04	200.40	203.34	202.91	203.47	2.20	187.66	146.18	0.44
W1	2371	100 Year	67.05	200.40	202.34	201.95	202.47	1.92	63.63	82.64	0.50
W1	2371	50 Year	56.76	200.40	202.23	201.83	202.35	1.83	55.35	73.43	0.49
W1	2371	25 Year	45.27	200.40	202.08	201.70	202.19	1.73	44.48	70.58	0.49
W1	2371	10 Year	31.56	200.40	201.82	201.55	201.93	1.65	28.36	45.06	0.52
W1	2371	5 Year	22.49	200.40	201.63	201.42	201.73	1.53	20.73	35.79	0.54
W1	2371	2 Year	10.80	200.40	201.33	201.16	201.41	1.28	10.76	31.83	0.54
W1	2323	Regional	243.04	200.23	202.93	202.82	203.34	3.75	128.64	105.54	0.78
W1	2323	100 Year	67.05	200.23	202.24	201.82	202.38	1.96	65.21	79.93	0.48
W1	2323	50 Year	56.76	200.23	202.13	201.66	202.26	1.86	56.46	75.99	0.47
W1	2323	25 Year	45.27	200.23	201.97	201.57	202.10	1.76	45.20	70.66	0.47
W1	2323	10 Year	31.56	200.23	201.71	201.39	201.82	1.63	29.91	47.40	0.49
W1	2323	5 Year	22.49	200.23	201.51	201.24	201.61	1.48	21.61	39.18	0.48
W1	2323	2 Year	10.80	200.23	201.19	200.94	201.26	1.19	10.21	31.45	0.48
W1	2299	Regional	243.04	200.15	202.94	202.69	203.20	2.64	146.84	126.80	0.56
W1	2299	100 Year	67.05	200.15	201.88	201.88	202.26	2.82	32.80	61.51	0.82
W1	2299	50 Year	56.76	200.15	201.76	201.76	202.13	2.76	25.60	54.46	0.85
W1	2299	25 Year	45.27	200.15	201.51	201.51	201.95	2.92	15.77	22.69	0.99
W1	2299	10 Year	31.56	200.15	201.31	201.31	201.67	2.62	12.04	16.87	0.99
W1	2299	5 Year	22.49	200.15	201.16	201.15	201.45	2.36	9.51	16.14	0.98
W1	2299	2 Year	10.80	200.15	200.98	200.91	201.11	1.62	6.65	15.32	0.79
W1	2274	Regional	243.04	200.06	202.54	202.52	203.08	3.59	105.26	101.55	0.82
W1	2274	100 Year	67.05	200.06	201.37	201.37	201.81	2.94	22.87	27.37	1.00
W1	2274	50 Year	56.76	200.06	201.28	201.28	201.67	2.76	20.53	25.93	0.99
W1	2274	25 Year	45.27	200.06	201.15	201.15	201.50	2.63	17.25	24.95	1.01
W1	2274	10 Year	31.56	200.06	201.00	201.00	201.28	2.35	13.45	23.85	1.00

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2274	5 Year	22.49	200.06	200.87	200.87	201.11	2.13	10.54	22.90	1.00
W1	2274	2 Year	10.80	200.06	200.68	200.68	200.83	1.70	6.36	21.25	0.99
W1	2246	Regional	243.04	200.09	202.78	199.92	202.79	0.48	874.49	316.14	0.11
W1	2246	100 Year	67.05	200.09	201.48	199.38	201.48	0.19	475.32	298.86	0.07
W1	2246	50 Year	56.76	200.09	201.35	199.33	201.35	0.17	437.66	296.11	0.06
W1	2246	25 Year	45.27	200.09	201.14	199.27	201.14	0.14	375.21	290.80	0.06
W1	2246	10 Year	31.56	200.09	200.93	199.19	200.93	0.09	314.32	281.39	0.05
W1	2246	5 Year	22.49	200.09	200.75	199.13	200.75	0.09	265.51	258.40	0.05
W1	2246	2 Year	10.80	200.09	200.46	199.04	200.46	0.04	200.94	204.84	0.03
W1	2204	Regional	243.04	199.96	202.72	201.47	202.76	1.55	428.55	317.58	0.30
W1	2204	100 Year	67.05	199.96	201.42	200.71	201.46	1.17	106.78	154.55	0.32
W1	2204	50 Year	56.76	199.96	201.30	200.66	201.34	1.11	91.36	88.84	0.32
W1	2204	25 Year	45.27	199.96	201.09	200.47	201.12	1.10	73.34	83.72	0.35
W1	2204	10 Year	31.56	199.96	200.89	200.46	200.91	1.00	56.45	82.18	0.36
W1	2204	5 Year	22.49	199.96	200.71	200.37	200.73	0.96	41.76	80.82	0.39
W1	2204	2 Year	10.80	199.96	200.42	200.26	200.45	0.92	19.92	64.71	0.50
W1	2166	Regional	243.04	199.27	202.69	201.50	202.74	1.54	360.89	306.14	0.28
W1	2166	100 Year	67.05	199.27	201.38	200.68	201.43	1.16	79.26	97.74	0.28
W1	2166	50 Year	56.76	199.27	201.18	200.60	201.27	1.49	43.43	62.43	0.38
W1	2166	25 Year	45.27	199.27	200.96	200.50	201.05	1.45	35.90	60.13	0.39
W1	2166	10 Year	31.56	199.27	200.79	200.38	200.85	1.23	29.89	58.24	0.36
W1	2166	5 Year	22.49	199.27	200.61	200.27	200.66	1.10	24.15	56.86	0.35
W1	2166	2 Year	10.80	199.27	200.34	200.00	200.37	0.87	15.05	45.61	0.32
W1	2146		Mult Open		New Steeles Avenue Bridge						
W1	2126	Regional	243.04	199.41	202.10	201.08	202.18	1.85	319.37	260.03	0.39
W1	2126	100 Year	67.05	199.41	200.67	200.67	201.07	3.00	27.88	94.61	1.03
W1	2126	50 Year	56.76	199.41	200.59	200.59	200.95	2.84	24.83	93.04	1.02
W1	2126	25 Year	45.27	199.41	200.49	200.49	200.80	2.62	21.21	91.17	1.01
W1	2126	10 Year	31.56	199.41	200.34	200.34	200.59	2.36	16.09	88.08	1.03
W1	2126	5 Year	22.49	199.41	200.24	200.24	200.44	2.07	13.01	86.11	0.99
W1	2126	2 Year	10.80	199.41	200.03	200.03	200.18	1.80	7.05	62.13	0.98
W1	2072	Regional	243.04	199.16	202.13	199.44	202.14	0.58	813.57	316.40	0.11
W1	2072	100 Year	67.05	199.16	200.21	199.03	200.21	0.38	274.14	249.49	0.15
W1	2072	50 Year	56.76	199.16	200.07	199.00	200.08	0.35	240.68	248.51	0.15
W1	2072	25 Year	45.27	199.16	199.90	198.95	199.91	0.29	199.17	231.49	0.15
W1	2072	10 Year	31.56	199.16	199.67	198.89	199.67	0.25	146.47	215.19	0.16
W1	2072	5 Year	22.49	199.16	199.47	198.83	199.47	0.20	107.37	185.20	0.16
W1	2072	2 Year	10.80	199.16	199.12	198.74	199.13		50.38	133.84	0.00
W1	1849	Regional	243.04	197.15	202.00	200.42	202.08	1.73	395.33	316.19	0.28
W1	1849	100 Year	67.05	197.15	199.97	199.39	200.08	1.64	69.29	67.12	0.38
W1	1849	50 Year	56.76	197.15	199.83	199.21	199.93	1.56	60.05	65.56	0.38
W1	1849	25 Year	45.27	197.15	199.67	198.99	199.76	1.44	49.54	62.35	0.37
W1	1849	10 Year	31.56	197.15	199.42	198.76	199.50	1.29	34.61	59.58	0.36
W1	1849	5 Year	22.49	197.15	199.22	198.58	199.28	1.14	23.70	44.10	0.34
W1	1849	2 Year	10.80	197.15	198.83	198.29	198.87	0.85	12.67	16.29	0.31

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1831	Regional	243.04	197.02	201.81	200.26	201.93	1.81	215.24	435.32	0.31
W1	1831	100 Year	67.05	197.02	199.34	199.01	199.57	2.12	33.30	72.71	0.62
W1	1831	50 Year	56.76	197.02	199.16	198.87	199.40	2.13	27.33	53.33	0.67
W1	1831	25 Year	45.27	197.02	198.97	198.71	199.19	2.09	21.65	27.27	0.71
W1	1831	10 Year	31.56	197.02	198.70	198.48	198.91	1.98	15.97	19.50	0.70
W1	1831	5 Year	22.49	197.02	198.50	198.30	198.67	1.85	12.18	16.94	0.70
W1	1831	2 Year	10.80	197.02	198.16	197.99	198.28	1.54	7.02	13.38	0.68
W1	1772	Mult Open	CNR Bridge								
W1	1721	Regional	243.04	196.75	201.53	199.27	201.64	1.72	220.22	207.06	0.27
W1	1721	100 Year	67.05	196.75	199.21	198.38	199.27	1.25	79.94	127.31	0.30
W1	1721	50 Year	56.76	196.75	199.02	198.31	199.08	1.21	69.76	122.70	0.31
W1	1721	25 Year	45.27	196.75	198.84	198.22	198.89	1.12	59.45	112.62	0.31
W1	1721	10 Year	31.56	196.75	198.59	198.08	198.63	0.99	46.04	104.59	0.30
W1	1721	5 Year	22.49	196.75	198.41	197.87	198.44	0.89	35.95	96.39	0.29
W1	1721	2 Year	10.80	196.75	198.10	197.58	198.13	0.71	19.52	76.41	0.28
W1	1645	Regional	243.04	196.74	201.54	199.58	201.58	1.11	481.32	245.81	0.18
W1	1645	100 Year	67.05	196.74	198.93	198.40	199.12	1.94	34.48	105.04	0.51
W1	1645	50 Year	56.76	196.74	198.75	198.30	198.93	1.87	30.28	84.23	0.53
W1	1645	25 Year	45.27	196.74	198.59	198.18	198.74	1.70	26.64	73.25	0.51
W1	1645	10 Year	31.56	196.74	198.39	198.02	198.50	1.44	21.93	59.52	0.47
W1	1645	5 Year	22.49	196.74	198.23	197.89	198.31	1.23	18.27	50.75	0.44
W1	1645	2 Year	10.80	196.74	197.96	197.61	198.00	0.90	11.95	33.02	0.39
W1	1630	Mult Open									
W1	1619	Regional	243.04	196.45	201.43	198.60	201.44	0.70	886.27	338.01	0.11
W1	1619	100 Year	67.05	196.45	198.55	198.39	198.58	1.16	141.36	201.17	0.32
W1	1619	50 Year	56.76	196.45	198.55	198.28	198.82	2.37	26.06	200.98	0.65
W1	1619	25 Year	45.27	196.45	198.44	198.15	198.65	2.10	23.38	195.82	0.60
W1	1619	10 Year	31.56	196.45	198.28	197.95	198.42	1.71	19.69	187.19	0.53
W1	1619	5 Year	22.49	196.45	198.15	197.75	198.25	1.41	16.70	171.27	0.46
W1	1619	2 Year	10.80	196.45	197.92	197.40	197.96	0.92	12.16	113.00	0.33
W1	1223	Regional	243.04	196.15	201.41	197.96	201.42	0.62	709.06	255.88	0.09
W1	1223	100 Year	67.05	196.15	198.31	197.44	198.33	0.90	155.13	117.85	0.23
W1	1223	50 Year	56.76	196.15	198.12	197.40	198.13	0.91	132.58	117.18	0.25
W1	1223	25 Year	45.27	196.15	197.91	197.35	197.92	0.91	108.09	116.29	0.27
W1	1223	10 Year	31.56	196.15	197.65	197.27	197.67	0.90	78.84	115.16	0.29
W1	1223	5 Year	22.49	196.15	197.48	197.21	197.50	0.89	58.72	114.38	0.31
W1	1223	2 Year	10.80	196.15	197.20	197.05	197.23	0.94	27.56	112.82	0.39
W1	1109	Regional	243.04	196.10	201.41	197.68	201.41	0.51	916.89	300.35	0.07
W1	1109	100 Year	67.05	196.10	198.28	197.21	198.29	0.61	225.89	159.28	0.15
W1	1109	50 Year	56.76	196.10	198.09	197.17	198.10	0.60	194.83	158.30	0.15
W1	1109	25 Year	45.27	196.10	197.87	197.12	197.88	0.58	160.97	157.25	0.16
W1	1109	10 Year	31.56	196.10	197.62	197.05	197.62	0.55	120.38	155.93	0.17
W1	1109	5 Year	22.49	196.10	197.44	197.01	197.44	0.51	92.45	154.91	0.17
W1	1109	2 Year	10.80	196.10	197.15	196.77	197.16	0.47	48.57	152.07	0.19

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1083	Regional	243.04	195.95	201.41	197.46	201.41	0.37	1352.50	394.28	0.05
W1	1083	100 Year	67.05	195.95	198.28	197.09	198.28	0.41	372.70	250.82	0.09
W1	1083	50 Year	56.76	195.95	198.08	197.06	198.09	0.41	323.43	250.01	0.10
W1	1083	25 Year	45.27	195.95	197.87	197.02	197.87	0.39	269.56	249.12	0.10
W1	1083	10 Year	31.56	195.95	197.61	196.92	197.61	0.37	204.80	248.08	0.10
W1	1083	5 Year	22.49	195.95	197.43	196.71	197.43	0.34	160.21	247.41	0.10
W1	1083	2 Year	10.80	195.95	197.14	196.51	197.14	0.30	89.94	246.21	0.10
W1	1053	Regional	243.04	196.65	201.34	198.07	201.39	1.23	291.29	312.88	0.18
W1	1053	100 Year	67.05	196.65	198.22	197.32	198.26	1.06	93.13	160.91	0.28
W1	1053	50 Year	56.76	196.65	198.02	197.26	198.06	1.04	80.69	159.74	0.29
W1	1053	25 Year	45.27	196.65	197.81	197.19	197.84	0.99	67.11	158.51	0.30
W1	1053	10 Year	31.56	196.65	197.55	197.09	197.58	0.91	50.89	157.31	0.32
W1	1053	5 Year	22.49	196.65	197.38	197.03	197.40	0.83	39.82	156.45	0.33
W1	1053	2 Year	10.80	196.65	197.10	196.92	197.12	0.72	22.12	153.55	0.37
W1	1032		Bridge								
W1	1006	Regional	243.04	196.53	199.22	198.10	199.36	1.85	200.24	235.27	0.37
W1	1006	100 Year	67.05	196.53	197.53	197.37	197.68	1.86	46.58	162.48	0.65
W1	1006	50 Year	56.76	196.53	197.31	197.31	197.55	2.22	31.35	160.96	0.89
W1	1006	25 Year	45.27	196.53	197.23	197.23	197.45	2.09	25.54	160.32	0.90
W1	1006	10 Year	31.56	196.53	197.11	197.11	197.30	1.93	17.07	158.32	0.94
W1	1006	5 Year	22.49	196.53	197.01	197.01	197.18	1.79	12.55	156.27	0.98
W1	1006	2 Year	10.80	196.53	196.88	196.88	196.98	1.43	7.54	153.50	0.99
W1	985	Regional	243.04	195.62	199.26	196.91	199.29	1.07	474.60	243.48	0.21
W1	985	100 Year	67.05	195.62	197.57	196.75	197.58	0.73	150.97	142.10	0.21
W1	985	50 Year	56.76	195.62	197.38	196.75	197.39	0.70	132.32	137.99	0.22
W1	985	25 Year	45.27	195.62	197.16	196.75	197.17	0.66	110.25	106.57	0.23
W1	985	10 Year	31.56	195.62	196.86	196.75	196.87	0.62	81.32	93.96	0.25
W1	985	5 Year	22.49	195.62	196.75	196.75	196.76	0.47	71.57	88.26	0.20
W1	985	2 Year	10.80	195.62	196.58	196.44	196.71	1.63	6.61	77.86	0.73
W1	923	Regional	243.04	194.99	199.01	198.42	199.20	2.24	239.12	247.57	0.43
W1	923	100 Year	67.05	194.99	197.14	196.70	197.42	2.36	28.45	25.18	0.65
W1	923	50 Year	56.76	194.99	196.95	196.56	197.22	2.29	24.76	22.82	0.65
W1	923	25 Year	45.27	194.99	196.74	196.37	196.98	2.18	20.74	19.73	0.65
W1	923	10 Year	31.56	194.99	196.45	196.14	196.65	1.98	15.95	15.80	0.63
W1	923	5 Year	22.49	194.99	196.23	195.96	196.39	1.79	12.56	14.57	0.62
W1	923	2 Year	10.80	194.99	195.85	195.65	195.96	1.46	7.40	12.58	0.61
W1	874	Regional	243.04	194.70	198.70	198.01	199.06	3.22	198.03	207.35	0.53
W1	874	100 Year	67.05	194.70	196.79	196.33	197.12	2.60	28.73	30.99	0.62
W1	874	50 Year	56.76	194.70	196.63	196.18	196.93	2.42	25.73	28.91	0.60
W1	874	25 Year	45.27	194.70	196.45	196.01	196.69	2.19	22.11	26.09	0.58
W1	874	10 Year	31.56	194.70	196.18	195.77	196.36	1.88	17.36	17.00	0.55
W1	874	5 Year	22.49	194.70	195.95	195.59	196.09	1.66	13.75	14.71	0.54
W1	874	2 Year	10.80	194.70	195.56	195.28	195.64	1.30	8.34	12.77	0.51
W1	835	Regional	243.04	194.38	198.70	197.73	198.95	2.49	193.36	175.68	0.45

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	835	100 Year	67.05	194.38	196.65	196.16	196.92	2.31	29.03	29.32	0.61
W1	835	50 Year	56.76	194.38	196.49	196.02	196.73	2.19	25.89	27.18	0.60
W1	835	25 Year	45.27	194.38	196.29	195.84	196.50	2.04	22.24	23.37	0.59
W1	835	10 Year	31.56	194.38	196.02	195.57	196.19	1.79	17.59	16.56	0.56
W1	835	5 Year	22.49	194.38	195.80	195.39	195.93	1.59	14.13	14.65	0.52
W1	835	2 Year	10.80	194.38	195.42	195.07	195.50	1.19	9.06	12.43	0.45
W1	808	Regional	243.04	194.43	198.26	197.70	198.80	3.53	128.74	109.10	0.60
W1	808	100 Year	67.05	194.43	196.26	195.93	196.61	2.66	26.34	20.07	0.68
W1	808	50 Year	56.76	194.43	196.13	195.79	196.44	2.46	23.84	19.38	0.66
W1	808	25 Year	45.27	194.43	195.97	195.63	196.22	2.22	20.80	18.33	0.63
W1	808	10 Year	31.56	194.43	195.75	195.41	195.93	1.87	16.97	17.02	0.58
W1	808	5 Year	22.49	194.43	195.56	195.24	195.69	1.63	13.78	15.86	0.56
W1	808	2 Year	10.80	194.43	195.19	194.97	195.28	1.29	8.37	13.96	0.53
W1	778	Regional	243.04	194.31	198.29	197.51	198.71	3.23	139.00	97.11	0.54
W1	778	100 Year	67.05	194.31	196.16	195.83	196.51	2.63	27.81	25.67	0.68
W1	778	50 Year	56.76	194.31	196.03	195.70	196.34	2.46	24.40	24.56	0.66
W1	778	25 Year	45.27	194.31	195.88	195.51	196.13	2.22	20.78	22.74	0.63
W1	778	10 Year	31.56	194.31	195.68	195.26	195.85	1.84	17.14	16.02	0.57
W1	778	5 Year	22.49	194.31	195.49	195.08	195.62	1.57	14.37	14.45	0.50
W1	778	2 Year	10.80	194.31	195.15	194.81	195.21	1.13	9.55	13.29	0.43
W1	741	Regional	243.04	193.95	198.31	197.17	198.59	2.58	151.20	80.02	0.45
W1	741	100 Year	67.05	193.95	196.04	195.65	196.31	2.36	31.61	25.45	0.62
W1	741	50 Year	56.76	193.95	195.89	195.52	196.14	2.23	28.00	24.83	0.61
W1	741	25 Year	45.27	193.95	195.74	195.36	195.95	2.02	24.31	24.12	0.58
W1	741	10 Year	31.56	193.95	195.56	195.13	195.70	1.66	20.07	22.82	0.51
W1	741	5 Year	22.49	193.95	195.40	194.94	195.50	1.40	16.44	21.20	0.46
W1	741	2 Year	10.80	193.95	195.07	194.67	195.12	1.01	10.66	14.67	0.38
W1	722	Regional	243.04	193.94	198.30	196.91	198.54	2.46	150.23	81.10	0.42
W1	722	100 Year	67.05	193.94	195.98	195.63	196.21	2.25	35.92	32.83	0.61
W1	722	50 Year	56.76	193.94	195.82	195.52	196.05	2.17	31.10	32.02	0.62
W1	722	25 Year	45.27	193.94	195.67	195.39	195.86	2.01	26.35	30.66	0.60
W1	722	10 Year	31.56	193.94	195.50	195.15	195.64	1.68	21.30	29.22	0.54
W1	722	5 Year	22.49	193.94	195.33	194.93	195.44	1.47	16.53	27.35	0.51
W1	722	2 Year	10.80	193.94	195.02	194.65	195.08	1.08	10.04	14.08	0.41
W1	705		Bridge								
W1	675	Regional	243.04	193.95	196.55	195.79	196.73	1.76	129.14	118.77	0.39
W1	675	100 Year	67.05	193.95	195.91	195.21	195.94	0.82	83.73	86.53	0.21
W1	675	50 Year	56.76	193.95	195.79	195.16	195.82	0.79	75.68	84.79	0.21
W1	675	25 Year	45.27	193.95	195.66	195.11	195.69	0.74	66.70	82.89	0.20
W1	675	10 Year	31.56	193.95	195.49	195.03	195.51	0.66	54.59	80.73	0.19
W1	675	5 Year	22.49	193.95	195.32	194.96	195.33	0.64	42.57	78.13	0.20
W1	675	2 Year	10.80	193.95	194.99	194.49	195.01	0.72	20.21	72.00	0.25
W1	645	Regional	243.04	193.89	196.55	195.60	196.63	1.54	193.16	148.82	0.34
W1	645	100 Year	67.05	193.89	195.90	195.11	195.92	0.72	119.79	103.00	0.18
W1	645	50 Year	56.76	193.89	195.78	195.07	195.80	0.69	107.94	101.63	0.18

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **with** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	645	25 Year	45.27	193.89	195.66	195.01	195.67	0.64	94.85	100.77	0.17
W1	645	10 Year	31.56	193.89	195.48	194.94	195.49	0.57	77.36	99.53	0.16
W1	645	5 Year	22.49	193.89	195.30	194.88	195.31	0.55	59.97	98.06	0.16
W1	645	2 Year	10.80	193.89	194.97	194.50	194.98	0.61	28.08	89.80	0.21
W1	613	Regional	243.04	193.80	196.56	195.36	196.58	1.08	354.64	233.70	0.21
W1	613	100 Year	67.05	193.80	195.90	194.94	195.90	0.52	210.21	208.98	0.12
W1	613	50 Year	56.76	193.80	195.78	194.94	195.79	0.50	188.75	197.98	0.12
W1	613	25 Year	45.27	193.80	195.65	194.94	195.66	0.46	165.11	183.63	0.11
W1	613	10 Year	31.56	193.80	195.48	194.88	195.48	0.40	134.39	170.70	0.10
W1	613	5 Year	22.49	193.80	195.30	194.69	195.30	0.38	104.86	164.43	0.10
W1	613	2 Year	10.80	193.80	194.89	194.39	194.94	1.01	11.01	122.77	0.33
W1	607		Bridge								
W1	603	Regional	243.04	193.79	196.50	195.21	196.54	1.17	293.57	173.12	0.23
W1	603	100 Year	67.05	193.79	195.89	194.90	195.89	0.48	202.72	144.95	0.11
W1	603	50 Year	56.76	193.79	195.77	194.90	195.78	0.45	185.98	144.35	0.10
W1	603	25 Year	45.27	193.79	195.64	194.90	195.65	0.41	167.44	143.71	0.10
W1	603	10 Year	31.56	193.79	195.47	194.90	195.47	0.34	142.63	142.84	0.09
W1	603	5 Year	22.49	193.79	195.29	194.68	195.30	0.31	117.53	141.96	0.08
W1	603	2 Year	10.80	193.79	194.69	194.37	194.78	1.30	8.48	134.24	0.46
W1	590	Regional	243.04	193.74	196.48	195.17	196.52	1.04	278.32	158.93	0.22
W1	590	100 Year	67.05	193.74	195.88	194.78	195.89	0.43	195.84	136.76	0.10
W1	590	50 Year	56.76	193.74	195.77	194.77	195.77	0.40	180.08	136.29	0.10
W1	590	25 Year	45.27	193.74	195.64	194.77	195.65	0.36	162.63	135.77	0.09
W1	590	10 Year	31.56	193.74	195.47	194.77	195.47	0.30	139.27	135.06	0.08
W1	590	5 Year	22.49	193.74	195.29	194.66	195.29	0.27	115.56	134.27	0.08
W1	590	2 Year	10.80	193.74	194.45	194.35	194.61	1.78	6.08	60.32	0.76
W1	513	Regional	243.04	192.98	196.23	195.77	196.46	1.88	116.45	82.21	0.39
W1	513	100 Year	67.05	192.98	195.85	194.85	195.88	0.78	84.87	80.44	0.17
W1	513	50 Year	56.76	192.98	195.73	194.78	195.76	0.75	75.87	79.50	0.17
W1	513	25 Year	45.27	192.98	195.61	194.68	195.64	0.64	65.07	62.07	0.15
W1	513	10 Year	31.56	192.98	195.45	194.54	195.46	0.52	56.81	58.17	0.13
W1	513	5 Year	22.49	192.98	195.28	194.19	195.29	0.45	48.35	49.96	0.11
W1	513	2 Year	10.80	192.98	193.97	193.86	194.14	1.78	6.06	10.37	0.74
W1	421	Regional	243.04	192.18	196.32	194.76	196.37	0.81	244.61	143.23	0.15
W1	421	100 Year	67.05	192.18	195.86	194.32	195.87	0.29	195.99	103.42	0.06
W1	421	50 Year	56.76	192.18	195.75	194.32	195.75	0.27	184.29	102.71	0.05
W1	421	25 Year	45.27	192.18	195.62	194.18	195.62	0.24	171.54	102.10	0.05
W1	421	10 Year	31.56	192.18	195.45	193.98	195.46	0.19	154.63	101.31	0.04
W1	421	5 Year	22.49	192.18	195.28	193.60	195.28	0.16	137.18	100.47	0.03
W1	421	2 Year	10.80	192.18	193.89	193.26	193.93	0.90	13.00	44.14	0.29
W1	333	Regional	243.04	191.41	196.31	194.91	196.35	1.02	264.68	127.64	0.19
W1	333	100 Year	67.05	191.41	195.86	193.98	195.86	0.37	209.57	120.88	0.07
W1	333	50 Year	56.76	191.41	195.74	193.80	195.75	0.34	195.90	120.51	0.07
W1	333	25 Year	45.27	191.41	195.62	193.58	195.62	0.30	180.96	120.10	0.06
W1	333	10 Year	31.56	191.41	195.45	193.29	195.46	0.24	161.10	119.53	0.05

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions with eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	333	5 Year	22.49	191.41	195.28	193.06	195.28	0.20	140.50	118.89	0.04
W1	333	2 Year	10.80	191.41	193.86	192.68	193.88	0.65	16.59	21.18	0.18
W1	230	Regional	243.04	190.18	196.30	194.69	196.33	1.05	344.65	149.72	0.18
W1	230	100 Year	67.05	190.18	195.85	193.10	195.86	0.38	278.20	147.49	0.07
W1	230	50 Year	56.76	190.18	195.74	192.90	195.75	0.34	261.61	146.05	0.06
W1	230	25 Year	45.27	190.18	195.62	192.67	195.62	0.30	243.60	144.51	0.05
W1	230	10 Year	31.56	190.18	195.45	192.36	195.45	0.23	219.85	142.85	0.04
W1	230	5 Year	22.49	190.18	195.28	192.10	195.28	0.19	195.31	141.63	0.04
W1	230	2 Year	10.80	190.18	193.86	191.68	193.87	0.41	26.53	71.97	0.09
W1	189		Culvert								
W1	165	Regional	243.04	191.02	196.15	195.48	196.31	2.55	182.64	122.51	0.38
W1	165	100 Year	67.05	191.02	195.83	193.55	195.85	0.87	147.11	105.03	0.13
W1	165	50 Year	56.76	191.02	195.72	193.31	195.74	0.80	135.67	102.16	0.12
W1	165	25 Year	45.27	191.02	195.60	193.02	195.62	0.70	123.52	99.58	0.11
W1	165	10 Year	31.56	191.02	195.44	192.62	195.45	0.56	107.75	96.02	0.09
W1	165	5 Year	22.49	191.02	195.27	192.32	195.28	0.46	91.79	91.20	0.08
W1	165	2 Year	10.80	191.02	193.84	191.84	193.86	0.63	17.28	8.95	0.13
W1	138	Regional	243.04	190.87	196.11	195.54	196.30	2.75	189.39	126.96	0.41
W1	138	100 Year	67.05	190.87	195.83	193.45	195.85	0.91	155.48	115.08	0.14
W1	138	50 Year	56.76	190.87	195.72	193.21	195.74	0.84	142.90	113.79	0.13
W1	138	25 Year	45.27	190.87	195.60	192.92	195.62	0.74	129.33	111.89	0.12
W1	138	10 Year	31.56	190.87	195.44	192.51	195.45	0.59	111.67	108.96	0.09
W1	138	5 Year	22.49	190.87	195.27	192.20	195.28	0.48	93.47	105.33	0.08
W1	138	2 Year	10.80	190.87	193.84	191.72	193.86	0.58	20.91	19.69	0.12

Steeles Avenue EA

Project:	HEC-RAS Model_Proposed Condition-1	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1.prj
Plan:	Future Flows_SteelesEA	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1.p02
Geometry:	Sixteen Mile Creek_SteelesEACropped	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1.g01
Steady Flow:	Future Flows_Steeles EA	C:\...\HEC-RAS\16Mile_Hydraulics_Jul 2021\SisteenMileCreek_Pr1.f01

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	6800	Regional	242.00	219.74	222.05	221.82	222.40	3.33	149.31	119.96	0.73
W1	6800	100 Year	66.14	219.74	221.10	220.91	221.31	2.27	43.95	65.14	0.67
W1	6800	50 Year	55.36	219.74	221.00	220.80	221.19	2.14	38.53	51.11	0.66
W1	6800	25 Year	44.17	219.74	220.88	220.73	221.05	1.98	32.66	49.72	0.64
W1	6800	10 Year	30.75	219.74	220.72	220.58	220.86	1.74	24.81	47.68	0.61
W1	6800	5 Year	21.90	219.74	220.69	220.40	220.77	1.30	23.46	47.54	0.46
W1	6800	2 Year	10.46	219.74	220.35	220.18	220.42	1.21	8.68	27.78	0.55
W1	3626	Regional	243.04	205.64	208.29	207.33	208.47	2.35	222.22	321.72	0.49
W1	3626	100 Year	67.05	205.64	207.54	206.85	207.58	1.01	110.02	103.63	0.25
W1	3626	50 Year	56.76	205.64	207.39	206.75	207.42	0.95	95.68	86.29	0.25
W1	3626	25 Year	45.27	205.64	206.99	206.60	207.15	1.79	25.71	71.75	0.55
W1	3626	10 Year	31.56	205.64	206.64	206.42	206.81	1.83	17.26	63.52	0.65
W1	3626	5 Year	22.49	205.64	206.48	206.28	206.61	1.61	13.93	61.23	0.62
W1	3626	2 Year	10.80	205.64	206.23	206.07	206.31	1.19	9.10	52.68	0.55
W1	3610		Bridge								
W1	3598	Regional	243.04	205.54	208.10	207.46	208.26	2.35	206.94	229.30	0.49
W1	3598	100 Year	67.05	205.54	207.07	206.58	207.15	1.49	73.56	80.36	0.42
W1	3598	50 Year	56.76	205.54	206.91	206.50	207.03	1.68	44.74	76.45	0.50
W1	3598	25 Year	45.27	205.54	206.79	206.40	206.89	1.52	38.94	72.20	0.48
W1	3598	10 Year	31.56	205.54	206.61	206.27	206.68	1.32	30.52	66.75	0.45
W1	3598	5 Year	22.49	205.54	206.46	206.16	206.52	1.14	24.93	62.04	0.43
W1	3598	2 Year	10.80	205.54	206.21	205.97	206.25	0.87	15.40	49.77	0.38
W1	3579	Regional	243.04	205.47	207.84	207.61	208.14	3.22	157.39	153.30	0.69
W1	3579	100 Year	67.05	205.47	206.86	206.62	207.05	2.27	50.44	69.53	0.65
W1	3579	50 Year	56.76	205.47	206.77	206.52	206.94	2.12	44.43	63.83	0.63
W1	3579	25 Year	45.27	205.47	206.66	206.42	206.80	1.92	37.66	59.60	0.60
W1	3579	10 Year	31.56	205.47	206.49	206.26	206.60	1.67	28.34	50.30	0.57
W1	3579	5 Year	22.49	205.47	206.36	206.16	206.45	1.44	22.44	45.16	0.53
W1	3579	2 Year	10.80	205.47	206.14	205.95	206.19	1.05	13.65	35.20	0.46
W1	3459	Regional	243.04	204.94	206.80	206.37	207.38	3.92	110.19	153.06	0.96
W1	3459	100 Year	67.05	204.94	205.87	205.85	206.17	2.67	34.86	55.07	0.97
W1	3459	50 Year	56.76	204.94	205.79	205.79	206.07	2.54	30.77	54.56	0.97
W1	3459	25 Year	45.27	204.94	205.71	205.70	205.95	2.37	25.94	53.66	0.97
W1	3459	10 Year	31.56	204.94	205.60	205.59	205.79	2.05	20.57	52.74	0.92
W1	3459	5 Year	22.49	204.94	205.51	205.51	205.67	1.86	15.69	51.35	0.92
W1	3459	2 Year	10.80	204.94	205.33	205.32	205.45	1.59	7.86	32.92	0.97
W1	3124	Regional	243.04	203.66	205.86	204.88	205.96	2.35	227.27	131.87	0.52
W1	3124	100 Year	67.05	203.66	204.85	204.24	204.88	1.40	101.15	113.70	0.44
W1	3124	50 Year	56.76	203.66	204.75	204.19	204.79	1.31	90.58	111.22	0.43
W1	3124	25 Year	45.27	203.66	204.64	204.12	204.67	1.20	78.06	107.94	0.42
W1	3124	10 Year	31.56	203.66	204.49	204.05	204.51	1.09	54.75	103.66	0.42

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	3124	5 Year	22.49	203.66	204.36	203.99	204.38	0.94	44.32	98.27	0.40
W1	3124	2 Year	10.80	203.66	204.15	203.91	204.16	0.67	28.61	86.89	0.37
W1	3036	Regional	243.04	203.31	205.42	204.88	205.65	3.04	159.58	103.03	0.70
W1	3036	100 Year	67.05	203.31	204.54	204.16	204.62	1.78	72.18	93.16	0.56
W1	3036	50 Year	56.76	203.31	204.45	204.11	204.53	1.68	64.22	91.91	0.55
W1	3036	25 Year	45.27	203.31	204.34	204.02	204.41	1.56	54.17	87.99	0.55
W1	3036	10 Year	31.56	203.31	204.18	203.92	204.24	1.40	40.62	82.74	0.55
W1	3036	5 Year	22.49	203.31	204.05	203.83	204.10	1.29	30.50	63.24	0.55
W1	3036	2 Year	10.80	203.31	203.82	203.70	203.86	1.14	17.08	54.40	0.58
W1	2943	Regional	243.04	202.89	205.14	204.75	205.35	3.37	179.08	136.95	0.74
W1	2943	100 Year	67.05	202.89	204.31	203.95	204.41	2.06	74.58	88.42	0.58
W1	2943	50 Year	56.76	202.89	204.23	203.88	204.32	1.92	67.97	85.78	0.55
W1	2943	25 Year	45.27	202.89	204.13	203.80	204.21	1.73	59.74	82.92	0.52
W1	2943	10 Year	31.56	202.89	203.99	203.69	204.05	1.48	48.05	77.56	0.48
W1	2943	5 Year	22.49	202.89	203.87	203.57	203.91	1.28	39.01	73.00	0.44
W1	2943	2 Year	10.80	202.89	203.64	203.43	203.67	0.98	23.31	62.48	0.39
W1	2859	Regional	243.04	202.89	204.79	204.21	204.91	2.77	207.59	162.09	0.64
W1	2859	100 Year	67.05	202.89	203.82	203.64	203.92	2.32	66.66	121.90	0.78
W1	2859	50 Year	56.76	202.89	203.76	203.58	203.85	2.20	59.16	118.38	0.76
W1	2859	25 Year	45.27	202.89	203.69	203.54	203.77	2.01	50.95	115.54	0.73
W1	2859	10 Year	31.56	202.89	203.57	203.39	203.64	1.82	37.65	103.33	0.72
W1	2859	5 Year	22.49	202.89	203.47	203.29	203.53	1.64	28.59	93.99	0.70
W1	2859	2 Year	10.80	202.89	203.31	203.15	203.35	1.15	17.13	47.69	0.58
W1	2741	Regional	243.04	202.21	204.66	203.82	204.75	2.27	273.16	179.07	0.47
W1	2741	100 Year	67.05	202.21	203.40	203.05	203.50	2.03	78.61	116.70	0.62
W1	2741	50 Year	56.76	202.21	203.31	203.05	203.40	1.98	68.12	112.83	0.64
W1	2741	25 Year	45.27	202.21	203.21	203.00	203.30	1.90	56.30	108.78	0.65
W1	2741	10 Year	31.56	202.21	203.05	202.88	203.13	1.68	41.06	87.43	0.63
W1	2741	5 Year	22.49	202.21	202.94	202.81	203.00	1.51	30.43	81.44	0.61
W1	2741	2 Year	10.80	202.21	202.75	202.69	202.80	1.26	17.45	70.71	0.61
W1	2636	Regional	243.04	201.79	204.53	203.47	204.64	2.38	248.17	134.29	0.47
W1	2636	100 Year	67.05	201.79	203.20	202.81	203.27	1.79	87.97	101.49	0.50
W1	2636	50 Year	56.76	201.79	203.09	202.74	203.16	1.73	77.20	99.44	0.50
W1	2636	25 Year	45.27	201.79	202.97	202.66	203.03	1.64	64.90	96.67	0.50
W1	2636	10 Year	31.56	201.79	202.81	202.58	202.86	1.44	50.21	88.92	0.48
W1	2636	5 Year	22.49	201.79	202.69	202.50	202.73	1.29	39.87	85.11	0.45
W1	2636	2 Year	10.80	201.79	202.51	202.31	202.54	0.96	25.13	81.21	0.38
W1	2609.75	Regional	243.04	201.80	204.46	203.39	204.57	2.10	231.21	115.79	0.43
W1	2609.75	100 Year	67.05	201.80	203.10	202.73	203.17	1.57	82.65	99.16	0.48
W1	2609.75	50 Year	56.76	201.80	202.99	202.67	203.06	1.53	71.42	97.82	0.49
W1	2609.75	25 Year	45.27	201.80	202.85	202.60	202.92	1.49	58.26	95.59	0.51
W1	2609.75	10 Year	31.56	201.80	202.68	202.53	202.74	1.43	41.59	91.50	0.56
W1	2609.75	5 Year	22.49	201.80	202.53	202.45	202.61	1.47	28.76	85.67	0.63
W1	2609.75	2 Year	10.80	201.80	202.27	202.27	202.40	1.68	8.96	45.85	0.91
W1	2505.52	Regional	243.04	200.88	203.60	203.60	204.33	4.72	90.51	116.77	1.04

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2505.52	100 Year	67.05	200.88	202.59	202.53	202.92	2.96	35.55	47.94	0.90
W1	2505.52	50 Year	56.76	200.88	202.50	202.45	202.80	2.81	31.56	46.55	0.89
W1	2505.52	25 Year	45.27	200.88	202.38	202.34	202.65	2.63	26.57	44.97	0.89
W1	2505.52	10 Year	31.56	200.88	202.21	202.20	202.45	2.39	19.94	43.05	0.90
W1	2505.52	5 Year	22.49	200.88	202.10	202.10	202.30	2.13	15.52	41.66	0.87
W1	2505.52	2 Year	10.80	200.88	201.90	201.90	202.05	1.73	7.95	38.60	0.86
W1	2449.89	Regional	243.04	200.68	203.56	202.97	203.72	2.58	222.56	169.83	0.54
W1	2449.89	100 Year	67.05	200.68	202.57	202.20	202.66	1.74	75.95	101.27	0.47
W1	2449.89	50 Year	56.76	200.68	202.45	202.14	202.54	1.67	66.12	84.51	0.48
W1	2449.89	25 Year	45.27	200.68	202.31	202.06	202.40	1.61	54.35	82.52	0.49
W1	2449.89	10 Year	31.56	200.68	202.09	201.93	202.18	1.59	36.90	79.35	0.54
W1	2449.89	5 Year	22.49	200.68	201.92	201.78	202.03	1.60	24.10	75.62	0.60
W1	2449.89	2 Year	10.80	200.68	201.70	201.55	201.78	1.28	10.30	47.00	0.58
W1	2406.87	Regional	243.04	200.53	203.35	202.84	203.57	2.97	186.19	144.11	0.62
W1	2406.87	100 Year	67.05	200.53	202.45	201.98	202.55	1.75	74.69	103.13	0.47
W1	2406.87	50 Year	56.76	200.53	202.34	201.91	202.43	1.68	64.22	92.21	0.47
W1	2406.87	25 Year	45.27	200.53	202.19	201.83	202.28	1.58	51.43	82.82	0.47
W1	2406.87	10 Year	31.56	200.53	201.96	201.70	202.04	1.49	36.09	54.13	0.50
W1	2406.87	5 Year	22.49	200.53	201.77	201.61	201.85	1.45	26.01	52.24	0.54
W1	2406.87	2 Year	10.80	200.53	201.46	201.39	201.56	1.50	10.23	48.79	0.69
W1	2371	Regional	243.04	200.40	203.34	202.91	203.47	2.20	187.62	146.14	0.44
W1	2371	100 Year	67.05	200.40	202.34	201.95	202.47	1.92	63.69	82.70	0.50
W1	2371	50 Year	56.76	200.40	202.23	201.83	202.35	1.82	55.40	73.44	0.49
W1	2371	25 Year	45.27	200.40	202.08	201.70	202.19	1.73	44.52	70.59	0.49
W1	2371	10 Year	31.56	200.40	201.82	201.55	201.93	1.65	28.36	45.06	0.52
W1	2371	5 Year	22.49	200.40	201.63	201.42	201.73	1.53	20.76	35.81	0.54
W1	2371	2 Year	10.80	200.40	201.34	201.16	201.41	1.27	10.83	31.85	0.54
W1	2323	Regional	243.04	200.23	202.93	202.82	203.34	3.77	128.21	105.34	0.78
W1	2323	100 Year	67.05	200.23	202.24	201.82	202.38	1.96	65.31	79.97	0.48
W1	2323	50 Year	56.76	200.23	202.13	201.66	202.26	1.86	56.54	76.02	0.47
W1	2323	25 Year	45.27	200.23	201.97	201.57	202.10	1.76	45.26	70.72	0.47
W1	2323	10 Year	31.56	200.23	201.71	201.39	201.82	1.63	29.91	47.40	0.49
W1	2323	5 Year	22.49	200.23	201.51	201.24	201.61	1.48	21.68	39.19	0.48
W1	2323	2 Year	10.80	200.23	201.20	200.94	201.27	1.18	10.45	31.63	0.47
W1	2299	Regional	243.04	200.15	202.94	202.69	203.19	2.65	146.34	126.67	0.56
W1	2299	100 Year	67.05	200.15	201.88	201.88	202.26	2.82	32.80	61.51	0.82
W1	2299	50 Year	56.76	200.15	201.76	201.76	202.13	2.76	25.60	54.46	0.85
W1	2299	25 Year	45.27	200.15	201.51	201.51	201.95	2.92	15.77	22.69	0.99
W1	2299	10 Year	31.56	200.15	201.31	201.31	201.67	2.62	12.04	16.87	0.99
W1	2299	5 Year	22.49	200.15	201.15	201.15	201.45	2.39	9.40	16.11	1.00
W1	2299	2 Year	10.80	200.15	200.93	200.91	201.10	1.82	5.94	15.01	0.92
W1	2274	Regional	243.04	200.06	202.61	202.52	203.09	3.41	112.36	105.03	0.77
W1	2274	100 Year	67.05	200.06	201.58	201.37	201.86	2.33	31.23	44.88	0.72
W1	2274	50 Year	56.76	200.06	201.51	201.28	201.74	2.13	28.07	43.71	0.68
W1	2274	25 Year	45.27	200.06	201.41	201.15	201.60	1.89	24.05	32.43	0.63
W1	2274	10 Year	31.56	200.06	201.22	201.00	201.36	1.67	18.85	25.42	0.62

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	2274	5 Year	22.49	200.06	201.00	200.87	201.14	1.65	13.63	23.90	0.70
W1	2274	2 Year	10.80	200.06	200.87	200.68	200.93	1.03	10.53	22.89	0.48
W1	2246	Regional	243.04	200.09	202.83	200.78	202.83	0.48	887.75	318.10	0.10
W1	2246	100 Year	67.05	200.09	201.71	200.78	201.71	0.19	544.96	303.39	0.06
W1	2246	50 Year	56.76	200.09	201.62	200.78	201.62	0.16	516.52	302.63	0.05
W1	2246	25 Year	45.27	200.09	201.50	200.78	201.50	0.13	480.71	299.25	0.04
W1	2246	10 Year	31.56	200.09	201.28	200.78	201.28	0.09	417.01	294.62	0.04
W1	2246	5 Year	22.49	200.09	201.07	200.78	201.07	0.07	355.04	288.94	0.03
W1	2246	2 Year	10.80	200.09	200.90	200.78	200.90	0.03	305.76	275.01	0.02
W1	2227		Mult Open		Existing Steeles Avenue Bridge						
W1	2204	Regional	243.04	199.96	202.72	201.46	202.76	1.55	428.55	317.58	0.30
W1	2204	100 Year	67.05	199.96	201.42	201.07	201.46	1.17	106.78	154.55	0.32
W1	2204	50 Year	56.76	199.96	201.30	200.98	201.34	1.11	91.36	88.84	0.32
W1	2204	25 Year	45.27	199.96	201.01	200.86	201.22	2.18	26.23	83.11	0.73
W1	2204	10 Year	31.56	199.96	200.83	200.73	201.01	1.95	20.08	81.77	0.73
W1	2204	5 Year	22.49	199.96	200.66	200.61	200.83	1.88	14.32	80.50	0.80
W1	2204	2 Year	10.80	199.96	200.40	200.40	200.56	1.79	6.09	61.33	0.99
W1	2166	Regional	243.04	199.27	202.69	201.50	202.74	1.54	360.89	306.14	0.28
W1	2166	100 Year	67.05	199.27	201.38	200.68	201.43	1.16	79.26	97.74	0.28
W1	2166	50 Year	56.76	199.27	201.18	200.60	201.27	1.49	43.43	62.43	0.38
W1	2166	25 Year	45.27	199.27	200.96	200.50	201.05	1.45	35.90	60.13	0.39
W1	2166	10 Year	31.56	199.27	200.79	200.38	200.85	1.23	29.89	58.24	0.36
W1	2166	5 Year	22.49	199.27	200.61	200.27	200.66	1.10	24.15	56.86	0.35
W1	2166	2 Year	10.80	199.27	200.34	200.00	200.37	0.87	15.05	45.61	0.32
W1	2146		Mult Open		New Steeles Avenue Bridge						
W1	2126	Regional	243.04	199.41	202.10	201.08	202.18	1.85	319.37	260.03	0.39
W1	2126	100 Year	67.05	199.41	200.67	200.67	201.07	3.00	27.88	94.61	1.03
W1	2126	50 Year	56.76	199.41	200.59	200.59	200.95	2.84	24.83	93.04	1.02
W1	2126	25 Year	45.27	199.41	200.49	200.49	200.80	2.62	21.21	91.17	1.01
W1	2126	10 Year	31.56	199.41	200.34	200.34	200.59	2.36	16.09	88.08	1.03
W1	2126	5 Year	22.49	199.41	200.24	200.24	200.44	2.07	13.01	86.11	0.99
W1	2126	2 Year	10.80	199.41	200.03	200.03	200.18	1.80	7.05	62.13	0.98
W1	2072	Regional	243.04	199.16	202.13	199.44	202.14	0.58	813.57	316.40	0.11
W1	2072	100 Year	67.05	199.16	200.21	199.03	200.21	0.38	274.14	249.49	0.15
W1	2072	50 Year	56.76	199.16	200.07	199.00	200.08	0.35	240.68	248.51	0.15
W1	2072	25 Year	45.27	199.16	199.90	198.95	199.91	0.29	199.17	231.49	0.15
W1	2072	10 Year	31.56	199.16	199.67	198.89	199.67	0.25	146.47	215.19	0.16
W1	2072	5 Year	22.49	199.16	199.47	198.83	199.47	0.20	107.37	185.20	0.16
W1	2072	2 Year	10.80	199.16	199.12	198.74	199.13		50.38	133.84	0.00
W1	1849	Regional	243.04	197.15	202.00	200.42	202.08	1.73	395.33	316.19	0.28
W1	1849	100 Year	67.05	197.15	199.97	199.39	200.08	1.64	69.29	67.12	0.38
W1	1849	50 Year	56.76	197.15	199.83	199.21	199.93	1.56	60.05	65.56	0.38
W1	1849	25 Year	45.27	197.15	199.67	198.99	199.76	1.44	49.54	62.35	0.37
W1	1849	10 Year	31.56	197.15	199.42	198.76	199.50	1.29	34.61	59.58	0.36

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1849	5 Year	22.49	197.15	199.22	198.58	199.28	1.14	23.70	44.10	0.34
W1	1849	2 Year	10.80	197.15	198.83	198.29	198.87	0.85	12.67	16.29	0.31
W1	1831	Regional	243.04	197.02	201.81	200.26	201.93	1.81	215.24	435.32	0.31
W1	1831	100 Year	67.05	197.02	199.34	199.01	199.57	2.12	33.30	72.71	0.62
W1	1831	50 Year	56.76	197.02	199.16	198.87	199.40	2.13	27.33	53.33	0.67
W1	1831	25 Year	45.27	197.02	198.97	198.71	199.19	2.09	21.65	27.27	0.71
W1	1831	10 Year	31.56	197.02	198.70	198.48	198.91	1.98	15.97	19.50	0.70
W1	1831	5 Year	22.49	197.02	198.50	198.30	198.67	1.85	12.18	16.94	0.70
W1	1831	2 Year	10.80	197.02	198.16	197.99	198.28	1.54	7.02	13.38	0.68
W1	1772		Mult Open		CNR Bridge						
W1	1721	Regional	243.04	196.75	201.53	199.27	201.64	1.72	220.22	207.06	0.27
W1	1721	100 Year	67.05	196.75	199.21	198.38	199.27	1.25	79.94	127.31	0.30
W1	1721	50 Year	56.76	196.75	199.02	198.31	199.08	1.21	69.76	122.70	0.31
W1	1721	25 Year	45.27	196.75	198.84	198.22	198.89	1.12	59.45	112.62	0.31
W1	1721	10 Year	31.56	196.75	198.59	198.08	198.63	0.99	46.04	104.59	0.30
W1	1721	5 Year	22.49	196.75	198.41	197.87	198.44	0.89	35.95	96.39	0.29
W1	1721	2 Year	10.80	196.75	198.10	197.58	198.13	0.71	19.52	76.41	0.28
W1	1645	Regional	243.04	196.74	201.54	199.58	201.58	1.11	481.32	245.81	0.18
W1	1645	100 Year	67.05	196.74	198.93	198.40	199.12	1.94	34.48	105.04	0.51
W1	1645	50 Year	56.76	196.74	198.75	198.30	198.93	1.87	30.28	84.23	0.53
W1	1645	25 Year	45.27	196.74	198.59	198.18	198.74	1.70	26.64	73.25	0.51
W1	1645	10 Year	31.56	196.74	198.39	198.02	198.50	1.44	21.93	59.52	0.47
W1	1645	5 Year	22.49	196.74	198.23	197.89	198.31	1.23	18.27	50.75	0.44
W1	1645	2 Year	10.80	196.74	197.96	197.61	198.00	0.90	11.95	33.02	0.39
W1	1630		Mult Open		Bronte Street Bridge						
W1	1619	Regional	243.04	196.45	201.43	198.60	201.44	0.70	886.27	338.01	0.11
W1	1619	100 Year	67.05	196.45	198.55	198.39	198.58	1.16	141.36	201.17	0.32
W1	1619	50 Year	56.76	196.45	198.55	198.28	198.82	2.37	26.06	200.98	0.65
W1	1619	25 Year	45.27	196.45	198.44	198.15	198.65	2.10	23.38	195.82	0.60
W1	1619	10 Year	31.56	196.45	198.28	197.95	198.42	1.71	19.69	187.19	0.53
W1	1619	5 Year	22.49	196.45	198.15	197.75	198.25	1.41	16.70	171.27	0.46
W1	1619	2 Year	10.80	196.45	197.92	197.40	197.96	0.92	12.16	113.00	0.33
W1	1223	Regional	243.04	196.15	201.41	197.96	201.42	0.62	709.06	255.88	0.09
W1	1223	100 Year	67.05	196.15	198.31	197.44	198.33	0.90	155.13	117.85	0.23
W1	1223	50 Year	56.76	196.15	198.12	197.40	198.13	0.91	132.58	117.18	0.25
W1	1223	25 Year	45.27	196.15	197.91	197.35	197.92	0.91	108.09	116.29	0.27
W1	1223	10 Year	31.56	196.15	197.65	197.27	197.67	0.90	78.84	115.16	0.29
W1	1223	5 Year	22.49	196.15	197.48	197.21	197.50	0.89	58.72	114.38	0.31
W1	1223	2 Year	10.80	196.15	197.20	197.05	197.23	0.94	27.56	112.82	0.39
W1	1109	Regional	243.04	196.10	201.41	197.68	201.41	0.51	916.89	300.35	0.07
W1	1109	100 Year	67.05	196.10	198.28	197.21	198.29	0.61	225.89	159.28	0.15
W1	1109	50 Year	56.76	196.10	198.09	197.17	198.10	0.60	194.83	158.30	0.15
W1	1109	25 Year	45.27	196.10	197.87	197.12	197.88	0.58	160.97	157.25	0.16
W1	1109	10 Year	31.56	196.10	197.62	197.05	197.62	0.55	120.38	155.93	0.17

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	1109	5 Year	22.49	196.10	197.44	197.01	197.44	0.51	92.45	154.91	0.17
W1	1109	2 Year	10.80	196.10	197.15	196.77	197.16	0.47	48.57	152.07	0.19
W1	1083	Regional	243.04	195.95	201.41	197.46	201.41	0.37	1352.50	394.28	0.05
W1	1083	100 Year	67.05	195.95	198.28	197.09	198.28	0.41	372.70	250.82	0.09
W1	1083	50 Year	56.76	195.95	198.08	197.06	198.09	0.41	323.43	250.01	0.10
W1	1083	25 Year	45.27	195.95	197.87	197.02	197.87	0.39	269.56	249.12	0.10
W1	1083	10 Year	31.56	195.95	197.61	196.92	197.61	0.37	204.80	248.08	0.10
W1	1083	5 Year	22.49	195.95	197.43	196.71	197.43	0.34	160.21	247.41	0.10
W1	1083	2 Year	10.80	195.95	197.14	196.51	197.14	0.30	89.94	246.21	0.10
W1	1053	Regional	243.04	196.65	201.34	198.07	201.39	1.23	291.29	312.88	0.18
W1	1053	100 Year	67.05	196.65	198.22	197.32	198.26	1.06	93.13	160.91	0.28
W1	1053	50 Year	56.76	196.65	198.02	197.26	198.06	1.04	80.69	159.74	0.29
W1	1053	25 Year	45.27	196.65	197.81	197.19	197.84	0.99	67.11	158.51	0.30
W1	1053	10 Year	31.56	196.65	197.55	197.09	197.58	0.91	50.89	157.31	0.32
W1	1053	5 Year	22.49	196.65	197.38	197.03	197.40	0.83	39.82	156.45	0.33
W1	1053	2 Year	10.80	196.65	197.10	196.92	197.12	0.72	22.12	153.55	0.37
W1	1032		Bridge								
W1	1006	Regional	243.04	196.53	199.22	198.10	199.36	1.85	200.24	235.27	0.37
W1	1006	100 Year	67.05	196.53	197.53	197.37	197.68	1.86	46.58	162.48	0.65
W1	1006	50 Year	56.76	196.53	197.31	197.31	197.55	2.22	31.35	160.96	0.89
W1	1006	25 Year	45.27	196.53	197.23	197.23	197.45	2.09	25.54	160.32	0.90
W1	1006	10 Year	31.56	196.53	197.11	197.11	197.30	1.93	17.07	158.32	0.94
W1	1006	5 Year	22.49	196.53	197.01	197.01	197.18	1.79	12.55	156.27	0.98
W1	1006	2 Year	10.80	196.53	196.88	196.88	196.98	1.43	7.54	153.50	0.99
W1	985	Regional	243.04	195.62	199.26	196.91	199.29	1.07	474.60	243.48	0.21
W1	985	100 Year	67.05	195.62	197.57	196.75	197.58	0.73	150.97	142.10	0.21
W1	985	50 Year	56.76	195.62	197.38	196.75	197.39	0.70	132.32	137.99	0.22
W1	985	25 Year	45.27	195.62	197.16	196.75	197.17	0.66	110.25	106.57	0.23
W1	985	10 Year	31.56	195.62	196.86	196.75	196.87	0.62	81.32	93.96	0.25
W1	985	5 Year	22.49	195.62	196.75	196.75	196.76	0.47	71.57	88.26	0.20
W1	985	2 Year	10.80	195.62	196.58	196.44	196.71	1.63	6.61	77.86	0.73
W1	923	Regional	243.04	194.99	199.01	198.42	199.20	2.24	239.12	247.57	0.43
W1	923	100 Year	67.05	194.99	197.14	196.70	197.42	2.36	28.45	25.18	0.65
W1	923	50 Year	56.76	194.99	196.95	196.56	197.22	2.29	24.76	22.82	0.65
W1	923	25 Year	45.27	194.99	196.74	196.37	196.98	2.18	20.74	19.73	0.65
W1	923	10 Year	31.56	194.99	196.45	196.14	196.65	1.98	15.95	15.80	0.63
W1	923	5 Year	22.49	194.99	196.23	195.96	196.39	1.79	12.56	14.57	0.62
W1	923	2 Year	10.80	194.99	195.85	195.65	195.96	1.46	7.40	12.58	0.61
W1	874	Regional	243.04	194.70	198.70	198.01	199.06	3.22	198.03	207.35	0.53
W1	874	100 Year	67.05	194.70	196.79	196.33	197.12	2.60	28.73	30.99	0.62
W1	874	50 Year	56.76	194.70	196.63	196.18	196.93	2.42	25.73	28.91	0.60
W1	874	25 Year	45.27	194.70	196.45	196.01	196.69	2.19	22.11	26.09	0.58
W1	874	10 Year	31.56	194.70	196.18	195.77	196.36	1.88	17.36	17.00	0.55
W1	874	5 Year	22.49	194.70	195.95	195.59	196.09	1.66	13.75	14.71	0.54
W1	874	2 Year	10.80	194.70	195.56	195.28	195.64	1.30	8.34	12.77	0.51

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	835	Regional	243.04	194.38	198.70	197.73	198.95	2.49	193.36	175.68	0.45
W1	835	100 Year	67.05	194.38	196.65	196.16	196.92	2.31	29.03	29.32	0.61
W1	835	50 Year	56.76	194.38	196.49	196.02	196.73	2.19	25.89	27.18	0.60
W1	835	25 Year	45.27	194.38	196.29	195.84	196.50	2.04	22.24	23.37	0.59
W1	835	10 Year	31.56	194.38	196.02	195.57	196.19	1.79	17.59	16.56	0.56
W1	835	5 Year	22.49	194.38	195.80	195.39	195.93	1.59	14.13	14.65	0.52
W1	835	2 Year	10.80	194.38	195.42	195.07	195.50	1.19	9.06	12.43	0.45
W1	808	Regional	243.04	194.43	198.26	197.70	198.80	3.53	128.74	109.10	0.60
W1	808	100 Year	67.05	194.43	196.26	195.93	196.61	2.66	26.34	20.07	0.68
W1	808	50 Year	56.76	194.43	196.13	195.79	196.44	2.46	23.84	19.38	0.66
W1	808	25 Year	45.27	194.43	195.97	195.63	196.22	2.22	20.80	18.33	0.63
W1	808	10 Year	31.56	194.43	195.75	195.41	195.93	1.87	16.97	17.02	0.58
W1	808	5 Year	22.49	194.43	195.56	195.24	195.69	1.63	13.78	15.86	0.56
W1	808	2 Year	10.80	194.43	195.19	194.97	195.28	1.29	8.37	13.96	0.53
W1	778	Regional	243.04	194.31	198.29	197.51	198.71	3.23	139.00	97.11	0.54
W1	778	100 Year	67.05	194.31	196.16	195.83	196.51	2.63	27.81	25.67	0.68
W1	778	50 Year	56.76	194.31	196.03	195.70	196.34	2.46	24.40	24.56	0.66
W1	778	25 Year	45.27	194.31	195.88	195.51	196.13	2.22	20.78	22.74	0.63
W1	778	10 Year	31.56	194.31	195.68	195.26	195.85	1.84	17.14	16.02	0.57
W1	778	5 Year	22.49	194.31	195.49	195.08	195.62	1.57	14.37	14.45	0.50
W1	778	2 Year	10.80	194.31	195.15	194.81	195.21	1.13	9.55	13.29	0.43
W1	741	Regional	243.04	193.95	198.31	197.17	198.59	2.58	151.20	80.02	0.45
W1	741	100 Year	67.05	193.95	196.04	195.65	196.31	2.36	31.61	25.45	0.62
W1	741	50 Year	56.76	193.95	195.89	195.52	196.14	2.23	28.00	24.83	0.61
W1	741	25 Year	45.27	193.95	195.74	195.36	195.95	2.02	24.31	24.12	0.58
W1	741	10 Year	31.56	193.95	195.56	195.13	195.70	1.66	20.07	22.82	0.51
W1	741	5 Year	22.49	193.95	195.40	194.94	195.50	1.40	16.44	21.20	0.46
W1	741	2 Year	10.80	193.95	195.07	194.67	195.12	1.01	10.66	14.67	0.38
W1	722	Regional	243.04	193.94	198.30	196.91	198.54	2.46	150.23	81.10	0.42
W1	722	100 Year	67.05	193.94	195.98	195.63	196.21	2.25	35.92	32.83	0.61
W1	722	50 Year	56.76	193.94	195.82	195.52	196.05	2.17	31.10	32.02	0.62
W1	722	25 Year	45.27	193.94	195.67	195.39	195.86	2.01	26.35	30.66	0.60
W1	722	10 Year	31.56	193.94	195.50	195.15	195.64	1.68	21.30	29.22	0.54
W1	722	5 Year	22.49	193.94	195.33	194.93	195.44	1.47	16.53	27.35	0.51
W1	722	2 Year	10.80	193.94	195.02	194.65	195.08	1.08	10.04	14.08	0.41
W1	705		Bridge								
W1	675	Regional	243.04	193.95	196.55	195.79	196.73	1.76	129.14	118.77	0.39
W1	675	100 Year	67.05	193.95	195.91	195.21	195.94	0.82	83.73	86.53	0.21
W1	675	50 Year	56.76	193.95	195.79	195.16	195.82	0.79	75.68	84.79	0.21
W1	675	25 Year	45.27	193.95	195.66	195.11	195.69	0.74	66.70	82.89	0.20
W1	675	10 Year	31.56	193.95	195.49	195.03	195.51	0.66	54.59	80.73	0.19
W1	675	5 Year	22.49	193.95	195.32	194.96	195.33	0.64	42.57	78.13	0.20
W1	675	2 Year	10.80	193.95	194.99	194.49	195.01	0.72	20.21	72.00	0.25
W1	645	Regional	243.04	193.89	196.55	195.60	196.63	1.54	193.16	148.82	0.34

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	645	100 Year	67.05	193.89	195.90	195.11	195.92	0.72	119.79	103.00	0.18
W1	645	50 Year	56.76	193.89	195.78	195.07	195.80	0.69	107.94	101.63	0.18
W1	645	25 Year	45.27	193.89	195.66	195.01	195.67	0.64	94.85	100.77	0.17
W1	645	10 Year	31.56	193.89	195.48	194.94	195.49	0.57	77.36	99.53	0.16
W1	645	5 Year	22.49	193.89	195.30	194.88	195.31	0.55	59.97	98.06	0.16
W1	645	2 Year	10.80	193.89	194.97	194.50	194.98	0.61	28.08	89.80	0.21
W1	613	Regional	243.04	193.80	196.56	195.36	196.58	1.08	354.64	233.70	0.21
W1	613	100 Year	67.05	193.80	195.90	194.94	195.90	0.52	210.21	208.98	0.12
W1	613	50 Year	56.76	193.80	195.78	194.94	195.79	0.50	188.75	197.98	0.12
W1	613	25 Year	45.27	193.80	195.65	194.94	195.66	0.46	165.11	183.63	0.11
W1	613	10 Year	31.56	193.80	195.48	194.88	195.48	0.40	134.39	170.70	0.10
W1	613	5 Year	22.49	193.80	195.30	194.69	195.30	0.38	104.86	164.43	0.10
W1	613	2 Year	10.80	193.80	194.89	194.39	194.94	1.01	11.01	122.77	0.33
W1	607		Bridge								
W1	603	Regional	243.04	193.79	196.50	195.21	196.54	1.17	293.57	173.12	0.23
W1	603	100 Year	67.05	193.79	195.89	194.90	195.89	0.48	202.72	144.95	0.11
W1	603	50 Year	56.76	193.79	195.77	194.90	195.78	0.45	185.98	144.35	0.10
W1	603	25 Year	45.27	193.79	195.64	194.90	195.65	0.41	167.44	143.71	0.10
W1	603	10 Year	31.56	193.79	195.47	194.90	195.47	0.34	142.63	142.84	0.09
W1	603	5 Year	22.49	193.79	195.29	194.68	195.30	0.31	117.53	141.96	0.08
W1	603	2 Year	10.80	193.79	194.69	194.37	194.78	1.30	8.48	134.24	0.46
W1	590	Regional	243.04	193.74	196.48	195.17	196.52	1.04	278.32	158.93	0.22
W1	590	100 Year	67.05	193.74	195.88	194.78	195.89	0.43	195.84	136.76	0.10
W1	590	50 Year	56.76	193.74	195.77	194.77	195.77	0.40	180.08	136.29	0.10
W1	590	25 Year	45.27	193.74	195.64	194.77	195.65	0.36	162.63	135.77	0.09
W1	590	10 Year	31.56	193.74	195.47	194.77	195.47	0.30	139.27	135.06	0.08
W1	590	5 Year	22.49	193.74	195.29	194.66	195.29	0.27	115.56	134.27	0.08
W1	590	2 Year	10.80	193.74	194.45	194.35	194.61	1.78	6.08	60.32	0.76
W1	513	Regional	243.04	192.98	196.23	195.77	196.46	1.88	116.45	82.21	0.39
W1	513	100 Year	67.05	192.98	195.85	194.85	195.88	0.78	84.87	80.44	0.17
W1	513	50 Year	56.76	192.98	195.73	194.78	195.76	0.75	75.87	79.50	0.17
W1	513	25 Year	45.27	192.98	195.61	194.68	195.64	0.64	65.07	62.07	0.15
W1	513	10 Year	31.56	192.98	195.45	194.54	195.46	0.52	56.81	58.17	0.13
W1	513	5 Year	22.49	192.98	195.28	194.19	195.29	0.45	48.35	49.96	0.11
W1	513	2 Year	10.80	192.98	193.97	193.86	194.14	1.78	6.06	10.37	0.74
W1	421	Regional	243.04	192.18	196.32	194.76	196.37	0.81	244.61	143.23	0.15
W1	421	100 Year	67.05	192.18	195.86	194.32	195.87	0.29	195.99	103.42	0.06
W1	421	50 Year	56.76	192.18	195.75	194.32	195.75	0.27	184.29	102.71	0.05
W1	421	25 Year	45.27	192.18	195.62	194.18	195.62	0.24	171.54	102.10	0.05
W1	421	10 Year	31.56	192.18	195.45	193.98	195.46	0.19	154.63	101.31	0.04
W1	421	5 Year	22.49	192.18	195.28	193.60	195.28	0.16	137.18	100.47	0.03
W1	421	2 Year	10.80	192.18	193.89	193.26	193.93	0.90	13.00	44.14	0.29
W1	333	Regional	243.04	191.41	196.31	194.91	196.35	1.02	264.68	127.64	0.19
W1	333	100 Year	67.05	191.41	195.86	193.98	195.86	0.37	209.57	120.88	0.07
W1	333	50 Year	56.76	191.41	195.74	193.80	195.75	0.34	195.90	120.51	0.07

Sixteen Mile Creek Updated Hydraulic Model

Proposed Conditions **without** eliminating Existing Steeles Avenue Bridge

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude #
W1	333	25 Year	45.27	191.41	195.62	193.58	195.62	0.30	180.96	120.10	0.06
W1	333	10 Year	31.56	191.41	195.45	193.29	195.46	0.24	161.10	119.53	0.05
W1	333	5 Year	22.49	191.41	195.28	193.06	195.28	0.20	140.50	118.89	0.04
W1	333	2 Year	10.80	191.41	193.86	192.68	193.88	0.65	16.59	21.18	0.18
W1	230	Regional	243.04	190.18	196.30	194.69	196.33	1.05	344.65	149.72	0.18
W1	230	100 Year	67.05	190.18	195.85	193.10	195.86	0.38	278.20	147.49	0.07
W1	230	50 Year	56.76	190.18	195.74	192.90	195.75	0.34	261.61	146.05	0.06
W1	230	25 Year	45.27	190.18	195.62	192.67	195.62	0.30	243.60	144.51	0.05
W1	230	10 Year	31.56	190.18	195.45	192.36	195.45	0.23	219.85	142.85	0.04
W1	230	5 Year	22.49	190.18	195.28	192.10	195.28	0.19	195.31	141.63	0.04
W1	230	2 Year	10.80	190.18	193.86	191.68	193.87	0.41	26.53	71.97	0.09
W1	189		Culvert								
W1	165	Regional	243.04	191.02	196.15	195.48	196.31	2.55	182.64	122.51	0.38
W1	165	100 Year	67.05	191.02	195.83	193.55	195.85	0.87	147.11	105.03	0.13
W1	165	50 Year	56.76	191.02	195.72	193.31	195.74	0.80	135.67	102.16	0.12
W1	165	25 Year	45.27	191.02	195.60	193.02	195.62	0.70	123.52	99.58	0.11
W1	165	10 Year	31.56	191.02	195.44	192.62	195.45	0.56	107.75	96.02	0.09
W1	165	5 Year	22.49	191.02	195.27	192.32	195.28	0.46	91.79	91.20	0.08
W1	165	2 Year	10.80	191.02	193.84	191.84	193.86	0.63	17.28	8.95	0.13
W1	138	Regional	243.04	190.87	196.11	195.54	196.30	2.75	189.39	126.96	0.41
W1	138	100 Year	67.05	190.87	195.83	193.45	195.85	0.91	155.48	115.08	0.14
W1	138	50 Year	56.76	190.87	195.72	193.21	195.74	0.84	142.90	113.79	0.13
W1	138	25 Year	45.27	190.87	195.60	192.92	195.62	0.74	129.33	111.89	0.12
W1	138	10 Year	31.56	190.87	195.44	192.51	195.45	0.59	111.67	108.96	0.09
W1	138	5 Year	22.49	190.87	195.27	192.20	195.28	0.48	93.47	105.33	0.08
W1	138	2 Year	10.80	190.87	193.84	191.72	193.86	0.58	20.91	19.69	0.12

Steeles Avenue EA

Project:	NW1E_Trib_Proposed Conditions - 4	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\NW1E_Trib_Pr_4.prj
Plan:	Proposed Plan 4	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\NW1E_Trib_Pr_4.p03
Geometry:	Proposed -Nov 2020	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\NW1E_Trib_Pr_4.g01
Steady Flow:	Revised Flow Jul 2020	C:\...\Tributary NW1-E\Tributary NW1-E Model_Aug2021\NW1E_Trib_Pr_4.f01

Sixteen Mile Creek Tributary NW1-E Proposed Conditions Hydraulic Model

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
Tributary NW1-E	Reach 1	70.33	2-yr	1.04	216.75	217.05	216.95	217.06	0.44	2.42	16.71	0.34
Tributary NW1-E	Reach 1	70.33	5-yr	1.90	216.75	217.12	217.00	217.13	0.58	3.69	21.23	0.37
Tributary NW1-E	Reach 1	70.33	10-yr	2.55	216.75	217.16	217.03	217.18	0.65	4.57	23.88	0.39
Tributary NW1-E	Reach 1	70.33	25-yr	3.44	216.75	217.18	217.07	217.21	0.80	5.17	25.52	0.46
Tributary NW1-E	Reach 1	70.33	50-yr	4.13	216.75	217.21	217.09	217.25	0.86	5.99	27.60	0.48
Tributary NW1-E	Reach 1	70.33	100-yr	4.84	216.75	217.22	217.12	217.26	0.99	6.17	28.05	0.54
Tributary NW1-E	Reach 1	70.33	Regional	9.09	216.75	217.38	217.24	217.44	1.16	11.66	39.10	0.52
Tributary NW1-E	Reach 1	70.32	2-yr	1.04	216.05	216.25	216.23	216.27	0.67	1.54	20.36	0.78
Tributary NW1-E	Reach 1	70.32	5-yr	1.90	216.05	216.28	216.27	216.32	0.82	2.35	23.68	0.79
Tributary NW1-E	Reach 1	70.32	10-yr	2.55	216.05	216.31	216.29	216.35	0.91	2.93	25.75	0.79
Tributary NW1-E	Reach 1	70.32	25-yr	3.44	216.05	216.36	216.31	216.40	0.85	4.52	32.03	0.62
Tributary NW1-E	Reach 1	70.32	50-yr	4.13	216.05	216.38	216.33	216.42	0.91	5.22	34.83	0.63
Tributary NW1-E	Reach 1	70.32	100-yr	4.84	216.05	216.43	216.35	216.46	0.86	6.93	42.19	0.54
Tributary NW1-E	Reach 1	70.32	Regional	9.09	216.05	216.49	216.44	216.56	1.26	9.66	49.81	0.72
Tributary NW1-E	Reach 1	70.31	2-yr	1.04	214.75	215.06	214.96	215.07	0.58	2.07	19.13	0.41
Tributary NW1-E	Reach 1	70.31	5-yr	1.90	214.75	215.13	215.03	215.15	0.71	3.85	30.45	0.44
Tributary NW1-E	Reach 1	70.31	10-yr	2.55	214.75	215.17	215.07	215.20	0.79	5.23	38.25	0.45
Tributary NW1-E	Reach 1	70.31	25-yr	3.44	214.75	215.18	215.12	215.23	1.00	5.78	41.33	0.56
Tributary NW1-E	Reach 1	70.31	50-yr	4.13	214.75	215.21	215.14	215.26	1.05	7.05	47.08	0.57
Tributary NW1-E	Reach 1	70.31	100-yr	4.84	214.75	215.20	215.17	215.27	1.27	6.73	45.79	0.69
Tributary NW1-E	Reach 1	70.31	Regional	9.09	214.75	215.35	215.29	215.40	1.25	17.38	90.28	0.57
Tributary NW1-E	Reach 1	70.30	2-yr	1.04	213.78	214.03	214.03	214.10	1.12	0.93	7.38	1.01
Tributary NW1-E	Reach 1	70.30	5-yr	1.90	213.78	214.11	214.11	214.18	1.20	1.59	10.98	1.01
Tributary NW1-E	Reach 1	70.30	10-yr	2.55	213.78	214.14	214.14	214.22	1.26	2.03	12.86	1.01
Tributary NW1-E	Reach 1	70.30	25-yr	3.44	213.78	214.24	214.18	214.29	1.00	3.65	32.97	0.70
Tributary NW1-E	Reach 1	70.30	50-yr	4.13	213.78	214.26	214.20	214.32	1.06	4.55	44.41	0.71
Tributary NW1-E	Reach 1	70.30	100-yr	4.84	213.78	214.32	214.25	214.36	0.95	7.17	56.04	0.57
Tributary NW1-E	Reach 1	70.30	Regional	9.09	213.78	214.36	214.36	214.45	1.46	9.52	58.21	0.82
Tributary NW1-E	Reach 1	70.29	2-yr	1.04	212.76	213.08	212.98	213.09	0.33	3.12	22.24	0.28
Tributary NW1-E	Reach 1	70.29	5-yr	1.90	212.76	213.13	213.03	213.14	0.46	4.15	23.47	0.35
Tributary NW1-E	Reach 1	70.29	10-yr	2.55	212.76	213.13	213.05	213.15	0.61	4.20	23.53	0.46
Tributary NW1-E	Reach 1	70.29	25-yr	3.44	212.76	213.12	213.08	213.16	0.87	3.93	23.25	0.68
Tributary NW1-E	Reach 1	70.29	50-yr	4.13	212.76	213.14	213.09	213.18	0.93	4.45	23.77	0.69
Tributary NW1-E	Reach 1	70.29	100-yr	4.84	212.76	213.11	213.11	213.20	1.26	3.84	23.16	0.99
Tributary NW1-E	Reach 1	70.29	Regional	9.09	212.76	214.27	213.20	214.28	0.19	66.68	81.86	0.06
Tributary NW1-E	Reach 1	70.28	2-yr	1.04	212.35	212.53	212.53	212.57	0.84	1.23	18.16	1.04
Tributary NW1-E	Reach 1	70.28	5-yr	1.90	212.35	212.60	212.57	212.63	0.76	2.50	19.99	0.69
Tributary NW1-E	Reach 1	70.28	10-yr	2.55	212.35	212.68	212.59	212.70	0.60	4.27	21.96	0.43
Tributary NW1-E	Reach 1	70.28	25-yr	3.44	212.35	212.81	212.62	212.83	0.46	7.44	27.02	0.28
Tributary NW1-E	Reach 1	70.28	50-yr	4.13	212.35	212.85	212.64	212.86	0.49	8.48	29.09	0.28
Tributary NW1-E	Reach 1	70.28	100-yr	4.84	212.35	212.99	212.66	212.99	0.40	12.92	36.67	0.19
Tributary NW1-E	Reach 1	70.28	Regional	9.09	212.35	214.27	212.75	214.27	0.16	89.89	86.49	0.04
Tributary NW1-E	Reach 1	70.27	2-yr	1.71	211.78	212.28	212.04	212.29	0.55	3.13	30.65	0.27
Tributary NW1-E	Reach 1	70.27	5-yr	3.04	211.78	212.43	212.12	212.45	0.72	4.23	37.23	0.31
Tributary NW1-E	Reach 1	70.27	10-yr	4.04	211.78	212.52	212.17	212.56	0.82	4.95	41.22	0.32
Tributary NW1-E	Reach 1	70.27	25-yr	5.38	211.78	212.69	212.23	212.73	0.86	6.24	51.29	0.30
Tributary NW1-E	Reach 1	70.27	50-yr	6.41	211.78	212.70	212.28	212.75	1.02	6.26	51.57	0.36
Tributary NW1-E	Reach 1	70.27	100-yr	7.46	211.78	212.88	212.33	212.93	0.97	7.65	56.27	0.31
Tributary NW1-E	Reach 1	70.27	Regional	13.08	211.78	214.24	212.54	214.27	0.73	17.84	77.05	0.15

Sisteen Mile Creek Tributary NW1-E
Proposed Conditions Hydraulic Model

River	Reach	River Station	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m ²)	Top Width (m)	Froude #
Tributary NW1-E	Reach 1	70.26		Bridge	New Steeles Avenue Crossing			(6.5 m span x				
Tributary NW1-E	Reach 1	70.25	2-yr	1.71	211.50	211.71	211.71	211.80	1.31	1.31	14.48	1.00
Tributary NW1-E	Reach 1	70.25	5-yr	3.04	211.50	211.79	211.79	211.92	1.59	1.91	29.35	1.00
Tributary NW1-E	Reach 1	70.25	10-yr	4.04	211.50	211.85	211.85	212.00	1.74	2.33	35.23	1.00
Tributary NW1-E	Reach 1	70.25	25-yr	5.38	211.50	212.17	211.91	212.24	1.13	4.76	52.15	0.45
Tributary NW1-E	Reach 1	70.25	50-yr	6.41	211.50	212.41	211.96	212.46	0.98	6.51	57.11	0.34
Tributary NW1-E	Reach 1	70.25	100-yr	7.46	211.50	212.74	212.01	212.78	0.83	9.02	63.42	0.24
Tributary NW1-E	Reach 1	70.25	Regional	13.08	211.50	214.22	212.22	214.22	0.17	201.08	166.84	0.03
Tributary NW1-E	Reach 1	70.24	2-yr	1.71	211.23	211.52	211.36	211.52	0.21	8.19	40.32	0.15
Tributary NW1-E	Reach 1	70.24	5-yr	3.04	211.23	211.67	211.38	211.67	0.21	14.71	44.08	0.11
Tributary NW1-E	Reach 1	70.24	10-yr	4.04	211.23	211.89	211.40	211.90	0.16	25.26	51.59	0.07
Tributary NW1-E	Reach 1	70.24	25-yr	5.38	211.23	212.20	211.43	212.20	0.13	43.01	63.55	0.05
Tributary NW1-E	Reach 1	70.24	50-yr	6.41	211.23	212.43	211.44	212.43	0.12	58.57	73.42	0.04
Tributary NW1-E	Reach 1	70.24	100-yr	7.46	211.23	212.76	211.46	212.76	0.11	84.85	92.50	0.03
Tributary NW1-E	Reach 1	70.24	Regional	13.08	211.23	214.22	211.53	214.22	0.06	437.79	333.43	0.01
Tributary NW1-E	Reach 1	70.23	2-yr	1.99	210.95	211.36	211.36	211.45	1.28	1.55	9.91	1.03
Tributary NW1-E	Reach 1	70.23	5-yr	3.53	210.95	211.62	211.45	211.65	0.73	4.84	15.84	0.42
Tributary NW1-E	Reach 1	70.23	10-yr	4.67	210.95	211.88	211.49	211.89	0.47	12.73	48.77	0.21
Tributary NW1-E	Reach 1	70.23	25-yr	6.22	210.95	212.20	211.55	212.20	0.32	30.59	60.87	0.11
Tributary NW1-E	Reach 1	70.23	50-yr	7.41	210.95	212.43	211.59	212.43	0.27	45.44	68.63	0.09
Tributary NW1-E	Reach 1	70.23	100-yr	8.62	210.95	212.76	211.63	212.76	0.22	71.63	109.56	0.06
Tributary NW1-E	Reach 1	70.23	Regional	14.90	210.95	214.22	211.80	214.22	0.08	480.90	352.24	0.02
Tributary NW1-E	Reach 1	70.22	2-yr	1.99	210.43	211.27	210.63	211.28	0.24	8.42	12.97	0.09
Tributary NW1-E	Reach 1	70.22	5-yr	3.53	210.43	211.62	210.71	211.62	0.25	14.06	18.01	0.09
Tributary NW1-E	Reach 1	70.22	10-yr	4.67	210.43	211.87	210.76	211.88	0.25	18.91	21.64	0.08
Tributary NW1-E	Reach 1	70.22	25-yr	6.22	210.43	212.19	210.83	212.20	0.22	34.32	67.25	0.07
Tributary NW1-E	Reach 1	70.22	50-yr	7.41	210.43	212.42	210.87	212.43	0.20	51.57	83.41	0.06
Tributary NW1-E	Reach 1	70.22	100-yr	8.62	210.43	212.76	210.91	212.76	0.17	87.68	124.47	0.04
Tributary NW1-E	Reach 1	70.22	Regional	14.90	210.43	214.22	211.10	214.22	0.09	421.20	319.53	0.02
Tributary NW1-E	Reach 1	70.2	2-yr	1.99	210.31	211.24	210.79	211.26	0.62	3.19	4.67	0.24
Tributary NW1-E	Reach 1	70.2	5-yr	3.53	210.31	211.58	210.92	211.61	0.72	4.88	5.22	0.24
Tributary NW1-E	Reach 1	70.20	10-yr	4.67	210.31	211.83	211.01	211.86	0.75	6.24	5.85	0.23
Tributary NW1-E	Reach 1	70.20	25-yr	6.22	210.31	212.16	211.12	212.18	0.74	8.44	7.80	0.23
Tributary NW1-E	Reach 1	70.20	50-yr	7.41	210.31	212.40	211.19	212.42	0.67	15.27	51.64	0.20
Tributary NW1-E	Reach 1	70.20	100-yr	8.62	210.31	212.75	211.26	212.75	0.46	39.75	79.49	0.12
Tributary NW1-E	Reach 1	70.20	Regional	14.90	210.31	214.21	211.59	214.22	0.16	310.15	340.18	0.03
Tributary NW1-E	Reach 1	70.19	2-yr	2.58	210.33	211.21	210.75	211.25	0.89	2.89	5.83	0.31
Tributary NW1-E	Reach 1	70.19	5-yr	4.63	210.33	211.52	210.93	211.59	1.17	3.95	6.26	0.35
Tributary NW1-E	Reach 1	70.19	10-yr	6.16	210.33	211.75	211.06	211.84	1.30	4.74	6.55	0.35
Tributary NW1-E	Reach 1	70.19	25-yr	8.23	210.33	212.05	211.20	212.16	1.43	5.75	6.96	0.35
Tributary NW1-E	Reach 1	70.19	50-yr	9.83	210.33	212.27	211.31	212.38	1.52	6.48	7.25	0.35
Tributary NW1-E	Reach 1	70.19	100-yr	11.46	210.33	212.60	211.41	212.72	1.50	7.63	8.45	0.32
Tributary NW1-E	Reach 1	70.19	Regional	19.67	210.33	214.05	211.86	214.18	1.57	12.55	244.90	0.26
Tributary NW1-E	Reach 1	70.18		Culvert	CPR							
Tributary NW1-E	Reach 1	70.17	2-yr	2.58	210.30	211.08	210.75	211.14	1.06	2.44	7.68	0.40
Tributary NW1-E	Reach 1	70.17	5-yr	4.63	210.30	211.22	210.94	211.35	1.60	2.90	8.08	0.55
Tributary NW1-E	Reach 1	70.17	10-yr	6.16	210.30	211.29	211.06	211.48	1.96	3.14	8.39	0.65
Tributary NW1-E	Reach 1	70.17	25-yr	8.23	210.30	211.36	211.20	211.66	2.43	3.38	8.79	0.78
Tributary NW1-E	Reach 1	70.17	50-yr	9.83	210.30	211.40	211.31	211.80	2.78	3.54	9.07	0.87

Sisteen Mile Creek Tributary NW1-E
Proposed Conditions Hydraulic Model

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
Tributary NW1-E	Reach 1	70.17	100-yr	11.46	210.30	211.44	211.42	211.94	3.15	3.64	9.27	0.97
Tributary NW1-E	Reach 1	70.17	Regional	19.67	210.30	211.87	211.87	212.62	3.84	5.12	11.82	1.00
Tributary NW1-E	Reach 1	70.16	2-yr	2.59	210.29	210.92	210.78	210.95	0.84	3.10	20.23	0.68
Tributary NW1-E	Reach 1	70.16	5-yr	4.63	210.29	210.98	210.95	211.03	0.98	4.73	26.99	0.75
Tributary NW1-E	Reach 1	70.16	10-yr	6.17	210.29	211.02	210.98	211.08	1.09	5.65	28.84	0.79
Tributary NW1-E	Reach 1	70.16	25-yr	8.24	210.29	211.06	211.02	211.13	1.21	6.81	30.79	0.82
Tributary NW1-E	Reach 1	70.16	50-yr	9.84	210.29	211.09	211.05	211.17	1.27	7.73	33.04	0.84
Tributary NW1-E	Reach 1	70.16	100-yr	11.47	210.29	211.11	211.08	211.20	1.33	8.65	34.90	0.85
Tributary NW1-E	Reach 1	70.16	Regional	19.70	210.29	211.19	211.19	211.34	1.68	11.71	40.31	1.00
Tributary NW1-E	Reach 1	70.15	2-yr	2.59	209.84	210.06	210.06	210.12	1.06	2.51	25.12	0.97
Tributary NW1-E	Reach 1	70.15	5-yr	4.63	209.84	210.12	210.12	210.19	1.22	4.27	34.01	0.95
Tributary NW1-E	Reach 1	70.15	10-yr	6.17	209.84	210.16	210.16	210.24	1.30	5.60	38.43	0.94
Tributary NW1-E	Reach 1	70.15	25-yr	8.24	209.84	210.20	210.20	210.29	1.40	7.23	43.23	0.94
Tributary NW1-E	Reach 1	70.15	50-yr	9.84	209.84	210.22	210.22	210.32	1.46	8.46	46.51	0.94
Tributary NW1-E	Reach 1	70.15	100-yr	11.47	209.84	210.25	210.25	210.36	1.53	9.60	49.38	0.96
Tributary NW1-E	Reach 1	70.15	Regional	19.70	209.84	210.37	210.37	210.48	1.59	19.31	92.43	0.86
Tributary NW1-E	Reach 1	70.14	2-yr	2.59	208.74	209.15	209.01	209.16	0.50	5.20	25.62	0.35
Tributary NW1-E	Reach 1	70.14	5-yr	4.63	208.74	209.26	209.08	209.27	0.54	8.51	32.79	0.34
Tributary NW1-E	Reach 1	70.14	10-yr	6.17	208.74	209.33	209.12	209.34	0.57	10.82	36.97	0.34
Tributary NW1-E	Reach 1	70.14	25-yr	8.24	208.74	209.40	209.16	209.42	0.60	13.81	41.77	0.33
Tributary NW1-E	Reach 1	70.14	50-yr	9.84	208.74	209.45	209.19	209.47	0.61	16.06	45.03	0.33
Tributary NW1-E	Reach 1	70.14	100-yr	11.47	208.74	209.50	209.22	209.52	0.63	18.26	48.02	0.33
Tributary NW1-E	Reach 1	70.14	Regional	19.70	208.74	209.69	209.34	209.71	0.70	28.25	59.48	0.32
Tributary NW1-E	Reach 1	70.13	2-yr	2.59	208.57	209.05	208.89	209.06	0.59	4.42	18.59	0.38
Tributary NW1-E	Reach 1	70.13	5-yr	4.63	208.57	209.16	208.98	209.19	0.67	6.86	23.17	0.40
Tributary NW1-E	Reach 1	70.13	10-yr	6.17	208.57	209.23	209.03	209.26	0.73	8.51	25.80	0.40
Tributary NW1-E	Reach 1	70.13	25-yr	8.24	208.57	209.31	209.08	209.34	0.78	10.63	28.84	0.41
Tributary NW1-E	Reach 1	70.13	50-yr	9.84	208.57	209.36	209.12	209.39	0.81	12.19	30.89	0.41
Tributary NW1-E	Reach 1	70.13	100-yr	11.47	208.57	209.41	209.15	209.44	0.84	13.70	32.74	0.41
Tributary NW1-E	Reach 1	70.13	Regional	19.70	208.57	209.59	209.30	209.63	0.98	20.20	40.05	0.44
Tributary NW1-E	Reach 1	70.12	2-yr	2.59	208.03	208.44	208.44	208.55	1.44	1.80	8.77	1.01
Tributary NW1-E	Reach 1	70.12	5-yr	4.63	208.03	208.55	208.55	208.68	1.61	2.87	11.08	1.01
Tributary NW1-E	Reach 1	70.12	10-yr	6.17	208.03	208.61	208.61	208.76	1.71	3.60	12.42	1.01
Tributary NW1-E	Reach 1	70.12	25-yr	8.24	208.03	208.68	208.68	208.85	1.80	4.57	13.98	1.01
Tributary NW1-E	Reach 1	70.12	50-yr	9.84	208.03	208.74	208.74	208.91	1.81	5.44	16.54	1.01
Tributary NW1-E	Reach 1	70.12	100-yr	11.47	208.03	208.79	208.79	208.96	1.83	6.28	18.80	1.01
Tributary NW1-E	Reach 1	70.12	Regional	19.70	208.03	208.95	208.95	209.16	2.01	9.97	27.59	0.98
Tributary NW1-E	Reach 1	70.11	2-yr	2.59	206.96	207.69	207.46	207.71	0.75	3.44	9.48	0.40
Tributary NW1-E	Reach 1	70.11	5-yr	4.63	206.96	207.86	207.59	207.90	0.88	5.29	11.75	0.42
Tributary NW1-E	Reach 1	70.11	10-yr	6.17	206.96	207.95	207.67	208.00	0.96	6.43	12.96	0.43
Tributary NW1-E	Reach 1	70.11	25-yr	8.24	206.96	208.06	207.75	208.11	1.05	7.85	14.32	0.45
Tributary NW1-E	Reach 1	70.11	50-yr	9.84	206.96	208.12	207.82	208.19	1.11	8.85	16.32	0.47
Tributary NW1-E	Reach 1	70.11	100-yr	11.47	206.96	208.18	207.87	208.25	1.17	9.96	20.78	0.48
Tributary NW1-E	Reach 1	70.11	Regional	19.70	206.96	208.41	208.09	208.50	1.37	17.37	37.28	0.50
Tributary NW1-E	Reach 1	70.1	2-yr	2.59	206.57	207.51	207.22	207.55	0.83	3.82	14.65	0.37
Tributary NW1-E	Reach 1	70.1	5-yr	4.63	206.57	207.67	207.40	207.72	1.02	6.83	23.20	0.41
Tributary NW1-E	Reach 1	70.10	10-yr	6.17	206.57	207.74	207.51	207.80	1.17	8.62	26.86	0.44
Tributary NW1-E	Reach 1	70.10	25-yr	8.24	206.57	207.85	207.61	207.92	1.26	11.82	31.95	0.44
Tributary NW1-E	Reach 1	70.10	50-yr	9.84	206.57	207.92	207.68	207.99	1.31	14.06	33.54	0.45
Tributary NW1-E	Reach 1	70.10	100-yr	11.47	206.57	207.98	207.74	208.05	1.36	16.27	35.05	0.45
Tributary NW1-E	Reach 1	70.10	Regional	19.70	206.57	208.13	207.94	208.25	1.85	21.71	38.50	0.56

Sisteen Mile Creek Tributary NW1-E
Proposed Conditions Hydraulic Model

River	Reach	River Station	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	Vel Chnl (m/s)	Flow Area (m ²)	Top Width (m)	Froude #
RIVER-1	Reach-3	70.09	2-yr	2.91	206.97	207.28	207.21	207.30	0.69	4.22	25.82	0.54
RIVER-1	Reach-3	70.09	5-yr	6.47	206.97	207.37	207.30	207.41	0.94	6.89	32.54	0.65
RIVER-1	Reach-3	70.09	10-yr	9.36	206.97	207.45	207.36	207.50	0.95	9.86	38.65	0.60
RIVER-1	Reach-3	70.09	25-yr	13.50	206.97	207.49	207.42	207.56	1.19	11.38	41.44	0.72
RIVER-1	Reach-3	70.09	50-yr	17.51	206.97	207.54	207.47	207.63	1.29	13.59	44.19	0.74
RIVER-1	Reach-3	70.09	100-yr	21.37	206.97	207.58	207.52	207.68	1.40	15.24	45.67	0.77
RIVER-1	Reach-3	70.09	Regional	31.44	206.97	207.66	207.60	207.80	1.65	19.21	47.48	0.81
RIVER-1	Reach-3	70.08	2-yr	2.91	206.30	206.28	206.28	206.44		1.66	5.48	0.00
RIVER-1	Reach-3	70.08	5-yr	6.47	206.30	206.46	206.46	206.55	1.38	4.76	29.53	1.35
RIVER-1	Reach-3	70.08	10-yr	9.36	206.30	206.47	206.47	206.64	1.95	5.06	30.52	1.83
RIVER-1	Reach-3	70.08	25-yr	13.50	206.30	206.59	206.59	206.73	1.96	9.59	39.88	1.28
RIVER-1	Reach-3	70.08	50-yr	17.51	206.30	206.64	206.64	206.81	2.15	11.59	41.17	1.28
RIVER-1	Reach-3	70.08	100-yr	21.37	206.30	206.70	206.70	206.88	2.24	13.85	42.58	1.22
RIVER-1	Reach-3	70.08	Regional	31.44	206.30	206.81	206.81	207.04	2.50	18.84	45.55	1.19
RIVER-1	Reach-3	70.07	2-yr	2.91	205.49	206.04	205.85	206.05	0.50	8.33	48.17	0.31
RIVER-1	Reach-3	70.07	5-yr	6.47	205.49	206.18	205.99	206.20	0.62	16.62	68.30	0.32
RIVER-1	Reach-3	70.07	10-yr	9.36	205.49	206.27	206.05	206.29	0.68	22.73	72.35	0.32
RIVER-1	Reach-3	70.07	25-yr	13.50	205.49	206.38	206.12	206.40	0.74	30.86	75.25	0.32
RIVER-1	Reach-3	70.07	50-yr	17.51	205.49	206.47	206.17	206.49	0.80	37.99	77.39	0.31
RIVER-1	Reach-3	70.07	100-yr	21.37	205.49	206.55	206.20	206.58	0.84	44.44	79.28	0.31
RIVER-1	Reach-3	70.07	Regional	31.44	205.49	206.75	206.29	206.77	0.93	60.07	83.68	0.31
RIVER-1	Reach-3	70.06	2-yr	2.91	205.44	205.93	205.81	205.94	0.65	6.83	35.18	0.42
RIVER-1	Reach-3	70.06	5-yr	6.47	205.44	206.06	205.92	206.09	0.85	11.99	40.18	0.45
RIVER-1	Reach-3	70.06	10-yr	9.36	205.44	206.15	205.96	206.18	0.97	15.61	43.18	0.46
RIVER-1	Reach-3	70.06	25-yr	13.50	205.44	206.26	206.03	206.30	1.09	20.65	47.05	0.46
RIVER-1	Reach-3	70.06	50-yr	17.51	205.44	206.36	206.08	206.40	1.18	25.24	49.97	0.46
RIVER-1	Reach-3	70.06	100-yr	21.37	205.44	206.44	206.13	206.49	1.25	29.48	52.04	0.46
RIVER-1	Reach-3	70.06	Regional	31.44	205.44	206.63	206.25	206.69	1.40	39.95	58.07	0.46
RIVER-1	Reach-3	70.05	2-yr	2.91	205.37	205.58	205.58	205.66	1.25	2.40	16.07	1.00
RIVER-1	Reach-3	70.05	5-yr	6.47	205.37	205.69	205.69	205.82	1.61	4.31	18.09	0.99
RIVER-1	Reach-3	70.05	10-yr	9.36	205.37	205.77	205.77	205.93	1.77	5.78	19.50	0.97
RIVER-1	Reach-3	70.05	25-yr	13.50	205.37	205.86	205.86	206.06	2.01	7.55	21.09	0.99
RIVER-1	Reach-3	70.05	50-yr	17.51	205.37	205.94	205.94	206.17	2.17	9.26	22.50	0.99
RIVER-1	Reach-3	70.05	100-yr	21.37	205.37	206.01	206.01	206.26	2.30	10.85	23.75	0.99
RIVER-1	Reach-3	70.05	Regional	31.44	205.37	206.17	206.17	206.47	2.54	14.95	26.58	0.98
RIVER-1	Reach-3	70.04	2-yr	3.76	205.00	205.05	204.85	205.06	0.28	11.24	70.16	0.47
RIVER-1	Reach-3	70.04	5-yr	8.33	205.00	205.50	204.99	205.50	0.20	57.02	130.52	0.14
RIVER-1	Reach-3	70.04	10-yr	12.03	205.00	205.87	205.03	205.87	0.15	112.86	160.59	0.08
RIVER-1	Reach-3	70.04	25-yr	17.31	205.00	205.95	205.08	205.95	0.20	125.30	163.91	0.10
RIVER-1	Reach-3	70.04	50-yr	21.43	205.00	206.02	205.10	206.02	0.24	137.04	175.17	0.11
RIVER-1	Reach-3	70.04	100-yr	26.14	205.00	206.09	205.13	206.09	0.28	149.84	177.93	0.12
RIVER-1	Reach-3	70.04	Regional	36.93	205.00	206.32	205.20	206.32	0.33	190.38	182.09	0.12
RIVER-1	Reach-3	70.03	2-yr	3.76	203.75	204.83	204.64	204.93	1.45	2.60	4.63	0.62
RIVER-1	Reach-3	70.03	5-yr	8.33	203.75	205.48	205.09	205.49	0.51	43.59	102.43	0.17
RIVER-1	Reach-3	70.03	10-yr	12.03	203.75	205.87	205.18	205.87	0.35	92.63	148.67	0.10
RIVER-1	Reach-3	70.03	25-yr	17.31	203.75	205.95	205.26	205.95	0.44	104.02	155.34	0.13
RIVER-1	Reach-3	70.03	50-yr	21.43	203.75	206.01	205.32	206.02	0.50	115.12	175.86	0.14
RIVER-1	Reach-3	70.03	100-yr	26.14	203.75	206.09	205.35	206.09	0.55	127.92	181.68	0.15
RIVER-1	Reach-3	70.03	Regional	36.93	203.75	206.31	205.43	206.32	0.60	170.83	200.00	0.15
RIVER-1	Reach-3	70.01	2-yr	3.76	203.92	204.52	204.52	204.82	2.43	1.55	2.60	1.01

Sisteen Mile Creek Tributary NW1-E
Proposed Conditions Hydraulic Model

River	Reach	River Station	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude #
				(m ³ /s)	(m)	(m)	(m)	(m)	(m/s)	(m ²)	(m)	
RIVER-1	Reach-3	70.01	5-yr	8.33	203.92	204.95	204.95	205.43	3.08	2.84	3.54	0.97
RIVER-1	Reach-3	70.01	10-yr	12.03	203.92	205.25	205.25	205.81	3.37	4.03	4.55	0.93
RIVER-1	Reach-3	70.01	25-yr	17.31	203.92	205.77	205.77	205.93	2.23	22.73	68.22	0.52
RIVER-1	Reach-3	70.01	50-yr	21.43	203.92	205.83	205.83	206.00	2.40	26.89	69.21	0.56
RIVER-1	Reach-3	70.01	100-yr	26.14	203.92	205.88	205.88	206.07	2.63	30.48	70.97	0.60
RIVER-1	Reach-3	70.01	Regional	36.93	203.92	206.26	205.98	206.31	1.71	82.09	185.63	0.36

APPENDIX

D-2 Culvert Hydraulics



Hydraulic Performance of Proposed Culverts

Steeles Avenue EA

Culvert ID	Station	Size	Height	Width	Material	Manning's	U/S	D/S	Length	Slope	Flow Direction	EOP	25 Year Storm							100 Year Storm							Cover	HW/Rise	Comments		
							Invert	Invert					25 yr Flow	Crit Depth	TW Depth	TW	HW	Velocity	Freeboard	100 yr Flow	Crit Depth	TW Depth	TW	HW	Velocity	Freeboard					
		(mm)	(m)	(m)		"n"	(m)	(m)					(m)	%	(m)	(m³/s)	dc (m)	(m)	(m)	(m)	(m/sec)	from EOP	(m³/s)	dc (m)	(m)	(m)	(m)			(m/sec)	from EOP (m)
C3	0+040	375	0.375	0.375	CSP	0.024	206.758	206.700	13.00	0.45	East	207.56	0.085	0.17	0.27	206.97	207.12	0.98	0.44	0.111	0.21	0.29	206.99	207.19	1.19	0.37	0.42	0.97	OK		
C5	5+860	375	0.375	0.375	CSP	0.024	211.010	210.600	30.00	1.37	North	211.70	0.092	0.18	0.28	210.88	211.41	1.03	0.29	0.132	0.23	0.30	210.90	211.51	1.37	0.19	0.31	1.07	OK	CNR crossing	
C6	6+060	750	0.750	0.750	CSP	0.024	203.700	203.620	15.50	0.52	North	204.80	0.508	0.36	0.56	204.18	204.46	1.41	0.34	0.704	0.45	0.60	204.22	204.65	1.83	0.15	0.35	1.01	OK		

Culvert Designer/Analyzer Report
C3 - 25 Year (375mm)

Analysis Component			
Storm Event	Design	Discharge	0.0850 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.0850 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	206.97 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-375 mm Circular	0.0850 m³/s	207.12 m	0.98 m/s
Weir	Roadway	0.0000 m³/s	207.12 m	N/A
Total	-----	0.0850 m³/s	207.12 m	N/A

Culvert Designer/Analyzer Report

C3 - 25 Year (375mm)

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	207.12 m	Discharge	0.0850 m³/s
Inlet Control HW Elev.	207.06 m	Tailwater Elevation	206.97 m
Outlet Control HW Elev.	207.12 m	Control Type	Outlet Control
Headwater Depth/Height	0.96		
Grades			
Upstream Invert	206.76 m	Downstream Invert	206.70 m
Length	13.00 m	Constructed Slope	0.004462 m/m
Hydraulic Profile			
Profile	M1	Depth, Downstream	0.27 m
Slope Type	Mild	Normal Depth	0.22 m
Flow Regime	Subcritical	Critical Depth	0.21 m
Velocity Downstream	0.98 m/s	Critical Slope	0.005137 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.38 m
Section Size	375 mm	Rise	0.38 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	207.12 m	Upstream Velocity Head	0.07 m
Ke	0.90	Entrance Loss	0.06 m
Inlet Control Properties			
Inlet Control HW Elev.	207.06 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.1 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 Designer/Analyzer Report
C3 - 25 Year (375mm)

Component:Weir

Hydraulic Component(s): Roadway				
Discharge	0.0000	m³/s	Allowable HW Elevation	207.12 m
Roadway Width	10.00	m	Overtopping Coefficient	1.60 SI
Low Point	207.56	m	Headwater Elevation	N/A m
Discharge Coefficient (Cr)	2.90		Submergence Factor (Kt)	1.00
Tailwater Elevation	206.97	m		

Sta (m)	Elev. (m)
-10.00	207.56
0.00	207.56
10.00	207.56

Culvert Designer/Analyzer Report
C3 - 100 Year (375mm)

Analysis Component			
Storm Event	Design	Discharge	0.1110 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.1110 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	206.99 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-375 mm Circular	0.1111 m³/s	207.19 m	1.19 m/s
Weir	Roadway	0.0000 m³/s	207.19 m	N/A
Total	-----	0.1111 m³/s	207.19 m	N/A

Culvert Designer/Analyzer Report

C3 - 100 Year (375mm)

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	207.19 m	Discharge	0.1111 m³/s
Inlet Control HW Elev.	207.12 m	Tailwater Elevation	206.99 m
Outlet Control HW Elev.	207.19 m	Control Type	Outlet Control
Headwater Depth/Height	1.13		
Grades			
Upstream Invert	206.76 m	Downstream Invert	206.70 m
Length	13.00 m	Constructed Slope	0.004462 m/m
Hydraulic Profile			
Profile	M1	Depth, Downstream	0.29 m
Slope Type	Mild	Normal Depth	0.27 m
Flow Regime	Subcritical	Critical Depth	0.24 m
Velocity Downstream	1.19 m/s	Critical Slope	0.005721 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.38 m
Section Size	375 mm	Rise	0.38 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	207.19 m	Upstream Velocity Head	0.08 m
Ke	0.90	Entrance Loss	0.07 m
Inlet Control Properties			
Inlet Control HW Elev.	207.12 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.1 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 Designer/Analyzer Report
C3 - 100 Year (375mm)

Component:Weir

Hydraulic Component(s): Roadway				
Discharge	0.0000	m³/s	Allowable HW Elevation	207.19 m
Roadway Width	10.00	m	Overtopping Coefficient	1.60 SI
Low Point	207.56	m	Headwater Elevation	N/A m
Discharge Coefficient (Cr)	2.90		Submergence Factor (Kt)	1.00
Tailwater Elevation	206.99	m		

Sta (m)	Elev. (m)
-10.00	207.56
0.00	207.56
10.00	207.56

Culvert Designer/Analyzer Report
C5 - 25 Year

Analysis Component			
Storm Event	Design	Discharge	0.0920 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.0920 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	210.88 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-375 mm Circular	0.0921 m³/s	211.41 m	1.03 m/s
Weir	Roadway	0.0000 m³/s	211.41 m	N/A
Total	-----	0.0921 m³/s	211.41 m	N/A

Culvert Designer/Analyzer Report

C5 - 25 Year

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	211.41 m	Discharge	0.0921 m³/s
Inlet Control HW Elev.	211.33 m	Tailwater Elevation	210.88 m
Outlet Control HW Elev.	211.41 m	Control Type	Entrance Control
Headwater Depth/Height	1.04		
Grades			
Upstream Invert	211.01 m	Downstream Invert	210.60 m
Length	30.00 m	Constructed Slope	0.013667 m/m
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	0.28 m
Slope Type	Steep	Normal Depth	0.17 m
Flow Regime	N/A	Critical Depth	0.22 m
Velocity Downstream	1.03 m/s	Critical Slope	0.005279 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.38 m
Section Size	375 mm	Rise	0.38 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	211.41 m	Upstream Velocity Head	0.09 m
Ke	0.90	Entrance Loss	0.08 m
Inlet Control Properties			
Inlet Control HW Elev.	211.33 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.1 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 Designer/Analyzer Report
C5 - 25 Year

Component:Weir

Hydraulic Component(s): Roadway			
Discharge	0.0000 m³/s	Allowable HW Elevation	211.41 m
Roadway Width	10.00 m	Overtopping Coefficient	1.60 SI
Low Point	211.70 m	Headwater Elevation	N/A m
Discharge Coefficient (Cr)	2.90	Submergence Factor (Kt)	1.00
Tailwater Elevation	210.88 m		

Sta (m)	Elev. (m)
-10.00	211.70
0.00	211.70
10.00	211.70

Culvert Designer/Analyzer Report
C5 - 100 Year

Analysis Component			
Storm Event	Design	Discharge	0.1320 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.1320 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	210.90 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-375 mm Circular	0.1319 m³/s	211.51 m	1.37 m/s
Weir	Roadway	0.0000 m³/s	211.51 m	N/A
Total	-----	0.1319 m³/s	211.51 m	N/A

Culvert Designer/Analyzer Report

C5 - 100 Year

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	211.51 m	Discharge	0.1319 m³/s
Inlet Control HW Elev.	211.41 m	Tailwater Elevation	210.90 m
Outlet Control HW Elev.	211.51 m	Control Type	Entrance Control
Headwater Depth/Height	1.31		
Grades			
Upstream Invert	211.01 m	Downstream Invert	210.60 m
Length	30.00 m	Constructed Slope	0.013667 m/m
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	0.30 m
Slope Type	Steep	Normal Depth	0.21 m
Flow Regime	N/A	Critical Depth	0.27 m
Velocity Downstream	1.37 m/s	Critical Slope	0.006322 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.38 m
Section Size	375 mm	Rise	0.38 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	211.51 m	Upstream Velocity Head	0.12 m
Ke	0.90	Entrance Loss	0.11 m
Inlet Control Properties			
Inlet Control HW Elev.	211.41 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.1 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 Designer/Analyzer Report
C5 - 100 Year

Component:Weir

Hydraulic Component(s): Roadway			
Discharge	0.0000 m³/s	Allowable HW Elevation	211.51 m
Roadway Width	10.00 m	Overtopping Coefficient	1.60 SI
Low Point	211.70 m	Headwater Elevation	N/A m
Discharge Coefficient (Cr)	2.90	Submergence Factor (Kt)	1.00
Tailwater Elevation	210.90 m		

Sta (m)	Elev. (m)
-10.00	211.70
0.00	211.70
10.00	211.70

Culvert Designer/Analyzer Report
C6 - 25 Year (750mm)

Analysis Component			
Storm Event	Design	Discharge	0.5080 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.5080 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	204.18 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-750 mm Circular	0.5079 m³/s	204.46 m	1.41 m/s
Weir	Roadway	0.0000 m³/s	204.46 m	N/A
Total	-----	0.5079 m³/s	204.46 m	N/A

Culvert Designer/Analyzer Report

C6 - 25 Year (750mm)

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	204.46 m	Discharge	0.5079 m³/s
Inlet Control HW Elev.	204.33 m	Tailwater Elevation	204.18 m
Outlet Control HW Elev.	204.46 m	Control Type	Outlet Control
Headwater Depth/Height	0.99		
Grades			
Upstream Invert	203.70 m	Downstream Invert	203.62 m
Length	15.50 m	Constructed Slope	0.005161 m/m
Hydraulic Profile			
Profile	S1	Depth, Downstream	0.56 m
Slope Type	Steep	Normal Depth	0.41 m
Flow Regime	Subcritical	Critical Depth	0.44 m
Velocity Downstream	1.41 m/s	Critical Slope	0.004152 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.76 m
Section Size	750 mm	Rise	0.76 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	204.46 m	Upstream Velocity Head	0.15 m
Ke	0.90	Entrance Loss	0.13 m
Inlet Control Properties			
Inlet Control HW Elev.	204.33 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.5 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 Designer/Analyzer Report
C6 - 25 Year (750mm)

Component:Weir

Hydraulic Component(s): Roadway			
Discharge	0.0000	m³/s	Allowable HW Elevation 204.46 m
Roadway Width	10.00	m	Overtopping Coefficient 1.60 SI
Low Point	204.80	m	Headwater Elevation N/A m
Discharge Coefficient (Cr)	2.90		Submergence Factor (Kt) 1.00
Tailwater Elevation	204.18	m	

Sta (m)	Elev. (m)
-10.00	204.80
0.00	204.80
10.00	204.80

Culvert Designer/Analyzer Report
C6 - 100 Year (750mm)

Analysis Component			
Storm Event	Design	Discharge	0.7040 m³/s
Peak Discharge Method: User-Specified			
Design Discharge	0.7040 m³/s	Check Discharge	0.0000 m³/s
Tailwater Conditions: Constant Tailwater			
Tailwater Elevation	204.22 m		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-750 mm Circular	0.7041 m³/s	204.65 m	1.83 m/s
Weir	Roadway	0.0000 m³/s	204.65 m	N/A
Total	-----	0.7041 m³/s	204.65 m	N/A

Culvert Designer/Analyzer Report

C6 - 100 Year (750mm)

Component: Culvert-1

Culvert Summary			
Computed Headwater Elev.	204.65 m	Discharge	0.7041 m³/s
Inlet Control HW Elev.	204.47 m	Tailwater Elevation	204.22 m
Outlet Control HW Elev.	204.65 m	Control Type	Outlet Control
Headwater Depth/Height	1.25		
Grades			
Upstream Invert	203.70 m	Downstream Invert	203.62 m
Length	15.50 m	Constructed Slope	0.005161 m/m
Hydraulic Profile			
Profile	S1	Depth, Downstream	0.60 m
Slope Type	Steep	Normal Depth	0.51 m
Flow Regime	Subcritical	Critical Depth	0.52 m
Velocity Downstream	1.83 m/s	Critical Slope	0.004832 m/m
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	0.76 m
Section Size	750 mm	Rise	0.76 m
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	204.65 m	Upstream Velocity Head	0.22 m
Ke	0.90	Entrance Loss	0.20 m
Inlet Control Properties			
Inlet Control HW Elev.	204.47 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	0.5 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 Designer/Analyzer Report
C6 - 100 Year (750mm)

Component:Weir

Hydraulic Component(s): Roadway			
Discharge	0.0000	m³/s	Allowable HW Elevation 204.65 m
Roadway Width	10.00	m	Overtopping Coefficient 1.60 SI
Low Point	204.80	m	Headwater Elevation N/A m
Discharge Coefficient (Cr)	2.90		Submergence Factor (Kt) 1.00
Tailwater Elevation	204.22	m	

Sta (m)	Elev. (m)
-10.00	204.80
0.00	204.80
10.00	204.80

APPENDIX

E

Stormwater Management

APPENDIX

E-1 Pond Design



Stage-Storage-Discharge Summary

[illegible]

Detailed Outlet Structure Discharge Calculations

Elevation (m)	Discharge (m³/s)								Parameters			
	Spillway			Outlet Riser				DICB	Total Discharge	Overflow Weir 1	Orifice 1	
	Weir 1	Weir 2	Total	Orifice 1	Weir 1	Orifice 2	Total			Crest Elevation 99999.00 m	Orifice Centre 212.08 m	Perimeter 471 mm
212.00	0.000	0.000	0.000	0.00000	0.000	0.000	0.000	0.000	0.000			
212.50	0.000	0.000	0.000	0.03062	0.000	0.000	0.031	0.000	0.031			
213.00	0.000	0.000	0.000	0.04517	0.000	0.059	0.105	0.000	0.105			
213.50	0.000	0.000	0.000	0.05606	0.000	0.146	0.202	0.000	0.202			

h_2 = elevation at stage 2 (m)
 h_1 = elevation at stage 1 (m)
 L = weir crest length (m)
 C = weir coefficient
 z = weir side slope (z:1)

APPENDIX

E-2 Pipe Storage Design



Stage-Storage-Discharge Summary

Pipe Storage SWM Facility

[illegible]

Detailed Outlet Structure Discharge Calculations

[illegible]

Where, h_2 = elevation at stage 2 (m)
 h_1 = elevation at stage 1 (m)
 D = orifice diameter (mm)
 C = orifice coefficient
 A = orifice open area (m^2)

h₂ = elevation at stage 2 (m)
h₁ = elevation at stage 1 (m)
L = weir crest length (m)
C = weir coefficient
z = weir side slope (z:1)