

961 St. David Street North

Functional Servicing and Stormwater Management Report

Project Location: 961 St. David Street North, Fergus, ON

Prepared for: 2687734 Ontario Inc. 766 Hespeler Road Cambridge, ON N3H 5L8

Prepared by: MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, ON N2B 3X9

July 15, 2022

MTE File No.: 48650-100

Engineers, Scientists, Surveyors.



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Functional Site Grading Plan MTE Drawing No. C2.1	Appended Seperately
Functional Site Servicing Plan MTE Drawing No. C2.2	Appended Seperately

1.0 Introduction

MTE Consultants Inc. was retained by 2687734 Ontario Inc. to complete a Functional Servicing and Stormwater Management (FSSWM) Report for the in support of the Zoning By-Law Amendment and Vacant Lot Condominium applications for the proposed residential development to be constructed at 961 St. David Street North / King's Highway 6 (herein referred to as 'the Site') in the Township of Centre Wellington.

The purpose of this study is to support the Zoning By-Law Amendment and Vacant Land Condominium applications. This will be accomplished by reviewing the opportunities and constraints for the subject property with respect to servicing, grading, and stormwater management; reviewing the requirements of the reviewing agencies; describing the development concept; and demonstrating the functional serviceability of the property. Pending approval of the applications, detailed design of the Site will commence and be submitted to the Township of Centre Wellington and other governing agencies in support of the applications and Site Plan Approval.

1.1 Site Description

The Site encompasses an area of 1.402ha, and is currently comprised of a single detached dwelling, several accessory buildings, and an asphalt driveway off of 961 St. David Street North / King's Highway 6. The property is bounded to the west, south, and east by existing residential development, and to the northeast by St. David Street North / King's Highway 6. For the exact location of the Site refer to Figure 1.0.

The current zoning of the Site is Residential R1a Zone. A Zoning By-Law Amendment will be required to re-zone the Site to Residential R3 Zone to permit the proposed vacant land condominium development.

1.2 Proposed Development

The proposed development for the Site is a vacant land condominium, consisting of 13 single-detached houses, and 37 townhouse units, complete with a common element roadway and driveway entrance off of St. David Street North / King's Highway 6.



March 16, 2022 — 10:33 a.m. — Plotted By: RChen

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2.0 Existing Conditions

2.1 Topography

Existing topographic information for the Site was obtained from a detailed survey completed by MTE in February 2021. The Site's frontage along St. David Street North / King's Highway 6 has an approximately slope of 2% from west to east. There is an existing ditch along the south side of the highway along the Site's frontage, with an approximate slope of 1% from west to east. The road elevation is approximately 0.8m to 1.0m above the property line elevation along the Site's frontage. The northeast end of the Site is sloped towards St. David Street North / King's Highway 6, with high point elevations of 424.5mASL around the existing buildings, and a low point elevation of approximately 422.4mASL at the northeast corner of the Site. A portion of the middle of the property has an approximate slope of 1.5% towards the southeast property line, with a highpoint elevation of 424.5mASL near the center of the property, and a low point elevation of approximately 423.6mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southeast property line. The majority of the southwest end of the Site is sloped towards the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL along the southwest property line, with a high point elevation of 424.5mASL near the approximate center of the property, and a low point elevation of 422.6mASL along the southwest property line.

2.2 Existing Servicing

The Site currently does not have any existing municipal water, storm, or sanitary services to the site. Existing servicing information within the surrounding right-of-ways was obtained from the topographic survey, and from plan and profile information provided by the Township of Centre Wellington.

2.2.1 Water

There is currently an existing 300mm diameter watermain on the far (north) side of St. David Street North / King's Highway 6. There are two existing municipal fire hydrants located on the north side of St. David Street North / King's Highway 6 near the Site. One is located approximately 94m to the north of the existing driveway entrance, and one is located approximately 69m to the south of the existing driveway entrance. A flow test was performed at the aforementioned hydrants by Classic Fire and Life Safety on June 21, 2022. Refer to Table 2.1 below for a summary of the flow test results.

Results of Flow Tests Completed June 21, 2022 by Classic Fire & Life Safety									
Test #	Outlet Inside Diameter (in.)	Number of Outlets	Pitot Pressure (PSI)	Residual Pressure (PSI)	Flow @ Residual (gal/min)				
1	n/a	n/a	n/a	46	0				
2	2.5	1	20	40	751				
3	2.5	2	12 + 14	38	1,209				

Table 2.1 – Results of Flow Tests

Refer to Appendix A for further details.

2.2.2 Sanitary

There is an existing 300mm diameter municipal sanitary sewer along the far (north) side of St. David Street North / King's Highway 6 which drains southeast, at a depth of approximately 5.7m to 6.6m below the centreline elevation of the road.

2.2.3 Storm

There is an existing 500mm diameter Corrugated Metal Pipe (CMP) culvert underneath the existing driveway entrance, draining southeast in the ditch along the Site's frontage with St. David Street North / King's Highway 6. The culvert underneath is at a depth of approximately 1m below the existing grade of the driveway.

2.3 Existing Soils Information

A geotechnical investigation was not available for this development at the time this report was published. However, a geotechnical investigation was completed by Golder Associates Ltd. for trenchless servicing crossing work underneath St. David Street North / King's Highway 6 that is proposed for the Site. This servicing work is detailed further in Section 3.2 of this report.

The geotechnical investigation by Golder Associates was completed in April 2021. Two boreholes were advanced to depths between 8.2m and 9.8m below existing grade to determine the underlying soil conditions at the proposed servicing crossing location. Borehole 20-1 was located near the northern corner of the Site, and Borehole 20-2 was located on the north edge of St. David Street North / King's Highway 6. The borehole logs revealed that the subsurface soil conditions are generally comprised of silty sand and sand deposits, underlain with a layer clayey silt.

At the time of borehole advancement, the groundwater level in Borehole 20-1 was measured at approximately 418.3mASL, and Borehole 20-2 was observed to be dry. However, these water levels were not considering to be representative of the stabilized groundwater conditions. Based on a previous geotechnical investigation completed nearby by LVM Inc. (2013), Golder determined that the groundwater level at the proposed servicing crossing location is expected to be approximately 422.5mASL.

2.4 Reviewing Agencies

2.4.1 Township of Centre Wellington

Functional grading, servicing and stormwater management designs as well as this Functional Servicing and Stormwater Management Report will be required for submission to the Township of Centre Wellington in support of the Zoning By-Law Amendment and Vacant Land Condominium applications. The Township will also be responsible for the review and approval of site plans, site grading, servicing, stormwater management, lighting and landscape design and ultimately issuing building permits.

2.4.2 Ministry of Transportation

St. David Street North is a part of Kings Highway 6, a provincially maintained highway. As such, the Ministry of Transportation (MTO) will be circulated on the Zoning By-Law Amendment and Site Plan Applications and will need to approve the site grading, servicing and stormwater management designs. An entrance permit will need to be obtained from the MTO for the new entrance off of St. David Street North / King's Highway 6.

2.4.3 Grand River Conservation Authority

The Site also falls within the area regulated by the Grand River Conservation Authority (GRCA). As such, the site engineering design will also be submitted to the GRCA for review and approval.

3.0 Proposed Grading and Servicing Strategy

Preliminary grading and servicing strategies have been developed based on the topographic survey, plan and profile information, and the Concept Plan provided by MHBC Ltd., dated May 6, 2022. Refer to the enclosed MTE Drawings C2.1 and C2.2 for details. These grading and servicing strategies will be further refined during detailed design during the Site Plan Approval process.

3.1 Proposed Grading

The proposed vacant land condominium development consists of 13 single-detached houses, and 37 townhouse units, complete with a common element roadway and driveway entrance off of St. David Street North / King's Highway 6. The proposed grading strategy will respect the existing grades along St. David Street North / King's Highway 6, and all other property boundaries. The majority of grading internal to the Site will involve directing stormwater runoff to the existing ditch along the south side of St. David Street North / King's Highway 6. Stormwater runoff will be conveyed to the existing ditch via an on-site storm sewer system, and via a rear-yard swale along the southeast property line. For the units along the south end of the Site, runoff from the rear of the units will continue to drain to the southwest property line at existing runoff rates. Refer to MTE Drawing C2.1 for an illustration of the functional grading design.

3.2 **Proposed Servicing**

The following sections provide details regarding the preliminary proposed water, sanitary and storm servicing for the proposed development. Refer to MTE Drawing C2.2 for an illustration of the functional servicing design.

Connection to the existing 300mm diameter municipal watermain and existing 300mm diameter municipal sanitary sewer along the north side of St. David Street North / King's Highway 6 will require trenchless installation of the services underneath the road. Detailed design and required supporting investigations have already been completed for the trenchless servicing crossing work, which have been accepted by the Township and the MTO. The proposed water service and the proposed sanitary service will both be 150mm diameter. Each will be extended from their respective existing mains to approximately 2m inside of the Site's property line. The proposed trenchless servicing crossing work is anticipated to be constructed in summer 2022.

3.2.1 Water

A 150mm diameter water service connection to the existing 300mm diameter municipal watermain along the north side of St. David Street North / King's Highway 6 will be required in order to service the proposed development. As previously described, this service will be brought underneath of St. David Street North / King's Highway 6 via trenchless installation. The 150mm diameter watermain will then be upsized to 250mm diameter at the property line, and extended in the common element roadway to service each unit. Each lot will be serviced off the proposed watermain with a 25mm diameter domestic water service connection. It is anticipated that two

on-site fire hydrants will also be required for the proposed development, as shown on the enclosed MTE Drawing C2.2.

Water Demand

Various guidelines and references exist for calculating the required water supply for firefighting purposes. In Ontario, there are two standards/guidelines that are most often referenced:

- Ontario Building Code (OBC) provincial codes and guidelines published by the Ministry of Municipal Affairs and Housing for the Province of Ontario; and
- The Fire Underwriters Survey (FUS) an insurance industry guideline.

Many municipalities in Ontario use both the OBC and the FUS fire flow requirements for assessing firefighting water supply requirements. Ideally, fire flow demands for new developments are calculated based on the FUS criteria; however, it is not always reasonable to expect that the local existing municipal infrastructure has the operational capacity to supply water at the rates prescribed in the FUS guidelines. As a result, at no time shall the available fire flow be less than that required by the Ontario Building Code.

The pressures and flows at the proposed private hydrant must be sufficient for firefighting conditions as established by the Ontario Building Code (2012). The minimum residual pressure permitted under firefighting conditions is 140.0kPa (20.3psi) per OBC 2012 A-3.2.5.7 3(b).

The buildings are proposed to be of wood frame construction (combustible construction). For the purposes of this analysis, the worst case scenario was determined to be the future townhouse building located on Units 28-32. This building has the largest allowable footprint, and in a firefighting scenario the hydrant furthest from the connection the municipal main will be utilized. The OBC and FUS requirements were calculated for this worst case scenario for reference and are shown in Table 3.1. Refer to Appendix A for detailed calculations.

Building	OBC (L/s)	FUS (L/s)
Proposed Building	4,500	17,000

Table 3.1 – Reg	uired Fire Flow
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For this design, pressure and flow information for the existing 300mm diameter municipal watermain in the St. David Street North / King's Highway 6 right-of-way was taken from the hydrant flow testing results as detailed in Section 2.2.1.

The minimum water supply flow rate for the proposed development is 283.0L/s (17,000L/min) based on the calculation method specified in the FUS. The residual pressures at the proposed hydrants are less than the minimum allowable pressure of 140kPa based on the FUS calculation method.

The minimum water supply flow rate for the proposed development is 75.0L/s (4,500L/min) based on the calculation method specified by the OBC. The residual pressure at the proposed hydrant was calculated to be 185kPa at a flow rate of 75.0L/s (4,500L/min), which is greater than the minimum allowable pressure of 140kPa per OBC 2012. Therefore, the proposed watermain configuration is expected to be sufficient. Based on a maximum day domestic demand of 0.93L/s and the fire flow demand of 75.0L/s, the total water demand for the Site is expected to be 75.9L/s.

The fire flow demand calculations completed in this report assume that the proposed buildings will have two above grade stories. Should the buildings increase to a height of 3-storeys as design progresses, fire walls may be required in order to meet previously described pressure and flow requirements set forth by the OBC.

3.2.2 Sanitary

A sanitary flow design sheet has been prepared to determine the flows anticipated to be generated by the proposed development. With the 13 units proposed for detached homes and 37 units proposed for townhouses, the resulting peak flow rate from the Site is expected to be 3.11L/s. Refer to Appendix A for the Sanitary Flow Design Sheet.

As previously described, a 150mm diameter sanitary service will be extended from the existing 300mm sanitary main on the north side of St. David Street North / King's Highway 6 to a private manhole just inside the Site property line. A 150mm diameter private sanitary sewer will be extended from this manhole throughout the common element area of the Site, servicing each of the proposed units.

The proposed 150mm diameter sanitary sewer has a minimum design slope of slope of 1.00%, corresponding to a full flow pipe capacity of 15.22/s. Therefore, the proposed 150mm diameter sanitary sewer has sufficient capacity for this development.

3.2.3 Storm

A private storm sewer system is proposed along the common element roadways within the proposed development. The storm sewer system, which will include several catchbasins, manholes, and catchbasin manholes, will convey runoff from the roadways, driveways, and landscaped areas through an OGS before discharging to the existing ditch along the south side of St. David Street North / King's Highway 6. A storm sewer design sheet for the last pipe run from the Site is included in Appendix A. The major overland flow route for the Site will be to the existing ditch along St. David Street North / King's Highway 6.

Specifications and details of these proposed servicing strategies will be further refined during detailed design.

4.0 Preliminary Storm Water Management Design

4.1 SWM Criteria

In the existing condition, stormwater runoff from the eastern end of the Site is directed to the existing ditch along St. David Street North / King's Highway 6. Stormwater runoff from the western end of the Site is directed to the southwest property line, where it subsequently sheet flows across the adjacent property before reaching Municipal Drain No. 4. A central portion of the Site drains to the adjacent property to the south.

The stormwater management design criteria for the Site, as established by the MTO and the Township of Centre Wellington, are as follows:

- i) Attenuation of the post-development peak flows for the 2-, 5-, 10-, 25-, 50-, and 100-year storm events to the pre-development (existing) peak flows;
- ii) Implementation of Enhanced (Level 1) water quality controls; and
- iii) Implementation of Erosion and Sediment Control Measures.

4.2 Water Quantity Control

In order to successfully complete the preliminary stormwater management design for the Site, the following specific tasks were undertaken:

- i) Calculate the allowable runoff rates using MIDUSS NET;
- ii) Determine the percent impervious of the Site and catchment parameters for inclusion in MIDUSS NET modelling; and
- iii) Calculate post-development runoff hydrographs using MIDUSS NET.

The following table summarizes the catchments used in modelling the Site. The pre-development condition was separated into three catchments areas: the western portion of the Site that drains to the southwest property line, the central portion of the Site that drains to an adjacent property to the south, and the eastern portion of the Site that drains to St. David Street North / King's Highway 6. The post-development condition was separated into four catchment areas: the uncontrolled area directed to the southwest property line, the controlled area directed to St. David Street North / King's Highway 6, the uncontrolled area directed to rear-yard amended topsoil and subsequently to St. David Street North / King's Highway 6, and the uncontrolled area directed to St. David Street North / King's Highway 6. Figure 2.0 illustrates the limits of the pre-development catchment areas. Figure 3.0 illustrates the limits of the post-development areas.

#	Catchment	Area % Pervious Imperv (ha) Impervious CN CN		Impervious CN	Slope (%)	Flow Length (m)		
Pre-D	Pre-Development Catchment Areas							
101	Area to Southwest Property Line	0.734	0%	75	98	2.0	100	
102	Area to Adjacent Property to the South	jacent 0.286 0% 75 98		1.0	40			
103	103 Area to Highway 6		14%	75	98	5.0	70	
Post-	Development Catchment A	Areas						
201	Uncontrolled Area to Southwest Property Line	0.228	55%	75	98	2.0	15	
202	Controlled Area to Highway 6	0.773	75%	75	98	2.0	15	
203	Uncontrolled Area to Rear Yard Amended Topsoil, and Subsequently to Highway 6	0.352	25%	75	98	2.0	120	
204	Uncontrolled Area to Highway 6	0.049	0%	75	98	2.0	20	

Table 4.1 – Catchment Parameters

As previously described, a geotechnical investigation was completed for the nearby proposed trenchless servicing work development by Golder. Based on the observed subsurface soil conditions, a conservative value of 75 was used for the pervious CN.

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In order to achieve the stormwater requirements for the Site, runoff generated within Catchment's 201 and 203 will be directed to a 3.5m wide, 0.5m deep layer of amended topsoil in the rear yards of the units. The amended topsoil will allow for increased infiltration and runoff volume reduction in these areas. Runoff generated in Catchment 202 will be directed controlled with a 75mm orifice tube. Storage volume will be provided by three underground storage tanks, and by surface ponding on the surface of the common element driveway. The following table summarizes the flows generated by the Site for each storm event. The post-development flow rates are subject to change during detailed design.

	Pre-	Development (m³/s	Post-Development (m ³ /s)		
Modeling Condition	Area to Southwest Property Line	Area to Adjacent Property to the South	Area to Highway 6	Area to Southwest Property Line	Area to Highway 6
2-Year Storm Event	0.004	0.002	0.011	0.000	0.016
5-Year Storm Event	0.011	0.006	0.016	0.000	0.018
10-Year Storm Event	0.018	0.009	0.020	0.000	0.020
25-Year Storm Event	0.029	0.014	0.026	0.004	0.022
50-Year Storm Event	0.038	0.019	0.032	0.009	0.023
100-Year Storm Event	0.052	0.024	0.040	0.019	0.025

Table 4.2 – Summary of Flows (MIDUSS Modelling)

With the installation of the orifice tube, the post-development runoff from the controlled portion of the Site for the 2-, 10-, 25-, 50- and 100-year storm events is controlled to 0.016m³/s, 0.017m³/s, 0.018m³/s, 0.021m³/s, and 0.022m³/s, respectively.

The total post-development peak flows to St. David Street North / King's Highway 6 exceed pre-development levels for the 2- and 5-year storm events; however, a 75mm orifice tube is considered to be the minimum acceptable diameter, therefore additional reduction of the post-development peak flows is not considered to be feasible.

The maximum ponding depth in the common element driveway is 0.13m for the 100-year storm event. As above, the ponding values are subject to change at detailed design. Please refer to Appendix B for the MIDUSS outputs.

4.3 Water Quality Control

A Stormceptor Model EFO4 will be installed on the storm sewer system to provide water quality control for the Site. The chosen unit is expected to provide Enhanced (Level 1) water quality control. Refer to Appendix C for the sizing output from the Stormceptor Expert program. The Stormceptor will require regular annual maintenance to ensure it is operating properly. The owner may be required to enter into a maintenance agreement with a suitable contractor to complete this work. In addition, all the storm structures will have a 600mm sump.

4.4 Erosion and Sedimentation Control

Precautions will need to be taken during construction to limit erosion and sedimentation. Typically, the following measures are recommended during construction for erosion and sedimentation control:

- i) Erosion and sedimentation facilities are to be installed prior to any area grading operations;
- ii) All erosion control measures are to be inspected and monitored by the contractor and repairs are to be completed as required;
- iii) All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance from leaving the site; and
- iv) To minimize the amount of mud being tracked onto the roadway, a mud mat should be installed at the primary construction entrance.

5.0 Conclusions

Based on the foregoing, it is concluded that:

- i) Municipal infrastructure for water and sanitary services is available along St. David Street North / King's Highway 6;
- ii) A fire flow analysis has been completed and demonstrates that adequate flow and pressure is available from the proposed on-site hydrants;
- iii) The water supply needs of the proposed development will not exceed what is available in the existing municipal water distribution system;
- iv) The proposed grading design will respect the natural topography of the Site to achieve a reasonable cut/fill balance where possible and match into existing grades along all property boundaries; and
- v) The SWM criteria can be satisfied with the implementation of on-site controls for water quantity and water quality.

Detailed grading and servicing designs and a detailed stormwater management design will be provided during detailed design in support of Site Plan Approval and Building Permits.

All of which is respectfully submitted,

MTE Consultants Inc.

Nother Kuthe

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Design Sheets





FIRE + LIFE SAFETY

FLOW TEST REPORT Form SD-003B RevDate: Nov 29, 2021

PROJECT INFORMATION									
Project Name:	Fergus Flow Test	Const. Project #:	22-CAM-690-0568						
Site Address:	961 St. David Street/Highway 6 Fergus	Design Project #:	2022-CFLS-359						
City Contact:	Mike Mullen	Phone #:	519-501-7252						
CFLS Contact:	Dean Wanders	Phone #:	905-514-7417						
Technical Contact:	519-476-0761								





FLOW TEST REPORT Form SD-003B RevDate: Nov 29, 2021

TEST INFORMATION											
Minimum Required Flow: NA Min Ports:									2		
CFLS P	CFLS Personnel Present: Dean Wanders Test Date:									Test Date:	2022-06-21
City / Ex	kternal Comp	oany:	Infrast	ructure Serv	vices					Test Time:	1:00pm
				т	EST EQ	UIPME	NT				
🗌 Hose	e Monsters w	ith bui	lt in Pit	ot		Hose	len	gth used:			
Hand	d held pitot g	auge				Pc	olla	rd diffuser	elbc	w with built in	Pitot
Othe	r:										
					TEST R	ESULT	S				
Number of Ports	Outlet Size (IN)	Disc Coef	harge fficient		Pitot R (P	teading SI)			,	Total Flow (GPM)	Static / Residual Pressure (PSI)
0 Ports					STATIC						46
1 Port	2.5	0.9			2	20				751	40
2 Ports	2.5	0.9		12			1	4		1,209	38
3 Ports	2.5	0.9								0	
4 Ports	2.5	0.9								0	
0 Ports STATIC RE-CHECK									46		
TEST NOTES											

HYDRAULIC ADJUSTMENTS (FOR OFFICE USE ONLY)									
ADJUSTME	ADJUSTMENTS FOR HYDRAULIC GRADE LINE (HGL)								
Reservoir HGL (m):		Site Elevation (m):							
Theoretical Static Head (PSI):	0	PSI to subtract from test pressures:	46						
ОТ	HER HYDRAUL	IC ADJUSTMENTS							
Other adjustment as required by the	ne City / AHJ:								



961 St. David Street

FIRE FLOW DEMANDSKitchener, OntarioProject #:48650-100Date:July 14, 2022

Date Printed: 7/14/2022 By: NGK

									Fire Flow ²										Dome	estic Flo	w ^{3,4}							
		Developm	ent Info	ormation ¹					Ont	ario B	uilding (Code				I	Fire Under	writers S	urvey									
Node ID / Area ID / Building #	F.F.E. (m.a.s.l.)	Description	# of Units	Population	Bldg Area (1 st Floor)	Total Bldg Area	Building Volume	к	v	S _{tot}	Q	F	F	С	Α	F	(2) Occupancy Reduction	(3) Sprinkler Protection	(4) Building Exposure	F	F	Fire Flow (Max OBC/FUS)	MOE Guidelines	Average Day	Max Day	Peak Hour	Minimum Hour	Max Day + Fire Flow
				# of people	<i>m</i> ²	<i>m</i> ²	m³		m³		L	L/min	L/s		<i>m</i> ²	L/min				L/min	L/s	L/s	L/s	L/s	L/s	L/s	L/s	L/s
Units 1-12, 50		Detached Houses	13	42	135	270	1,316	23	1,316	2.00	60,548	2,700	45	1.50	270	5,422	-15%	0%	75%	8,000	133	133	0.110	0.110	0.303	0.454	0.044	134
Units 13-18		Townhouses	6	15	504	1,008	3,024	23	3,024	2.00	139,104	4,500	75	1.50	1,008	10,477	-15%	0%	75%	16,000	267	267	0.038	0.038	0.105	0.157	0.015	268
Units 19-22		Townhouses	4	10	336	672	2,016	23	2,016	2.00	92,736	2,700	45	1.50	672	8,555	-15%	0%	75%	13,000	217	217	0.025	0.025	0.070	0.105	0.010	218
Units 23-27		Townhouses	5	12	423	846	2,538	23	2,538	2.00	116,748	3,600	60	1.50	846	9,598	-15%	0%	75%	14,000	233	233	0.032	0.032	0.087	0.131	0.013	234
Units 28-32		Townhouses	5	12	580	1,160	3,480	23	3,480	2.00	160,080	4,500	75	1.50	1,160	11,239	-15%	0%	75%	17,000	283	283	0.032	0.032	0.087	0.131	0.013	284
Units 33-38		Townhouses	6	15	486	972	2,916	23	2,916	2.00	134,136	3,600	60	1.50	972	10,288	-15%	0%	75%	15,000	250	250	0.038	0.038	0.105	0.157	0.015	251
Units 39-43		Townhouses	5	12	400	800	2,400	23	2,400	2.00	110,400	3,600	60	1.50	800	9,334	-15%	0%	75%	14,000	233	233	0.032	0.032	0.087	0.131	0.013	234
Units 44-49		Townhouses	6	15	480	960	2,880	23	2,880	2.00	132,480	3,600	60	1.50	960	10,225	-15%	0%	75%	15,000	250	250	0.038	0.038	0.105	0.157	0.015	251
		TOTALS FOR SITE	50	133	8						Max Fire	Flow =	75						Max Fir	e Flow =	283	283	0.35	0.35	0.95	1.43	0.14	284
																					S	Sum of Ma	ximum Da	y Flows +	- Largest	Fire Flo	w (L/s) =	284

Assumptions:

1 Number of units are based on the Conceptual Plan by MHBC Ltd., dated March 23, 2022

2 Residential population is calculated using a Persons Per Unit (PPU) count taken from "Region of Waterloo Water and Wastewater Monitoring Report" (WWWMR) (Region of Waterloo, June 2021)

Residential = 3.25 PPU for Single and Semi-Detached houses

Residential = 2.44 PPU for Townhouses

3 All buildings are classified as occupancy group C (Residential Occupancy)

4 Average Daily Demands for each building are based on "Tri City Water Distribution Master Plan Final Report" by AECOM, Dated May 2009:

Residential = 225 L/cap/day

5 Peaking Factors based on "Design Guidelines for Drinking-Water Systems" (MOE, 2008):

Average Day =1Maximum Day =2.75Peak Hour =4.13Minimum Hour =0.4



961 St. David Street

FIRE FLOW ANALYSIS

 Fergus, Ontario

 Project Number:
 48650-100

 Date:
 June 3, 2022

 Design By:
 NGK

 File:
 Q:\48650\100\Water

e: Q:\48650\100\Water\Obsolete\48650-100_Site Fire Flow Analysis with test results.xlsx

CALCULATION OF RESIDUAL PRESSURE AT ON-SITE HYDRANT

1. Boundary Conditions (Based or	n Fire Flow Test Results)	:	
	Metric	Imperial	
P0 - Starting Pressure	32.35 m	46.0 psi	
P1 - Pressure at Q1	26.72 m	38.0 psi	
			From: Hudront Flow Toot
Q1 - From Fire Flow Test	4577 L/min	1209 U.S. gal/min	Results
			From: Water Demand
Q2 - Required Flow	4500 L/min	1189 U.S. gal/min	calculations by MTE
P-loss 1	5.63 m	8 psi	
P-loss 2	5.45 m	8 psi	
P2 - Residual Pressure	26.90 <i>m</i>	38 psi	

2. Friction Losses Through Wat	ter Service:		
Hazen-Williams Equation	Metric	Imperial	
C _{hw} = Pipe Friction Factor	150	150	
k = conversion factor	10.675	4.727	
n = constant	1.852	1.852	
m = constant	4.8704	4.8704	
Q = Flow	4500 L/min		
Q = Flow	0.075 m ³ /s	1189 U.S. gal/min	
d = Pipe Diameter (1)	150 mm	5.91 in	
	0.15 m		
d = Pipe Diameter (2)	250 mm	9.84 in	
	0.25 m		
p = Loss/Length (1)	0.0846 m/m	0.0367 psi/ft	
p = Loss/Length(2)	0.0070 m/m	0.0030 psi/ft	
Length (1)	36 m	118 ft	
Length (2)	132 m	433 ft	
Loss	3.98 m	5.7 psi	
	39 kPa	-	

3. Friction Losses Through Apurten	ances:					
Apurtenances	Number	K	Velocity	Head Loss	Total	Loss
			m/s	т	т	psi
Site						
Valve - 150mm dia.	3	0.120	4.244	0.110	0.331	0.470
Expander - 150mm to 250mm dia.	1	2.127	4.244	1.953	1.953	2.777
45° Bend - 150mm dia.	1	0.240	1.528	0.029	0.029	0.041
45° Bend - 250mm dia.	1	0.224	1.528	0.027	0.027	0.038
250mm dia. Tee (through)	1	0.280	1.528	0.033	0.033	0.047
150mm dia. Tee (branch)	2	0.900	4.244	0.826	1.653	2.350
Total Minor Losses					4.024	5.722
4. Elevation - Elevational differences	s from exist	ing hydra	int to prop	osed hydrant		
			M	etric	Imp	erial
Elevation at Boundary (i.e. Residual Hy	ydrant):		424.00	m	1391	ft
Elevation at Site Hydrant:			424.00	m	1391	ft
Elevation Dif	ference = L	oss/Gain	0	m	0.0	psi
ANALYSIS SUMMARY						
Total Losses		8.000	m			
		78.48	kPa	11.4	psi	
Residual Pressure after Losses		18.90	m			
		185	kPa	26.9	psi	PASS
Allowable Residual Pressure		140	kPa	20.3	psi	

961 St. David Stre	et															De	sign Pa	rameters	3										
Fergus, Ontario					SANITA	RY SEV	VER D	ESIGN	SHEET		Averag	e Daily Fl	<u>ow</u>				Manning	ıs "n"	0.013										
(TOWNSHIP OF CENTRE	WELLIN	GION)		-	ENGIN	EERING	AND PL	IBLIC W	/ORKS		Comme	ercial	0.00521	L/s/c L/s/ha			Max. Ve	locity	0.6 3.0	m/sec m/sec								ГС	
Project Number: Date: Design By: Checked By: File:	48650 May 1 NGK JPL L:\COR	-100 2, 2022 PORATE\A	dministratio	Drainage /	Area Plan No .ist.xlsx	:			n/a		Industri Inst. / S	al School	0.40 0.25	L/s/ha 5 L/s/ha			Residen Commer Residen	tial Harmor cial Peakin tial Areas Ii	n Peaking ng Factor = nfiltration ¹	Factor (F) = 2.5 0.15	F = 1 + 14/ L/s/ha	(4 + P ^{0.5})			J		V		
LOCA	ATION				RESIDE	ENTIAL AF	REAS AN	D POPUL	ATION		INS	SCHOO STITUTIC	L, DNAL	со	MMERC	IAL	11	NDUSTRI	AL		INI	FILTRATI	ON			D	ESIGN		
STREET	AREA NO.	MAN LOC FROM	NHOLE ATION	AREA	No. UNITS @ 3.25 PPU	No. UNITS @ 2.44 PPU	POPUL.	CUMUL POPUL.	PEAK FACTOR "F"	PEAK RES. FLOW	AREA	0.25 CUMUL AREA	HECT. 5 <i>L/s/ha</i> PEAK FLOW	ARES AN	D FLOW (0.95 CUMUL AREA	DF EACH <i>L/s/ha</i> PEAK FLOW	AREA	0.40 CUMUL AREA	<i>L/s/ha</i> PEAK FLOW	TOTALS- C-I FLOW	AREA	CUMUL AREA	INFIL FLOW	TOTAL VOLUME FLOW	LENGTH	SLOPE	PIPE SIZE	CAPACITY	FULL FLOW VELOCITY
				ha			1000s	1000s		L/sec	ha	ha	L/sec	ha	ha	L/sec	ha	ha	L/sec	L/sec	ha	ha	L/sec	L/sec	т	%	mm	L/sec.	m/s
Proposed development				1.402	13.00	37.00	0.13	3 0.13	3 4.208032	2.9046	5										1.402	1.402	0.2103	3.1149	9 50.0) 0.90	150	14.4406	0.818

MOTES
1. Residential domestic flow of 450L/capita/day (equal to 0.00521 L/s/capita), and infiltration rate of 0.15L/ha taken from the Township of Centre Wellington's Municipal Servicing Standards, 2004

961 St. David S	itreet									Des	sign Parame	ters					
Fergus, Ontario	Nellineten			STO	RM SEV	VER DE	SIGN SI	IEET	5 YEAR ST	ORM							
Project Number: Date: Design By: Checked By: File:	48650-100 May 10, 202 NGK JPL Q:\48650\100\S	2 torm\Storm Sew	er Design Sheet I	ENGI	EXISX	G AND PI	JBLIC W	ORKS	Q=kAIC, k=(Intensity (I) : a = b = c =	0.00278 = a/(tc+b) ^c 500 0.24 0.6877	Manning's "n" Min. Velocity Max. Velocity	0.013 0.800 6.000	m/s m/s		51		Έ
	LOCATION	1					STORMW	ATER FLO	w					DE	SIGN		
STREET	AREA NUMBER	MANHOLE FROM MH	LOCATION TO MH	AREA (A)	RUNOFF COEFF. (C)	AxC	CUMUL. A x C	CONCEN TI TOTAL	ITRATION ME IN PIPE	RAIN INTENSITY (I)	FLOW (Q)	PIPE SIZE	LENGTH	SLOPE	CAPACITY	FULL FLOW VELOCITY	PIPE FULL
				ha		ha	ha	min	min	mm/hr	L/s	mm	m	%	L/s	m/s	%



MIDUSS Output



1				MIDUSS Output				>"
2				MIDUSS version		Ve	ersion 2.25	rev. 473"
3				MIDUSS created		Sund	day, Februan	cy 7, 2010"
4			10	Units used:				ie METRIC"
5				Job folder:			Q:\486	50\100\SWM"
б				Output filename:			2yr pi	re TCW.Out"
7				Licensee name:				A"
8				Company				
9				Date & Time last use	ed:	5.	/4/2022 at 4	4:24:28 PM"
10		31	Т	IME PARAMETERS"				
11			5.000	Time Step"				
12			180.000	Max. Storm length"				
13			1500.000	Max. Hydrograph"				
14		31	т	TME PARAMETERS"				
15			5 000	Time Step"				
16			180 000	Max. Storm length"				
17			1500 000	Max. Hydrograph"				
1.8		32	1000.000 C	TOPM Chicago storm"				
10		54	1	Chiazao atorm"				
20			275 000	Coofficient A				
20			0 240	Constant B"				
21			0.240	Europent C				
22			0.689	Exponent C"				
23			0.400	Fraction R"				
24			180.000	Duration"				
25			1.000	Time step multiplier	<u>.</u> "			
26			M	aximum intensity	119.78	38 mm/hr		
27			T	otal depth	31.39	96 mm"		
28			6	002hyd Hydrograph	extension u	ised in this	s file"	
29		33	C.	ATCHMENT 101"				
30			1	Triangular SCS"				
31			1	Equal length"				
32			1	SCS method"				
33			101	Area Draining to the	e West"			
34			0.000	% Impervious"				
35			0.734	Total Area"				
36			100.000	Flow length"				
37			2.000	Overland Slope"				
38			0.734	Pervious Area"				
39			100.000	Pervious length"				
40			2.000	Pervious slope"				
41			0.000	Impervious Area"				
42			100.000	Impervious length"				
43			2.000	Impervious slope"				
44			0.250	Pervious Manning 'n				
45			75.000	Pervious SCS Curve N	No."			
46			0.156	Pervious Runoff coef	ficient"			
47	"		0.100	Pervious Ia/S coeffi	icient"			
48	"		8.467	Pervious Initial abs	straction"			
49	"		0.015	Impervious Manning	'n'"			
50			98.000	Impervious SCS Curve	e No."			
51			0.000	Impervious Runoff co	oefficient"			
52	"		0.100	Impervious Ia/S coef	fficient"			
53			0.518	Impervious Initial a	abstraction'			
54				0.004 0.000	0.000	0.000 (c.m/sec"	
55			C	atchment 101	Pervious	Impervious	Total Area	"
56			S	urface Area	0.734	0.000	0.734	hectare"
57	"		Т	ime of concentration	56.110	4.409	56.110	minutes"
58			Т	ime to Centroid	181.077	97.331	181.077	minutes"
59			R	ainfall depth	31.396	31.396	31.396	mm "
60			R	ainfall volume	230.44	0.00	230.44	c.m"
61			R	ainfall losses	26.511	5.151	26.511	mm "
62			R	unoff depth	4.885	26.245	4.885	mm "
63			R	unoff volume	35.86	0.00	35.86	c.m"
64	"		R	unoff coefficient	0.156	0.000	0.156	
				· · · · · · · · · · · · · · · · · · ·				

65			Maximum flow	0.004	0.000	0.004	c.m/sec"
66		40	HYDROGRAPH Start - New	Tributary"			
67	"		2 Start - New Tributa	ry"			
68	"		0.004 0.00	0.000	0.000"		
69	"	33	CATCHMENT 102"				
70	"		1 Triangular SCS"				
71	"		1 Equal length"				
72	"		1 SCS method"				
73	"		102 Area Draining to So	uth"			
74			0.000 % Impervious"				
75	"		0.286 Total Area"				
76	"		40.000 Flow length"				
77	"		1.000 Overland Slope"				
78	"		0.286 Pervious Area"				
79	"		40.000 Pervious length"				
80	"		1.000 Pervious slope"				
81	"		0.000 Impervious Area"				
82			40.000 Impervious length"				
83			1.000 Impervious slope"				
84			0.250 Pervious Manning 'n				
85			75.000 Pervious SCS Curve	NO."			
86			0.100 Pervious Runoff Coe	fficient"			
87			0.100 Pervious la/s coerr	icient"			
00			0.015 Transmisus Marriag	Straction"			
09			0.015 Impervious Maining	o No "			
90			98.000 Impervious SCS Curv	e NO."			
91			0.100 Impervious taks and	fficient"			
92			0.518 Impervious Initial	abstraction			
94				0 0 000	0 000 6	m/sec"	
95			Catchment 102	Pervious	Impervious	Total Area	
96			Surface Area	0 286	0 000	0 286	hectare"
97			Time of concentration	39.864	3.132	39.864	minutes"
98			Time to Centroid	160.020	95.246	160.020	minutes"
99			Rainfall depth	31.396	31.396	31.396	mm "
100			Rainfall volume	89.79	0.00	89.79	c.m"
101			Rainfall losses	26.511	5.390	26.511	mm "
102	"		Runoff depth	4.885	26.006	4.885	mm "
103	"		Runoff volume	13.97	0.00	13.97	c.m"
104			Runoff coefficient	0.156	0.000	0.156	"
105	"		Maximum flow	0.002	0.000	0.002	c.m/sec"
106	"	40	HYDROGRAPH Start - New	Tributary"			
107	"		2 Start - New Tributa	ry"			
108	"		0.002 0.00	0 0.000	0.000"		
109	"	33	CATCHMENT 103"				
110	"		1 Triangular SCS"				
111	"		1 Equal length"				
112	"		1 SCS method"				
113			103 Area Draining to Hi	ghway 6"			
114			14.000 % Impervious"				
115			0.382 Total Area"				
117			70.000 Flow length"				
⊥⊥ / 110			0.329 Derrious Area"				
110			70 000 Pervious length"				
120			5 000 Pervious slope"				
121			0 053 Impervious Area"				
122			70.000 Impervious length"				
123			5.000 Impervious slope"				
124			0.250 Pervious Manning 'n				
125			75.000 Pervious SCS Curve	No."			
126			0.156 Pervious Runoff coe	fficient"			
127			0.100 Pervious Ia/S coeff	icient"			
128			8.467 Pervious Initial ab	straction"			

129		0.015	Impervious	Manning	'n' "			
130		98.000	Impervious	SCS Curve	e No."			
131	"	0.834	Impervious	Runoff co	pefficient"			
132		0.100	Impervious	Ia/S coet	fficient"			
133		0.518	Impervious	Initial a	abstraction'			
134	"		0.011	0.000	0.000	0.000 0	c.m/sec"	
135		Ca	tchment 103		Pervious	Impervious	Total Area	"
136		Su	ırface Area		0.329	0.053	0.382	hectare"
137	"	Ti	me of concer	ntration	34.413	2.704	19.636	minutes"
138		Ti	me to Centro	oid	152.959	94.431	125.684	minutes"
139	"	Ra	infall depth	1	31.396	31.396	31.396	mm "
140		Ra	infall volum	ne	103.14	16.79	119.93	c.m"
141		Ra	infall losse	es	26.512	5.214	23.530	mm "
142	"	Ru	noff depth		4.884	26.182	7.866	mm "
143		Ru	noff volume		16.05	14.00	30.05	c.m"
144		Ru	noff coeffic	cient	0.156	0.834	0.251	"
145	"	Ма	ximum flow		0.003	0.011	0.011	c.m/sec"
146								

1				MIDUSS Output				>"
2				MIDUSS version		Ve	ersion 2.25	rev. 473"
3	"			MIDUSS created		Suno	day, Februa	ry 7, 2010"
4			10	Units used:				ie METRIC"
5	"			Job folder:		Q:\48650`	\100\SWM\TC	V versions"
б				Output filename:			53	r pre.Out"
7				Licensee name:				A"
8	"			Company				"
9	"			Date & Time last use	ed:	5.	/4/2022 at 4	4:11:08 PM"
10		31	TI	ME PARAMETERS"				
11			5.000	Time Step"				
12			180.000	Max. Storm length"				
13			1500.000	Max. Hydrograph"				
14	"	31	TI	ME PARAMETERS"				
15			5.000	Time Step"				
16			180.000	Max. Storm length"				
17			1500.000	Max. Hydrograph"				
18	"	32	SI	'ORM Chicago storm"				
19			1	Chicago storm"				
20			500.000	Coefficient A"				
21			0.240	Constant B"				
22	"		0.688	Exponent C"				
23	"		0.400	Fraction R"				
24	"		180.000	Duration"				
25	"		1.000	Time step multiplier				
26			Ma	ximum intensity	160.0	61 mm/hr		
27			Tc	tal depth	42.1	45 mm"		
28			6	005hyd Hydrograph	extension	used in this	s file"	
29		33	CA	TCHMENT 101"				
30			1	Triangular SCS"				
31			1	Equal length"				
32			1	SCS method"				
33			101	Area Draining to the	e West"			
34			0.000	% Impervious"				
35	н		0.734	Total Area"				
36			100.000	Flow length"				
37	"		2.000	Overland Slope"				
38			0.734	Pervious Area"				
39			100.000	Pervious length"				
10	"		2.000	Pervious slope"				
41			0.000	Impervious Area"				
12			100.000	Impervious length"				
13			2.000	Impervious slope"				
14			0.250	Pervious Manning 'n'				
15			75.000	Pervious SCS Curve N	lo."			
16			0.227	Pervious Runoff coef	ficient"			
17			0.100	Pervious Ia/S coeffi	cient"			
18			8.467	Pervious Initial abs	straction"			
19	"		0.015	Impervious Manning '	'n'"			
50			98.000	Impervious SCS Curve	e No."			
51			0.000	Impervious Runoff co	pefficient"			
52			0.100	Impervious Ia/S coef	ficient"			
53			0.518	Impervious Initial a	abstraction	"		
54				0.011 0.000	0.000	0.000 0	c.m/sec"	
55			Ca	tchment 101	Pervious	Impervious	Total Area	"
56	"		Su	rface Area	0.734	0.000	0.734	hectare"
57			Ti	me of concentration	39.662	3.873	39.662	minutes"
58			Ti	me to Centroid	160.316	95.565	160.316	minutes"
59			Ra	infall depth	42.145	42.145	42.145	mm "
50			Ra	infall volume	309.34	0.00	309.34	c.m"
51			Ra	infall losses	32.561	5.881	32.561	mm "
52	"		Ru	noff depth	9.583	36.263	9.583	mm "
53			Ru	noff volume	70.34	0.00	70.34	c.m"
54			Ru	noff coefficient	0.227	0.000	0.227	"

65		М	aximum flow	0.011	0.000	0.011	c.m/sec"
66	"	40 H	YDROGRAPH Start - Ne	ew Tributary"			
67	"	2	Start - New Tribut	ary"			
68	"		0.011 0.0	000.00	0.000"		
69	"	33 C	ATCHMENT 102"				
70	"	1	Triangular SCS"				
71	"	1	Equal length"				
72	"	1	SCS method"				
73		102	Area Draining to S	South"			
74	"	0.000	% Impervious"				
75		0.286	Total Area"				
76	"	40.000	Flow length"				
77		1.000	Overland Slope"				
78	"	0.286	Pervious Area"				
79	"	40.000	Pervious length"				
80	"	1.000	Pervious slope"				
81		0.000	Impervious Area"				
82	"	40.000	Impervious length'				
83		1.000	Impervious slope"				
84	"	0.250	Pervious Manning '	'n ' "			
85		75.000	Pervious SCS Curve	e No."			
86		0.227	Pervious Runoff co	pefficient"			
87		0.100	Pervious Ia/S coef	ficient"			
88	"	8.467	Pervious Initial a	abstraction"			
89	"	0.015	Impervious Manning	g 'n'"			
90	"	98.000	Impervious SCS Cur	rve No."			
91		0.000	Impervious Runoff	coefficient"			
92	"	0.100	Impervious Ia/S co	pefficient"			
93	"	0.518	Impervious Initial	abstraction	"		
94			0.006 0.0	0.000	0.000 (c.m/sec"	
95	"	C	atchment 102	Pervious	Impervious	Total Area	"
96		S	urface Area	0.286	0.000	0.286	hectare"
97		Т	ime of concentration	n 28.179	2.752	28.178	minutes"
98		Т	ime to Centroid	144.328	93.539	144.328	minutes"
99		R	ainfall depth	42.145	42.145	42.145	mm "
100	"	R	ainfall volume	120.53	0.00	120.53	c.m"
101	"	R	ainfall losses	32.569	5.505	32.569	mm "
102	"	R	unoff depth	9.576	36.640	9.576	mm "
103	"	R	unoff volume	27.39	0.00	27.39	c.m"
104	"	R	unoff coefficient	0.227	0.000	0.227	"
105	"	М	aximum flow	0.006	0.000	0.006	c.m/sec"
106	"	40 H	YDROGRAPH Start - Ne	ew Tributary"			
107		2	Start - New Tribut	ary"			
108		22	0.006 0.0	0.000	0.000"		
109		33 C	ATCHMENT 103"				
110		1	Triangular SCS"				
110		1	Equal length"				
112		1	SCS method"				
113		103	Area Draining to H	lignway 6"			
114		14.000	<pre>% Impervious"</pre>				
115		0.382	Total Area"				
117		/0.000	Flow length"				
110		5.000	Overland Slope"				
110		0.329	Pervious Area"				
120		70.000	Fervious fengun"				
⊥∠U 1.21		5.000	rervious stope"				
		0.053	INDELVIOUS AFEA"				
122		70 000	Impervious longth				
122		70.000	Impervious length'	1			
122 123		70.000 5.000	Impervious length' Impervious slope"	" n l "			
122 123 124		70.000 5.000 0.250 75.000	Impervious length' Impervious slope" Pervious Manning	'n'"			
122 123 124 125		70.000 5.000 0.250 75.000	Impervious length' Impervious slope" Pervious Manning ' Pervious SCS Curve Dervious Runoff of	'n'" No."			
122 123 124 125 126		70.000 5.000 0.250 75.000 0.227	Impervious length' Impervious slope" Pervious Manning ' Pervious SCS Curve Pervious Runoff co Pervious Lo (S cord	'n'" > No." Defficient"			
122 123 124 125 126 127		70.000 5.000 0.250 75.000 0.227 0.100 8.467	Impervious length Impervious slope" Pervious SCS Curve Pervious Runoff co Pervious Ia/S coef Pervious Ia/S coef	n'" e No." pefficient" Eficient" obstraction"			

129	"	0.015 Impervious Manning	'n'"			
130	"	98.000 Impervious SCS Curv	ve No."			
131	"	0.871 Impervious Runoff of	coefficient"			
132	"	0.100 Impervious Ia/S coe	efficient"			
133	"	0.518 Impervious Initial	abstraction'	'		
134	"	0.016 0.00	0.000	0.000 0	c.m/sec"	
135	"	Catchment 103	Pervious	Impervious	Total A	rea "
136	"	Surface Area	0.329	0.053	0.382	hectare"
137	"	Time of concentration	24.325	2.376	15.892	minutes"
138	"	Time to Centroid	138.963	92.887	121.261	minutes"
139	"	Rainfall depth	42.145	42.145	42.145	mm "
140	"	Rainfall volume	138.45	22.54	160.99	c.m"
141	"	Rainfall losses	32.564	5.426	28.765	mm "
142	"	Runoff depth	9.581	36.719	13.380	mm "
143	"	Runoff volume	31.47	19.64	51.11	c.m"
144	"	Runoff coefficient	0.227	0.871	0.317	
145	"	Maximum flow	0.007	0.015	0.016	c.m/sec"
146	"	38 START/RE-START TOTALS	"			
147	"	3 Runoff Totals on EX	KIT"			
148	"	Total Catchment area		0	.000	hectare"
149	"	Total Impervious area		0	.000	hectare"
150	"	Total % impervious		0	.000"	
151	"	19 EXIT"				
152						

1	"			MIDUSS Output				>"
2	"			MIDUSS version		Ve	ersion 2.25	rev. 473"
3	"			MIDUSS created		Sunc	lay, Februai	ry 7, 2010"
4	"		10	Units used:				ie METRIC"
5	"			Job folder:			Q:\4865	50\100\SWM"
б	"			Output filename:			10yr pi	re TCW.Out"
7	"			Licensee name:				A"
8	"			Company				"
9	"			Date & Time last us	ed:	5,	'4/2022 at 4	4:26:04 PM"
LO	"	31	TI	ME PARAMETERS"				
L1	"		5.000	Time Step"				
L2	"		180.000	Max. Storm length"				
L 3	"		1500.000	Max. Hydrograph"				
L4	"	32	SI	ORM Chicago storm"				
L5	"		1	Chicago storm"				
Lб	"		595.000	Coefficient A"				
L7			0.360	Constant B"				
L 8			0.691	Exponent C"				
L9			0.400	Fraction R"				
20			180.000	Duration"				
21			1.000	Time step multiplie:	r"			
22			Ma	aximum intensity	186.43	31 mm/hr'		
23			To	otal depth	49.23	26 mm "		
24			6	010hyd Hydrograph	extension w	used in this	s file"	
25		33	CA	ATCHMENT 101"				
26			1	Triangular SCS"				
27	"		1	Equal length"				
28			1	SCS method"				
29			101	Area Draining to the	e West"			
30	"		0.000	% Impervious"				
31			0.734	Total Area"				
32			100.000	Flow length"				
33	"		2.000	Overland Slope"				
34	"		0.734	Pervious Area"				
35			100.000	Pervious length"				
36	"		2.000	Pervious slope"				
37	"		0.000	Impervious Area"				
38	"		100.000	Impervious length"				
39	"		2.000	Impervious slope"				
10	"		0.250	Pervious Manning 'n				
11	"		75.000	Pervious SCS Curve 1	No."			
12	"		0.269	Pervious Runoff coe	fficient"			
13	"		0.100	Pervious Ia/S coeff:	icient"			
14	"		8.467	Pervious Initial ab	straction"			
15	"		0.015	Impervious Manning	'n'"			
16	"		98.000	Impervious SCS Curve	e No."			
17	"		0.000	Impervious Runoff c	oefficient"			
18	"		0.100	Impervious Ia/S coe	fficient"			
19	"		0.518	Impervious Initial a	abstraction	"		
50	"			0.018 0.00	0 0.000	0.000 0	c.m/sec"	
51	"		Ca	atchment 101	Pervious	Impervious	Total Area	н
52	"		Su	urface Area	0.734	0.000	0.734	hectare"
53	"		Ti	me of concentration	34.073	3.625	34.073	minutes"
54	"		Ti	me to Centroid	151.986	94.644	151.986	minutes"
55	"		Ra	ainfall depth	49.226	49.226	49.226	mm "
56	"		Ra	infall volume	361.32	0.00	361.32	c.m"
57	"		Ra	ainfall losses	35.986	6.385	35.986	mm "
58	"		Ru	unoff depth	13.240	42.841	13.240	mm "
59	"		Ru	unoff volume	97.18	0.00	97.18	c.m"
50	"		Ru	moff coefficient	0.269	0.000	0.269	"
51	"		Ma	aximum flow	0.018	0.000	0.018	c.m/sec"
52	"	40	HZ	DROGRAPH Start - New	Tributary"			
53	"		2	Start - New Tributa:	ry"			
54	"			0.018 0.00	υ 0.000	0.000"		

	22		a) marine marine 100 m					
	33	1	CATCHMENT 102"					
		1	Triangular SCS"					
		1	Equal length"					
		100	SCS method"	~				
		102	Area Draining to	Sou	1011.			
		0.000	<pre>% Impervious"</pre>					
		0.286	Total Area"					
	4	1 000	Flow length"					
		0.000	Demniour Amon					
	4	0.200	Pervious Area					
	4	1 000	Pervious rengun.					
		0.000	Importuious Stope					
	4	0.000	Impervious Area	h"				
	-	1 000	Impervious clope					
		0 250	Dervious Manning					
	7	5 000	Pervious SCS Cur	ve N	ю "			
	1	0 269	Dervious Bunoff	coef	ficient"			
		0.200	Pervious Ta/S co	effi	cient"			
		8 467	Pervious Initial	abs	traction"			
		0.015	Impervious Manni	na '	n!"			
	9	8 000	Impervious SCS C	'urve	No. "			
	-	0.000	Impervious Runof	fcc	efficient"			
		0.100	Impervious Ia/S	coef	ficient"			
		0.518	Impervious Initi	ala	bstraction"			
			0.009 0	.000	0.000	0.000 0	.m/sec"	
			Catchment 102		Pervious	Impervious	Total Area	
			Surface Area		0.286	0.000	0.286	hectare"
			Time of concentrati	on	24.208	2.576	24.208	minutes"
			Time to Centroid		137.952	92.639	137.952	minutes"
			Rainfall depth		49.226	49.226	49.226	mm "
			Rainfall volume		140.79	0.00	140.79	c.m"
			Rainfall losses		35.984	5.590	35.984	mm "
			Runoff depth		13.242	43.636	13.242	mm "
			Runoff volume		37.87	0.00	37.87	c.m"
			Runoff coefficient		0.269	0.000	0.269	"
			Maximum flow		0.009	0.000	0.009	c.m/sec"
"	40		HYDROGRAPH Start -	New	Tributary"			
"		2	Start - New Trib	utar	У"			
"			0.009 0	.000	0.000	0.000"		
"	33		CATCHMENT 103"					
"		1	Triangular SCS"					
"		1	Equal length"					
"		1	SCS method"					
"		103	Area Draining to	Hig	hway 6"			
"	1	4.000	% Impervious"					
"		0.382	Total Area"					
"	7	0.000	Flow length"					
"		5.000	Overland Slope"					
"	_	0.329	Pervious Area"					
	/	0.000	Pervious length"					
		5.000	Pervious slope"					
		0.053	Impervious Area"					
	/	0.000	Impervious lengt	.n"				
		5.000	impervious siope					
	_	0.250	Pervious Manning	'n				
	7	5.000	Pervious SCS Cur	ve N	IO."			
		0.269	Pervious Kunoff	coet	ficient"			
		0.100	Pervious la/S co	erri	.cient"			
		0.40/	Tervious initial	aps	straction"			
	0	0.015	Impervious Manni	шу '	NO "			
	9	0.000	Impervious SCS C	ur ve	s mu."			
		0.000	Impervious Kunor	1 00	ficient"			
		0.100	Impervious Ia/S	coer	creut			

129	0.518 Impervious Initial	abstraction'	'		
130	0.020 0.00	0.000	0.000 0	c.m/sec"	
131	Catchment 103	Pervious	Impervious	Total Area	
132	Surface Area	0.329	0.053	0.382	hectare"
133	Time of concentration	20.897	2.224	14.379	minutes"
134	Time to Centroid	133.227	92.111	118.875	minutes"
135	Rainfall depth	49.226	49.226	49.226	mm "
136	Rainfall volume	161.72	26.33	188.04	c.m"
137	Rainfall losses	35.985	5.608	31.733	mm "
138	Runoff depth	13.241	43.618	17.493	mm "
139	Runoff volume	43.50	23.33	66.82	c.m"
140	Runoff coefficient	0.269	0.886	0.355	
141	Maximum flow	0.011	0.019	0.020	c.m/sec"
142					

1		MIDUSS Output		>"	65		Rai	infall losses	39.869	6.386	39.869	mr
2		MIDUSS version	Version 2.25	rev. 473"	66		Rur	noff depth	18.484	51.966	18.484	m
3		MIDUSS created	Sunday, February	7, 2010"	67		Rur	noff volume	135.67	0.00	135.67	C
4		10 Units used:	i	e METRIC"	68		Rur	noff coefficient	0.317	0.000	0.317	"
5		Job folder:	Q:\48650)\100\SWM"	69		Max	kimum flow	0.029	0.000	0.029	С
6		Output filename:	25yr pre	e TCW.Out"	70	" 40	HYI	DROGRAPH Start - New	Tributary"			
7		Licensee name:		A "	71		2	Start - New Tributa	ry"			
8		Company		"	72			0.029 0.00	0 0.000	0.000"		
9		Date & Time last used:	5/4/2022 at 4:	27:35 PM"	73	" 33	CAT	CHMENT 102"				
10	" 31	TIME PARAMETERS"			74		1	Triangular SCS"				
11		5.000 Time Step"			75		1	Equal length"				
12		180.000 Max. Storm length"			76		1	SCS method"				
13		1500.000 Max. Hydrograph"			77		102	Area Draining to So	uth"			
14	" 31	TIME PARAMETERS"			78		0.000	% Impervious"				
15		5.000 Time Step"			79	"	0.286	Total Area"				
16		180.000 Max. Storm length"			80		40.000	Flow length"				
17		1500.000 Max. Hydrograph"			81		1.000	Overland Slope"				
18	" 31	TIME PARAMETERS"			82	"	0.286	Pervious Area"				
19		5.000 Time Step"			83	"	40.000	Pervious length"				
20		180.000 Max. Storm length"			84		1.000	Pervious slope"				
21		1500.000 Max. Hydrograph"			85		0.000	Impervious Area"				
22	" 32	STORM Chicago storm"			86		40.000	Impervious length"				
23		1 Chicago storm"			87	"	1.000	Impervious slope"				
24		702.000 Coefficient A"			88	"	0.250	Pervious Manning 'n				
25		0.350 Constant B"			89		75.000	Pervious SCS Curve	No."			
26		0.690 Exponent C"			90	"	0.317	Pervious Runoff coe	fficient"			
27		0.400 Fraction R"			91		0.100	Pervious Ia/S coeff	icient"			
28		180.000 Duration"			92		8.467	Pervious Initial ab	straction"			
29		1.000 Time step multiplier"			93		0.015	Impervious Manning	'n' "			
30		Maximum intensity	220.574 mm/hr"		94		98.000	Impervious SCS Curv	e No."			
31		Total depth	58.353 mm"		95		0.000	Impervious Runoff c	oefficient"			
32		6 025hyd Hydrograph extent	nsion used in this file"		96		0.100	Impervious Ia/S coe	fficient"			
33	" 33	CATCHMENT 101"			97	"	0.518	Impervious Initial	abstraction	"		
34		1 Triangular SCS"			98	"		0.014 0.00	0 0.000	0.000	c.m/sec"	
35		1 Equal length"			99	"	Cat	chment 102	Pervious	Impervious	: Total Area	i "
36		1 SCS method"			100	"	Sur	rface Area	0.286	0.000	0.286	he
37		101 Area Draining to the West	t"		101	"	Tin	ne of concentration	20.799	2.398	20.799	mi
38	"	0.000 % Impervious"			102		Tin	ne to Centroid	132.350	91.879	132.350	mi
39		0.734 Total Area"			103	"	Rai	infall depth	58.353	58.353	58.353	mr
40	"	100.000 Flow length"			104		Rai	infall volume	166.89	0.00	166.89	C,
41		2.000 Overland Slope"			105	"	Rai	infall losses	39.869	5.724	39.869	mr
42	"	0.734 Pervious Area"			106		Rur	noff depth	18.483	52.629	18.483	mr
43		100.000 Pervious length"			107	"	Rur	noff volume	52.86	0.00	52.86	C,
44	"	2.000 Pervious slope"			108		Rur	noff coefficient	0.317	0.000	0.317	"
45	"	0.000 Impervious Area"			109	"	Max	cimum flow	0.014	0.000	0.014	C.
46		100.000 Impervious length"			110	" 40	HYI	DROGRAPH Start - New	Tributary"			
47		2.000 Impervious slope"			111	"	2	Start - New Tributa	ry"			
48	"	0.250 Pervious Manning 'n'"			112	"		0.014 0.00	0 0.000	0.000"		
49		75.000 Pervious SCS Curve No."			113	" 33	CAT	CHMENT 103"				
50		0.317 Pervious Runoff coefficie	ent"		114	"	1	Triangular SCS"				
51	"	0.100 Pervious Ia/S coefficient	t"		115	"	1	Equal length"				
52		8.467 Pervious Initial abstract	tion"		116	"	1	SCS method"				
53	"	0.015 Impervious Manning 'n'"			117	"	103	Area Draining to Hi	ghway 6"			
54	"	98.000 Impervious SCS Curve No.	".		118	"	14.000	% Impervious"				
55		0.000 Impervious Runoff coeffic	cient"		119		0.382	Total Area"				
56		0.100 Impervious Ia/S coefficie	ent"		120		70.000	Flow length"				
57		0.518 Impervious Initial abstra	action"		121		5.000	Overland Slope"				
58		0.029 0.000	0.000 0.000 c.m/sec"		122		0.329	Pervious Area"				
59		Catchment 101 Perv	ious Impervious Total Area '		123		70.000	Pervious length"				
60		Surface Area 0.73	4 0.000 0.734 h	lectare"	124		5.000	Pervious slope"				
61		Time of concentration 29.2	/5 3.375 29.275 r	ninutes"	125		0.053	Impervious Area"				
62		Time to Centroid 144.0	683 93.660 144.683 r	ninutes"	126		/0.000	impervious length"				
63		Rainfall depth 58.3	53 58.353 58.353 r	nm "	127		5.000	impervious slope"				
b4		Rainfall volume 428.	31 U.UU 428.31 C	c.m"	128		0.250	rervious Manning 'n	• •			

mm "

mm "

"

c.m"

c.m/sec"

hectare"

minutes"

minutes"

mm "

mm "

mm "

c.m"

c.m/sec"

c.m"

129	 75.000 Pervious SCS Curve	No."			
130	 0.317 Pervious Runoff coe	fficient"			
131	 0.100 Pervious Ia/S coeff	icient"			
132	 8.467 Pervious Initial ab	straction"			
133	 0.015 Impervious Manning	'n'"			
134	 98.000 Impervious SCS Curv	e No."			
135	 0.898 Impervious Runoff c	oefficient"			
136	 0.100 Impervious Ia/S coe	fficient"			
137	 0.518 Impervious Initial	abstraction'	'		
138	 0.026 0.00	0.000	0.000 (c.m/sec"	
139	 Catchment 103	Pervious	Impervious	Total Area	"
140	 Surface Area	0.329	0.053	0.382	hectare"
141	 Time of concentration	17.954	2.070	12.938	minutes"
142	Time to Centroid	128.213	91.378	116.580	minutes"
143	 Rainfall depth	58.353	58.353	58.353	mm "
144	 Rainfall volume	191.70	31.21	222.91	c.m"
145	 Rainfall losses	39.864	5.931	35.114	mm "
146	 Runoff depth	18.488	52.422	23.239	mm "
147	 Runoff volume	60.74	28.04	88.77	c.m"
148	 Runoff coefficient	0.317	0.898	0.398	
149	 Maximum flow	0.018	0.023	0.026	c.m/sec"
150					

1	"		MIDUSS Output				>"	65		
2			MIDUSS version		V	ersion 2.25	5 rev. 473"	66		
3			MIDUSS created		Sur	day, Februa	ary 7, 2010"	67		
4		10	Units used:				ie METRIC"	68		
5			Job folder:			0:\486	550\100\SWM"	69		
б			Output filename:			50vr r	ore TCW.Out"	70	" 40)
7			Licensee name:			1- 1	A"	71		
8			Company					72		
a			Date & Time last us	ed•		/4/2022 at	4.29.40 DM"	72	" 33	
10	" 21	m.	TME DADAMETERS	eu.	-	/4/2022 at	1.20.10 EM	74	"	
11		E 000	IME PARAMETERS					74		
10		5.000	Time Step"					/5		
12		180.000	Max. Storm length"					/6		
13	"	1500.000	Max. Hydrograph"							1
14	" 31	T:	IME PARAMETERS"					78		0.0
15	"	5.000	Time Step"					79		0.2
16	"	180.000	Max. Storm length"					80		40.0
17	"	1500.000	Max. Hydrograph"					81		1.0
18	" 31	T	IME PARAMETERS"					82		0.2
19	"	5.000	Time Step"					83		40.0
20		180.000	Max. Storm length"					84		1.0
21		1500.000	Max. Hydrograph"					85		0.0
22	" 32	S	TORM Chicago storm"					86		40.0
23		1	Chicago storm"					87		1.0
2.4		780 000	Coefficient A"					88		0 2
25		0 360	Constant B"					80		75.0
25		0.500	Evenenant C					0.0		/5.0
20		0.090	Exponent C					01		0.3
27		100.400	Praction R					91		0.1
28		180.000	Duration"					92		8.4
29		1.000	Time step multiplie	r"				93		0.0
30		Ma	aximum intensity	244.9	/2 mm/nr			94		98.0
31	"	Te	otal depth	65.0	103 mm"			95		0.0
32	"	6	050hyd Hydrograph	extension	used in thi	s file"		96		0.1
33	" 33	Ci	ATCHMENT 101"					97		0.5
34		1	Triangular SCS"					98		
35	"	1	Equal length"					99		
36		1	SCS method"					100		
37		101	Area Draining to th	e West"				101		
38	"	0.000	% Impervious"					102		
39		0.734	Total Area"					103		
40		100.000	Flow length"					104		
41		2.000	Overland Slope"					105		
42		0.734	Pervious Area"					106		
4.3		100.000	Pervious length"					107		
44		2 000	Pervious slope"					108		
45		0 000	Impervious Area"					109		
46		100 000	Impervious length"					110	" 40	r
47		2 000	Impervious slope"					111		
4.9		0 250	Dervious Manning In					112		
10		75 000	Pervious Maining II	No. "				112		
49		/5.000	Pervious Scs curve	NO•"				114	. 53	
50		0.348	Pervious Runoii coe	fficient"				114		
51		0.100	Pervious la/S coeff	icient"				115		
52	"	8.467	Pervious Initial ab	straction"				116		
53	"	0.015	Impervious Manning	'n'"				117		1
54	"	98.000	Impervious SCS Curv	e No."				118	"	14.0
55		0.000	Impervious Runoff c	oefficient"				119	"	0.3
56	"	0.100	Impervious Ia/S coe	fficient"				120	"	70.0
57	"	0.518	Impervious Initial	abstraction	1"			121		5.0
58			0.038 0.00	0 0.000	0.000	c.m/sec"		122	"	0.3
59	"	Ca	atchment 101	Pervious	Impervious	Total Area	a "	123		70.0
60		Si	urface Area	0.734	0.000	0.734	hectare"	124		5.0
61		Т	ime of concentration	26.777	3.229	26.777	minutes"	125		0.0
62		T	ime to Centroid	140.702	93.078	140.702	minutes"	126		70.0
63		R	ainfall depth	65.003	65.003	65.003	mm "	127		5.0
64		R	ainfall volume	477.12	0.00	477.12	c.m"	128		0.2
		10								0.2

"	R	ainfall losses	42.373	6.372	42.373	mm "
	R	unoff depth	22.629	58.631	22.629	mm "
	R	unoff volume	166.10	0.00	166.10	c.m"
	R	unoff coefficient	0.348	0.000	0.348	"
"	М	aximum flow	0.038	0.000	0.038	c.m/sec"
"	40 H	YDROGRAPH Start -	New Tributar	У"		
"	2	Start - New Tri	butary"			
"		0.038	0.000 0.0	00 0.000		
	33 C	ATCHMENT 102"				
"	1	Triangular SCS"				
"	1	Equal length"				
	1	SCS method"				
	102	Area Draining t	o South"			
	0.000	<pre>% Impervious"</pre>				
	0.286	Total Area"				
	40.000	Flow length" Owenland Clene"				
	1.000	Dorrigua Area				
	40.000	Pervious Area				
	1 000	Pervious slope"				
	0.000	Impervious Area				
	40.000	Impervious leng	th"			
	1.000	Impervious slop	e"			
	0.250	Pervious Mannin	g 'n'"			
	75.000	Pervious SCS Cu	rve No."			
	0.348	Pervious Runoff	coefficient"			
	0.100	Pervious Ia/S c	oefficient"			
"	8.467	Pervious Initia	l abstraction	"		
"	0.015	Impervious Mann	ing 'n'"			
"	98.000	Impervious SCS	Curve No."			
"	0.000	Impervious Runo	ff coefficien	t"		
"	0.100	Impervious Ia/S	coefficient"			
	0 = 4 0					
	0.518	Impervious Init	ial abstracti	on"	a m/aca"	
	0.518	Impervious Init. 0.019	ial abstracti 0.000 0.0	on" 00 0.000	c.m/sec"	
	0.518 C	Impervious Init. 0.019 atchment 102 urface Prea	ial abstracti 0.000 0.0 Pervious 0.286	on" 00 0.000 Impervious	c.m/sec" s Total Area	" hectare"
	0.518 C S T	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024	on" 00 0.000 Impervious 0.000 2.294	c.m/sec" s Total Area 0.286 19.024	" hectare" minutes"
	0.518 C S T T	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314	on" 00 0.000 Impervious 0.000 2.294 91.460	c.m/sec" s Total Area 0.286 19.024 129.314	" hectare" minutes" minutes"
	0.518 C S T T R	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003	on" 00 0.000 Impervious 0.000 2.294 91.460 65.003	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003	" hectare" minutes" minutes" mm"
	0.518 C S T T R R R	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91	on" 00 0.000 Impervious 0.000 2.294 91.460 65.003 0.00	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91	" hectare" minutes" mm" c.m"
	0.518 C S T T R R R R R R	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413	on" 00 0.000 Impervious 0.000 2.294 91.460 65.003 0.00 5.828	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413	" hectare" minutes" mm" c.m" mm"
	0.518 C T T R R R R R R R	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589	" hectare" minutes" mm" c.m" mm" mm"
	0.518 C S T R R R R R R R R R R	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff volume	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61	on" 00 0.000 Impervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61	" hectare" minutes" mm" c.m" mm" c.m"
	0.518 C S T R R R R R R R R R R R R	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff volume unoff coefficient	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348	" hectare" minutes" mn" c.m" mm" c.m" "
	0.518 C S T T R R R R R R R R M	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff coefficient aximum flow	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" minutes" mm" c.m" mm" c.c.m" " c.m/sec"
	0.518 C S T T R R R R R R 40 40	Impervious Init 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start -	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y"	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R 40 40 40 2	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributary	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y"	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 H 2 2 33 C	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff coefficient aximum flow VDROGRAPH Start - Start - New Tril 0.019 DTCHMENT 102"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 2	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T T R R R R R 40 H 2 33 C	Impervious Init 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall losses unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Trij 0.019 ATCHMENT 103" Triangular SCS" Equal Length"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 H 2 33 C 33 C 1 1	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Trii 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" C.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 H 2 33 C 1 1 1 103	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume unoff depth unoff coefficient aximum flow YDROGRAPH Start - Start - New Trii 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining tr	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 41 1 1 1 103 14.000	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining to % Impervious"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.c.n" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 41 1 1 1 33 C 1 1 1 33 C 0 33 C 0 33 C 1 1 33 C 0 33 C 2 33 C 2 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining t % Impervious" Total Area"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 40 40 40 533 53 52 54 54 54 54 54 54 54 54 54 54 54 54 54	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume unoff volume unoff volume unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining to % Impervious" Total Area" Flow length"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 H 2 33 C 33 C 1 1 1 1 1 03 14.000 0.382 70.000 5.000	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume ainfall losses unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Trii 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining to % Impervious" Total Area" Flow length" Overland Slope"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" C.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 40 40 40 40 5 2 33 33 5 7 1 1 1 1 1 33 4.000 0.382 70.000 5.000 5.000 0.329	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining tu % Impervious" Total Area" Flow length" Overland Slope" Pervious Area"	ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y" 00 0.000	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 40 40 40 40 40 5.000 5.000 5.000 0.329 70.000	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining tu % Impervious" Total Area" Flow length" Overland Slope" Pervious Area" Pervious length	<pre>ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributary 0.000 0.0 o Highway 6" "</pre>	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
	0.518 C S T T R R R R 40 40 40 40 40 40 40 40 40 5.000 5.000 5.000 5.000	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall losses unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Trii 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining t. % Impervious" Total Area" Flow length" Overland Slope" Pervious Area"	<pre>ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0 o Highway 6" "</pre>	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m" c.m/sec"
	0.518 C S T T T R R R R R 40 40 40 40 40 1 1 103 14.000 0.382 70.000 5.000 0.329 70.000 5.000 0.053	Impervious Init. 0.019 atchment 102 urface Area ime of concentrat. ime to Centroid ainfall depth ainfall volume unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Trij 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining to % Impervious" Total Area" Flow length" Overland Slope" Pervious length Pervious length	<pre>ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0 p Highway 6" """""""""""""""""""""""""""""""""""</pre>	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.m"" c.m/sec"
	0.518 C S T R R R R R R 40 40 40 1 1 1 1 1 1 1 1 1 1 1 1 1	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining tr % Impervious" Total Area" Flow length" Overland Slope" Pervious Area" Impervious length Pervious length	<pre>ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributar butary" 0.000 0.0 p Highway 6" " " " " " " " " " " " " " " " " " "</pre>	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 Y" 00 0.000	c.m/sec" s Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" C.m" mm" c.m" c.m/sec"
	0.518 C S T T R R R R R 40 40 40 40 1 1 1 103 14.000 0.382 70.000 5.000 0.329 70.000 5.000 0.329 70.000 5.000 0.329 70.000 5.000 0.329 70.000 5.000 0.329 70.000 5.000 0.505 70.000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.0000 5.00000 5.00000 5.00000 5.000000 5.0000000000	Impervious Init 0.019 atchment 102 urface Area ime of concentrat ime to Centroid ainfall depth ainfall volume unoff depth unoff volume unoff coefficient aximum flow YDROGRAPH Start - Start - New Tril 0.019 ATCHMENT 103" Triangular SCS" Equal length" SCS method" Area Draining tu % Impervious" Total Area" Flow length" Overland Slope" Pervious Area" Pervious length Pervious length Impervious leng Impervious slope"	<pre>ial abstracti 0.000 0.0 Pervious 0.286 ion 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019 New Tributary 0.000 0.0 p Highway 6" " " " " " " " " " " " " " " " " " "</pre>	on" 00 0.000 1mpervious 0.000 2.294 91.460 65.003 0.00 5.828 59.174 0.00 0.000 0.000 y" 00 0.000	c.m/sec" 5 Total Area 0.286 19.024 129.314 65.003 185.91 42.413 22.589 64.61 0.348 0.019	" hectare" minutes" mm" c.m" mm" c.n" " c.m/sec"

129	 75.000 Pervious SCS Curve	No."			
130	 0.347 Pervious Runoff coe	fficient"			
131	 0.100 Pervious Ia/S coeff	icient"			
132	8.467 Pervious Initial ab	straction"			
133	0.015 Impervious Manning	'n'"			
134	 98.000 Impervious SCS Curv	e No."			
135	 0.906 Impervious Runoff c	oefficient"			
136	0.100 Impervious Ia/S coe	fficient"			
137	0.518 Impervious Initial	abstraction'	'		
138	 0.032 0.00	0.000	0.000 (c.m/sec"	
139	 Catchment 103	Pervious	Impervious	Total Area	"
140	 Surface Area	0.329	0.053	0.382	hectare"
141	 Time of concentration	16.422	1.980	12.119	minutes"
142	Time to Centroid	125.533	90.934	115.222	minutes"
143	 Rainfall depth	65.003	65.003	65.003	mm "
144	 Rainfall volume	213.55	34.76	248.31	c.m"
145	 Rainfall losses	42.423	6.120	37.340	mm "
146	 Runoff depth	22.580	58.883	27.662	mm "
147	 Runoff volume	74.18	31.49	105.67	c.m"
148	 Runoff coefficient	0.347	0.906	0.426	
149	 Maximum flow	0.026	0.026	0.032	c.m/sec"
150					

1	"			MIDUSS Output				>"
2	"			MIDUSS version		V	ersion 2.25	rev. 473"
3				MIDUSS created		Sun	day, Februa	ry 7, 2010"
4			10	Units used:				ie METRIC"
5				Job folder:		Q:\48650	\100\SWM\TC	W versions"
б				Output filename:			100	yr pre.Out"
7				Licensee name:				A"
8				Company				
9				Date & Time last us	ed:	5.	/4/2022 at	4:19:11 PM"
10		31	Т	'IME PARAMETERS"				
11			5.000	Time Step"				
12			180.000	Max. Storm length"				
13	"		1500.000	Max. Hydrograph"				
14		31	Т	'IME PARAMETERS"				
15			5.000	Time Step"				
16			180.000	Max. Storm length"				
17	"		1500.000	Max. Hydrograph"				
18		31	Т	'IME PARAMETERS"				
19	"		5.000	Time Step"				
20	"		180.000	Max. Storm length"				
21	"		1500.000	Max. Hydrograph"				
22	"	32	S	TORM Chicago storm"				
23	"		1	Chicago storm"				
24	"		851.000	Coefficient A"				
25	"		0.290	Constant B"				
26	"		0.687	Exponent C"				
27			0.400	Fraction R"				
28	"		180.000	Duration"				
29			1.000	Time step multiplie	r"			
30			M	laximum intensity	270.7	86 mm/hr		
31	"		Т	otal depth	71.8	28 mm"		
32			6	100hyd Hydrograph	extension	used in thi	s file"	
33		33	C	ATCHMENT 101"				
34			1	Triangular SCS"				
35			1	Equal length"				
36			101	SCS method"				
37			101	Area Draining to the	e west"			
38			0.000	* impervious"				
39			0.734	Total Area"				
40			100.000	Flow length"				
41			2.000	Overland Slope"				
42			0.734	Pervious Area"				
43 A A			T00.000	Pervious length"				
44 15			2.000	Two rulous stope"				
-±-5 // 6			100 000	Impervious Area"				
40 47			T00.000	Impervious length"				
10 10			∠.000 0.2E0	Impervious stope"				
-±0 /0			75 000	Pervious Maining 'n	No "			
49 50			/5.000	Pervious SCS Curve I	nu." fficiont"			
50			0.3//	Pervious Ta/S cooff	icient"			
5.7 5.7			0.100	Pervious Id/S COEII	atraction"			
52			0.40/	Impervious Mannia	straction"			
53			0.015	Impervious Maining	- No "			
55			90.000	Impervious Sco Curv	e MU. oefficient"			
55			0.100	Impervious Runori C	fficient"			
57			0.100	Impervious Initial	abstraction			
58			0.010		appriaction	0 000	a m/sea"	
50			~	0.052 0.00	Dervieus	Tmperuioura	Total Area	
55			C	Surface Area	0 734	TUPETATOUS	0 734	heatare"
61			5 T	lime of concentration	0.734 24 716	3 096	0./34 24 715	minutes"
62			1	lime to Centroid	137 440	92 630	137 440	minutes"
63			1	ainfall denth	71 828	71 828	71 828	mm"
64			R D	ainfall volume	527 22	0 00	527 22	
υī			R	ainiaii voiume	521.22	0.00	561.66	C • 111

65	"		Rainfall losses	44.722	6.351	44.722	mm "
66			Runoff depth	27.106	65.478	27.106	mm "
67	"		Runoff volume	198.96	0.00	198.96	c.m"
68	"		Runoff coefficient	0.377	0.000	0.377	
69			Maximum flow	0.052	0.000	0.052	c.m/sec"
70		40	HYDROGRAPH Start - New	Tributary"			
71	"		2 Start - New Tributa:	ry"			
72			0.052 0.00	0.000	0.000"		
73		33	CATCHMENT 102"				
74			1 Triangular SCS"				
75			1 Equal length"				
76			1 SCS method"				
77			102 Area Draining to So	uth"			
78			0 000 & Impervious"	acii			
70			0.286 Total Area"				
00			40.000 Flow longth				
01			1 000 Gueraland Clane"				
01			1.000 Overland Stope"				
82			0.286 Pervious Area"				
83			40.000 Pervious length"				
84	"		1.000 Pervious slope"				
85	"		0.000 Impervious Area"				
86			40.000 Impervious length"				
87	"		1.000 Impervious slope"				
88	"		0.250 Pervious Manning 'n				
89	"		75.000 Pervious SCS Curve I	No."			
90	"		0.377 Pervious Runoff coe:	fficient"			
91			0.100 Pervious Ia/S coeff:	icient"			
92			8.467 Pervious Initial abs	straction"			
93			0.015 Impervious Manning	'n'"			
94			98.000 Impervious SCS Curve	e No."			
95			0.000 Impervious Runoff c	oefficient"			
96			0 100 Impervious Ta/S coe	fficient"			
~ ~ ~							
97			0.518 Impervious Initial	abstraction			
97 98			0.518 Impervious Initial a	abstraction	0 000 6	.m/sec"	
97 98 99			0.518 Impervious Initial a 0.024 0.000 Catchment 102	abstraction 0 0.000 Pervious	0.000 o	c.m/sec" Total Area	"
97 98 99			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area	abstraction 0 0.000 Pervious	0.000 (Impervious	c.m/sec" Total Area	" hectare"
97 98 99 100			0.518 Impervious Initial a 0.024 0.00 Catchment 102 Surface Area Time of concentration	abstraction 0 0.000 Pervious 0.286	0.000 0 Impervious 0.000 2 200	C.m/sec" Total Area 0.286 17 560	" hectare" minutes"
97 98 99 100 101			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid	abstraction 0 0.000 Pervious 0.286 17.560 126 777	0.000 (Impervious 0.000 2.200 91 112	c.m/sec" Total Area 0.286 17.560 126 777	" hectare" minutes"
97 98 99 100 101 102			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid	abstraction 0 0.000 Pervious 0.286 17.560 126.777 71 020	"0.000 (Impervious 0.000 2.200 91.112 71 828	Total Area 0.286 17.560 126.777	" hectare" minutes" minutes"
97 98 99 100 101 102 103			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth	abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205 42	0.000 (Impervious 0.000 2.200 91.112 71.828	Total Area 0.286 17.560 126.777 71.828	" hectare" minutes" mm"
97 98 99 100 101 102 103 104			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.002	Total Area 0.286 17.560 126.777 71.828 205.43	" hectare" minutes" mm" c.m"
97 98 99 100 101 102 103 104 105			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses	Destruction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 0.2100	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983	Total Area 0.286 17.560 126.777 71.828 205.43 44.716	" hectare" minutes" mm" c.m" mm"
97 98 99 100 101 102 103 104 105 106			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth	Destruction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112	" hectare" minutes" mm" c.m" mm" mm"
97 98 99 100 101 102 103 104 105 106 107			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume	Dervice 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 244.716 27.112 77.54 27.54	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54	" hectare" minutes" mm" c.m" mm" c.m"
97 98 99 100 101 102 103 104 105 106 107 108			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 277.54 0.377	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377	" hectare" minutes" mnu" c.m" mm" c.m" "
97 98 99 100 101 102 103 104 105 106 107 108 109			0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	Abstraction 0 0.000 Pervious 0 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.327 0.327	0.000 0 Impervious 0.000 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New	Dervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary"	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" " mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa:	Dervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry"	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000	Abstraction 0 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS"	Adstraction 0 0.000 Pervious 0.286 17.560 126.777 128.28 205.43 244.716 27.112 77.54 0.377 0.024 Tributary" ry" 0.0000	0.000 0 Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" " mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	Abstraction 0 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	Abstraction 0 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 14.000 % Impervious"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 of Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" " mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	C.m/sec" Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 220		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 of Impervious 0.000 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope" 0.329 Pervious Area"	Abstraction 0 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 123		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope" 0.329 Pervious Area"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	C.m/sec" Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 220 121 122 123		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope" 0.329 Pervious length"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" minutes" mm" c.m" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Pervious Area" 70.000 Pervious length"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 120 121 122 123 124 125		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to His 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope" 0.329 Pervious Area" 70.000 Pervious length" 5.000 Pervious slope" 0.053 Impervious Area"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	C.m/sec" Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m"" c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 124 125 126		40	0.518 Impervious Initial a 0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.329 Pervious Area" 70.000 Pervious length" 5.000 Pervious length" 5.000 Pervious length"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 o Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" mm" c.m" " c.m/sec"
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127		40	0.518 Impervious Initial a 0.024 0.000 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff coefficient Maximum flow HYDROGRAPH Start - New 2 Start - New Tributa: 0.024 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Area Draining to Hig 14.000 % Impervious" 0.382 Total Area" 70.000 Flow length" 5.000 Overland Slope" 0.329 Pervious Area" 70.000 Pervious length" 5.000 Impervious Slope" 0.53 Impervious Slope"	Abstraction 0 0.000 Pervious 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024 Tributary" ry" 0 0.000 ghway 6"	" 0.000 of Impervious 0.000 2.200 91.112 71.828 0.00 5.983 65.845 0.00 0.000 0.000 0.000"	Total Area 0.286 17.560 126.777 71.828 205.43 44.716 27.112 77.54 0.377 0.024	" hectare" minutes" mm" c.m" mm" c.m" c.m/sec"

129	"	75.000 Pervious SCS Curve	No."			
130		0.377 Pervious Runoff coe	fficient"			
131		0.100 Pervious Ia/S coeff	icient"			
132		8.467 Pervious Initial ab	straction"			
133		0.015 Impervious Manning	'n'"			
134		98.000 Impervious SCS Curv	e No."			
135		0.912 Impervious Runoff c	oefficient"			
136		0.100 Impervious Ia/S coe	fficient"			
137		0.518 Impervious Initial	abstraction'	'		
138		0.040 0.00	0.000	0.000 (c.m/sec"	
139		Catchment 103	Pervious	Impervious	Total Area	
140		Surface Area	0.329	0.053	0.382	hectare"
141		Time of concentration	15.158	1.899	11.413	minutes"
142	"	Time to Centroid	123.231	90.553	114.001	minutes"
143		Rainfall depth	71.828	71.828	71.828	mm "
144		Rainfall volume	235.97	38.41	274.38	c.m"
145		Rainfall losses	44.733	6.312	39.354	mm "
146		Runoff depth	27.095	65.517	32.474	mm "
147		Runoff volume	89.01	35.04	124.05	c.m"
148		Runoff coefficient	0.377	0.912	0.452	
149		Maximum flow	0.033	0.029	0.040	c.m/sec"
150						

2yr Post

1		MIDUSS Output		>"	65	" 57	TRE	NCH Design d/s of 2	01"	
2		MIDUSS version	Version 2.25	rev. 473"	66	"	0.030	Peak inflow"		
3		MIDUSS created	Sunday, February	7, 2010"	67		37.477	Hydrograph volume"		
4		10 Units used:	i	e METRIC"	68	"	424.500	Ground elevation"		
5		Job folder:	Q:\48650	\100\SWM"	69	"	423.500	Downstream trench i	nvert"	
б		Output filename:	2yr	post.Out"	70	"	0.500	Trench height"		
7		Licensee name:		A"	71	"	422.500	Water table elevati	on"	
8		Company		н	72	"	3.500	Trench top width"		
9		Date & Time last used:	5/10/2022 at 10:	36:02 AM"	73	"	3.500	Trench bottom width	"	
10	" 31	TIME PARAMETERS"			74	"	40.000	Voids ratio (%)"		
11		5.000 Time Step"			75		20.000	Hydraulic conductiv	ity"	
12		180.000 Max. Storm length"			76	"	0.000	Trench gradient (%)	"	
13		1500.000 Max. Hydrograph"			77	"	85.000	Trench length"		
14	" 32	STORM Chicago storm"			78	"	1.000	Include base width"		
15		1 Chicago storm"			79	"	21. 1	Number of stages"		
16		375.000 Coefficient A"			80	"		Level Discharge	Volume"	
17		0.240 Constant B"			81			423.500 0.000	0.0"	
18		0.689 Exponent C"			82	"		423.550 0.000	5.9"	
19		0.400 Fraction R"			83			423.600 0.000	11.9"	
20		180.000 Duration"			84			423.650 0.000	17.8"	
21		1.000 Time step multiplier"			85	"		423.700 0.000	23.8"	
22		Maximum intensity 119.	788 mm/hr"		86			423.750 0.000	29.8"	
23		Total depth 31.	396 mm"		87			423.800 0.000	35.7"	
24		6 002hyd Hydrograph extension	used in this file"		88	"		423.850 0.000	41.7"	
25	" 33	CATCHMENT 201"			89			423.900 0.000	47.6"	
26		1 Triangular SCS"			90	"		423.950 0.000	53.6"	
27		1 Equal length"			91	"		424.000 1.458	59.5"	
28		1 SCS method"			92	"		424.050 4.123	59.6"	
29		201 Uncontrolled to Southwest Pro	perty Line"		93			424.100 7.577	59.6"	
30		55.000 % Impervious"			94	"		424.150 11.664	59.7"	
31		0.228 Total Area"			95	"		424.200 16.303	59.7"	
32		15.000 Flow length"			96	"		424.250 21.430	59.8"	
33		2.000 Overland Slope"			97			424.300 27.003	59.8"	
34		0.103 Pervious Area"			98			424.350 32.994	59.9"	
35		15.000 Pervious length"			99			424.400 39.369	60.0"	
36		2.000 Pervious slope"			100			424.450 46.112	60.0"	
37		0.125 Impervious Area"			101		1	424.500 53.197	60.1"	
20		2.000 Impervious iengun			102		1.	WEIRS"	Q	TAGE DANKE
39		2.000 impervious stope"			103		01	crest werr	broadth air	Leit Right
40		75 000 Dervieus SCS Curro No "			104		er		SE 000	
41		0 156 Dervious Duroff goofficient"			105		1 1	423.950 0.900	85.000	0.000 0.000
42		0.100 Dervious To (C scofficient"			100		1. 1	ARACCE "		
43		8 467 Dervious Initial abstraction"			107		d	access		
44		0.015 Importious Manning In!"			100		u.	1 200 "		
40		0.015 Impervious Maining II			110		Dool	1.200	0.00	
40		0 825 Impervious Bunoff coofficient			111		Out	flow wolumo	0.00)0 C.III/SEC
4.8		0.100 Impervious Ta/S coefficient"			112		Duc	k exfiltration	0.00)2 c.m/sec"
10		0.518 Impervious Initial abstractio	"		113		Fea. Evf	iltration volume	37 44	5 a m"
50			0 000 a m/sea"		114		Max	imum level	423 60	3 metre"
51		Catchment 201 Pervious	Impervious Total Area "		115		Max	imum storage	22 94	11 c.m"
52		Surface Area 0 103	0 125 0 228 +	ectare"	116		Cen	troidal lag	3 80	bourg"
53		Time of concentration 17 976	1 412 3 627 m	inutes"	117		Inf	iltration area 2 si	deg 32 773	sa metre"
54		Time to Centroid 131 637	92 372 97 622 m	inutes"	118		Inf	iltration Base area	297 50) sq metre"
55		Rainfall depth 31 396	31 396 31 396 m	m"	119		1111		0 000	0 002 c.m/sec"
56		Rainfall volume 32 21	39 37 71 58		120	" 40	וחעו	ROGRAPH Combine	1"	
57		Rainfall losses 26 512	5.505 14 958 **	m"	120		6 0	Combine "	-	
58		Runoff depth 4.883	25.891 16.437 m	m"	122		1 1	Node #"		
59		Runoff volume 5.01	32.47 37.48	•m"	123			Total Site"		
60		Runoff coefficient 0.156	0.825 0.524 "		123		Max	imum flow	0.00	0 c.m/sec"
61		Maximum flow 0.001	0.030 0.030 c	.m/sec"	125		Hvd	rograph volume	0,00)2 c.m"
62	" 40	HYDROGRAPH Add Runoff "			126			0.030 0.03	0 0.000	0.000"
63		4 Add Runoff "			127	" 40	HYDI	ROGRAPH Start - New	Tributarv"	
64		0.030 0.030 0.00	0.000"		128		2	Start - New Tributa	ry"	
-									-	

129				0.03	0 0.0	000	0.000	0.000"		
130		33	CA	TCHMENT 20	2"		0.000	0.000		
131		55	1	Triangula	r 909"					
122			1	Found lon	ath"					
122			1	Equal len	gun au					
124			202	Scs mecho	u		C			
134			202	Controlle	d Area to) HIGUNA	ay b"			
135			/5.000	<pre>% Impervi</pre>	ous"					
136	"		0.773	Total Are	a"					
137	"		15.000	Flow leng	th"					
138	"		2.000	Overland	Slope"					
139			0.193	Pervious	Area"					
140			15.000	Pervious	length"					
141			2.000	Pervious	slope"					
142			0.580	Imperviou	s Area"					
143			15.000	Imperviou	s length"					
144			2.000	Imperviou	s slope"					
145			0.250	Pervious	Manning '	'n'"				
146			75 000	Pervious	SCS Curve	• No."				
147			0 156	Pervious	Bunoff co	efficie	ent "			
148			0 100	Pervious	Ta/S coef	ficient	- "			
149			8 467	Pervious	Initial a	hetrad	ion"			
150			0.407	Terrerious	a Monning	w Int"	.1011			
150			0.015	Tuperviou	s Manning	J 1111				
151			98.000	Imperviou	s ses cur	rve No.				
152			0.825	Imperviou	s Runoff	coeffic	clent"			
153			0.100	Imperviou	s Ia/S co	pefficie	ent"			
154	"		0.518	Imperviou	s Initial	l abstra	action			
155	"			0.13	7 0.0	000	0.000	0.000 0	c.m/sec"	
156			Cat	tchment 20	2	Pervi	lous	Impervious	Total Area	"
157			Su	rface Area		0.193	3	0.580	0.773	hectare"
158			Tir	me of conc	entratior	17.97	76	1.412	2.392	minutes"
159			Tir	me to Cent	roid	131.6	537	92.372	94.695	minutes"
160			Ra	infall dep	th	31.39	96	31.396	31.396	mm "
161			Ra	infall vol	ume	60.63	7	182.02	242.69	c.m"
162			Ra	infall los	ses	26.51	12	5.505	10.757	mm "
163			Rui	noff depth		4.883	3	25.891	20.639	mm "
164			Rui	noff volum	e	9.44		150.10	159.54	c.m"
165			Rui	noff coeff	icient	0.156	5	0.825	0.657	"
166			Mar	ximum flow		0 002	2	0 137	0 137	c.m/sec"
167		40	HVI	DROGRADH A	dd Runoff	F "	-	0.107	0.107	0.111, 500
168		10	4	Add Runof	f "	-				
169			-	Aug Runor	7 0 1	137	0 000	0 000"		
170		E 4	DO	U.IJ	/ 0.1	137	0.000	0.000		
171		54	0 127	ND DESIGN"	colt flow	~ ~	(
170			0.137	Current p	eak llow	C•III/	sec			
172			150 5	Target ou	LITOM	c.m/sec	3 "			
1/3			159.5	Hydrograp	n volume	C.m.				
1/4			13.	Number of	stages"					
175		4	422.046	Minimum w	ater leve	el me	etre"			
176	"	4	424.050	Maximum w	ater leve	el me	etre"			
177		4	422.046	Starting	water lev	vel r	netre"			
178			0	Keep Desi	gn Data:	1 = Tru	1e; 0 :	= False"		
179				Level D	ischarge	Volu	ıme"			
180				422.046	0.000	0.0	000"			
181				422.350	0.00809	1.01E-	-05"			
182				422.600	0.01139	12.8	300"			
183				422.800	0.01346	23.0	000"			
184				423.000	0.01526	61.2	200"			
185				423.260	0.01731	110.9	900"			
186				423,500	0.01901	187.1	L00"			
187				423,660	0.02007	216	500"			
188				423.830	0.02113	226 0	000"			
189				423 880	0 02143	228 5	700"			
190				423 930	0 02173	241 (00"			
191				423 980	0 02203	264 0	200"			
100				424 050	0 05000	204.3	200"			
エノム				124.000	0.000000	204.3				

1. Creat Weir Creat Left Right* 136 • 423.990 0.900 1.000 0.000' 137 • 0.015 0.000' 0.000' 137 • 0.015 0.000' 138 • 0.015 0.000' 139 • 0.015 0.000' 139 • 0.015 0.000' 1422.046 0.820 0.015 0.000' 201 • 422.046 0.820 0.016 0.000' 201 • 422.046 0.820 0.015 0.000' 0.016 201 • 0.137 0.137 0.016 0.000 · 0.000' 0.016' 201 • Maximum flow 19.111 0.016' 0.016' 202 • 0.017 0.016 0.016' 0.016' 211 • 0.017 0.016 0.016' 0.016' 212 • 0.017 0.	103		
1 Lissi or file Lissi or Lissi Lissi or Lissi Lissi or Lissi or Lissi or Lissi Li	104		I. WEIRS
1. 0137 1.000 0.000 0.000 137 1. 0R1F7CS' 0.000 0.000' 138 0.71fice Orifice Orifice 0.016 0.000' 139 1.001 0.000' 0.000' 0.000' 139 1.001 0.016 c.m/sec' 139 1.001 0.016 c.m/sec' 140 Peak outflow 0.016 0.000 c.m/sec' 141 Maximum storage 71.277 c.m'' 140 HYDRORAPH Combine 2' 6 151 0.137 0.016 c.m/sec' 151 Maximum flow 0.017 0.016 c.m/sec' 151 Maximum flow 0.001 0.016 c.m/sec' 151 40 HYDRORAPH Start - New Tributary' 1 1 151 Hydrograph volume 159.111 c.m'sec' 152 CATCHENEY 203' 0.000 0.016 0.016' 151 Frigual length' 0.000	105		elevation coefficie breadth sideslope sideslope"
1. 0.000 1.000 0.000 0.000 199 1.000 0.000 0.000 0.000 199 Invert coefficie diameter orfices" 0.010 0.010 200 422.045 0.200 0.0750 1.000* 201 Peak outflow 0.016 c.m/sec" 202 Maximum storage 71.277 c.m" 203 Maximum storage 71.277 c.m" 204 Centroidal lag 2.375 hourse" 205 0.137 0.016 0.000 c.m/sec" 206 40 HYDROGRAPH Combine 2* 0.137 0.016 0.016* 206 1 Nydegraph volume 159.111 c.m" 0.137 0.016 0.016* 210 Start - New Tributary" 0.137 0.016 0.016* 0.016* 213 40 HYDROGRAPH SCS* 0.016 0.016* 0.016* 214 2 Start - New Tributary" 0.137 0.000 0.016* 214 </td <td>106</td> <td></td> <td></td>	106		
1. Orifice Orifice Orifice Number of: 199 invert coefficie diameter orifices: 199 422.046 0.016 c.m/sec: 201 Peak outflow 0.016 c.m/sec: 202 Maximum level 423.035 meter: 203 Maximum torage 71.277 c.m' 204 Centroidal lag 2.375 hours' 205 40 HYDROGRAPH Combine 2* 206 40 HYDROGRAPH Combine 2* 207 6 Combine * * 208 2 Node #* * 209 Total to Highway 6* * * 211 Maximum flow 0.016 0.016* 212 0.137 0.016 0.016* 213 40 HYBROGRAPH Start - New Tributary* 214 2 Start - New Tributary* 215 0.33 CATCHENTY* 216 32 CATCHENTY* 217 2.000 Y methed	197		
Instruct Construct Construct 200 422.066 0.820 0.0750 1.000" 201 Peak outflow 0.016 c.m/sec" 203 Maximum level 423.053 metre" 204 Centroldal lag 2.375 hours" 205 0.137 0.016 0.000 c.m/sec" 206 40 HYDROGRAPH Combine 2* 208 2 Node #* 0.016 0.000 c.m/sec" 208 2 Node #* 0.016 c.m/sec" 208 2 Node #* 0.016 c.m/sec" 208 2 Node #* 0.016 0.016* 208 2 Node #* 0.016 0.016* 201 HyDROGRAPH Start - New Tributary" 2 0.137 0.000 0.016 213 40 HYDROGRAPH Start - New Tributary" 2 0.137 0.000 0.016 0.016* 214 2 Start - New Tributary" 2 0.137 0.000 <td< td=""><td>198</td><td></td><td>Orifice Orifice Orifice Number of</td></td<>	198		Orifice Orifice Orifice Number of
422.046 0.0750 0.100* 201 Peak outflow 0.016 ourset* 202 Maximum level 423.053 metre* 203 Maximum storage 71.277 c.m* 204 Centroldal lag 2.375 hours* 205 * 0.137 0.116 0.000 c.m/sec* 206 * 0.016 c.m*ce* 207 * 6 Combine * 208 2 Node #* - 209 Total to Highway 6* - 210 Maximum flow 0.016 c.m/sec* 211 Mytrograph volume 155.111 c.m* 212 0.137 0.016 0.016* 213 40 HYDROGRAPH Start - New Tributary* - 214 2 Start - New Tributary* - 215 0.137 0.000 0.016 0.016* 214 2 Start - New Tributary* - 215 0.137 0.000	199		invert coefficie diameter orifices"
201 * Peak outflow 0.016 c.m/sec* 202 * Maximum level 433.053 metre* 203 * Maximum level 433.053 metre* 204 * Centroidal lag 2.375 hours* 205 * 0.137 0.137 0.016 c.m/sec* 206 * 0 HYDROGRAPH Combine 2* 207 * 6 Combine * 2 208 2 Node #* - - 209 Total to Highway 6* - - - 201 * Maximum flow 0.016 c.m/sec* 203 * 0.137 0.016 0.016* 203 * 0.137 0.016 0.016* 211 HyDROGRAPH SCS* - - 1.7 213 * 0.137 0.016 0.016* 214 2 Sast + New Tributary* - 2 215 0.127 O.100 0.016 0.016* 216 10.000 <td>200</td> <td></td> <td></td>	200		
Plant Outling Outling Outling 203 Maximum storage 71.277 c.m' 204 Centroldal lag 2.375 hours' 205 40 HYDROGRAPH Combine 2* 206 40 HYDROGRAPH Combine 2* 207 6 Combine * 0.137 0.16 0.000 c.m/sec* 208 2 Node #* - - - 209 Total to Highway 6* - - - 211 Hydrograph volume 159.111 c.m* - 212 0.137 0.137 0.016 0.006* 213 40 HYDROGRAPH Start - New Tributary* - - 214 2 Start - New Tributary* - - 215 0.137 0.00 0.016 0.016* 216 1 Equal length* - - - 217 1 SCS method* - - - 218 0.352 Total Area*	200		Peak outflow 0.020 0.076 c m/cec"
Maximum Storage 12.277 c.mtcl 203 Maximum Storage 12.277 c.mtcl 204 Centroidal lag 2.375 hours* 205 0.137 0.106 0.000 c.m/sec* 206 40 MYDROGRAPH Combine 2* 207 6 Combine " 208 2 Node #* 209 Total to Highway 6* 201 Maximum flow 0.016 c.m/sec* 211 Hydrograph volume 159.111 c.m* 212 0.137 0.137 0.016 0.016* 213 40 MYDROGRAPH Start - New Tributary* 0.016 0.016* 214 2 Start - New Tributary* 0.02 0.020 0.016* 216 1 Triangular SCS* 0.037 0.000 0.016 0.016* 217 1 Triangular SCS* 0.32 0.020 Pervious Area* 221 0.325 Total Area* 0.026 Pervious Area* 2223 120.000 Imper	201		Maximularel 423.053 metres"
204 Centroidal lag 1.37 0.137 0.016 0.000 c.m/sec" 205 40 HYDEOGRAPH Combine 2* 207 6 Combine ' 208 2 Node #' 209 Total to Highway 6* 210 Maximum flow 0.016 c.m/sec" 211 Hydrograph volume 159.111 c.m* 212 0.137 0.1016 0.016* 213 40 HYDROGRAPH Start - New Tributary" 214 2 Start - New Tributary" 215 0.137 0.000 0.016 0.016* 216 33 CATCHMENT 203* 1 Triangular SCS* 218 1 Equal length" 2 0.352 Total Area" 220 0.352 Total Area" 2 0.352 Total Area" 221 0.250 Pervious length" 2 2 0.352 223 0.068 Impervious length" 2 2 0.352 224 2.000 Pervious length" 2 2 225	202		Maximum storage 71,277 d m"
Description Control of the sector 206 * 40 HYDROGRAPH Combine 2* 207 * 6 Combine * 208 2 Node #* 209 Total to Highway 6* 201 * Maximum flow 0.016 c.m/sec* 211 * Hydrograph volume 159.11 c.m* 212 0.137 0.137 0.016 0.016* 213 * 40 HYDROGRAPH Start - New Tributary* 0.137 0.000 0.016 213 * 0.137 0.000 0.016 0.016* 214 * 2 Start - New Tributary* 0.016 0.016* 215 : 0.137 0.000 0.016 0.016* 214 : 2 Start - New Tributary* 1 215 : 0.137 0.000 0.016 0.016* 214 : 2 Start - New Tributary 1 2 216 : 0.016 Pervious Farea* 2 2	203		Centroidal lag 2 375 hours"
200 * 40 HYDRORRAPH combine 2* 0.000 chubbe 207 * 6 Combine * 208 2 Node #* 209 Total to Highway 6* 210 Maximum flow 0.016 c.m/sec* 211 Hydrograph volume 159.111 c.m* 212 0.137 0.137 0.016 0.016* 213 40 HYDRORRAPH Start - New Tributary* 214 2 Start - New Tributary* 215 0.137 0.000 0.016 0.016* 217 1 Triangular SCS* 218 1 Equal length* 219 1 SCS method* 220 0.352 Total Area* 221 2.000 Flow length* 224 2.352 Total Area* 225 0.264 Pervious Area* 226 120.000 Flow length* 227 2.000 Impervious length* 238 0.089 Impervious scSC Curve No.* 239 120.000 Impervious SCS Curve No.* 231 0.250 Pervious Manning 'n** 232 75.000 Impervious SCS Curve No.* 233 0.156 Impervious Rooff coefficient* 234 0.101 Dervious Rooff coefficient* </td <td>205</td> <td></td> <td>0 137 0 137 0 016 0 000 c m/sec"</td>	205		0 137 0 137 0 016 0 000 c m/sec"
207 6 Combine " 208 2 Node #" 209 Total to Highway 6" 210 Maximum flow 0.016 c.m/sec" 211 Hydrograph volume 159.111 c.m" 212 0.137 0.137 0.016 0.016" 213 40 HYROGRAPHStart - New Tributary" 0.137 0.000 0.016 214 2 Start - New Tributary" 0.137 0.001 0.016" 216 33 CATCHMENT 203" 0.000 0.016 0.016" 217 1 Triangular SCs" 1 20.32 Total Area" 220 235 Total Area" 23 120.000 Flow length" 221 2.52 Total Area" 24 2.000 Overland Slope" 225 0.264 Pervious length" 27 210 Dervious slope" 28 0.088 Impervious Slope" 224 0.000 Impervious Runoff coefficient" 24 2000 225 120.000 Pervious SCS Curve No." 27 2.000 231 0.155	205	" 4	0 HYDROGRAPH Combine 2"
200 * Total to Highway 6" 200 Total to Highway 6" 210 Maximum flow 0.016 c.m/sec" 211 Hydrograph volume 159.111 c.m" 212 0.137 0.016 0.016* 213 40 HYDROGRAPH Start - New Tributary" 215 0.137 0.000 0.016 216 3 CATCHMENT 203* 217 1 Triangular SCS* 218 1 Equal length* 219 1 SCS method* 220 0.352 Total Area* 221 0.000 Nucontrolled to Rear Yard Amended Topsoil then to Hwy 6* 211 25.000 Nucontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 2.000 Veriant Area* 222 0.352 Total Area* 223 120.000 Impervious Reat* 224 2.000 Pervious Area* 229 120.000 Impervious Scupe* 231 0.250 Pervious Manning 'n'* 232 0.500 Pervious Scupe* <	207		6 Combine "
209 * Total to Highway 6* 210 * Maximum flow 0.016 c.m/sec" 211 Hydrograph volume 159,111 c.m* 212 0.137 0.137 0.016 0.016* 213 * 40 HYDRORAPH Start - New Tributary" 0.016* 214 2 Start - New Tributary" 0.016* 216 33 CATCHMENT 203* 0.016 217 1 Triangular SCS* 0.137 0.000 218 1 Equal Length" 1 25.000 % Impervious" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 0.352 Total Area* 222 0.352 Total Area* 223 120.000 Flow length* 224 2.000 Overland Slope* 225 0.352 Total Area* 226 120.000 Impervious SCS Curve No.* 231 0.250 Pervious SCS Curve No.* 232 0.010 Impervious SCS Curve No.* 233 0.156 Pervious SCHicient*	208		2 Node #"
210 * Maximum flow 0.016 c.m/sec* 211 * 0.137 0.016 0.016* 212 0.137 0.016 0.016* 213 *40 HYDROGRAPH Start - New Tributary* 214 * 2 Start - New Tributary* 215 0.137 0.000 0.016 216 *33 CATCHMENT 203* 217 * 1 Triangular SCS* 218 * 1 Equal length* 219 1 SCS method* 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 211 *25.000 % Impervious* 222 0.352 Total Area* 223 120.000 Flow length* 224 2.000 Overland Slope* 225 0.264 Pervious Area* 226 120.000 Impervious length* 227 2.000 Pervious Slope* 231 0.056 Pervious Runoff coefficient* 239 120.000 Impervious Initial abstraction* 241 0.101 Impervious SCCurve No.* 235 8.67 Pervious SCurve No.* 236 0.618 Impervious Init	209		Total to Highway 6"
211 Hydrograph volume 159.111 c.m** 212 0.137 0.016 0.016* 213 40 HYDRORAPH Start - New Tributary" 214 2 Start - New Tributary" 215 0.137 0.000 0.016 216 33 CATCHMENT 203* 217 1 Triangular SCS* 218 1 Equal length* 219 1 SCS method* 220 0.352 Total Area* 223 120.000 Flow length* 224 2.000 Verious length* 225 0.264 Pervious slope* 226 120.000 Pervious slope* 227 2.000 Impervious slope* 228 0.088 Impervious Slope* 229 120.000 Impervious Slope* 231 0.250 Pervious Slope* 232 0.500 Pervious Slope* 233 0.156 Pervious Slope* 234 0.100 Impervious Slope* 235 8.467 Pervious Slope*	210		Maximum flow 0.016 c.m/sec"
212 * 0.1137 0.016 0.016" 213 * 40 HYDROGRAPH Start - New Tributary" 214 * 2 Start - New Tributary" 215 0.137 0.000 0.016 0.016" 216 * 33 CATCHMENT 203" 217 * 1 Triangular SCS" 218 1 Equal length" 219 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 2.5000 ¥ Impervious" 222 0.352 Total Area" 223 120.000 Pervious length" 224 2.000 Pervious Slope" 225 0.264 Pervious Anea" 226 120.000 Impervious Rea" 229 120.000 Impervious Rea" 231 0.250 Pervious Anea" 232 75.000 Peruious Slope" 233 0.155 Pervious Sunoff coefficient" 234 0.100 Impervious Scancervo." 235 8.467 Pervious Initial a	211		Hydrograph volume 159.111 c.m"
213 * 40 HYDROGRAPH start - New Tributary" 214 2 Start - New Tributary" 215 0.137 0.000 0.016 0.016" 216 33 CATCHMENT 203" 1 Triangular SCS" 218 1 Equal length" 219 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 2.0.352 Total Area" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Area" 226 120.000 Impervious length" 227 2.000 Impervious Slope" 28 0.088 Impervious Slope" 218 0.000 Impervious Slope" 229 120.000 Impervious Slope" 231 0.250 Pervious SCS Curve No." 233 0.156 Pervious SCS Curve No." 234 0.100 Impervious SCS Curve No." 235 8.467 Pervious SCS Curve No." 236 0.031 Imper	212		0.137 0.137 0.016 0.016"
214 2 Start - New Tributary" 215 0.137 0.000 0.016 216 33 CATCHMENT 203" 217 1 Triangular SCS" 218 1 Equal length" 219 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 2.5.000 % Impervious" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Read" 226 120.000 Pervious length" 227 2.000 Impervious length" 228 0.088 Impervious Slope" 231 0.250 Pervious Runoff coefficient" 233 0.156 Pervious Runoff coefficient" 234 0.001 Impervious SCS Curve No." 235 0.015 Impervious SCS Curve No." 236 0.015 Impervious Runoff coefficient" 237 98.000 Impervious SC Curve No." 238 0.	213	" 4	0 HYDROGRAPH Start - New Tributary"
215 * 0.137 0.000 0.016 0.016* 216 * 33 CATCHMENT 203* 217 * 1 Triangular SCS* 218 * 1 Equal length* 219 * 1 SCS method* 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 2.0352 Total Area* 222 0.352 Total Area* 223 120.000 Pervious Slope* 224 2.000 Overland Slope* 225 0.264 Pervious length* 226 120.000 Impervious length* 227 2.000 Pervious Slope* 238 0.088 Impervious length* 239 120.000 Impervious Slope* 231 0.250 Pervious Scure No.* 233 0.156 Pervious SCurve No.* 233 0.156 Pervious Scure No.* 234 0.001 Impervious Scure No.* 235 8.467 Pervious Scure No.* 236 0.018 0.0016 <td>214</td> <td></td> <td>2 Start - New Tributary"</td>	214		2 Start - New Tributary"
216 * 33 CATCHMENT 203" 217 * 1 Triangular SCS" 218 1 Equal length" 219 * 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 20.352 Total Area" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious langth" 226 120.000 Pervious Area" 229 120.000 Impervious Area" 230 2.000 Impervious Slope" 231 0.250 Pervious Manfig 'n'' 232 75.000 Pervious Slopef' 233 0.156 Pervious SC Curve No." 234 0.100 Impervious Manfig 'n'' 235 8.467 Pervious Coefficient" 236 0.015 Impervious Runoff coefficient" 237 98.000 Impervious Runoff coefficient" 238 0.610 Impervious Runoff coefficient"	215		0.137 0.000 0.016 0.016"
217 * 1 Triangular SCS* 218 * 1 Equal length* 219 1 SCS method* 220 * 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 * 250.000 % Impervious* * 222 0.352 Total Area* 223 120.000 Flow length* * 224 2.000 Overland Slope* * 225 0.264 Pervious Area* 226 120.000 Empervious length* * 227 2.000 Impervious Slope* * 238 0.088 Impervious Slope* * 230 2.000 Impervious Slope* * 231 0.155 Pervious Suoff coefficient* * 233 0.156 Pervious Slopef coefficient* * 234 0.100 Pervious SC Curve No.* * 235 8.467 Pervious Manning 'n'* * 236 0.015 Impervious Manning 'n'* * 237 0.839 Impervious Runoff coefficient* * 238 0.839 Impervious Runoff coefficient* * 239 <t< td=""><td>216</td><td>" 3</td><td>3 CATCHMENT 203"</td></t<>	216	" 3	3 CATCHMENT 203"
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219 * 1 SCS method" 220 * 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 * 25.000 % Impervious" 222 * 0.352 Total Area" 223 * 120.000 Flow length" 224 * 2.000 Overland Slope" 225 * 0.264 Pervious Area" 226 * 120.000 Pervious length" 227 2.000 Impervious slope"	218		1 Equal length"
220 * 201 * Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 * 252 Total Area" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Area" 226 120.000 Pervious length" 227 2.000 Impervious length" 228 0.088 Impervious length" 229 120.000 Impervious Slope" 230 2.500 Pervious Nunff coefficient" 231 0.250 Pervious SCS Curve No." 233 0.156 Pervious Sunoff coefficient" 234 0.100 Pervious SCS Curve No." 235 8.467 Pervious Maning 'n'" 236 0.015 Impervious SCS Curve No." 237 98.000 Impervious SCS Curve No." 238 0.639 Impervious SCS Curve No." 239 0.100 Impervious Total Area " 240 0.518 Impervious Cotal Area " 241 Catchment 20	219		1 SCS method"
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223 " 120.000 Flow length" 224 " 2.000 Overland Slope" 225 0.264 Pervious Area" 226 120.000 Pervious length" 227 2.000 Pervious Slope" 228 0.088 Impervious Slope" 229 120.000 Impervious Slope" 231 0.250 Pervious Maning 'n'" 232 " 75.000 Pervious SCS Curve No." 233 0.156 Pervious Supf coefficient" 234 0.100 Pervious Maning 'n'" 235 8.467 Pervious Maning 'n'" 236 0.015 Impervious SCS Curve No." 238 0.100 Impervious SCS Curve No." 238 0.639 Impervious SCS Curve No." 240 0.518 Impervious SCS Curve No." 241 0.018 0.000 0.016 0.016 c.m/sec" 242 Catchment 203 Pervious Impervious Tumpervious Total Area " 243 Surface Area 0.264 0.088 0.352 hectare" 244 Time of conc	222		0.352 Total Area"
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230 " 2.000 Impervious slope" 231 " 0.250 Pervious Manning 'n'" 232 " 75.000 Pervious SCS Curve No." 233 " 0.156 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.839 Impervious SCS Curve No." 239 " 0.1016 Impervious Ta/S coefficient" 240 " 0.618 0.000 0.016 0.016 c.m/sec" 241 " 0.018 0.000 0.016 0.016 c.m/sec" 244 " Catchment 203 Pervious Impervious Total Area " 244 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 62.596 4.918 25.535 minutes" 245 " Time to Centroid 189.486	229		120.000 Impervious length"
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233 " 75.000 Pervious SCS Curve No." 233 " 0.156 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious SCS Curve No." 238 " 0.839 Impervious Runoff coefficient" 239 " 0.100 Impervious Initial abstraction" 241 " 0.018 0.000 0.016 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 62.596 4.918 25.535 minutes" 244 " Time to Centroid 189.486 98.108 130.770 minutes" 244 " Time to Centroid 189.486 98.108 130.51 c.m" 244 " Rainfall depth 31.396 and" 31.396 mm" 244 " Rainfall losses <td>231</td> <td></td> <td>0.250 Pervious Manning 'n'"</td>	231		0.250 Pervious Manning 'n'"
233 " 0.156 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Initial abstraction" 236 " 0.015 Impervious SCS Curve No." 237 " 98.000 Impervious SCS Curve No." 238 " 0.839 Impervious SCS Curve No." 239 0.100 Impervious Sco Cofficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.018 0.000 0.016 c.m/sec" 244 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 62.596 4.918 25.535 minutes" 245 " Time to Centroid 189.486 98.108 130.770 minutes" 245 " Rainfall depth 31.396 31.396 mm" 247 " Rainfall losses 26.510 5.049 21.145 mm"	232	"	75.000 Pervious SCS Curve No."
234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Maning 'n'' 236 " 0.015 Impervious Manning 'n'' 237 " 98.000 Impervious SCS Curve No." 238 " 0.839 Impervious Coefficient" 239 " 0.100 Impervious Ta/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.018 0.000 0.016 0.016 c.m/sec" 244 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 62.596 4.918 25.535 minutes" 245 " Time to Centroid 189.486 98.108 130.770 minutes" 245 " Time to Centroid 189.485 98.108 13.966 mm" 247 " Rainfall depth 31.396 31.396 mm" 248 " Rainfall losses 26.510	233	"	0.156 Pervious Runoff coefficient"
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243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 62.596 4.918 25.535 minutes" 245 " Time to Centroid 189.486 98.108 130.770 minutes" 246 " Rainfall depth 31.396 31.396 mm" 247 " Rainfall volume 82.88 27.63 110.51 c.m" 248 " Rainfall losses 26.510 5.049 21.145 mm" 249 " Runoff depth 4.885 26.347 10.251 mm" 250 " Runoff coefficient 0.156 0.839 0.326 " 251 " Runoff coefficient 0.156 0.839 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " * * 255 " 0.018 0.016 0.016" * 256 " 57 TRENCH Design d/s of 203" * *	241		Cataburg 202 Devicing Impervious Tetal Area "
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246 " Rainfall depth 31.396 31.396 31.396 mm" 247 " Rainfall volume 82.88 27.63 110.51 c.m" 248 " Rainfall losses 26.510 5.049 21.145 mm" 249 " Runoff depth 4.885 26.347 10.251 mm" 250 " Runoff volume 1.290 23.19 36.08 c.m" 251 " Runoff coefficient 0.156 0.839 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " 254 " 4 Add Runoff " 255 " 0.018 0.016 0.016" " 256 " 57 TRENCH Design d/s of 203" "	245		Time to Centroid 189 486 98 108 130 770 minutes
247 " Rainfall volume 82.88 27.63 110.51 c.m" 248 " Rainfall losses 26.510 5.049 21.145 mm" 249 " Runoff depth 4.885 26.347 10.251 mm" 250 " Runoff volume 12.90 23.19 36.08 c.m" 251 " Runoff coefficient 0.156 0.839 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " 255 0.018 0.016 0.016" 255 " 0.018 0.016 0.016" 255 57	246		Rainfall depth 31,396 31 396 31 396 mm"
248 " Rainfall losses 26.510 5.049 21.145 mm" 249 " Runoff depth 4.885 26.347 10.251 mm" 250 " Runoff volume 12.90 23.19 36.08 c.m" 251 " Runoff coefficient 0.156 0.839 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " 255 " 0.018 0.016 0.016" 255 " 0.018 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203"	247		Rainfall volume 82.88 27.63 110.51 c.m"
249 "Runoff depth 4.885 26.347 10.251 mm" 250 "Runoff depth 4.885 26.347 10.251 mm" 251 "Runoff coefficient 0.156 0.839 0.326 " 251 "Runoff coefficient 0.156 0.839 0.326 " 252 "Maximum flow 0.001 0.018 0.018 c.m/sec" 253 "40 HYDROGRAPH Add Runoff " 254 - 4 Add Runoff " 255 "0.018 0.016 0.016" - - 256 "57 TRENCH Design d/s of 203" - -	248		Rainfall losses 26.510 5.049 21.145 mm"
250 " Runoff volume 12.90 23.19 36.08 c.m" 251 " Runoff coefficient 0.156 0.839 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " 254 " 4 Add Runoff " 255 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203" 57 TRENCH Design d/s of 203" 57	249		Runoff depth 4.885 26.347 10.251 mm"
251 " Runoff coefficient 0.156 0.639 0.326 " 252 " Maximum flow 0.001 0.018 0.018 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " 254 " 4 Add Runoff " 255 " 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203"	250		Runoff volume 12.90 23.19 36.08 c.m"
252 "Maximum flow 0.001 0.018 0.018 c.m/sec" 253 "40 HYDROGRAPH Add Runoff " -	251		Runoff coefficient 0.156 0.839 0.326 "
253 " 40 HYDROGRAPH Add Runoff " 254 " 4 Add Runoff " 255 " 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203" 0.016"	252		Maximum flow 0.001 0.018 0.018 c.m/sec"
254 " 4 Add Runoff " 255 " 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203"	253	" 4	0 HYDROGRAPH Add Runoff "
255 " 0.018 0.016 0.016" 256 " 57 TRENCH Design d/s of 203"	254		4 Add Runoff "
256 " 57 TRENCH Design d/s of 203"	255		0.018 0.018 0.016 0.016"
	256	" 5	7 TRENCH Design d/s of 203"

257	"	0.018	Peak inf	low"				
258		36.082	Hydrogra	ph volum	e"			
259		424.500	Ground e	levation	"			
260		423.500	Downstre	am trenci	h invert"			
261		0.500	Trench h	eight"				
262		422.500	Water ta	ble elev	ation"			
263		3.500	Trench t	op width				
264		3,500	Trench b	ottom wi	dth"			
265		40.000	Voids ra	tio (%)"				
266		20 000	Hydrauli	c conduc	tivitv"			
267		0 000	Trench o	radient	(%)"			
268		130 000	Trench 1	ength	(•)			
200		1 000	Include	bago wid	+h"			
209		1.000	Number	f atagoa	"			
270		Δ±.	Torrol	Diggbarg		mo "		
271			122 E00	Discharg				
272			423.500	0.00		1.0"		
273			423.550	0.00	0 9			
274			423.600	0.00	0 18	5.2"		
275			423.650	0.00	0 27	. 3 "		
276			423.700	0.00	0 36	.4"		
277			423.750	0.00	0 45	.5"		
278	"		423.800	0.00	0 54	.6"		
279	"		423.850	0.00	0 63	5.7"		
280	"		423.900	0.00	0 72	2.8"		
281			423.950	0.00	0 81	.9"		
282	"		424.000	0.01	7 91	.0"		
283			424.050	0.04	9 91	.1"		
284			424.100	0.08	9 91	1"		
285			424.150	0.13	7 91			
286			424.200	0.19	2 91			
287			424.250	0.25	2 91	.3"		
288	н		424.300	0.31	8 91	.3"		
280	н		424.350	0.38	8 91	. 4 "		
202								
290			424.400	0.46	3 91	.5"		
290 291	"		424.400 424.450	0.46 0.54	3 91 3 91	5"		
290 291 292	" "		424.400 424.450 424.500	0.46 0.54 0.62	3 91 3 91 6 91	5"		
290 291 292 293		1.	424.400 424.450 424.500 WEIRS"	0.46 0.54 0.62	3 91 3 91 6 91	5" 5" 6"		
290 291 292 293 294		1.	424.400 424.450 424.500 WEIRS" Crest	0.46 0.54 0.62 Wei:	3 91 3 91 6 91 r Cre	5" 6"	Left Right	
290 291 292 293 294 295		1. e	424.400 424.450 424.500 WEIRS" Crest	0.46 0.54 0.62 Wei:	3 91 3 91 6 91 r Cre e bread	5" 5" 6" est	Left Right	- "
290 291 292 293 294 295 296		1. e	424.400 424.450 424.500 WEIRS" Crest levation 423.950	0.46 0.54 0.62 Wei: coeffici	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est lth sides	Left Right slope sideslope	- "
290 291 292 293 294 295 296 297		1. e: 1.	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE"	0.46 0.54 0.62 Wei: coeffici 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est With sides	Left Right slope sideslope 0.000 0.000	= " = ") "
290 291 292 293 294 295 296 297 298		1. e: 1.	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE"	0.46 0.54 0.62 Wei: coeffici 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est 1th sides	Left Right slope sideslope 0.000 0.000	- " - ") "
290 291 292 293 294 295 296 297 298 299		1. e: 1.	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access"	0.46 0.54 0.62 Wei coeffici	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est ath sides	Left Right slope sideslope 0.000 0.000	2"
290 291 292 293 294 295 296 297 298 299 300		1. e. 1.	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200"	0.46 0.54 0.62 Wei coeffici 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est dth sides	Left Right Slope sideslope 0.000 0.000	- " - " - "
290 291 292 293 294 295 296 297 298 299 300 301		1. e: 1.	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200"	0.46 0.54 0.62 Wei: coeffici. 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est thh sides 000 (Left Right slope sideslope 0.000 0.000	; " 2 ") "
209 290 291 292 293 294 295 296 297 298 299 300 301 202		1. e: 1. Pe;	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflc	0.46 0.54 0.62 Wei: coeffici. 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est lth sides 000 (0	Left Right slope sideslope 0.000 0.000 c.m/sec"	:" 2") "
290 290 291 292 293 294 295 296 297 298 299 300 301 302 202		1. e: 1. Pea Oui	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol	0.46 0.54 0.62 Wei: coeffici 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est Uth sides 000 (0 0.000 0.001	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m"	- " - " - "
200 290 291 292 293 294 295 296 297 298 299 300 301 302 303		1. e: 1. Pe; Ou Pe; Te:	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt	0.46 0.54 0.62 Wei: coefficion 0.90	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est hth sides 000 (0 0.000 0.001 0.003	Left Right Slope sideslope 0.000 0.000 c.m/sec" c.m" c.m/sec" c.m/sec")"
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304		1. e: 1. Pea Our Pea Ex:	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow vol ak exfilt filtratic	0.46 0.54 0.62 Wei: coeffici 0.90 ww ume ration n volume	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 5" 6" est tth sides 000 (0 0.000 0.001 0.003 36.070	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m/sec" c.m"	_ " _ ") "
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305		1. e: 1. Pea Our Pea Ex: Ma:	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev	0.46 0.54 0.62 Wei coeffici 0.90 ww ume ration n volume el	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 6" est th sides 000 (0.000 0.001 0.003 36.070 423.571	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" metre" "	
2090 2991 2992 2993 2994 2995 2996 2997 2998 2999 3000 301 3002 3003 3004 3005 3065 3067		1. e: 1. Pea Our Pea Ex: Mai Mai	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev	0.46 0.54 0.62 Wei coeffici 0.90 w ume ration .n volume el prage	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 6" sst 0.000 0.001 0.003 36.070 423.571 12.943	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m" metre" c.m"	
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307		1. e: 1. Pe: Ou Pe: Ex: Ma: Ma: Cei	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt filtratic filtratic cximum lev ximum sto ntroidal	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume el rage lag	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 6" sst 0.000 0.001 0.003 36.070 423.571 12.943 3.302	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours"	
2090 2991 2922 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308		1. e: 1. Pea Our Pea Ex: Ma: Cei In:	424.400 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol filtratic ximum lev ximum sto ntroidal filtratic	0.46 0.54 0.62 Wei: coeffici 0.90 ww uume ration m volume rel rrage lag un area 2	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 6" est ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre"	:" ; ;
2090 2991 2992 2994 2995 2996 2997 2998 2999 3000 3011 3022 3003 3004 3005 3004 3005 3006 3007 3008 3099		1. e: 1. Pee Ou: Pee Ex: Ma: Cei In: In:	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow vol ak exfilt filtratic ntroidal filtratic filtratic	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume rel rage lag n area 2 m Base a:	3 91 3 91 6 91 r Cre e bread 0 1.0	5" 6" st ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m" metre" c.m" hours" sq.metre"	
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310		1. e: 1. Pe; Ou Pe; Ex; Ma: Ce; In: In:	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflc tflow vol ak exfilt filtratic ximum lev ximum sto ntroidal filtratic filtratic	0.46 0.54 0.62 Wei: coeffici: 0.90 w ume ration on volume rel brage lag on area 2 on Base a: 0.01	3 91 3 91 6 91 r Cre e bread 0 1.0 sides rea 8 0.0	5" 6" st ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m"sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec"	
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311		1. e: 1.	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ontroidal filtratic 0.018 DROGRAPH	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume el rage lag n area 2 m Base a 0.01 Combin	sides rea 8 0.0 e 2"	5" 6" sst th sides 000 (0 0.001 0.003 36.070 12.943 3.302 18.488 455.000 (0	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m/sec" c.m" hours" sq.metre" sq.metre" sq.metre"	- " - " - "
2090 2991 2992 2994 2995 2996 2997 2998 2999 3000 301 3002 3003 3004 3005 3004 3005 3007 3008 3009 3100 3111 312		1. e: 1. 000 Pea Our Pea Ex: Ma: Ma: Cei In: In: 1. 40 HYI 6	424.400 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt filtratic ximum sto filtratic filtratic filtratic filtratic filtratic 0.018 DROGRAPH Combine	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume rel rage lag n area 2 m Base a 0.01 Combin "	3 91 3 91 6 91 r Cre e bread 0 1.0 0 1.0 sides rea 8 0.0 e 2"	5" 6" sst ith sides 000 (0 0.000 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 (0	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec"	- " - " - "
2990 2991 2992 2994 2995 2996 2997 2998 2999 3000 3001 3002 3003 3004 3005 3006 3007 3008 3009 3100 3111 3112 313		1. e: 1. 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	424.400 424.450 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow vol ak outflot tflow vol ak exfilt filtratic ntroidal filtratic 0.018 DROGRAPH Combine Node #"	0.46 0.54 0.62 Wei: coeffici. 0.90 wume ration on volume rel ragge lag on area 2 on Base a: 0.01 Combin "	3 91 3 91 6 91 r Cre e bread 0 1.0 sides rea 8 0.0 e 2"	5" 6" st ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 00 (0	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.msec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec"	_ " _ " _) "
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314		1. e: 1. 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic filtratic filtratic filtratic 0.018 DROGRAPH Node #" Total to	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration on volume rel orage lag on area 2 n Base a 0.01 Combin "	3 91 3 91 6 91 r Cre e bread 0 1.0 0 1.0 sides rea 8 0.0 e 2" 6"	5" 6" sst (00 0 0 0.000 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 0	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m"sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec"	_ " _ ") "
2090 2991 2992 2994 2995 2996 2997 2998 2999 3000 301 3002 3003 3004 3005 3006 3007 3088 309 3100 3111 3122 3133 3144 315		1. e: 1. 1. 0u Pea Ex: Ma: Ma: Ma: 40 HYI 6 2 Ma:	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol filtratic ximum lev ximum sto ntroidal filtratic 0.018 DROGRAPH Combine Node #" Total to ximum flo	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume rel rage lag n area 2 0.01 Combin "	3 91 3 91 6 91 r Cre e bread 0 1.0 sides rea 8 0.0 e 2" 6"	5" 6" est ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 000 (0 0.016	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec"	- " - ") "
290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 311 312 313 314		1. e: 1. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow vol ak exfilt filtratic filtratic filtratic filtratic DROGRAPH Combine Node #" Total to drograph	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume rel rage lag n area 2 on Base a 0.01 Combin "	3 91 3 91 6 91 r Cre e bread 0 1.0 0 1.0 sides rea 8 0.0 e 2"	5" 6" 6" st ith sides 000 (0 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 00 (0 0.016 159.112	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec" c.m/sec" c.m"	- " - " - " - "
290 291 292 293 294 295 296 297 298 299 300 301 302 303 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317		1. e: 1. 9e: 0u: Pe: Pe: 0u: Pe: Pe: 0u: Pe: Pe: 0u: Pe: Pe: 0u: Pe: Pe: 0u: Pe: Pe: 0u: Pe: Pe: Pe: Pe: Pe: Pe: Pe: Pe: Pe: Pe	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak outflo tflow vol tflow vol ak outflo tflow vol tflow vo	0.46 0.54 0.62 Wei: coeffici: 0.90 w ume ration on volume el rrage lag on Base a: 0.01 Combin: " Highway w volume 18 0	3 91 3 91 6 91 r Cre e bread 0 1.0 0 1.0 e 2" 6" .018	5" 6" st ith sides 000 (0 0.000 0.001 0.003 36.070 423.571 12.943 36.302 8.488 455.000 000 (0 0.016 159.112 0.000	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec" c.m" 0.016"	
2090 2991 2992 2994 2995 2996 2997 2998 2999 3000 301 3002 3003 3004 3005 3006 3007 3008 3009 3010 3111 3122 3133 314 315 316 317 318		1. e: 1. 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev ximum sto ntroidal filtratic 0.018 DROGRAPH Combine Node #" Total to ximum flo 0.00 DROGRAPH	0.46 0.54 0.62 Wei: coeffici 0.90 w w ume ration n volume rage lag n Base a 0.01 Combin " Highway w volume 18 0 Start - 1	3 91 3 91 6 91 r Cre e bread 0 1.0 1.0 8 0.0 e 2" 6" .018 New Tribu	5" 6" sst th sides 000 (0 0.000 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 (0 0.016 159.112 0.000 ttary"	Left Right Slope sideslope 0.000 0.000 c.m/sec" c.m" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec" c.m" 0.016"	
2090 2991 2992 2994 2995 2996 2997 2998 2999 3000 3011 3002 3003 3004 3005 3006 3007 308 309 3100 3111 3122 3133 314 315 316 317 318 319		1. e: 1. 000 Pea Ou: Pea Ex: Ma: Cei In: In: 100 40 HYI 62 2 Ma: Hyu 40 HYI 2	424.400 424.450 424.500 WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak outflo tflow vol filtratic ximum lev ximum sto filtratic filtratic filtratic filtratic filtratic filtratic 0.018 DROGRAPH Total to ximum flo drograph 0.00 DROGRAPH Start -	0.46 0.54 0.62 Wei: coeffici 0.90 w ume ration n volume rel rage lag n area 2 m Base a 0.01 Combin " Highway w volume 18 0 Start - 1 New Trib	sides rea 8 0.0 e 2" 6" .018 New Tribu	5" 6" st ith sides 000 (0 0.000 0.001 0.003 36.070 423.571 12.943 3.302 18.488 455.000 000 (0 0.016 159.112 0.000 itary"	Left Right slope sideslope 0.000 0.000 c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.003 c.m/sec" c.m" 0.016"	- " - ") "

321		22	CATCHMENT 204"					
300		55	1 Triangular SCS"					
322			1 Equal length"					
324			1 SCS method"					
325			204 Uncontrolled to Hi	ahway 6				
326			0 000 & Impervious"	giiway U				
327			0.049 Total Area"					
220			20 000 Flow longth					
220			20.000 Filow Tengen					
220			2.000 Overland Stope					
221			20.000 Derwieug length"					
222			20.000 Pervious length					
332			2.000 Pervious slope"					
224			20.000 Impervious Area"					
225			20.000 Impervious rengul					
335			2.000 Impervious slope"					
330			0.250 Pervious Manning .	n•"				
337			75.000 Pervious SCS Curve	NO."				
338			0.156 Pervious Runoff co	efficie	nt"			
339			0.100 Pervious Ia/S coet	ficient				
340			8.467 Pervious Initial a	bstract:	ion"			
341			0.015 Impervious Manning	n"				
342	"		98.000 Impervious SCS Cur	ve No."				
343	"		0.000 Impervious Runoff	coeffic:	ient"			
344			0.100 Impervious Ia/S co	efficie	nt"			
345	"		0.518 Impervious Initial	. abstra	ction"			
346	"		0.001 0.0	00	0.000	0.016 c	c.m/sec"	
347	"		Catchment 204	Pervi	ous	Impervious	Total Area	"
348			Surface Area	0.049		0.000	0.049	hectare"
349			Time of concentration	ı 21.36	3	1.678	21.363	minutes"
350			Time to Centroid	136.0	32	92.661	136.032	minutes"
351			Rainfall depth	31.39	6	31.396	31.396	mm "
352			Rainfall volume	15.38		0.00	15.38	c.m"
353			Rainfall losses	26.51	3	5.389	26.513	mm "
354			Runoff depth	4.883		26.006	4.883	mm "
355			Runoff volume	2.39		0.00	2.39	c.m"
356			Runoff coefficient	0.156		0.000	0.156	"
357			Maximum flow	0.001		0.000	0.001	c.m/sec"
358		40	HYDROGRAPH Add Runoff	"				
359			4 Add Runoff "					
360			0.001 0.0	01	0.000	0.016"		
361		40	HYDROGRAPH Copy to Ou	utflow"				
362			8 Copy to Outflow"					
363			0.001 0.0	01	0.001	0.016"		
364		40	HYDROGRAPH Combine	2 "				
365			6 Combine "					
366			2 Node #"					
367			Total to Highway 6	; "				
368			Maximum flow		0.01	6 c.m/se	ec.	
369			Hydrograph volume		161.50	5 c.m"		
370			0.001 0.0	01	0.001	0.016"		
371		40	HYDROGRAPH Confluer	ice 2				
372			7 Confluence "					
373			2 Node #"					
374			Total to Highway 6	; "				
375			Maximum flow		0.01	6 c.m/se	ec"	
376			Hydrograph volume		161.50	5 c.m"		
377			0.001 0.0	16	0.001	0.000"		
378		40	HYDROGRAPH Copy to Ou	utflow"				
379			8 Copy to Outflow"					
380			0.001 0.0	16	0.016	0.000"		
381		40	HYDROGRAPH Combine	1"				
382			6 Combine "					
383			1 Node #"					
384			Total Site"					

385		Maximum flow	0.016	c.m/sec"	
386		Hydrograph volume	161.507	c.m"	
387		0.001 0.016	0.016	0.016"	
388	 40	HYDROGRAPH Confluence	1"		
389		7 Confluence "			
390		1 Node #"			
391		Total Site"			
392		Maximum flow	0.016	c.m/sec"	
393		Hydrograph volume	161.507	c.m"	
394		0.001 0.016	0.016	0.000"	
395	 38	START/RE-START TOTALS 1"			
396		3 Runoff Totals on EXIT"			
397		Total Catchment area		1.402	hectare"
398		Total Impervious area		0.793	hectare"
399		Total % impervious		56.573"	
400	 19	EXIT"			
401					

5yr Post

1	"	MIDUSS Output		>"	65	" 57	TRE	ENCH Desig	n d/s of 2	01"		
2		MIDUSS version	Version 2.25	rev. 473"	66		0.043	Peak infl	ow"			
3		MIDUSS created	Sunday, Februa	ry 7, 2010"	67		54.978	Hydrograp	h volume"			
4		10 Units used:		ie METRIC"	68	"	424.500	Ground el	evation"			
5		Job folder:	Q:\486	50\100\SWM"	69		423.500	Downstream	m trench i	nvert"		
б		Output filename:	5γ	r post.Out"	70	"	0.500	Trench he	ight"			
7		Licensee name:		Α"	71	"	422.500	Water tab	le elevati	on"		
8		Company			72		3.500	Trench to	p width"			
9		Date & Time last used:	5/10/2022 at 1	0:34:16 AM"	73		3.500	Trench bo	ttom width	"		
10	" 31	TIME PARAMETERS"			74		40.000	Voids rat	io (%)"			
11		5.000 Time Step"			75		20.000	Hydraulic	conductiv	ity"		
12		180.000 Max. Storm length"			76		0.000	Trench gr	adient (%)	"		
13		1500.000 Max. Hydrograph"			77		85.000	Trench le	ngth"			
14	" 32	STORM Chicago storm"			78		1.000	Include b	ase width"			
15		1 Chicago storm"			79		21.	Number of	stages"			
16		500.000 Coefficient A"			80			Level D	ischarge	Volume"		
17		0.240 Constant B"			81			423.500	0.000	0.0"		
18		0.688 Exponent C"			82			423.550	0.000	5.9"		
19		0.400 Fraction R"			83			423.600	0.000	11.9"		
20		180.000 Duration"			84			423.650	0.000	17.8"		
21		1.000 Time step multiplier"			85			423.700	0.000	23.8"		
22		Maximum intensity 160.00	61 mm/hr"		86			423.750	0.000	29.8"		
23		Total depth 42.14	45 mm"		87			423,800	0.000	35.7"		
24		6 005hyd Hydrograph extension u	used in this file"		88			423.850	0.000	41.7"		
25	" 33	CATCHMENT 201"			89			423,900	0.000	47.6"		
26		1 Triangular SCS"			90			423,950	0.000	53.6"		
27		1 Equal length"			91			424,000	1.458	59.5"		
28		1 SCS method"			92			424.050	4,123	59.6"		
2.9		201 Uncontrolled to Southwest Prope	erty Line"		93			424.100	7.577	59.6"		
30		55.000 % Impervious"			94			424.150	11.664	59.7"		
31		0.228 Total Area"			95			424,200	16.303	59.7"		
32		15.000 Flow length"			96			424,250	21,430	59.8"		
33		2.000 Overland Slope"			97			424.300	27.003	59.8"		
34		0.103 Pervious Area"			98			424.350	32,994	59.9"		
35		15 000 Pervious length"			9.9			424 400	39 369	60 0"		
36		2.000 Pervious slope"			100			424.450	46.112	60.0"		
37		0.125 Impervious Area"			101			424.500	53.197	60.1"		
38		15.000 Impervious length"			102		1.	WEIRS"				
39		2 000 Impervious slope"			103			Crest	Weir	Crest	Left	Right"
40		0.250 Pervious Manning 'n'"			104		e	levation c	oefficie	breadth sid	leslope	sideslope"
41		75.000 Pervious SCS Curve No."			105			423.950	0.900	85.000	0.000	0.000"
42		0 227 Pervious Runoff coefficient"			106		1	MANHOLE "				
43		0.100 Pervious Ta/S coefficient"			107			Access"				
44		8.467 Pervious Initial abstraction"			108		ć	liameter"				
45		0.015 Impervious Manning 'n'"			109		-	1.200"				
46		98.000 Impervious SCS Curve No."			110		Pea	ak outflow		0.0)0 c.	m/sec"
47		0.855 Impervious Runoff coefficient"			111		Out	flow volu	me	0.0)3 c.	.m"
48		0.100 Impervious Ia/S coefficient"			112		Pea	ak exfiltr	ation	0.0)2 c.	m/sec"
49		0.518 Impervious Initial abstraction			113		Exf	filtration	volume	54.9	55 C.	.m "
50		0.043 0.000 0.000	0.000 c.m/sec"		114		Max	imum leve	1	423.8	l5 me	tre"
51		Catchment 201 Pervious	Impervious Total Area	"	115		Max	cimum stor	age	37.4	56 C.	.m"
52		Surface Area 0.103	0.125 0.228	hectare"	116		Cer	ntroidal la	aq	4.8	9 hou	irs"
53		Time of concentration 12,707	1.241 3.285	minutes"	117		Tnf	filtration	area 2 si	des 53.51	sa.n	etre"
54		Time to Centroid 122.816	91.016 96.684	minutes"	118		Tnf	filtration	Base area	297.5)0 sa.	metre"
55		Rainfall depth 42.145	42.145 42.145	mm "	119			0.043	0.043	0.000	0.002	c.m/sec"
56		Rainfall volume 43.24	52.85 96.09	c.m"	120	" 40	HYT	DROGRAPH	Combine	1"		
57		Rainfall losses 32.593	6.117 18.031	mm "	121		6	Combine "				
58		Runoff depth 9.552	36.027 24.113	mm "	122		1	Node #"				
59		Runoff volume 9.80	45.18 54.98	c.m"	123		-	Total Sit	e"			
60		Runoff coefficient 0.227	0.855 0.572		123		Мар	kimum flow	-	0.0	. 0	m/sec"
61		Maximum flow 0.003	0.042 0.043	c.m/sec"	125		Hve	drograph v	olume	0.0)3 c.	.m"
62	" 40	HYDROGRAPH Add Runoff "			126			0.04	3 0.04	3 0.000	0.0	00"
63		4 Add Runoff "			127	" 40	HYT	DROGRAPH S	tart - New	Tributary"		
64		0.043 0.043 0.000	0.000"		128		2	Start - N	ew Tributa	rv"		
							-			-		

129			0.043 0.0	00 0.000	0.000"		
130		33	CATCHMENT 202"	0.000	0.000		
131		55	1 Triangular SCS"				
132			1 Equal length"				
133			1 SCS method"				
134			202 Controlled Area to	Highway 6"			
135			75 000 & Impervious"	IIIgiiway 0			
126			0.772 Total Area"				
127			15 000 Eleveleneth				
120			15.000 Flow length"				
120			2.000 Overland Stope"				
140			0.193 Pervious Area"				
140			15.000 Pervious length"				
141			2.000 Pervious slope"				
142			0.580 Impervious Area"				
143			15.000 Impervious length"				
144			2.000 Impervious slope"				
145	"		0.250 Pervious Manning '	n ' "			
146	"		75.000 Pervious SCS Curve	No."			
147	"		0.227 Pervious Runoff co	efficient"			
148			0.100 Pervious Ia/S coef	ficient"			
149			8.467 Pervious Initial a	bstraction"			
150			0.015 Impervious Manning	'n'"			
151			98.000 Impervious SCS Cur	ve No."			
152			0.855 Impervious Runoff	coefficient"			
153			0.100 Impervious Ia/S co	efficient"			
154			0.518 Impervious Initial	abstraction			
155			0.196 0.0	00 0.000	0.000 (c.m/sec"	
156			Catchment 202	Pervious	Impervious	Total Area	"
157			Surface Area	0.193	0.580	0.773	hectare"
158			Time of concentration	12.707	1.241	2.172	minutes"
159			Time to Centroid	122.816	91.016	93.598	minutes"
160			Rainfall depth	42.145	42.145	42.145	mm "
161			Rainfall volume	81.44	244.33	325.78	c.m"
162			Rainfall losses	32.593	6.117	12.736	mm "
163			Runoff depth	9.552	36.027	29.408	mm "
164			Runoff volume	18.46	208.87	227.33	c.m"
165			Runoff coefficient	0.227	0.855	0.698	
166			Maximum flow	0.006	0.194	0.196	c.m/sec"
167		40	HYDROGRAPH Add Runoff	"			
168			4 Add Runoff "				
169			0 196 0 1	96 0.000	0 000"		
170		54	POND DESTGN"		0.000		
171			0 196 Current peak flow	c.m/sec"			
172			0 180 Target outflow	c.m/sec"			
173			227 3 Hydrograph volume	C.m"			
174			13 Number of stages"				
175			422 046 Minimum water leve	1 metre"			
176			424 050 Maximum water leve	1 metre"			
177			422 046 Starting water lev	el metre"			
178			422.040 Starting water iev	$1 - True \cdot 0$	- Falce"		
170			Level Discharge	Volume"	- raise		
100			122 046 0 000	0 000"			
101			422.040 0.000	1 010 05"			
101			422.550 0.00009	12 000			
183			422 800 0.01246	23 000"			
107			422.000 0.01526	£1.200"			
104			423.000 0.01520	110 000"			
100			423.200 0.01/31	107 100"			
107			423.500 0.01901	10/.100"			
100			423.000 0.02007	210.500"			
100			423.830 0.02113	220.000"			
100			423.880 0.02143	228.700"			
101			423.930 0.021/3	241.000" 264.000"			
191			423.980 0.02203	∠64.900" 264.000"			
T 9.5			424.050 0.05083	264.900"			

193		1 WRTPS"
194		Crest Weir Crest Left Bight"
195		elevation coefficie breadth sideslope sideslope"
196		
197		1 ORTFICES"
198		Orifice Orifice Orifice Number of
199		invert coefficie diameter orifices"
200		
201		Peak outflow 0.017 c.m/sec"
202		Maximum level 423.271 metre"
203		Maximum storage 114.407 c.m"
204		Centroidal lag 2.749 hours"
205		0.196 0.196 0.017 0.000 c.m/sec"
206	" 4	0 HYDROGRAPH Combine 2"
207		6 Combine "
208		2 Node #"
209		Total to Highway 6"
210		Maximum flow 0.017 c.m/sec"
211		Hydrograph volume 227.364 c.m"
212	"	0.196 0.196 0.017 0.017"
213	" 4	0 HYDROGRAPH Start - New Tributary"
214		2 Start - New Tributary"
215	"	0.196 0.000 0.017 0.017"
216	" 3	3 CATCHMENT 203"
217	"	1 Triangular SCS"
218	"	1 Equal length"
219	"	1 SCS method"
220	"	203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6"
221		25.000 % Impervious"
222		0.352 Total Area
223		120.000 Flow length"
224		2.000 Overland Slope"
225		0.264 Pervious Area"
220		2000 Pervious rength
227		2.000 Pervious Stope
220		120 000 Impervious Area
229		2 000 Impervious slope"
231		0.250 Pervious Manning 'n'"
232		75.000 Pervious SCS Curve No."
233		0.227 Pervious Runoff coefficient"
234		0 100 Pervious Ta/S coefficient"
235		8.467 Pervious Initial abstraction"
236		0.015 Impervious Manning 'n'"
237		98.000 Impervious SCS Curve No."
238		0.871 Impervious Runoff coefficient"
239		0.100 Impervious Ia/S coefficient"
240		0.518 Impervious Initial abstraction"
241		0.025 0.000 0.017 0.017 c.m/sec"
242		Catchment 203 Pervious Impervious Total Area "
243	"	Surface Area 0.264 0.088 0.352 hectare"
244	"	Time of concentration 44.247 4.321 21.854 minutes"
245		Time to Centroid 166.702 96.216 127.170 minutes"
246		Rainfall depth 42.145 42.145 42.145 mm"
247	"	Rainfall volume 111.26 37.09 148.35 c.m"
248		Rainfall losses 32.566 5.443 25.785 mm"
249		
050		Runoff depth 9.579 36.702 16.360 mm"
250		Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m"
250		Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m" Runoff coefficient 0.227 0.871 0.388 "
250 251 252		Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m" Runoff coefficient 0.227 0.871 0.388 " Maximum flow 0.004 0.024 0.025 c.m/sec"
250 251 252 253	" " " " 4	Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m" Runoff coefficient 0.227 0.871 0.388 " Maximum flow 0.004 0.024 0.025 c.m/sec" 0 HYDROGRAPH Add Runoff " "
250 251 252 253 254		Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m" Runoff coefficient 0.227 0.871 0.388 " Maximum flow 0.004 0.024 0.025 c.m/sec" 0 HYDROGRAPH Add Runoff " 4 Add Runoff 0.025 0.017
250 251 252 253 254 255	- 4	Runoff depth 9.579 36.702 16.360 mm" Runoff volume 25.29 32.30 57.59 c.m" Runoff coefficient 0.227 0.871 0.388 " Maximum flow 0.004 0.024 0.025 c.m/sec" 0 HYDROGRAPH Add Runoff " 4 Add Runoff " 0.025 0.025 0.017 0.017" 7 TEPEVEL Depsim d/a of 202"

257		0.025	Peak inflo	w"			
258		57.586	Hydrograph	n volume			
259		424.500	Ground ele	evation"			
260		423.500	Downstream	n trench	invert		
261		0.500	Trench hei	.ght "			
262		422.500	Water tabl	.e eleva	tion"		
263		3.500	Trench top	width"			
264	н	3.500	Trench bot	tom wid	th"		
265		40.000	Voids rati	.0 (%)"			
266		20.000	Hvdraulic	conduct	ivity"		
267	п	0.000	Trench gra	dient (8)" ⁻		
268		130.000	Trench ler	ath"	-,		
269		1.000	Include ba	se widt	h"		
270		21	Number of	stages"			
271			Level Di	scharge	Volu	ıme"	
272			423 500	0 000	1010	0 "	
272			423 550	0.000		2.0 2.1"	
273			422.50	0.000	10	2.2"	
275			423.000	0.000	2'	⊃.∠ 7 2"	
275			423.050	0.000	2	7.5 5.4 "	
270			423.700	0.000	30	5.4"	
277			423.750	0.000	40	5.5°	
278			423.800	0.000	54	1.0"	
279			423.850	0.000	0.	3.7"	
280			423.900	0.000	/.	2.8"	
281			423.950	0.000	8.	L.9"	
282			424.000	0.017	9.	L.0"	
283	"		424.050	0.049	91	1.1"	
284	"		424.100	0.089	91	1.1"	
285	"		424.150	0.137	91	1.2"	
286	"		424.200	0.192	91	1.2"	
287	"		424.250	0.252	91	1.3"	
288	"		424.300	0.318	91	1.3"	
289	"		424.350	0.388	91	1.4"	
290			424.400	0.463	91	L.5"	
291			424.450	0.543	91	1.5"	
292			424.500	0.626	91	L.6"	
293		1.	WEIRS"				
294			Crest	Weir	Cre	est	Left Right"
295		e	levation co	oefficie	bread	dth sides	lope sideslope"
296			423.950	0.900	1.0	000 0	.000 0.000"
297		1.	MANHOLE "				
298			Access"				
299			diameter"				
300			1.200"				
301		Pe	ak outflow			0.000	c.m/sec"
302	н	Ou	tflow volum	ne		0.002	c.m"
303	н	Pe	ak exfiltra	ation		0.003	c.m/sec"
304		Ex	filtration	volume		57.564	C.m"
305		Ma	ximum level			423 655	metre"
306		Ma	ximum stora	are		28 168	C.m"
307		Ce	ntroidal la	a		4 072	hours"
308		Tn	filtration	area 2	cidec	40 236	ag metre"
300		III	filtration	Bace ar	02 02	455 000	sq.metre"
310		111	0 025	0 025	Ca 0 (100 0	003 a m/sea"
311		40 ^{uv}	DROGRAPH	Combine	2"		
210		то пі с	Combine "	COMDINE	4		
312 312		0	Node #"				
214		2	Total to I	li abwarr	6.1		
314 31E			IULAI LO P	тдимау	0	0 017	a m/a"
315 316		Ma	ALMUM LLOW	1		U.U1/	c.m/sec"
510 217		Hy	urograph vo	o⊥ume	0.05	221.300	C.m.
31/ 210		10	0.025	o 0.	UZ5	0.000	U.U1/"
310 210		40 HY	DRUGRAPH St	art - N	ew Tribi	ulary"	
313		2	start - Ne	ew Tribu	tary"	0 000	0.018*
320			0.025	o 0.	000	υ.υυυ	U.U1/"

321	"	33	CATCHMENT	204"					
322			1 Triangu	lar SCS"					
323			1 Equal 1	ength"					
324			1 SCS met	:hod"					
325			204 Uncontr	colled to Hig	hway <mark>6</mark> "				
326			0.000 % Imper	vious"					
327			0.049 Total A	area"					
328			20.000 Flow le	ength"					
329			2.000 Overlar	nd Slope"					
330			0.049 Perviou	ıs Area"					
331			20.000 Perviou	ıs length"					
332			2.000 Perviou	ıs slope"					
333			0.000 Impervi	ous Area"					
334			20.000 Impervi	ous length".					
335			2.000 Impervi	ous slope"					
336			0.250 Perviou	ıs Manning 'n					
337			75.000 Perviou	is SCS Curve	No."				
338			0.227 Perviou	us Runoff coe	fficient"				
339			0.100 Perviou	us Ia/S coeff	icient"				
340	"		8.467 Perviou	s Initial ab	straction				
341	"		0.015 Impervi	ous Manning.	'n'"				
342	"		98.000 Impervi	ous SCS Curv	e No."				
343	"		0.000 Impervi	ous Runoff c	oefficien	t"			
344	"		0.100 Impervi	ous Ia/S coe	fficient"				
345	"		0.518 Impervi	ous Initial	abstractio	on"			
346	"		0.	002 0.00	0.00	00	0.017 c	.m/sec"	
347	"		Catchment	204	Pervious	I	mpervious	Total Area	
348	"		Surface Ar	rea .	0.049	0	0.000	0.049	hectare"
349	"		Time of co	ncentration	15.101	1	.475	15.100	minutes"
350			Time to Ce	entroid	126.125	9	91.467	126.125	minutes"
351	"		Rainfall c	lepth	42.145	4	2.145	42.145	mm "
352			Rainfall v	rolume	20.65	0	0.00	20.65	c.m"
353			Rainfall	osses	32.574	5	.830	32.574	mm "
354			Runoff der	oth	9.571	3	36.315	9.5/1	mm "
355			Runoff vol	ume	4.69	0	0.00	4.69	c.m"
356			RunoII COG	efficient	0.227	0	0.000	0.227	
357		4.0	Maximum II	.ow	0.002	0	1.000	0.002	c.m/sec"
350		40	HIDROGRAPH	Add Runoll					
359			4 Add Rur	10II " 0.00	2 0 0	0.0	0.017"		
261		40			2 0.00	00	0.017		
262		40	AIDROGRAPH	Outflow"	LIOW				
363			8 COPY CC	002 0 00	2 0 0	0.2	0 017"		
364		40	HYDROGRADH	Combine	2 0.0	02	0.017		
365		10	6 Combine	, " COMDINC	2				
366			2 Node #!	-					
367			Z Node # Total t	O Highway 6"					
368			Maximum fl	ow	0	018	c.m/se	· C "	
369			Hydrograph	volume	232	056	c.m"		
370			nyarograpi 0	002 0 00	2 0 01	02	0 018"		
371		40	HYDROGRAPH	Confluenc	e 2"	02	0.010		
372			7 Conflue	nce "					
373			2 Node #'						
374			Total t	o Highway 6"					
375			Maximum fl	.ow	0	.018	c.m/se	c"	
376	"		Hydrograph	n volume	232	.056	c.m"		
377			- <u>_</u>	002 0.01	8 0.00	02	0.000"		
378	"	40	HYDROGRAPH	I Copy to Out	flow"				
379	"		8 Copy to	Outflow"					
380	"		0.	002 0.01	8 0.0	18	0.000"		
381	"	40	HYDROGRAPH	I Combine	1 "				
382	"		6 Combine	2 "					
383	"		1 Node #'						
384	"		Total S	Site"					

385			Maximum flow	0.018	c.m/sec"	
386			Hydrograph volume	232.059	c.m"	
387			0.002 0.018	0.018	0.018"	
388		40	HYDROGRAPH Confluence	1"		
389			7 Confluence "			
390			1 Node #"			
391			Total Site"			
392	"		Maximum flow	0.018	c.m/sec"	
393			Hydrograph volume	232.059	c.m"	
394			0.002 0.018	0.018	0.000"	
395	"	38	START/RE-START TOTALS 1"			
396			3 Runoff Totals on EXIT"			
397			Total Catchment area		1.402	hectare"
398			Total Impervious area		0.793	hectare"
399			Total % impervious		56.573"	
400	"	19	EXIT"			
401						

10yr Post

1		MIDUSS Output>"	65 " 57	TREN	ICH Design d/s of 201"	
2		MIDUSS version Version 2.25 rev. 473"	66 "	0.052 P	eak inflow"	
3		MIDUSS created Sunday, February 7, 2010"	67 "	67.101 H	Iydrograph volume"	
4		10 Units used: ie METRIC"	68 "	424.500 G	round elevation"	
5			69 "	423 500 D	ownstream trench invert"	
6		Output filoname.	70 "	0 500 0	wongh hojght "	
7		Utiput Hieland: 1091 post-out	70	0.500 I	rench neight	
/		Licensee name: A"	/1 "	422.500 W	ater table elevation"	
8	"	Company "	72 "	3.500 T	'rench top width"	
9		Date & Time last used: 5/10/2022 at 10:31:38 AM"	73 "	3.500 T	'rench bottom width"	
10	" 31	TIME PARAMETERS"	74 "	40.000 V	'oids ratio (%)"	
11		5.000 Time Step"	75 "	20.000 H	Nydraulic conductivity"	
12		180,000 Max. Storm length"	76 "	0.000 T	rench gradient (%)"	
13		1500.000 May Hydrograph"	77 "	85.000 T	rench length"	
1.4	. 22	CODM dbace at any "	70 "	1 000 T	relicit teligen	
15	. 54	store chicago score	70	1.000 1		
15		1 Chicago storm"	/9 "	21. N	lumber of stages"	
16		595.000 Coefficient A"	80 "		Level Discharge Volume"	
17		0.360 Constant B"	81 "	4	23.500 0.000 0.0"	
18		0.691 Exponent C"	82 "	4	23.550 0.000 5.9"	
19		0.400 Fraction R"	83 "	4	23.600 0.000 11.9"	
20		180,000 Duration"	84 "	4	23 650 0 000 17 8"	
21		1 000 Time step multiplier"	85 "	4	23 700 0 000 23 8"	
21			00	1	23.700 0.000 25.0	
22		Maximum intensity 186.431 mm/nr"	86	4	23.750 0.000 29.8"	
23	"	Total depth 49.226 mm"	87 "	4	23.800 0.000 35.7"	
24		6 010hyd Hydrograph extension used in this file"	88 "	4	23.850 0.000 41.7"	
25	" 33	CATCHMENT 201"	89 "	4	23.900 0.000 47.6"	
26		1 Triangular SCS"	90 "	4	23.950 0.000 53.6"	
27		1 Equal length"	91 "	4	24.000 1.458 59.5"	
28		1 SCS method"	92 "	4	24 050 4 123 59 6"	
20		1 Ungentralled to Southwest Property Line"	0.2 "	1	24 100 7 577 59 6"	
29		5000 A Ten and and a	93		24.100 7.577 59.0	
30		55.000 * Impervious"	94 "	4	24.150 11.664 59.7"	
31	"	0.228 Total Area"	95 "	4	24.200 16.303 59.7"	
32		15.000 Flow length"	96 "	4	24.250 21.430 59.8"	
33		2.000 Overland Slope"	97 "	4	24.300 27.003 59.8"	
34		0.103 Pervious Area"	98 "	4	24.350 32.994 59.9"	
35		15 000 Pervious length"	99 "	4	24 400 39 369 60 0"	
36		2 000 Pervious slope"	100 "	4	24 450 46 112 60 0"	
27			101 "	-		
57		0.125 Impervious Area	101 "	4	24.500 55.197 60.1"	
38		15.000 Impervious length"	102 "	1. W	EIRS"	
39		2.000 Impervious slope"	103 "		Crest Weir Crest Left R	ight"
40		0.250 Pervious Manning 'n'"	104 "	ele	vation coefficie breadth sideslope sides	lope"
41		75.000 Pervious SCS Curve No."	105 "	4	23.950 0.900 85.000 0.000 0	.000"
42		0.268 Pervious Runoff coefficient"	106 "	1. M	IANHOLE "	
43		0 100 Pervious Ia/S coefficient"	107 "		Access"	
1.0		2 467 Dervieus Initial abstraction"	100 "	41	amotor	
44			100 "	uı	1 200	
45		0.015 Impervious Manning 'n'"	109 "		1.200"	
46	"	98.000 Impervious SCS Curve No."	110 "	Peak	c.m/sec	'
47		0.867 Impervious Runoff coefficient"	111 "	Outf	low volume 0.003 c.m"	
48		0.100 Impervious Ia/S coefficient"	112 "	Peak	exfiltration 0.002 c.m/sec	a.
49		0.518 Impervious Initial abstraction"	113 "	Exfi	ltration volume 67.096 c.m"	
50			114 "	Maxi	mum level 423 903 metre"	
51		Catchment 201 Dervious Impervious Total Area "	115 "	Mavi	mum storage 47.942 g m"	
51			110 "	Mart	man scorage 47.942 com	
52		Surface Area 0.103 0.125 0.228 nectare"	110	Cent	roldal lag 5.404 nours"	
53		Time of concentration 10.916 1.162 3.132 minutes"	117 "	Inti	Itration area 2 sides 68.487 sq.metre"	
54	"	Time to Centroid 119.039 90.250 96.065 minutes"	118 "	Infi	Itration Base area 297.500 sq.metre	'
55		Rainfall depth 49.226 49.226 mm"	119 "		0.052 0.052 0.000 0.002 c.m/s	∋c "
56		Rainfall volume 50.51 61.73 112.24 c.m"	120 " 40	HYDR	OGRAPH Combine 1"	
57		Rainfall losses 36.015 6.525 19.795 mm"	121 "	6 C	ombine "	
58		Runoff depth 13.211 42.701 29.430 mm"	122 "	1 N	Iode #"	
50		Pupoff trolume 13.55 52 55 67.10 a m"	100 "	- IV	lotal Site"	
59		Runoff coefficient 0.260 0.067 0.500 "	104 "	1	mum flou	
60		Rumori coefficient 0.208 0.867 0.598 "	124 "	Maxi		
61		Maximum flow 0.005 0.050 0.052 c.m/sec"	125 "	Hydr	cograph volume 0.003 c.m"	
62	" 40	HYDROGRAPH Add Runoff "	126 "		0.052 0.052 0.000 0.000"	
63		4 Add Runoff "	127 " 40	HYDR	OGRAPH Start - New Tributary"	
64		0.052 0.052 0.000 0.000"	128 "	2 S	Start - New Tributary"	
					-	

129			0.052	0.00	0 0.000	0.000"		
130		33 C	ATCHMENT 202"	0.00	0.000	0.000		
131		1	Triangular S	SCS "				
132		1	Equal length	ייי ויי				
133		1	SCS method"	•				
134		202	Controlled A	area to	Highway 6"			
135		75.000	% Impervious					
136		0 773	Total Area"	-				
137		15 000	Flow length					
138		2 000	Overland Slo	nne"				
139		0 193	Pervious Are	a"				
140		15 000	Pervious ler	nath"				
141		2.000	Pervious slo	 pe"				
142		0.580	Impervious A	Area"				
143		15.000	Impervious	engt.h "				
144		2.000	Impervious s	slope"				
145		0.250	Pervious Mar	ning 'n				
146		75.000	Pervious SCS	Gurve	No."			
147		0.268	Pervious Rur	off coe	fficient"			
148		0.100	Pervious Ia	'S coeff	icient"			
149		8.467	Pervious Ini	tial ab	straction"			
150		0.015	Impervious M	lanning	'n'"			
151		98.000	Impervious S	SCS Curv	e No."			
152		0.867	Impervious H	Runoff c	oefficient"			
153		0.100	Impervious 1	La/S coe	fficient"			
154		0.518	Impervious 1	Initial	abstraction	"		
155			0.235	0.00	0 0.000	0.000 (c.m/sec"	
156		C	atchment 202		Pervious	Impervious	Total Area	
157		S	urface Area		0.193	0.580	0.773	hectare"
158		Т	ime of concent	ration	10.916	1.162	2.073	minutes"
159		Т	ime to Centroi	d	119.039	90.250	92.941	minutes"
160		R	ainfall depth		49.226	49.226	49.226	mm "
161		R	ainfall volume	9	95.13	285.39	380.52	c.m"
162		R	ainfall losses	5	36.015	6.525	13.898	mm "
163		R	unoff depth		13.211	42.701	35.328	mm "
164		R	unoff volume		25.53	247.56	273.09	c.m"
165		R	unoff coeffici	lent	0.268	0.867	0.718	"
166	"	M	aximum flow		0.010	0.232	0.235	c.m/sec"
167		40 H	YDROGRAPH Add	Runoff	"			
168	"	4	Add Runoff '					
169	"		0.235	0.23	5 0.000	0.000"		
170	"	54 P	OND DESIGN"					
171		0.235	Current peak	c flow	c.m/sec"			
172	"	0.180	Target outfl	Low C	.m/sec"			
173	"	273.1	Hydrograph v	volume	c.m"			
174	"	13.	Number of st	ages"				
175	"	422.046	Minimum wate	er level	metre"			
176	"	424.050	Maximum wate	er level	metre"			
177	"	422.046	Starting wat	er leve	l metre"			
178	"	0	Keep Design	Data: 1	= True; 0	= False"		
179	"		Level Disc	charge	Volume"			
180	"		422.046	0.000	0.000"			
181	"		422.350 0.	.00809	1.01E-05"			
182	"		422.600 0.	01139	12.800"			
183	"		422.800 0.	01346	23.000"			
184	"		423.000 0.	01526	61.200"			
185			423.260 0.	01731	110.900"			
186	"		423.500 0.	01901	187.100"			
187			423.660 0.	02007	216.500"			
188	"		423.830 0.	02113	226.000"			
189	"		423.880 0.	02143	228.700"			
190	"		423.930 0.	02173	241.000"			
191	"		423.980 0.	02203	264.900"			
192	"		424.050 0.	.05083	264.900"			

102		1	WEIDO				
104		1.	WEIRS"	Course to	7 - 5 -	D d sub- to 11	
194			crest werr	Crest	Leit Jaalama addi	RIGHL"	
195			elevation coefficie	breadth sid	lesiope side	estope"	
196			423.980 0.900	1.000	0.000	0.000"	
197	"	1.	ORIFICES"				
198	"		Orifice Orifice	Orifice Nur	nber of"		
199	"		invert coefficie	diameter of	rifices"		
200			422.046 0.820	0.0750	1.000"		
201		1	Peak outflow	0.03	18 c.m/se	ec"	
202		1	Maximum level	423.3	74 metre		
203		1	Maximum storage	146.90	56 c.m"		
204		(Centroidal lag	2.99	98 hours"		
205			0.235 0.235	0.018	0.000 c.m	/sec"	
206		40 1	HYDROGRAPH Combine	2 "			
207		6	Combine "				
208		2	Node #"				
209			Total to Highway 6	1			
210		1	Maximum flow	0.0	18 c.m/se	ec"	
211		1	Hydrograph volume	272.7	18 c.m"		
212			0.235 0.23	0.018	0.018"		
213		40 1	HYDROGRAPH Start - Nev	v Tributary"			
214		2	Start - New Tributa	arv"			
215			0.235 0.00	0.018	0.018"		
216		33	CATCHMENT 203"				
217		1	Triangular SCS"				
218		1	Equal length"				
219		1	SCS method"				
220		203	Uncontrolled to Rea	ar Yard Ameno	ded Topsoil	then to Hwy	v 6"
221		25.000	% Impervious"				2 -
222		0.352	Total Area"				
223		120.000	Flow length"				
224		2 000	Overland Slope"				
225		0 264	Pervious Area"				
226		120 000	Pervious length"				
220		2 000	Pervious slope"				
227		0.088	Impervious Area"				
220		120 000	Impervious length"				
230		2 000	Impervious slope"				
221		2.000	Dorwioug Manning L				
222		75 000	Dervious SCS Curve	No "			
222		/5.000	Dervious Buroff and	NO.			
222		0.209	Derrieus Ta (C. saafi	iciont"			
225		0.100	Derrious Initial al	atraction"			
235		0.407	Tenewijoug Menning	Straction"			
230		0.015	Impervious Maining	III.			
227		98.000	Impervious Scs Cur	/e NO.			
230		0.001	Impervious Rufforr (fficient"			
239		0.100	Impervious Ia/S Coe	abatraation			
240		0.510			0 010	~ m/aca"	
241			0.029 0.00	Dominud	0.018 0	Tetel Name	
242			Catchillerit 205	0 264	1 upervious	10Lai Area	"
243			Surlace Area	0.204	0.000	0.352	nectare"
244			rime of concentration	38.012	4.045	20.284	minutes"
245			Lime to Centrola	10,003	93.239 40.006	145.054	mm"
246		1	kainiali depth	49.220	49.220	49.220	um."
24/		1	Rainfall volume	129.90	43.32	1/3.28	C.m.
248		1	kainīali iosses	35.991 12.025	5.881	28.463	mm "
249		1	kunoii aepth	13.235	43.345	20.763	mm "
250			HURDET TOLUMO	34.94	38.14	13.08	
		1		0.000	0 001	0 400	C.m"
251]	Runoff coefficient	0.269	0.881	0.422	C•m"
251 252		10	Runoff coefficient Maximum flow	0.269	0.881 0.028	0.422 0.029	c.m" " c.m/sec"
251 252 253		40	Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	0.269 0.006 "	0.881 0.028	0.422 0.029	c.m" " c.m/sec"
251 252 253 254		40 1 4	Runoff coefficient Maximum flow HYDROGRAPH Add Runoff Add Runoff "	0.269 0.006	0.881 0.028	0.422 0.029	c.m" " c.m/sec"
251 252 253 254 255		40 1 4	Munoff coefficient Maximum flow HYDROGRAPH Add Runoff Add Runoff " 0.029 0.00	0.269 0.006 " 29 0.018	0.881 0.028 0.018"	0.422 0.029	c.m" " c.m/sec"

257		0.029	Peak inf	low"			
258		73.085	Hydrogra	ph volume"			
259	"	424.500	Ground e	levation"			
260	"	423.500	Downstrea	am trench :	invert"		
261	"	0.500	Trench he	eight"			
262		422.500	Water tal	ole elevat:	ion"		
263	"	3.500	Trench to	op width"			
264		3.500	Trench bo	ottom widtl	ı"		
265		40.000	Voids rat	tio (%)"			
266		20.000	Hydrauli	c conductiv	vity"		
267		0.000	Trench qu	radient (%)"		
268		130.000	Trench le	ength"			
269		1.000	Include	base width			
270		21.	Number of	E stages"			
271			Level I	Discharge	Volume"		
272			423.500	0.000	0.0"		
273			423.550	0.000	9.1"		
274			423 600	0 000	18 2"		
275			423 650	0 000	27 3"		
276			423 700	0.000	36.4"		
277			423 750	0.000	45 5"		
278			423 800	0.000	54 6"		
270			423.800	0.000	62 7		
200			423.850	0.000	72 0"		
200			423.900	0.000	72.0		
201			423.950	0.000	01.9"		
282			424.000	0.017	91.0"		
283			424.050	0.049	91.1"		
284			424.100	0.089	91.1"		
285			424.150	0.137	91.2"		
286			424.200	0.192	91.2"		
287			424.250	0.252	91.3"		
288			424.300	0.318	91.3"		
289	"		424.350	0.388	91.4"		
290			424.400	0.463	91.5"		
			101 150	0 543	01 5"		
291	"		424.450	0.545	51.5		
291 292			424.450	0.626	91.6"		
291 292 293		1.	424.450 424.500 WEIRS"	0.626	91.6"		
291 292 293 294		1.	424.450 424.500 WEIRS" Crest	0.626 Weir	91.6" Crest	Left	Right"
291 292 293 294 295		1. e	424.450 424.500 WEIRS" Crest levation o	0.626 Weir coefficie	91.6" Crest breadth	Left sideslope	Right" sideslope"
291 292 293 294 295 296		1. e	424.450 424.500 WEIRS" Crest levation of 423.950	0.543 0.626 Weir coefficie 0.900	91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
291 292 293 294 295 296 297		1. e 1.	424.450 424.500 WEIRS" Crest levation of 423.950 MANHOLE"	0.626 Weir coefficie 0.900	91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
291 292 293 294 295 296 297 298		1. e	424.450 424.500 WEIRS" Crest levation of 423.950 MANHOLE" Access"	0.626 Weir coefficie 0.900	91.6" 91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
291 292 293 294 295 296 297 298 299		1. e	424.450 424.500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter"	0.626 Weir coefficie 0.900	91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
291 292 293 294 295 296 297 298 299 300		1. e	424.450 424.500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200"	0.626 Weir coefficie 0.900	91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
291 292 293 294 295 296 297 298 299 300 301		1. e 1. Pe	424.450 424.500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow	0.626 Weir coefficie 0.900	91.6" Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000" m/sec"
291 292 293 294 295 296 297 298 299 300 301 302		l. e l. Pe Ou	424.450 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu	0.943 0.626 Weir coefficie 0.900	91.6" 91.6" Crest breadth 1.000 0	Left sideslope 0.000 .000 c. .002 c.	Right" sideslope" 0.000" .m/sec" .m"
291 292 293 294 295 296 297 298 299 300 301 302 303		l. e l. Pe Ou Pe	424,450 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow tflow vol ak exfilts	0.545 0.626 Weir coefficie 0.900	91.6" 91.6" Crest breadth 1.000 0 0	Left sideslope 0.000 .000 c. .002 c. .002 c.	Right" sideslope" 0.000" m/sec" m" m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304		l. e l. Pe Ou Pe Ex	424.450 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow volu ak exfilti filtration	Weir coefficie 0.900	91.6" Crest breadth 1.000 0 0 73	Left sideslope 0.000 .000 c. .002 c. .003 c. .075 c.	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305		l. e l. Pe Ou Pe Ex Ma	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfiltr filtration ximum levo	Weir weir coefficie 0.900 w me ration n volume el	91.6" 91.6" Crest breadth 1.000 0 0 0 73 423	Left sideslope 0.000 c. 002 c. 003 c. 075 c. .724 me	Right" sideslope" 0.000" m/sec" m" sec" m"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306		l. e l. Pe Ou Pe Ex Ma Ma	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfilt: filtration filtration ximum leve ximum stor	Weir coefficie 0.900	91.6" 91.6" Crest breadth 1.000 0 0 0 73 423 40	Left sideslope 0.000 c. 002 c. 003 c. 075 c. .724 me. .831 c.	Right" sideslope" 0.000" .m/sec" .m" mr/sec" .m" stre" .m"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307		1. e 1. Pe Ou Pe Ex Ma Ma Ce	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow volu filtration ximum leve ximum stoo; ntroidal	Weir coefficie 0.900	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 .002 c. .003 c. .075 c. .724 me .831 c. .646 hou	Right" sideslope" 0.000" m/sec" m" m/sec" m" stre" m" strs"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 304 305 306 307 308		l. e l. Pe Ou Pe Ex Ma Ma Ce In	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow tflow voll ak exfilt filtration ximum stoo ntroidal 1 filtration	Weir coefficie 0.900	91.6" Crest breadth 1.000 0 0 73 423 40 4 ides 58.	Left sideslope 0.000 .002 c. .003 c. .724 me .831 c. .646 hou .827 sq.n	Right" sideslope" 0.000" .m/sec" .m" .mysec" .m" stre" .m" stre" .m" .ms"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfiltr filtration ntroidal 1 filtration	Weir 0.626 Weir coefficie 0.900 W me ration n volume el lag n area 2 s: n Base area	91.6" 91.6" Crest breadth 1.000 0 0 0 0 0 0 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 40 40 40 40 40 40 40 40 40 40 40 40	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me .831 c. .646 hou 327 sq.m .000 sq.	Right" sideslope" 0.000" .m/sec" .m" etre" .m" etre" .ms" netre"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310		1. e 1. Pe Ou Pe Ex Ma Ce In In	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfilt; filtration ntroidal : filtration filtration 0.029	Weir coefficie 0.900 Wime ration h volume al rage lag h area 2 s: h Base are: 0.029	91.6" 91.6" Crest breadth 1.000 0 0 0 0 0 0 0 423 423 40 423 40 423 40 423 40 423 40 423 40 423 40 423 40 455 58. 455 0.000	Left sideslope 0.000 c. 002 c. 003 c. 075 c. .724 me .831 c. .646 hou 327 sq.m. .000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m" etre" .m" irs" netre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311		1. e 1. Pe Ou Pe Ex Ma Ce In In 1 N	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflot tflow volu filtration ximum leve ximum stor filtration filtration 0.029 DROGRAPH	Weir Coefficie 0.900 Wime cation h volume al h area 2 s: h Base are: 0.029 Combine	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 002 c 003 c 075 c .724 me .831 c .646 hou 327 sq.m .000 sq. 0.003	Right" sideslope" 0.000" m/sec" m" m/sec" m" stre" m" trs" netre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In In 1 40 HY 6	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" 1.200" ak outflow tflow voll ak exfilt: filtration ximum stoo ntroidal 1 filtration 0.029 DROGRAPH Combine 0	Weir coefficie 0.900 w mme ration n volume el lag n area 2 s: n Base are: 0.029 Combine	91.6" Crest breadth 1.000 0 0 0 73 423 40 0 0 4 ides 58. a 455 0.000 2"	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me 831 c. 646 hou 327 sq.n .000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" .mysec" .m" etre" .m" .metre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312		1. e 1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak outflow tflow volu tflow volu tflow volu tflow tflo	Weir coefficie 0.900 Wime ration h volume el rage lag h area 2 s: h Base area 0.029 Combine	91.6" 91.6" Crest breadth 1.000 0 0 0 0 0 0 0 423 400 4 40 40 4 40 4	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me .831 c. .646 hou 327 sq.n 0.003 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m/sec" .m etre" .m ars" .metre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314		1. e 1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfilt: filtration filtration filtration filtration 0.029 DROGRAPH Combine " Total to	Weir coefficie 0.900 Wime ration h volume el rage lag h area 2 s: h Base area 0.029 Combine "	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me .831 c. .646 hou 327 sq.n .000 sq. 0.003	Right" sideslope" 0.000" m/sec" m" m/sec" m" etre" m" ars" metre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 6 2 Ma	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu filtration ximum leve ximum stor filtration f	Weir Goefficie 0.900 Wime cation h volume al h area 2 s: h Base are: 0.029 Combine " Highway 6	91.6" Crest breadth 1.000 0 0 0 73 423 40 0 4 ides 58. a 455 0.000 2"	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me .831 c. 646 hou 327 sq.m. 0.003 sq. 0.003	Right" sideslope" 0.000" m/sec" m" m/sec" m" tre" m" trs" metre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In In 1 Ma 40 Hy 6 2 Ma Hy	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow voll ak exfilts filtration ximum stoo ntroidal 1 filtration 0.029 DROGRAPH Combine " Node #" Total to drograph of drograph of	Weir coefficie 0.900 Wime ration n volume el lag n Base area 0.029 Combine " Highway 6 Volume	91.6" Crest breadth 1.000 0 0 0 73 423 40 0 0 73 423 40 0 2"	Left sideslope 0.000 .000 c. .002 c. .003 c. .724 me .831 c. .646 hou 0.003 27 sq.m .000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" .mysec" .m" etre" .metre" c.m/sec" .mysec" .mysec" .mysec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 6 2 Ma Hy	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volu ak exfiltr iltration filtration filtration filtration filtration 0.029 DROGRAPH Combine ' Node #" Total to ximum flow drograph 0.02	Weir Coefficie 0.900 Wime ration n volume el rage 1ag n area 2 s: n Base area 0.029 Combine " Highway 6 Word Volume 29 0.02	91.6" 91.6" Crest breadth 1.000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me 831 c. 646 hou 327 sq.m 0.003 0.003	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m" urs" netre" .metre" c.m/sec" .m" sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 6 2 Ma Hy 40 HY	424.4500 WEIRS" Crest levation of 423.950 MANHOLE" Access" diameter" 1.200" ak outflow tflow volut filtration ximum leve ximum stou; filtration filtration filtration 0.029 DROGRAPH Combine " Node #" Total to ximum flow drograph v 0.0; DROGRAPH 5	Weir Coefficie 0.900 Wime ration h volume al narea 2 s: 1 Base are; 0.029 Combine Wine Combine United Start - New	91.6" Crest breadth 1.000 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 c. 002 c. 003 c. 075 c. 724 me .831 c. 831 c. 0.003 sq.n 0.003 .018 c. .721 c. 00 0.00 y"	Right" sideslope" 0.000" .m/sec" .m" mtrs" hetre" .metre" c.m/sec" .m" sectre" .m" .metre" c.m/sec"
291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 6 2 Ma Hy 40 HY 2	424,4500 WEIRS" Crest levation of 423,950 MANHOLE" Access" ak outfloo tflow volt filtration ximum leve ximum ston filtration filtration filtration filtration 0.029 DROGRAPH Combine ' Node #" Total to ximum floo drograph (0.020 DROGRAPH S Start - I	Weir Coefficie 0.900 Wime ration n volume al n area 2 s: n Base are; 0.029 Combine " Highway 6 Wime Start - Net Weir Volume 29 0.01 Start - Net	91.6" Crest breadth 1.000 0 0 0 0 0 0 0 0 0 0 0 0	Left sideslope 0.000 c.002 c. 003 c. 075 c. 724 me .831 c. 646 hou 327 sq.n .000 sq. 0.003 0.003	Right" sideslope" 0.000" m/sec" m" mtre" m" tre" metre" c.m/sec" m" sec" m" sec"

321		33	CATCHMENT 204"				
322	"		1 Triangular SCS"				
323			1 Equal length"				
324			1 SCS method"				
325			204 Uncontrolled to Hig	ghway <mark>6</mark> "			
326			0.000 % Impervious"				
327	"		0.049 Total Area"				
328			20.000 Flow length"				
329			2.000 Overland Slope"				
330			0.049 Pervious Area"				
331			20.000 Pervious length"				
332			2.000 Pervious slope"				
333	"		0.000 Impervious Area"				
334			20.000 Impervious length"				
335	"		2.000 Impervious slope"				
336	"		0.250 Pervious Manning '	n""			
337	"		75.000 Pervious SCS Curve	No."			
338	"		0.268 Pervious Runoff co	efficient"			
339	"		0.100 Pervious Ia/S coef:	ficient"			
340			8.467 Pervious Initial al	ostraction"			
341	"		0.015 Impervious Manning	'n'"			
342			98.000 Impervious SCS Cur	ve No."			
343			0.000 Impervious Runoff	coefficient"			
344			0.100 Impervious Ia/S co	efficient"			
345			0.518 Impervious Initial	abstraction			
346			0.002 0.00	0.000	0.018 0	c.m/sec"	
347			Catchment 204	Pervious	Impervious	Total Area	
348			Surface Area	0.049	0.000	0.049	nectare"
349			Time of Concentration	122.973	1.380	12.973	minutes"
350			Time to Centroid	122.023	90.744	122.023	minutes"
351 351			Rainfall welume	49.220	49.220	49.220	
352			Rainfall Volume	24.12	0.00	24.12	C.m."
252			Rainiali losses	12 100	42 001	12 100	mm "
255			Runoff volumo	£ 16	43.091	6 16	
300			Runoff coofficient	0.40	0.00	0.40	C•III."
357			Maximum flow	0.208	0.000	0.208	a m/sea"
358		40	HYDROGRAPH Add Runoff	"	0.000	0.002	c.m/sec
359		10	4 Add Runoff "				
360				0.000	0 018"		
361		40	HYDROGRAPH COPY to Out	tflow"	0.010		
362			8 Copy to Outflow"				
363			0.002 0.00	0.002	0.018"		
364		40	HYDROGRAPH Combine	2 "			
365			6 Combine "				
366			2 Node #"				
367			Total to Highway 6	II			
368	"		Maximum flow	0.0	20 c.m/se	ec"	
369			Hydrograph volume	279.1	79 c.m"		
370			0.002 0.00	0.002	0.020"		
371	"	40	HYDROGRAPH Confluence	ce 2"			
372	"		7 Confluence "				
373			2 Node #"				
374	"		Total to Highway 6				
375	"		Maximum flow	0.0	20 c.m/se	ec"	
376	"		Hydrograph volume	279.1	79 c.m"		
377	"		0.002 0.02	20 0.002	0.000"		
378	"	40	HYDROGRAPH Copy to Out	tflow"			
379	"		8 Copy to Outflow"				
380	"		0.002 0.03	20 0.020	0.000"		
381	"	40	HYDROGRAPH Combine	1"			
382			b Combine "				
383			⊥ Node #"				
384			TOTAL SITE"				

321 "

385		Maximum flow	0.020	c.m/sec"	
386		Hydrograph volume	279.182	c.m"	
387		0.002 0.020	0.020	0.020"	
388	 40	HYDROGRAPH Confluence	1"		
389		7 Confluence "			
390		1 Node #"			
391		Total Site"			
392		Maximum flow	0.020	c.m/sec"	
393		Hydrograph volume	279.182	c.m"	
394		0.002 0.020	0.020	0.000"	
395	 38	START/RE-START TOTALS 1"			
396		3 Runoff Totals on EXIT"			
397		Total Catchment area		1.402	hectare"
398		Total Impervious area		0.793	hectare"
399		Total % impervious		56.573"	
400	 19	EXIT"			
401					

25yr Post

1	"	MIDUSS Output>"	65 " 5	7 TF	RENCH Design d/s of 201"
2	"	MIDUSS version Version 2.25 rev. 473"	66 "	0.064	Peak inflow"
3		MIDUSS created Sunday, February 7, 2010"	67 "	83,202	Hydrograph volume"
4		10 Units used.	68 "	424 500	Ground elevation"
-			60 "	423.500	Dematucem twomeh invent
5			70 "	423.500	Downstream trench invert"
6		output filename: 25yr post.Out	70	0.500	irench height"
./	"	Licensee name: A"	71 "	422.500	Water table elevation"
8	"	Company "	72 "	3.500	Trench top width"
9		Date & Time last used: 5/10/2022 at 10:28:05 AM"	73 "	3.500	Trench bottom width"
10	" 31	TIME PARAMETERS"	74 "	40.000	Voids ratio (%)"
11		5.000 Time Step"	75 "	20.000	Hydraulic conductivity"
12		180,000 Max. Storm length"	76 "	0.000	Trench gradient (%)"
13		1500,000 Max. Hydrograph"	77 "	85 000	Trench length"
14	" 30	STORM Chicago storm"	78 "	1 000	Include base width"
16	"		70 "	21	Number of stages"
10			/ 9	21.	Number of stages
10		702.000 Coefficient A"	80		Level Discharge Volume"
Τ./	"	0.350 Constant B"	81 .		423.500 0.000 0.0"
18	"	0.690 Exponent C"	82 "		423.550 0.000 5.9"
19		0.400 Fraction R"	83 "		423.600 0.000 11.9"
20		180.000 Duration"	84 "		423.650 0.000 17.8"
21		1.000 Time step multiplier"	85 "		423.700 0.000 23.8"
22		Maximum intensity 220.574 mm/hr"	86 "		423.750 0.000 29.8"
23		Total depth 58.353 mm"	87 "		423.800 0.000 35.7"
24		6 025byd Hydrograph extension used in this file"	88 "		423 850 0 000 41 7"
25	" 22		80 "		123.000 0.000 17.6
20			89		423.500 0.000 47.0
20		1 Triangular SCS"	90		423.950 0.000 53.6"
27	"	1 Equal length"	91 "		424.000 1.458 59.5"
28	"	1 SCS method"	92 "		424.050 4.123 59.6"
29	"	201 Uncontrolled to Southwest Property Line"	93 "		424.100 7.577 59.6"
30		55.000 % Impervious"	94 "		424.150 11.664 59.7"
31		0.228 Total Area"	95 "		424.200 16.303 59.7"
32		15.000 Flow length"	96 "		424.250 21.430 59.8"
33		2.000 Overland Slope"	97 "		424.300 27.003 59.8"
34		0 103 Pervious Area"	98 "		424 350 32 994 59 9"
35		15 000 Pervious length"	99 "		424 400 39 369 60 0"
26			100 "		424.460 46.112 60.0
20		2.000 Pervious stope"	101 "		424.450 40.112 60.0"
37		0.125 Impervious Area"	101 "	-	424.500 53.197 60.1"
38		15.000 Impervious length"	102 "	1.	WEIRS"
39	"	2.000 Impervious slope"	103 "		Crest Weir Crest Left Right"
40	"	0.250 Pervious Manning 'n'"	104 "	e	elevation coefficie breadth sideslope sideslope"
41		75.000 Pervious SCS Curve No."	105 "		423.950 0.900 85.000 0.000 0.000"
42		0.316 Pervious Runoff coefficient"	106 "	1.	MANHOLE "
43	"	0.100 Pervious Ia/S coefficient"	107 "		Access"
44		8.467 Pervious Initial abstraction"	108 "		diameter"
45		0.015 Impervious Manning 'n'"	109 "		1.200"
46		98,000 Impervious SCS Curve No "	110 "	De	esk outflow 0.004 c.m/sec"
47		0.879 Impervious Punoff coefficient"	111 "	P 6	utflow volume 8 200 c m"
40		0.079 Impervious kulori coefficient	110 "		action volume 8.290 C.m
40		0.100 Impervious lays coefficient	112 "	Pt	
49		U.518 Impervious Initial abstraction"	113 "	E2	xIIITTATION VOLUME /4.391 C.M"
50	"	0.064 0.000 0.000 0.000 c.m/sec"	114 "	Ma	aximum level 423.950 metre"
51		Catchment 201 Pervious Impervious Total Area "	115 "	Ma	aximum storage 53.585 c.m"
52		Surface Area 0.103 0.125 0.228 hectare"	116 "	Ce	entroidal lag 2.262 hours"
53		Time of concentration 9.379 1.081 2.966 minutes"	117 "	Ir	nfiltration area 2 sides 76.549 sq.metre"
54		Time to Centroid 115.782 89.548 95.508 minutes"	118 "	Ir	nfiltration Base area 297.500 sq.metre"
55		Rainfall depth 58.353 58.353 58.353 mm"	119 "		0.064 0.064 0.004 0.003 c.m/sec"
56		Rainfall volume 59.87 73.17 133.04 c.m"	120 " 4	о ну	YDROGRAPH Combine 1"
57		Rainfall losses 39 929 7 077 21 861 mm"	101 "	к. К	Combine "
58		Pupperf depth 18 424 51 276 26 402 mm"	100 "	1	Node #"
50			100 "	T	
59		Runori volume 18.90 64.30 83.20 C.m"	143 "		IULAI SILE"
60		RUNDII COEIIICIENT U.316 U.879 U.625 "	124 "	Ma	aximum riow 0.004 c.m/sec"
61		Maximum flow 0.008 0.061 0.064 c.m/sec"	125 "	НУ	ydrograph volume 8.290 c.m"
62	" 40	HYDROGRAPH Add Runoff "	126 "		0.064 0.064 0.004 0.004"
63		4 Add Runoff "	127 "4	.0 HY	YDROGRAPH Start - New Tributary"
64		0.064 0.064 0.000 0.000"	128 "	2	Start - New Tributary"

129			0.064 0.00	0 0.004	0.004"		
130		33	CATCHMENT 202"	0.001	0.001		
131		55	1 Triangular SCS				
120			1 Emuel length				
122			1 Equal Tengun"				
133			1 SCS method"				
134			202 Controlled Area to	Highway 6"			
135	"		75.000 % Impervious"				
136			0.773 Total Area"				
137			15.000 Flow length"				
138			2.000 Overland Slope"				
139			0.193 Pervious Area"				
140			15.000 Pervious length"				
141			2.000 Pervious slope"				
142			0.580 Impervious Area"				
143			15 000 Impervious length"				
144			2 000 Impervious slope"				
145			0 250 Pervious Manning In				
145			75 000 Dermieur CCC Curre	No "			
140			75.000 Pervious SCS Curve	NO."			
14/			0.316 Pervious Runoff Coe	IIIClent"			
148			0.100 Pervious Ia/S coeff	icient"			
149	"		8.467 Pervious Initial ab	straction"			
150			0.015 Impervious Manning	'n'"			
151	"		98.000 Impervious SCS Curv	e No."			
152			0.879 Impervious Runoff c	oefficient"			
153			0.100 Impervious Ia/S coe	fficient"			
154			0.518 Impervious Initial	abstraction			
155	"		0.286 0.00	0 0.004	0.004 0	c.m/sec"	
156			Catchment 202	Pervious	Impervious	Total Area	
157			Surface Area	0.193	0.580	0.773	hectare"
158			Time of concentration	9.379	1.081	1.969	minutes"
159			Time to Centroid	115.782	89.548	92.354	minutes"
160			Rainfall depth	58.353	58.353	58.353	mm "
161			Rainfall volume	112.77	338.30	451.07	c.m"
162			Rainfall losses	39.929	7.077	15.290	mm "
163			Runoff depth	18.424	51.276	43.063	mm "
164			Runoff volume	35.60	297.27	332.87	c.m"
165			Runoff coefficient	0.316	0.879	0.738	
166			Maximum flow	0.015	0.281	0.286	c.m/sec"
167		40	HYDROGRAPH Add Runoff	"			
168			4 Add Runoff "				
169			0.286 0.28	6 0.004	0.004"		
170		54	POND DESIGN"				
171			0.286 Current peak flow	c.m/sec"			
172			0 180 Target outflow c	.m/sec"			
173			332 9 Hydrograph volume	C.m"			
174			13 Number of stages"				
175			422 046 Minimum water level	metre"			
176			424 050 Maximum water level	metre"			
177			422 046 Starting water leve	1 metre"			
178			0 Keen Design Data• 1	= True • 0 :	= False"		
179			Level Discharge	Volume"	- raibe		
180			422 046 0 000	0.000"			
101			422.040 0.000	1 010 05"			
101			422.550 0.00009	12 200"			
183			422 800 0.01246	23 000"			
107			422.000 0.01526	£1.000			
105			423.000 0.01526 422.260 0.01721	110 000"			
100			423.200 U.UI/31	107 100"			
107			423.500 0.01901	10/.100"			
100			423.000 U.U2UU7	210.500"			
100			423.830 U.U2113	220.000"			
100 100			423.880 U.U2143	∠∠8./UU"			
101			423.930 U.UZI/3	241.000"			
100			423.980 U.U2203	∠04.9UU"			
TAN			424.050 0.05083	204.900″			

193		1 WFTFS"
194		Crest Weir Crest Left Bight"
195		elevation coefficie breadth sideslope sideslope"
196		
197		1 ORTECES"
198		Orifice Orifice Orifice Number of
199		invert coefficie diameter orifices"
200		422.046 0.820 0.0750 1.000"
201		Peak outflow 0.019 c.m/sec"
202		Maximum level 423.521 metre"
203		Maximum storage 190.964 c.m"
204		Centroidal lag 3.315 hours"
205		0.286 0.286 0.019 0.004 c.m/sec"
206	" 40) HYDROGRAPH Combine 2"
207		6 Combine "
208		2 Node #"
209		Total to Highway 6"
210		Maximum flow 0.019 c.m/sec"
211		Hydrograph volume 332.443 c.m"
212		0.286 0.286 0.019 0.019"
213	" 40	HYDROGRAPH Start - New Tributary"
214		2 Start - New Tributary"
215		0.286 0.000 0.019 0.019"
216	" 3	3 CATCHMENT 203"
217		1 Triangular SCS"
218		1 Equal length"
219		1 SCS method"
220		203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6"
221	"	25.000 % Impervious"
222		0.352 Total Area"
223		120.000 Flow length"
224		2.000 Overland Slope"
225		0.264 Pervious Area"
226	"	120.000 Pervious Length"
227		2.000 Pervious slope"
228		0.088 Impervious Area"
229		120.000 Impervious length"
230		2.000 Impervious stope"
231		0.250 Pervious Manning 'n'"
232		0.217 Dervious SCS Curve No."
222		0.100 Pervious Ruloti coefficient"
234		8 467 Dervious Tay's coefficient
236		0.015 Impervious finitial abstraction
237		98 000 Impervious SCS Curve No."
238		0.888 Impervious Runoff coefficient"
239		0.100 Impervious Ta/S coefficient"
240		0.518 Impervious Initial abstraction"
241		0.036 0.000 0.019 0.019 c.m/sec"
242		Catchment 203 Pervious Impervious Total Area "
243		Surface Area 0.264 0.088 0.352 hectare"
244		Time of concentration 32.659 3.765 18.703 minutes"
245		Time to Centroid 149.614 94.370 122.931 minutes"
246		Rainfall depth 58.353 58.353 58.353 mm"
247	"	Rainfall volume 154.05 51.35 205.40 c.m"
248	"	Rainfall losses 39.863 6.529 31.529 mm"
249	"	Runoff depth 18.490 51.824 26.824 mm"
250	"	Runoff volume 48.81 45.61 94.42 c.m"
251		Runoff coefficient 0.317 0.888 0.460 "
0 5 0		
252		Maximum flow 0.010 0.033 0.036 c.m/sec"
252	" " 4(Maximum flow 0.010 0.033 0.036 c.m/sec" D HYDROGRAPH Add Runoff "
252 253 254	" " 4(Maximum flow 0.010 0.033 0.036 c.m/sec" HYDROGRAPH Add Runoff " 4 Add Runoff "
252 253 254 255	" 4("	Maximum flow 0.010 0.033 0.036 c.m/sec" HYDROGRAPH Add Runoff " 4 Add Runoff " 0.036 0.036 0.019 0.019"

257	"	0.036	Peak inf	low"			
258		94.419	Hydrogra	ph volume	e "		
259		424.500	Ground e	levation"			
260		423.500	Downstre	am trench	invert"		
261		0.500	Trench h	eight"			
262		422.500	Water ta	ble eleva	tion"		
263		3.500	Trench t	op width"			
264		3.500	Trench b	ottom wid	lth"		
265		40.000	Voids ra	tio (%)"			
266		20.000	Hvdrauli	c conduct	ivity"		
267		0.000	Trench o	radient (8)"		
268		130 000	Trench 1	ength"	- ,		
269		1 000	Include	base widt	h"		
270		21	Number c	f stages"			
271			Level	Discharge	Volume		
272			423 500	0 000			
272			423 550	0.000	0.0		
273			422.550	0.000	10 2		
275			423.000	0.000	10.2		
275			423.050	0.000	27.5		
270			423.700	0.000) 30.4) 45 5		
277			423.750	0.000	45.5		
278			423.800	0.000	54.0		
279			423.850	0.000	03.7		
280			423.900	0.000	/2.8		
281			423.950	0.000	81.9		
282			424.000	0.017	91.0		
283			424.050	0.049	91.1		
284	"		424.100	0.089	91.1		
285	"		424.150	0.137	91.2		
286	"		424.200	0.192	91.2		
287	"		424.250	0.252	91.3		
288	"		424.300	0.318	91.3		
289	"		424.350	0.388	91.4		
290	"		424.400	0.463	91.5		
291			424.450	0.543	91.5		
			424.500	0.626	91.6		
292	"						
292 293		1.	WEIRS"				
292 293 294		1.	WEIRS" Crest	Weir	Crest	Left	Right"
292 293 294 295		1. e	WEIRS" Crest levation	Weir coefficie	Crest breadth	Left sideslope	Right" sideslope"
292 293 294 295 296		1. e	WEIRS" Crest levation 423.950	Weir coefficie 0.900	Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
292 293 294 295 296 297		1. e 1.	WEIRS" Crest levation 423.950 MANHOLE"	Weir coefficie 0.900	Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
292 293 294 295 296 297 298		1. e 1.	WEIRS" Crest levation 423.950 MANHOLE" Access"	Weir coefficie 0.900	Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
292 293 294 295 296 297 298 299		1. e 1.	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter"	Weir coefficie 0.900	Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
292 293 294 295 296 297 298 299 300		1. e 1.	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200"	Weir coefficie 0.900	Crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000"
292 293 294 295 296 297 298 299 300 301		1. e 1. Pe	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo	Weir coefficie 0.900 w	crest breadth 1.000	Left sideslope 0.000	Right" sideslope" 0.000" .m/sec"
292 293 294 295 296 297 298 299 300 301 302		1. e 1. Pe Ou	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol	Weir coefficie 0.900 w ume	Crest breadth 1.000	Left sideslope 0.000 0.000 c. 0.003 c.	Right" sideslope" 0.000" .m/sec" .m"
292 293 294 295 296 297 298 299 300 301 302 303		1. e 1. Pe Ou Pe	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflc tflow vol ak exfilt	Weir coefficie 0.900 w ume ration	Crest breadth 1.000	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c.	Right" sideslope" 0.000" .m/sec" .m" .m/sec"
292 293 294 295 296 297 298 299 300 301 302 303 304		l. e l. Pe Ou Pe Ex	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflc tflow vol ak exfilt filtratic	Weir coefficie 0.900 w ume ration n volume	c Crest breadth 1.000	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c.	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m"
292 293 294 295 296 297 298 299 300 301 302 303 304 305		l. e l. Pe Ou Pe Ex Ma	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev	Weir coefficie 0.900 w ume ration n volume el	Crest breadth 1.000 9 42	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm	Right" sideslope" 0.000" m/sec" m" m/sec" m" etre"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306		1. e 1. Pe Ou Pe Ex Ma Ma	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev ximum sto	Weir coefficie 0.900 w ume ration n volume el rage	2 Crest 2 breadth 1.000 9 42 5	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 me	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m" etre" .m"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307		l. e l. Pe Ou Pe Ex Ma Ma Ce	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol filtratic ximum lev ximum sec ntroidal	Weir coefficie 0.900 w ume ration n volume el rage lag	Crest breadth 1.000 9 42 5	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 me 8.668 c. 5.373 hou	Right" sideslope" 0.000" .m/sec" .m/sec" .m" etre" .m" .m" .m"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308		1. e 1. Pe Ou Pe Ex Ma Ma Ce In	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum sto ntroidal	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2	Crest breadth 1.000 9 42 5 sides 83	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hot 8.3 sg.n	Right" sideslope" 0.000" m/sec" m" etre" m" etre" m" mtre"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 306 307 308 309		1. e 1. Pe Ou Pe Ex Ma Ce In In	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflc tflow vol ak exfilt filtratic ximum lev ximum sto ntroidal filtratic filtratic	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar	Crest breadth 1.000 9 42 5 sides 83 rea 45	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou .813 sq.m	Right" sideslope" 0.000" .m/sec" .m" stre" .m" stre" .m" urs" netre". .metre"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflc tflow vol ak exfilt filtratic ximum lev ximum stc ntroidal filtratic 0.036	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 me 8.668 c. 5.373 hou .813 sq.n 5.000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" .m/sec" .m" etre" .m" urs" netre" .metre" .metre" .c.m/sec"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311		1. e 1. Pe Ou Pe Ex Ma Ce In In 1 N	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol filtratic ximum lev ximum sto chiltratic filtratic filtratic 0.036 DROGRAPH	Weir coefficie 0.900 w ume ration n volume el lag n area 2 n Base ar 0.036 Combine	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2"	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou .813 sq.m 5.000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" etre" .m" etre" .metre" .metre" c.m/sec"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 312		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum sco ntroidal filtratic filtratic 0.036 DROGRAPH	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine "	Crest breadth 1.000 9 42 5 sides 83 rea 45 0.000 2 2"	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou .813 sq.m. 5.000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" etre" .m" etre" .metre" c.m/sec"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312		1. e 1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflc tflow vol ak exfilt filtratic ximum lev ntroidal filtratic 0.036 DROGRAPH Combine Node #"	Weir coefficie 0.900 wume ration n volume el rage lag n area 2 n Base ar 0.036 Combine	c Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2 2"	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 me 8.668 c. 5.373 hou .813 sq.m 5.000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m" mtre" .m" stre" .m" irs" netre" .metre" c.m/sec"
292 293 294 295 296 297 300 301 302 303 304 305 306 307 308 307 308 307 308 307 311 312 313		1. e 1. Pe Ou Pe Ex Ma Ma Ce Ex Ma Ma Ce In In 40 HY 6 2	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol tflow vol tf	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2"	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 me 8.668 c. 5.373 hou .813 sq.m 5.000 sq. 0.003	Right" sideslope" 0.000" .m/sec" .m/sec" .m" etre" .m" .mtre" c.m/sec"
292 293 294 295 296 297 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315		1. e 1. Pe Ou Pe Ex Ma Ce In In In 40 HY 6 2	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt filtratic ximum sto ntroidal filtratic 0.036 DROGRAPH Combine Node #" Total to	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine " Highway	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2 2" 6"	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hoo 8.13 sq.n 0.003	Right" sideslope" 0.000" .m/sec" .m" etre" .m" etre" .metre" c.m/sec" m/sec"
292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 305 306 307 308 310 311 312 313 314 315		1. e 1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2 Ma	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt filtratic ximum sto ntroidal filtratic filtratic 0.036 DROGRAPH Combine Node #" Total to ximum flo combine	Weir coefficie 0.900 w ume ration n volume el rage lag n Base ar 0.036 Combine " Highway w volume	<pre>Crest breadth 1.000 9 42 5 sides 83 rea 45 0.000 2" 6" 22</pre>	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou .813 sq. 0.003 0.003	Right" sideslope" 0.000" .m/sec" .m" stre" .m" stre" .m" stre" .metre" c.m/sec" .m/sec" .m/sec"
292 293 294 295 296 297 300 301 303 304 303 304 306 307 308 309 310 311 312 313 314 315 316 317		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 1n 40 HY 6 2 Ma Hy	WEIRS" Crest levation 423.950 MANHOLE" Access" 1.200" ak outflo tflow vol ak exfilt filtratic ximum lev ximum sto ntroidal filtratic filtratic 0.036 DROGRAPH Combine Node #" Total to ximum flo	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine " Highway w volume 36	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2 2" 6" 33 036 0	Left sideslope 0.000 0.000 c 0.003 c 0.003 c 4.460 c 3.822 me 8.668 c 5.373 hou .813 sq.m 5.000 sq. 0.003 0.003	Right" sideslope" 0.000" .m/sec" .m" mtre" .m" stre" .m" stre" .metre" c.m/sec" .m/sec" .m]
292 293 294 295 296 297 300 301 302 303 304 305 306 307 308 307 308 307 311 312 311 312 313 314 315 316 317 318		1. e 1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2 Ma Hy 40 UV	WEIRS" Crest levation 423.950 MANHOLE" diameter" 1.200" ak outflo tflow vol tflow vol	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine " Highway w volume 36 0. Start - N	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2 2" 6" 6"	Left sideslope 0.000 0.000 c. 0.003 c. 0.003 c. 4.460 c. 3.822 me 8.668 c. 5.373 hou .813 sq.n 5.000 sq. 0.003 0.0019 c. 2.446 c. 000 0.0	Right" sideslope" 0.000" .m/sec" .m" etre" .ms" netre" .metre" c.m/sec" .m" sec" .m"
292 293 294 295 296 297 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318		1. e 1. Pe Ou Pe Ex Ma Ce In In In 40 HY 6 2 Ma Hy 40 HY	WEIRS" Crest levation 423.950 MANHOLE" Access" ak outflo tflow vol ak exfilt filtratic ximum sto ntroidal filtratic filtratic filtratic DROGRAPH Combine Node #" Total to ximum flo Ximum flo Comformatic Nogeraph 0.0 DROGRAPH	Weir coefficie 0.900 w ume ration n volume el rage lag n area 2 n Base ar 0.036 Combine " Highway w volume 36 0. Start - N	Crest breadth 1.000 9 42 5 sides 83 rea 45 6 0.000 2 2" 6" 6" 33 036 0. Iew Tributa tharv"	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou 8.13 sq.m 0.003 0.003 0.003 0.003	Right" sideslope" 0.000" .m/sec" .m" etre" .m" etre" .metre" c.m/sec" .m/sec" .m/sec" .m/sec"
292 293 294 295 296 297 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320		1. e 1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 40 HY 2	WEIRS" Crest levation 423.950 MANHOLE" Access" diameter" 1.200" ak outflc tflow vol ak exfilt filtratic ximum lev ntroidal filtratic 0.036 DROGRAPH Combine Node #" Total tc ximum flc drograph 0.0 DROGRAPH Start -	Weir coefficie 0.900 w ume ration n volume el rage lag n Base ar 0.036 Combine " Highway w volume 36 0. Start - N New Tribu	Crest breadth 1.000 9 42 5 sides 83 rea 45 5 0.000 2 2" 6" 33 036 0. Iew Tributa: ttary" 000 0	Left sideslope 0.000 0.000 c. 0.003 c. 4.460 c. 3.822 mm 8.668 c. 5.373 hou .813 sq.m 5.000 sq. 0.003 0.003 0.003	Right" sideslope" 0.000" .m/sec" .m" stre" .m" stre" .m" metre" c.m/sec" .m"]19"

321		22	CATCHMENT 204"				
300		55	1 Triangular SCS"				
322			1 Equal length"				
324			1 SCS method"				
325			204 Uncontrolled to Hi	ahway 6"			
326			0 000 & Impervious"	giiway U			
327			0.049 Total Area"				
220			20 000 Flow longth				
220			20.000 FIOW Tength				
220			0.049 Dervieus Area"				
221			20.000 Derwieug length"				
222			20.000 Pervious tengen				
332			2.000 Pervious slope"				
224			20.000 Impervious Area"				
225			20.000 Impervious rengula				
335			2.000 Impervious slope"				
330			0.250 Pervious Manning .	n•"			
337			75.000 Pervious SCS Curve	NO."			
338			0.317 Pervious Runoff co	efficient"			
339			0.100 Pervious Ia/S coet	ficient"			
340			8.467 Pervious Initial a	bstraction"			
341			0.015 Impervious Manning	'n'"			
342	"		98.000 Impervious SCS Cur	ve No."			
343	"		0.000 Impervious Runoff	coefficient'	1		
344	"		0.100 Impervious Ia/S co	efficient"			
345	"		0.518 Impervious Initial	abstraction	1"		
346	"		0.004 0.0	00 0.000	0.019	c.m/sec"	
347	"		Catchment 204	Pervious	Impervious	Total Area	"
348	"		Surface Area	0.049	0.000	0.049	hectare"
349			Time of concentration	11.146	1.285	11.146	minutes"
350	"		Time to Centroid	118.302	90.077	118.302	minutes"
351	"		Rainfall depth	58.353	58.353	58.353	mm "
352			Rainfall volume	28.59	0.00	28.59	c.m"
353	"		Rainfall losses	39.879	6.582	39.879	mm "
354	"		Runoff depth	18.473	51.771	18.473	mm "
355			Runoff volume	9.05	0.00	9.05	c.m"
356	"		Runoff coefficient	0.317	0.000	0.317	"
357	"		Maximum flow	0.004	0.000	0.004	c.m/sec"
358	"	40	HYDROGRAPH Add Runoff				
359			4 Add Runoff "				
360			0.004 0.0	04 0.000	0.019"		
361		40	HYDROGRAPH Copy to Ou	tflow"			
362			8 Copy to Outflow"				
363			0.004 0.0	04 0.004	4 0.019"		
364		40	HYDROGRAPH Combine	2 "			
365			6 Combine "				
366			2 Node #"				
367			Total to Highway 6				
368			Maximum flow	0.0	022 c.m/s	ec"	
369			Hydrograph volume	341.4	198 c.m"		
370			0.004 0.0	04 0.004	1 0.022"		
371		40	HYDROGRAPH Confluen	.ce 2"			
372			7 Confluence "				
373			2 Node #"				
374			Total to Highway 6				
375	"		Maximum flow	0.0	022 c.m/s	ec"	
376	"		Hydrograph volume	341.4	198 c.m"		
377	"		0.004 0.0	22 0.004	1 0.000"		
378	"	40	HYDROGRAPH Copy to Ou	tflow"			
379			8 Copy to Outflow"				
380	"		0.004 0.0	22 0.022	2 0.000"		
381	"	40	HYDROGRAPH Combine	1"			
382	"		6 Combine "				
383			1 Node #"				
384			Total Site"				

385			Maximum flow	0.025	c.m/sec"	
386			Hydrograph volume	349.789	c.m"	
387			0.004 0.022	0.022	0.025"	
388		40	HYDROGRAPH Confluence	1"		
389			7 Confluence "			
390			1 Node #"			
391			Total Site"			
392	"		Maximum flow	0.025	c.m/sec"	
393			Hydrograph volume	349.789	c.m"	
394			0.004 0.025	0.022	0.000"	
395	"	38	START/RE-START TOTALS 1"			
396			3 Runoff Totals on EXIT"			
397			Total Catchment area		1.402	hectare"
398			Total Impervious area		0.793	hectare"
399			Total % impervious		56.573"	
400	"	19	EXIT"			
401						

50yr Post

1		MIDUSS Output	>" 65	" 57	TRENCH Design d/s of 201"
2		MIDUSS version Version 2.25 rev. 473	3" 66		0.072 Peak inflow"
3		MIDUSS created Sunday, February 7, 2010) " 67		95.309 Hydrograph volume"
4		10 Units used:	~" 68		424 500 Ground elevation"
5		Job folder: 0:\48650\100\SW	d " 69		423 500 Downstream trench invert"
6		Output filename.	- 70		0.500 Trench height"
7		Licensee name•	A" 71		422 500 Water table elevation"
, g			. 72		3 500 Trench ton width"
9		Date ξ Time last used $5/10/2022$ at $10.24.48$ M	// " 73		3 500 Trench bottom width"
10	" 21		74		40 000 Voids ratio (%)"
11		5 000 Time Step"	75		20.000 Wydrawlig gordwgtiwity"
1.2		1000 Har Step	75		0.000 Trongh gradient (%)"
12		1500.000 Max. Stolm Tellgth	70		95.000 Trench length"
1.0	" 22	STORM Chicago atorm"	70		1 000 Include bage width"
14	. 34		/8		1.000 Include base width
15		780 000 Goodficient all	/9		ZI. Number of Stages"
10		780.000 Coefficient A"	80		Level Discharge Volume"
1/		0.360 Constant B"	18		423.500 0.000 0.0"
18		0.690 Exponent C"	82		423.550 0.000 5.9"
19		0.400 Fraction R"	83		423.600 0.000 11.9"
20		180.000 Duration"	84	"	423.650 0.000 17.8"
21	"	1.000 Time step multiplier"	85	"	423.700 0.000 23.8"
22	"	Maximum intensity 244.972 mm/hr"	86	"	423.750 0.000 29.8"
23		Total depth 65.003 mm"	87		423.800 0.000 35.7"
24		6 050hyd Hydrograph extension used in this file"	88	"	423.850 0.000 41.7"
25	" 33	CATCHMENT 201"	89		423.900 0.000 47.6"
26		1 Triangular SCS"	90	"	423.950 0.000 53.6"
27		1 Equal length"	91	"	424.000 1.458 59.5"
28		1 SCS method"	92		424.050 4.123 59.6"
29		201 Uncontrolled to Southwest Property Line"	93		424.100 7.577 59.6"
30		55.000 % Impervious"	94		424.150 11.664 59.7"
31		0.228 Total Area"	95		424.200 16.303 59.7"
32		15,000 Flow length"	96		424.250 21.430 59.8"
33		2.000 Overland Slope"	97		424.300 27.003 59.8"
34		0.103 Pervious Area"	98		424.350 32.994 59.9"
35		15 000 Pervious length"	9.9		424 400 39 369 60 0"
36		2 000 Pervious slope"	100		424 450 46 112 60 0"
37		0 125 Impervious Area"	101		424 500 53 197 60 1"
38		15,000 Impervious length"	102		1 WETRS"
30		2 000 Impervious slope"	102		Crest Weir Crest Left Bight
40		0.250 Dervious Banning Int"	104		elevation coefficie breadth sideslone sideslone
41		75.000 Dervious SCS Curve No "	105		
10		0.247 Dervieus Duroff scofficient"	105		1 MANUOLEI
42		0.347 Pervicus Rulot coefficient	107		1. MANHOLE
4.5		0.100 Pervious Tays coefficient	100		Access diameters"
44		0.467 Pervious initial abstraction	100		
45			109		
40		98.000 Impervious SCS Curve No."	110		Peak outriow 0.009 C.m/sec"
4 /		0.885 Impervious Runori coefficient"	111		Outflow Volume 18.482 C.m.
48		0.100 Impervious Ia/S coefficient"	112		Peak extiltration 0.003 c.m/sec"
49		U.518 Impervious Initial abstraction"	113		Exclutration volume /4.99/ c.m"
50		0.072 0.000 0.000 0.000 c.m/sec"	114	"	Maximum level 423.951 metre"
51		Catchment 201 Pervious Impervious Total Area "	115	"	Maximum storage 53.630 c.m"
52	"	Surface Area 0.103 0.125 0.228 hectare"	116	"	Centroidal lag 2.042 hours"
53		Time of concentration 8.579 1.034 2.868 minutes"	117		Infiltration area 2 sides 76.616 sq.metre"
54		Time to Centroid 113.921 89.143 95.166 minutes"	118		Infiltration Base area 297.500 sq.metre"
55		Rainfall depth 65.003 65.003 65.003 mm"	119		0.072 0.072 0.009 0.003 c.m/sec"
56	"	Rainfall volume 66.69 81.51 148.21 c.m"	120	" 40	HYDROGRAPH Combine 1"
57	"	Rainfall losses 42.421 7.474 23.200 mm"	121	"	6 Combine "
58		Runoff depth 22.581 57.528 41.802 mm"	122		1 Node #"
59		Runoff volume 23.17 72.14 95.31 c.m"	123		Total Site"
60	"	Runoff coefficient 0.347 0.885 0.643 "	124		Maximum flow 0.009 c.m/sec"
61	"	Maximum flow 0.011 0.068 0.072 c.m/sec"	125		Hydrograph volume 18.482 c.m"
62	" 40	HYDROGRAPH Add Runoff "	126		0.072 0.072 0.009 0.009"
63	"	4 Add Runoff "	127	" 40	HYDROGRAPH Start - New Tributary"
64		0.072 0.072 0.000 0.000"	128		2 Start - New Tributary"
					-

120		0 072 0 00	0 0 0 0	0 009"		
130		33 CATCHMENT 202"	0.005	0.005		
131		1 Triangular SCS"				
132		1 Equal length"				
133		1 SCS method"				
134		202 Controlled Area to	Highway 6"			
135		75 000 & Impervious"	inginway 0			
136		0 773 Total Area"				
137		15 000 Flow length"				
138		2 000 Overland Slope"				
139		0 193 Pervious Area"				
140		15 000 Pervious length"				
141		2 000 Pervious slope"				
142		0.580 Impervious Area"				
143		15 000 Impervious length"				
144		2 000 Impervious slope"				
145		0.250 Pervious Manning 'r	! "			
146		75 000 Pervious SCS Curve	No."			
147		0.347 Pervious Runoff coe	fficient"			
148		0.100 Pervious Ia/S coeff	icient"			
149		8.467 Pervious Initial at	straction"			
150		0.015 Impervious Manning	'n'"			
151		98.000 Impervious SCS Curv	ve No."			
152		0.885 Impervious Runoff of	coefficient"			
153		0.100 Impervious Ia/S coe	efficient"			
154		0.518 Impervious Initial	abstraction'			
155		0.323 0.00	0.009	0.009 c	.m/sec"	
156		Catchment 202	Pervious	Impervious	Total Area	
157		Surface Area	0.193	0.580	0.773	hectare"
158		Time of concentration	8.579	1.034	1.907	minutes"
159		Time to Centroid	113.921	89.143	92.010	minutes"
160		Rainfall depth	65.003	65.003	65.003	mm "
161		Rainfall volume	125.62	376.85	502.47	c.m"
162		Rainfall losses	42.421	7.474	16.211	mm "
163		Runoff depth	22.581	57.528	48.791	mm "
164		Runoff volume	43.64	333.52	377.16	c.m"
165		Runoff coefficient	0.347	0.885	0.751	"
166	"	Maximum flow	0.021	0.315	0.323	c.m/sec"
167	"	40 HYDROGRAPH Add Runoff	"			
168		4 Add Runoff "				
169		0.323 0.32	0.009	0.009"		
170		54 POND DESIGN"				
171		0.323 Current peak flow	c.m/sec"			
172		0.180 Target outflow o	c.m/sec"			
1/3		3/7.2 Hydrograph volume	C.m"			
175		13. Number of stages"				
176		422.046 Minimum water level	. metre"			
177		424.050 Maximum water level				
170		422.046 Starting water leve	- True 0 -	- Falco"		
170		I aval Digabarga	Volumo"	- Faise		
100		422 046 0 000	0.000"			
1.81		422.040 0.000	1 01 - 05 -			
182		422.550 0.00809 422 KNN N N1130	12 800"			
183		422 800 0 01346	23.000"			
184		423 000 0 01526	61.200"			
185		423.260 0.01731	110.900"			
186		423,500 0.01901	187.100"			
187		423.660 0.02007	216,500"			
188		423.830 0.02113	226.000"			
189		423.880 0.02143	228.700"			
190		423.930 0.02173	241.000"			
191		423.980 0.02203	264.900"			
192	"	424.050 0.05083	264.900"			

193			1. WEIRS"				
194	"		Crest Weir	Crest	Left	Right"	
195			elevation coefficie b	oreadth s	sideslope side	slope"	
196	"		423.980 0.900	1.000	0.000	0.000"	
197	"		 ORIFICES" 				
198	"		Orifice Orifice O	Orifice N	Number of"		
199	"		invert coefficie di	iameter	orifices"		
200	"		422.046 0.820	0.0750	1.000"		
201	"		Peak outflow	0.	.021 c.m/se	C "	
202	"		Maximum level	423.	.783 metre"		
203			Maximum storage	223.	.395 c.m"		
204			Centroidal lag	3.	.511 hours"		
205		4.0		0.021	0.009 C.m/	sec"	
200		40	AIDROGRAPH COMDINE	Ζ			
207			2 Node #"				
200			Z Node # Total to Highway 6"				
210			Maximum flow	0	021 c m/se	~ "	
211			Hydrograph volume	377	033 c.m."		
212			0.323 0.323	0.02	21 0.021"		
213		40	HYDROGRAPH Start - New 7	Fributary	/"		
214			2 Start - New Tributary	/"			
215			0.323 0.000	. 0.02	0.021"		
216		33	CATCHMENT 203"				
217	"		1 Triangular SCS"				
218	"		1 Equal length"				
219	"		1 SCS method"				
220	"		203 Uncontrolled to Rear	Yard Ame	ended Topsoil	then to Hwy	7 6"
221	"		25.000 % Impervious"				
222	"		0.352 Total Area"				
223	"		120.000 Flow length"				
224	"		2.000 Overland Slope"				
225			0.264 Pervious Area"				
226			120.000 Pervious length"				
227			2.000 Pervious slope"				
228			0.088 Impervious Area"				
229			2 000 Impervious fengen				
230			0 250 Dervious Manning In!				
232			75 000 Pervious SCS Curve No	- "			
233			0 348 Pervious Runoff coeff	ficient"			
234			0 100 Pervious Ja/S coeffic	rient"			
235			8.467 Pervious Initial abst	traction"			
236			0.015 Impervious Manning 'r	n"			
237	"		98.000 Impervious SCS Curve	No."			
238	"		0.894 Impervious Runoff coe	efficient	. "		
239	"		0.100 Impervious Ia/S coeff	Eicient"			
240	"		0.518 Impervious Initial at	ostractic	on"		
241	"		0.041 0.000	0.02	21 0.021 c	.m/sec"	
242	"		Catchment 203	Pervious	Impervious	Total Area	
243	"		Surface Area	0.264	0.088	0.352	hectare"
244			Time of concentration 2	29.872	3.602	17.758	minutes"
245			Time to Centroid	145.259	93.828	121.542	minutes"
240			Rainfall volumo	00.003	05.003 E7 20	00.003	
24/			Rainiali Volume	10 360 10 360	6 895	220.01	c.lll"
240			Runoff depth	12.309 22.633	58 108	31 502	mm "
250			Runoff volume	59 75	51 13	110 89	
251			Runoff coefficient	348	0 894	0 485	"
252			Maximum flow	0.013	0.037	0.041	c.m/sec"
253		40	HYDROGRAPH Add Runoff "				
254			4 Add Runoff "				
255			0.041 0.041	0.02	0.021"		
256	"	57	TRENCH Design d/s of 203	3 "			

257		0.041	Peak inf	low"				
258		110.887	Hydrogra	ph volum	ie"			
259		424.500	Ground e	levation	L"			
260		423.500	Downstre	am trenc	h invert	"		
261		0.500	Trench h	eight"				
262		422.500	Water ta	ble elev	ation"			
263		3.500	Trench t	op width	."			
264		3.500	Trench b	ottom wi	dth"			
265		40.000	Voids ra	tio (%)"				
266		20.000	Hydrauli	c conduc	tivity"			
267		0.000	Trench g	radient	(%)"			
268		130.000	Trench 1	engt.h "	(-)			
269		1.000	Include	base wid	th"			
270		21.	Number o	f stages				
271			Level	Discharg	ve Volu	ime"		
272			423 500	0 00		0 0 "		
272			423 550	0.00	0	9.1"		
274			423 600	0.00	0 1	8 2"		
275			423.000	0.00	0 1	7 2 "		
275			423.050	0.00	0 2	7.5 5.4 "		
270			423.700	0.00	0 4	5.4		
277			423.750	0.00		4 6 "		
270			423.000	0.00	0 5	±.0"		
279			423.050	0.00	0 7	5.7"		
280			423.900	0.00	10 7.	2.8"		
281			423.950	0.00	0 8.	1.9"		
282			424.000	0.01	./ 9.	1.0"		
283			424.050	0.04	.9 9.	1.1"		
284			424.100	0.08	9 9.	1.1"		
285			424.150	0.13	9.	1.2"		
286			424.200	0.19	2 9.	1.2"		
287			424.250	0.25	2 9.	1.3"		
288	"		424.300	0.31	.8 9	1.3"		
289	"		424.350	0.38	8 9	1.4"		
290	"		424.400	0.46	3 93	1.5"		
291			424.450	0.54	.3 9:	1.5"		
292	"		424.500	0.62	6 93	1.6"		
293	"	1.	WEIRS"					-
294	"		Crest	Wei	r Cre	est	Left Rig	ht"
295		e	levation	coeffici	e bread	dth sides	slope sideslo	pe"
296			423 950	0.90	0 1.0	000 0	n nnn - n n	00"
297			120.000			000 0	0.000	00
298	"	1.	MANHOLE "				0.000 0.0	00
0 0 0		1.	MANHOLE" Access"				0.000	00
299		1.	MANHOLE" Access" diameter"				5.000 0.0	00
299 300		1.	MANHOLE" Access" diameter" 1.200"				5.000 0.0	
299 300 301		l. Pe	MANHOLE" Access" diameter" 1.200" ak outflo	w		0.000	c.m/sec"	
299 300 301 302		l. Pe Ou	MANHOLE" Access" diameter" 1.200" ak outflow tflow vol	w ume		0.000	c.m/sec" c.m"	
299 300 301 302 303		l. Pe Ou Pe	MANHOLE" Access" diameter" 1.200" ak outflo tflow vol ak exfilt:	w ume ration		0.000 0.003 0.004	c.m/sec" c.m" c.m/sec"	
299 300 301 302 303 304		l. Pe Ou Pe Ex	MANHOLE" Access" diameter" 1.200" ak outflow tflow vol- ak exfilt: filtration	w ume ration n volume		0.000 0.003 0.004 110.885	c.m/sec" c.m" c.m/sec" c.m"	
299 300 301 302 303 304 305		l. Pe Ou Pe Ex Ma	MANHOLE" Access" diameter" 1.200" ak outflow tflow vol- ak exfilt: filtration ximum lev	w ume ration n volume el		0.000 0.003 0.004 110.885 423.899	c.m/sec" c.m" c.m"sec" c.m" metre"	
299 300 301 302 303 304 305 306		l. Pe Ou Pe Ex Ma Ma	MANHOLE" Access" diameter" 1.200" tflow vol' ak exfilt: filtratio: ximum lev ximum sto	w ume ration n volume el rage		0.000 0.003 0.004 110.885 423.899 72.605	c.m/sec" c.m" c.m/sec" c.m" metre" c.m"	
299 300 301 302 303 304 305 306 307		l. Pe Ou Pe Ex Ma Ma Ce	MANHALE" Access" diameter" 1.200" tak outflo tflow vol ak exfilt: filtratio: ximum lev ximum sto ntroidal	w ume ration n volume el rage lag		0.000 0.003 0.004 110.885 423.899 72.605 5.894	c.m/sec" c.m" c.m"sec" c.m" metre" c.m" hours"	
299 300 301 302 303 304 305 306 307 308		l. Pe Ou Pe Ex Ma Ma Ce In	MANHOLE" Access" diameter" 1.200" ak outfloo ttflow vol: ak exfilt: filtratio: ximum lev: ximum sto: ntroidal filtratio:	w ume n volume el rage lag n area 2	sides	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721	c.m/sec" c.m" c.m"sec" c.m" metre" c.m" hours" sq.metre"	
299 300 301 302 303 304 305 306 307 308 309		l. Pe Ou Pe Ex Ma Ma Ce In In	MANHOLE" Access" diameter" 1.200" ak outfloo ttflow vol ak exfilt: filtratio: ximum lev ximum sto: ntroidal filtratio: filtratio:	w ume ration n volume el rage lag n area 2 n Base a	sides rea	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre"	
2999 300 301 302 303 304 305 306 307 308 309 310		l. Pe Ou Pe Ex Ma Ce In In	MANHOLE" Access" diameter" 1.200" ttflow vol: ttflow v	w ume ration n volume el rage lag n area 2 n Base a 0.04	sides rea 1 0.1	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre" 0.004 c.m/sec	"
299 300 301 302 303 304 305 306 307 308 309 310 311		1. Pe Ou Pe Ex Ma Ma Ce In In 1 Ma	MANHOLE" Access" diameter" 1.200" ak outflo ttflow vol- tak exfilt: filtratio: ntroidal filtratio: 0.041 DROGRAPH	w ume ration n volume el rage lag n area 2 n Base a 0.04 Combin	sides rea 1 0.(e 2"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000	c.m/sec" c.m" c.m" c.m" metre" c.m" hours" sq.metre" 0.004 c.m/sec	"
299 300 301 302 303 304 305 306 307 308 309 310 311 312		1. Pe Ou Pe Ex Ma Ma Ce In In In 40 HY 6	MANHOLE" Access" diameter" 1.200" ak outflow vol: tak exfilt: ximum sto: ximum sto: ntroidal filtratio: 0.041 DROGRAPH Combine	w uume ration n volume el rage lag n area 2 n Base a 0.04 Combin "	sides rea 1 0.1 re 2"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000 000 0	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec	"
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313		1. Pe Ou Pe Ex Ma Ma Ce In In 40 HY 6 2	MANHOLE" Access" diameter" 1.200" ak outflo ttflow vol ttflow vol	w ume ration n volume el rage lag n area 2 n area 2 n Base a 0.04 Combin	sides rea 1 0.0 e 2"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000 000 0	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec	"
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314		1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2	MANHOLE" Access" diameter" 1.200" the outfloo the outf	w ume ration n volume el rage lag n area 2 n Base a 0.04 Combin " Highway	sides rea 1 0.1 e 2"	0.000 0.003 0.004 110.885 423.889 72.605 5.894 103.721 455.000 000 0	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec	n
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315		1. Pe Ou Pe Ma Ma Ce In In In 40 HY 6 2 Ma	MANHOLE" Access" diameter" 1.200" ak outflo ttflow vol- tak exfilt: filtratio: ntroidal filtratio: 0.041 DROGRAPH Combine Node #" Total to ximum flo	w ume ration n volume el rage lag n Base a 0.04 Combin " Highway w	sides rea 1 0.1 e 2"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000 000 0 0.021	c.m/sec" c.m" c.m" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec"	"
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316		1. Pe Ou Pe Ex Ma Ma Ce In In In 40 HY 6 2 Ma Hy	MANHOLE" Access" diameter" 1.200" tak outflo ttflow vol: tak exfilt: ximum tev ximum tev ximum tev ximum tev controidal filtratic: 0.041 DROGRAPH Combine Node #" Total to drograph	w ume ration n volume el rage lag n Base a 0.04 Combin " Highway w volume	sides rea 1 0.1 we 2"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000 000 0 0.021 377.036	c.m/sec" c.m" c.msec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec c.m/sec" c.m"	n
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317		1. Pe Ou Pe Exx Ma Ce In In 40 HY 6 2 Ma Hy	MANHOLE" Access" diameter" 1.200" ak outflo ttflow vol: tak exfilt: filtratic: filtratic: 0.041 DROGRAPH Combine Node #" Total to ximum flo 0.01 0.02	w ume ration n volume el rage lag n area 2 n area 2 0.04 Combin " Highway w volume 41 0	sides rea 1 0.0 e 2" 6"	0.000 0.003 0.004 110.885 423.899 72.605 5.894 103.721 455.000 000 0 0.021 377.036 0.000	c.m/sec" c.m" c.m/sec" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec c.m" 0.021"	"
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318		1. Pe Ou Pe Ex Ma Ce In In 40 HY 6 2 Ma Hy 40 HY	MANHOLE" Access" diameter" 1.200" 	W ume ration n volume el rage lag n area 2 n Base a 0.04 Combin " Highway W volume 41 0 Start -	sides rea 1 0.1 e 2" 6" .041 New Tribu	0.000 0.003 0.004 110.885 423.889 72.605 5.894 103.721 455.000 000 0 0.021 377.036 0.000 utary"	c.m/sec" c.m" c.m/sec" c.m" metre" c.m" hours" sq.metre" sq.metre" 0.004 c.m/sec c.m" 0.021"	n
299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319		1. Pe Ou Pe Ex Ma Ma Ce In In In 40 HY 40 HY 2	MANHOLE" Access" diameter" 1.200" ak outflo ttflow vol ak exfilt: filtratio: ximum lev ximum sto: filtratio: 0.041 DROGRAPH Combine Node #" Total to ximum flo drograph 0.00 DROGRAPH Start - 1	w ume ration n volume el rage lag n Base a 0.04 Combin " Highway w volume 41 0 Start - New Trib	sides rea 1 0.1 e 2" 6" .041 New Tribu uutary"	0.000 0.003 110.885 423.899 72.605 5.894 103.721 455.000 000 0 0.021 377.036 0.000 utary"	c.m/sec" c.m" c.m" c.m" metre" c.m" hours" sq.metre" 0.004 c.m/sec c.m" 0.021"	"

321		33	CATCHMENT 204"				
322			1 Triangular SCS"				
323			1 Equal length"				
324			1 SCS method"				
325			204 Uncontrolled to Hig	ghway <mark>6</mark> "			
326			0.000 % Impervious"				
327			0.049 Total Area"				
328			20.000 Flow length"				
329			2.000 Overland Slope"				
330			0.049 Pervious Area"				
331			20.000 Pervious length"				
332			2.000 Pervious slope"				
333			0.000 Impervious Area"				
334	"		20.000 Impervious length"				
335	"		2.000 Impervious slope"				
336	"		0.250 Pervious Manning 'n	1"			
337	"		75.000 Pervious SCS Curve	No."			
338	"		0.346 Pervious Runoff coe	efficient"			
339	"		0.100 Pervious Ia/S coeff	icient"			
340			8.467 Pervious Initial al	ostraction"			
341	"		0.015 Impervious Manning	'n'"			
342			98.000 Impervious SCS Curv	/e No."			
343			0.000 Impervious Runoff o	coefficient"			
344			0.100 Impervious Ia/S coe	efficient"			
345			0.518 Impervious Initial	abstraction			
346			0.005 0.00	0.000	0.021	c.m/sec"	
347			Catchment 204	Pervious	Impervious	Total Area	
348			Surface Area	0.049	0.000	0.049	nectare"
349			Time of concentration	116 272	1.229	10.195	minutes"
350			Time to Centroid	110.372	89.660	110.372	minutes"
351 351			Rainfall welves	21 05	05.005	05.005	
252			Rainfall loggog	31.05	6.015	31.05	C • III."
253			Rainiali losses	42.404	0.915	42.404	mm "
255			Runoff volumo	11 02	0.00	11 02	
255			Runoff goofficient	0 246	0.00	11.05	
357			Maximum flow	0.005	0.000	0.005	c m/sec"
358		40	HYDROGRAPH Add Runoff	"	0.000	0.005	C . III, DCC
359		10	4 Add Runoff "				
360				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 021"		
361		40	HYDROGRAPH COpy to Out	flow"	0.021		
362			8 Copy to Outflow"				
363			0.005 0.00	0.005	0.021"		
364		40	HYDROGRAPH Combine	2"			
365			6 Combine "				
366			2 Node #"				
367			Total to Highway 6				
368			Maximum flow	0.0	23 c.m/s	ec"	
369			Hydrograph volume	388.0	70 c.m"		
370			0.005 0.00	0.005	0.023"		
371		40	HYDROGRAPH Confluence	ce 2"			
372			7 Confluence "				
373			2 Node #"				
374			Total to Highway 6	1			
375			Maximum flow	0.0	23 c.m/s	ec"	
376			Hydrograph volume	388.0	70 c.m"		
377			0.005 0.02	0.005	0.000"		
378		40	HYDROGRAPH Copy to Out	flow"			
379			8 Copy to Outflow"				
380			0.005 0.02	23 0.023	0.000"		
381		40	HYDROGRAPH Combine	1"			
382			6 Combine "				
383			1 Node #"				
384	"		Total Site"				

385		Maximum flow	0.031	c.m/sec"	
386		Hydrograph volume	406.553	c.m"	
387		0.005 0.023	0.023	0.031"	
388	 40	HYDROGRAPH Confluence	1"		
389		7 Confluence "			
390		1 Node #"			
391		Total Site"			
392		Maximum flow	0.031	c.m/sec"	
393		Hydrograph volume	406.553	c.m"	
394		0.005 0.031	0.023	0.000"	
395	 38	START/RE-START TOTALS 1"			
396		3 Runoff Totals on EXIT"			
397		Total Catchment area		1.402	hectare"
398		Total Impervious area		0.793	hectare"
399		Total % impervious		56.573"	
400	 19	EXIT"			
401					

100yr Post

1		MIDUSS Output>"	65 "	57 TI	RENCH Design d/s of 201"
2		MIDUSS version Version 2.25 rev. 473"	66 "	0.080	Peak inflow"
3		MIDUSS created Sunday, February 7, 2010"	67 "	108.225	Hydrograph volume"
4		10 Units used: ie METRIC"	68 "	424.500	Ground elevation"
5		Job folder: 0:\48650\100\SWM"	69 "	423.500	Downstream trench invert"
б		Output filename: 100yr post.Out"	70 "	0.500	Trench height"
7		Licensee name: A"	71 "	422,500	Water table elevation"
8		Company "	72 "	3 500	Trench top width"
9		Date & Time last used: 5/10/2022 at 10:17:16 AM"	73 "	3 500	Trench bottom width"
10	" 31		74 "	40 000	Voids ratio (%)"
11	"		7 - "	20.000	Wids latio (%)
10		1000 Interstep	75	20.000	Twomah gwadiant (%)"
12		1500.000 Max. Storm tengen"	70	0.000	Trench Janath
1.4		1500.000 Max. Hydrograph"	///	85.000	Trench length"
14	" 32	STORM Chicago storm"	/8	1.000	Include base width"
15	"	1 Chicago storm"	.79	21.	Number of stages"
16	"	851.000 Coefficient A"	80 "		Level Discharge Volume"
17	"	0.290 Constant B"	81 "		423.500 0.000 0.0"
18		0.687 Exponent C"	82 "		423.550 0.000 5.9"
19		0.400 Fraction R"	83 "		423.600 0.000 11.9"
20		180.000 Duration"	84 "		423.650 0.000 17.8"
21		1.000 Time step multiplier"	85 "		423.700 0.000 23.8"
22		Maximum intensity 270.966 mm/hr"	86 "		423.750 0.000 29.8"
23		Total depth 71.978 mm"	87 "		423.800 0.000 35.7"
24		6 100hyd Hydrograph extension used in this file"	88 "		423.850 0.000 41.7"
25	" 33	CATCHMENT 201"	89 "		423.900 0.000 47.6"
26		1 Triangular SCS"	90 "		423.950 0.000 53.6"
27		1 Equal length"	91 "		424 000 1 458 59 5"
28		1 SCS method"	92 "		424 050 4 123 59 6"
20		201 Uncontrolled to Southwest Property Line"	93 "		424 100 7 577 59 6"
30		55 000 % Impervious"	9.4 "		424 150 11 664 59 7"
31		0.228 Total Area"	05 "		424 200 16 303 59 7"
20		15 000 Plan the	95		424.200 10.303 59.7
22		2.000 Flow tength"	90 "		424.250 21.450 59.6"
33		2.000 Overland Slope"	97		424.300 27.003 59.8"
34		0.103 Pervious Area"	98 "		424.350 32.994 59.9"
35	"	15.000 Pervious Length"	99		424.400 39.369 60.0"
36	"	2.000 Pervious slope"	100 "		424.450 46.112 60.0"
37	"	0.125 Impervious Area"	101 "		424.500 53.197 60.1"
38	"	15.000 Impervious length"	102 "	1.	WEIRS"
39		2.000 Impervious slope"	103 "		Crest Weir Crest Left Right"
40		0.250 Pervious Manning 'n'"	104 "		elevation coefficie breadth sideslope sideslope"
41		75.000 Pervious SCS Curve No."	105 "		423.950 0.900 85.000 0.000 0.000"
42		0.377 Pervious Runoff coefficient"	106 "	1.	MANHOLE "
43		0.100 Pervious Ia/S coefficient"	107 "		Access"
44		8.467 Pervious Initial abstraction"	108 "		diameter"
45		0.015 Impervious Manning 'n'"	109 "		1.200"
46		98,000 Impervious SCS Curve No."	110 "	Pe	eak outflow 0.019 c.m/sec"
47		0.890 Impervious Runoff coefficient"	111 "	01	utflow volume 33.303 c.m"
48		0.100 Impervious Ia/S coefficient"	112 "	Pe	eak exfiltration 0.003 c.m/sec"
49		0.518 Impervious Initial abstraction"	113 "	E	xfiltration volume 75 532 c.m"
50			114 "	M	aximum level 423 951 metre"
51		Catchment 201 Dervious Impervious Total Area "	115 "	M	aximum storage 53.686 g m"
51		Surface has 0.102 0.125 0.220 bestere"	116	140	antinum storage 55.000 c.m
52		Sufface Area 0.105 0.125 0.226 include	117 "	C(nfiltration area 2 sides 76 604 as metro
55		Time of contracton 7.910 0.992 2.773 minutes"	110	11	nilitiation area 2 sides 76.694 sq.metre"
54		Time to Centrola 112.515 88.822 94.922 minutes"	110	11	nilitration Base area 297.500 sq.metre"
55		Rainiali deptn /1.9/8 /1.9/8 mm"	119 "		0.000 0.080 0.019 0.003 C.m/sec"
56		Rainrail volume 73.85 90.26 164.11 c.m"	120 .	40 H	YDROGRAPH Combine 1"
57		Rainfall Losses 44.823 7.891 24.511 mm"	121 "	6	Combine "
58		Runoff depth 27.155 64.087 47.467 mm"	122 "	1	Node #"
59		Runoff volume 27.86 80.36 108.23 c.m"	123 "		Total Site"
60		Runoff coefficient 0.377 0.890 0.659 "	124 "	Ma	aximum flow 0.019 c.m/sec"
61		Maximum flow 0.016 0.076 0.080 c.m/sec"	125 "	H	ydrograph volume 33.303 c.m"
62	" 40	HYDROGRAPH Add Runoff "	126 "		0.080 0.080 0.019 0.019"
63		4 Add Runoff "	127 "	40 H	YDROGRAPH Start - New Tributary"
64		0.080 0.080 0.000 0.000"	128 "	2	Start - New Tributary"
					-

129		0.080 0.0	0.019	0.019"		
130		33 CATCHMENT 202"				
131		1 Triangular SCS"				
132		1 Equal length"				
133		1 SCS method"				
134		202 Controlled Area to	Highway 6"			
135		75.000 % Impervious"	5			
136		0.773 Total Area"				
137		15.000 Flow length"				
138		2.000 Overland Slope"				
139		0.193 Pervious Area"				
140		15.000 Pervious length"				
141		2.000 Pervious slope"				
142		0.580 Impervious Area"				
143		15.000 Impervious length"				
144		2.000 Impervious slope"				
145		0.250 Pervious Manning '	n ' "			
146		75.000 Pervious SCS Curve	No."			
147		0.377 Pervious Runoff co	efficient"			
148		0.100 Pervious Ia/S coef	ficient"			
149		8.467 Pervious Initial a	ostraction"			
150		0.015 Impervious Manning	'n'"			
151		98.000 Impervious SCS Cur	ve No."			
152	"	0.890 Impervious Runoff	coefficient"			
153		0.100 Impervious Ia/S co	efficient"			
154		0.518 Impervious Initial	abstraction	"		
155	"	0.360 0.0	0.019	0.019 0	c.m/sec"	
156	"	Catchment 202	Pervious	Impervious	Total Area	"
157	"	Surface Area	0.193	0.580	0.773	hectare"
158	"	Time of concentration	7.910	0.992	1.848	minutes"
159		Time to Centroid	112.515	88.822	91.755	minutes"
160	"	Rainfall depth	71.978	71.978	71.978	mm "
161	"	Rainfall volume	139.10	417.29	556.39	c.m"
162		Rainfall losses	44.823	7.891	17.124	mm "
163	"	Runoff depth	27.154	64.087	54.854	mm "
164		Runoff volume	52.48	371.54	424.02	c.m"
165	"	Runoff coefficient	0.377	0.890	0.762	"
166	"	Maximum flow	0.031	0.352	0.360	c.m/sec"
167	"	40 HYDROGRAPH Add Runoff	"			
168		4 Add Runoff "				
169		0.360 0.3	60 0.019	0.019"		
170		54 POND DESIGN"				
170		0.360 Current peak flow	c.m/sec"			
172		0.180 Target outflow	c.m/sec"			
174		424.0 Hydrograph Volume	C.III."			
175		422 046 Minimum water level	motro			
176		422.046 Minimum water leve	i metre"			
177		422.046 Starting water low	n motro"			
178		422.040 Starting water iev	$1 - True \cdot 0$	- Falce"		
179		Level Discharge	Volume"	- raise		
180		422 046 0 000	0.000"			
181		422,350 0,00809	1 01E-05"			
182		422,600 0.01139	12 800"			
183		422.800 0.01346	23.000"			
184		423.000 0.01526	61.200"			
185		423.260 0.01731	110.900"			
186		423.500 0.01901	187.100"			
187		423.660 0.02007	216.500"			
188		423.830 0.02113	226.000"			
189		423.880 0.02143	228.700"			
190		423.930 0.02173	241.000"			
191		423.980 0.02203	264.900"			
192		424.050 0.05083	264.900"			

1.1 Main Creat Left Right* 135 * elevation coefficie breath sideslope sideslope* 137 1.00171CS* 0.000 0.000 0.000* 137 1.00171CS* 0.0150 1.000 0.000* 139 0.0150 1.000 0.000* 0.000* 139 1.0017CS* 0.022 c.msec* 139 1.0017CS* 0.022 c.msec* 140 PERK outflow 0.022 0.019 c.m/sec* 141 Centroidal Lag 3.630 hours* 140 FURRORAPH Combine 2* 0.022 c.m/sec* 151 0.064 #* 0.000 0.022 c.m/sec* 151 Maximum flow 0.250 0.022* 0.022* 151 Maximum flow 0.22 c.m/sec* 1 151 Maximum flow 0.22 c.m/sec* 1 152 0.060 0.360 0.022 0.022* 151 Regual length*	102		
1 Clease Clease <thclease< th=""> <thclease< th=""></thclease<></thclease<>	104		I. WEIRS
1. 01390 0000000000000000000000000000000000	105		elevation coefficie breadth sideslone sideslone"
1. 0.000 1.000 0.000 0.000 199 1.001 0.000 0.000 0.000 199 Invert coefficie diameter orifices" 200 422.045 0.020 0.0750 1.000* 201 Peak outflow 0.022 c.m/sec" 202 Maximum storage 257.311 c.m/sec" 203 Maximum storage 257.311 c.m/sec" 204 Centroidal lag 3.600 hours" 205 0.360 0.360 0.022 c.m/sec" 206 40 HYDROGRAPH Combine 2* 0.360 0.002 c.m"sec" 208 2 Node #' 0.360 0.002 0.022* 1* 210 Maximum flow 0.360 0.002 0.022* 1* 213 40 HYDROGRAPH Start - New Tributary" 1 1 Start - New Tributary 214 2 Start - New Tributary 0.360 0.000 0.022 0.022* 213	106		
Image: Second	197		1 ODEFTORS"
199 Invert coefficie diameter orifics* 200 422.046 0.820 0.0750 1.000* 201 Peak outflow 0.022 c.m/sec* 203 Maximum level 423.964 metre* 203 Maximum level 423.964 metre* 204 Centroidal lag 3.690 hours* 205 0.360 0.022 0.019 c.m/sec* 206 40 HTDROGRAPH Combine 2* 0.021 c.m/sec* 208 2 Node #* 0.360 0.022 0.022* 208 2 Node #* 0.360 0.002 0.022* 203 * 0.360 0.000 0.022 0.022* 203 * 0.360 0.000 0.022 0.022* 204 2 Start - New Tributary* * 0.360 0.000 204 2 Start - New Tributary* * 0.000 0.022* 205 0.350 Unontroiled to Rear Yard Amended	198		Orifice Orifice Orifice Number of
422.046 0.0750 0.00* 201 Peak outflow 0.022 co.vsc* 202 Maximum level 423.964 metre* 203 Maximum storage 257.311 c.m* 204 Centroldal lag 3.690 hours* 205 * 0.360 0.022 0.019 c.m/sec* 206 * 40 HYDROGRAPH Combine 2* 207 * 6 Combine * 2* 208 2 Node #* * 6 209* Total to Highway 6* * * 201 * Maximum flow 0.022 c.m*ee* 202 * 0.360 0.032 0.022* 213 * HYBRORAPH Start - New Tributary* * 2 214 2 Start - New Tributary* * 0.360 0.022 0.022* 214 2 Start - New Tributary* * 2 0.52 0.024* 215 0.361 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* *	199		invert coefficie diameter orifices"
201 * Peak outflow 0.022 c.m/sec* 202 * Maximum level 433.964 metre* 203 * Maximum level 433.964 metre* 204 * Centroidal lag 3.690 hours* 205 • 0.360 0.360 0.019 c.m/sec* 206 * 0 HYDROGRAPH Combine 2* 207 * 6 Combine * 2 208 2 Node #* - - 209 Total to Highway 6* - - - 201 * Maximum flow 0.022 0.022* - 203 * 0.360 0.002 0.022* 0.02* 213 * 0.360 0.002 0.02* 0.02* 214 2 Start - New Tributary* - - 3.60 0.002 0.02* 213 * 0.360 0.002 0.02* 0.02* 0.02* 0.02* 214 2 Start - New Tributary* - -	200		
Plant Outling Outling Outling 203 Maximum storage 257.311 c.m' 204 Centroldal lag 3.690 hours' 205 40 HYBROGRAPH Combine 2* 206 40 HYBROGRAPH Combine 2* 207 6 Combine * 208 2 Node #* 209 Total to Highway 6* 211 HyBROGRAPH Start - New Tributary* 212 0.360 0.022 0.02* 213 40 HYDROGRAPH Start - New Tributary* 214 2 Start - New Tributary* 215 0.360 0.002 0.02* 216 33 CATCHMNT 203* 217 1 Friangth* 219 1 SCS method* 220 0.352 Total Area* 221 0.352 Total Area* 222 0.352 Total Area* 223 120.000 Pervious length* 224 2.300 Deervious length* </td <td>200</td> <td></td> <td></td>	200		
Maximum Storage 12::5:11 actual 203 Maximum Storage 25::11 actual 204 Centroidal lag 3:690 hours* 205 0.360 0.320 0.019 c.m/sec* 206 40 HYDROGRAPH Combine 2* 207 6 Combine " 208 2 Node #* 209 Total to Highway 6* 201 Maximum flow 0.022 211 Hydrograph volume 425.049 212 0.360 0.360 0.022 213 40 HYDROGRAPH Volume 425.049 214 2 Start - New Tributary* 215 0.360 0.002 0.022* 216 33 CATCHENENT 203* 217 1 Triangular SCS* 218 1 Equal length* 219 120:000 Fervious Area* 221 0.325 Total Area* 2221 0.264 Pervious SCS Curve No.* 221	201		Maximum level 423 064 metre
204 Centroidal lag 20.111 Cum 205 0.360 0.360 0.022 0.019 c.m/sec" 206 40 HYDEOGRAPH Combine 2* 207 6 Combine 2* 208 2 Node #" 0.022 c.m/sec" 209 Total to Highway 6* 0.022 c.m/sec" 210 Maximum flow 0.222 c.m/sec" 211 Hydbograph volume 425.049 c.m* 212 0.360 0.002 0.022* 213 40 HYDEOGRAPH Start - New Tributary" 0.360 0.022 0.022* 214 2 Start - New Tributary" 0.360 0.022 0.022* 215 0.361 Decriviar 0.022 0.022* 216 33 CATCHMENT 203* 0.022 0.022* 217 1 Triangular SCS* 1 1 218 120.000 Fervious Protona 2 2 223 10.352 Total Area" 2 2 224 2.000 <t< td=""><td>202</td><td></td><td>Maximum storage 257.211 cm</td></t<>	202		Maximum storage 257.211 cm
206 * 40 HYDROGRAPH Combine 2* 207 * 6 Combine * 208 2 Node #* 209 Total to Highway 6* 201 Maximum flow 0.022 c.m/sec* 211 Hydrograph volume 425.049 c.m* 212 0.360 0.360 0.022 0.022* 213 * 40 PDROGRAPH Start - New Tributary* 214 * 2 215 0.360 0.000 0.022 0.022* 216 * 33 CATCHMENT 20* 217 1 218 1 219 1 210 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 212 2.0352 Total Area* 223 120.000 Flow length* 224 2.000 Overland Slope* 225 0.264 Pervious length* 226 120.000 Impervious length* 227 2.000 Impervious Slope* 238 0.088 Impervious SCS Curve No.* 239 121.000 Pervious SCS Curve No.* 231 0.100 Pervious Runoff coefficient* 234 0.100 Pervious Runoff coefficient* <td< td=""><td>203</td><td></td><td>Centroidal lag 3.690 hours"</td></td<>	203		Centroidal lag 3.690 hours"
200 * 40 HYDRORRAPH Combine 2* 0.010 Combine 2* 207 * 6 Combine * 208 2 Node #* 209 Total to Highway 6* 210 Maximum flow 0.022 c.m/sec* 211 Hydrograph volume 425,049 c.m* 212 0.360 0.022 0.022* 213 *40 HYDRORRAPH Start - New Tributary* 214 2 Start - New Tributary* 215 0.360 0.000 0.022 0.022* 216 3 CATCHMENT 203* 217 1 Triangular SCS* 218 1 Equal length* 229 0.352 Total Area* 221 2.000 Flow length* 222 0.352 Total Area* 223 10.000 Flow length* 224 2.000 Overvious Area* 225 0.264 Pervious Area* 226 120.000 Impervious length* 231 0.250 Pervious Manning 'n'* 232 75.000 Impervious SCS Curve No.* 233 0.378 Pervious Runoff coefficient* 234 0.100 Impervious Runoff coefficient* 235 0.51 Merevious Runoff coefficient*	205		
207 6 Combine " 208 2 Node #" 209 Total to Highway 6" 210 Maximum flow 0.022 c.m/sec" 211 Hydrograph volume 425.049 c.m" 212 0.360 0.360 0.022 0.022" 213 40 HYROGRAPH Start - New Tributary" 214 2 Start - New Tributary" 215 0.360 0.000 0.022 0.022" 216 33 CATCHMENT 203" 217 1 Triangular SCS' 218 1 Equal Length" 219 1 SCS method" 220 0.352 Total Area" 221 0.352 Total Area" 222 0.352 Total Area" 223 120.000 Pervious length" 224 2.000 Pervious slope" 225 0.264 Pervious length" 226 120.000 Impervious Manning 'n'" 227 2.000 Impervious Slope" 238 0.264 Pervious SCS Curve No." 239 120.000 Impervious Manning 'n'" <	206	" 4	0 HYDROGRAPH Combine 2"
200 * Node #* 200 Total to Highway 6* 210 Maximum flow 0.022 c.m/sec* 211 Hydrograph volume 425.049 c.m* 212 0.360 0.022 0.022* 213 40 HYDROGRAPH Start - New Tributary* 215 0.360 0.000 0.022* 216 33 CATCHMENT 203* 217 1 Triangular SCS* 218 1 Equal length* 219 1 SCS method* 220 0.352 Total area* 221 0.352 Total Area* 222 0.352 Total Area* 223 120.000 Flow length* 224 2.000 Overland Slope* 225 0.264 Pervious alength* 226 120.000 Impervious Slope* 231 0.250 Pervious Manning 'n'* 232 0.361 Impervious Slope* 231 0.250 Pervious Slope* 231 0.250 Pervious Slope* 2	207		6 Combine "
209 "Total to Highway 6" 210 "Maximum flow 0.022 c.m/sec" 211 "Hydrograph volume 425.049 c.m" 212 0.360 0.360 0.022 0.022" 213 *40 HYDRORAPH Start - New Tributary" 0.360 0.002 0.022" 214 2 Start - New Tributary" 0.360 0.002 0.022" 216 33 CATCHMENT 203" 0.022 0.022" 217 1 Triangular SCS" 0.360 0.002 0.022" 218 1 Equal Length" 1 25.000 % Impervious" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 0.352 Total Area" 222 0.352 Total Area" 222 0.000 Flow length" 224 2.000 Verland Slope" 233 120.000 Pervious large 231 10.000 Impervious SCS Curve No." 233 0.378 Pervious SCS Curve No." 233 0.378 Pervious SCM verve No." 234 0.010 Impervious SCS Curve No.	208		2 Node #"
210 Maximum flow 0.022 c.m/sec" 211 Hydrograph volume 425.049 c.m" 212 0.360 0.022 0.022* 213 *40 HYDROGRAPH Start - New Tributary" 214 2 Start - New Tributary" 215 0.360 0.000 0.022 216 *33 CATCHMENT 203* 217 1 Triangular SCS" 218 1 Equal length" 219 1 SCS method* 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 211 25.000 % Unpervious* 222 0.352 Total Area* 223 120.000 Flow length* 224 2.000 Overland Slope* 225 0.264 Pervious Area* 226 120.000 Impervious* 227 2.000 Pervious Subge* 228 0.088 Impervious SCS Curve No.* 239 120.000 Impervious SCS Curve No.* 231 0.015 Impervious SCofficient* <td< td=""><td>209</td><td></td><td>Total to Highway 6"</td></td<>	209		Total to Highway 6"
211 Hydrograph volume 425.049 c.m** 212 0.360 0.022 0.022* 213 40 HYDRORAPH Start - New Tributary" 214 2 Start - New Tributary" 215 0.360 0.022 0.022* 216 33 CATCHMENT 203* 217 1 Triangular SCS* 218 1 Equal length* 219 1 SCS method* 220 235 Total Area* 223 120.000 Flow length* 224 2.000 Veriand Slope* 225 0.264 Pervious length* 226 120.000 Pervious slope* 227 2.000 Impervious length* 228 0.088 Impervious Slope* 229 120.000 Impervious Slope* 231 0.250 Pervious Slope* 232 0.378 Pervious Slope* 233 0.378 Pervious Slope* 234 0.100 Pervious Slope* 235 0.467 0.000 0.022	210		Maximum flow 0.022 c.m/sec"
212 * 113 * 40 HYDROGRAPH Start - New Tributary" 214 * 2 Start - New Tributary" 215 0.360 0.000 0.022 0.022" 216 33 CATCHMENT 203" 0.360 0.000 0.022 0.022" 217 1 Triangular SCS" 1 Equal length" 219 1 SCS method" 0.000 1.022 0.022" 210 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 22 217 1 Triangular SCS" 1.000 1.000 218 1.000 Flow length" 22 0.352 Total Area" 224 2.000 Dervious length" 22 0.021 0.022 0.021 225 0.264 Pervious Rea" 22 2.000 Impervious Rea" 226 120.000 Impervious Rea" 22 2.000 Impervious Rea" 227 2.000 Pervious Read" 2.000 Impervious Read" 231 0.260 Pervious Read" 2.001 Impervious Read"	211		Hydrograph volume 425.049 c.m"
213 * 40 HYDROGRAPH start - New Tributary" 214 2 Start - New Tributary" 215 0.360 0.000 0.022 216 33 CATCHMENT 203" 217 1 Triangular SCS" 218 1 Equal length" 219 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 2.352 Total Area" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Area" 226 120.000 Impervious length" 227 2.000 Impervious Slope" 28 0.088 Impervious Slope" 219 120.000 Impervious Slope" 210 0.250 Pervious SCS Curve No." 231 0.260 Pervious SCS Curve No." 232 0.378 Pervious SCS Curve No." 233 0.378 Pervious SCS Curve No." 244 0.100 Impervious Ind/S coefficient" 250 0.	212		0.360 0.360 0.022 0.022"
214 2 Start - New Tributary" 215 0.360 0.000 0.022 216 33 CATCHMENT 203" 217 1 Triangular SCS" 218 1 Equal length" 219 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 2.5.000 % Impervious" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Reag" 226 120.000 Pervious length" 227 2.000 Impervious length" 228 0.088 Impervious Slope" 231 0.250 Pervious Runoff coefficient" 233 0.376 Pervious Runoff coefficient" 234 0.100 Impervious SCS Curve No." 235 0.015 Impervious SCS Curve No." 236 0.015 Impervious Runoff coefficient" 236 0.015 Impervious SCS Curve No." 237 98	213	" 4	0 HYDROGRAPH Start - New Tributary"
215 * 0.360 0.000 0.022 0.022* 216 * 33 CATCHMENT 203* 217 * 1 Triangular SCS* 218 * 1 Equal length* 219 * 1 SCS method* 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 2.0352 Total Area* 222 0.352 Total Area* 223 120.000 Pervious Slope* 224 2.000 Overland Slope* 225 0.264 Pervious length* 226 120.000 Impervious length* 227 2.000 Pervious Slope* 238 0.088 Impervious length* 239 120.000 Impervious Slope* 231 0.250 Pervious Scurve No.* 233 0.378 Pervious Scurve No.* 234 0.1015 Impervious Maning 'n'* 235 8.467 Pervious Scurve No.* 236 0.0155 Impervious Scurve No.* 237 98.000	214		2 Start - New Tributary"
216 * 33 CATCHMENT 203" 217 * 1 Triangular SCS" 218 1 Equal length" 219 * 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 20.352 Total Area" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious langth" 226 120.000 Pervious Area" 229 120.000 Impervious Area" 229 120.000 Impervious Slope" 231 0.250 Pervious Manfig 'n'" 232 75.000 Pervious Slopef' 233 0.378 Pervious SC Curve No." 234 0.100 Pervious SC Curve No." 235 8.467 Pervious Runoff coefficient" 236 0.015 Impervious Runoff coefficient" 237 98.000 Impervious Coefficient" 238 0.905 Impervious Runoff coefficient" <t< td=""><td>215</td><td></td><td>0.360 0.000 0.022 0.022"</td></t<>	215		0.360 0.000 0.022 0.022"
217 * 1 Triangular SCS* 218 * 1 Equal length* 219 1 SCS method* 220 * 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6* 221 * 250.000 % Impervious* * 223 120.000 Flow length* * * 224 2.000 Overland Slope* * * 225 0.264 Pervious Area* * * 226 120.000 Empervious length* * * 227 2.000 Impervious Slope* * * 228 0.088 Impervious Slope* * * 230 2.000 Impervious Slope* * * 231 0.250 Pervious Slope* * * 232 * 0.010 Pervious Slope* * * 233 0.378 Pervious Sunoff coefficient* * * 234 0.100 Pervious Manning 'n'* * * * 235 8.467 Pervious Manting 'n'* * * * 236 0.0115 Impervious Slafcient* * *	216	" 3	3 CATCHMENT 203"
218 1 Equal length" 219 1 SCS method" 220 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 25.000 % Impervious" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious Area" 226 120.000 Pervious Slope" 228 0.088 Impervious Area" 229 120.000 Impervious Slope" 231 0.250 Pervious Marea" 232 75.000 Impervious SCS Curve No." 233 0.378 Pervious Maning 'n'" 234 0.100 Pervious SCS Curve No." 235 8.467 Pervious Maning 'n'" 236 0.015 Impervious Maning 'n'" 237 98.000 Impervious SCS Curve No." 238 0.905 Impervious SCS Curve No." 239 0.100 Impervious Total Area " 240 0.518 Impervious Total Area " 241 0.046 <td>217</td> <td></td> <td>1 Triangular SCS"</td>	217		1 Triangular SCS"
219 * 1 SCS method" 220 * 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 * 25.000 % Impervious" 222 * 0.352 Total Area" 223 * 120.000 Flow length" 224 * 2.000 Overland Slope" 225 * 0.264 Pervious Area" 226 * 120.000 Pervious length" 227 2.000 Impervious slope"	218	"	1 Equal length"
221 203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6" 221 25.000 % Impervious" 222 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious length" 226 120.000 Pervious length" 227 2.000 Pervious Slope" 228 0.088 Impervious Slope" 230 2.2000 Impervious Slope" 231 0.250 Pervious Slope" 233 0.378 Pervious SCS Curve No." 234 0.100 Pervious Runoff coefficient" 234 0.100 Pervious Runoff coefficient" 235 8.467 Pervious Runoff coefficient" 236 0.905 Impervious SCS Curve No." 237 98.000 Impervious SCS Curve No." 238 0.905 Impervious SCS Curve No." 239 0.100 Impervious Ta/S coefficient" 240 0.518 Impervious Ta/S coefficient" 241 0.905 Impervious SCS Curve No." <td>219</td> <td>"</td> <td>1 SCS method"</td>	219	"	1 SCS method"
221 * 25.000 % Impervious" 222 * 0.352 Total Area" 223 120.000 Glow length" 224 * 2.000 Overland Slope" 225 0.264 Pervious length" 226 120.000 Pervious length" 227 * 2.000 Pervious slope" 228 0.088 Impervious length" 229 120.000 Impervious slope" 231 0.250 Pervious Manning 'n'" 232 75.000 Pervious SCS Curve No." 233 0.378 Pervious Runoff coefficient" 234 0.100 Pervious SCS Curve No." 235 8.467 Pervious Runoff coefficient" 236 0.015 Impervious SCS Curve No." 238 0.905 Impervious Scs Curve No." 239 0.100 Impervious Scs Curve No." 239 0.100 Impervious Scs Curve No." 241 0.466 0.000 0.022 0.022 c.m/sec" 242 Catchment 203 Pervious Impervious Total Area "	220	"	203 Uncontrolled to Rear Yard Amended Topsoil then to Hwy 6"
222 " 0.352 Total Area" 223 120.000 Flow length" 224 2.000 Overland Slope" 225 0.264 Pervious length" 226 120.000 Pervious length" 227 2.000 Pervious length" 228 0.088 Impervious length" 229 120.000 Impervious Slope" 230 2.000 Impervious Slope" 231 0.250 Pervious Slope" 233 0.378 Pervious SCS Curve No." 234 0.100 Pervious Runoff coefficient" 235 8.467 Pervious Initial abstraction" 236 0.015 Impervious SCS Curve No." 237 98.000 Impervious SCS Curve No." 238 0.005 Impervious SCS Curve No." 239 0.100 Impervious Sulf coefficient" 241 0.518 Impervious Initial abstraction" 242 Catchment 203 Pervious Impervious Total Area " 243 Surface Area 0.264 0.088 0.352 hectare" 244 <td>221</td> <td>"</td> <td>25.000 % Impervious"</td>	221	"	25.000 % Impervious"
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228 " 0.088 Impervious Area" 229 " 120.000 Impervious length" 230 " 2.000 Impervious slope" 231 " 0.250 Pervious Manning 'n'" 232 " 75.000 Pervious Runoff coefficient" 233 " 0.378 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious SCS Curve No." 238 " 0.905 Impervious SCS Curve No." 239 0.100 Impervious SCS Curve No." " 240 " 0.518 Impervious Ia/S coefficient" 240 " 0.101 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.m/sec" 242 " Catchment 203 Pervious Imervious Total Area " " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time to Cen	227	"	2.000 Pervious slope"
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230 " 2.000 Impervious slope" 231 " 0.250 Pervious Manning 'n'" 232 " 75.000 Pervious SCS Curve No." 233 " 0.378 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Scofficient" 240 " 0.1518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.m/sec" 244 " Catchment 203 Pervious Impervious Total Area " 244 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 246 " Rainfall depth <td< td=""><td>229</td><td>"</td><td>120.000 Impervious length"</td></td<>	229	"	120.000 Impervious length"
231 " 0.250 Pervious Manning 'n'" 232 " 75.000 Pervious SCS Curve No." 233 " 0.378 Pervious Runoff coefficient" 234 " 0.100 Pervious Initial abstraction" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious SCS Cerve No." 238 " 0.905 Impervious Coefficient" 240 " 0.100 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 244 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 244 " <t< td=""><td>230</td><td>"</td><td>2.000 Impervious slope"</td></t<>	230	"	2.000 Impervious slope"
233 " 75.000 Pervious SCS Curve No." 233 " 0.378 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Manning 'n'" 236 " 0.015 Impervious SCS Curve No." 238 " 0.905 Impervious Runoff coefficient" 239 " 0.100 Impervious Ia/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 244 " Rainfall depth 71.978 71.978 mm" 247 " Rainfall losses 44.763 6.860 35.288	231	"	0.250 Pervious Manning 'n'"
233 " 0.378 Pervious Runoff coefficient" 234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Initial abstraction" 236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Coefficient" 239 0.100 Impervious Ia/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.m/sec" 244 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 245 " Rainfall depth 71.978 71.978 m" 247 " Rainfall losses 44.763 6.860 35.288 mm" <	232	"	75.000 Pervious SCS Curve No."
234 " 0.100 Pervious Ia/S coefficient" 235 " 8.467 Pervious Maning 'n'' 236 " 0.015 Impervious Manning 'n'' 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Runoff coefficient" 239 " 0.100 Impervious Ia/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 c.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 244 " Rainfall depth 71.978 71.978 mm" 247 " Rainfall olume 190.02 63.34 253.36 c.m" 248 " Rainfall losses 44.763<	233	"	0.378 Pervious Runoff coefficient"
235 " 8.467 Pervious Initial abstraction" 236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Runoff coefficient" 239 " 0.100 Impervious Ta/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 0.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 244 " Rainfall depth 71.978 71.978 mm" 246 " Rainfall losses 44.763 6.860 35.288 mm"	234	"	0.100 Pervious Ia/S coefficient"
236 " 0.015 Impervious Manning 'n'" 237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Runoff coefficient" 239 " 0.100 Impervious Initial abstraction" 241 " 0.518 Impervious Initial abstraction" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 246 " Rainfall depth 71.978 71.978 mm" 247 " Rainfall lopth 27.214 65.118 36.690 mm" 248 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff coefficient 0.378 0.905 0.510<"	235		8.467 Pervious Initial abstraction"
237 " 98.000 Impervious SCS Curve No." 238 " 0.905 Impervious Runoff coefficient" 239 " 0.100 Impervious Ia/S coefficient" 240 " 0.518 Impervious Initial abstraction" 241 " 0.046 0.000 0.022 0.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 244 " Time to Centroid 141.640 93.308 120.195 minutes" 246 " Rainfall depth 71.978 71.978 mm" 247 " Rainfall losses 44.763 6.860 35.288 mm" 248 " Rainfall losses 44.763 6.860 35.288 mm" 249 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff coefficient 0.378	236		0.015 Impervious Manning 'n'"
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241 0.016 0.0046 0.000 0.022 0.022 c.m/sec" 242 " Catchment 203 Pervious Impervious Total Area " 243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 246 " Rainfall depth 71.978 71.978 71.978 mm" 247 " Rainfall losses 44.763 6.860 35.288 mm" 248 " Rainfall losses 44.763 6.860 35.288 mm" 249 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff coefficient 0.378 0.905 0.510 " 251 " Runoff coefficient 0.378 0.905 0.510 " 252 " Maximum flow 0.016 0.040 0.046 c.m/sec" 253	239		0.519 Impervious la/s coefficient
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243 " Surface Area 0.264 0.088 0.352 hectare" 244 " Time of concentration 27.544 3.453 16.855 minutes" 245 " Time to Centroid 141.640 93.308 120.195 minutes" 246 " Rainfall depth 71.978 71.978 71.978 mm" 247 " Rainfall volume 190.02 63.34 253.36 c.m" 248 " Rainfall losses 44.763 6.860 35.288 mm" 249 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff volume 71.85 57.30 129.15 c.m" 251 " Runoff coefficient 0.378 0.905 0.510<"	241		Catabust 202 Devilous Importions Total Area "
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246 " Rainfall depth 71.978 71.978 71.978 mm" 247 " Rainfall volume 190.02 63.34 253.36 c.m" 248 " Rainfall losses 44.763 6.860 35.288 mm" 249 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff volume 71.875 57.30 129.15 c.m" 251 " Runoff coefficient 0.378 0.905 0.510 " 252 " Maximum flow 0.016 0.040 0.046 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " 254 4 Add Runoff " 255 " 0.046 0.046 0.022 0.022" 256 256 " 57 TRENCH Design d/s of 203" " " 1.978 "	245		Time to Centroid 141 640 93 308 120 195 minutes
247 " Rainfall volume 190.02 63.34 253.36 c.m" 248 " Rainfall losses 44.763 6.860 35.288 mm" 249 " Runoff depth 27.214 65.118 36.690 mm" 250 " Runoff volume 71.85 57.30 129.15 c.m" 251 " Runoff coefficient 0.378 0.905 0.510 " 252 " Maximum flow 0.016 0.040 0.046 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " 254 " 4 Add Runoff " 255 " 0.046 0.022 0.022" " 256 " 57	246		Rainfall depth 71.978 71.978 71.978 mm"
248 "Rainfall losses 44.763 6.860 35.288 mm" 249 "Runoff depth 27.214 65.118 36.690 mm" 250 "Runoff volume 71.85 57.30 129.15 c.m" 251 "Runoff coefficient 0.378 0.905 0.510 " 252 "Maximum flow 0.016 0.040 0.046 c.m/sec" 253 "40 HYDROGRAPH Add Runoff " " 255 0.046 0.022 0.022" 255 "0.046 0.046 0.022 0.022" " 256 "57	247		Rainfall volume 190.02 63.34 253.36 c.m"
249 "Runoff depth 27.214 65.118 36.690 mm" 250 "Runoff depth 27.214 65.118 36.690 mm" 250 "Runoff volume 71.85 57.30 129.15 c.m" 251 "Runoff coefficient 0.378 0.905 0.510 " 252 "Maximum flow 0.016 0.040 0.046 c.m/sec" 253 "40 HYDROGRAPH Add Runoff " 254 4 Add Runoff " 254 "4 0.046 0.022 0.022" 256 "57 TRENCH Design d/s of 203"	248		Rainfall losses 44.763 6.860 35.288 mm"
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251 " Runoff coefficient 0.378 0.905 0.510 " 252 " Maximum flow 0.016 0.040 0.046 c.m/sec" 253 " 40 HYDROGRAPH Add Runoff " " 254 " 4 Add Runoff " 255 " 0.046 0.046 0.022 0.022" 256 " 57 TRENCH Design d/s of 203"	250	н	Runoff volume 71.85 57.30 129.15 c.m"
252 "Maximum flow 0.016 0.040 0.046 c.m/sec" 253 "40 HYDROGRAPH Add Runoff " 254 "4 Add Runoff " 255 "0.046 0.022 0.022" 256 "57 TRENCH Design d/s of 203" Compare the second s	251		Runoff coefficient 0.378 0.905 0.510 "
253 " 40 HYDROGRAPH Add Runoff " 254 " 4 Add Runoff " 255 " 0.046 0.022 0.022" 256 " 57 TRENCH Design d/s of 203"	252	"	Maximum flow 0.016 0.040 0.046 c.m/sec"
254 " 4 Add Runoff " 255 " 0.046 0.022 0.022" 256 " 57 TRENCH Design d/s of 203"	253	" 4	0 HYDROGRAPH Add Runoff "
255 " 0.046 0.046 0.022 0.022" 256 " 57 TRENCH Design d/s of 203"	254		4 Add Runoff "
256 " 57 TRENCH Design d/s of 203"	255	"	0.046 0.046 0.022 0.022"
	256	" 5	7 TRENCH Design d/s of 203"

257	"	0.046 Peak inflow"
258		129.149 Hydrograph volume"
259		424.500 Ground elevation"
260		423.500 Downstream trench invert"
261		0.500 Trench height"
262		422.500 Water table elevation"
263		3.500 Trench top width"
264		3.500 Trench bottom width"
265		40.000 Voids ratio (%)"
266		20.000 Hydraulic conductivity"
267		0 000 Trench gradient (%)"
268		130.000 Trench length"
269		1.000 Include base width"
270		21 Number of stages"
271		Level Discharge Volume"
272		423 500 0 000 0 0"
272		423 550 0.000 9.1"
277		422 600 0.000 19.2
275		423.660 0.000 18.2
275		423.050 0.000 27.3
270		423.700 0.000 36.4"
277		423.750 0.000 45.5"
278		423.800 0.000 54.6"
279		423.850 0.000 63.7"
280		423.900 0.000 72.8"
281		423.950 0.000 81.9"
282		424.000 0.017 91.0"
283	"	424.050 0.049 91.1"
284	"	424.100 0.089 91.1"
285	"	424.150 0.137 91.2"
286	"	424.200 0.192 91.2"
287		424.250 0.252 91.3"
288	"	424.300 0.318 91.3"
289		424.350 0.388 91.4"
290		424.400 0.463 91.5"
291	"	424.450 0.543 91.5"
292	"	424.500 0.626 91.6"
293	"	1. WEIRS"
294	"	Crest Weir Crest Left Right"
295		elevation coefficie breadth sideslope sideslope"
296		423.950 0.900 1.000 0.000 0.000"
297		1. MANHOLE"
298		Access"
299		diameter"
300		1.200"
301		Peak outflow 0.003 c.m/sec"
302		Outflow volume 6.189 c.m"
303		Peak exfiltration 0.004 c.m/sec"
304		Exfiltration volume 122.938 c.m"
305		Maximum level 423.958 metre"
306		Maximum storage 83 437 c.m"
307		Centroidal lag 3 049 hours"
308		Infiltration area 2 sides 119 193 sq metre"
309		Infiltration Base area 455 000 sq metre"
310		0.046 0.046 0.003 0.004 c.m/sec"
311		40 HYDROGRAPH Combine 2"
312		6 Combine "
312		2 Node #"
314		Total to Highway 6"
215		Maximum flow
216		Hudrograph volume 421 220 c.m/sec"
317		$\pi y \alpha \tau 0 g \tau a \rho n v 0 \tau \alpha m e 4 5 1.2 5 0 C \cdot m "$
318		10 UVDDOCDADU Start - New Tributary"
210		2 Start - New Tributary
220		2 Start - New Iributary"
3 Z U		0.046 0.000 0.005 0.025"

33	CA	TCHMENT 20	4 "						
	1	Triangula	r SCS"						
	1	Equal len	gth"						
	1	SCS metho	d"						
	204	Uncontrol	led to High	way 6	5 "				
	0.000	% Impervi	ous"						
	0.049	Total Are	a"						
	20.000	Flow leng	th"						
	2.000	Overland	Slope"						
	0.049	Pervious	Area"						
	20.000	Pervious	length"						
	2.000	Pervious	slope"						
	0.000	Imperviou	s Area"						
	20.000	Imperviou	s length"						
	2.000	Imperviou	s slope"						
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	0.377	Pervious	Runoii coei	11016	ent"				
	0.100	Pervious	Ia/S COEIII	cient					
	8.467	Pervious	initial abs	stract	10n"				
	0.015	Imperviou	s Manning .	No. I					
	98.000	Imperviou	s SCS CUIVE a Bunoff ad	= NO.	iont"				
	0.000	Imperviou	s Runorr co	ficie	nt"				
	0.100	Imperviou	s Initial a	betra	ation				
	0.510	0 00)	0 003		0 025 6	m/gec"	
	Ca	tchment 20	4 0.000	Pervi	0.005	Tmpe	rvious	Total Area	
	Su	rface Area	-	0 049		0 00	0	0 049	hectare"
	Ti	me of conc	entration	9 400	,)	1 17	8	9 400	minutes"
	Ti	me to Cent	roid	114.6	- 591	89.3	17	114.691	minutes"
	Ra	infall dep	th	71.92	78	71.9	78	71.978	mm "
	Ra	infall vol	ume	35.21	7	0.00		35.27	C.m"
	Ra	infall los	ses	44.86	53	7.30	1	44.863	mm "
	Ru	noff depth		27.11	15	64.6	77	27.115	mm "
	Ru	noff volum	e	13.29)	0.00		13.29	c.m"
	Ru	noff coeff	icient	0.377	7	0.00	0	0.377	
	Ma	ximum flow		0.000	5	0.00	0	0.006	c.m/sec"
40	HY	DROGRAPH A	dd Runoff '						
	4	Add Runof	f "						
		0.00	6 0.006	5	0.003		0.025"		
40	HY	DROGRAPH C	opy to Outf	low"					
	8	Copy to O	utflow"						
		0.00	6 0.006	5	0.006		0.025"		
40	HY	DROGRAPH	Combine	2 "					
	6	Combine "							
	2	Node #"							
		Total to	Highway 6"						
	Ma	ximum flow	_		0.02	25	c.m/se	ec.	
	Ну	drograph v	olume	-	444.52	25	c.m"		
4.0		0.00	6 0.006) ,	0.006		0.025"		
40	HY	DROGRAPH	Confidence	2 4	2 ''				
	/	Confidence	e "						
	2	Node #	Uighway 6"						
	Ma	vinum flow	nigiiway 0		0.01	25	a m/se	a"	
	Pia.	drograph w	01,1100		444 51	20	c.m/se	ic i	
	пу		6 0.029		0 006	20	0 000"		
40	UV	DROGRADU C	0.025		0.000		0.000		
10	Q Q	CODV to O	utflow"	TOW					
	0	0.00	6 0.025	;	0 025		0 000"		
40	uv	DROGRADH	Combine	1"	0.040		0.000		
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	1	Node #"							
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348 " 349 " 350 " 351 "

385		Maximum flow		0.044	c.m/sec"
386		Hydrograph volu	me	477.828	c.m"
387		0.006	0.025	0.025	0.044"
388	 40	HYDROGRAPH Co	nfluence	1"	
389		7 Confluence "			
390		1 Node #"			
391		Total Site"			
392		Maximum flow		0.044	c.m/sec"
393		Hydrograph volu	me	477.828	c.m"
394		0.006	0.044	0.025	0.000"
395					



Stormceptor Sizing





Province:	Ontario		Project Name:	961 St. David Stree	et North
City:	Fergus		Project Number:	48650-100	
Nearest Rainfall Station:	WATERLOO WELLINGTON A	AP	Designer Name:	Nathan Katerberg	
Climate Station Id:	6149387		Designer Company:	MTE Consultants I	าด
Years of Bainfall Data	34		Designer Email:	nkaterberg@mte8	5.com
			Designer Phone:	519-743-6500	
Site Name:	961 St. David Street North		EOR Name:		
Drainage Area (ha):	0.77		EOR Company:		
% Imperviousness:	75.00		EOR Email:		
Runoff Co	efficient 'c': 0.75		EOR Phone:		
Target TSS Removal (%): Required Water Quality Runc	80.0 ff Volume Capture (%):	90.00		(TSS) Load Sizing S	Reduction ummary
Estimated Water Quality Flow	v Rate (L/s):	21.88		Stormceptor Model	TSS Removal Provided (%)
Oil / Fuel Spill Risk Site?		Yes		EFO4	80
Upstream Flow Control?		Yes		EFO6	89
Upstream Orifice Control Flov	w Rate to Stormceptor (L/s):	22.00		EFO8	95
Peak Conveyance (maximum)	Flow Rate (L/s):			EFO10	97
Site Sediment Transport Pate	(ka/ba/yr)			FEO12	99
	Estimate	ed Net Ai W	Recommended S nnual Sediment (T /ater Quality Run	tormceptor EFO SS) Load Reduct off Volume Capt	Model: E ion (%): ure (%): >



Forterra



THIRD-PARTY TESTING AND VERIFICATION

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

PERFORMANCE

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

PARTICLE SIZE DISTRIBUTION (PSD)

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

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





Upstream Flow Controlled Results									
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)	
0.5	8.5	8.5	0.80	48.0	40.0	100	8.5	8.5	
1	18.3	26.8	1.61	96.0	80.0	98	18.0	26.5	
2	14.4	41.3	3.21	193.0	161.0	88	12.7	39.3	
3	10.2	51.5	4.82	289.0	241.0	81	8.3	47.6	
4	8.0	59.5	6.42	385.0	321.0	78	6.2	53.8	
5	6.9	66.4	8.03	482.0	401.0	74	5.1	58.9	
6	5.9	72.3	9.63	578.0	482.0	70	4.1	63.0	
7	3.8	76.1	11.24	674.0	562.0	66	2.5	65.5	
8	2.6	78.7	12.84	771.0	642.0	64	1.7	67.2	
9	2.5	81.1	14.45	867.0	722.0	64	1.6	68.8	
10	2.2	83.3	16.05	963.0	803.0	63	1.4	70.1	
11	2.5	85.8	17.66	1060.0	883.0	62	1.6	71.7	
12	2.0	87.8	19.27	1156.0	963.0	62	1.2	72.9	
13	12.2	100.0	20.87	1252.0	1044.0	61	7.4	80.3	
14	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
15	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
16	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
17	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
18	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
19	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
20	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
21	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
22	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
23	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
24	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
25	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
30	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
35	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
40	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
45	0.0	100.0	22.00	1320.0	1100.0	59	0.0	80.3	
Estimated Net Annual Sediment (TSS) Load Reduction =								80 %	

Climate Station ID: 6149387 Years of Rainfall Data: 34









FORTERRA



Maximum Pipe Diameter / Peak Conveyance										
Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inle Diame	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)	
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15	
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35	
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60	
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100	
EF12 / EF012	3.6	12	90	1828	72	1828	72	2830	100	

SCOUR PREVENTION AND ONLINE CONFIGURATION

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

DESIGN FLEXIBILITY

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

OIL CAPTURE AND RETENTION

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











45*-90* 0*-45* 0*-45* 45*-90*

INLET-TO-OUTLET DROP

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

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

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

HEAD LOSS

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

Pollutant Capacity												
Stormceptor EF / EFO	Moo Diam	del eter	Depth Pipe In Sump	(Outlet vert to Floor)	Oil Volume Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **			
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

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

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

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

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef STANDARD STORMCEPTOR EF/EFO SPECIFICATION

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





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

PART 1 – GENERAL

1.1 WORK INCLUDED

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

1.2 REFERENCE STANDARDS & PROCEDURES

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

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

1.3 SUBMITTALS

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

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

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

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

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

2.1.1 4 ft (1219 mm) Diameter OGS Units:
6 ft (1829 mm) Diameter OGS Units:
8 ft (2438 mm) Diameter OGS Units:
10 ft (3048 mm) Diameter OGS Units:
12 ft (3657 mm) Diameter OGS Units:

 $\begin{array}{l} 1.19 \ m^3 \ sediment \ / \ 265 \ L \ oil \\ 3.48 \ m^3 \ sediment \ / \ 609 \ L \ oil \\ 8.78 \ m^3 \ sediment \ / \ 1,071 \ L \ oil \\ 17.78 \ m^3 \ sediment \ / \ 1,673 \ L \ oil \\ 31.23 \ m^3 \ sediment \ / \ 2,476 \ L \ oil \\ \end{array}$

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

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







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

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 $L/min/m^2$ shall be assumed to be identical to the sediment removal efficiency at 40 $L/min/m^2$. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 $L/min/m^2$.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

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

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

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





assess whether light liquids captured after a spill are effectively retained at high flow rates.

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

