

9538 Walker Road, Proposed Draft Plan of Subdivision Approval		
20-2669 Comment Summary Matrix 25-Apr-22 McGregor Woodland Trails Subdivision - Application No. 325-22		
COMMENTS		DILLON RESPONSE
Essex Region Conservation Authority - Contact: Tian Martin		
1	Will flows from Phase 2 undeveloped during the interim scenario be directed towards the pond? Currently the pump rate is based on the allowable release rate calculated for the entire area of the subdivision (Phase 1 and 2), so if the undeveloped portion is not directed towards the pond, flows from Phase 2 may be double counted in overland flow and pump rate to the drain in the interim scenario.	Swales will be graded in Phase 2 to direct runoff to the proposed SWM pond. Text has been added to section 5.2 of the report to identify this.
2	Further to the above comment, please explain how Phase 2 flows are directed towards the pond if that is the case. Does preliminary grading allow for flows from Phase 2 to enter overland into Phase 1? Will swales and catch basins be required in Phase 2 to connect into Phase 1? Etc.	Swales will be graded in Phase 2 to direct runoff to the proposed SWM pond. Further detail of the swale grading and connection to the pond will be developed as part of detailed design. Text has been added to section 5.2 of the report to identify this.
3	Please clarify what the proposed pond provides for Phase 3. Section 2.0 notes that the pond provides quality control for Phase 3, but only quantity control for the full build out of Phase 1 and 2. However, the next point states that the facility is designed to accommodate flows for all developments.	Based on local topography and the Dufour Drain Report, it is understood that much of the phase 3 area does not contribute to the site outlet (Dufour Drain Branch A). As the site outlet primarily receives runoff from phase 1 & 2 areas under existing conditions, the allowable release rate is based on the phase 1 & 2 area. Once developed, Phase 3 will be directed to the same outlet as phase 1 & 2, and will be controlled to this allowable release rate (i.e. the allowable release rate will not change with the addition of phase 3, rather additional storage will be provided for the increased volume). Sections 1.1 and 2.0 of the report have been revised to clarify this.
4	Please prescribe the allowable flows out of Phase 3 into Phase 1 for the 5 year, 100 year and stress test events in the report.	In the attached storm sewer sizing sheet, lines "Street A from MH4 to MH5" and "Street A from MH14 to MH15" account for the proposed phase 3 area. As the storm sewer sizing has accounted for phase 3, and the stormwater pond will provide quantity control for this area, prescribed release rates for phase 3 are not required.
5	Please provide the storm sewer design sheet as part of the SWM report. The storm sewer design sheet is only provided in the FSR and is dated 2021 so it is unclear if this is still inline with the 2022 SWM brief.	The storm sewer design sheet has been updated and attached to these comment responses for reference.
6	The report references a proposed culvert crossing at the southwest corner of the site to provide road access to Middle Sideroad. Per further information provided in the meeting on March 29, please clarify in the report that it is currently in the process of going through the Drainage Act and state at what stage it is currently at.	It is our understanding that the Town of Amherstburg has begun the Drainage Act process. Please contact the Town directly for more information.
7	Please show on a concept drawing that adequate setback (8m+depth) is provided from the Dufour Drain to the top of bank of the SWM facility.	A concept drawing has been attached to these comment responses for reference. This drawing has been updated to include the setback limit and preliminary grading as requested.
8	The report notes that freeboard of 1.21m is provided in the 1:100 year storm event in the emergency scenario of pump failure. Table 5 shows that with a functioning pump, the freeboard provided in the 1:100 year event is 1.13m (183.20-182.07). How is more freeboard provided when the pump is off than when the pump is functioning?	In the report, the zero release simulation was provided for the 4 hour Chicago distribution, and the Table 5 value was provided using the 24 hour SCSII distribution. The report and appendix have been updated to represent the emergency scenario of pump failure with the 1:100 year, 24 hour simulation. The updated freeboard during the emergency scenario of pump failure is 0.39 m.

COMMENTS		DILLON RESPONSE
9	Per the meeting on March 29, please confirm in the report that the Major Knapp Drain and the John Knapp D&W do not currently exist and have no legal status. Please confirm both of these points for both drains as ERCA's regulation applies to watercourses in general.	A small ditch has been observed for a small portion of the Major Knapp Drain connecting to the Walker Road storm sewer. Other portions of the mapped drainage features were not found on site during the topographic survey. The Town has confirmed in an email dated April 20, 2021 that the Major Knapp Drain and John Knapp D&W Drain have no legal status, and are not maintained by the town.
10	Please provide further information in the conclusion including what the pond provides to what phases (quantity/quality), clarification on interim, ultimate, future scenarios, the overall LOE of the site (elevation, how it was calculated, confirmation that this is achievable based on preliminary grading etc.).	A statement has been included in the conclusion section to note that the proposed pond will provide quantity and quality control during interim and final development conditions.
11	Please provide preliminary grading on a concept plan demonstrating that an adequate overland flow route can be provided to the pond and that the proposed lots can be graded to achieve appropriate freeboard. This plan should also include any information regarding how Phase 2 is directed towards the pond (if applicable).	A concept drawing has been attached to these comment responses for reference. This drawing has been updated to show preliminary grading of Phase 1, and drainage plan for Phase 2. Lot grading will be prepared during the detailed design phase, however, Section 5.2 of the report has been updated with a statement that the lowest FFE elevation will be set to be 0.3m above high water level on the site.

9358 Walker Rd Development - Drainage Form and Reports

Shane McVitty <smcvitty@amherstburg.ca>

Tue, Apr 20, 2021 at 8:14 AM

To: "drice@dillon.ca" <drice@dillon.ca>

Cc: Todd Hewitt <thewitt@amherstburg.ca>

Good Morning Dean,

Please find attached a copy of the most recent engineering report for the Dufour Drain and Branches. This report was completed by Tim Oliver from Dillon. As we discussed at our April 8 meeting, Tim should serve as a good resource for you when discussing the affects of your proposed development on the Dufour Drain. I have also included a drainage improvement request form that will need to be filled out by the owner of the property and then submitted to the Town. This will get the drainage process started, beginning with the appointment of an engineer. It is my expectation that a new drainage report for the Dufour Drain will address a new access crossing, drain maintenance provisions, and updates to the schedule of assessment. Additionally, the appointed engineer will be instructed to look at any physical affects that the proposed development will have on the drain and corresponding design mitigation measures.

I have also had a good look through all of our drainage files and have been unable to find any reports or bylaws relating to the John Knapp D&W Drain or the Major Knapp Drain. I cannot be entirely sure as to the status of these drains, or whether they are drains at all. I believe that both of these drains may be private drains that have shown up on our mapping system as Municipal Drains. In the absence of any drainage reports or other documentation that verifies their status, the Town takes no responsibility for either of these drains. With that said, it will be up to your client to ensure that neighbouring lands that may be using these drains are not adversely affected by any development.

Regards,

Shane

Shane McVitty

Drainage Superintendent / Engineering Coordinator

Town of Amherstburg

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3 attachments



Repair or Improvement of Municipal Drain Form - 2019.pdf

67K



Dufour Drain report amended as per Tribunal Order Oct 4 2016.pdf

9538 WALKER ROAD
STORM SEWER DESIGN SHEET

Project Name: 9538 Walker Road
Project Number: 20-2669

Intensity Option # 1
1) Intensity (i) = a/(t+b)^c 2) Intensity (i) = a*t^b 3) Insert Intensity

Based on 1:5 Year Storm Event
Amherstburg, Ontario

a= 1259.000
b= 8.800
c= 0.838

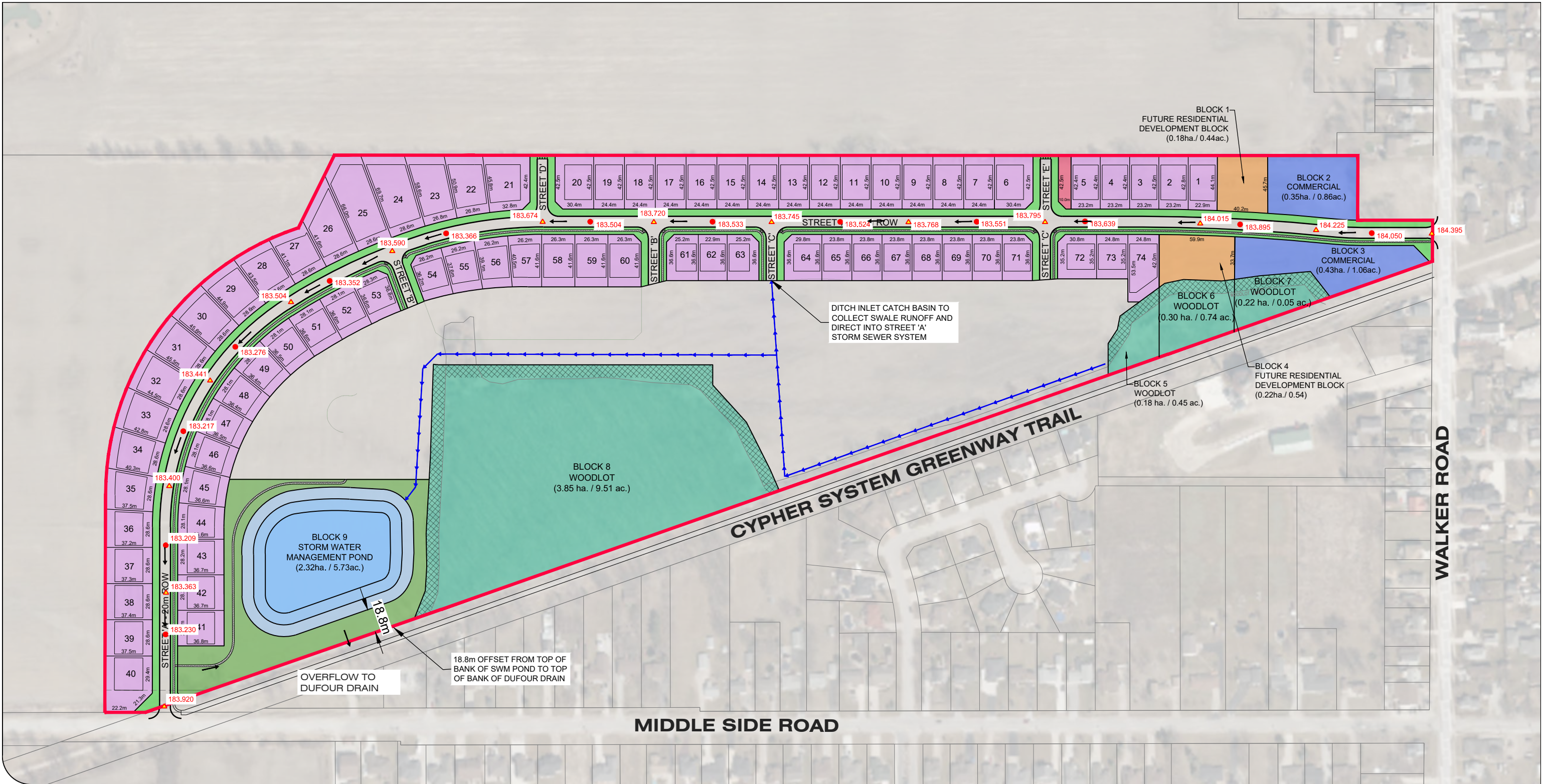
a=
b=

i=

Manning's n = 0.013

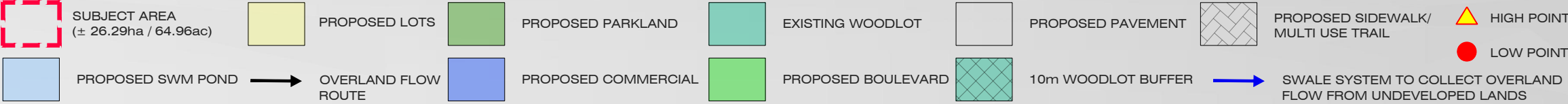
Total Area (ha)= 39.0901 Outlet Invert Elevation= 179.500 Ground Elevation @ Outlet = 183.18 High Water Level at Outlet= 182.00

Location													Sewer Design / Profile								Cover		Hydraulic Grade Line			
Road /Stations	From MH	To MH	Area (ha)	Run. Coef.	2.78AC	Accum. 2.78AC	T of In (min)	T of F (min)	T of Conc. (min)	Intensity (mm/hr)	Exp. Flow (L/s)	Capacity (L/s)	Velocity (m/s)	Wall Thickness (mm)	Length (m)	Pipe Dia. (mm)	Slope (%)	Invert Up MH	Invert Low MH	Fall (m)	Drop Across Low MH (m)	Ground Elev Up MH	Cover @ Up MH (m)	Cover @ Low MH (m)	HGL Elevation at Upstream MH	HGL Elev vs. Grnd Elev @ Up MH
Street A	1	2	1.50	0.90	3.75	3.75	15.0	1.06	15.00	88.40	331.77	431.17	0.98	108	62.2	750	0.15	181.762	181.668	0.09	0.150	184.073	1.45	1.24	183.03	Okay
Street A	2	3	1.26	0.75	2.63	6.38	15.0	1.38	16.06	85.22	543.74	652.72	1.03	121	84.7	900	0.13	181.518	181.408	0.11	0.150	183.770	1.23	1.31	182.98	Okay
Street A	3	4	0.97	0.60	1.62	8.00	15.0	1.42	17.44	81.46	651.55	819.22	0.95	133	80.7	1050	0.09	181.258	181.186	0.07	0.000	183.735	1.29	1.43	182.90	Okay
Street C	6	4	0.45	0.60	0.75	0.75	15.0	1.98	15.00	88.40	66.35	127.50	0.80	64	95.1	450	0.20	181.876	181.686	0.19	0.500	183.850	1.46	1.60	182.91	Okay
Street A	4	5	7.46	0.60	12.44	21.19	15.0	1.44	18.86	77.94	1651.69	1848.93	1.29	133	111.8	1350	0.12	181.186	181.051	0.13	0.000	183.800	1.13	1.22	182.85	Okay
Street A	5	12	1.06	0.60	1.77	22.96	15.0	1.45	20.30	74.69	1714.85	1848.93	1.29	133	112.6	1350	0.12	181.051	180.916	0.14	0.400	183.750	1.22	1.30	182.75	Okay
Street C	6	7	1.14	0.60	1.90	1.90	15.0	1.63	15.00	88.40	168.10	215.03	0.99	89	96.9	525	0.25	181.757	181.515	0.24	0.225	183.850	1.48	1.71	182.93	Okay
Street C	7	8	1.12	0.60	1.87	3.77	15.0	1.52	16.63	83.64	315.29	431.17	0.98	108	89.0	750	0.15	181.290	181.157	0.13	0.000	183.842	1.69	1.63	182.78	Okay
Street C	8	9	0.51	0.60	0.85	4.62	15.0	0.65	18.15	79.67	368.09	512.03	0.80	121	31.5	900	0.08	181.157	181.131	0.03	0.000	183.645	1.47	1.60	182.71	Okay
Street C	9	10	0.24	0.60	0.40	5.02	15.0	0.47	18.80	78.09	392.04	543.09	0.85	121	24.3	900	0.09	181.131	181.109	0.02	0.125	183.750	1.60	1.51	182.70	Okay
Street C	10	11	0.38	0.60	0.63	5.65	15.0	0.89	19.27	76.98	435.27	572.47	0.90	121	48.3	900	0.10	180.984	180.936	0.05	0.000	183.645	1.64	1.68	182.68	Okay
Street C	11	12	0.08	0.60	0.13	5.79	15.0	0.83	20.17	74.98	433.99	572.47	0.90	121	44.8	900	0.10	180.936	180.891	0.04	0.375	183.640	1.68	1.79	182.66	Okay
Street A	12	13	0.85	0.60	1.42	30.17	15.0	1.11	21.76	71.70	2162.92	2448.73	1.39	158	92.0	1500	0.12	180.516	180.406	0.11	0.000	183.700	1.53	1.59	182.63	Okay
Street A	13	14	1.17	0.60	1.95	32.72	15.0	1.34	22.86	69.60	2277.00	2448.73	1.39	158	111.5	1500	0.12	180.406	180.272	0.13	0.000	183.650	1.59	1.64	182.54	Okay
Street A	14	15	6.81	0.60	11.36	44.08	15.0	0.59	24.20	67.22	2962.73	3251.21	1.28	158	45.6	1800	0.08	180.272	180.235	0.04	0.000	183.570	1.34	1.18	182.43	Okay
Street B	16	13	0.36	0.60	0.60	0.60	15.0	2.15	15.00	88.40	53.08	127.50	0.80	64	103.4	450	0.20	181.362	181.156	0.21	0.750	183.700	1.82	1.98	182.58	Okay
Street B	16	17	2.41	0.60	4.02	4.02	15.0	1.48	15.00	88.40	355.36	431.17	0.98	108	86.8	750	0.15	180.991	180.861	0.13	0.150	183.700	1.85	1.93	182.57	Okay
Street B	17	18	2.56	0.60	4.27	8.29	15.0	1.26	16.48	84.04	696.66	945.95	1.09	133	82.6	1050	0.12	180.711	180.611	0.10	0.000	183.650	1.76	1.81	182.48	Okay
Street B	18	19	0.35	0.60	0.58	8.87	15.0	1.28	17.74	80.68	715.93	984.58	1.14	133	87.0	1050	0.13	180.611	180.498	0.11	0.600	183.600	1.81	1.87	182.43	Okay
Street A	15	19	0.61	0.60	1.02	45.09	15.0	0.60	24.80	66.22	2986.08	3251.21	1.28	158	46.2	1800	0.08	180.235	180.198	0.04	0.300	183.370	1.18	1.39	182.40	Okay
Street A	19	20	0.97	0.60	1.62	55.59	15.0	1.10	25.40	65.24	3626.39	3634.96	1.43	196	94.6	1800	0.10	179.898	179.804	0.09	0.000	183.550	1.66	1.62	182.37	Okay
Street A	20	21	0.43	0.60	0.72	56.30	15.0	0.51	26.50	63.53	3576.70	3634.96	1.43	196	43.9	1800	0.10	179.804	179.760	0.04	0.000	183.420	1.62	1.64	182.27	Okay
Street A	21	22	1.00	0.60	1.67	57.97	15.0	1.09	27.02	62.76	3638.48	4024.80	1.35	196	88.4	1950	0.08	179.760	179.689	0.07	0.000	183.395	1.49	1.62	182.23	Okay
Street A	22	23	1.90	0.60	3.17	61.14	15.0	0.72	28.11	61.20	3741.91	4024.80	1.35	196	58.3	1950	0.08	179.689	179.642	0.05	0.000	183.450	1.62	1.61	182.17	Okay
Street A	23	24	1.79	0.60	2.99	64.13	15.0	1.14	28.83	60.22	3861.53	4024.80	1.35	196	92.1	1950	0.08	179.642	179.568	0.07	0.000	183.400	1.61	1.51	182.13	Okay
Street A	25	24	1.71	0.60	2.85	2.85	15.0	1.30	15.00	88.40	252.14	431.17	0.98	108	76.2	750	0.15	180.432	180.318	0.11	0.750	183.900	2.61	2.05	182.10	Okay
Street A	24	POND	0.00	0.60	0.00	66.98	15.0	1.05	29.97	58.73	3933.76	4024.80	1.35	196	85.1	1950	0.08	179.568	179.500	0.07	0.000	183.225	1.51	1.53	182.07	Okay



2551424 ONTARIO LIMITED
9538 WALKER ROAD
CONCESSION ROAD 11 AND WALKER ROAD

**PHASE 1 OVERLAND FLOW ROUTE
AND GRADING FIGURE**



File Location:
c:\pw working directory\projects 2020\32sef\dms21799\202669 - 02 - grd fig.dwg
May, 25, 2022 3:28 PM

SOURCE: COUNTY OF ESSEX AERIAL (2019)

MAP/DRAWING INFORMATION
THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. ALL
DIMENSIONS AND BOUNDARY INFORMATION SHOULD BE
VERIFIED BY AN O.L.S PRIOR TO CONSTRUCTION.
CREATED BY: SEF
CHECKED BY: SEF/DCR
DESIGNED BY: SEF

SCALE : 1:3000



PROJECT: 20-2669
STATUS: FINAL
DATE: 05/25/2022



2439478 ONTARIO LIMITED

9538 Walker Road, Proposed Draft Plan of Subdivision Approval

Stormwater Management Brief

Table of Contents

1.0	Introduction	1
1.1	Background Investigation	2
2.0	Stormwater Management Design Criteria	3
3.0	Modelling Methodology and Development	4
3.1	Pre-Development	4
3.2	Post-Development	5
4.0	Pre-Development Conditions Analysis	6
4.1	Dufour Drain Existing Conditions Assessment	6
4.2	Allowable Release Rate	6
5.0	Proposed Development Conditions Analysis	7
5.1	Storm Sewer Design	7
5.2	Major System Conveyance	7
5.3	Phase 3 Development Flows	8
5.4	Dufour Drain Capacity Assessment	8
5.5	Stormwater Management Design	9
5.5.1	Quantity Control Design	9
5.5.2	Quality Control Design	10
5.5.3	Stormwater Management Facility Design	10
6.0	Conclusion	12
	Figures	
	Figure 1: Development Site Location	1
	Figure 2: Concept Plan	7
	Figure 3: Overland Flow Route	8

Tables

Table 1: Pre-Development Subcatchment Parameters.....	4
Table 2: Post-Development - Subcatchment Parameters.....	5
Table 3: Release Rates.....	6
Table 4: Post Development Peak Flow from Phase 3 Development.....	8
Table 5: Drain HGL.....	9
Table 6: Proposed SWM Facility Design.....	11

Appendices

A	Pre and Post Development Drain Profiles
B	Water Quality Design
A	PCSWMM Modelling Files

1.0

Introduction

Dillon Consulting Limited (Dillon) was retained by 2551424 Ontario Inc., to complete a dynamic model analysis to confirm the stormwater management strategy for the proposed subdivision located at 9538 Walker Road, in the Town of Amherstburg.

The proposed development land will be constructed in 2 phases and is approximately 26.29 ha which includes 4.55 ha of woodlots and is bounded on the east by Walker Road, on the north and west by agricultural uses, and on the south by the Cypher System Greenway Trail and Middle Sideroad. The woodlots will not be developed; therefore, 21.74 ha are developable. A future northern development is also proposed as phase 3 and is a total of 12 ha. The subject site is currently utilized for agricultural uses. The proposed phase 1 and 2 development areas includes single detached residential dwellings, commercial uses and a stormwater management facility area. Phase 3 is currently assumed to be townhomes. The minor system will outlet into the existing Dufour Drain Branch A, at the southwest corner of the site. The site boundaries are shown in Figure 1.

This report describes the previously approved storm drainage outlets for the site, the hydrologic modelling results and the proposed stormwater management plan for the development.

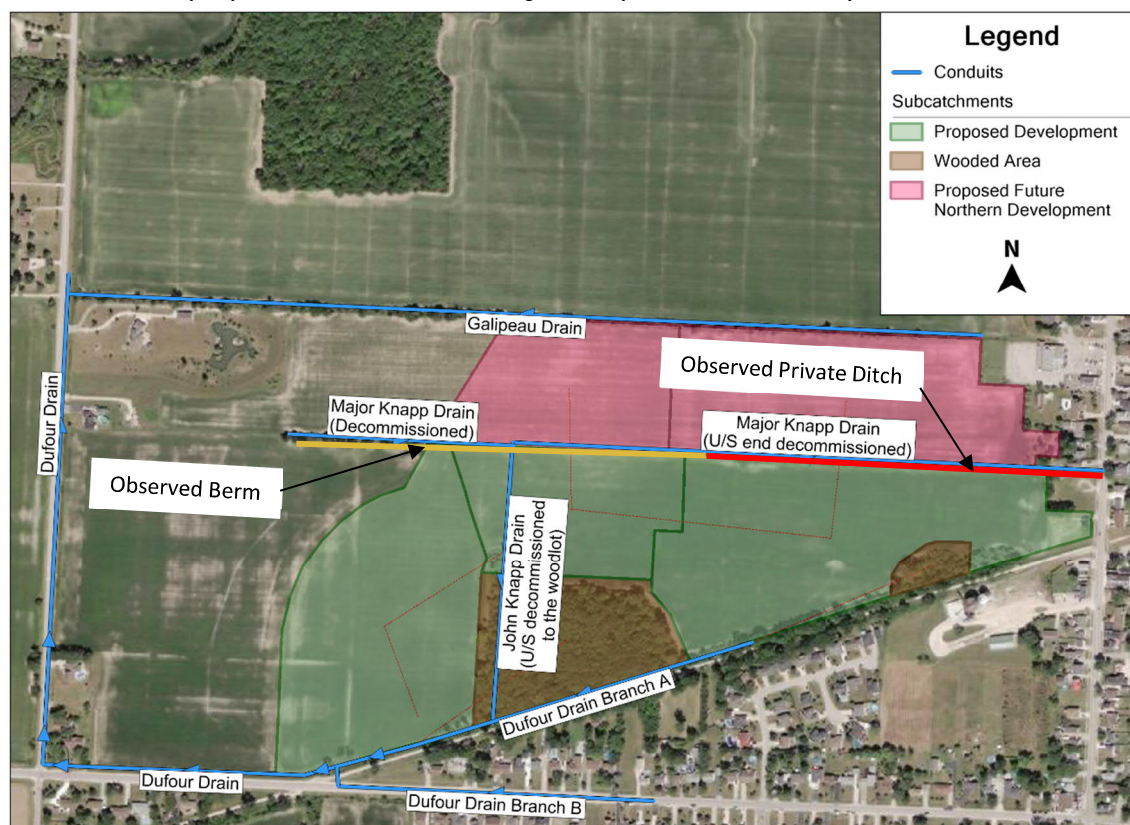


Figure 1: Development Site Location

1.1 Background Investigation

Relevant available background reports and the site topographic mapping were reviewed to characterize the existing drainage pattern. The results of this review, and confirmation from the Town of Amherstburg in an email dated April 20, 2021, indicate that the Major Knapp Drain and John Knapp D&W Drain have no legal status, and are not maintained by the Town. Much of the Major Knapp Drain and John Knapp Drain were not found in the field during the topographic survey, however, a small ditch of 470 m length was found along the eastern portion of the Major Knapp Drain which connects to the Walker Road storm sewer. This ditch provides drainage for a portion of the phase 3 area, and does not appear to service any additional lands. A small berm was surveyed along the west portion of where mapping shows the Major Knapp Drain. The Reconsidered Drainage report for the Dufour Drain and Branches A & B Drain, Town of Amherstburg, County of Essex (Dillon, 2016) was reviewed and the corresponding delineated watershed was used for the outlet capacity assessment analysis. Different names are used by ERCA (Dufour Drain) and the drainage report (Dufour Drain Branch A) for the 5.6 km long upstream northeast branch of the drain. It is hereafter referred to as the Dufour Drain Branch A.

2.0

Stormwater Management Design Criteria

The site stormwater management design criteria were developed based on the guidance presented in the following documents:

- Stormwater Management Planning and Design Manual (Ministry of the Environment (MOE, 2003);
- Corporation of the Town of Amherstburg – Development Manual (Amherstburg, 2009);
- County of Essex – Interactive Mapping (Amherstburg);
- Town of Amherstburg - Interactive Mapping (Amherstburg);
- Design Guidelines for Sewage Works (MOE, 2008); and
- Windsor/Essex Region Stormwater Management Standards Manual (ERCA SWM Standards, 2018).

The site stormwater management strategy was developed in accordance with the following criteria:

Minor System Conveyance:

- Storm sewers are designed to accommodate the peak flows from the 1:5 year storm event.

Stormwater Management:

- Quality Control: The proposed stormwater management (SWM) facility is designed to provide Normal Protection Level water quality treatment (70% total suspended solids [TSS] removal) for phase 1, 2 & 3;
- Quantity Control: The allowable release rate will be established from the area of the site assessed to the Dufour Drain, which consists of phases 1 and 2. Much of the phase 3 area is not assessed to the Dufour Drain, and therefore the phase 3 area will not be considered in establishing the allowable release rate. The proposed development conditions of phase 1, 2, and 3 will be controlled to this allowable release rate; and
- The SWM facility is designed to accommodate flows for all events up to and including the Urban Stress Test design storm event and has a minimum freeboard of 300 mm from the top of the pond to the maximum calculated water level for the 1:100 year 4 hour event for all developments.

Climate Change Resiliency Assessment:

- Review of the stormwater management system's performance is to be examined using the Urban Stress Test design storm event as identified within the Windsor/Essex Region Stormwater Management Standards Manual (December, 2018) to assess potential impacts of climate change and the facility's resiliency.

3.0

Modelling Methodology and Development

Assessment of hydrologic and hydraulic conditions for both existing and proposed conditions was undertaken using the PCSWMM 2019 software distributed by CHI.

The stormwater assessment for this development was completed using the Green-Ampt infiltration method for the hydrologic calculations, and the dynamic wave routing method for the hydraulic calculations.

3.1

Pre-Development

Based on the soil survey ERCA soil mapping data (ERCA), the soil characteristics for the 9538 Walker Road, DPS Development site is composed of Brookston Clay which has a hydrologic soil group (HSG) D classification (Table A-3.7.7, ERCA SWM Manual, 2008).

Provided in Table 1 below are the subcatchment parameters used. Full breakdowns for each subcatchment of the proposed development are provided in the PCSWMM input reports in Appendix C. Infiltration parameters were determined using the ERCA SWM Manual (Table - 3.7.7.3, ERCA SWM Manual, 2008) based on the hydrologic oil group classification.

Table 1: Pre-Development Subcatchment Parameters

Attribute		Value	
		Development (Phase 1 & 2)	Wooded Area in Development
Land Use		Agriculture	Wooded Area
Area (ha)		21.74	4.55
Flow Length* (m)		290-527	180-300
Imperviousness (%)		0	0
Slope (%)		0.5	0.5
Manning's n Pervious		0.17	0.4
Depression Storage Pervious (mm)		10	10
Infiltration	Suction Head (mm)	180	180
	Conductivity (mm/hr)	0.5	0.5
	Initial Deficit (fraction)	0.1	0.1

*Maximum flow path to outlet

3.2 Post-Development

Subcatchment attributes for the proposed development were selected based on the ERCA SWM standard and are summarized in Table 2 below. Details for the weighted imperviousness of each subcatchment can be found in Appendix C.

Table 2: Post-Development - Subcatchment Parameters

Attribute	Development (Phase 1 & 2)	Future North Development (Phase 3)
Land Use	Residential	Residential (assumed townhomes)
Area (ha)	21.74	12.00
Flow Length* (m)	290-527	300-360
Imperviousness** (%)	51-66	80
Slope (%)	0.5	
Manning's n Impervious	0.013	
Manning's n Pervious	0.24	
Depression Storage Impervious (mm)	Paved area/ flat roofs: 2.5	
Depression Storage Pervious (mm)	Lawn: 7.5	
Infiltration	Suction Head (mm)	180
	Conductivity (mm/hr)	0.5
	Initial Deficit (fraction)	0.1

*Maximum flow path to outlet

**Based on proposed land use

4.0

Pre-Development Conditions Analysis

Runoff from the existing phase 1 & 2 sites currently drains southward to the Dufour Drain Branch A, which drains into the main branch of the Dufour Drain approximately 95 m west of the site. The wooded areas shown in Figure 1 are approximately 4.55 ha in size, and will not be developed. As these wooded areas will not be developed, they have not been included in the allowable release rate calculation for the site. Flows from the two woodlots drain directly into the Dufour Drain Branch A.

4.1

Dufour Drain Existing Conditions Assessment

Reconsidered Drainage Report for the Dufour Drain and Branches A & B (Dillon, 2015), was reviewed and the corresponding drainage area was used to complete an outlet capacity assessment of the drain. The Dufour Drain and the Dufour Drain Branch B, were included in the pre-development PCSWMM model and the peak Dufour Drain Branch A hydraulic grade line (HGL) was evaluated during the 1:2, 1:5 and 1:100 year Chicago 4 hour storm distributions. The existing conditions HGL is used to assess the drain capacity, and as a comparison for proposed conditions.

Pre-development profiles and calculated HGLs for the Dufour and Dufour Drain Branch A reaches located south of the subject site are provided in Appendix A.

4.2

Allowable Release Rate

The pre-development 1:2 year peak flow from the proposed phase 1 and 2 development limits was developed for both the SCS Type II 24 hour and the Chicago 4 hour storm distributions. The analysis results summarized in Table 3 show that the Chicago storm distribution results in a lower calculated peak flow than the SCS storm. As this value is more conservative, it was selected as the design maximum release rate for the proposed SWM strategy. The allowable release rate is based on the site area assessed to the Dufour Drain, and therefore this rate will be maintained even with the addition of the phase 3 future northern development.

Table 3: Release Rates

Design Storm	Release Rate (L/s)
SCS Type II 1:2 Year	96
Chicago 1:2 Year	93

The proposed maximum allowable release rate from the proposed development to the Dufour Drain is 93 L/s.

5.0

Proposed Development Conditions Analysis

A proposed conditions stormwater model for the 9538 Walker Road, DPS Development was created using PCSWMM to assess the performance of the proposed SWM facility and Dufour Drain Branch A, under the required design storm events. The model accounts for infiltration, surface and subsurface storage, and flow routing. The concept plan for phase 1 & 2 of the proposed development is shown on Figure 2. Phase 2 is shown in grey. Phase 3, the future northern development is not shown in this concept plan.

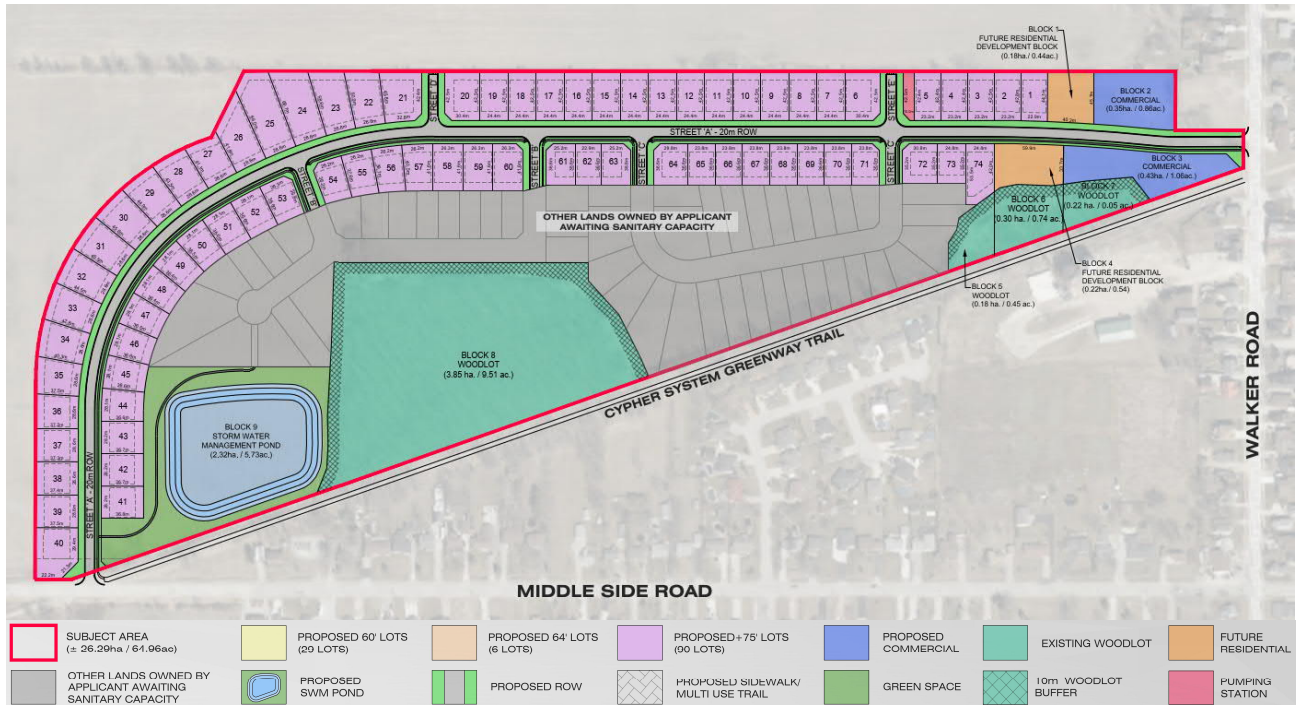


Figure 2: Concept Plan

The results of the analysis were used to:

- Evaluate storage requirements for the site, within the SWM facility; and
- Analyze the outlet flows from the site compared to the maximum allowable release rate.

5.1

Storm Sewer Design

The storm sewers were sized using the Rational Method and Manning's Equation and are described in the FSR.

5.2

Major System Conveyance

The grading of the proposed development overland flow routes will be developed during detailed design. Ponding will not occur at road sags during storms less severe than and including the 1:5 year design event.

During larger events, flows exceeding the capacity of the minor system will be conveyed by the proposed roads to the SWM pond. The maximum design flow depth is 0.3 m on the road surfaces. The roadways will be “saw-toothed” with a maximum elevation difference of 0.25 m between each sag and the downstream high point (i.e. sag spill point).

During interim conditions, prior to the build out of phase 2 of the development, swales will be incorporated to direct flow from the phase 2 development area towards the phase 1 storm sewer and the proposed SWM pond. Placement and sizing of these swales will be completed during detailed design. Figure 3 below shows the proposed overland flow route during interim conditions. Proposed lot finished floor elevations will be set 0.3 m above the high water level on the site.

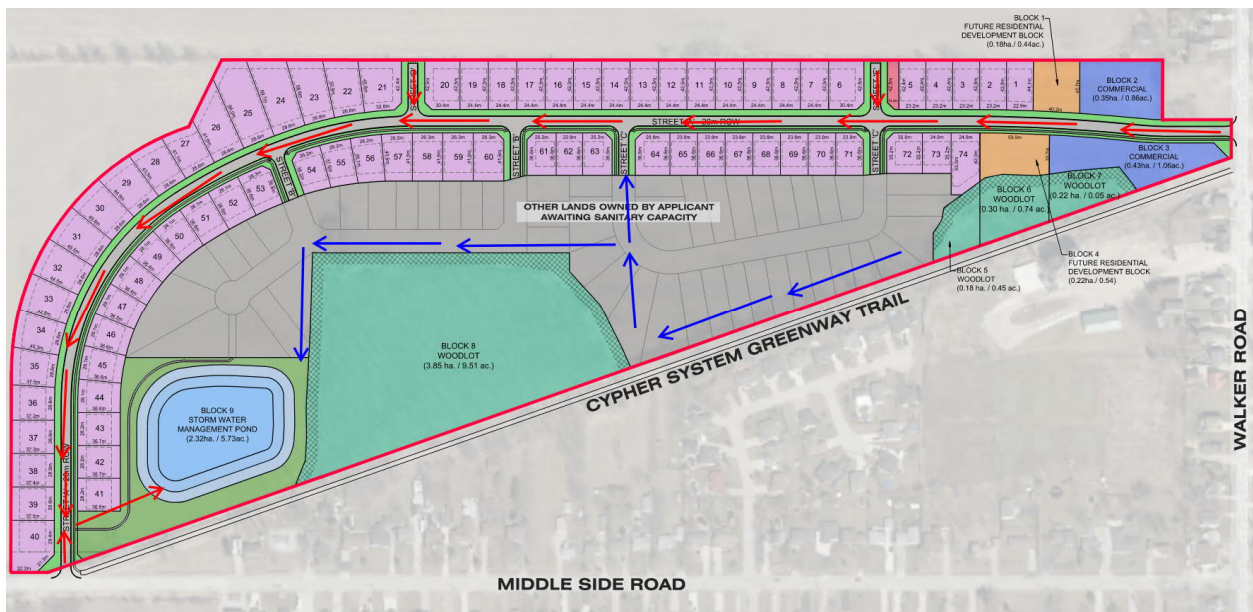


Figure 3: Overland Flow Route

The existing private ditch (previously referred to as the Major Knapp Drain) that connects to the Walker Road storm sewer will maintain the phase 3 existing conditions drainage pattern. Once phase 3 is developed this existing ditch will no longer be required and will be decommissioned.

5.3 Dufour Drain Capacity Assessment

To assess the impact on the Dufour drain as a result of the proposed development, the HGL was used as an indication of capacity for comparison under both existing and proposed conditions. A comparison of existing and proposed condition peak calculated HGL elevations at key locations in the downstream municipal drain is presented in Table 4. For the 1:2 Year storm event, there is no increase in the HGL elevation under the proposed conditions. For all other evaluated storm events, the proposed conditions calculated HGL elevations are between 0.01 m greater to 0.1 m lower than existing conditions. The existing condition model results suggest that flooding occurs in the Dufour Drain along the 8th Concession during

the 1:100 year event. The drain surcharges and floods the fields located west of the proposed development. The model results show that the proposed SWM strategy does not exacerbate this existing flooding.

Table 4: Drain HGL

Node	Design Storm	HGL (m) Existing	HGL (m) Proposed	HGL Difference (m)
J1	1:2 Year	182.58	182.59	0.01
Dufour Drain	1:5 Year	182.78	182.75	-0.04
Branch A	1:100 Year	183.15	183.06	-0.09
J2	1:2 Year	182.53	182.54	0.01
Dufour Drain	1:5 Year	182.74	182.70	-0.04
(south of site)	1:100 Year	183.11	183.02	-0.09
J4	1:2 Year	182.29	181.29	0.00
Dufour Drain	1:5 Year	182.48	182.46	-0.02
(west of site)	1:100 Year	182.73	182.70	-0.03

The post-development model was used to assess the impact on the downstream drains caused by the proposed Walker Road, DPS Development. The analysis results show that the controlled outflow rate of the development mitigates negative impacts on the calculated HGLs in the downstream drains. A culvert crossing will be required at the southwest corner of the site to provide road access to Middle Sideroad. The proposed culvert will be sized during detailed design and will convey flows with 0.3 m of freeboard. A corresponding assessment report will need to be completed during detailed design.

Post-development profiles and calculated HGLs for the Dufour and Dufour Drain Branch A reaches located south of the subject site are provided in Appendix A.

5.4 Stormwater Management Design

The stormwater management (SWM) facility will be located near the southwest corner of the development adjacent to the Dufour Drain Branch A. The facility will take up approximately 1.36 ha of the development site. The proposed SWM facility has been designed to accommodate post development runoff from the phase 1, 2, and 3 development areas.

The proposed SWM facility provides a total active storage depth of 3.7 metres at 5:1 side slopes and permanent pool depth of 1 metre with 3:1 side slopes. The total depth of the pond is 4.7 m. The stormwater facility has a single pump station outlet with a peak release rate of 93 L/s into the Dufour Drain Branch A.

5.4.1 Quantity Control Design

The proposed SWM facility was designed to control post-development flows up to and including the 1:100 year event with a minimum of 300 mm of freeboard during the 1:100 year storm for all phases. The 1:100

year storm event was analyzed using the SCS Type II 24 hour and Chicago 4 hour distributions to estimate the critical storage volume in the pond. It was found that the SCS Type II 24 hour 100 year governs as it requires a larger volume.

To assess the resiliency of the proposed SWM facility, an additional modelling scenario was performed using the UST design storm event provided in the Windsor/Essex Region Stormwater Management Standards Manual (December, 2018).

Based on the post-development modelling analysis, the following water quantity control volumes for all developments are required to control flows to 93 L/s:

- Required active storage volume of 25,338 m³ during the 1:100 year event; and
- Required active storage volume of 37,950 m³ during the UST.

The stage storage values are provided below in Table 5.

Zero release simulations were also analysed to evaluate the pond performance in the event of a pump failure. The corresponding calculated freeboard depth for the 1:100 year storm event is 0.39 m.

5.4.2 Quality Control Design

The proposed SWM facility services all phases with a catchment area of approximately 33.74 ha. The facility provides a Normal Protection Level (70% TSS removal) water quality treatment. The facility is designed in accordance with the SWM Planning and Design Manual (MOE, 2003). The water quality flows were estimated using PCSWMM for the water quality design storm, which is equivalent to a 1:2 year, 4 hour Chicago design storm with a 15 minute time interval and a total rainfall depth of 32 mm.

Based on the proposed development for 9538 Walker Road, DPS Development the following water quality controls requirements are required:

- Minimum permanent pool volume of 3,024 m³; and
- Minimum forebay length of 33 m (governed by dispersion length).

In comparison, the proposed SWM facility is designed to:

- Provide a permanent pool volume of 6,744 m³; and
- Provide a forebay length of 33 m.

Calculations in support of the water quality design are provided in Appendix B.

5.4.3 Stormwater Management Facility Design

The SWM facility was designed in accordance with the requirements presented above. The proposed facility design water surface elevations (WSEL) and corresponding volumes are summarized in Table 5.

Table 5: Proposed SWM Facility Design

Description	Design Elevation (m)	Cumulative Volume (m ³)	Active Storage Volume (m ³)
Pond Bottom	178.50	0	0
Normal Water Level (NWL)	179.50	6,744	0
	180.50	15,177	8,433
1:5 Year WSEL	180.81	18,154	11,410
	181.50	25,416	18,672
1:100 Year WSEL	182.07	32,082	25,338
	182.50	37,616	27,938
UST WSEL	183.01	44,694	37,950
Top of Pond	183.20	47,404	40,660

Based on the SWM facility design above, the facility provides sufficient water quality and quantity control treatment to meet the stormwater requirements for the 9538 Walker Road, DPS Development for all design storm events up to and including the 1:100 year and UST.

As this pond has been sized under the preliminary design process, it has been oversized to provide some buffer during the detailed design analysis.

Conclusion

The stormwater management servicing design for the proposed development for all phases meets the established SWM criteria for the overall site and no negative impacts due to the site development are anticipated in the downstream the Dufour Drain Branch A.

The conclusions are based on the results of the stormwater management analysis as follows:

- A SWM facility will control phases 1, 2, and 3 to a maximum allowable release rate of 93 L/s into the Dufour Drain Branch A, with a total provided active storage of 47,404 m³ including freeboard;
- Quality control of stormwater discharge from phases 1, 2, and 3 will be achieved using a wet pond achieving 70% removal of TSS with a permanent pool volume of 6,744 m³;
- Under interim conditions, the existing phase 2 area will be directed to the phase 1 storm sewers and SWM pond using swales, which will be graded during the detailed design phase. The existing drainage pattern of phase 3 will be maintained during interim conditions; and
- Finished floor elevations of proposed lots will be set 0.3 m higher than the high water level of the site.

Further site grading details will be developed as part of detailed design. This report is respectfully submitted for review and approval, please contact the undersigned should you have questions or require additional information.

Yours truly,

DILLON CONSULTING LIMITED

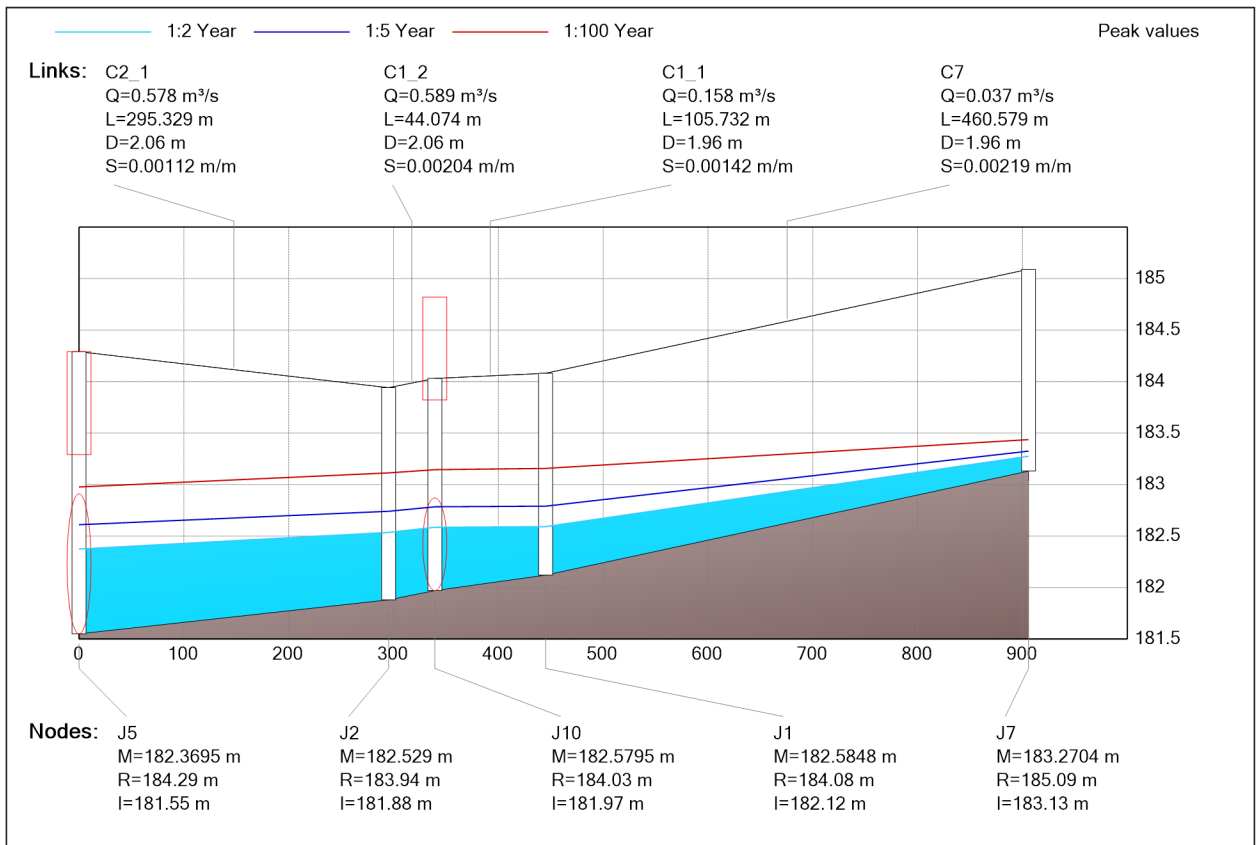


James Michener, P.Eng.
Water Resources Engineer

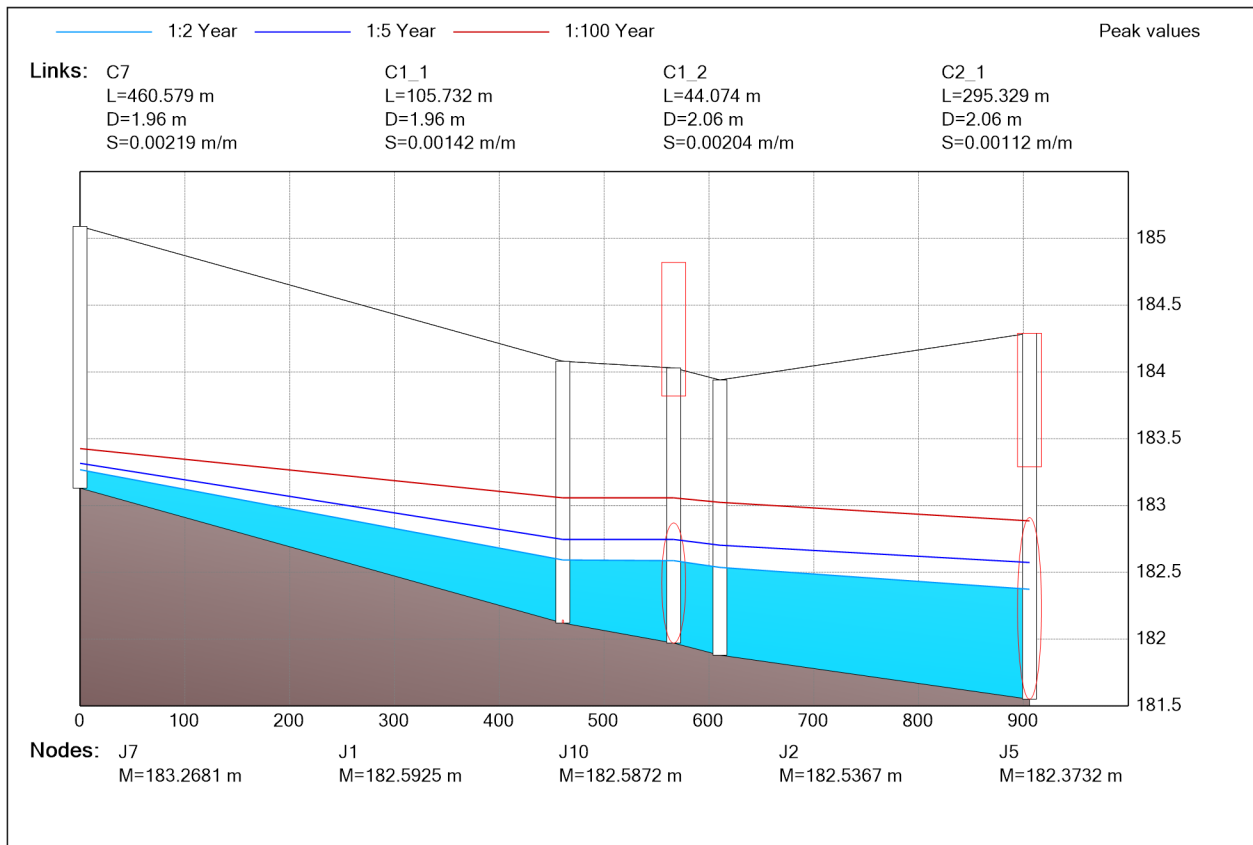
Appendix A

Pre and Post Development Drain Profiles

Pre Development Flows



Post Development Flows



Appendix B

Water Quality Design

SWMF - Water Quality Requirements	
Drainage Area	33.7 ha
Qp=0.0011m ³ /s/ha	
% Impervious:	69.80
Level 2 protection (70%TSS):	
Treatment Volume	129.73 m ³ /ha
Active Storage:	40 m ³ /ha
	1,348 m ³
Perm Storage:	89.73 m ³ /ha required
	3,024 m ³
Extended Detention Outlet Rate:	15.6 L/s average
	37 L/s max (2.4 x avg)
Erosion Control (14 L/s/ha for 5yr storm)	
	472 L/s
Erosion Control (8 L/s/ha for 5yr storm)	
	270 L/s

Notes:

Input

Output

SWMF - Required Forebay Length	
Length to width ratio of forebay, r =	3.0:1
Peak outflow (30 mm storm), Q_p =	0.093 m ³ /s (24hr ext. det)
Target particle size =	150 mm
	0.0003 m/s
Forebay Settling Length, Dist 1	
$Dist = \sqrt{\frac{rQ_p}{V_s}}$	
	30 m
Forebay Dispersion Length, Dist 2	
Desired velocity in forebay, V_f =	0.5 m/s
Peak inlet flowrate, Q_5	= 2.040 m ³ /s
Depth in forebay, d =	1.0 m
$Dist_2 = \frac{8Q}{dV_f}$	
	33 m
Therefore, the dispersion length of 33 m governs the design.	
Provided Length:	33 m

Appendix C

Composite Impervious Calculations and PCSWMM Modelling Files

Phase	Subcatchment ID	Land Use	Area (ha)	Impervious %
1 & 2	S3_10	Residential	7.0	60.0%
		Pond Footprint	1.4	100.0%
		Total Area / Composite % Imp	8.4	66.5%
	S3_9	Residential / Total Area	4.5	60.0%
	S3_15	Commercial/Res Block	1.2	90.0%
		Residential	7.7	60.0%
		Total Area / Composite % Imp	8.9	64.0%
3	S2	Townhomes / Total Area	4.5	80.0%
	S1	Townhomes / Total Area	7.5	80.0%
Total Development			33.7	69.8%

Existing Conditions PCSWMM Input Report

[TITLE]

[OPTIONS]

Options	Value
FLOW_UNITS	CMS
INFILTRATION	GREEN_AMPT
FLOW_ROUTING	DYNWAVE
LINK_OFFSETS	DEPTH
MIN_SLOPE	0
ALLOW_PONDING	NO
SKIP_STEADY_STATE	NO

START_DATE	04/16/2020
START_TIME	00:00:00
REPORT_START_DATE	04/16/2020
REPORT_START_TIME	00:00:00
END_DATE	04/19/2020
END_TIME	00:00:00
SWEEP_START	01/01
SWEEP_END	12/31
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:05:00
DRY_STEP	00:05:00
ROUTING_STEP	5
RULE_STEP	00:00:00

INERTIAL_DAMPING	PARTIAL
NORMAL_FLOW_LIMITED	BOTH
FORCE_MAIN_EQUATION	H-W
VARIABLE_STEP	0.75
LENGTHENING_STEP	0
MIN_SURFAREA	0
MAX_TRIALS	8
HEAD_TOLERANCE	0.0015
SYS_FLOW_TOL	5
LAT_FLOW_TOL	5
MINIMUM_STEP	0.5
THREADS	4

[EVAPORATION]

Type	Parameters
CONSTANT	0.0
DRY_ONLY	NO

[RAINGAGES]

Name	Rain Type	Time Intrvl	Snow Catch	Data Source
Raingage1	INTENSITY	0:15	1.0	TIMESERIES 2yr_4hr_Chicago

[SUBCATCHMENTS]

Name	Raingage	Outlet	Total Area	Pcnt. Imperv	Width	Pcnt. Slope	Curb Length	Snow Pack
------	----------	--------	------------	--------------	-------	-------------	-------------	-----------

S3_1	Raingage1	J9	3.7704	60	107.726	0.5	0
S3_10	Raingage1	J1	8.36	0	208.999	0.5	0
S3_11	Raingage1	J7	3.8533	0	214.072	0.5	0
S3_12	Raingage1	J6	3.8193	0	254.62	0.5	0
S3_13	Raingage1	J4	29.6214	0	429.296	0.5	0
S3_14	Raingage1	J6	1.0952	20	199.127	0.5	0
S3_15	Raingage1	S3_9	8.87	0	168.311	0.5	0
S3_2	Raingage1	J9	3.2053	52	493.123	0.5	0
S3_3	Raingage1	J8	4.5462	0	454.62	0.5	0
S3_4	Raingage1	J9	3.4789	15	395.33	0.5	0
S3_5	Raingage1	J4	10.4204	0	416.816	0.5	0
S3_7	Raingage1	J5	2.1467	21	214.67	0.5	0
S3_8	Raingage1	J7	0.7003	0	23.343	0.5	0
S3_9	Raingage1	S3_10	4.49	0	154.828	0.5	0

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
;;-----	-----	-----	-----	-----	-----	-----	-----
S3_1	0.013	0.24	2.5	7.5	25	OUTLET	
S3_10	0.013	0.17	2.5	10	25	OUTLET	
S3_11	0.013	0.4	2.5	10	25	OUTLET	
S3_12	0.013	0.17	2.5	10	25	OUTLET	
S3_13	0.013	0.17	2.5	10	25	OUTLET	
S3_14	0.013	0.24	2.5	10	25	OUTLET	
S3_15	0.013	0.17	2.5	10	25	OUTLET	
S3_2	0.013	0.24	2.5	7.5	25	OUTLET	
S3_3	0.013	0.17	2.5	10	25	OUTLET	
S3_4	0.013	0.24	2.5	7.5	25	OUTLET	
S3_5	0.013	0.17	2.5	10	25	OUTLET	
S3_7	0.013	0.24	2.5	10	25	OUTLET	
S3_8	0.013	0.4	2.5	10	25	OUTLET	
S3_9	0.013	0.17	2.5	10	25	OUTLET	

[INFILTRATION]

;;Subcatchment	Suction	HydCon	IMDmax
;;-----	-----	-----	-----
S3_1	180	0.5	0.1
S3_10	180	0.5	0.1
S3_11	180	0.5	0.1
S3_12	180	0.5	0.1
S3_13	180	0.5	0.1
S3_14	180	0.5	0.1
S3_15	180	0.5	0.1
S3_2	180	0.5	0.1
S3_3	180	0.5	0.1
S3_4	180	0.5	0.1
S3_5	180	0.5	0.1
S3_7	180	0.5	0.1
S3_8	180	0.5	0.1
S3_9	180	0.5	0.1

[JUNCTIONS]

;;	Invert	Max.	Init.	Surcharge	Ponded
;;Name	Elev.	Depth	Depth	Depth	Area
;;-----	-----	-----	-----	-----	-----
J1	182.12	0.8	0	0	0
J10	181.97	0.95	0	0	0

J2	181.88	1.04	0	0	0
J3	181.525	1.765	0	0	0
J4	181.62	1.67	0	3	0
J5	181.55	1.85	0	0	0
J6	181.5	1.79	0	0	0
J7	183.13	1.24	0	0	0
J8	183.1	0.72	0	0	0
J9	183.13	0.69	0	0	0

[OUTFALLS]

;;					
;;Name					
	Invert	Outfall	Stage/Table	Tide	
	Elev.	Type	Time Series	Gate	Route To
;;-----					
OF1	181.22	FREE		NO	
OF2	182.12	FREE		NO	

[CONDUITS]

;;								
;;Name								
	Inlet	Outlet		Manning	Inlet	Outlet	Init.	Max.
	Node	Node	Length	N	Offset	Offset	Flow	Flow
;;-----								
C1	J4	OF1	395.654	0.013	0	0	0	0
C1_1	J1	J10	105.732	0.013	0	0	0	0
C1_2	J10	J2	44.074	0.013	0	0	0	0
C2	J9	J8	412.919	0.013	0	0	0	0
C2_1	J2	J5	295.329	0.013	0	0	0	0
C2_2	J5	J3	48	0.013	0	0	0	0
C3	J8	J10	24	0.013	0	0	0	0
C3_1	J3	J6	85.7	0.013	0	0	0	0
C3_2	J6	J4	164.046	0.013	0	0	0	0
C7	J7	J1	460.579	0.013	0	0	0	0

[WEIRS]

;;												
;;Name												
	Inlet	Outlet	Weir	Crest	Disch.	Flap	End	End				
	Node	Node	Type	Height	Coeff.	Gate	Con.	Coeff.	Surcharge	RoadWidth	RoadSurf	Coeff. Curve
;;-----												
W1	J5	J3	TRANSVERSE	1.74	1.7	NO	0	0	YES			
W2	J3	J6	TRANSVERSE	1.765	1.7	NO	0	0	YES			
W3	J8	J10	ROADWAY	0.72	1.7	NO	0	0	YES	0	PAVED	

[XSECTIONS]

;;Link						
;;						
	Shape	Geom1	Geom2	Geom3	Geom4	Barrels
;;-----						
C1	IRREGULAR	Dufour_W	0	0	0	1
C1_1	IRREGULAR	BranchA	0	0	0	1
C1_2	IRREGULAR	Dufour_S	0	0	0	1
C2	TRAPEZOIDAL	1	10	0.4	0.55	1
C2_1	IRREGULAR	Dufour_S	0	0	0	1
C2_2	ARCH	1.36	1.78	0	0	1
C3	CIRCULAR	0.9	0	0	0	1
C3_1	ARCH	1.36	1.78	0	0	1
C3_2	IRREGULAR	Dufour_W	0	0	0	1
C7	IRREGULAR	BranchA	0	0	0	1
W1	RECT_OPEN	1	1	0	0	
W2	RECT_OPEN	1	1	0	0	
W3	RECT_OPEN	1	1	0	0	

[TRANSECTS]

```
;;Transect Data in HEC-2 format
;
NC 0.06      0.06      0.035
X1 BranchA      8      -4.6      2.7      0.0      0.0      0.0      0.0      0.0
GR 184.03     -9.5      184.08     -6.6      183.83     -4.6      182.26     -0.94      182.12      0
GR 182.22      0.9      183.1      2.7      183.12      4.9
;
NC 0.06      0.06      0.035
X1 Dufour_S      9      -3.6      2.6      0.0      0.0      0.0      0.0      0.0
GR 183.71     -7.4      183.54     -5.3      183.03     -3.6      181.98      -1      181.65      0
GR 181.88      1      182.89      2.6      183.08      3.85      183.01      6.9
;
NC 0.06      0.06      0.035
X1 Dufour_W     10      -5      10      0.0      0.0      0.0      0.0      0.0
GR 183.4     -15      183.25     -5      182.39     -2.5      182.06      0      182.3      2.5
GR 182.6      5      182.72     10      182.78     15      182.8      50      182.78     100
;
NC 0.01      0.01      0.01
X1 Transect2      7      0.0      0.0      0.0      0.0      0.0      0.0      0.0
GR 182.3     -9.2      182.02     -3.8      180.06     -1      179.89      0      180.01     1.2
GR 182.08      4.6      182.05      9
```

```
[LOSSES]
;;Link      Inlet      Outlet      Average      Flap Gate      SeepageRate
;;-----
C2_2      0.5      0.5      0      NO      0
C3      0.5      0.5      0      NO      0
C3_1      0.5      0.5      0      NO      0
```

```
[CURVES]
;;Name      Type      X-Value      Y-Value
;;-----
Curve1      Pump2      0      0
Curve1      0.01      0.099999999
Curve1      3.7      0.1
```

```
;Original Pond Design
Pond      Storage      0      11614.85
Pond      0.2      12052.93
Pond      0.45      12609.4
Pond      0.7      13175.6
Pond      1.7      15538.8
Pond      2.2      16779.3
Pond      2.7      18059
Pond      3.7      20736.5
```

```
;Reduced Pond Size
PondTest      Storage      0      5436.18
PondTest      1      7591.19
PondTest      2      9903.28
PondTest      3      12372.45
PondTest      3.7      14194.32
```

```
;Reduced Pond Size 2
PondTest2      Storage      0      5179.8
PondTest2      1      7155.9
PondTest2      2      9289.19
```

PondTest2	3	11579.63
PondTest2	3.7	13276.44

[TIMESERIES]			
;;Name	Date	Time	Value
;;-----			
100yr_4hr_Chicago		0:00	3.95
100yr_4hr_Chicago		0:15	4.87
100yr_4hr_Chicago		0:30	6.36
100yr_4hr_Chicago		0:45	9.19
100yr_4hr_Chicago		1:00	16.45
100yr_4hr_Chicago		1:15	46.45
100yr_4hr_Chicago		1:30	143.67
100yr_4hr_Chicago		1:45	32.45
100yr_4hr_Chicago		2:00	17.25
100yr_4hr_Chicago		2:15	11.53
100yr_4hr_Chicago		2:30	8.62
100yr_4hr_Chicago		2:45	6.87
100yr_4hr_Chicago		3:00	5.71
100yr_4hr_Chicago		3:15	4.89
100yr_4hr_Chicago		3:30	4.28
100yr_4hr_Chicago		3:45	3.81
100yr_4hr_Chicago		4:00	0
2yr_4hr_Chicago		0:00	2.1
2yr_4hr_Chicago		0:15	2.52
2yr_4hr_Chicago		0:30	3.18
2yr_4hr_Chicago		0:45	4.38
2yr_4hr_Chicago		1:00	7.31
2yr_4hr_Chicago		1:15	19.33
2yr_4hr_Chicago		1:30	68.13
2yr_4hr_Chicago		1:45	13.64
2yr_4hr_Chicago		2:00	7.63
2yr_4hr_Chicago		2:15	5.34
2yr_4hr_Chicago		2:30	4.14
2yr_4hr_Chicago		2:45	3.4
2yr_4hr_Chicago		3:00	2.89
2yr_4hr_Chicago		3:15	2.53
2yr_4hr_Chicago		3:30	2.25
2yr_4hr_Chicago		3:45	2.03
2yr_4hr_Chicago		4:00	0
5yr_4hr_Chicago		0:00	2.58
5yr_4hr_Chicago		0:15	3.13
5yr_4hr_Chicago		0:30	4.02
5yr_4hr_Chicago		0:45	5.66
5yr_4hr_Chicago		1:00	9.76
5yr_4hr_Chicago		1:15	26.72
5yr_4hr_Chicago		1:30	88.4
5yr_4hr_Chicago		1:45	18.73
5yr_4hr_Chicago		2:00	10.21
5yr_4hr_Chicago		2:15	6.99
5yr_4hr_Chicago		2:30	5.33
5yr_4hr_Chicago		2:45	4.31
5yr_4hr_Chicago		3:00	3.64
5yr_4hr_Chicago		3:15	3.15
5yr_4hr_Chicago		3:30	2.78

5yr_4hr_Chicago	3:45	2.49
5yr_4hr_Chicago	4:00	0

;Total rainfall = 46.2 mm, rain interval = 6 minutes

SCS_2yr_12hr_Type_II	0:00	0.99432
SCS_2yr_12hr_Type_II	0:06	1.0053
SCS_2yr_12hr_Type_II	0:12	1.01629
SCS_2yr_12hr_Type_II	0:18	1.02728
SCS_2yr_12hr_Type_II	0:24	1.03826
SCS_2yr_12hr_Type_II	0:30	1.04925
SCS_2yr_12hr_Type_II	0:36	1.06024
SCS_2yr_12hr_Type_II	0:42	1.07122
SCS_2yr_12hr_Type_II	0:48	1.08221
SCS_2yr_12hr_Type_II	0:54	1.0932
SCS_2yr_12hr_Type_II	1:00	1.10419
SCS_2yr_12hr_Type_II	1:06	1.11517
SCS_2yr_12hr_Type_II	1:12	1.12616
SCS_2yr_12hr_Type_II	1:18	1.13715
SCS_2yr_12hr_Type_II	1:24	1.14813
SCS_2yr_12hr_Type_II	1:30	1.15912
SCS_2yr_12hr_Type_II	1:36	1.17011
SCS_2yr_12hr_Type_II	1:42	1.18109
SCS_2yr_12hr_Type_II	1:48	1.19208
SCS_2yr_12hr_Type_II	1:54	1.20307
SCS_2yr_12hr_Type_II	2:00	1.23603
SCS_2yr_12hr_Type_II	2:06	1.29096
SCS_2yr_12hr_Type_II	2:12	1.3459
SCS_2yr_12hr_Type_II	2:18	1.40083
SCS_2yr_12hr_Type_II	2:24	1.45577
SCS_2yr_12hr_Type_II	2:30	1.5107
SCS_2yr_12hr_Type_II	2:36	1.56564
SCS_2yr_12hr_Type_II	2:42	1.62057
SCS_2yr_12hr_Type_II	2:48	1.67551
SCS_2yr_12hr_Type_II	2:54	1.73044
SCS_2yr_12hr_Type_II	3:00	1.75791
SCS_2yr_12hr_Type_II	3:06	1.75791
SCS_2yr_12hr_Type_II	3:12	1.75791
SCS_2yr_12hr_Type_II	3:18	1.75791
SCS_2yr_12hr_Type_II	3:24	1.75791
SCS_2yr_12hr_Type_II	3:30	1.80185
SCS_2yr_12hr_Type_II	3:36	1.88975
SCS_2yr_12hr_Type_II	3:42	1.97765
SCS_2yr_12hr_Type_II	3:48	2.06554
SCS_2yr_12hr_Type_II	3:54	2.15344
SCS_2yr_12hr_Type_II	4:00	2.26331
SCS_2yr_12hr_Type_II	4:06	2.39515
SCS_2yr_12hr_Type_II	4:12	2.52699
SCS_2yr_12hr_Type_II	4:18	2.65883
SCS_2yr_12hr_Type_II	4:24	2.79068
SCS_2yr_12hr_Type_II	4:30	2.96647
SCS_2yr_12hr_Type_II	4:36	3.18621
SCS_2yr_12hr_Type_II	4:42	3.40595
SCS_2yr_12hr_Type_II	4:48	3.62568
SCS_2yr_12hr_Type_II	4:54	3.84542
SCS_2yr_12hr_Type_II	5:00	4.21898
SCS_2yr_12hr_Type_II	5:06	4.74635
SCS_2yr_12hr_Type_II	5:12	5.27372

SCS_2yr_12hr_Type_II	5:18	5.80109
SCS_2yr_12hr_Type_II	5:24	6.32847
SCS_2yr_12hr_Type_II	5:30	13.09641
SCS_2yr_12hr_Type_II	5:36	26.10492
SCS_2yr_12hr_Type_II	5:42	41.98652
SCS_2yr_12hr_Type_II	5:48	75.29886
SCS_2yr_12hr_Type_II	5:54	52.26478
SCS_2yr_12hr_Type_II	6:00	10.4156
SCS_2yr_12hr_Type_II	6:06	9.16309
SCS_2yr_12hr_Type_II	6:12	7.91058
SCS_2yr_12hr_Type_II	6:18	6.65807
SCS_2yr_12hr_Type_II	6:24	5.40556
SCS_2yr_12hr_Type_II	6:30	4.63648
SCS_2yr_12hr_Type_II	6:36	4.35082
SCS_2yr_12hr_Type_II	6:42	4.06516
SCS_2yr_12hr_Type_II	6:48	3.7795
SCS_2yr_12hr_Type_II	6:54	3.49384
SCS_2yr_12hr_Type_II	7:00	3.2741
SCS_2yr_12hr_Type_II	7:06	3.12029
SCS_2yr_12hr_Type_II	7:12	2.96647
SCS_2yr_12hr_Type_II	7:18	2.81265
SCS_2yr_12hr_Type_II	7:24	2.65883
SCS_2yr_12hr_Type_II	7:30	2.52699
SCS_2yr_12hr_Type_II	7:36	2.41712
SCS_2yr_12hr_Type_II	7:42	2.30725
SCS_2yr_12hr_Type_II	7:48	2.19738
SCS_2yr_12hr_Type_II	7:54	2.08751
SCS_2yr_12hr_Type_II	8:00	2.0161
SCS_2yr_12hr_Type_II	8:06	1.97215
SCS_2yr_12hr_Type_II	8:12	1.93919
SCS_2yr_12hr_Type_II	8:18	1.89524
SCS_2yr_12hr_Type_II	8:24	1.86228
SCS_2yr_12hr_Type_II	8:30	1.81834
SCS_2yr_12hr_Type_II	8:36	1.78537
SCS_2yr_12hr_Type_II	8:42	1.74143
SCS_2yr_12hr_Type_II	8:48	1.70847
SCS_2yr_12hr_Type_II	8:54	1.66452
SCS_2yr_12hr_Type_II	9:00	1.63156
SCS_2yr_12hr_Type_II	9:06	1.58761
SCS_2yr_12hr_Type_II	9:12	1.55465
SCS_2yr_12hr_Type_II	9:18	1.5107
SCS_2yr_12hr_Type_II	9:24	1.47774
SCS_2yr_12hr_Type_II	9:30	1.43379
SCS_2yr_12hr_Type_II	9:36	1.40083
SCS_2yr_12hr_Type_II	9:42	1.35688
SCS_2yr_12hr_Type_II	9:48	1.32392
SCS_2yr_12hr_Type_II	9:54	1.27998
SCS_2yr_12hr_Type_II	10:00	1.258
SCS_2yr_12hr_Type_II	10:06	1.24152
SCS_2yr_12hr_Type_II	10:12	1.23054
SCS_2yr_12hr_Type_II	10:18	1.21405
SCS_2yr_12hr_Type_II	10:24	1.20307
SCS_2yr_12hr_Type_II	10:30	1.18659
SCS_2yr_12hr_Type_II	10:36	1.1756
SCS_2yr_12hr_Type_II	10:42	1.15912
SCS_2yr_12hr_Type_II	10:48	1.14813
SCS_2yr_12hr_Type_II	10:54	1.13165

SCS_2yr_12hr_Type_II	11:00	1.12067
SCS_2yr_12hr_Type_II	11:06	1.10419
SCS_2yr_12hr_Type_II	11:12	1.0932
SCS_2yr_12hr_Type_II	11:18	1.07672
SCS_2yr_12hr_Type_II	11:24	1.06573
SCS_2yr_12hr_Type_II	11:30	1.04925
SCS_2yr_12hr_Type_II	11:36	1.03826
SCS_2yr_12hr_Type_II	11:42	1.02178
SCS_2yr_12hr_Type_II	11:48	1.0108
SCS_2yr_12hr_Type_II	11:54	0.99432

;total rainfall = 53.4 mm

SCS_2yr_24hr_Type_II	0:00	0.587
SCS_2yr_24hr_Type_II	0:15	0.587
SCS_2yr_24hr_Type_II	0:30	0.587
SCS_2yr_24hr_Type_II	0:45	0.587
SCS_2yr_24hr_Type_II	1:00	0.587
SCS_2yr_24hr_Type_II	1:15	0.587
SCS_2yr_24hr_Type_II	1:30	0.587
SCS_2yr_24hr_Type_II	1:45	0.587
SCS_2yr_24hr_Type_II	2:00	0.694
SCS_2yr_24hr_Type_II	2:15	0.694
SCS_2yr_24hr_Type_II	2:30	0.694
SCS_2yr_24hr_Type_II	2:45	0.694
SCS_2yr_24hr_Type_II	3:00	0.694
SCS_2yr_24hr_Type_II	3:15	0.694
SCS_2yr_24hr_Type_II	3:30	0.694
SCS_2yr_24hr_Type_II	3:45	0.694
SCS_2yr_24hr_Type_II	4:00	0.854
SCS_2yr_24hr_Type_II	4:15	0.854
SCS_2yr_24hr_Type_II	4:30	0.854
SCS_2yr_24hr_Type_II	4:45	0.854
SCS_2yr_24hr_Type_II	5:00	0.854
SCS_2yr_24hr_Type_II	5:15	0.854
SCS_2yr_24hr_Type_II	5:30	0.854
SCS_2yr_24hr_Type_II	5:45	0.854
SCS_2yr_24hr_Type_II	6:00	0.961
SCS_2yr_24hr_Type_II	6:15	0.961
SCS_2yr_24hr_Type_II	6:30	0.961
SCS_2yr_24hr_Type_II	6:45	0.961
SCS_2yr_24hr_Type_II	7:00	1.175
SCS_2yr_24hr_Type_II	7:15	1.175
SCS_2yr_24hr_Type_II	7:30	1.175
SCS_2yr_24hr_Type_II	7:45	1.175
SCS_2yr_24hr_Type_II	8:00	1.388
SCS_2yr_24hr_Type_II	8:15	1.388
SCS_2yr_24hr_Type_II	8:30	1.495
SCS_2yr_24hr_Type_II	8:45	1.495
SCS_2yr_24hr_Type_II	9:00	1.709
SCS_2yr_24hr_Type_II	9:15	1.709
SCS_2yr_24hr_Type_II	9:30	1.922
SCS_2yr_24hr_Type_II	9:45	1.922
SCS_2yr_24hr_Type_II	10:00	2.456
SCS_2yr_24hr_Type_II	10:15	2.456
SCS_2yr_24hr_Type_II	10:30	3.311
SCS_2yr_24hr_Type_II	10:45	3.311
SCS_2yr_24hr_Type_II	11:00	5.126

SCS_2yr_24hr_Type_II	11:15	5.126
SCS_2yr_24hr_Type_II	11:30	15.806
SCS_2yr_24hr_Type_II	11:45	65.362
SCS_2yr_24hr_Type_II	12:00	7.69
SCS_2yr_24hr_Type_II	12:15	7.69
SCS_2yr_24hr_Type_II	12:30	3.952
SCS_2yr_24hr_Type_II	12:45	3.952
SCS_2yr_24hr_Type_II	13:00	2.884
SCS_2yr_24hr_Type_II	13:15	2.884
SCS_2yr_24hr_Type_II	13:30	2.243
SCS_2yr_24hr_Type_II	13:45	2.243
SCS_2yr_24hr_Type_II	14:00	1.602
SCS_2yr_24hr_Type_II	14:15	1.602
SCS_2yr_24hr_Type_II	14:30	1.602
SCS_2yr_24hr_Type_II	14:45	1.602
SCS_2yr_24hr_Type_II	15:00	1.602
SCS_2yr_24hr_Type_II	15:15	1.602
SCS_2yr_24hr_Type_II	15:30	1.602
SCS_2yr_24hr_Type_II	15:45	1.602
SCS_2yr_24hr_Type_II	16:00	0.961
SCS_2yr_24hr_Type_II	16:15	0.961
SCS_2yr_24hr_Type_II	16:30	0.961
SCS_2yr_24hr_Type_II	16:45	0.961
SCS_2yr_24hr_Type_II	17:00	0.961
SCS_2yr_24hr_Type_II	17:15	0.961
SCS_2yr_24hr_Type_II	17:30	0.961
SCS_2yr_24hr_Type_II	17:45	0.961
SCS_2yr_24hr_Type_II	18:00	0.961
SCS_2yr_24hr_Type_II	18:15	0.961
SCS_2yr_24hr_Type_II	18:30	0.961
SCS_2yr_24hr_Type_II	18:45	0.961
SCS_2yr_24hr_Type_II	19:00	0.961
SCS_2yr_24hr_Type_II	19:15	0.961
SCS_2yr_24hr_Type_II	19:30	0.961
SCS_2yr_24hr_Type_II	19:45	0.961
SCS_2yr_24hr_Type_II	20:00	0.641
SCS_2yr_24hr_Type_II	20:15	0.641
SCS_2yr_24hr_Type_II	20:30	0.641
SCS_2yr_24hr_Type_II	20:45	0.641
SCS_2yr_24hr_Type_II	21:00	0.641
SCS_2yr_24hr_Type_II	21:15	0.641
SCS_2yr_24hr_Type_II	21:30	0.641
SCS_2yr_24hr_Type_II	21:45	0.641
SCS_2yr_24hr_Type_II	22:00	0.641
SCS_2yr_24hr_Type_II	22:15	0.641
SCS_2yr_24hr_Type_II	22:30	0.641
SCS_2yr_24hr_Type_II	22:45	0.641
SCS_2yr_24hr_Type_II	23:00	0.641
SCS_2yr_24hr_Type_II	23:15	0.641
SCS_2yr_24hr_Type_II	23:30	0.641
SCS_2yr_24hr_Type_II	23:45	0.641
UST	0:00	2.41
UST	0:15	2.43
UST	0:30	2.45
UST	0:45	2.46
UST	1:00	2.48

UST	1:15	2.51
UST	1:30	2.53
UST	1:45	2.55
UST	2:00	2.58
UST	2:15	2.61
UST	2:30	2.64
UST	2:45	2.67
UST	3:00	2.71
UST	3:15	2.74
UST	3:30	2.79
UST	3:45	2.83
UST	4:00	2.88
UST	4:15	2.94
UST	4:30	3
UST	4:45	3.07
UST	5:00	3.15
UST	5:15	3.23
UST	5:30	3.33
UST	5:45	3.45
UST	6:00	3.59
UST	6:15	3.75
UST	6:30	3.94
UST	6:45	4.18
UST	7:00	4.49
UST	7:15	4.89
UST	7:30	5.43
UST	7:45	6.2
UST	8:00	7.41
UST	8:15	9.56
UST	8:30	14.29
UST	8:45	32.01
UST	9:00	145.13
UST	9:15	48.51
UST	9:30	23.13
UST	9:45	15.08
UST	10:00	11.35
UST	10:15	9.23
UST	10:30	7.88
UST	10:45	6.94
UST	11:00	6.25
UST	11:15	5.73
UST	11:30	5.32
UST	11:45	4.99
UST	12:00	4.72
UST	12:15	4.49
UST	12:30	4.29
UST	12:45	4.12
UST	13:00	3.98
UST	13:15	3.85
UST	13:30	3.74
UST	13:45	3.63
UST	14:00	3.54
UST	14:15	3.46
UST	14:30	3.39
UST	14:45	3.32
UST	15:00	3.26
UST	15:15	3.2

UST	15:30	3.15
UST	15:45	3.1
UST	16:00	3.05
UST	16:15	3.01
UST	16:30	2.97
UST	16:45	2.93
UST	17:00	2.9
UST	17:15	2.87
UST	17:30	2.84
UST	17:45	2.81
UST	18:00	2.78
UST	18:15	2.76
UST	18:30	2.73
UST	18:45	2.71
UST	19:00	2.69
UST	19:15	2.67
UST	19:30	2.65
UST	19:45	2.63
UST	20:00	2.61
UST	20:15	2.59
UST	20:30	2.57
UST	20:45	2.56
UST	21:00	2.54
UST	21:15	2.53
UST	21:30	2.51
UST	21:45	2.5
UST	22:00	2.49
UST	22:15	2.47
UST	22:30	2.46
UST	22:45	2.45
UST	23:00	2.44
UST	23:15	2.43
UST	23:30	2.42
UST	23:45	2.41

[REPORT]
;;Reporting Options
INPUT YES
CONTROLS NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]
Subcatch S3_10 Develp\\
Subcatch S3_15 Develp\\
Subcatch S3_9 Develp\\

[MAP]
DIMENSIONS 335625.28325 4666996.99015 337284.23175 4668241.65885
UNITS Meters

[COORDINATES]
;;Node X-Coord Y-Coord
;;-----
J1 336317.6 4667255.807
J10 336214.88 4667230.787

J2	336172.061	4667220.349
J3	335830.782	4667242.452
J4	335849.998	4667486.872
J5	335877.306	4667238.391
J6	335837.14	4667323.333
J7	336761.228	4667379.476
J8	336216.029	4667205.094
J9	336627.922	4667176.37
OF1	335879.817	4667881.382
OF2	336359.266	4667066.374

[VERTICES]		
;;Link	X-Coord	Y-Coord
;;	-----	-----
W1	335840.065	4667219.137
W2	335815.782	4667306.497
W3	336201.81	4667217.421

[POLYGONS]		
;;Subcatchment	X-Coord	Y-Coord
;;	-----	-----
S3_1	336701.369	4667362.739
S3_1	337021.956	4667459
S3_1	337018.8	4667427.155
S3_1	336927.528	4667400.662
S3_1	336922.296	4667239.701
S3_1	336782.019	4667250.473
S3_1	336776.827	4667221.989
S3_1	336758.599	4667217.894
S3_1	336754.73	4667246.588
S3_1	336691.511	4667249.182
S3_1	336701.369	4667362.739
S3_10	336372.655	4667646.903
S3_10	336392.297	4667582.422
S3_10	336396.088	4667564.963
S3_10	336410.879	4667517.649
S3_10	336417.459	4667497.728
S3_10	336411.81	4667478.154
S3_10	336393.179	4667299.427
S3_10	336383.185	4667278.215
S3_10	336165.821	4667218.272
S3_10	336133.887	4667220.287
S3_10	336142.125	4667324.525
S3_10	336143.655	4667352.328
S3_10	336145.311	4667378.108
S3_10	336146.26	4667395.884
S3_10	336147.765	4667410.286
S3_10	336149.982	4667422.53
S3_10	336153.803	4667437.667
S3_10	336158.371	4667451.848
S3_10	336162.553	4667462.647
S3_10	336176.84	4667491.412
S3_10	336190.106	4667510.946
S3_10	336196.597	4667519.399
S3_10	336202.526	4667526.047
S3_10	336212.242	4667536.191
S3_10	336218.012	4667541.961

S3_10	336225.15	4667547.952
S3_10	336233.09	4667554.363
S3_10	336256.87	4667570.837
S3_10	336280.688	4667582.428
S3_10	336297.581	4667588.637
S3_10	336312.352	4667592.995
S3_10	336344.603	4667648.242
S3_10	336372.655	4667646.903
S3_11	336644.914	4667429.981
S3_11	336656.039	4667416.559
S3_11	336664.778	4667394.226
S3_11	336678.388	4667360.017
S3_11	336383.185	4667278.215
S3_11	336393.179	4667299.427
S3_11	336411.81	4667478.154
S3_11	336454.667	4667474.44
S3_11	336537.951	4667469.392
S3_11	336632.002	4667463.005
S3_11	336631.754	4667446.617
S3_11	336644.914	4667429.981
S3_12	335891.333	4667236.984
S3_12	335910.208	4667398.134
S3_12	336145.311	4667378.117
S3_12	336143.655	4667352.337
S3_12	336142.126	4667324.534
S3_12	336134.585	4667222.386
S3_12	335891.333	4667236.984
S3_13	335865.608	4667683.955
S3_13	335846.704	4667488.204
S3_13	335728.745	4667495.706
S3_13	335700.69	4667632.872
S3_13	335712.505	4667675.706
S3_13	335755.299	4667758.531
S3_13	335804.769	4667818.449
S3_13	335860.944	4667856.656
S3_13	335887.809	4668185.083
S3_13	335985.32	4668118.517
S3_13	336051.32	4668058.405
S3_13	336124.222	4667986.703
S3_13	336569.696	4667964.936
S3_13	336564.721	4667633.664
S3_13	336416.121	4667644.013
S3_13	336372.655	4667646.903
S3_13	336344.603	4667648.242
S3_13	335865.608	4667683.955
S3_14	335910.208	4667398.134
S3_14	335891.333	4667236.984
S3_14	335826.933	4667240.849
S3_14	335840.547	4667404.065
S3_14	335910.208	4667398.134
S3_15	336944.2	4667434.55
S3_15	336700.577	4667366.282
S3_15	336698.665	4667365.755
S3_15	336678.388	4667360.017
S3_15	336664.778	4667394.226
S3_15	336656.039	4667416.559
S3_15	336644.914	4667429.981

S3_15	336631.754	4667446.617
S3_15	336632.002	4667463.005
S3_15	336637.311	4667528.533
S3_15	336673.912	4667525.991
S3_15	336679.118	4667626.141
S3_15	337136.513	4667595.994
S3_15	337152.281	4667593.982
S3_15	337149.482	4667543.037
S3_15	337208.825	4667539.118
S3_15	337207.271	4667507.187
S3_15	337161.902	4667495.449
S3_15	337124.457	4667484.149
S3_15	337106.892	4667506.191
S3_15	337049.689	4667503.045
S3_15	337038.672	4667502.337
S3_15	337021.528	4667504.259
S3_15	337008.463	4667505.623
S3_15	337004.495	4667505.137
S3_15	336993.673	4667503.643
S3_15	336956.376	4667480.049
S3_15	336953.799	4667469.723
S3_15	336945.852	4667458.989
S3_15	336944.2	4667434.55
S3_2	336299.344	4667128.151
S3_2	336308.847	4667222.067
S3_2	336598.119	4667202.448
S3_2	336597.678	4667192.766
S3_2	336648.613	4667188.241
S3_2	336641.292	4667104.105
S3_2	336310.723	4667126.488
S3_2	336310.721	4667126.466
S3_2	336299.344	4667128.151
S3_3	335918.693	4667142.54
S3_3	336171.903	4667220.136
S3_3	336171.903	4667220.145
S3_3	336209.268	4667229.676
S3_3	336308.847	4667222.067
S3_3	336299.344	4667128.151
S3_3	336310.721	4667126.466
S3_3	336306.228	4667053.566
S3_3	336180.197	4667061.282
S3_3	336034.161	4667087.429
S3_3	335951.88	4667115.688
S3_3	335918.693	4667142.54
S3_4	336209.268	4667229.685
S3_4	336701.168	4667360.431
S3_4	336691.511	4667249.182
S3_4	336600.415	4667252.921
S3_4	336598.119	4667202.448
S3_4	336209.268	4667229.685
S3_5	335865.608	4667683.955
S3_5	336344.603	4667648.242
S3_5	336311.643	4667591.781
S3_5	336280.688	4667582.437
S3_5	336256.87	4667570.846
S3_5	336230.13	4667551.574
S3_5	336202.259	4667524.699

S3_5	336176.84	4667491.421
S3_5	336159.331	4667452.926
S3_5	336147.765	4667410.295
S3_5	336146.26	4667395.893
S3_5	336145.311	4667378.117
S3_5	336137.171	4667378.612
S3_5	335840.547	4667404.065
S3_5	335847.561	4667488.15
S3_5	335846.704	4667488.204
S3_5	335865.608	4667683.955
S3_7	335826.933	4667240.849
S3_7	336171.903	4667220.127
S3_7	335918.693	4667142.54
S3_7	335915.307	4667145.28
S3_7	335817.552	4667128.393
S3_7	335826.933	4667240.849
S3_8	336944.2	4667434.55
S3_8	336945.852	4667458.989
S3_8	336953.799	4667469.723
S3_8	336956.376	4667480.049
S3_8	336993.673	4667503.643
S3_8	337004.495	4667505.137
S3_8	337008.463	4667505.623
S3_8	337021.528	4667504.259
S3_8	337038.672	4667502.337
S3_8	337049.689	4667503.045
S3_8	337106.892	4667506.191
S3_8	337124.457	4667484.149
S3_8	337046.688	4667462.707
S3_8	337021.753	4667455.621
S3_8	336944.2	4667434.55
S3_9	336411.81	4667478.154
S3_9	336417.459	4667497.728
S3_9	336410.879	4667517.649
S3_9	336396.088	4667564.963
S3_9	336392.297	4667582.422
S3_9	336372.655	4667646.903
S3_9	336416.121	4667644.013
S3_9	336564.721	4667633.664
S3_9	336662.337	4667627.172
S3_9	336679.118	4667626.141
S3_9	336673.912	4667525.991
S3_9	336637.311	4667528.533
S3_9	336632.002	4667463.005
S3_9	336537.951	4667469.392
S3_9	336454.667	4667474.44
S3_9	336411.81	4667478.154
[SYMBOLS]		
; ;Gage	X-Coord	Y-Coord
; ;	-----	-----

Existing 1:2 Year Chicago PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 14
Number of nodes 12
Number of links 13
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Raingage1	2yr_4hr_Chicago	INTENSITY	15 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S3_1	3.77	107.73	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	0.00	0.5000	Raingage1	J1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	29.62	429.30	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	0.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.48	395.33	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	0.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.52	2.76	0.0	
J4	JUNCTION	181.62	1.67	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.79	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	181.22	1.34	0.0	
OF2	OUTFALL	182.12	0.00	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J4	OF1	CONDUIT	395.7	0.1011	0.0350
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	-0.0732	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	Dufour_W	1.34	69.36	0.37	115.00	1	32.39
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C2	TRAPEZOIDAL	1.00	10.47	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.34	69.36	0.37	115.00	1	27.55
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA

Area:	0.0010	0.0039	0.0087	0.0147	0.0214
	0.0286	0.0363	0.0446	0.0534	0.0628
	0.0727	0.0831	0.0941	0.1057	0.1178
	0.1305	0.1437	0.1574	0.1717	0.1865
	0.2019	0.2179	0.2343	0.2514	0.2689
	0.2921	0.3174	0.3430	0.3689	0.3951
	0.4216	0.4483	0.4754	0.5027	0.5303
	0.5582	0.5864	0.6149	0.6437	0.6728
	0.7022	0.7319	0.7618	0.7921	0.8233
	0.8555	0.8886	0.9228	0.9582	1.0000
Hrad:	0.0185	0.0370	0.0587	0.0851	0.1129
	0.1390	0.1638	0.1875	0.2103	0.2325
	0.2540	0.2751	0.2958	0.3161	0.3361
	0.3558	0.3753	0.3946	0.4137	0.4326
	0.4515	0.4701	0.4887	0.5072	0.5255
	0.5380	0.5487	0.5615	0.5759	0.5915
	0.6080	0.6251	0.6428	0.6609	0.6793
	0.6981	0.7171	0.7363	0.7556	0.7750
	0.7946	0.8142	0.8339	0.8573	0.8856
	0.9126	0.9382	0.9627	0.9857	1.0000
Width:	0.0428	0.0856	0.1198	0.1386	0.1505
	0.1624	0.1743	0.1862	0.1981	0.2101
	0.2220	0.2339	0.2458	0.2577	0.2696
	0.2815	0.2935	0.3054	0.3173	0.3292
	0.3411	0.3530	0.3649	0.3769	0.3888
	0.5479	0.5542	0.5606	0.5669	0.5733
	0.5796	0.5860	0.5923	0.5987	0.6050
	0.6113	0.6177	0.6240	0.6304	0.6367
	0.6431	0.6494	0.6558	0.6679	0.6897
	0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S

Area:	0.0005	0.0019	0.0044	0.0077	0.0121
	0.0174	0.0234	0.0299	0.0371	0.0448
	0.0530	0.0617	0.0710	0.0808	0.0911
	0.1020	0.1134	0.1253	0.1378	0.1508
	0.1643	0.1784	0.1930	0.2081	0.2238
	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Hrad:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
	0.5734	0.5936	0.6138	0.6340	0.6540

	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000
Hrad:					
	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000
Width:					
	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS

Process Models:

Rainfall/Runoff YES
RDII NO
Snowmelt NO
Groundwater NO
Flow Routing YES
Ponding Allowed NO
Water Quality NO

Infiltration Method GREEN_AMPT

Flow Routing Method DYNWAVE

Surcharge Method EXTRAN

Starting Date 04/16/2020 00:00:00

Ending Date 04/19/2020 00:00:00

Antecedent Dry Days 0.0

Report Time Step 00:01:00

Wet Time Step 00:05:00

Dry Time Step 00:05:00

Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 1
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	3.332	37.700
Evaporation Loss	0.000	0.000
Infiltration Loss	2.292	25.935
Surface Runoff	1.033	11.684
Final Storage	0.010	0.109
Continuity Error (%)	-0.074	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.033	10.326
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.029	10.285
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.004	0.041
Continuity Error (%)	-0.001	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 2.35 sec
Average Time Step : 5.00 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S3_1	37.70	0.00	0.00	9.01	21.57	6.08	27.66	1.04	0.39	0.734
S3_10	37.70	13.98	0.00	31.39	0.00	20.31	20.31	1.70	0.09	0.393
S3_11	37.70	0.00	0.00	27.55	0.00	10.16	10.16	0.39	0.03	0.270
S3_12	37.70	0.00	0.00	24.03	0.00	13.70	13.70	0.52	0.07	0.363
S3_13	37.70	0.00	0.00	29.38	0.00	8.32	8.32	2.47	0.17	0.221
S3_14	37.70	0.00	0.00	17.48	7.20	12.73	19.93	0.22	0.07	0.529
S3_15	37.70	0.00	0.00	28.37	0.00	9.34	9.34	0.83	0.06	0.248
S3_2	37.70	0.00	0.00	8.99	18.75	9.16	27.92	0.89	0.41	0.741
S3_3	37.70	0.00	0.00	22.92	0.00	14.82	14.82	0.67	0.11	0.393
S3_4	37.70	0.00	0.00	17.52	5.40	14.57	19.98	0.70	0.19	0.530
S3_5	37.70	0.00	0.00	25.66	0.00	12.06	12.06	1.26	0.13	0.320
S3_7	37.70	0.00	0.00	18.33	7.57	11.48	19.06	0.41	0.12	0.506
S3_8	37.70	0.00	0.00	29.47	0.00	8.24	8.24	0.06	0.00	0.218
S3_9	37.70	18.46	0.00	30.14	0.00	26.03	26.03	1.17	0.07	0.464

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.04	0.45	182.57	0 02:30	0.45
J10	JUNCTION	0.06	0.60	182.57	0 02:29	0.60
J2	JUNCTION	0.07	0.63	182.51	0 02:29	0.63
J3	JUNCTION	0.19	0.75	182.28	0 02:53	0.75
J4	JUNCTION	0.09	0.62	182.24	0 03:01	0.62
J5	JUNCTION	0.17	0.74	182.29	0 02:48	0.74
J6	JUNCTION	0.21	0.76	182.26	0 02:59	0.76
J7	JUNCTION	0.02	0.14	183.27	0 02:49	0.14
J8	JUNCTION	0.01	0.25	183.35	0 01:57	0.25
J9	JUNCTION	0.01	0.24	183.37	0 01:47	0.24
OF1	OUTFALL	0.03	0.28	181.50	0 03:01	0.28
OF2	OUTFALL	0.00	0.00	182.12	0 00:00	0.00

Node Inflow Summary

	Maximum Lateral Inflow	Maximum Total Inflow	Time of Max Occurrence	Lateral Inflow Volume	Total Inflow Volume	Flow Balance Error
--	------------------------------	----------------------------	---------------------------	-----------------------------	---------------------------	--------------------------

Node	Type	CMS	CMS	days	hr:min	10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.093	0.223	0	01:51	1.7	2.25	0.199
J10	JUNCTION	0.000	0.571	0	02:23	0	5.56	-0.124
J2	JUNCTION	0.000	0.569	0	02:25	0	5.45	-0.047
J3	JUNCTION	0.000	0.584	0	02:32	0	5.85	0.145
J4	JUNCTION	0.295	0.839	0	02:45	3.72	10.3	0.107
J5	JUNCTION	0.121	0.603	0	02:29	0.409	5.87	0.223
J6	JUNCTION	0.133	0.662	0	02:32	0.742	6.59	0.178
J7	JUNCTION	0.036	0.036	0	02:30	0.449	0.449	0.179
J8	JUNCTION	0.115	0.927	0	01:47	0.674	3.31	0.068
J9	JUNCTION	0.986	0.986	0	01:45	2.63	2.63	-0.053
OF1	OUTFALL	0.000	0.819	0	03:01	0	10.3	0.000
OF2	OUTFALL	0.000	0.000	0	00:00	0	0	0.000 ltr

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Outfall Loading Summary

Outfall Node	Flow	Avg	Max	Total
	Freq	Flow	Flow	Volume
	Pcnt	CMS	CMS	10^6 ltr
OF1	97.78	0.041	0.819	10.285
OF2	0.00	0.000	0.000	0.000
System	48.89	0.041	0.000	10.285

Link Flow Summary

Link	Type	Maximum	Time of Max	Maximum	Max/	Max/
		Flow CMS	Occurrence days hr:min	Veloc m/sec	Full Flow	Full Depth
C1	CHANNEL	0.819	0 03:01	0.47	0.03	0.34
C1_1	CHANNEL	0.156	0 01:51	0.28	0.01	0.27
C1_2	CHANNEL	0.569	0 02:25	0.66	0.04	0.30

C2	CONDUIT	0.821	0	01:47	0.39	0.13	0.24
C2_1	CHANNEL	0.565	0	02:30	0.44	0.05	0.33
C2_2	CONDUIT	0.584	0	02:32	0.50	0.32	0.55
C3	CONDUIT	0.521	0	01:58	2.24	0.13	0.45
C3_1	CONDUIT	0.581	0	02:32	0.49	0.42	0.56
C3_2	CHANNEL	0.554	0	02:50	0.16	0.02	0.52
C7	CHANNEL	0.035	0	02:49	0.09	0.00	0.15
W1	WEIR	0.000	0	00:00			0.00
W2	WEIR	0.000	0	00:00			0.00
W3	WEIR	0.000	0	00:00			0.00

Flow Classification Summary

Conduit	Adjusted /Actual Length	----- Fraction of Time in Flow Class -----								
		Up Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C1_1	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C1_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C2_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.96	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C3	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.97	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C3_2	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.98	0.00

Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Thu Feb 3 01:55:25 2022
Analysis ended on: Thu Feb 3 01:55:26 2022
Total elapsed time: 00:00:01

Existing 1:2 Year SCS PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 14
Number of nodes 12
Number of links 13
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval

Raingage1	SCS_2yr_12hr_Type_II	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

S3_1	3.77	107.73	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	0.00	0.5000	Raingage1	J1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	29.62	429.30	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	0.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.48	395.33	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	0.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.52	2.76	0.0	
J4	JUNCTION	181.62	1.67	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.79	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	181.22	1.34	0.0	
OF2	OUTFALL	182.12	0.00	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J4	OF1	CONDUIT	395.7	0.1011	0.0350
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	-0.0732	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	Dufour_W	1.34	69.36	0.37	115.00	1	32.39
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C2	TRAPEZOIDAL	1.00	10.47	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.34	69.36	0.37	115.00	1	27.55
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA

Area:	0.0010	0.0039	0.0087	0.0147	0.0214
	0.0286	0.0363	0.0446	0.0534	0.0628
	0.0727	0.0831	0.0941	0.1057	0.1178
	0.1305	0.1437	0.1574	0.1717	0.1865
	0.2019	0.2179	0.2343	0.2514	0.2689
	0.2921	0.3174	0.3430	0.3689	0.3951
	0.4216	0.4483	0.4754	0.5027	0.5303
	0.5582	0.5864	0.6149	0.6437	0.6728
	0.7022	0.7319	0.7618	0.7921	0.8233
	0.8555	0.8886	0.9228	0.9582	1.0000
Hrad:	0.0185	0.0370	0.0587	0.0851	0.1129
	0.1390	0.1638	0.1875	0.2103	0.2325
	0.2540	0.2751	0.2958	0.3161	0.3361
	0.3558	0.3753	0.3946	0.4137	0.4326
	0.4515	0.4701	0.4887	0.5072	0.5255
	0.5380	0.5487	0.5615	0.5759	0.5915
	0.6080	0.6251	0.6428	0.6609	0.6793
	0.6981	0.7171	0.7363	0.7556	0.7750
	0.7946	0.8142	0.8339	0.8573	0.8856
	0.9126	0.9382	0.9627	0.9857	1.0000
Width:	0.0428	0.0856	0.1198	0.1386	0.1505
	0.1624	0.1743	0.1862	0.1981	0.2101
	0.2220	0.2339	0.2458	0.2577	0.2696
	0.2815	0.2935	0.3054	0.3173	0.3292
	0.3411	0.3530	0.3649	0.3769	0.3888
	0.5479	0.5542	0.5606	0.5669	0.5733
	0.5796	0.5860	0.5923	0.5987	0.6050
	0.6113	0.6177	0.6240	0.6304	0.6367
	0.6431	0.6494	0.6558	0.6679	0.6897
	0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S

Area:	0.0005	0.0019	0.0044	0.0077	0.0121
	0.0174	0.0234	0.0299	0.0371	0.0448
	0.0530	0.0617	0.0710	0.0808	0.0911
	0.1020	0.1134	0.1253	0.1378	0.1508
	0.1643	0.1784	0.1930	0.2081	0.2238
	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Hrad:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
	0.5734	0.5936	0.6138	0.6340	0.6540

Width:	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
	0.3614	0.3731	0.3848	0.3965	0.4082
Hrad:	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
Transect Dufour_W					
Area:	0.0001	0.0004	0.0008	0.0015	0.0023
	0.0034	0.0046	0.0060	0.0075	0.0093
	0.0112	0.0133	0.0156	0.0179	0.0204
	0.0230	0.0257	0.0285	0.0315	0.0345
	0.0378	0.0416	0.0458	0.0505	0.0556
	0.0616	0.0689	0.1007	0.1408	0.1809
	0.2211	0.2613	0.3015	0.3417	0.3820
	0.4223	0.4626	0.5030	0.5434	0.5838
	0.6242	0.6647	0.7052	0.7458	0.7865
	0.8278	0.8698	0.9125	0.9559	1.0000
Width:	0.0360	0.0720	0.1080	0.1440	0.1800
	0.2159	0.2519	0.2879	0.3241	0.3638
	0.4029	0.4415	0.4861	0.5325	0.5780
	0.6225	0.6663	0.7094	0.7520	0.7940
	0.7692	0.7483	0.7391	0.7384	0.7652
	0.8184	0.8492	0.6095	0.4948	0.4574
	0.4504	0.4582	0.4744	0.4957	0.5203
	0.5473	0.5759	0.6058	0.6366	0.6682
	0.7004	0.7330	0.7661	0.7994	0.8339
	0.8684	0.9021	0.9353	0.9679	1.0000
Transect Transect2					
Area:	0.0042	0.0084	0.0126	0.0168	0.0210
	0.0252	0.0294	0.0335	0.0377	0.0414
	0.0451	0.0488	0.0518	0.0544	0.0570
	0.0597	0.0623	0.0649	0.0675	0.0701
	0.0794	0.0898	0.1001	0.1105	0.1245
	0.1446	0.2952	0.9019	0.9026	0.9033
	0.9040	0.9046	0.9053	0.9060	0.9067
	0.9074	0.9080	0.9087	0.9094	0.9101
	0.9107	0.9114	0.9121	0.9128	0.9223
	0.9379	0.9534	0.9689	0.9845	1.0000
Transect Area:					
Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036

	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000
Hrad:					
	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000
Width:					
	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS

Process Models:

Rainfall/Runoff YES
RDII NO
Snowmelt NO
Groundwater NO
Flow Routing YES
Ponding Allowed NO
Water Quality NO

Infiltration Method GREEN_AMPT

Flow Routing Method DYNWAVE

Surcharge Method EXTRAN

Starting Date 04/16/2020 00:00:00

Ending Date 04/19/2020 00:00:00

Antecedent Dry Days 0.0

Report Time Step 00:01:00

Wet Time Step 00:05:00

Dry Time Step 00:05:00

Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 1
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	4.083	46.200
Evaporation Loss	0.000	0.000
Infiltration Loss	2.707	30.628
Surface Runoff	1.368	15.476
Final Storage	0.010	0.109
Continuity Error (%)	-0.028	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.369	13.688
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.365	13.645
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.004	0.043
Continuity Error (%)	0.001	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 4.55 sec
Average Time Step : 5.00 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S3_1	46.20	0.00	0.00	10.95	26.63	7.53	34.17	1.29	0.35	0.740
S3_10	46.20	19.89	0.00	36.23	0.00	29.86	29.86	2.50	0.10	0.452
S3_11	46.20	0.00	0.00	32.36	0.00	13.84	13.84	0.53	0.03	0.300
S3_12	46.20	0.00	0.00	29.14	0.00	17.07	17.07	0.65	0.07	0.369
S3_13	46.20	0.00	0.00	34.33	0.00	11.86	11.86	3.51	0.17	0.257
S3_14	46.20	0.00	0.00	22.13	8.89	14.86	23.75	0.26	0.07	0.514
S3_15	46.20	0.00	0.00	33.22	0.00	12.98	12.98	1.15	0.06	0.281
S3_2	46.20	0.00	0.00	11.90	23.13	10.30	33.43	1.07	0.40	0.724
S3_3	46.20	0.00	0.00	28.33	0.00	17.89	17.89	0.81	0.12	0.387
S3_4	46.20	0.00	0.00	22.02	6.67	17.27	23.94	0.83	0.17	0.518
S3_5	46.20	0.00	0.00	30.53	0.00	15.67	15.67	1.63	0.13	0.339
S3_7	46.20	0.00	0.00	22.53	9.34	13.98	23.32	0.50	0.11	0.505
S3_8	46.20	0.00	0.00	34.43	0.00	11.77	11.77	0.08	0.00	0.255
S3_9	46.20	25.68	0.00	34.88	0.00	36.99	36.99	1.66	0.07	0.515

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.05	0.45	182.57	0 06:41	0.45
J10	JUNCTION	0.08	0.60	182.57	0 06:40	0.60
J2	JUNCTION	0.09	0.63	182.51	0 06:41	0.63
J3	JUNCTION	0.20	0.75	182.28	0 07:03	0.75
J4	JUNCTION	0.11	0.62	182.24	0 07:12	0.62
J5	JUNCTION	0.18	0.74	182.29	0 06:59	0.74
J6	JUNCTION	0.23	0.76	182.26	0 07:09	0.76
J7	JUNCTION	0.02	0.14	183.27	0 07:03	0.14
J8	JUNCTION	0.02	0.25	183.35	0 06:09	0.25
J9	JUNCTION	0.01	0.23	183.36	0 06:04	0.23
OF1	OUTFALL	0.04	0.28	181.50	0 07:12	0.28
OF2	OUTFALL	0.00	0.00	182.12	0 00:00	0.00

Node Inflow Summary

	Maximum Lateral Inflow	Maximum Total Inflow	Time of Max Occurrence	Lateral Inflow Volume	Total Inflow Volume	Flow Balance Error
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Node	Type	CMS	CMS	days	hr:min	10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.096	0.204	0	06:06	2.5	3.22	0.061
J10	JUNCTION	0.000	0.575	0	06:34	0	7.23	-0.063
J2	JUNCTION	0.000	0.572	0	06:37	0	7.12	-0.191
J3	JUNCTION	0.000	0.588	0	06:43	0	7.61	0.113
J4	JUNCTION	0.298	0.850	0	06:56	5.15	13.7	0.076
J5	JUNCTION	0.112	0.606	0	06:40	0.501	7.64	0.292
J6	JUNCTION	0.137	0.667	0	06:42	0.913	8.52	0.153
J7	JUNCTION	0.036	0.036	0	06:36	0.616	0.616	0.536
J8	JUNCTION	0.120	0.849	0	06:01	0.814	4.01	0.048
J9	JUNCTION	0.890	0.890	0	05:54	3.2	3.2	-0.020
OF1	OUTFALL	0.000	0.831	0	07:12	0	13.6	0.000
OF2	OUTFALL	0.000	0.000	0	00:00	0	0	0.000 ltr

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Outfall Loading Summary

Outfall Node	Flow	Avg	Max	Total
	Freq	Flow	Flow	Volume
	Pcnt	CMS	CMS	10^6 ltr
OF1	93.34	0.056	0.831	13.645
OF2	0.00	0.000	0.000	0.000
System	46.67	0.056	0.000	13.645

Link Flow Summary

Link	Type	Maximum	Time of Max	Maximum	Max/	Max/
		Flow CMS	Occurrence days hr:min	Veloc m/sec	Full Flow	Full Depth
C1	CHANNEL	0.831	0 07:12	0.47	0.03	0.34
C1_1	CHANNEL	0.157	0 07:02	0.22	0.01	0.27
C1_2	CHANNEL	0.572	0 06:37	0.55	0.04	0.30

C2	CONDUIT	0.729	0	06:01	0.34	0.12	0.24
C2_1	CHANNEL	0.568	0	06:41	0.42	0.05	0.33
C2_2	CONDUIT	0.588	0	06:43	0.50	0.32	0.55
C3	CONDUIT	0.538	0	06:10	2.26	0.14	0.46
C3_1	CONDUIT	0.585	0	06:43	0.49	0.43	0.56
C3_2	CHANNEL	0.561	0	07:00	0.15	0.02	0.52
C7	CHANNEL	0.035	0	07:03	0.09	0.00	0.15
W1	WEIR	0.000	0	00:00			0.00
W2	WEIR	0.000	0	00:00			0.00
W3	WEIR	0.000	0	00:00			0.00

Flow Classification Summary

Conduit	Adjusted /Actual Length	----- Fraction of Time in Flow Class -----								
		Up Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C1_1	1.00	0.02	0.05	0.00	0.93	0.00	0.00	0.00	0.83	0.00
C1_2	1.00	0.02	0.00	0.00	0.97	0.01	0.00	0.00	0.81	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
C2_1	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.93	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C3	1.00	0.01	0.00	0.00	0.95	0.04	0.00	0.00	0.96	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C3_2	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.07	0.01	0.00	0.92	0.00	0.00	0.00	0.92	0.00

Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Thu Feb 3 01:59:01 2022
Analysis ended on: Thu Feb 3 01:59:02 2022
Total elapsed time: 00:00:01

Proposed PCSWMM Input Report

```
[TITLE]
;;Project Title/Notes

[OPTIONS]
;;Option      Value
FLOW_UNITS    CMS
INFILTRATION   GREEN_AMPT
FLOW_ROUTING   DYNWAVE
LINK_OFFSETS   DEPTH
MIN_SLOPE      0
ALLOW_PONDING  NO
SKIP_STEADY_STATE NO

START_DATE     04/16/2020
START_TIME     00:00:00
REPORT_START_DATE 04/16/2020
REPORT_START_TIME 00:00:00
END_DATE       04/18/2020
END_TIME       22:00:00
SWEEP_START    01/01
SWEEP_END      12/31
DRY_DAYS       0
REPORT_STEP    00:01:00
WET_STEP       00:05:00
DRY_STEP       00:05:00
ROUTING_STEP   5
RULE_STEP      00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP    0.75
LENGTHENING_STEP 0
MIN_SURFAREA     0
MAX_TRIALS       8
HEAD_TOLERANCE   0.0015
SYS_FLOW_TOL     5
LAT_FLOW_TOL     5
MINIMUM_STEP     0.5
THREADS          4

[EVAPORATION]
;;Data Source  Parameters
;;-----
CONSTANT       0.0
DRY_ONLY       NO

[RAINGAGES]
;;Name      Format   Interval SCF      Source
;;-----
Raingage1    INTENSITY 0:15    1.0      TIMESERIES 100yr_4hr_Chicago

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv  Width      %Slope  CurbLen  SnowPack
;;-----
S1          Raingage1      S3_15      7.5044    80       208.456    0.5     0
S2          Raingage1      S3_9       4.4911    80       149.703    0.5     0
```

;Drainage Area							
S3_1	Raingage1	J9	3.784	60	108.114	0.5	0
S3_10	Raingage1	SU1	8.36	66.5	209	0.5	0
S3_11	Raingage1	J7	3.8533	0	214.072	0.5	0
;Drainage Area							
S3_12	Raingage1	J6	3.8193	0	254.62	0.5	0
;Drainage Area							
S3_13	Raingage1	J4	26.5277	0	384.46	0.5	0
;Drainage Area							
S3_14	Raingage1	J6	1.0952	20	199.127	0.5	0
S3_15	Raingage1	S3_9	8.87	64	168.311	0.5	0
;Drainage Area							
S3_2	Raingage1	J9	3.2053	52	493.123	0.5	0
;Drainage Area							
S3_3	Raingage1	J8	4.5462	0	454.62	0.5	0
;Drainage Area							
S3_4	Raingage1	J9	3.6295	15	412.443	0.5	0
;Drainage Area							
S3_5	Raingage1	J4	10.4204	0	416.816	0.5	0
;Drainage Area							
S3_7	Raingage1	J5	2.1467	21	214.67	0.5	0
S3_8	Raingage1	J7	0.7003	0	23.343	0.5	0
S3_9	Raingage1	S3_10	4.49	60	154.828	0.5	0

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
;;-----							
S1	0.013	0.24	2.5	7.5	25	OUTLET	
S2	0.013	0.24	2.5	7.5	25	OUTLET	
S3_1	0.013	0.17	2.5	7.5	25	OUTLET	
S3_10	0.013	0.24	2.5	7.5	25	OUTLET	
S3_11	0.013	0.4	2.5	10	25	OUTLET	
S3_12	0.013	0.17	2.5	10	25	OUTLET	
S3_13	0.013	0.17	2.5	10	25	OUTLET	
S3_14	0.013	0.17	2.5	10	25	OUTLET	
S3_15	0.013	0.24	2.5	7.5	25	OUTLET	
S3_2	0.013	0.17	2.5	7.5	25	OUTLET	
S3_3	0.013	0.17	2.5	10	25	OUTLET	
S3_4	0.013	0.17	2.5	7.5	25	OUTLET	
S3_5	0.013	0.17	2.5	10	25	OUTLET	
S3_7	0.013	0.17	2.5	10	25	OUTLET	
S3_8	0.013	0.4	2.5	10	25	OUTLET	
S3_9	0.013	0.24	2.5	7.5	25	OUTLET	

[INFILTRATION]

;;Subcatchment	Param1	Param2	Param3	Param4	Param5
;;-----					
S1	180	0.5	0.1	0	0
S2	180	0.5	0.1	0	0
S3_1	180	0.5	0.1	0	0
S3_10	180	0.5	0.1	0	0
S3_11	180	0.5	0.1	0	0
S3_12	180	0.5	0.1	0	0
S3_13	180	0.5	0.1	0	0
S3_14	180	0.5	0.1	0	0
S3_15	180	0.5	0.1	0	0
S3_2	180	0.5	0.1	0	0

W1	J5	J3	TRANSVERSE	1.74	1.7	NO	0	0	YES		
W2	J3	J6	TRANSVERSE	1.765	1.7	NO	0	0	YES		
W3	J8	J10	ROADWAY	0.72	1.7	NO	0	0	YES	0	PAVED

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
;;-----							
C1_1	IRREGULAR	BranchA	0	0	0	1	
C1_2	IRREGULAR	Dufour_S	0	0	0	1	
C1_3	IRREGULAR	Dufour_W	0	0	0	1	
C1_5	IRREGULAR	Dufour_W	0	0	0	1	
C1_6	IRREGULAR	Dufour_W	0	0	0	1	
C2	TRAPEZOIDAL	1	10	0.4	0.55	1	
C2_1	IRREGULAR	Dufour_S	0	0	0	1	
C2_2	ARCH	1.36	1.78	0	0	1	
C3	CIRCULAR	0.9	0	0	0	1	
C3_1	ARCH	1.36	1.78	0	0	1	
C3_2	IRREGULAR	Dufour_W	0	0	0	1	
C7	IRREGULAR	BranchA	0	0	0	1	
W1	RECT_OPEN	1	1	0	0		
W2	RECT_OPEN	1	1	0	0		
W3	RECT_OPEN	1	1	0	0		

[TRANSECTS]

;;Transect Data in HEC-2 format

;									
NC 0.06	0.06	0.035							
X1 BranchA		8	-4.6	2.7	0.0	0.0	0.0	0.0	0.0
GR 184.03	-9.5	184.08	-6.6	183.83	-4.6	182.26	-0.94	182.12	0
GR 182.22	0.9	183.1	2.7	183.12	4.9				
;									
NC 0.06	0.06	0.035							
X1 Dufour_S		9	-3.6	2.6	0.0	0.0	0.0	0.0	0.0
GR 183.71	-7.4	183.54	-5.3	183.03	-3.6	181.98	-1	181.65	0
GR 181.88	1	182.89	2.6	183.08	3.85	183.01	6.9		
;									
NC 0.06	0.06	0.035							
X1 Dufour_W		11	-5	10	0.0	0.0	0.0	0.0	0.0
GR 183.5	-15	183.25	-5	182.39	-2.5	181.62	0	182.3	2.5
GR 182.6	5	182.72	10	182.78	15	182.8	50	182.78	100
GR 182.84	350								
;									
NC 0.01	0.01	0.01							
X1 Transect2		7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR 182.3	-9.2	182.02	-3.8	180.06	-1	179.89	0	180.01	1.2
GR 182.08	4.6	182.05	9						

[LOSSES]

;;Link	Kentry	Kexit	Kavg	Flap Gate	Seepage
;;-----					
C2_2	0.5	0.5	0	NO	0
C3	0.5	0.5	0	NO	0
C3_1	0.5	0.5	0	NO	0

[CURVES]

;;Name	Type	X-Value	Y-Value
;;-----			

```
Curve1      Pump2      0      0
Curve1      0.01      0.089999999
Curve1      3.7      0.093

;Reverted to larger pond for DPS submission - not to be used for dual drainage model
DPSpond      Storage      0      7569.842
DPSpond      1      9296.538
DPSpond      2      11180.317
DPSpond      3      13221.177
DPSpond      3.7      14743.243

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
100yr_4hr_Chicago      0:00      3.95
100yr_4hr_Chicago      0:15      4.87
100yr_4hr_Chicago      0:30      6.36
100yr_4hr_Chicago      0:45      9.19
100yr_4hr_Chicago      1:00      16.45
100yr_4hr_Chicago      1:15      46.45
100yr_4hr_Chicago      1:30      143.67
100yr_4hr_Chicago      1:45      32.45
100yr_4hr_Chicago      2:00      17.25
100yr_4hr_Chicago      2:15      11.53
100yr_4hr_Chicago      2:30      8.62
100yr_4hr_Chicago      2:45      6.87
100yr_4hr_Chicago      3:00      5.71
100yr_4hr_Chicago      3:15      4.89
100yr_4hr_Chicago      3:30      4.28
100yr_4hr_Chicago      3:45      3.81
100yr_4hr_Chicago      4:00      0

2yr_4hr_Chicago      0:00      2.1
2yr_4hr_Chicago      0:15      2.52
2yr_4hr_Chicago      0:30      3.18
2yr_4hr_Chicago      0:45      4.38
2yr_4hr_Chicago      1:00      7.31
2yr_4hr_Chicago      1:15      19.33
2yr_4hr_Chicago      1:30      68.13
2yr_4hr_Chicago      1:45      13.64
2yr_4hr_Chicago      2:00      7.63
2yr_4hr_Chicago      2:15      5.34
2yr_4hr_Chicago      2:30      4.14
2yr_4hr_Chicago      2:45      3.4
2yr_4hr_Chicago      3:00      2.89
2yr_4hr_Chicago      3:15      2.53
2yr_4hr_Chicago      3:30      2.25
2yr_4hr_Chicago      3:45      2.03
2yr_4hr_Chicago      4:00      0

5yr_4hr_Chicago      0:00      2.58
5yr_4hr_Chicago      0:15      3.13
5yr_4hr_Chicago      0:30      4.02
5yr_4hr_Chicago      0:45      5.66
5yr_4hr_Chicago      1:00      9.76
5yr_4hr_Chicago      1:15      26.72
5yr_4hr_Chicago      1:30      88.4
```

5yr_4hr_Chicago	1:45	18.73
5yr_4hr_Chicago	2:00	10.21
5yr_4hr_Chicago	2:15	6.99
5yr_4hr_Chicago	2:30	5.33
5yr_4hr_Chicago	2:45	4.31
5yr_4hr_Chicago	3:00	3.64
5yr_4hr_Chicago	3:15	3.15
5yr_4hr_Chicago	3:30	2.78
5yr_4hr_Chicago	3:45	2.49
5yr_4hr_Chicago	4:00	0

ERCA_Quality_Storm	0:00	1.78
ERCA_Quality_Storm	0:15	2.13
ERCA_Quality_Storm	0:30	2.7
ERCA_Quality_Storm	0:45	3.72
ERCA_Quality_Storm	1:00	6.21
ERCA_Quality_Storm	1:15	16.41
ERCA_Quality_Storm	1:30	57.83
ERCA_Quality_Storm	1:45	11.58
ERCA_Quality_Storm	2:00	6.48
ERCA_Quality_Storm	2:15	4.53
ERCA_Quality_Storm	2:30	3.51
ERCA_Quality_Storm	2:45	2.88
ERCA_Quality_Storm	3:00	2.45
ERCA_Quality_Storm	3:15	2.14
ERCA_Quality_Storm	3:30	1.91
ERCA_Quality_Storm	3:45	1.72
ERCA_Quality_Storm	4:00	0

;Total rainfall = 46.2 mm, rain interval = 6 minutes

SCS_2yr_12hr_Type_II	0:00	0.99432
SCS_2yr_12hr_Type_II	0:06	1.0053
SCS_2yr_12hr_Type_II	0:12	1.01629
SCS_2yr_12hr_Type_II	0:18	1.02728
SCS_2yr_12hr_Type_II	0:24	1.03826
SCS_2yr_12hr_Type_II	0:30	1.04925
SCS_2yr_12hr_Type_II	0:36	1.06024
SCS_2yr_12hr_Type_II	0:42	1.07122
SCS_2yr_12hr_Type_II	0:48	1.08221
SCS_2yr_12hr_Type_II	0:54	1.0932
SCS_2yr_12hr_Type_II	1:00	1.10419
SCS_2yr_12hr_Type_II	1:06	1.11517
SCS_2yr_12hr_Type_II	1:12	1.12616
SCS_2yr_12hr_Type_II	1:18	1.13715
SCS_2yr_12hr_Type_II	1:24	1.14813
SCS_2yr_12hr_Type_II	1:30	1.15912
SCS_2yr_12hr_Type_II	1:36	1.17011
SCS_2yr_12hr_Type_II	1:42	1.18109
SCS_2yr_12hr_Type_II	1:48	1.19208
SCS_2yr_12hr_Type_II	1:54	1.20307
SCS_2yr_12hr_Type_II	2:00	1.23603
SCS_2yr_12hr_Type_II	2:06	1.29096
SCS_2yr_12hr_Type_II	2:12	1.3459
SCS_2yr_12hr_Type_II	2:18	1.40083
SCS_2yr_12hr_Type_II	2:24	1.45577
SCS_2yr_12hr_Type_II	2:30	1.5107
SCS_2yr_12hr_Type_II	2:36	1.56564

SCS_2yr_12hr_Type_II	2:42	1.62057
SCS_2yr_12hr_Type_II	2:48	1.67551
SCS_2yr_12hr_Type_II	2:54	1.73044
SCS_2yr_12hr_Type_II	3:00	1.75791
SCS_2yr_12hr_Type_II	3:06	1.75791
SCS_2yr_12hr_Type_II	3:12	1.75791
SCS_2yr_12hr_Type_II	3:18	1.75791
SCS_2yr_12hr_Type_II	3:24	1.75791
SCS_2yr_12hr_Type_II	3:30	1.80185
SCS_2yr_12hr_Type_II	3:36	1.88975
SCS_2yr_12hr_Type_II	3:42	1.97765
SCS_2yr_12hr_Type_II	3:48	2.06554
SCS_2yr_12hr_Type_II	3:54	2.15344
SCS_2yr_12hr_Type_II	4:00	2.26331
SCS_2yr_12hr_Type_II	4:06	2.39515
SCS_2yr_12hr_Type_II	4:12	2.52699
SCS_2yr_12hr_Type_II	4:18	2.65883
SCS_2yr_12hr_Type_II	4:24	2.79068
SCS_2yr_12hr_Type_II	4:30	2.96647
SCS_2yr_12hr_Type_II	4:36	3.18621
SCS_2yr_12hr_Type_II	4:42	3.40595
SCS_2yr_12hr_Type_II	4:48	3.62568
SCS_2yr_12hr_Type_II	4:54	3.84542
SCS_2yr_12hr_Type_II	5:00	4.21898
SCS_2yr_12hr_Type_II	5:06	4.74635
SCS_2yr_12hr_Type_II	5:12	5.27372
SCS_2yr_12hr_Type_II	5:18	5.80109
SCS_2yr_12hr_Type_II	5:24	6.32847
SCS_2yr_12hr_Type_II	5:30	13.09641
SCS_2yr_12hr_Type_II	5:36	26.10492
SCS_2yr_12hr_Type_II	5:42	41.98652
SCS_2yr_12hr_Type_II	5:48	75.29886
SCS_2yr_12hr_Type_II	5:54	52.26478
SCS_2yr_12hr_Type_II	6:00	10.4156
SCS_2yr_12hr_Type_II	6:06	9.16309
SCS_2yr_12hr_Type_II	6:12	7.91058
SCS_2yr_12hr_Type_II	6:18	6.65807
SCS_2yr_12hr_Type_II	6:24	5.40556
SCS_2yr_12hr_Type_II	6:30	4.63648
SCS_2yr_12hr_Type_II	6:36	4.35082
SCS_2yr_12hr_Type_II	6:42	4.06516
SCS_2yr_12hr_Type_II	6:48	3.7795
SCS_2yr_12hr_Type_II	6:54	3.49384
SCS_2yr_12hr_Type_II	7:00	3.2741
SCS_2yr_12hr_Type_II	7:06	3.12029
SCS_2yr_12hr_Type_II	7:12	2.96647
SCS_2yr_12hr_Type_II	7:18	2.81265
SCS_2yr_12hr_Type_II	7:24	2.65883
SCS_2yr_12hr_Type_II	7:30	2.52699
SCS_2yr_12hr_Type_II	7:36	2.41712
SCS_2yr_12hr_Type_II	7:42	2.30725
SCS_2yr_12hr_Type_II	7:48	2.19738
SCS_2yr_12hr_Type_II	7:54	2.08751
SCS_2yr_12hr_Type_II	8:00	2.0161
SCS_2yr_12hr_Type_II	8:06	1.97215
SCS_2yr_12hr_Type_II	8:12	1.93919
SCS_2yr_12hr_Type_II	8:18	1.89524

SCS_2yr_12hr_Type_II	8:24	1.86228
SCS_2yr_12hr_Type_II	8:30	1.81834
SCS_2yr_12hr_Type_II	8:36	1.78537
SCS_2yr_12hr_Type_II	8:42	1.74143
SCS_2yr_12hr_Type_II	8:48	1.70847
SCS_2yr_12hr_Type_II	8:54	1.66452
SCS_2yr_12hr_Type_II	9:00	1.63156
SCS_2yr_12hr_Type_II	9:06	1.58761
SCS_2yr_12hr_Type_II	9:12	1.55465
SCS_2yr_12hr_Type_II	9:18	1.5107
SCS_2yr_12hr_Type_II	9:24	1.47774
SCS_2yr_12hr_Type_II	9:30	1.43379
SCS_2yr_12hr_Type_II	9:36	1.40083
SCS_2yr_12hr_Type_II	9:42	1.35688
SCS_2yr_12hr_Type_II	9:48	1.32392
SCS_2yr_12hr_Type_II	9:54	1.27998
SCS_2yr_12hr_Type_II	10:00	1.258
SCS_2yr_12hr_Type_II	10:06	1.24152
SCS_2yr_12hr_Type_II	10:12	1.23054
SCS_2yr_12hr_Type_II	10:18	1.21405
SCS_2yr_12hr_Type_II	10:24	1.20307
SCS_2yr_12hr_Type_II	10:30	1.18659
SCS_2yr_12hr_Type_II	10:36	1.1756
SCS_2yr_12hr_Type_II	10:42	1.15912
SCS_2yr_12hr_Type_II	10:48	1.14813
SCS_2yr_12hr_Type_II	10:54	1.13165
SCS_2yr_12hr_Type_II	11:00	1.12067
SCS_2yr_12hr_Type_II	11:06	1.10419
SCS_2yr_12hr_Type_II	11:12	1.0932
SCS_2yr_12hr_Type_II	11:18	1.07672
SCS_2yr_12hr_Type_II	11:24	1.06573
SCS_2yr_12hr_Type_II	11:30	1.04925
SCS_2yr_12hr_Type_II	11:36	1.03826
SCS_2yr_12hr_Type_II	11:42	1.02178
SCS_2yr_12hr_Type_II	11:48	1.0108
SCS_2yr_12hr_Type_II	11:54	0.99432
;total rainfall = 53.4 mm		
SCS_2yr_24hr_Type_II	0:00	0.587
SCS_2yr_24hr_Type_II	0:15	0.587
SCS_2yr_24hr_Type_II	0:30	0.587
SCS_2yr_24hr_Type_II	0:45	0.587
SCS_2yr_24hr_Type_II	1:00	0.587
SCS_2yr_24hr_Type_II	1:15	0.587
SCS_2yr_24hr_Type_II	1:30	0.587
SCS_2yr_24hr_Type_II	1:45	0.587
SCS_2yr_24hr_Type_II	2:00	0.694
SCS_2yr_24hr_Type_II	2:15	0.694
SCS_2yr_24hr_Type_II	2:30	0.694
SCS_2yr_24hr_Type_II	2:45	0.694
SCS_2yr_24hr_Type_II	3:00	0.694
SCS_2yr_24hr_Type_II	3:15	0.694
SCS_2yr_24hr_Type_II	3:30	0.694
SCS_2yr_24hr_Type_II	3:45	0.694
SCS_2yr_24hr_Type_II	4:00	0.854
SCS_2yr_24hr_Type_II	4:15	0.854
SCS_2yr_24hr_Type_II	4:30	0.854

SCS_2yr_24hr_Type_II	4:45	0.854
SCS_2yr_24hr_Type_II	5:00	0.854
SCS_2yr_24hr_Type_II	5:15	0.854
SCS_2yr_24hr_Type_II	5:30	0.854
SCS_2yr_24hr_Type_II	5:45	0.854
SCS_2yr_24hr_Type_II	6:00	0.961
SCS_2yr_24hr_Type_II	6:15	0.961
SCS_2yr_24hr_Type_II	6:30	0.961
SCS_2yr_24hr_Type_II	6:45	0.961
SCS_2yr_24hr_Type_II	7:00	1.175
SCS_2yr_24hr_Type_II	7:15	1.175
SCS_2yr_24hr_Type_II	7:30	1.175
SCS_2yr_24hr_Type_II	7:45	1.175
SCS_2yr_24hr_Type_II	8:00	1.388
SCS_2yr_24hr_Type_II	8:15	1.388
SCS_2yr_24hr_Type_II	8:30	1.495
SCS_2yr_24hr_Type_II	8:45	1.495
SCS_2yr_24hr_Type_II	9:00	1.709
SCS_2yr_24hr_Type_II	9:15	1.709
SCS_2yr_24hr_Type_II	9:30	1.922
SCS_2yr_24hr_Type_II	9:45	1.922
SCS_2yr_24hr_Type_II	10:00	2.456
SCS_2yr_24hr_Type_II	10:15	2.456
SCS_2yr_24hr_Type_II	10:30	3.311
SCS_2yr_24hr_Type_II	10:45	3.311
SCS_2yr_24hr_Type_II	11:00	5.126
SCS_2yr_24hr_Type_II	11:15	5.126
SCS_2yr_24hr_Type_II	11:30	15.806
SCS_2yr_24hr_Type_II	11:45	65.362
SCS_2yr_24hr_Type_II	12:00	7.69
SCS_2yr_24hr_Type_II	12:15	7.69
SCS_2yr_24hr_Type_II	12:30	3.952
SCS_2yr_24hr_Type_II	12:45	3.952
SCS_2yr_24hr_Type_II	13:00	2.884
SCS_2yr_24hr_Type_II	13:15	2.884
SCS_2yr_24hr_Type_II	13:30	2.243
SCS_2yr_24hr_Type_II	13:45	2.243
SCS_2yr_24hr_Type_II	14:00	1.602
SCS_2yr_24hr_Type_II	14:15	1.602
SCS_2yr_24hr_Type_II	14:30	1.602
SCS_2yr_24hr_Type_II	14:45	1.602
SCS_2yr_24hr_Type_II	15:00	1.602
SCS_2yr_24hr_Type_II	15:15	1.602
SCS_2yr_24hr_Type_II	15:30	1.602
SCS_2yr_24hr_Type_II	15:45	1.602
SCS_2yr_24hr_Type_II	16:00	0.961
SCS_2yr_24hr_Type_II	16:15	0.961
SCS_2yr_24hr_Type_II	16:30	0.961
SCS_2yr_24hr_Type_II	16:45	0.961
SCS_2yr_24hr_Type_II	17:00	0.961
SCS_2yr_24hr_Type_II	17:15	0.961
SCS_2yr_24hr_Type_II	17:30	0.961
SCS_2yr_24hr_Type_II	17:45	0.961
SCS_2yr_24hr_Type_II	18:00	0.961
SCS_2yr_24hr_Type_II	18:15	0.961
SCS_2yr_24hr_Type_II	18:30	0.961
SCS_2yr_24hr_Type_II	18:45	0.961

SCS_2yr_24hr_Type_II	19:00	0.961
SCS_2yr_24hr_Type_II	19:15	0.961
SCS_2yr_24hr_Type_II	19:30	0.961
SCS_2yr_24hr_Type_II	19:45	0.961
SCS_2yr_24hr_Type_II	20:00	0.641
SCS_2yr_24hr_Type_II	20:15	0.641
SCS_2yr_24hr_Type_II	20:30	0.641
SCS_2yr_24hr_Type_II	20:45	0.641
SCS_2yr_24hr_Type_II	21:00	0.641
SCS_2yr_24hr_Type_II	21:15	0.641
SCS_2yr_24hr_Type_II	21:30	0.641
SCS_2yr_24hr_Type_II	21:45	0.641
SCS_2yr_24hr_Type_II	22:00	0.641
SCS_2yr_24hr_Type_II	22:15	0.641
SCS_2yr_24hr_Type_II	22:30	0.641
SCS_2yr_24hr_Type_II	22:45	0.641
SCS_2yr_24hr_Type_II	23:00	0.641
SCS_2yr_24hr_Type_II	23:15	0.641
SCS_2yr_24hr_Type_II	23:30	0.641
SCS_2yr_24hr_Type_II	23:45	0.641

;SCS_Type_II_108mm design storm, total rainfall = 108 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_108mm_100yr_24hour	0:00	1.0908
SCS_Type_II_108mm_100yr_24hour	0:06	1.0908
SCS_Type_II_108mm_100yr_24hour	0:12	1.1124
SCS_Type_II_108mm_100yr_24hour	0:18	1.1124
SCS_Type_II_108mm_100yr_24hour	0:24	1.134
SCS_Type_II_108mm_100yr_24hour	0:30	1.134
SCS_Type_II_108mm_100yr_24hour	0:36	1.1556
SCS_Type_II_108mm_100yr_24hour	0:42	1.1556
SCS_Type_II_108mm_100yr_24hour	0:48	1.1772
SCS_Type_II_108mm_100yr_24hour	0:54	1.1772
SCS_Type_II_108mm_100yr_24hour	1:00	1.1988
SCS_Type_II_108mm_100yr_24hour	1:06	1.1988
SCS_Type_II_108mm_100yr_24hour	1:12	1.2204
SCS_Type_II_108mm_100yr_24hour	1:18	1.2204
SCS_Type_II_108mm_100yr_24hour	1:24	1.242
SCS_Type_II_108mm_100yr_24hour	1:30	1.242
SCS_Type_II_108mm_100yr_24hour	1:36	1.2636
SCS_Type_II_108mm_100yr_24hour	1:42	1.2636
SCS_Type_II_108mm_100yr_24hour	1:48	1.2852
SCS_Type_II_108mm_100yr_24hour	1:54	1.2852
SCS_Type_II_108mm_100yr_24hour	2:00	1.3068
SCS_Type_II_108mm_100yr_24hour	2:06	1.3068
SCS_Type_II_108mm_100yr_24hour	2:12	1.3284
SCS_Type_II_108mm_100yr_24hour	2:18	1.3284
SCS_Type_II_108mm_100yr_24hour	2:24	1.35
SCS_Type_II_108mm_100yr_24hour	2:30	1.35
SCS_Type_II_108mm_100yr_24hour	2:36	1.3716
SCS_Type_II_108mm_100yr_24hour	2:42	1.3716
SCS_Type_II_108mm_100yr_24hour	2:48	1.3932
SCS_Type_II_108mm_100yr_24hour	2:54	1.3932
SCS_Type_II_108mm_100yr_24hour	3:00	1.4148
SCS_Type_II_108mm_100yr_24hour	3:06	1.4148
SCS_Type_II_108mm_100yr_24hour	3:12	1.4364
SCS_Type_II_108mm_100yr_24hour	3:18	1.4364
SCS_Type_II_108mm_100yr_24hour	3:24	1.458

SCS_Type_II_108mm_100yr_24hour	3:30	1.458
SCS_Type_II_108mm_100yr_24hour	3:36	1.4796
SCS_Type_II_108mm_100yr_24hour	3:42	1.4796
SCS_Type_II_108mm_100yr_24hour	3:48	1.5012
SCS_Type_II_108mm_100yr_24hour	3:54	1.5012
SCS_Type_II_108mm_100yr_24hour	4:00	1.5228
SCS_Type_II_108mm_100yr_24hour	4:06	1.5444
SCS_Type_II_108mm_100yr_24hour	4:12	1.566
SCS_Type_II_108mm_100yr_24hour	4:18	1.5876
SCS_Type_II_108mm_100yr_24hour	4:24	1.6092
SCS_Type_II_108mm_100yr_24hour	4:30	1.6308
SCS_Type_II_108mm_100yr_24hour	4:36	1.6524
SCS_Type_II_108mm_100yr_24hour	4:42	1.674
SCS_Type_II_108mm_100yr_24hour	4:48	1.6956
SCS_Type_II_108mm_100yr_24hour	4:54	1.7172
SCS_Type_II_108mm_100yr_24hour	5:00	1.7388
SCS_Type_II_108mm_100yr_24hour	5:06	1.7604
SCS_Type_II_108mm_100yr_24hour	5:12	1.782
SCS_Type_II_108mm_100yr_24hour	5:18	1.8036
SCS_Type_II_108mm_100yr_24hour	5:24	1.8252
SCS_Type_II_108mm_100yr_24hour	5:30	1.8468
SCS_Type_II_108mm_100yr_24hour	5:36	1.8684
SCS_Type_II_108mm_100yr_24hour	5:42	1.89
SCS_Type_II_108mm_100yr_24hour	5:48	1.9116
SCS_Type_II_108mm_100yr_24hour	5:54	1.9332
SCS_Type_II_108mm_100yr_24hour	6:00	1.9548
SCS_Type_II_108mm_100yr_24hour	6:06	1.9764
SCS_Type_II_108mm_100yr_24hour	6:12	1.998
SCS_Type_II_108mm_100yr_24hour	6:18	2.0196
SCS_Type_II_108mm_100yr_24hour	6:24	2.0412
SCS_Type_II_108mm_100yr_24hour	6:30	2.0628
SCS_Type_II_108mm_100yr_24hour	6:36	2.0844
SCS_Type_II_108mm_100yr_24hour	6:42	2.106
SCS_Type_II_108mm_100yr_24hour	6:48	2.1276
SCS_Type_II_108mm_100yr_24hour	6:54	2.1492
SCS_Type_II_108mm_100yr_24hour	7:00	2.1708
SCS_Type_II_108mm_100yr_24hour	7:06	2.1924
SCS_Type_II_108mm_100yr_24hour	7:12	2.214
SCS_Type_II_108mm_100yr_24hour	7:18	2.2356
SCS_Type_II_108mm_100yr_24hour	7:24	2.2572
SCS_Type_II_108mm_100yr_24hour	7:30	2.2788
SCS_Type_II_108mm_100yr_24hour	7:36	2.3004
SCS_Type_II_108mm_100yr_24hour	7:42	2.322
SCS_Type_II_108mm_100yr_24hour	7:48	2.3436
SCS_Type_II_108mm_100yr_24hour	7:54	2.3652
SCS_Type_II_108mm_100yr_24hour	8:00	2.43
SCS_Type_II_108mm_100yr_24hour	8:06	2.538
SCS_Type_II_108mm_100yr_24hour	8:12	2.646
SCS_Type_II_108mm_100yr_24hour	8:18	2.754
SCS_Type_II_108mm_100yr_24hour	8:24	2.862
SCS_Type_II_108mm_100yr_24hour	8:30	2.97
SCS_Type_II_108mm_100yr_24hour	8:36	3.078
SCS_Type_II_108mm_100yr_24hour	8:42	3.186
SCS_Type_II_108mm_100yr_24hour	8:48	3.294
SCS_Type_II_108mm_100yr_24hour	8:54	3.402
SCS_Type_II_108mm_100yr_24hour	9:00	3.456
SCS_Type_II_108mm_100yr_24hour	9:06	3.456

SCS_Type_II_108mm_100yr_24hour	9:12	3.456
SCS_Type_II_108mm_100yr_24hour	9:18	3.456
SCS_Type_II_108mm_100yr_24hour	9:24	3.456
SCS_Type_II_108mm_100yr_24hour	9:30	3.5424
SCS_Type_II_108mm_100yr_24hour	9:36	3.7152
SCS_Type_II_108mm_100yr_24hour	9:42	3.888
SCS_Type_II_108mm_100yr_24hour	9:48	4.0608
SCS_Type_II_108mm_100yr_24hour	9:54	4.2336
SCS_Type_II_108mm_100yr_24hour	10:00	4.4496
SCS_Type_II_108mm_100yr_24hour	10:06	4.7088
SCS_Type_II_108mm_100yr_24hour	10:12	4.968
SCS_Type_II_108mm_100yr_24hour	10:18	5.2272
SCS_Type_II_108mm_100yr_24hour	10:24	5.4864
SCS_Type_II_108mm_100yr_24hour	10:30	5.832
SCS_Type_II_108mm_100yr_24hour	10:36	6.264
SCS_Type_II_108mm_100yr_24hour	10:42	6.696
SCS_Type_II_108mm_100yr_24hour	10:48	7.128
SCS_Type_II_108mm_100yr_24hour	10:54	7.56
SCS_Type_II_108mm_100yr_24hour	11:00	8.2944
SCS_Type_II_108mm_100yr_24hour	11:06	9.3312
SCS_Type_II_108mm_100yr_24hour	11:12	10.368
SCS_Type_II_108mm_100yr_24hour	11:18	11.4048
SCS_Type_II_108mm_100yr_24hour	11:24	12.4416
SCS_Type_II_108mm_100yr_24hour	11:30	25.7472
SCS_Type_II_108mm_100yr_24hour	11:36	51.3216
SCS_Type_II_108mm_100yr_24hour	11:42	82.5444
SCS_Type_II_108mm_100yr_24hour	11:48	148.0356
SCS_Type_II_108mm_100yr_24hour	11:54	102.7512
SCS_Type_II_108mm_100yr_24hour	12:00	20.4768
SCS_Type_II_108mm_100yr_24hour	12:06	18.0144
SCS_Type_II_108mm_100yr_24hour	12:12	15.552
SCS_Type_II_108mm_100yr_24hour	12:18	13.0896
SCS_Type_II_108mm_100yr_24hour	12:24	10.6272
SCS_Type_II_108mm_100yr_24hour	12:30	9.1152
SCS_Type_II_108mm_100yr_24hour	12:36	8.5536
SCS_Type_II_108mm_100yr_24hour	12:42	7.992
SCS_Type_II_108mm_100yr_24hour	12:48	7.4304
SCS_Type_II_108mm_100yr_24hour	12:54	6.8688
SCS_Type_II_108mm_100yr_24hour	13:00	6.4368
SCS_Type_II_108mm_100yr_24hour	13:06	6.1344
SCS_Type_II_108mm_100yr_24hour	13:12	5.832
SCS_Type_II_108mm_100yr_24hour	13:18	5.5296
SCS_Type_II_108mm_100yr_24hour	13:24	5.2272
SCS_Type_II_108mm_100yr_24hour	13:30	4.968
SCS_Type_II_108mm_100yr_24hour	13:36	4.752
SCS_Type_II_108mm_100yr_24hour	13:42	4.536
SCS_Type_II_108mm_100yr_24hour	13:48	4.32
SCS_Type_II_108mm_100yr_24hour	13:54	4.104
SCS_Type_II_108mm_100yr_24hour	14:00	3.9636
SCS_Type_II_108mm_100yr_24hour	14:06	3.8772
SCS_Type_II_108mm_100yr_24hour	14:12	3.8124
SCS_Type_II_108mm_100yr_24hour	14:18	3.726
SCS_Type_II_108mm_100yr_24hour	14:24	3.6612
SCS_Type_II_108mm_100yr_24hour	14:30	3.5748
SCS_Type_II_108mm_100yr_24hour	14:36	3.51
SCS_Type_II_108mm_100yr_24hour	14:42	3.4236
SCS_Type_II_108mm_100yr_24hour	14:48	3.3588

SCS_Type_II_108mm_100yr_24hour	14:54	3.2724
SCS_Type_II_108mm_100yr_24hour	15:00	3.2076
SCS_Type_II_108mm_100yr_24hour	15:06	3.1212
SCS_Type_II_108mm_100yr_24hour	15:12	3.0564
SCS_Type_II_108mm_100yr_24hour	15:18	2.97
SCS_Type_II_108mm_100yr_24hour	15:24	2.9052
SCS_Type_II_108mm_100yr_24hour	15:30	2.8188
SCS_Type_II_108mm_100yr_24hour	15:36	2.754
SCS_Type_II_108mm_100yr_24hour	15:42	2.6676
SCS_Type_II_108mm_100yr_24hour	15:48	2.6028
SCS_Type_II_108mm_100yr_24hour	15:54	2.5164
SCS_Type_II_108mm_100yr_24hour	16:00	2.4732
SCS_Type_II_108mm_100yr_24hour	16:06	2.4408
SCS_Type_II_108mm_100yr_24hour	16:12	2.4192
SCS_Type_II_108mm_100yr_24hour	16:18	2.3868
SCS_Type_II_108mm_100yr_24hour	16:24	2.3652
SCS_Type_II_108mm_100yr_24hour	16:30	2.3328
SCS_Type_II_108mm_100yr_24hour	16:36	2.3112
SCS_Type_II_108mm_100yr_24hour	16:42	2.2788
SCS_Type_II_108mm_100yr_24hour	16:48	2.2572
SCS_Type_II_108mm_100yr_24hour	16:54	2.2248
SCS_Type_II_108mm_100yr_24hour	17:00	2.2032
SCS_Type_II_108mm_100yr_24hour	17:06	2.1708
SCS_Type_II_108mm_100yr_24hour	17:12	2.1492
SCS_Type_II_108mm_100yr_24hour	17:18	2.1168
SCS_Type_II_108mm_100yr_24hour	17:24	2.0952
SCS_Type_II_108mm_100yr_24hour	17:30	2.0628
SCS_Type_II_108mm_100yr_24hour	17:36	2.0412
SCS_Type_II_108mm_100yr_24hour	17:42	2.0088
SCS_Type_II_108mm_100yr_24hour	17:48	1.9872
SCS_Type_II_108mm_100yr_24hour	17:54	1.9548
SCS_Type_II_108mm_100yr_24hour	18:00	1.9332
SCS_Type_II_108mm_100yr_24hour	18:06	1.9008
SCS_Type_II_108mm_100yr_24hour	18:12	1.8792
SCS_Type_II_108mm_100yr_24hour	18:18	1.8468
SCS_Type_II_108mm_100yr_24hour	18:24	1.8252
SCS_Type_II_108mm_100yr_24hour	18:30	1.7928
SCS_Type_II_108mm_100yr_24hour	18:36	1.7712
SCS_Type_II_108mm_100yr_24hour	18:42	1.7388
SCS_Type_II_108mm_100yr_24hour	18:48	1.7172
SCS_Type_II_108mm_100yr_24hour	18:54	1.6848
SCS_Type_II_108mm_100yr_24hour	19:00	1.6632
SCS_Type_II_108mm_100yr_24hour	19:06	1.6308
SCS_Type_II_108mm_100yr_24hour	19:12	1.6092
SCS_Type_II_108mm_100yr_24hour	19:18	1.5768
SCS_Type_II_108mm_100yr_24hour	19:24	1.5552
SCS_Type_II_108mm_100yr_24hour	19:30	1.5228
SCS_Type_II_108mm_100yr_24hour	19:36	1.5012
SCS_Type_II_108mm_100yr_24hour	19:42	1.4688
SCS_Type_II_108mm_100yr_24hour	19:48	1.4472
SCS_Type_II_108mm_100yr_24hour	19:54	1.4148
SCS_Type_II_108mm_100yr_24hour	20:00	1.404
SCS_Type_II_108mm_100yr_24hour	20:06	1.3932
SCS_Type_II_108mm_100yr_24hour	20:12	1.3932
SCS_Type_II_108mm_100yr_24hour	20:18	1.3824
SCS_Type_II_108mm_100yr_24hour	20:24	1.3824
SCS_Type_II_108mm_100yr_24hour	20:30	1.3716

SCS_Type_II_108mm_100yr_24hour	20:36	1.3716
SCS_Type_II_108mm_100yr_24hour	20:42	1.3608
SCS_Type_II_108mm_100yr_24hour	20:48	1.3608
SCS_Type_II_108mm_100yr_24hour	20:54	1.35
SCS_Type_II_108mm_100yr_24hour	21:00	1.35
SCS_Type_II_108mm_100yr_24hour	21:06	1.3392
SCS_Type_II_108mm_100yr_24hour	21:12	1.3392
SCS_Type_II_108mm_100yr_24hour	21:18	1.3284
SCS_Type_II_108mm_100yr_24hour	21:24	1.3284
SCS_Type_II_108mm_100yr_24hour	21:30	1.3176
SCS_Type_II_108mm_100yr_24hour	21:36	1.3176
SCS_Type_II_108mm_100yr_24hour	21:42	1.3068
SCS_Type_II_108mm_100yr_24hour	21:48	1.3068
SCS_Type_II_108mm_100yr_24hour	21:54	1.296
SCS_Type_II_108mm_100yr_24hour	22:00	1.296
SCS_Type_II_108mm_100yr_24hour	22:06	1.2852
SCS_Type_II_108mm_100yr_24hour	22:12	1.2852
SCS_Type_II_108mm_100yr_24hour	22:18	1.2744
SCS_Type_II_108mm_100yr_24hour	22:24	1.2744
SCS_Type_II_108mm_100yr_24hour	22:30	1.2636
SCS_Type_II_108mm_100yr_24hour	22:36	1.2636
SCS_Type_II_108mm_100yr_24hour	22:42	1.2528
SCS_Type_II_108mm_100yr_24hour	22:48	1.2528
SCS_Type_II_108mm_100yr_24hour	22:54	1.242
SCS_Type_II_108mm_100yr_24hour	23:00	1.242
SCS_Type_II_108mm_100yr_24hour	23:06	1.2312
SCS_Type_II_108mm_100yr_24hour	23:12	1.2312
SCS_Type_II_108mm_100yr_24hour	23:18	1.2204
SCS_Type_II_108mm_100yr_24hour	23:24	1.2204
SCS_Type_II_108mm_100yr_24hour	23:30	1.2096
SCS_Type_II_108mm_100yr_24hour	23:36	1.2096
SCS_Type_II_108mm_100yr_24hour	23:42	1.1988
SCS_Type_II_108mm_100yr_24hour	23:48	1.1988
SCS_Type_II_108mm_100yr_24hour	23:54	1.188

Timeseries1	0:00	0
Timeseries1	2:00	1.08
Timeseries1	4:00	1.62
Timeseries1	6:00	1.62
Timeseries1	8:00	2.16
Timeseries1	10:00	3.24
Timeseries1	12:00	25.92
Timeseries1	14:00	8.64
Timeseries1	16:00	3.24
Timeseries1	18:00	2.16
Timeseries1	20:00	1.62
Timeseries1	22:00	1.62
Timeseries1	24:00	1.08

UST	0:00	2.41
UST	0:15	2.43
UST	0:30	2.45
UST	0:45	2.46
UST	1:00	2.48
UST	1:15	2.51
UST	1:30	2.53
UST	1:45	2.55

UST	2:00	2.58
UST	2:15	2.61
UST	2:30	2.64
UST	2:45	2.67
UST	3:00	2.71
UST	3:15	2.74
UST	3:30	2.79
UST	3:45	2.83
UST	4:00	2.88
UST	4:15	2.94
UST	4:30	3
UST	4:45	3.07
UST	5:00	3.15
UST	5:15	3.23
UST	5:30	3.33
UST	5:45	3.45
UST	6:00	3.59
UST	6:15	3.75
UST	6:30	3.94
UST	6:45	4.18
UST	7:00	4.49
UST	7:15	4.89
UST	7:30	5.43
UST	7:45	6.2
UST	8:00	7.41
UST	8:15	9.56
UST	8:30	14.29
UST	8:45	32.01
UST	9:00	145.13
UST	9:15	48.51
UST	9:30	23.13
UST	9:45	15.08
UST	10:00	11.35
UST	10:15	9.23
UST	10:30	7.88
UST	10:45	6.94
UST	11:00	6.25
UST	11:15	5.73
UST	11:30	5.32
UST	11:45	4.99
UST	12:00	4.72
UST	12:15	4.49
UST	12:30	4.29
UST	12:45	4.12
UST	13:00	3.98
UST	13:15	3.85
UST	13:30	3.74
UST	13:45	3.63
UST	14:00	3.54
UST	14:15	3.46
UST	14:30	3.39
UST	14:45	3.32
UST	15:00	3.26
UST	15:15	3.2
UST	15:30	3.15
UST	15:45	3.1
UST	16:00	3.05

UST	16:15	3.01
UST	16:30	2.97
UST	16:45	2.93
UST	17:00	2.9
UST	17:15	2.87
UST	17:30	2.84
UST	17:45	2.81
UST	18:00	2.78
UST	18:15	2.76
UST	18:30	2.73
UST	18:45	2.71
UST	19:00	2.69
UST	19:15	2.67
UST	19:30	2.65
UST	19:45	2.63
UST	20:00	2.61
UST	20:15	2.59
UST	20:30	2.57
UST	20:45	2.56
UST	21:00	2.54
UST	21:15	2.53
UST	21:30	2.51
UST	21:45	2.5
UST	22:00	2.49
UST	22:15	2.47
UST	22:30	2.46
UST	22:45	2.45
UST	23:00	2.44
UST	23:15	2.43
UST	23:30	2.42
UST	23:45	2.41

[REPORT]
;;Reporting Options
INPUT YES
CONTROLS NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]		
Subcatch	S1	Proposed-North
Subcatch	S2	Proposed-North
Subcatch	S3_10	Develp\\
Subcatch	S3_15	Develp\\
Subcatch	S3_9	Develp\\

[MAP]				
DIMENSIONS	335625.28325	4666996.99015	337284.23175	4668241.65885
UNITS	Meters			

[COORDINATES]		
;;Node	X-Coord	Y-Coord
;;-----		
J1	336317.6	4667255.807
J10	336214.88	4667230.787
J11	335868.678	4667734.014

J12	335875.308	4667821.743
J2	336172.061	4667220.349
J3	335830.782	4667242.452
J4	335849.998	4667486.872
J5	335877.306	4667238.391
J6	335837.14	4667323.333
J7	336761.228	4667379.476
J8	336216.029	4667205.094
J9	336627.922	4667176.37
OF1	335893.117	4668070.523
SU1	336322.716	4667291.995

[VERTICES]		
;;Link	X-Coord	Y-Coord
;;	-----	-----
P1	336312.113	4667277.819
W1	335840.065	4667219.137
W2	335815.782	4667306.497
W3	336201.81	4667217.421

[POLYGONS]		
;;Subcatchment	X-Coord	Y-Coord
;;	-----	-----
S1	337121.498	4667647.42
S1	337169.515	4667643.445
S1	337167.381	4667611.655
S1	337137.371	4667613.665
S1	337136.513	4667595.994
S1	336896.161	4667611.668
S1	336657.821	4667627.71
S1	336664.825	4667732.268
S1	336673.474	4667751.458
S1	336676.332	4667794.032
S1	336855.964	4667781.975
S1	337069.404	4667767.649
S1	337065.439	4667708.572
S1	337125.35	4667704.55
S1	337121.498	4667647.42
S2	336657.815	4667627.617
S2	336344.603	4667648.242
S2	336451.635	4667809.113
S2	336580.071	4667800.493
S2	336676.332	4667794.032
S2	336673.474	4667751.458
S2	336664.825	4667732.268
S2	336657.815	4667627.617
S3_1	336701.369	4667362.739
S3_1	336700.577	4667366.282
S3_1	336982.321	4667445.036
S3_1	337021.753	4667455.621
S3_1	337018.8	4667427.155
S3_1	336927.528	4667400.662
S3_1	336922.296	4667239.701
S3_1	336782.019	4667250.473
S3_1	336776.827	4667221.989
S3_1	336758.599	4667217.894
S3_1	336754.73	4667246.588

S3_1	336691.511	4667249.182
S3_1	336701.369	4667362.739
S3_10	336372.655	4667646.903
S3_10	336392.297	4667582.422
S3_10	336396.088	4667564.963
S3_10	336410.879	4667517.649
S3_10	336417.459	4667497.728
S3_10	336411.81	4667478.154
S3_10	336393.179	4667299.427
S3_10	336383.185	4667278.215
S3_10	336165.821	4667218.272
S3_10	336133.887	4667220.287
S3_10	336142.125	4667324.525
S3_10	336143.655	4667352.328
S3_10	336145.311	4667378.108
S3_10	336146.26	4667395.884
S3_10	336147.765	4667410.286
S3_10	336149.982	4667422.53
S3_10	336153.803	4667437.667
S3_10	336158.371	4667451.848
S3_10	336162.553	4667462.647
S3_10	336176.84	4667491.412
S3_10	336190.106	4667510.946
S3_10	336196.597	4667519.399
S3_10	336202.526	4667526.047
S3_10	336212.242	4667536.191
S3_10	336218.012	4667541.961
S3_10	336225.15	4667547.952
S3_10	336233.09	4667554.363
S3_10	336256.87	4667570.837
S3_10	336280.688	4667582.428
S3_10	336297.581	4667588.637
S3_10	336312.352	4667592.995
S3_10	336344.603	4667648.242
S3_10	336372.655	4667646.903
S3_11	336644.914	4667429.981
S3_11	336656.039	4667416.559
S3_11	336664.778	4667394.226
S3_11	336678.388	4667360.017
S3_11	336383.185	4667278.215
S3_11	336393.179	4667299.427
S3_11	336411.81	4667478.154
S3_11	336454.667	4667474.44
S3_11	336537.951	4667469.392
S3_11	336632.002	4667463.005
S3_11	336631.754	4667446.617
S3_11	336644.914	4667429.981
S3_12	335891.333	4667236.984
S3_12	335910.208	4667398.134
S3_12	336145.311	4667378.117
S3_12	336143.655	4667352.337
S3_12	336142.126	4667324.534
S3_12	336134.585	4667222.386
S3_12	335891.333	4667236.984
S3_13	335865.608	4667683.955
S3_13	335846.704	4667488.204
S3_13	335728.745	4667495.706

S3_13	335700.69	4667632.872
S3_13	335712.505	4667675.706
S3_13	335755.299	4667758.531
S3_13	335804.769	4667818.449
S3_13	335860.944	4667856.656
S3_13	335887.809	4668185.083
S3_13	335985.32	4668118.517
S3_13	336051.32	4668058.405
S3_13	336124.222	4667986.703
S3_13	336552.438	4667965.359
S3_13	336551.206	4667802.43
S3_13	336451.635	4667809.113
S3_13	336344.603	4667648.242
S3_13	335865.608	4667683.955
S3_14	335910.208	4667398.134
S3_14	335891.333	4667236.984
S3_14	335826.933	4667240.849
S3_14	335840.547	4667404.065
S3_14	335910.208	4667398.134
S3_15	336944.2	4667434.55
S3_15	336700.577	4667366.282
S3_15	336698.665	4667365.755
S3_15	336678.388	4667360.017
S3_15	336664.778	4667394.226
S3_15	336656.039	4667416.559
S3_15	336644.914	4667429.981
S3_15	336631.754	4667446.617
S3_15	336632.002	4667463.005
S3_15	336637.311	4667528.533
S3_15	336673.912	4667525.991
S3_15	336679.118	4667626.141
S3_15	337136.513	4667595.994
S3_15	337152.281	4667593.982
S3_15	337149.482	4667543.037
S3_15	337208.825	4667539.118
S3_15	337207.271	4667507.187
S3_15	337161.902	4667495.449
S3_15	337124.457	4667484.149
S3_15	337106.892	4667506.191
S3_15	337049.689	4667503.045
S3_15	337038.672	4667502.337
S3_15	337021.528	4667504.259
S3_15	337008.463	4667505.623
S3_15	337004.495	4667505.137
S3_15	336993.673	4667503.643
S3_15	336956.376	4667480.049
S3_15	336953.799	4667469.723
S3_15	336945.852	4667458.989
S3_15	336944.2	4667434.55
S3_2	336299.344	4667128.151
S3_2	336308.847	4667222.067
S3_2	336598.119	4667202.448
S3_2	336597.678	4667192.766
S3_2	336648.613	4667188.241
S3_2	336641.292	4667104.105
S3_2	336310.723	4667126.488
S3_2	336310.721	4667126.466

S3_2	336299.344	4667128.151
S3_3	335918.693	4667142.54
S3_3	336171.903	4667220.136
S3_3	336171.903	4667220.145
S3_3	336209.268	4667229.676
S3_3	336308.847	4667222.067
S3_3	336299.344	4667128.151
S3_3	336310.721	4667126.466
S3_3	336306.228	4667053.566
S3_3	336180.197	4667061.282
S3_3	336034.161	4667087.429
S3_3	335951.88	4667115.688
S3_3	335918.693	4667142.54
S3_4	336209.268	4667229.685
S3_4	336383.185	4667278.215
S3_4	336678.388	4667360.017
S3_4	336700.577	4667366.282
S3_4	336701.168	4667360.431
S3_4	336691.511	4667249.182
S3_4	336600.415	4667252.921
S3_4	336598.119	4667202.448
S3_4	336209.268	4667229.685
S3_5	335865.608	4667683.955
S3_5	336344.603	4667648.242
S3_5	336311.643	4667591.781
S3_5	336280.688	4667582.437
S3_5	336256.87	4667570.846
S3_5	336230.13	4667551.574
S3_5	336202.259	4667524.699
S3_5	336176.84	4667491.421
S3_5	336159.331	4667452.926
S3_5	336147.765	4667410.295
S3_5	336146.26	4667395.893
S3_5	336145.311	4667378.117
S3_5	336137.171	4667378.612
S3_5	335840.547	4667404.065
S3_5	335847.561	4667488.15
S3_5	335846.704	4667488.204
S3_5	335865.608	4667683.955
S3_7	335826.933	4667240.849
S3_7	336171.903	4667220.127
S3_7	335918.693	4667142.54
S3_7	335915.307	4667145.28
S3_7	335817.552	4667128.393
S3_7	335826.933	4667240.849
S3_8	336944.2	4667434.55
S3_8	336945.852	4667458.989
S3_8	336953.799	4667469.723
S3_8	336956.376	4667480.049
S3_8	336993.673	4667503.643
S3_8	337004.495	4667505.137
S3_8	337008.463	4667505.623
S3_8	337021.528	4667504.259
S3_8	337038.672	4667502.337
S3_8	337049.689	4667503.045
S3_8	337106.892	4667506.191
S3_8	337124.457	4667484.149

S3_8	337046.688	4667462.707
S3_8	337021.753	4667455.621
S3_8	336944.2	4667434.55
S3_9	336411.81	4667478.154
S3_9	336417.459	4667497.728
S3_9	336410.879	4667517.649
S3_9	336396.088	4667564.963
S3_9	336392.297	4667582.422
S3_9	336372.655	4667646.903
S3_9	336416.121	4667644.013
S3_9	336564.721	4667633.664
S3_9	336662.337	4667627.172
S3_9	336679.118	4667626.141
S3_9	336673.912	4667525.991
S3_9	336637.311	4667528.533
S3_9	336632.002	4667463.005
S3_9	336537.951	4667469.392
S3_9	336454.667	4667474.44
S3_9	336411.81	4667478.154
[SYMBOLS]		
;;Gage	X-Coord	Y-Coord
;;-----	-----	-----

Proposed 1:2 Year Chicago PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Raingage1	2yr_4hr_Chicago	INTENSITY	15 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.53	2.77	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.48	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Width:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
Transect Dufour_W	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
Area:	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
Hrad:	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
Width:	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
Hrad:	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
Width:	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
Width:	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
Width:	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

	0.0221	0.0265	0.0311	0.0357	0.0435
	0.1802	0.7774	0.9695	0.9698	0.9701
	0.9704	0.9707	0.9710	0.9713	0.9716
	0.9719	0.9722	0.9725	0.9753	0.9794
	0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036
	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000

Width:	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	3.674	37.700
Evaporation Loss	0.000	0.000
Infiltration Loss	1.807	18.549
Surface Runoff	1.819	18.663
Final Storage	0.054	0.554
Continuity Error (%)	-0.174	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.819	18.186
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.818	18.178
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.004
Continuity Error (%)	0.025	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 0.75 sec
Average Time Step : 5.00 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 100.00 %
3.155 - 1.991 sec : 0.00 %
1.991 - 1.256 sec : 0.00 %
1.256 - 0.792 sec : 0.00 %
0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	37.70	0.00	0.00	4.10	28.75	3.45	32.20	2.42	0.94	0.854
S2	37.70	0.00	0.00	4.01	28.76	3.54	32.30	1.45	0.59	0.857
S3_1	37.70	0.00	0.00	8.57	21.57	6.53	28.11	1.06	0.40	0.746
S3_10	37.70	88.90	0.00	9.32	83.02	33.11	116.13	9.71	1.33	0.917
S3_11	37.70	0.00	0.00	27.55	0.00	10.16	10.16	0.39	0.03	0.270
S3_12	37.70	0.00	0.00	24.03	0.00	13.70	13.70	0.52	0.07	0.363
S3_13	37.70	0.00	0.00	29.38	0.00	8.32	8.32	2.21	0.15	0.221
S3_14	37.70	0.00	0.00	16.99	7.20	13.24	20.44	0.22	0.08	0.542
S3_15	37.70	27.24	0.00	9.39	40.44	14.00	54.44	4.83	1.18	0.838
S3_2	37.70	0.00	0.00	8.75	18.75	9.42	28.17	0.90	0.44	0.747
S3_3	37.70	0.00	0.00	22.92	0.00	14.82	14.82	0.67	0.11	0.393
S3_4	37.70	0.00	0.00	16.79	5.40	15.32	20.72	0.75	0.23	0.550
S3_5	37.70	0.00	0.00	25.66	0.00	12.06	12.06	1.26	0.13	0.320
S3_7	37.70	0.00	0.00	17.66	7.57	12.16	19.73	0.42	0.13	0.523
S3_8	37.70	0.00	0.00	29.47	0.00	8.24	8.24	0.06	0.00	0.218
S3_9	37.70	139.86	0.00	11.11	105.55	59.97	165.52	7.43	1.39	0.932

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.11	0.47	182.59	0 02:30	0.47
J10	JUNCTION	0.14	0.62	182.59	0 02:29	0.62

J11	JUNCTION	0.17	0.71	182.04	0	02:48	0.71
J12	JUNCTION	0.18	0.71	181.91	0	02:51	0.71
J2	JUNCTION	0.16	0.66	182.54	0	02:30	0.66
J3	JUNCTION	0.19	0.83	182.36	0	02:39	0.83
J4	JUNCTION	0.22	0.85	182.29	0	02:43	0.85
J5	JUNCTION	0.17	0.82	182.37	0	02:38	0.82
J6	JUNCTION	0.21	0.84	182.34	0	02:40	0.84
J7	JUNCTION	0.02	0.14	183.27	0	02:49	0.14
J8	JUNCTION	0.01	0.26	183.36	0	01:57	0.26
J9	JUNCTION	0.01	0.25	183.38	0	01:47	0.25
OF1	OUTFALL	0.09	0.43	180.63	0	02:51	0.43
SU1	STORAGE	0.22	0.91	180.41	0	06:07	0.91

Node Inflow Summary

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days hr:min		10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.263	0 01:51		0	10.3	0.120
J10	JUNCTION	0.000	0.614	0 02:19		0	13.6	-0.060
J11	JUNCTION	0.000	0.940	0 02:42		0	18.2	0.091
J12	JUNCTION	0.000	0.932	0 02:47		0	18.2	0.046
J2	JUNCTION	0.000	0.608	0 02:21		0	13.6	0.071
J3	JUNCTION	0.000	0.616	0 02:32		0	14	0.001
J4	JUNCTION	0.277	0.956	0 02:34		3.46	18.2	-0.083
J5	JUNCTION	0.134	0.639	0 02:25		0.424	14	-0.035
J6	JUNCTION	0.143	0.695	0 02:31		0.747	14.7	-0.043
J7	JUNCTION	0.036	0.036	0 02:30		0.449	0.449	-1.154
J8	JUNCTION	0.115	0.990	0 01:47		0.674	3.39	0.071
J9	JUNCTION	1.064	1.064	0 01:45		2.72	2.72	-0.054
OF1	OUTFALL	0.000	0.929	0 02:51		0	18.2	0.000
SU1	STORAGE	1.327	1.327	0 02:00		9.71	9.71	-0.002

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	1.801	4	0	0	7.624	19	0 06:07	0.093

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	97.36	0.074	0.929	18.178
System	97.36	0.074	0.929	18.178

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1_1	CHANNEL	0.163	0 01:51	0.28	0.01	0.28
C1_2	CHANNEL	0.608	0 02:21	0.90	0.04	0.31
C1_3	CHANNEL	0.940	0 02:42	0.45	0.01	0.41
C1_5	CHANNEL	0.932	0 02:47	0.54	0.01	0.38
C1_6	CHANNEL	0.929	0 02:51	0.83	0.00	0.30
C2	CONDUIT	0.883	0 01:47	0.41	0.14	0.25
C2_1	CHANNEL	0.596	0 02:27	0.40	0.05	0.36
C2_2	CONDUIT	0.616	0 02:32	0.47	0.34	0.61
C3	CONDUIT	0.557	0 01:58	2.29	0.14	0.47
C3_1	CONDUIT	0.614	0 02:33	0.46	0.45	0.62
C3_2	CHANNEL	0.681	0 02:35	0.28	0.01	0.45
C7	CHANNEL	0.035	0 02:49	0.11	0.00	0.16
P1	PUMP	0.093	0 01:44		1.00	
W1	WEIR	0.000	0 00:00			0.00
W2	WEIR	0.000	0 00:00			0.00
W3	WEIR	0.000	0 00:00			0.00

Flow Classification Summary

Adjusted /Actual	----- Up	Fraction of Down	Time in Sub	Flow Class Sup	----- Up	Down	Norm	Inlet
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Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
C1_1	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.91	0.00
C1_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.55	0.00
C1_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.89	0.00
C1_6	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C2_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.45	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.47	0.00
C3	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.97	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.31	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.52	0.00
C7	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.98	0.00

Conduit Surcharge Summary

No conduits were surcharged.

Pumping Summary

Pump	Percent	Number of	Min	Avg	Max	Total	Power	% Time Off	
	Utilized	Start-Ups	Flow CMS	Flow CMS	Flow CMS	Volume 10^6 ltr	Usage Kw-hr	Pump Curve Low	High

P1	61.64	1	0.00	0.06	0.09	9.708	61.52	0.0	0.0

Analysis begun on: Fri Feb 4 07:54:20 2022
Analysis ended on: Fri Feb 4 07:54:23 2022
Total elapsed time: 00:00:03

Proposed 1:5 Year Chicago PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Raingage1	5yr_4hr_Chicago	INTENSITY	15 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.53	2.77	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.48	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Width:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
Transect Dufour_W Area:	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
Hrad:	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
Width:	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

	0.0221	0.0265	0.0311	0.0357	0.0435
	0.1802	0.7774	0.9695	0.9698	0.9701
	0.9704	0.9707	0.9710	0.9713	0.9716
	0.9719	0.9722	0.9725	0.9753	0.9794
	0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036
	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000

Width:	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	4.821	49.475
Evaporation Loss	0.000	0.000
Infiltration Loss	1.911	19.609
Surface Runoff	2.866	29.409
Final Storage	0.054	0.554
Continuity Error (%)	-0.196	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	2.866	28.656
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	2.865	28.647
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.004
Continuity Error (%)	0.016	

Time-Step Critical Elements

Link C3 (1.69%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 0.90 sec
Average Time Step : 4.99 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 100.00 %
3.155 - 1.991 sec : 0.00 %
1.991 - 1.256 sec : 0.00 %
1.256 - 0.792 sec : 0.00 %
0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	49.47	0.00	0.00	4.22	38.20	5.69	43.89	3.29	1.32	0.887
S2	49.48	0.00	0.00	4.12	38.22	5.80	44.01	1.98	0.83	0.890
S3_1	49.47	0.00	0.00	8.85	28.67	10.97	39.63	1.50	0.57	0.801
S3_10	49.47	124.20	0.00	9.53	114.36	48.68	163.04	13.63	2.04	0.939
S3_11	49.48	0.00	0.00	29.28	0.00	20.21	20.21	0.78	0.07	0.409
S3_12	49.47	0.00	0.00	24.84	0.00	24.70	24.70	0.94	0.15	0.499
S3_13	49.48	0.00	0.00	31.86	0.00	17.63	17.63	4.68	0.32	0.356
S3_14	49.48	0.00	0.00	17.34	9.56	22.39	31.96	0.35	0.14	0.646
S3_15	49.48	37.14	0.00	9.65	54.34	21.55	75.89	6.73	1.75	0.876
S3_2	49.48	0.00	0.00	8.94	24.91	14.91	39.82	1.28	0.62	0.805
S3_3	49.48	0.00	0.00	23.54	0.00	26.02	26.02	1.18	0.24	0.526
S3_4	49.47	0.00	0.00	17.22	7.17	24.92	32.10	1.16	0.37	0.649
S3_5	49.48	0.00	0.00	26.83	0.00	22.68	22.68	2.36	0.28	0.458
S3_7	49.48	0.00	0.00	18.10	10.06	21.08	31.13	0.67	0.22	0.629
S3_8	49.48	0.00	0.00	31.99	0.00	17.50	17.50	0.12	0.01	0.354
S3_9	49.47	193.95	0.00	11.35	145.13	86.11	231.24	10.38	2.11	0.950

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.15	0.62	182.74	0 02:28	0.62
J10	JUNCTION	0.19	0.77	182.74	0 02:28	0.77

J11	JUNCTION	0.22	0.87	182.20	0	02:42	0.87
J12	JUNCTION	0.24	0.85	182.05	0	02:44	0.85
J2	JUNCTION	0.21	0.82	182.70	0	02:30	0.82
J3	JUNCTION	0.26	1.02	182.55	0	02:34	1.02
J4	JUNCTION	0.29	1.03	182.46	0	02:36	1.03
J5	JUNCTION	0.24	1.02	182.57	0	02:33	1.02
J6	JUNCTION	0.28	1.02	182.52	0	02:35	1.02
J7	JUNCTION	0.02	0.18	183.31	0	02:33	0.18
J8	JUNCTION	0.02	0.36	183.46	0	02:03	0.36
J9	JUNCTION	0.01	0.35	183.48	0	01:59	0.35
OF1	OUTFALL	0.13	0.54	180.74	0	02:44	0.54
SU1	STORAGE	0.44	1.31	180.81	0	06:25	1.31

Node Inflow Summary

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days hr:min		10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.354	0 01:48		0	14.7	0.098
J10	JUNCTION	0.000	0.937	0 02:16		0	19.8	-0.049
J11	JUNCTION	0.000	1.625	0 02:36		0	28.7	0.088
J12	JUNCTION	0.000	1.617	0 02:40		0	28.7	0.040
J2	JUNCTION	0.000	0.925	0 02:19		0	19.7	0.066
J3	JUNCTION	0.000	0.954	0 02:30		0	20.3	0.001
J4	JUNCTION	0.580	1.644	0 02:30		7.04	28.7	-0.093
J5	JUNCTION	0.218	0.975	0 02:22		0.668	20.3	-0.037
J6	JUNCTION	0.279	1.098	0 02:26		1.29	21.6	-0.030
J7	JUNCTION	0.076	0.076	0 02:15		0.901	0.901	-0.691
J8	JUNCTION	0.235	1.481	0 01:45		1.18	5.13	0.059
J9	JUNCTION	1.564	1.564	0 01:45		3.94	3.94	-0.052
OF1	OUTFALL	0.000	1.613	0 02:44		0	28.6	0.000
SU1	STORAGE	2.044	2.044	0 02:00		13.6	13.6	-0.002

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	3.680	9	0	0	11.411	28	0 06:25	0.093

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	97.49	0.118	1.613	28.647
System	97.49	0.118	1.613	28.647

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1_1	CHANNEL	0.241	0 01:48	0.32	0.02	0.36
C1_2	CHANNEL	0.925	0 02:19	0.85	0.06	0.39
C1_3	CHANNEL	1.625	0 02:36	0.51	0.02	0.50
C1_5	CHANNEL	1.617	0 02:40	0.62	0.01	0.46
C1_6	CHANNEL	1.613	0 02:44	0.97	0.01	0.37
C2	CONDUIT	1.246	0 01:46	0.44	0.20	0.35
C2_1	CHANNEL	0.905	0 02:25	0.41	0.08	0.45
C2_2	CONDUIT	0.954	0 02:30	0.59	0.52	0.75
C3	CONDUIT	0.894	0 01:54	2.72	0.23	0.61
C3_1	CONDUIT	0.952	0 02:30	0.59	0.69	0.75
C3_2	CHANNEL	1.083	0 02:32	0.29	0.02	0.54
C7	CHANNEL	0.073	0 02:33	0.12	0.00	0.21
P1	PUMP	0.093	0 01:39		1.00	
W1	WEIR	0.000	0 00:00			0.00
W2	WEIR	0.000	0 00:00			0.00
W3	WEIR	0.000	0 00:00			0.00

Flow Classification Summary

Adjusted /Actual	----- Up	Fraction of Down	Time in Sub	Flow Class Sup	----- Up	Down	Norm	Inlet
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Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
C1_1	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.90	0.00
C1_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.39	0.00
C1_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.87	0.00
C1_6	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C2_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.61	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.31	0.00
C3	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.97	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.22	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.35	0.00
C7	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.98	0.00

Conduit Surcharge Summary

No conduits were surcharged.

Pumping Summary

Pump	Percent Utilized	Number of Start-Ups	Min Flow CMS	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Power Usage Kw-hr	% Time Off Pump Curve Low	% Time Off Pump Curve High
P1	61.94	1	0.00	0.09	0.09	13.629	78.35	0.0	0.0

Analysis begun on: Fri Feb 4 07:54:02 2022
Analysis ended on: Fri Feb 4 07:54:04 2022
Total elapsed time: 00:00:02

Proposed 1:100 Year Chicago PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval

Raingage1	100yr_4hr_Chicago	INTENSITY	15 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.53	2.77	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.48	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Width:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
Transect Dufour_W	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
Area:	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
Hrad:	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
Width:	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
Hrad:	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
Width:	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
Hrad:	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
Width:	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

	0.0221	0.0265	0.0311	0.0357	0.0435
	0.1802	0.7774	0.9695	0.9698	0.9701
	0.9704	0.9707	0.9710	0.9713	0.9716
	0.9719	0.9722	0.9725	0.9753	0.9794
	0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036
	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000

Width:	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	7.950	81.588
Evaporation Loss	0.000	0.000
Infiltration Loss	2.043	20.970
Surface Runoff	5.870	60.239
Final Storage	0.054	0.554
Continuity Error (%)	-0.215	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	5.869	58.692
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	5.666	56.656
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.206	2.059
Continuity Error (%)	-0.039	

Time-Step Critical Elements

Link C3 (3.64%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 2.45 sec
Average Time Step : 4.94 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 98.60 %
3.155 - 1.991 sec : 1.40 %
1.991 - 1.256 sec : 0.00 %
1.256 - 0.792 sec : 0.00 %
0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	81.59	0.00	0.00	4.39	63.99	11.95	75.95	5.70	2.40	0.931
S2	81.59	0.00	0.00	4.28	64.01	12.07	76.09	3.42	1.49	0.933
S3_1	81.59	0.00	0.00	9.25	48.02	23.43	71.45	2.70	1.05	0.876
S3_10	81.59	221.18	0.00	9.86	200.31	91.64	291.95	24.41	4.31	0.964
S3_11	81.59	0.00	0.00	31.43	0.00	50.21	50.21	1.93	0.20	0.615
S3_12	81.59	0.00	0.00	25.93	0.00	55.77	55.77	2.13	0.43	0.684
S3_13	81.59	0.00	0.00	34.94	0.00	46.68	46.68	12.38	0.94	0.572
S3_14	81.59	0.00	0.00	17.90	15.99	47.60	63.59	0.70	0.31	0.779
S3_15	81.59	64.26	0.00	10.03	92.35	42.52	134.87	11.96	3.46	0.925
S3_2	81.59	0.00	0.00	9.25	41.68	30.07	71.75	2.30	1.14	0.879
S3_3	81.59	0.00	0.00	24.44	0.00	57.31	57.31	2.61	0.71	0.702
S3_4	81.59	0.00	0.00	17.89	12.00	51.62	63.62	2.31	0.84	0.780
S3_5	81.59	0.00	0.00	28.31	0.00	53.35	53.35	5.56	0.80	0.654
S3_7	81.59	0.00	0.00	18.75	16.82	45.86	62.68	1.35	0.49	0.768
S3_8	81.59	0.00	0.00	35.12	0.00	46.50	46.50	0.33	0.02	0.570
S3_9	81.59	342.53	0.00	11.73	253.71	158.10	411.81	18.49	4.39	0.971

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.25	0.94	183.06	0 02:17	0.94
J10	JUNCTION	0.31	1.08	183.05	0 02:16	1.08

J11	JUNCTION	0.35	1.02	182.36	0	03:35	1.02
J12	JUNCTION	0.36	0.99	182.19	0	03:36	0.99
J2	JUNCTION	0.34	1.14	183.02	0	02:17	1.14
J3	JUNCTION	0.42	1.28	182.80	0	02:21	1.28
J4	JUNCTION	0.45	1.27	182.70	0	03:14	1.27
J5	JUNCTION	0.40	1.33	182.88	0	02:19	1.33
J6	JUNCTION	0.44	1.21	182.71	0	03:07	1.21
J7	JUNCTION	0.03	0.30	183.43	0	02:16	0.30
J8	JUNCTION	0.03	0.68	183.78	0	01:58	0.68
J9	JUNCTION	0.02	0.65	183.78	0	02:02	0.65
OF1	OUTFALL	0.20	0.64	180.84	0	03:36	0.64
SU1	STORAGE	1.35	2.29	181.79	0	06:52	2.29

Node Inflow Summary

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days hr:min		10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.667	0 01:48		0	25.6	0.378
J10	JUNCTION	0.000	1.906	0 02:07		0	35.4	0.054
J11	JUNCTION	0.000	2.510	0 03:22		0	56.8	0.209
J12	JUNCTION	0.000	2.497	0 03:33		0	56.7	0.122
J2	JUNCTION	0.000	1.875	0 02:09		0	35	0.204
J3	JUNCTION	0.000	1.996	0 02:16		0	36.2	0.101
J4	JUNCTION	1.721	3.702	0 02:03		17.9	57.1	0.487
J5	JUNCTION	0.490	2.023	0 02:12		1.34	36.3	0.176
J6	JUNCTION	0.747	2.394	0 02:12		2.83	39	-0.482
J7	JUNCTION	0.225	0.225	0 02:00		2.26	2.26	-0.283
J8	JUNCTION	0.705	2.801	0 01:46		2.6	9.92	0.043
J9	JUNCTION	3.022	3.022	0 01:45		7.31	7.31	-0.040
OF1	OUTFALL	0.000	2.496	0 03:36		0	56.7	0.000
SU1	STORAGE	4.312	4.312	0 01:55		24.4	24.4	0.001

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	12.156	30	0	0	21.980	54	0 06:52	0.093

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	97.69	0.249	2.496	56.656
System	97.69	0.249	2.496	56.656

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1_1	CHANNEL	0.461	0 01:48	0.34	0.03	0.51
C1_2	CHANNEL	1.875	0 02:09	0.77	0.12	0.54
C1_3	CHANNEL	2.510	0 03:22	0.59	0.04	0.61
C1_5	CHANNEL	2.497	0 03:33	0.77	0.02	0.53
C1_6	CHANNEL	2.496	0 03:36	1.07	0.01	0.43
C2	CONDUIT	2.110	0 01:46	0.49	0.34	0.66
C2_1	CHANNEL	1.849	0 02:15	0.46	0.15	0.60
C2_2	CONDUIT	1.996	0 02:16	1.05	1.09	0.96
C3	CONDUIT	1.860	0 01:50	3.42	0.47	0.88
C3_1	CONDUIT	1.995	0 02:16	1.07	1.45	0.91
C3_2	CHANNEL	2.028	0 02:24	0.27	0.03	0.66
C7	CHANNEL	0.217	0 02:16	0.14	0.01	0.31
P1	PUMP	0.093	0 01:30		1.00	
W1	WEIR	0.000	0 00:00			0.00
W2	WEIR	0.000	0 00:00			0.00
W3	WEIR	0.000	0 00:00			0.00

Flow Classification Summary

Adjusted /Actual	----- Up	Fraction of Down	Time in Sub	Flow Class Sup	----- Up	Down	Norm	Inlet
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Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
C1_1	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.89	0.00
C1_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.84	0.00
C1_6	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C2_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C3	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.96	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.98	0.00

Conduit Surcharge Summary

Conduit	-----			Hours	
	-----	Hours Full	-----	Above Full	Hours
	Both Ends	Upstream	Dnstream	Normal Flow	Capacity Limited
C2_2	0.01	0.01	0.01	0.49	0.01
C3	0.01	0.01	1.35	0.01	0.01
C3_1	0.01	0.01	0.01	1.07	0.01

Pumping Summary

Pump	-----		Min	Avg	Max	Total	Power	% Time Off	
	Percent Utilized	Number of Start-Ups	Flow CMS	Flow CMS	Flow CMS	Volume 10^6 ltr	Usage Kw-hr	Pump Curve Low	High
P1	97.84	1	0.00	0.09	0.09	22.928	93.23	0.0	0.0

Analysis begun on: Fri Feb 4 07:53:43 2022
Analysis ended on: Fri Feb 4 07:53:45 2022
Total elapsed time: 00:00:02

Proposed 1:100 Year 24hr SCS PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval

Raingage1	SCS_Type_II_108mm_100yr_24hour	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.53	2.77	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.48	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
Width:	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
Transect Dufour_W	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
Area:	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
Hrad:	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
Width:	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
Hrad:	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
Width:	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
Hrad:	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
Width:	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

	0.0221	0.0265	0.0311	0.0357	0.0435
	0.1802	0.7774	0.9695	0.9698	0.9701
	0.9704	0.9707	0.9710	0.9713	0.9716
	0.9719	0.9722	0.9725	0.9753	0.9794
	0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036
	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000

Width:	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	10.524	108.000
Evaporation Loss	0.000	0.000
Infiltration Loss	2.921	29.975
Surface Runoff	7.559	77.575
Final Storage	0.054	0.556
Continuity Error (%)	-0.098	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	7.561	75.610
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	6.431	64.309
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	1.132	11.323
Continuity Error (%)	-0.029	

Time-Step Critical Elements

Link C3 (3.36%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 2.23 sec
Average Time Step : 4.95 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 98.97 %
3.155 - 1.991 sec : 1.03 %
1.991 - 1.256 sec : 0.00 %
1.256 - 0.792 sec : 0.00 %
0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	108.00	0.00	0.00	7.35	85.01	14.26	99.27	7.45	1.96	0.919
S2	108.00	0.00	0.00	7.30	85.03	14.31	99.34	4.46	1.22	0.920
S3_1	108.00	0.00	0.00	14.91	63.78	28.31	92.09	3.48	0.87	0.853
S3_10	108.00	288.51	0.00	14.54	262.49	118.31	380.80	31.83	4.09	0.960
S3_11	108.00	0.00	0.00	43.19	0.00	64.82	64.82	2.50	0.20	0.600
S3_12	108.00	0.00	0.00	39.95	0.00	68.09	68.09	2.60	0.45	0.630
S3_13	108.00	0.00	0.00	45.89	0.00	62.11	62.11	16.48	0.91	0.575
S3_14	108.00	0.00	0.00	30.77	21.26	55.71	76.97	0.84	0.27	0.713
S3_15	108.00	84.10	0.00	14.96	121.83	54.21	176.04	15.62	3.06	0.916
S3_2	108.00	0.00	0.00	17.13	55.35	34.77	90.12	2.89	1.05	0.834
S3_3	108.00	0.00	0.00	39.29	0.00	68.77	68.77	3.13	0.71	0.637
S3_4	108.00	0.00	0.00	30.92	15.95	60.94	76.88	2.79	0.74	0.712
S3_5	108.00	0.00	0.00	41.20	0.00	66.82	66.82	6.96	0.83	0.619
S3_7	108.00	0.00	0.00	30.80	22.34	54.57	76.91	1.65	0.43	0.712
S3_8	108.00	0.00	0.00	46.04	0.00	61.96	61.96	0.43	0.02	0.574
S3_9	108.00	447.50	0.00	17.57	332.35	204.71	537.06	24.11	3.94	0.967

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.24	0.91	183.03	0 12:26	0.91
J10	JUNCTION	0.31	1.06	183.03	0 12:26	1.06

J11	JUNCTION	0.35	1.01	182.34	0	13:37	1.01
J12	JUNCTION	0.36	0.98	182.18	0	13:39	0.98
J2	JUNCTION	0.34	1.12	183.00	0	12:27	1.12
J3	JUNCTION	0.42	1.26	182.79	0	12:32	1.26
J4	JUNCTION	0.45	1.26	182.69	0	13:23	1.26
J5	JUNCTION	0.40	1.31	182.86	0	12:30	1.31
J6	JUNCTION	0.44	1.21	182.71	0	13:15	1.21
J7	JUNCTION	0.04	0.29	183.42	0	12:25	0.29
J8	JUNCTION	0.04	0.64	183.74	0	12:12	0.64
J9	JUNCTION	0.03	0.61	183.74	0	12:09	0.61
OF1	OUTFALL	0.21	0.63	180.83	0	13:39	0.63
SU1	STORAGE	1.70	2.57	182.07	1	00:13	2.57

Node Inflow Summary

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days hr:min		10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.570	0 12:01		0	24.3	0.335
J10	JUNCTION	0.000	1.806	0 12:19		0	36.5	0.073
J11	JUNCTION	0.000	2.443	0 13:29		0	64.4	0.131
J12	JUNCTION	0.000	2.437	0 13:36		0	64.4	0.088
J2	JUNCTION	0.000	1.785	0 12:22		0	36.2	0.139
J3	JUNCTION	0.000	1.898	0 12:26		0	37.7	0.096
J4	JUNCTION	1.696	3.577	0 12:15		23.4	64.7	0.449
J5	JUNCTION	0.432	1.922	0 12:23		1.65	37.8	0.216
J6	JUNCTION	0.720	2.275	0 12:22		3.44	41.1	-0.373
J7	JUNCTION	0.219	0.219	0 12:06		2.93	2.93	0.164
J8	JUNCTION	0.707	2.464	0 11:55		3.13	12.3	0.034
J9	JUNCTION	2.611	2.611	0 11:54		9.17	9.17	-0.016
OF1	OUTFALL	0.000	2.437	0 13:39		0	64.3	0.000
SU1	STORAGE	4.087	4.087	0 12:00		31.8	31.8	0.004

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	15.991	39	0	0	25.338	62	1 00:13	0.093

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	93.12	0.292	2.437	64.309
System	93.12	0.292	2.437	64.309

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1_1	CHANNEL	0.359	0 12:46	0.24	0.03	0.50
C1_2	CHANNEL	1.785	0 12:22	0.63	0.11	0.53
C1_3	CHANNEL	2.443	0 13:29	0.59	0.03	0.60
C1_5	CHANNEL	2.437	0 13:36	0.70	0.02	0.53
C1_6	CHANNEL	2.437	0 13:39	1.07	0.01	0.43
C2	CONDUIT	1.872	0 11:55	0.42	0.30	0.62
C2_1	CHANNEL	1.762	0 12:25	0.46	0.15	0.59
C2_2	CONDUIT	1.898	0 12:26	1.00	1.03	0.95
C3	CONDUIT	1.750	0 12:05	3.17	0.45	0.85
C3_1	CONDUIT	1.897	0 12:26	1.02	1.38	0.90
C3_2	CHANNEL	1.929	0 12:36	0.26	0.03	0.66
C7	CHANNEL	0.210	0 12:25	0.15	0.01	0.31
P1	PUMP	0.093	0 06:58		1.00	
W1	WEIR	0.000	0 00:00			0.00
W2	WEIR	0.000	0 00:00			0.00
W3	WEIR	0.000	0 00:00			0.00

Flow Classification Summary

Adjusted /Actual	----- Up	Fraction of Down	Time in Sub	Flow Class Sup	----- Up	Down	Norm	Inlet
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Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
C1_1	1.00	0.02	0.07	0.00	0.92	0.00	0.00	0.00	0.66	0.00
C1_2	1.00	0.02	0.00	0.00	0.97	0.01	0.00	0.00	0.04	0.00
C1_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.04	0.00	0.00	0.96	0.01	0.00	0.00	0.68	0.00
C1_6	1.00	0.05	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.67	0.00
C2_1	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.83	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C3	1.00	0.01	0.00	0.00	0.95	0.03	0.00	0.00	0.95	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C7	1.00	0.09	0.07	0.00	0.84	0.00	0.00	0.00	0.84	0.00

Conduit Surcharge Summary

Conduit	Hours Full			Hours	Hours
	Both Ends	Upstream	Dnstream	Above Full Normal Flow	Capacity Limited
C2_2	0.01	0.01	0.01	0.29	0.01
C3	0.01	0.01	1.24	0.01	0.01
C3_1	0.01	0.01	0.01	0.97	0.01

Pumping Summary

Pump	Percent	Number of	Min	Avg	Max	Total	Power	% Time Off	
	Utilized	Start-Ups	Flow CMS	Flow CMS	Flow CMS	Volume 10^6 ltr	Usage Kw-hr	Pump Curve Low	High
P1	90.05	1	0.00	0.09	0.09	21.101	57.10	0.0	0.0

Analysis begun on: Fri Feb 4 07:54:39 2022
Analysis ended on: Fri Feb 4 07:54:41 2022
Total elapsed time: 00:00:02

Proposed 1:100 Year 24hr SCS Zero Release PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval

Raingage1	SCS_Type_II_108mm_100yr_24hour	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.52	2.76	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.47	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
Width:	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
Transect Dufour_W Area:	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
Hrad:	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
Width:	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

0.0221	0.0265	0.0311	0.0357	0.0435
0.1802	0.7774	0.9695	0.9698	0.9701
0.9704	0.9707	0.9710	0.9713	0.9716
0.9719	0.9722	0.9725	0.9753	0.9794
0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:

0.0013	0.0050	0.0111	0.0185	0.0264
0.0348	0.0437	0.0531	0.0630	0.0734
0.0842	0.0955	0.1073	0.1196	0.1324
0.1457	0.1594	0.1737	0.1884	0.2036
0.2193	0.2355	0.2521	0.2693	0.2869
0.3050	0.3236	0.3427	0.3622	0.3823
0.4028	0.4238	0.4453	0.4673	0.4898
0.5128	0.5362	0.5601	0.5845	0.6094
0.6348	0.6607	0.6870	0.7138	0.7425
0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:

0.0315	0.0630	0.1019	0.1494	0.1990
0.2457	0.2899	0.3321	0.3727	0.4118
0.4497	0.4866	0.5225	0.5577	0.5922
0.6260	0.6593	0.6922	0.7246	0.7566
0.7882	0.8196	0.8506	0.8814	0.9119
0.9422	0.9723	1.0023	1.0320	1.0616
1.0911	1.1204	1.1496	1.1787	1.2076
1.2365	1.2653	1.2939	1.3225	1.3510
1.3795	1.4078	1.4361	1.4644	1.3942
0.9725	0.9752	0.9810	0.9894	1.0000

Width:

0.0421	0.0841	0.1149	0.1292	0.1374
0.1455	0.1536	0.1618	0.1699	0.1780
0.1862	0.1943	0.2024	0.2106	0.2187
0.2268	0.2350	0.2431	0.2512	0.2594
0.2675	0.2756	0.2838	0.2919	0.3000
0.3082	0.3163	0.3244	0.3326	0.3407
0.3488	0.3570	0.3651	0.3732	0.3814
0.3895	0.3976	0.4058	0.4139	0.4220
0.4302	0.4383	0.4464	0.4546	0.5735
0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
	-----	-----
Total Precipitation	10.524	108.000
Evaporation Loss	0.000	0.000
Infiltration Loss	2.921	29.975
Surface Runoff	7.559	77.575
Final Storage	0.054	0.556
Continuity Error (%)	-0.098	

	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	7.561	75.611
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	4.376	43.758
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	3.184	31.844
Continuity Error (%)	0.011	

Highest Continuity Errors

Node J6 (-1.03%)

Time-Step Critical Elements

Link C3 (3.34%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 2.42 sec
Average Time Step : 4.95 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	108.00	0.00	0.00	7.35	85.01	14.26	99.27	7.45	1.96	0.919
S2	108.00	0.00	0.00	7.30	85.03	14.31	99.34	4.46	1.22	0.920
S3_1	108.00	0.00	0.00	14.91	63.78	28.31	92.09	3.48	0.87	0.853
S3_10	108.00	288.51	0.00	14.54	262.49	118.31	380.80	31.83	4.09	0.960
S3_11	108.00	0.00	0.00	43.19	0.00	64.82	64.82	2.50	0.20	0.600
S3_12	108.00	0.00	0.00	39.95	0.00	68.09	68.09	2.60	0.45	0.630
S3_13	108.00	0.00	0.00	45.89	0.00	62.11	62.11	16.48	0.91	0.575
S3_14	108.00	0.00	0.00	30.77	21.26	55.71	76.97	0.84	0.27	0.713
S3_15	108.00	84.10	0.00	14.96	121.83	54.21	176.04	15.62	3.06	0.916
S3_2	108.00	0.00	0.00	17.13	55.35	34.77	90.12	2.89	1.05	0.834
S3_3	108.00	0.00	0.00	39.29	0.00	68.77	68.77	3.13	0.71	0.637
S3_4	108.00	0.00	0.00	30.92	15.95	60.94	76.88	2.79	0.74	0.712
S3_5	108.00	0.00	0.00	41.20	0.00	66.82	66.82	6.96	0.83	0.619
S3_7	108.00	0.00	0.00	30.80	22.34	54.57	76.91	1.65	0.43	0.712
S3_8	108.00	0.00	0.00	46.04	0.00	61.96	61.96	0.43	0.02	0.574
S3_9	108.00	447.50	0.00	17.57	332.35	204.71	537.06	24.11	3.94	0.967

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.08	0.89	183.01	0 12:26	0.89
J10	JUNCTION	0.13	1.04	183.01	0 12:26	1.04

J11	JUNCTION	0.19	1.00	182.33	0	13:31	1.00
J12	JUNCTION	0.19	0.97	182.17	0	13:33	0.97
J2	JUNCTION	0.16	1.09	182.97	0	12:27	1.09
J3	JUNCTION	0.20	1.25	182.78	0	12:33	1.25
J4	JUNCTION	0.24	1.25	182.69	0	13:21	1.25
J5	JUNCTION	0.19	1.29	182.84	0	12:30	1.29
J6	JUNCTION	0.22	1.20	182.70	0	13:10	1.20
J7	JUNCTION	0.04	0.29	183.42	0	12:24	0.29
J8	JUNCTION	0.04	0.63	183.73	0	12:11	0.63
J9	JUNCTION	0.03	0.61	183.74	0	12:09	0.61
OF1	OUTFALL	0.11	0.63	180.83	0	13:33	0.63
SU1	STORAGE	2.67	3.31	182.81	2	21:59	3.31

Node Inflow Summary

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days hr:min		10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.626	0 12:02		0	3.42	-0.041
J10	JUNCTION	0.000	1.773	0 12:05		0	15.7	-0.038
J11	JUNCTION	0.000	2.401	0 13:24		0	43.8	0.073
J12	JUNCTION	0.000	2.398	0 13:30		0	43.8	0.015
J2	JUNCTION	0.000	1.693	0 12:22		0	15.2	-0.053
J3	JUNCTION	0.000	1.808	0 12:26		0	16.9	0.001
J4	JUNCTION	1.696	3.523	0 12:17		23.4	44	0.401
J5	JUNCTION	0.432	1.830	0 12:24		1.65	16.9	0.066
J6	JUNCTION	0.720	2.183	0 12:23		3.44	20.3	-1.021
J7	JUNCTION	0.219	0.219	0 12:06		2.93	2.93	0.253
J8	JUNCTION	0.707	2.467	0 11:59		3.13	12.3	0.034
J9	JUNCTION	2.611	2.611	0 11:54		9.17	9.17	-0.015
OF1	OUTFALL	0.000	2.398	0 13:33		0	43.8	0.000
SU1	STORAGE	4.087	4.087	0 12:00		31.8	31.8	0.011

Node Surcharge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours	Max. Height	Min. Depth
		Surcharged	Above Crown	Below Rim
			Meters	Meters
SU1	STORAGE	70.00	3.313	0.387

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	25.415	69	0	0	31.842	86	2 21:59	0.000

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	93.12	0.205	2.398	43.758
System	93.12	0.205	2.398	43.758

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1_1	CHANNEL	0.490	0 12:01	0.33	0.04	0.49
C1_2	CHANNEL	1.693	0 12:22	0.65	0.10	0.52
C1_3	CHANNEL	2.401	0 13:24	0.59	0.03	0.60
C1_5	CHANNEL	2.398	0 13:30	0.70	0.02	0.52
C1_6	CHANNEL	2.398	0 13:33	1.06	0.01	0.43
C2	CONDUIT	1.873	0 11:55	0.42	0.30	0.62
C2_1	CHANNEL	1.671	0 12:26	0.45	0.14	0.58
C2_2	CONDUIT	1.808	0 12:26	0.96	0.98	0.93
C3	CONDUIT	1.773	0 12:05	3.30	0.45	0.85
C3_1	CONDUIT	1.807	0 12:26	0.98	1.31	0.90
C3_2	CHANNEL	1.880	0 12:17	0.25	0.03	0.65
C7	CHANNEL	0.211	0 12:24	0.20	0.01	0.30
P1	PUMP	0.000	0 00:00			
W1	WEIR	0.000	0 00:00			0.00
W2	WEIR	0.000	0 00:00			0.00
W3	WEIR	0.000	0 00:00			0.00

Flow Classification Summary

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class								
		Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1_1	1.00	0.02	0.07	0.00	0.92	0.00	0.00	0.00	0.72	0.00
C1_2	1.00	0.02	0.00	0.00	0.97	0.01	0.00	0.00	0.76	0.00
C1_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.04	0.00	0.00	0.96	0.01	0.00	0.00	0.72	0.00
C1_6	1.00	0.05	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.67	0.00
C2_1	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.30	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.47	0.00
C3	1.00	0.01	0.00	0.00	0.95	0.04	0.00	0.00	0.95	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.17	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.54	0.00
C7	1.00	0.09	0.07	0.00	0.85	0.00	0.00	0.00	0.84	0.00

Conduit Surcharge Summary

Conduit	Hours Full			Hours	
	Both Ends	Upstream	Dnstream	Above Full Normal Flow	Capacity Limited
C3	0.01	0.01	1.10	0.01	0.01
C3_1	0.01	0.01	0.01	0.83	0.01

Pumping Summary

Pump	Percent Utilized	Number of Start-Ups	Min Flow	Avg Flow	Max Flow	Total Volume	Power Usage Kw-hr	% Time Off	
			CMS	CMS	CMS	10^6 ltr		Low	High
P1	0.00	0	0.00	0.00	0.00	0.000	0.00	0.0	0.0

Analysis begun on: Tue May 24 10:03:08 2022
Analysis ended on: Tue May 24 10:03:10 2022
Total elapsed time: 00:00:02

Proposed UST PCSWMM Output Report

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

WARNING 02: maximum depth increased for Node J1
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J11
WARNING 02: maximum depth increased for Node J2
WARNING 02: maximum depth increased for Node J3
WARNING 02: maximum depth increased for Node J4
WARNING 02: maximum depth increased for Node J5
WARNING 02: maximum depth increased for Node J6
WARNING 02: maximum depth increased for Node J7
WARNING 02: maximum depth increased for Node J8
WARNING 02: maximum depth increased for Node J9

Element Count

Number of rain gages 1
Number of subcatchments ... 16
Number of nodes 14
Number of links 16
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval

Raingage1	UST	INTENSITY	15 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

S1	7.50	208.46	80.00	0.5000	Raingage1	S3_15
S2	4.49	149.70	80.00	0.5000	Raingage1	S3_9
S3_1	3.78	108.11	60.00	0.5000	Raingage1	J9
S3_10	8.36	209.00	66.50	0.5000	Raingage1	SU1
S3_11	3.85	214.07	0.00	0.5000	Raingage1	J7
S3_12	3.82	254.62	0.00	0.5000	Raingage1	J6
S3_13	26.53	384.46	0.00	0.5000	Raingage1	J4
S3_14	1.10	199.13	20.00	0.5000	Raingage1	J6
S3_15	8.87	168.31	64.00	0.5000	Raingage1	S3_9
S3_2	3.21	493.12	52.00	0.5000	Raingage1	J9
S3_3	4.55	454.62	0.00	0.5000	Raingage1	J8
S3_4	3.63	412.44	15.00	0.5000	Raingage1	J9
S3_5	10.42	416.82	0.00	0.5000	Raingage1	J4
S3_7	2.15	214.67	21.00	0.5000	Raingage1	J5
S3_8	0.70	23.34	0.00	0.5000	Raingage1	J7
S3_9	4.49	154.83	60.00	0.5000	Raingage1	S3_10

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	182.12	1.96	0.0	
J10	JUNCTION	181.97	2.06	0.0	
J11	JUNCTION	181.34	1.88	0.0	
J12	JUNCTION	181.20	1.94	0.0	
J2	JUNCTION	181.88	2.06	0.0	
J3	JUNCTION	181.53	2.77	0.0	
J4	JUNCTION	181.44	1.88	0.0	
J5	JUNCTION	181.55	2.74	0.0	
J6	JUNCTION	181.50	1.88	0.0	
J7	JUNCTION	183.13	1.96	0.0	
J8	JUNCTION	183.10	1.72	0.0	
J9	JUNCTION	183.13	1.00	0.0	
OF1	OUTFALL	180.20	1.88	0.0	
SU1	STORAGE	179.50	3.70	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1_1	J1	J10	CONDUIT	105.7	0.1419	0.0350
C1_2	J10	J2	CONDUIT	44.1	0.2042	0.0350
C1_3	J4	J11	CONDUIT	247.9	0.0403	0.0350
C1_5	J11	J12	CONDUIT	88.0	0.1535	0.0350
C1_6	J12	OF1	CONDUIT	249.3	0.4011	0.0350
C2	J9	J8	CONDUIT	412.9	0.0073	0.0130
C2_1	J2	J5	CONDUIT	295.3	0.1117	0.0350
C2_2	J5	J3	CONDUIT	48.0	0.0521	0.0130
C3	J8	J10	CONDUIT	24.0	4.7136	0.0130
C3_1	J3	J6	CONDUIT	85.7	0.0292	0.0130
C3_2	J6	J4	CONDUIT	164.0	0.0396	0.0350
C7	J7	J1	CONDUIT	460.6	0.2193	0.0350
P1	SU1	J1	TYPE2 PUMP			
W1	J5	J3	WEIR			
W2	J3	J6	WEIR			
W3	J8	J10	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1_1	BranchA	1.96	12.30	1.05	14.40	1	13.64
C1_2	Dufour_S	2.06	12.93	0.96	14.30	1	16.21
C1_3	Dufour_W	1.88	253.96	0.34	365.00	1	71.67
C1_5	Dufour_W	1.88	253.96	0.34	365.00	1	139.76

C1_6	Dufour_W	1.88	253.96	0.34	365.00	1	225.95
C2	TRAPEZOIDAL	1.00	10.48	0.86	10.95	1	6.20
C2_1	Dufour_S	2.06	12.93	0.96	14.30	1	11.99
C2_2	ARCH	1.36	1.91	0.41	1.78	1	1.84
C3	CIRCULAR	0.90	0.64	0.23	0.90	1	3.93
C3_1	ARCH	1.36	1.91	0.41	1.78	1	1.38
C3_2	Dufour_W	1.88	253.96	0.34	365.00	1	71.02
C7	BranchA	1.96	12.30	1.05	14.40	1	16.96

Transect Summary

Transect BranchA
Area:

0.0010	0.0039	0.0087	0.0147	0.0214
0.0286	0.0363	0.0446	0.0534	0.0628
0.0727	0.0831	0.0941	0.1057	0.1178
0.1305	0.1437	0.1574	0.1717	0.1865
0.2019	0.2179	0.2343	0.2514	0.2689
0.2921	0.3174	0.3430	0.3689	0.3951
0.4216	0.4483	0.4754	0.5027	0.5303
0.5582	0.5864	0.6149	0.6437	0.6728
0.7022	0.7319	0.7618	0.7921	0.8233
0.8555	0.8886	0.9228	0.9582	1.0000

Hrad:

0.0185	0.0370	0.0587	0.0851	0.1129
0.1390	0.1638	0.1875	0.2103	0.2325
0.2540	0.2751	0.2958	0.3161	0.3361
0.3558	0.3753	0.3946	0.4137	0.4326
0.4515	0.4701	0.4887	0.5072	0.5255
0.5380	0.5487	0.5615	0.5759	0.5915
0.6080	0.6251	0.6428	0.6609	0.6793
0.6981	0.7171	0.7363	0.7556	0.7750
0.7946	0.8142	0.8339	0.8573	0.8856
0.9126	0.9382	0.9627	0.9857	1.0000

Width:

0.0428	0.0856	0.1198	0.1386	0.1505
0.1624	0.1743	0.1862	0.1981	0.2101
0.2220	0.2339	0.2458	0.2577	0.2696
0.2815	0.2935	0.3054	0.3173	0.3292
0.3411	0.3530	0.3649	0.3769	0.3888
0.5479	0.5542	0.5606	0.5669	0.5733
0.5796	0.5860	0.5923	0.5987	0.6050
0.6113	0.6177	0.6240	0.6304	0.6367
0.6431	0.6494	0.6558	0.6679	0.6897
0.7115	0.7333	0.7551	0.8203	1.0000

Transect Dufour_S
Area:

0.0005	0.0019	0.0044	0.0077	0.0121
0.0174	0.0234	0.0299	0.0371	0.0448
0.0530	0.0617	0.0710	0.0808	0.0911
0.1020	0.1134	0.1253	0.1378	0.1508
0.1643	0.1784	0.1930	0.2081	0.2238

Hrad:	0.2400	0.2568	0.2740	0.2918	0.3102
	0.3293	0.3496	0.3711	0.3966	0.4289
	0.4632	0.4980	0.5332	0.5689	0.6050
	0.6415	0.6784	0.7159	0.7537	0.7920
	0.8307	0.8706	0.9121	0.9552	1.0000
	0.0207	0.0414	0.0620	0.0827	0.1034
	0.1268	0.1530	0.1780	0.2035	0.2282
	0.2522	0.2756	0.2984	0.3209	0.3430
	0.3649	0.3864	0.4078	0.4289	0.4499
	0.4708	0.4915	0.5121	0.5326	0.5531
Width:	0.5734	0.5936	0.6138	0.6340	0.6540
	0.6801	0.7043	0.7264	0.7449	0.7539
	0.7637	0.7761	0.7904	0.8061	0.8229
	0.8406	0.8589	0.8778	0.8970	0.9166
	0.9362	0.9536	0.9701	0.9855	1.0000
	0.0213	0.0425	0.0638	0.0850	0.1063
	0.1242	0.1375	0.1508	0.1625	0.1742
	0.1859	0.1976	0.2093	0.2210	0.2327
	0.2444	0.2561	0.2678	0.2795	0.2912
	0.3029	0.3146	0.3263	0.3380	0.3497
Transect Dufour_W Area:	0.3614	0.3731	0.3848	0.3965	0.4082
	0.4329	0.4590	0.4851	0.6367	0.7487
	0.7583	0.7679	0.7775	0.7871	0.7967
	0.8063	0.8159	0.8255	0.8352	0.8448
	0.8576	0.8932	0.9288	0.9644	1.0000
	0.0000	0.0001	0.0002	0.0003	0.0005
	0.0007	0.0009	0.0012	0.0016	0.0019
	0.0023	0.0028	0.0033	0.0038	0.0043
	0.0049	0.0056	0.0062	0.0070	0.0078
	0.0086	0.0095	0.0105	0.0115	0.0126
Hrad:	0.0138	0.0151	0.0167	0.0185	0.0206
	0.0237	0.0524	0.1024	0.1548	0.2073
	0.2597	0.3121	0.3646	0.4171	0.4696
	0.5221	0.5746	0.6272	0.6798	0.7326
	0.7856	0.8389	0.8924	0.9461	1.0000
	0.0522	0.1044	0.1565	0.2087	0.2609
	0.3131	0.3652	0.4174	0.4696	0.5218
	0.5740	0.6261	0.6783	0.7305	0.7827
	0.8348	0.8870	0.9392	0.9634	0.9897
	1.0209	1.0559	1.0931	1.1321	1.1727
Width:	1.2146	1.1155	1.0523	1.0188	1.0769
	1.0973	0.4731	0.3018	0.2906	0.3127
	0.3466	0.3861	0.4286	0.4731	0.5187
	0.5653	0.6124	0.6600	0.7085	0.7572
	0.8059	0.8545	0.9031	0.9516	1.0000
	0.0007	0.0014	0.0021	0.0029	0.0036
	0.0043	0.0050	0.0057	0.0064	0.0071
	0.0078	0.0086	0.0093	0.0100	0.0107
	0.0114	0.0121	0.0128	0.0140	0.0152
	0.0164	0.0175	0.0187	0.0198	0.0210

	0.0221	0.0265	0.0311	0.0357	0.0435
	0.1802	0.7774	0.9695	0.9698	0.9701
	0.9704	0.9707	0.9710	0.9713	0.9716
	0.9719	0.9722	0.9725	0.9753	0.9794
	0.9835	0.9876	0.9918	0.9959	1.0000

Transect Transect2

Area:	0.0013	0.0050	0.0111	0.0185	0.0264
	0.0348	0.0437	0.0531	0.0630	0.0734
	0.0842	0.0955	0.1073	0.1196	0.1324
	0.1457	0.1594	0.1737	0.1884	0.2036
	0.2193	0.2355	0.2521	0.2693	0.2869
	0.3050	0.3236	0.3427	0.3622	0.3823
	0.4028	0.4238	0.4453	0.4673	0.4898
	0.5128	0.5362	0.5601	0.5845	0.6094
	0.6348	0.6607	0.6870	0.7138	0.7425
	0.7861	0.8350	0.8870	0.9420	1.0000

Hrad:	0.0315	0.0630	0.1019	0.1494	0.1990
	0.2457	0.2899	0.3321	0.3727	0.4118
	0.4497	0.4866	0.5225	0.5577	0.5922
	0.6260	0.6593	0.6922	0.7246	0.7566
	0.7882	0.8196	0.8506	0.8814	0.9119
	0.9422	0.9723	1.0023	1.0320	1.0616
	1.0911	1.1204	1.1496	1.1787	1.2076
	1.2365	1.2653	1.2939	1.3225	1.3510
	1.3795	1.4078	1.4361	1.4644	1.3942
	0.9725	0.9752	0.9810	0.9894	1.0000

Width:	0.0421	0.0841	0.1149	0.1292	0.1374
	0.1455	0.1536	0.1618	0.1699	0.1780
	0.1862	0.1943	0.2024	0.2106	0.2187
	0.2268	0.2350	0.2431	0.2512	0.2594
	0.2675	0.2756	0.2838	0.2919	0.3000
	0.3082	0.3163	0.3244	0.3326	0.3407
	0.3488	0.3570	0.3651	0.3732	0.3814
	0.3895	0.3976	0.4058	0.4139	0.4220
	0.4302	0.4383	0.4464	0.4546	0.5735
	0.7957	0.8468	0.8978	0.9489	1.0000

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CMS
Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO

Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 04/16/2020 00:00:00
Ending Date 04/18/2020 22:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 5.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 4
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Total Precipitation	14.615	149.985
Evaporation Loss	0.000	0.000
Infiltration Loss	3.130	32.121
Surface Runoff	11.446	117.461
Final Storage	0.054	0.556
Continuity Error (%)	-0.102	

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	11.444	114.445
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	9.013	90.129
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	2.434	24.337
Continuity Error (%)	-0.018	

Highest Continuity Errors

Node J11 (1.49%)
Node J4 (-1.15%)

Time-Step Critical Elements

Link C3 (2.96%)
Link C2_2 (2.57%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 1.30 sec
Average Time Step : 4.87 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 96.33 %
3.155 - 1.991 sec : 1.99 %
1.991 - 1.256 sec : 1.69 %
1.256 - 0.792 sec : 0.00 %
0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	149.98	0.00	0.00	7.92	118.71	22.10	140.80	10.57	2.42	0.939
S2	149.99	0.00	0.00	7.86	118.73	22.17	140.89	6.33	1.51	0.939
S3_1	149.99	0.00	0.00	16.10	89.06	43.93	132.99	5.03	1.09	0.887
S3_10	149.98	413.64	0.00	15.34	373.75	173.53	547.28	45.75	5.09	0.971
S3_11	149.99	0.00	0.00	46.46	0.00	103.56	103.56	3.99	0.29	0.690
S3_12	149.99	0.00	0.00	42.98	0.00	107.09	107.09	4.09	0.55	0.714
S3_13	149.99	0.00	0.00	49.19	0.00	100.82	100.82	26.75	1.40	0.672
S3_14	149.99	0.00	0.00	32.79	29.66	87.36	117.02	1.28	0.34	0.780
S3_15	149.98	119.13	0.00	15.88	171.22	81.03	252.25	22.37	3.54	0.937
S3_2	149.98	0.00	0.00	18.27	77.25	53.84	131.08	4.20	1.17	0.874
S3_3	149.98	0.00	0.00	42.15	0.00	107.96	107.96	4.91	0.86	0.720
S3_4	149.98	0.00	0.00	33.23	22.25	94.38	116.63	4.23	0.92	0.778
S3_5	149.99	0.00	0.00	44.39	0.00	105.65	105.65	11.01	1.12	0.704
S3_7	149.98	0.00	0.00	32.99	31.18	85.61	116.79	2.51	0.55	0.779
S3_8	149.99	0.00	0.00	49.34	0.00	100.67	100.67	0.71	0.04	0.671
S3_9	149.98	639.24	0.00	18.40	472.73	297.43	770.16	34.58	4.69	0.976

Node Depth Summary

		Average	Maximum	Maximum	Time of Max		Reported
		Depth	Depth	HGL	Occurrence		Max Depth
Node	Type	Meters	Meters	Meters	days	hr:min	Meters
J1	JUNCTION	0.27	1.04	183.16	0	09:49	1.04
J10	JUNCTION	0.35	1.18	183.15	0	09:49	1.18
J11	JUNCTION	0.40	1.19	182.52	0	10:59	1.19
J12	JUNCTION	0.41	1.18	182.38	0	11:20	1.18
J2	JUNCTION	0.38	1.24	183.12	0	09:49	1.24
J3	JUNCTION	0.48	1.35	182.88	0	09:56	1.35
J4	JUNCTION	0.51	1.30	182.74	0	10:09	1.30
J5	JUNCTION	0.46	1.45	183.00	0	09:52	1.45
J6	JUNCTION	0.49	1.25	182.75	0	10:13	1.25
J7	JUNCTION	0.06	0.35	183.48	0	09:45	0.35
J8	JUNCTION	0.06	0.80	183.90	0	09:34	0.80
J9	JUNCTION	0.06	0.77	183.90	0	09:32	0.77
OF1	OUTFALL	0.24	0.80	181.00	0	11:20	0.80
SU1	STORAGE	2.63	3.51	183.01	1	01:29	3.51

Node Inflow Summary

		Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total	Occurrence		Inflow	Inflow	Balance
Node	Type	Inflow	Inflow	Occurrence		Volume	Volume	Error
		CMS	CMS	days	hr:min	10^6 ltr	10^6 ltr	Percent
J1	JUNCTION	0.000	0.675	0	09:17	0	27	0.305
J10	JUNCTION	0.000	2.283	0	09:38	0	45.2	0.057
J11	JUNCTION	0.000	5.615	0	10:11	0	91.6	1.513
J12	JUNCTION	0.000	4.510	0	11:08	0	90.2	0.120
J2	JUNCTION	0.000	2.257	0	09:42	0	44.9	0.113
J3	JUNCTION	0.000	2.395	0	09:47	0	47.3	0.077
J4	JUNCTION	2.496	4.610	0	09:39	37.8	90.6	-1.139
J5	JUNCTION	0.551	2.446	0	09:43	2.51	47.4	0.172
J6	JUNCTION	0.894	2.917	0	09:42	5.37	52.6	-0.292
J7	JUNCTION	0.328	0.328	0	09:30	4.7	4.7	0.091
J8	JUNCTION	0.863	2.981	0	09:15	4.91	18.4	0.024
J9	JUNCTION	3.177	3.177	0	09:15	13.5	13.5	-0.013
OF1	OUTFALL	0.000	4.266	0	11:20	0	90.1	0.000
SU1	STORAGE	5.094	5.094	0	09:30	45.7	45.7	0.006

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average	Avg	Evap	Exfil	Maximum	Max	Time of Max		Maximum
	Volume	Pcnt	Pcnt	Pcnt	Volume	Pcnt	Occurrence		Outflow
	1000 m3	Full	Loss	Loss	1000 m3	Full	days	hr:min	CMS
SU1	27.155	67	0	0	37.950	93	1	01:29	0.093

Outfall Loading Summary

Outfall Node	Flow	Avg	Max	Total
	Freq	Flow	Flow	Volume
	Pcnt	CMS	CMS	10^6 ltr
OF1	95.40	0.431	4.266	90.128
System	95.40	0.431	4.266	90.128

Link Flow Summary

Link	Type	Maximum	Time of Max		Maximum	Max/	Max/
		Flow	Occurrence		Veloc	Full	Full
		CMS	days	hr:min	m/sec	Flow	Depth
C1_1	CHANNEL	0.475	0	10:05	0.24	0.03	0.57
C1_2	CHANNEL	2.257	0	09:42	0.62	0.14	0.59
C1_3	CHANNEL	5.615	0	10:11	0.73	0.08	0.66
C1_5	CHANNEL	4.510	0	11:08	0.70	0.03	0.63
C1_6	CHANNEL	4.266	0	11:20	1.18	0.02	0.53
C2	CONDUIT	2.125	0	09:15	0.45	0.34	0.78
C2_1	CHANNEL	2.224	0	09:45	0.48	0.19	0.65
C2_2	CONDUIT	2.395	0	09:47	1.26	1.30	1.00
C3	CONDUIT	2.043	0	09:27	3.31	0.52	0.95
C3_1	CONDUIT	2.394	0	09:47	1.27	1.74	0.95
C3_2	CHANNEL	2.450	0	10:14	0.25	0.03	0.68
C7	CHANNEL	0.317	0	09:45	0.17	0.02	0.35
P1	PUMP	0.093	0	04:18		1.00	
W1	WEIR	0.000	0	00:00			0.00
W2	WEIR	0.000	0	00:00			0.00
W3	WEIR	0.040	0	09:34			0.08

Flow Classification Summary

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class								
		Up Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1_1	1.00	0.01	0.03	0.00	0.96	0.00	0.00	0.00	0.63	0.00
C1_2	1.00	0.01	0.00	0.00	0.98	0.01	0.00	0.00	0.02	0.00
C1_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C1_5	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.00	0.64	0.00
C1_6	1.00	0.03	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.63	0.00
C2_1	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.82	0.00
C2_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C3	1.00	0.01	0.00	0.00	0.97	0.03	0.00	0.00	0.95	0.00
C3_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C3_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.04	0.06	0.00	0.89	0.00	0.00	0.00	0.89	0.00

Conduit Surcharge Summary

Conduit	Hours Full			Hours	Hours
	Both Ends	Upstream	Dnstream	Above Full Normal Flow	Capacity Limited
C2_2	0.01	0.92	0.01	1.02	0.01
C3	0.01	0.01	1.81	0.01	0.01
C3_1	0.01	0.01	0.01	1.54	0.01

Pumping Summary

Pump	Percent	Number of	Min	Avg	Max	Total	Power	% Time Off	
	Utilized	Start-Ups	Flow CMS	Flow CMS	Flow CMS	Volume 10^6 ltr	Usage Kw-hr	Pump Curve Low	High
P1	93.85	1	0.00	0.09	0.09	21.992	32.36	0.0	0.0

Analysis begun on: Thu Feb 3 16:02:51 2022
Analysis ended on: Thu Feb 3 16:02:52 2022
Total elapsed time: 00:00:01