Hydrology and Hydraulic Analysis Report

980 W. 7th Street Development

Jurisdiction:

San Jacinto, Riverside County, California

Prepared for: Generation Healthcare

Date: August 2026

Prepared By: Jared T. Brown P.E.

Guide Engineering

6011 Rose Ct.

Granite Bay, CA. 95746

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Original Date: March 2026 | Revised: August 31, 2026

1. Introduction and Project Description

This report presents the hydrologic and hydraulic analysis for the proposed development at 980 W. 7th Street in San Jacinto, Riverside County, California. The analysis evaluates pre-development (undeveloped site) and post-development conditions for the 10-year and 100-year storm events in accordance with the Riverside County Flood Control and Water Conservation District (RCFC&WCD) Hydrology Manual (2018) and Hydraulic Design Manual (March 2024).

The project involves redevelopment of approximately 18.7 acres, including existing buildings and additions, with new impervious surfaces, grading, and stormwater conveyance improvements. On-site drainage is collected by catch basins CB#1 through CB#7 and an upstream INLET, then conveyed in the Main Street storm sewer to the existing outfall (OUTFALL). The revised post-development model routes the 24-inch mainline as Link-15 (INLET to CB#4), Link-16 (CB#4 to CB#6), Link-17 (CB#6 to MH#3), and Link-09 (MH#3 to OUTFALL).

Post-development peak flow at the downstream outfall remains comparable to pre-development in the 10-year event and is reduced in the 100-year event. Hydraulic grade line (HGL) remains below all manhole and inlet rims in both revised post-development storms. No mainline surcharge is reported.

2. Regulatory and Design Standards

Hydrology. SCS TR-55 methods in Autodesk Storm and Sanitary Analysis are used for watersheds well under the District 300–500 acre threshold. Pre- and post-development peaks are compared at the common downstream outfall to confirm no adverse increase in runoff.

Hydraulics. The storm sewer is sized for the 10-year event and checked for the 100-year event. HGL must remain below rim elevations. Minimum pipe velocity of approximately 3 ft/s is the self-cleaning target; maximum velocities are limited to prevent erosion. Freeboard and no-rise criteria apply to adjacent properties.

Design storms. SCS Type II 24-hour distribution with rainfall depths of 1.80 inches (10-year) and 3.00 inches (100-year), Riverside County (Desert Center) gage as modeled. Routing method is hydrodynamic with overflow ponding enabled and a 30-second routing time step.

3. Pre-Development (Undeveloped Site) Conditions

The site consists of largely pervious and open areas with scattered existing buildings. Watersheds drain through junction boxes and open channels into the Main Street storm sewer and discharge at Out-01. Total tributary area is approximately 18.73 acres. Pre-development calculations are unchanged and are included as Exhibit E.

Pre-development peak flows at Out-01:

- 10-year storm: **4.77 cfs** (max velocity 2.23 ft/s; max depth 1.28 ft)
- 100-year storm: **7.67 cfs** (max velocity 2.44 ft/s; max depth 2.00 ft)

HGL remains below all rims with adequate freeboard. Pipes flow partially full with no surcharge. Pre-development frontage profiles are Exhibit C.

4. Post-Development (Developed Site) Conditions —

The revised Developed site.SPF model includes eight subbasins totaling 18.72 acres (SHED-A 0.81 ac, SHED-C 0.41 ac, SHED-E 0.19 ac, SHED-F 0.15 ac, SHED-G 0.96 ac, SHED-H 0.80 ac, SUB-D 0.40 ac, and UPSHED 15.00 ac). Curve numbers are 94 to 98 on developed commercial cover and 80 on UPSHED and SHED-H.

Site runoff is intercepted by sag inlets (CB#1–CB#7 and INLET) and conveyed in 12-inch laterals to the 24-inch Main Street mainline. The mainline alignment used in the revised model is:

- Link-15: INLET → CB#4 162 ft, 24-inch, slope 0.10%
- Link-16: CB#4 → CB#6 141 ft, 24-inch, slope 0.10%
- Link-17: CB#6 → MH#3 177 ft, 24-inch, slope 0.08%
- Link-09: MH#3 → OUTFALL 97 ft, 24-inch, slope 0.15%

Post-development peak flows at OUTFALL (revised):

- 10-year storm: **5.42 cfs** (max velocity 2.54 ft/s; max depth 1.26 ft; max HGL 23.94 ft)
- 100-year storm: **6.83 cfs** (max velocity 2.66 ft/s; max depth 1.49 ft; max HGL 24.17 ft)

10-year profile. HGL is below every rim. Maximum HGL values along the mainline are INLET 24.34 ft (rim 25.50), CB#4 24.35 ft (rim 25.32), CB#6 24.28 ft (rim 25.27), MH#3 24.19 ft (rim 25.35), and OUTFALL 23.94 ft. Freeboard at MH#3 is 1.16 ft. Peak inflow at MH#3 is 5.53 cfs. All 24-inch mainline pipes flow partly full (peak depth 1.11 to 1.28 ft in a 2.00-ft pipe). No surcharge is reported.

100-year profile. HGL remains below every rim. Maximum HGL values are INLET 24.99 ft (rim 25.50), CB#4 24.80 ft, CB#6 24.56 ft, MH#3 24.43 ft (0.92 ft freeboard), and OUTFALL 24.17 ft. Peak inflow at MH#3 is 6.92 cfs. Mainline peak depths are 1.49 to 1.66 ft. No mainline surcharge is reported. Link-09 peak flow is 6.83 cfs versus a design capacity of 7.71 cfs (Q/Qfull = 0.89).

The prior model version reported an isolated 10-year HGL spike at MH#2. That node is not on the revised mainline profile. The current 24-inch alignment (Link-15 / 16 / 17 / 09) produces a monotonically decreasing HGL from INLET to OUTFALL, with the 100-year HGL higher than the 10-year HGL at every station, as expected.

5. Comparison of Pre- versus Post-Development Flows

Storm Event	Pre-Development Outfall (cfs)	Post-Development Outfall (cfs)	Change (cfs)	Impact Assessment
10-Year	4.77	5.42	+0.65	Small increase; HGL below rims; mainline within capacity
100-Year	7.67	6.83	–0.84	Decrease; no surcharge; beneficial downstream

The 10-year increase of 0.65 cfs is small relative to the 24-inch mainline capacity (7.71 cfs on Link-09). The 100-year peak decreases 0.84 cfs because developed on-site routing and the upgraded pipe network move site flow to the outfall

more efficiently and do not increase the coincident peak from the 15-acre UPSHED.

6. Hydraulic Capacity and Compliance

Node	Rim (ft)	10-Yr Max HGL (ft)	10-Yr Freeboard (ft)	100-Yr Max HGL (ft)	100-Yr Freeboard (ft)
INLET	25.50	24.34	1.16	24.99	0.51
CB#4	25.32	24.35	0.97	24.80	0.52
CB#6	25.27	24.28	0.99	24.56	0.71
MH#3	25.35	24.19	1.16	24.43	0.92
OUTFALL	—	23.94	—	24.17	—

Link	From → To	Dia. (in)	10-Yr Q (cfs)	100-Yr Q (cfs)	Capacity (cfs)	100-Yr Q/Qfull
Link-15	INLET → CB#4	24	1.94	5.93	5.55	1.07
Link-16	CB#4 → CB#6	24	2.42	6.09	5.95	1.02
Link-17	CB#6 → MH#3	24	3.49	5.99	6.42	0.93
Link-09	MH#3 → OUTFALL	24	5.42	6.83	7.71	0.89

Link-15 and Link-16 show 100-year peak flow slightly above the tabulated full-flow capacity (Q/Qfull 1.07 and 1.02). Depth remains below the 24-inch soffit on the profile (max depth 1.66 ft and 1.59 ft), and HGL stays below the rims, so the pipes are flowing full or nearly full under a mild pressure grade that does not surcharge structures. Link-09, the outfall reach, remains at Q/Qfull = 0.89.

Inlets are modeled as FHWA HEC-22 generic sag inlets. Reported peak inlet flows range from 0.34 to 2.19 cfs (10-year) and 0.57 to 5.70 cfs (100-year). No hazardous street ponding is indicated in the SSA results.

7. Conclusion and Recommendations

The post-development SSA model for 980 W. 7th Street complies with RCFC&WCD 10-year capacity and 100-year no-rise / no-adverse-impact intent. Outfall peak flow increases 0.65 cfs in the 10-year storm and decreases 0.84 cfs in the 100-year storm. HGL is below all rims in both events. The previous localized 10-year surcharge at MH#2 does not appear in the current mainline geometry.

No detention basin is required based on the outfall comparison. Easements and maintenance access should be provided along the Main Street storm sewer per District standards. This revised report, the current SSA output, and the updated profile plots are submitted for review.

8. Exhibits

Exhibit A — Pre-Development Watershed Map

Exhibit B — Post-Development Watershed Map

Exhibit C — Pre-Development Frontage Profiles (10-year and 100-year)

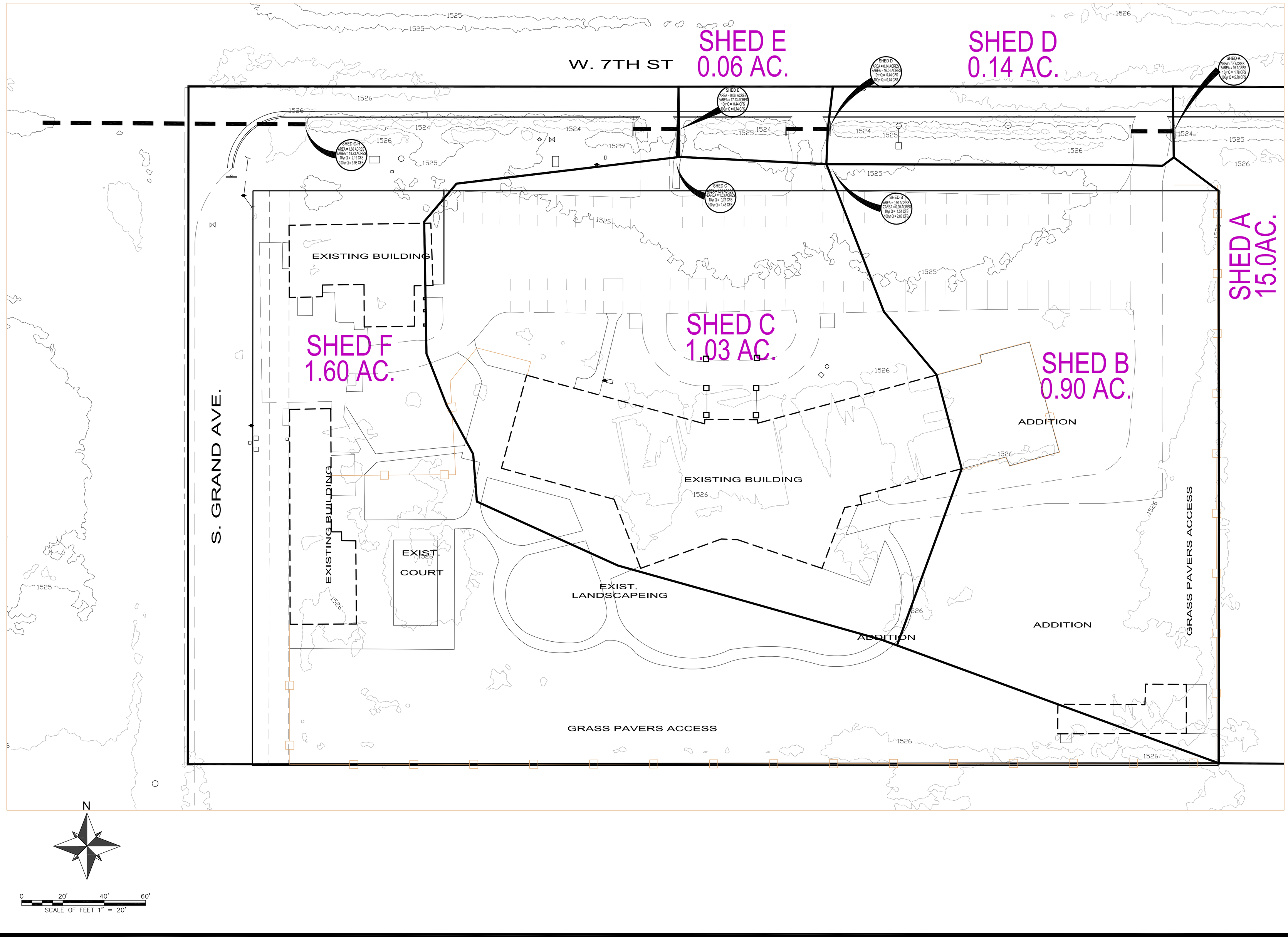
Exhibit C (revised) — Post-Development Frontage Profiles (10-year and 100-year)

Exhibit E — Pre-Development SSA Calculations

Exhibit F — Post-Development SSA Calculations (revised 10-year and 100-year)

EXHIBIT A

PRE-SHED MAP



N

0 20' 40' 60'

SCALE OF FEET 1" = 20'

DATE:	FEB. 2026
SCALE:	1" = 20'
DRAWN BY:	S.A. & R.S.
DESIGNED BY:	J.B. & R.S.
CHECKED BY:	J.B. & R.S.

NO.	REVISION	APPROVED BY	DATE

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LAND ENGINEERING AND PLANNING
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DESIGN DEVELOPMENT PLANS
980 W. 7TH ST
PRE SHED MAP
SAN JACINTO, RIVERSIDE COUNTY, CALIFORNIA

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER
JARED BROWN
LIC. No. C65430
Exp. 09/30/27
CIVIL
STATE OF CALIFORNIA

NOT APPROVED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER

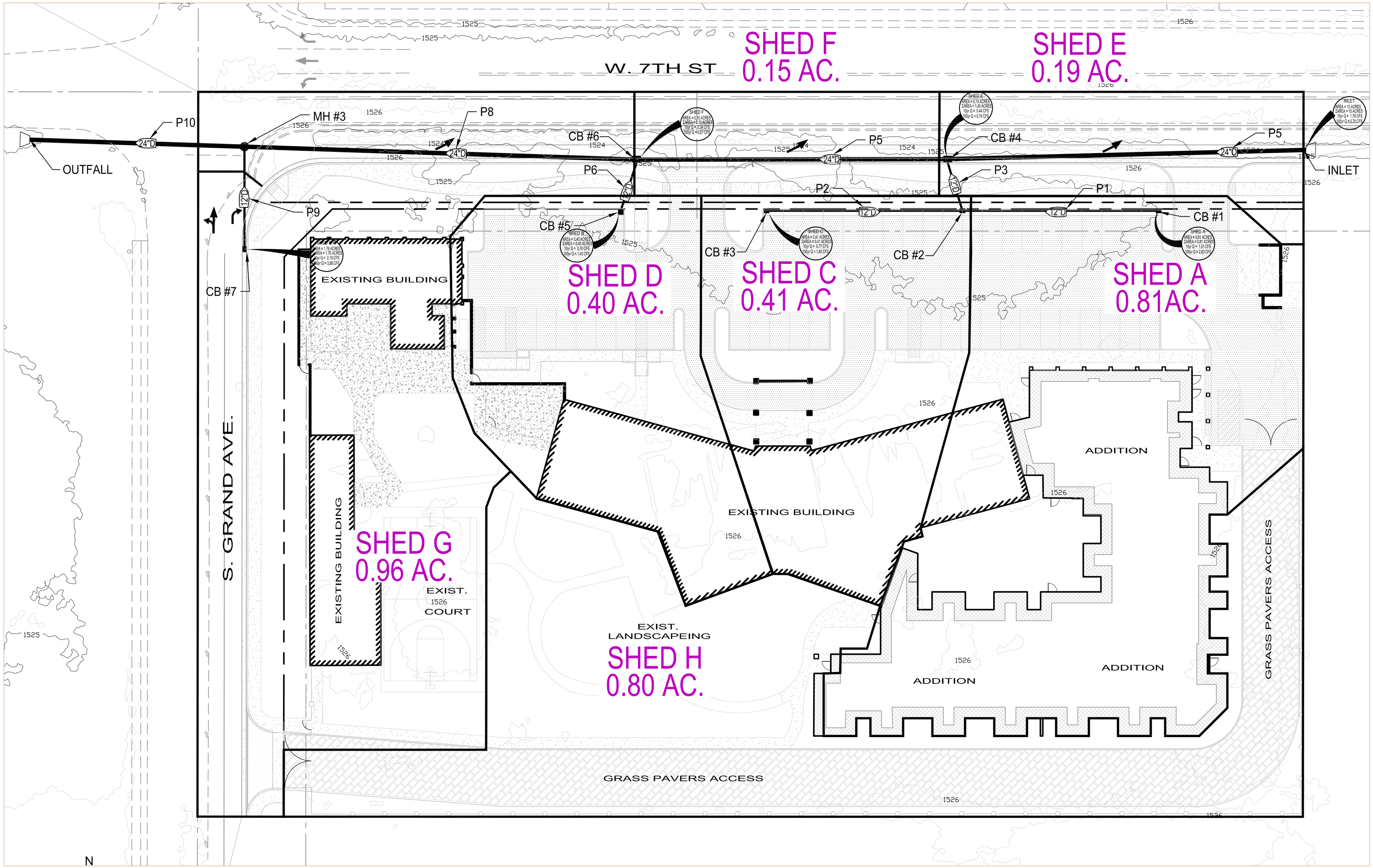
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Guide ENGINEERING

EXHIBIT B

POST-SHED MAP



N

0 20' 40' 60'

SCALE OF FEET 1" = 20'

DESIGN DEVELOPMENT PLANS
980 W. 7TH ST
POST SHED MAP
SAN JACINTO, RIVERSIDE COUNTY, CALIFORNIA

NO.	REVISION	APPROVED BY	DATE

DATE: MAY 2026
SCALE: 1" = 20'
DRAWN BY: S.A. & R.S.
DESIGNED BY: J.B. & R.S.
CHECKED BY: J.B. & R.S.

Guide ENGINEERING
LAND ENGINEERING AND PLANNING
5930 GRANITE LAKE DR. #150
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PREPARED UNDER THE DIRECTION OF:

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STATE OF CALIFORNIA

NOT APPROVED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER

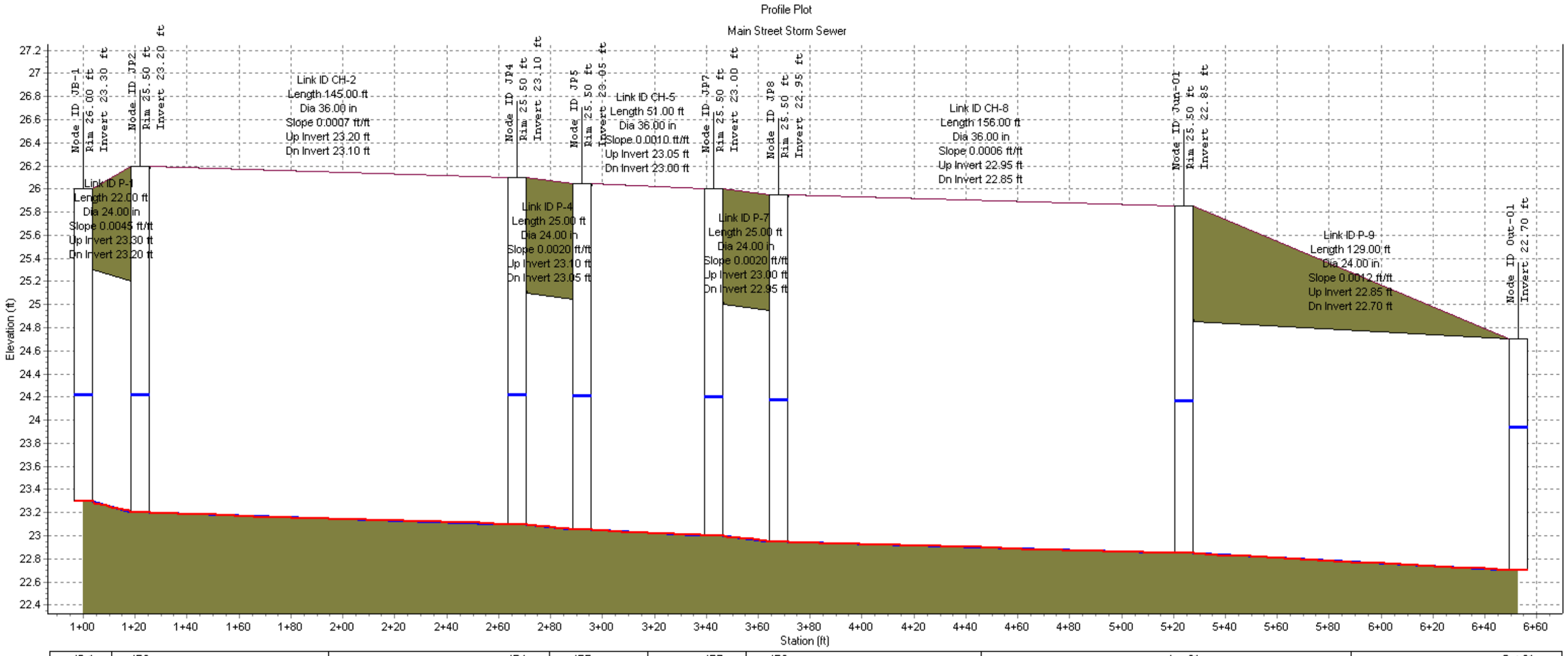
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EXHIBIT C

PRE DEVELOPMENT FRONTAGE PROFILE

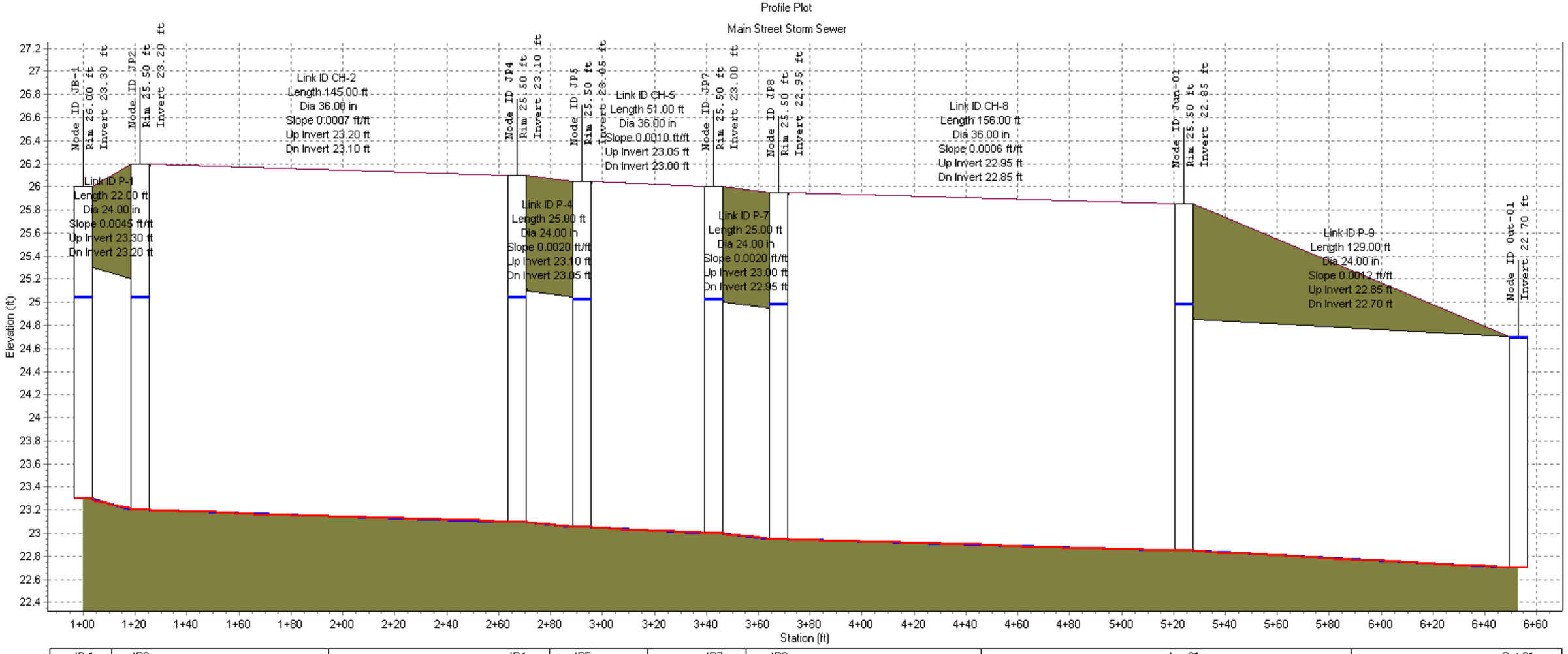


Node ID:	JB-1	JP2	JP4	JP5	JP7	JP8	Jun-01	Out-01
Rim (ft):	26.00	25.50	25.50	25.50	25.50	25.50	25.50	
Invert (ft):	23.30	23.20	23.10	23.05	23.00	22.95	22.85	22.70
Min Pipe Cover (ft):	0.70	0.00	0.00	0.00	0.00	0.00	0.00	
Max HGL (ft):	24.23	24.23	24.23	24.22	24.22	24.18	24.17	23.95

Link ID:	P-1	CH-2	P-4	CH-5	P-7	CH-8	P-9
Length (ft):	22.00	145.00	25.00	51.00	25.00	156.00	129.00
Dia (in):	24.00	36.00	24.00	36.00	24.00	36.00	24.00
Slope (ft/ft):	0.0045	0.0007	0.0020	0.0010	0.0020	0.0006	0.0012
Up Invert (ft):	23.30	23.20	23.10	23.05	23.00	22.95	22.85
Dn Invert (ft):	23.20	23.10	23.05	23.00	22.95	22.85	22.70
Max Q (cfs):	1.77	1.76	1.85	1.85	2.69	2.61	4.77
Max Vel (ft/s):	1.82	0.53	1.71	0.46	1.77	0.47	2.23
Max Depth (ft):	0.97	1.07	1.14	1.18	1.22	1.27	1.28

Profile Plot

Main Street Storm Sewer



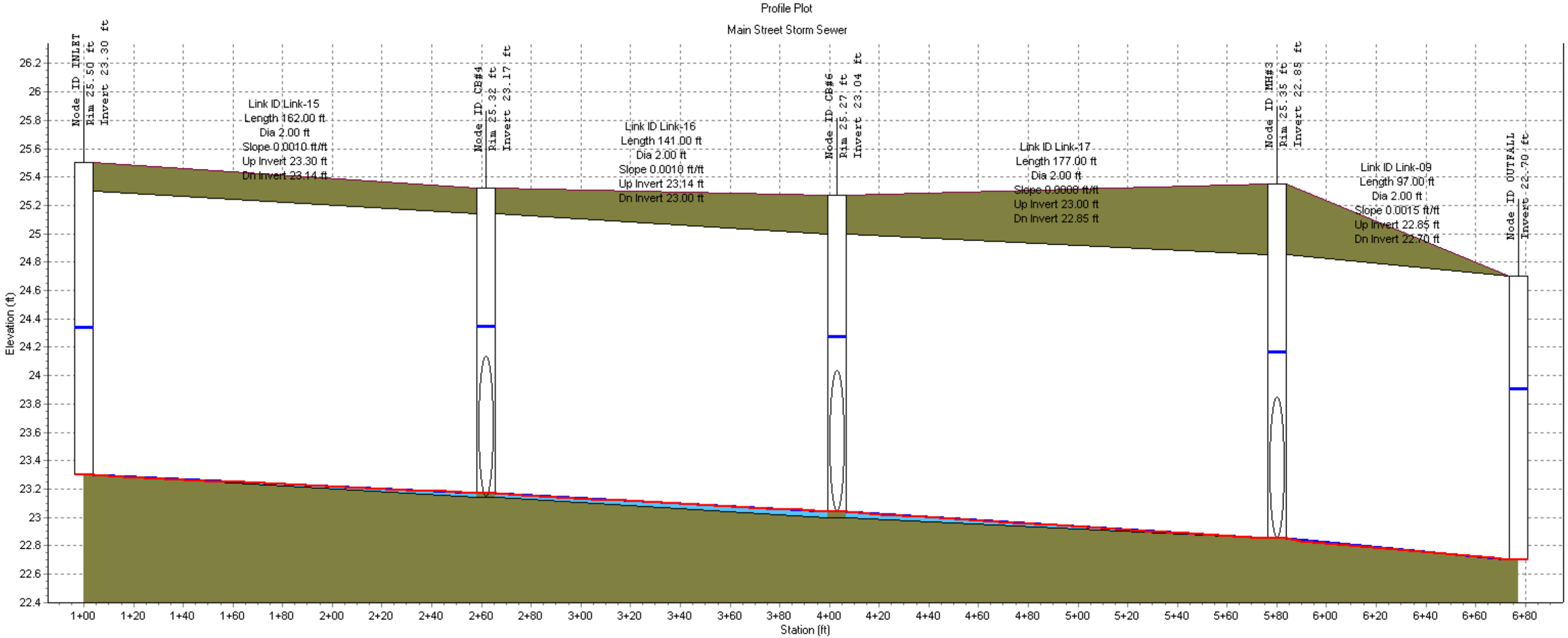
Node ID:	JB-1	JP2	JP4	JP5	JP7	JP8	Jun-01	Out-01
Rim (ft):	26.00	25.50	25.50	25.50	25.50	25.50	25.50	
Invert (ft):	23.30	23.20	23.10	23.05	23.00	22.95	22.85	22.70
Min Pipe Cover (ft):	0.70	0.00	0.00	0.00	0.00	0.00	0.00	
Max HGL (ft):	25.05	25.05	25.05	25.03	25.03	24.99	24.99	24.70

Link ID:	P-1	CH-2	P-4	CH-5	P-7	CH-8	P-9
Length (ft):	22.00	145.00	25.00	51.00	25.00	156.00	129.00
Dia (in):	24.00	36.00	24.00	36.00	24.00	36.00	24.00
Slope (ft/ft):	0.0045	0.0007	0.0020	0.0010	0.0020	0.0006	0.0012
Up Invert (ft):	23.30	23.20	23.10	23.05	23.00	22.95	22.85
Dn Invert (ft):	23.20	23.10	23.05	23.00	22.95	22.85	22.70
Max Q (cfs):	5.67	5.62	5.75	5.74	5.89	5.87	7.67
Max Vel (ft/s):	2.28	0.63	2.22	0.51	2.30	0.52	2.44
Max Depth (ft):	1.80	1.90	1.97	2.01	2.00	2.09	2.00

EXHIBIT C

POST-DEVELOPMENT FRONTAGE PROFILE

Revised August 2026 — 10-Year and 100-Year

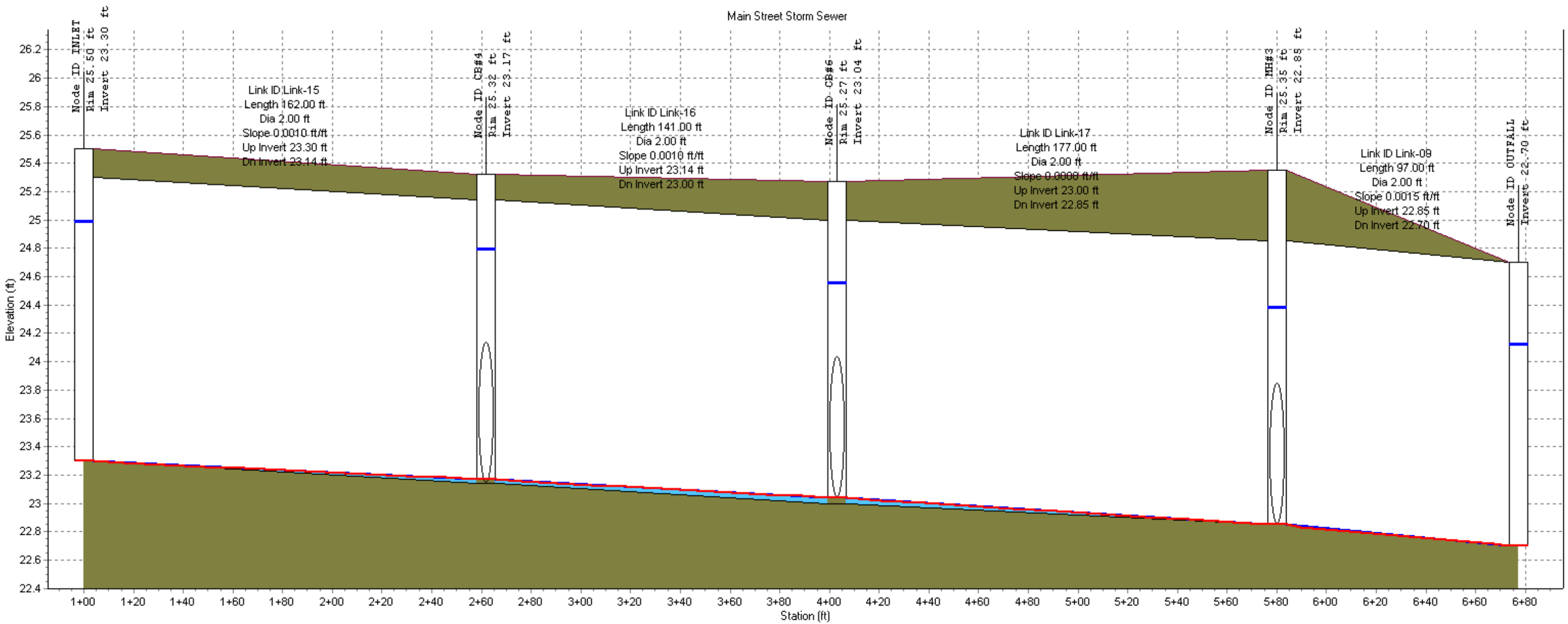


Node ID:	INLET	CB#4	CB#6	MH#3	OUTFALL
Rim (ft):	25.50	25.32	25.27	25.35	
Invert (ft):	23.30	23.17	23.04	22.85	22.70
Min Pipe Cover (ft):				0.50	
Max HGL (ft):	24.34	24.35	24.28	24.19	23.94

Link ID:	Link-15	Link-16	Link-17	Link-09
Length (ft):	162.00	141.00	177.00	97.00
Dia (ft):	2.00	2.00	2.00	2.00
Slope (ft/ft):	0.0010	0.0010	0.0008	0.0015
Up Invert (ft):	23.30	23.14	23.00	22.85
Dn Invert (ft):	23.14	23.00	22.85	22.70
Max Q (cfs):	1.94	2.42	3.49	5.42
Max Vel (ft/s):	1.55	1.62	1.73	2.54
Max Depth (ft):	1.11	1.21	1.28	1.26

Profile Plot

Main Street Storm Sewer



Node ID:	INLET	CB#4	CB#6	MH#3	OUTFALL
Rim (ft):	25.50	25.32	25.27	25.35	
Invert (ft):	23.30	23.17	23.04	22.85	22.70
Min Pipe Cover (ft):				0.50	
Max HGL (ft):	24.99	24.80	24.56	24.43	24.17

Link ID:	Link-15	Link-16	Link-17	Link-09
Length (ft):	162.00	141.00	177.00	97.00
Dia (ft):	2.00	2.00	2.00	2.00
Slope (ft/ft):	0.0010	0.0010	0.0008	0.0015
Up Invert (ft):	23.30	23.14	23.00	22.85
Dn Invert (ft):	23.14	23.00	22.85	22.70
Max Q (cfs):	5.93	6.09	5.99	6.83
Max Vel (ft/s):	2.16	2.28	2.37	2.66
Max Depth (ft):	1.66	1.59	1.53	1.49

EXHIBIT E

PRE DEVELOPMENT CALCULATIONS

Project Description

File Name ..... UNDEVELOPED SITE.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Mar 10, 2026	00:00:00
End Analysis On	Mar 11, 2026	00:00:00
Start Reporting On	Mar 10, 2026	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	2
Subbasins	6
Nodes	10
Junctions	9
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	9
Channels	5
Pipes	4
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfa Depth (inche
1		Time Series	10-YEAR	Cumulative	inches	California	Riverside (Desert Center)	10	1.80

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	SHED-A	15.00	80.00	1.80	0.45	6.68	1.77	0 02:08:16
2	SHED-B	0.90	95.00	1.80	1.29	1.16	1.68	0 00:07:31
3	SHED-C	1.03	95.00	1.80	1.29	1.33	2.00	0 00:06:09
4	SHED-D	0.14	95.00	1.80	1.29	0.18	0.28	0 00:05:00
5	SHED-E	0.06	95.00	1.80	1.27	0.08	0.12	0 00:05:00
6	SHED-F	1.60	95.00	1.80	1.29	2.07	2.84	0 00:09:18

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)
1	JB-1	Junction	23.30	26.00	0.00	6.00	0.00	1.77	24.23	0.00	1.77
2	JP2	Junction	23.20	25.50	0.00	6.00	0.00	1.77	24.23	0.00	1.97
3	JP3	Junction	25.00	25.50	0.00	6.00	0.00	1.60	25.18	0.00	0.82
4	JP4	Junction	23.10	25.50	0.00	6.00	0.00	1.88	24.23	0.00	1.87
5	JP5	Junction	23.05	25.50	0.00	6.00	0.00	1.85	24.22	0.00	1.83
6	JP6	Junction	25.00	25.50	0.00	6.00	0.00	1.97	25.20	0.00	0.80
7	JP7	Junction	23.00	25.50	0.00	6.00	0.00	2.88	24.22	0.00	1.78
8	JP8	Junction	22.95	25.50	0.00	6.00	0.00	2.69	24.18	0.00	1.77
9	Jun-01	Junction	22.85	25.50	0.00	6.00	0.00	5.01	24.17	0.00	1.68
10	Out-01	Outfall	22.70					4.77	23.95		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	
1	P-1	Pipe	JB-1	JP2	22.00	23.30	23.20	0.4500	24.000	0.0150	1.77	13.22	0.13	1.82	
2	P-4	Pipe	JP4	JP5	25.00	23.10	23.05	0.2000	24.000	0.0150	1.85	8.77	0.21	1.71	
3	P-7	Pipe	JP7	JP8	25.00	23.00	22.95	0.2000	24.000	0.0150	2.69	8.77	0.31	1.77	
4	P-9	Pipe	Jun-01	Out-01	129.00	22.85	22.70	0.1200	24.000	0.0150	4.77	6.69	0.71	2.23	
5	CH-2	Channel	JP2	JP4	145.00	23.20	23.10	0.0700	36.000	0.0320	1.76	45.88	0.04	0.53	
6	CH-3	Channel	JP3	JP4	25.00	25.00	23.10	7.6000	12.000	0.0320	1.60	45.57	0.04	0.86	
7	CH-5	Channel	JP5	JP7	51.00	23.05	23.00	0.1000	36.000	0.0320	1.85	72.75	0.03	0.46	
8	CH-6	Channel	JP6	JP7	25.00	25.00	23.00	8.0000	12.000	0.0320	1.97	46.75	0.04	0.91	
9	CH-8	Channel	JP8	Jun-01	156.00	22.95	22.85	0.0600	36.000	0.0320	2.61	58.82	0.04	0.47	

Subbasin Hydrology

Subbasin : SHED-A

Input Data

Area (ac) 15.00
Weighted Curve Number 80.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	15.00	D	80.00
Composite Area & Weighted CN	15.00		80.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.04	0.00	0.00
Computed Flow Time (min) :	122.07	0.00	0.00

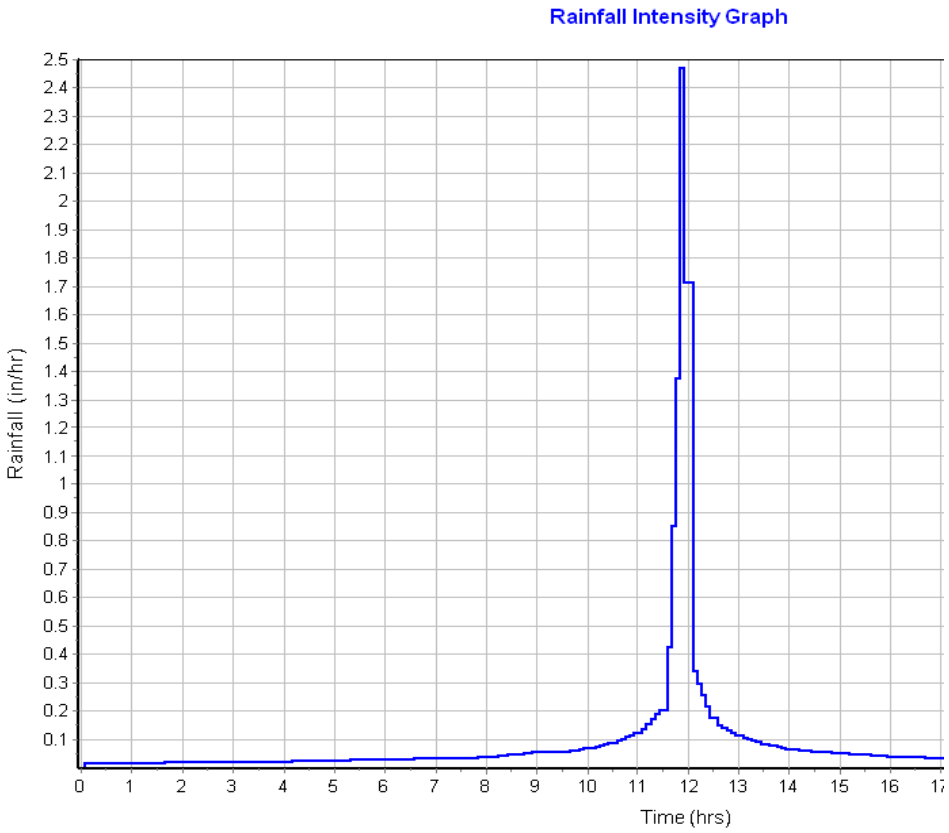
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	600	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	6.21	0.00	0.00

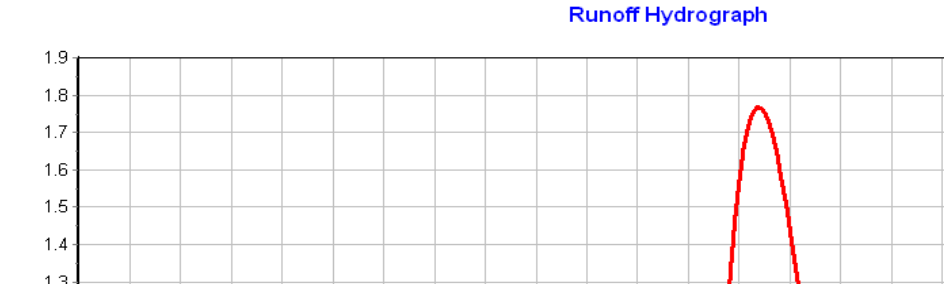
Total TOC (min) 128.28

Subbasin Runoff Results

Total Rainfall (in)	1.80
Total Runoff (in)	0.45
Peak Runoff (cfs)	1.77
Weighted Curve Number	80.00
Time of Concentration (days hh:mm:ss)	0 02:08:17

Subbasin : SHED-A





Subbasin : SHED-B

Input Data

Area (ac) 0.90
Weighted Curve Number 95.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.90	D	95.00
Composite Area & Weighted CN	0.90		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	135	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.48	0.00	0.00
Computed Flow Time (min) :	4.66	0.00	0.00

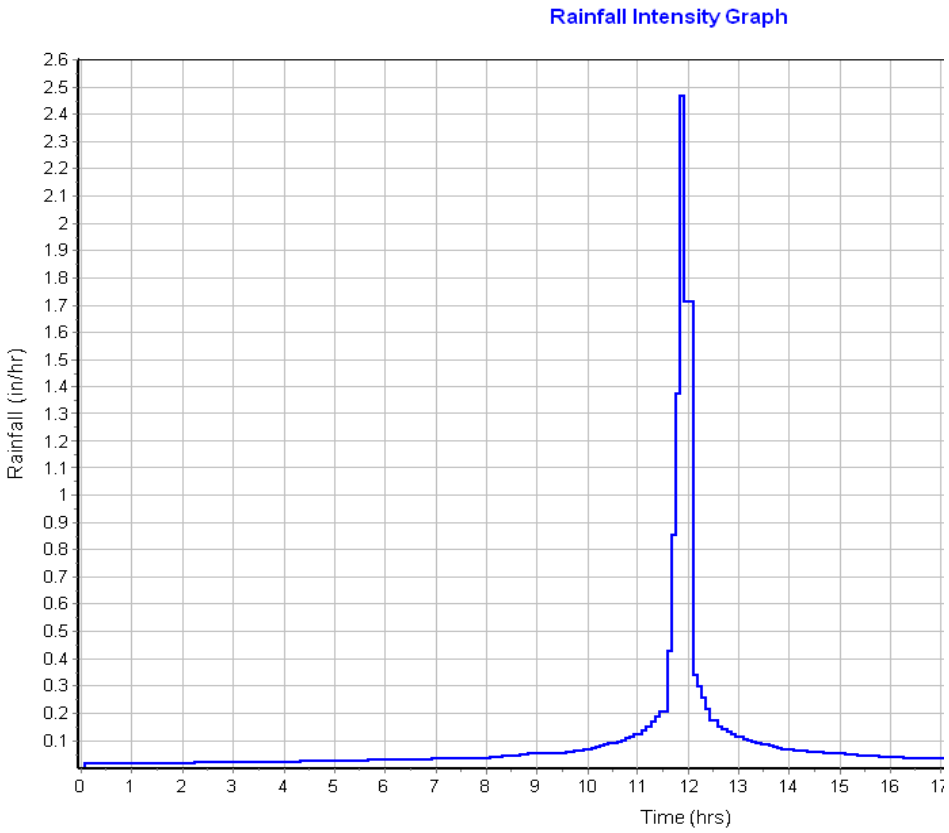
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	350	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.87	0.00	0.00

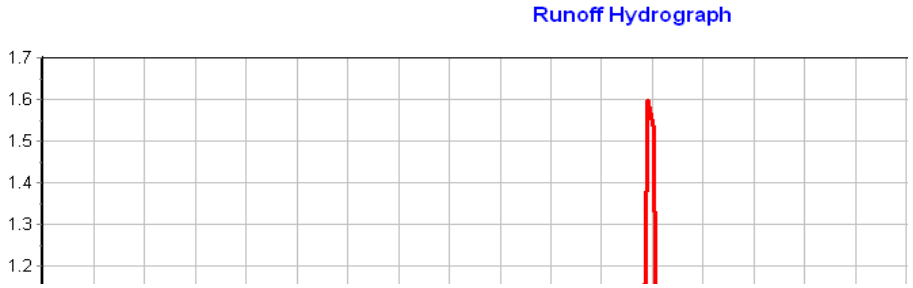
Total TOC (min) 7.53

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.29
Peak Runoff (cfs) 1.68
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:07:32

Subbasin : SHED-B





Subbasin : SHED-C

Input Data

Area (ac) 1.03
Weighted Curve Number 95.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	1.03	D	95.00
Composite Area & Weighted CN	1.03		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	115	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.47	0.00	0.00
Computed Flow Time (min) :	4.10	0.00	0.00

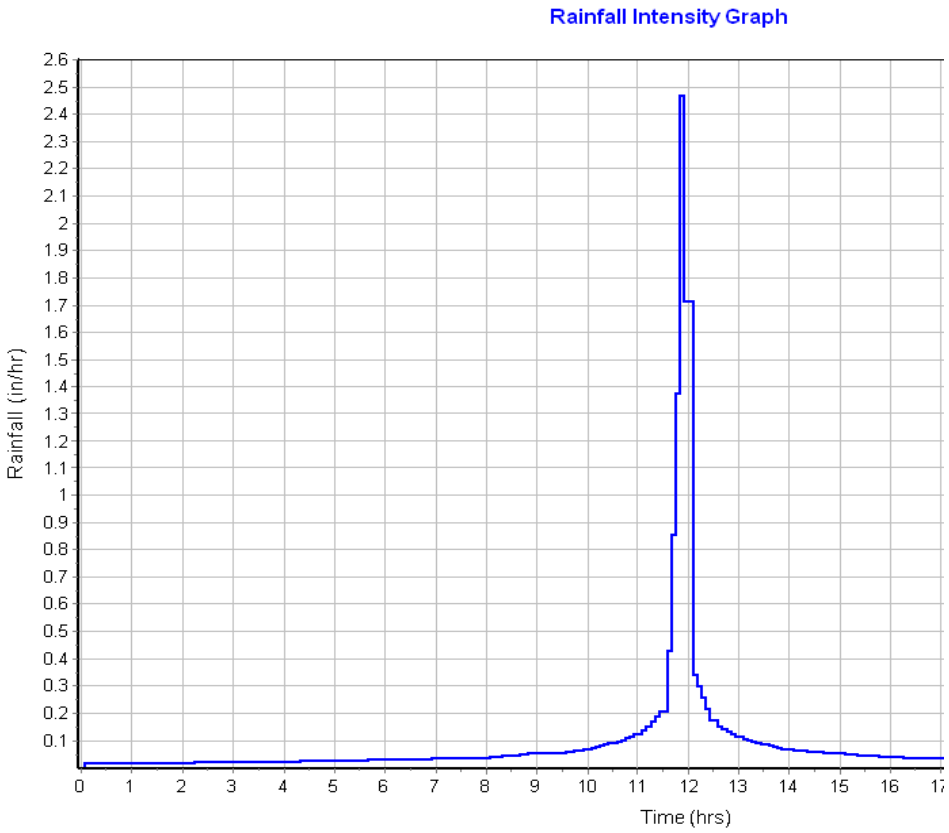
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	250	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.05	0.00	0.00

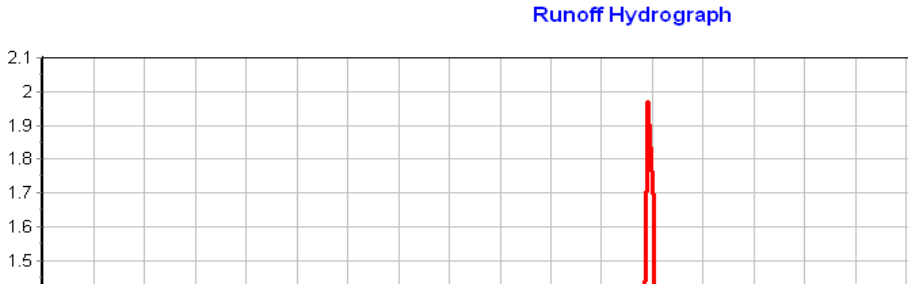
Total TOC (min) 6.15

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.29
Peak Runoff (cfs) 2.00
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:06:09

Subbasin : SHED-C





Subbasin : SHED-D

Input Data

Area (ac) 0.14
Weighted Curve Number 95.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.14	D	95.00
Composite Area & Weighted CN	0.14		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

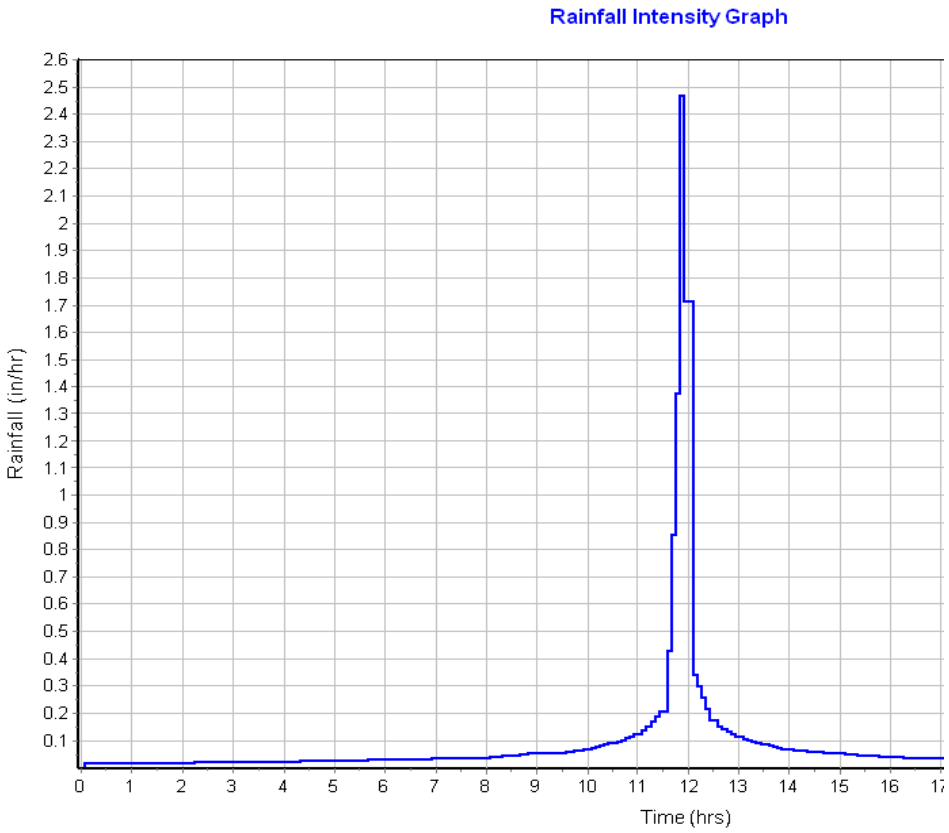
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	162	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.33	0.00	0.00

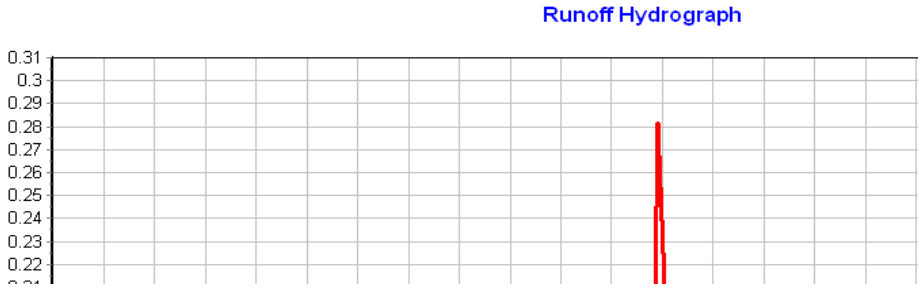
Total TOC (min) 2.54

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.29
Peak Runoff (cfs) 0.28
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:02:32

Subbasin : SHED-D





Subbasin : SHED-E

Input Data

Area (ac) 0.06
Weighted Curve Number 95.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.06	D	95.00
Composite Area & Weighted CN	0.06		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

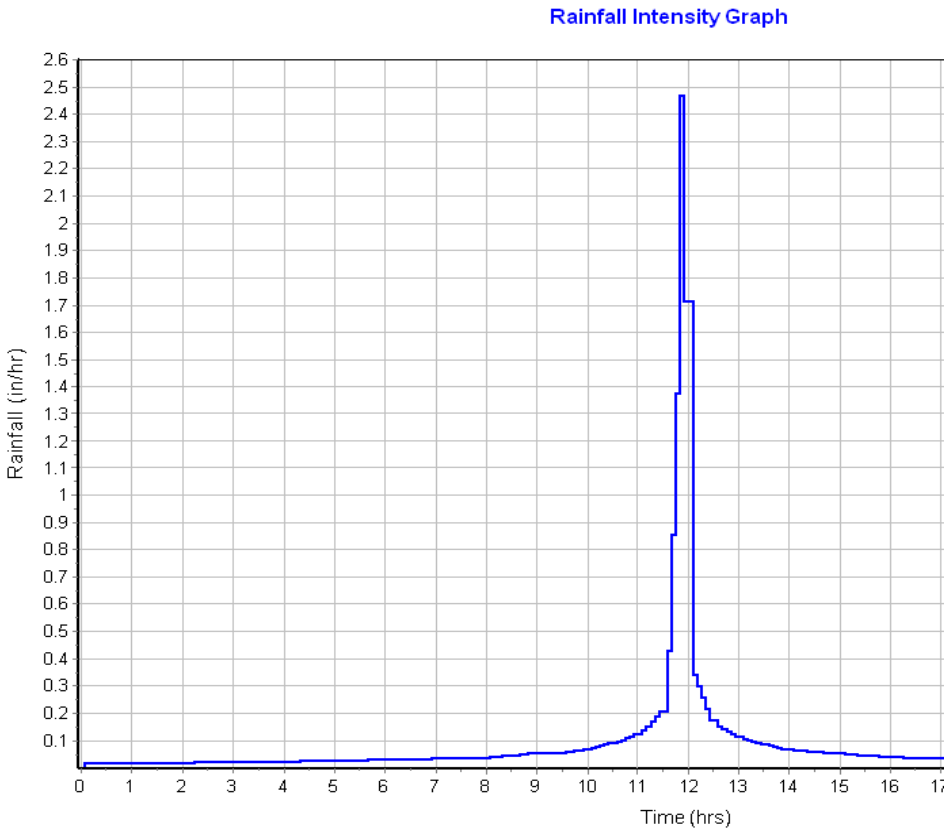
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	60	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	0.49	0.00	0.00

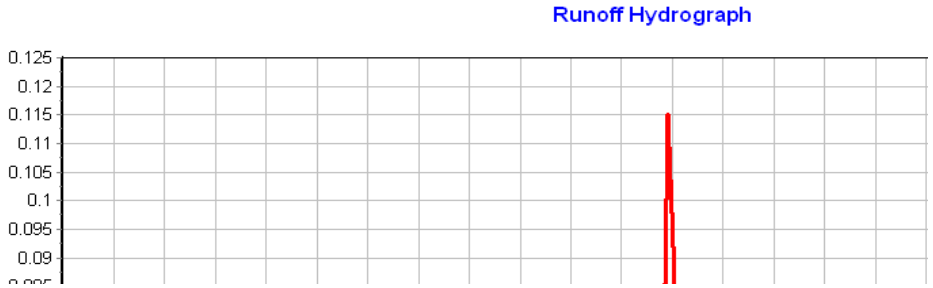
Total TOC (min) 1.70

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.27
Peak Runoff (cfs) 0.12
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:01:42

Subbasin : SHED-E





Subbasin : SHED-F

Input Data

Area (ac) 1.60
Weighted Curve Number 95.00
Rain Gage ID 10YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	1.60	D	95.00
Composite Area & Weighted CN	1.60		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	125	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.48	0.00	0.00
Computed Flow Time (min) :	4.38	0.00	0.00

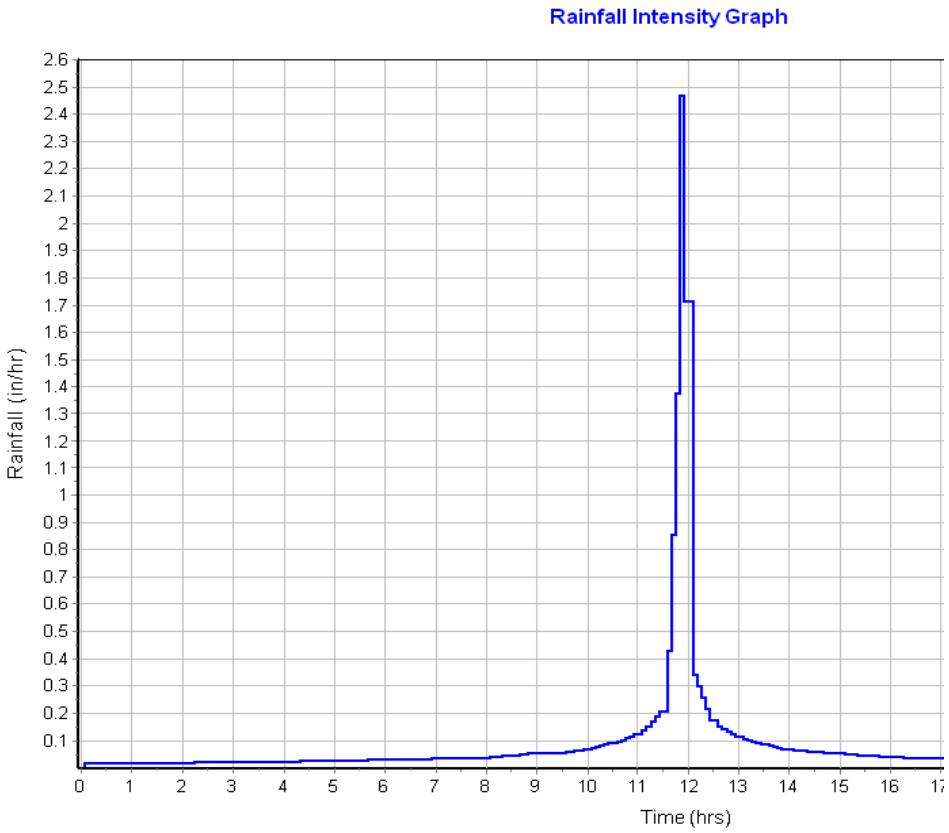
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	600	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	4.93	0.00	0.00

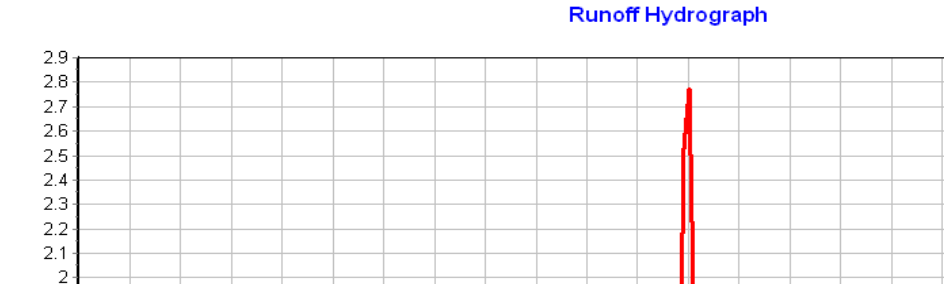
Total TOC (min) 9.31

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.29
Peak Runoff (cfs) 2.84
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:09:19

Subbasin : SHED-F





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	JB-1	23.30	26.00	2.70	0.00	-23.30	6.00	-20.00	0.00	0.00
2	JP2	23.20	25.50	2.30	0.00	-23.20	6.00	-19.50	0.00	0.00
3	JP3	25.00	25.50	0.50	0.00	-25.00	6.00	-19.50	0.00	0.00
4	JP4	23.10	25.50	2.40	0.00	-23.10	6.00	-19.50	0.00	0.00
5	JP5	23.05	25.50	2.45	0.00	-23.05	6.00	-19.50	0.00	0.00
6	JP6	25.00	25.50	0.50	0.00	-25.00	6.00	-19.50	0.00	0.00
7	JP7	23.00	25.50	2.50	0.00	-23.00	6.00	-19.50	0.00	0.00
8	JP8	22.95	25.50	2.55	0.00	-22.95	6.00	-19.50	0.00	0.00
9	Jun-01	22.85	25.50	2.65	0.00	-22.85	6.00	-19.50	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)
1	JB-1	1.77	1.77	24.23	0.93	0.00	1.77	23.68	0.38	0 12:08
2	JP2	1.77	0.00	24.23	1.03	0.00	1.97	23.61	0.41	0 12:08
3	JP3	1.60	1.60	25.18	0.18	0.00	0.82	25.03	0.03	0 12:00
4	JP4	1.88	0.28	24.23	1.13	0.00	1.87	23.56	0.46	0 12:08
5	JP5	1.85	0.00	24.22	1.17	0.00	1.83	23.51	0.46	0 12:08
6	JP6	1.97	1.97	25.20	0.20	0.00	0.80	25.03	0.03	0 12:00
7	JP7	2.88	0.11	24.22	1.22	0.00	1.78	23.49	0.49	0 12:08
8	JP8	2.69	0.00	24.18	1.23	0.00	1.77	23.43	0.48	0 12:08
9	Jun-01	5.01	2.77	24.17	1.32	0.00	1.68	23.38	0.53	0 12:08

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entr Lo
1	CH-2	145.00	23.20	0.00	23.10	0.00	0.10	0.0700	Trapezoidal	3.000	15.000	0.0320	0.
2	CH-3	25.00	25.00	0.00	23.10	0.00	1.90	7.6000	Trapezoidal	1.000	8.000	0.0320	0.
3	CH-5	51.00	23.05	0.00	23.00	0.00	0.05	0.1000	Trapezoidal	3.000	21.000	0.0320	0.
4	CH-6	25.00	25.00	0.00	23.00	0.00	2.00	8.0000	Trapezoidal	1.000	8.000	0.0320	0.
5	CH-8	156.00	22.95	0.00	22.85	0.00	0.10	0.0600	Trapezoidal	3.000	21.000	0.0320	0.

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	CH-2	1.76	0 13:30	45.88	0.04	0.53	4.56	1.07	0.36	0.00
2	CH-3	1.60	0 12:00	45.57	0.04	0.86	0.48	0.59	0.59	0.00
3	CH-5	1.85	0 13:31	72.75	0.03	0.46	1.85	1.18	0.40	0.00
4	CH-6	1.97	0 12:00	46.75	0.04	0.91	0.46	0.59	0.60	0.00
5	CH-8	2.61	0 12:13	58.82	0.04	0.47	5.53	1.27	0.43	0.00

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	P-1	22.00	23.30	0.00	23.20	0.00	0.10	0.4500	CIRCULAR	24.000	24.000	0.0150
2	P-4	25.00	23.10	0.00	23.05	0.00	0.05	0.2000	CIRCULAR	24.000	24.000	0.0150
3	P-7	25.00	23.00	0.00	22.95	0.00	0.05	0.2000	CIRCULAR	24.000	24.000	0.0150
4	P-9	129.00	22.85	0.00	22.70	0.00	0.15	0.1200	CIRCULAR	24.000	24.000	0.0150

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	P-1	1.77	0 13:25	13.22	0.13	1.82	0.20	0.97	0.49	0.00
2	P-4	1.85	0 13:30	8.77	0.21	1.71	0.24	1.14	0.57	0.00
3	P-7	2.69	0 12:05	8.77	0.31	1.77	0.24	1.22	0.61	0.00
4	P-9	4.77	0 12:08	6.69	0.71	2.23	0.96	1.28	0.64	0.00

Project Description

File Name ..... UNDEVELOPED SITE.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Mar 10, 2026	00:00:00
End Analysis On	Mar 11, 2026	00:00:00
Start Reporting On	Mar 10, 2026	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	2
Subbasins	6
Nodes	10
Junctions	9
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	9
Channels	5
Pipes	4
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfa Depth (inche
1		Time Series	100 YEAR	Cumulative	inches	California	Riverside (Desert Center)	100	3.00

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	SHED-A	15.00	80.00	3.00	1.25	18.75	5.68	0 02:08:16
2	SHED-B	0.90	95.00	3.00	2.45	2.20	3.08	0 00:07:31
3	SHED-C	1.03	95.00	3.00	2.45	2.52	3.65	0 00:06:09
4	SHED-D	0.14	95.00	3.00	2.45	0.34	0.52	0 00:05:00
5	SHED-E	0.06	95.00	3.00	2.43	0.15	0.21	0 00:05:00
6	SHED-F	1.60	95.00	3.00	2.45	3.92	5.21	0 00:09:18

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)
1	JB-1	Junction	23.30	26.00	0.00	6.00	0.00	5.67	25.05	0.00	0.95
2	JP2	Junction	23.20	25.50	0.00	6.00	0.00	5.67	25.05	0.00	1.15
3	JP3	Junction	25.00	25.50	0.00	6.00	0.00	2.95	25.25	0.00	0.75
4	JP4	Junction	23.10	25.50	0.00	6.00	0.00	5.79	25.05	0.00	1.05
5	JP5	Junction	23.05	25.50	0.00	6.00	0.00	5.75	25.03	0.00	1.02
6	JP6	Junction	25.00	25.50	0.00	6.00	0.00	3.62	25.28	0.00	0.72
7	JP7	Junction	23.00	25.50	0.00	6.00	0.00	5.91	25.03	0.00	0.97
8	JP8	Junction	22.95	25.50	0.00	6.00	0.00	5.89	24.99	0.00	0.96
9	Jun-01	Junction	22.85	25.50	0.00	6.00	0.00	8.20	24.99	0.00	0.86
10	Out-01	Outfall	22.70					7.67	24.70		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	
1	P-1	Pipe	JB-1	JP2	22.00	23.30	23.20	0.4500	24.000	0.0150	5.67	13.22	0.43	2.28	
2	P-4	Pipe	JP4	JP5	25.00	23.10	23.05	0.2000	24.000	0.0150	5.75	8.77	0.66	2.22	
3	P-7	Pipe	JP7	JP8	25.00	23.00	22.95	0.2000	24.000	0.0150	5.89	8.77	0.67	2.30	
4	P-9	Pipe	Jun-01	Out-01	129.00	22.85	22.70	0.1200	24.000	0.0150	7.67	6.69	1.15	2.44	
5	CH-2	Channel	JP2	JP4	145.00	23.20	23.10	0.0700	36.000	0.0320	5.62	45.88	0.12	0.63	
6	CH-3	Channel	JP3	JP4	25.00	25.00	23.10	7.6000	12.000	0.0320	2.95	45.57	0.06	1.22	
7	CH-5	Channel	JP5	JP7	51.00	23.05	23.00	0.1000	36.000	0.0320	5.74	72.75	0.08	0.51	
8	CH-6	Channel	JP6	JP7	25.00	25.00	23.00	8.0000	12.000	0.0320	3.62	46.75	0.08	1.45	
9	CH-8	Channel	JP8	Jun-01	156.00	22.95	22.85	0.0600	36.000	0.0320	5.87	58.82	0.10	0.52	

Subbasin Hydrology

Subbasin : SHED-A

Input Data

Area (ac) 15.00
Weighted Curve Number 80.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	15.00	D	80.00
Composite Area & Weighted CN	15.00		80.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.04	0.00	0.00
Computed Flow Time (min) :	122.07	0.00	0.00

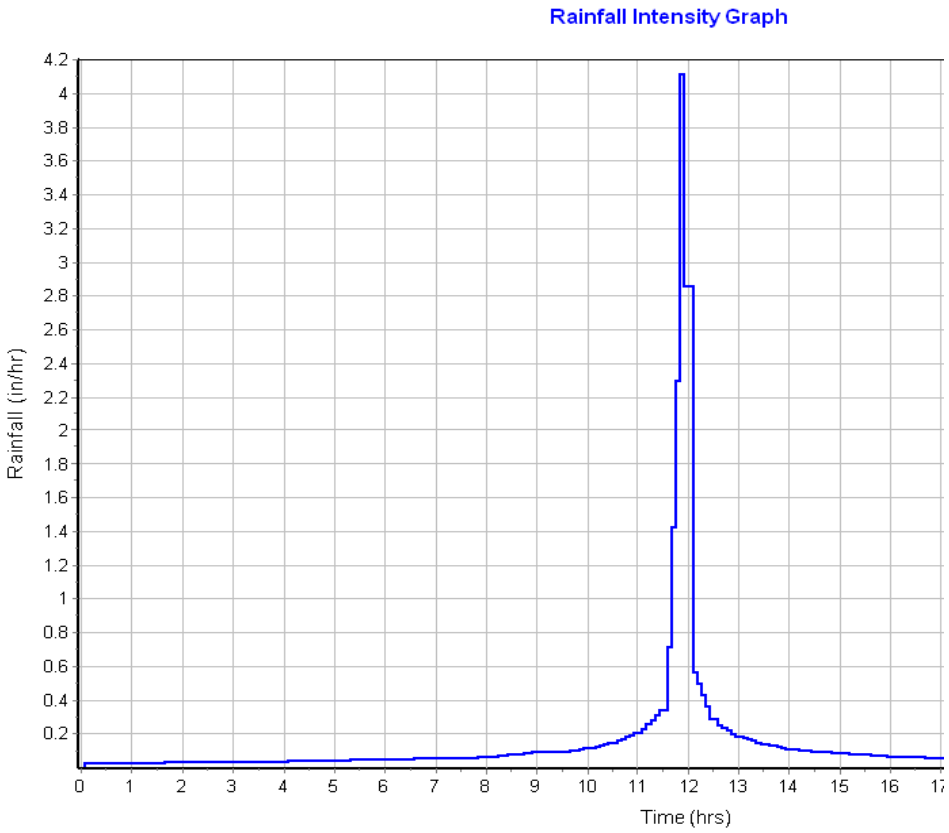
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	600	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	6.21	0.00	0.00

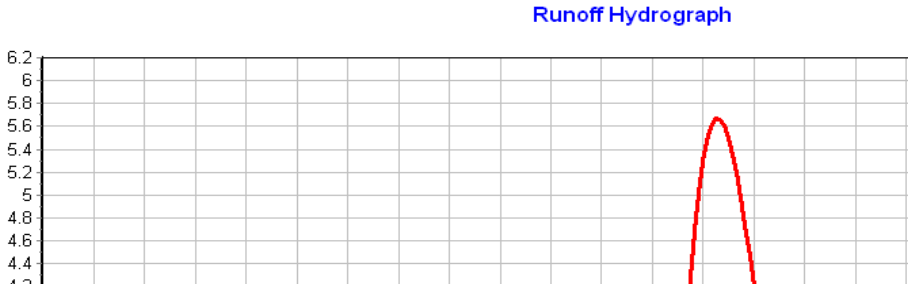
Total TOC (min) 128.28

Subbasin Runoff Results

Total Rainfall (in)	3.00
Total Runoff (in)	1.25
Peak Runoff (cfs)	5.68
Weighted Curve Number	80.00
Time of Concentration (days hh:mm:ss)	0 02:08:17

Subbasin : SHED-A





Subbasin : SHED-B

Input Data

Area (ac) 0.90
Weighted Curve Number 95.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.90	D	95.00
Composite Area & Weighted CN	0.90		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	135	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.48	0.00	0.00
Computed Flow Time (min) :	4.66	0.00	0.00

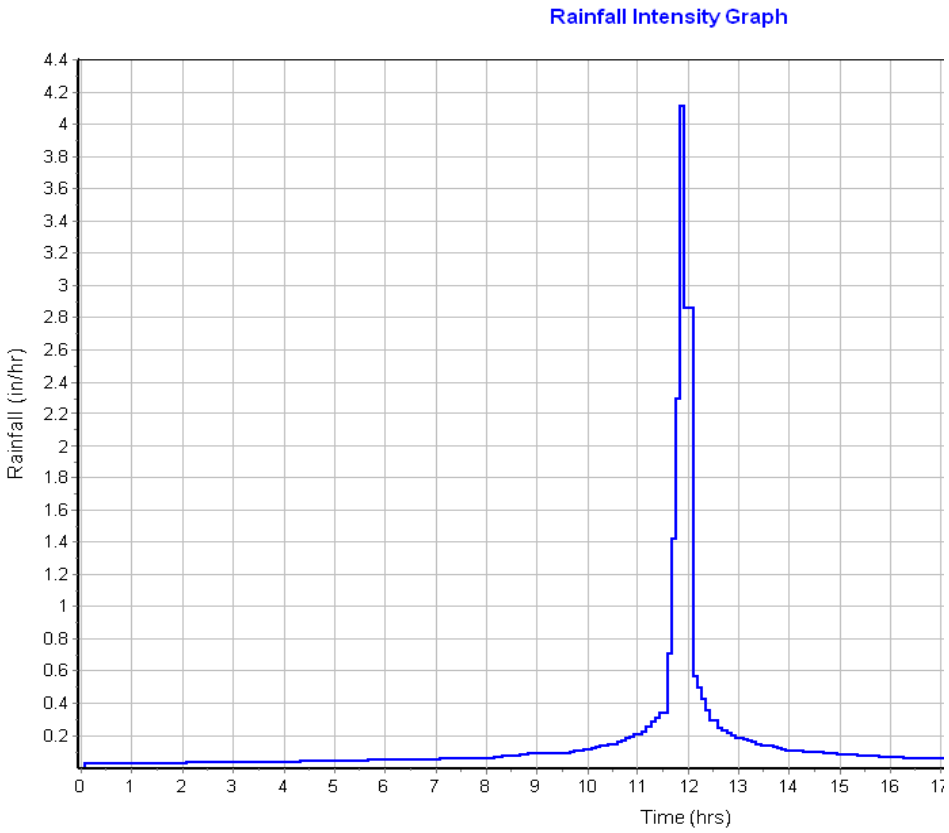
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	350	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.87	0.00	0.00

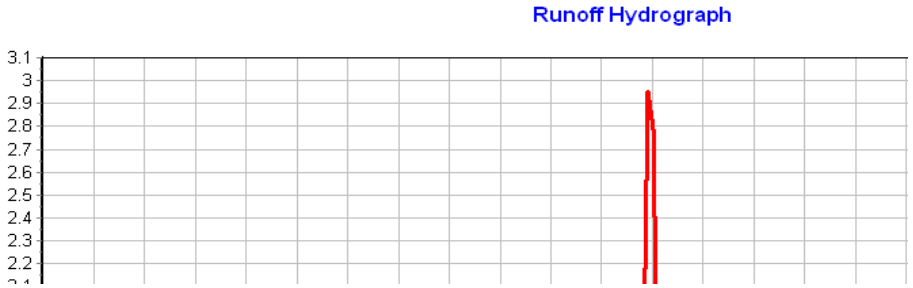
Total TOC (min) 7.53

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.45
Peak Runoff (cfs) 3.08
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:07:32

Subbasin : SHED-B





Subbasin : SHED-C

Input Data

Area (ac) 1.03
Weighted Curve Number 95.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	1.03	D	95.00
Composite Area & Weighted CN	1.03		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	115	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.47	0.00	0.00
Computed Flow Time (min) :	4.10	0.00	0.00

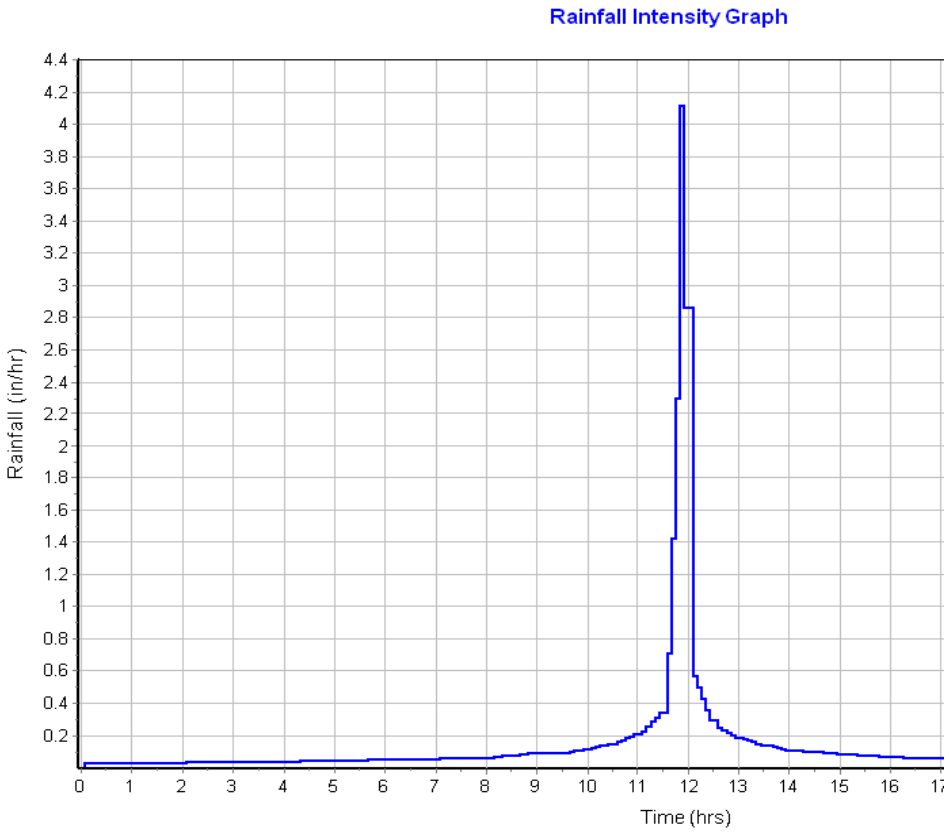
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	250	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.05	0.00	0.00

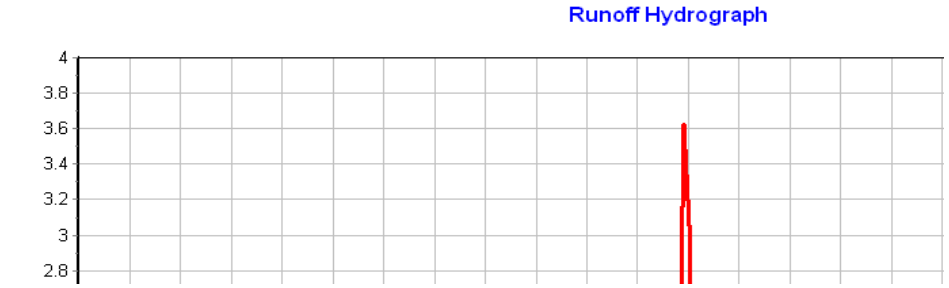
Total TOC (min) 6.15

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.45
Peak Runoff (cfs) 3.65
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:06:09

Subbasin : SHED-C





Subbasin : SHED-D

Input Data

Area (ac) 0.14
Weighted Curve Number 95.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.14	D	95.00
Composite Area & Weighted CN	0.14		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

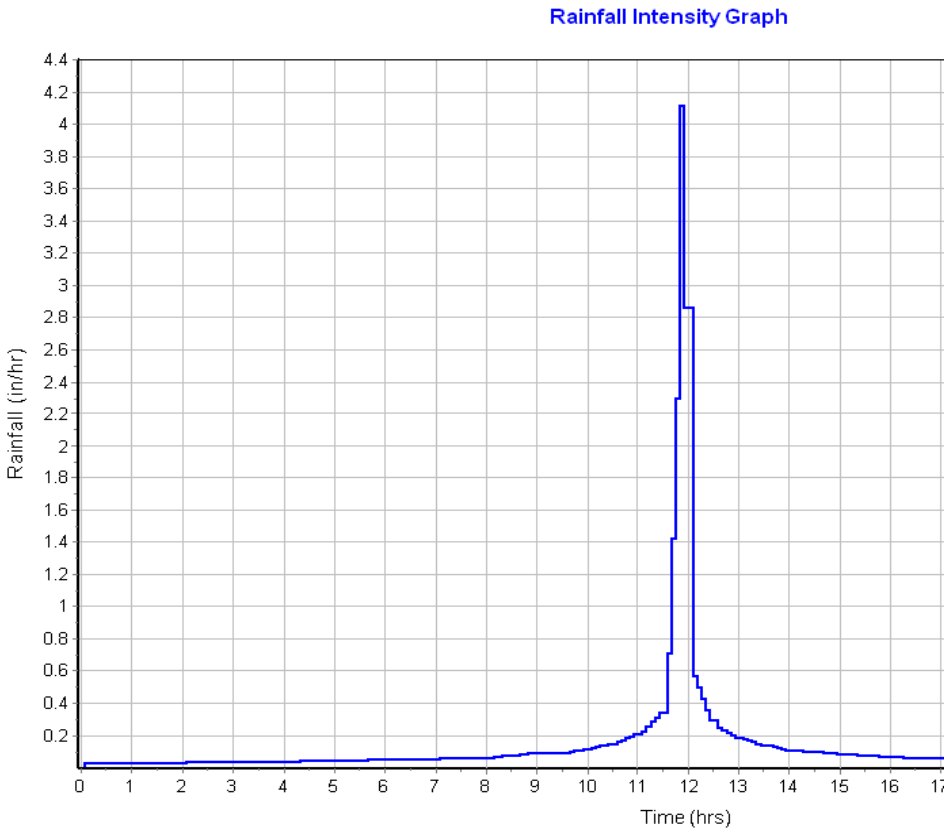
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	162	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.33	0.00	0.00

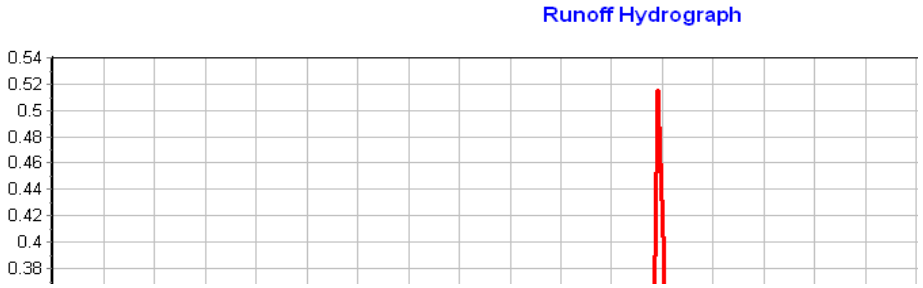
Total TOC (min) 2.54

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.45
Peak Runoff (cfs) 0.52
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:02:32

Subbasin : SHED-D





Subbasin : SHED-E

Input Data

Area (ac) 0.06
Weighted Curve Number 95.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.06	D	95.00
Composite Area & Weighted CN	0.06		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

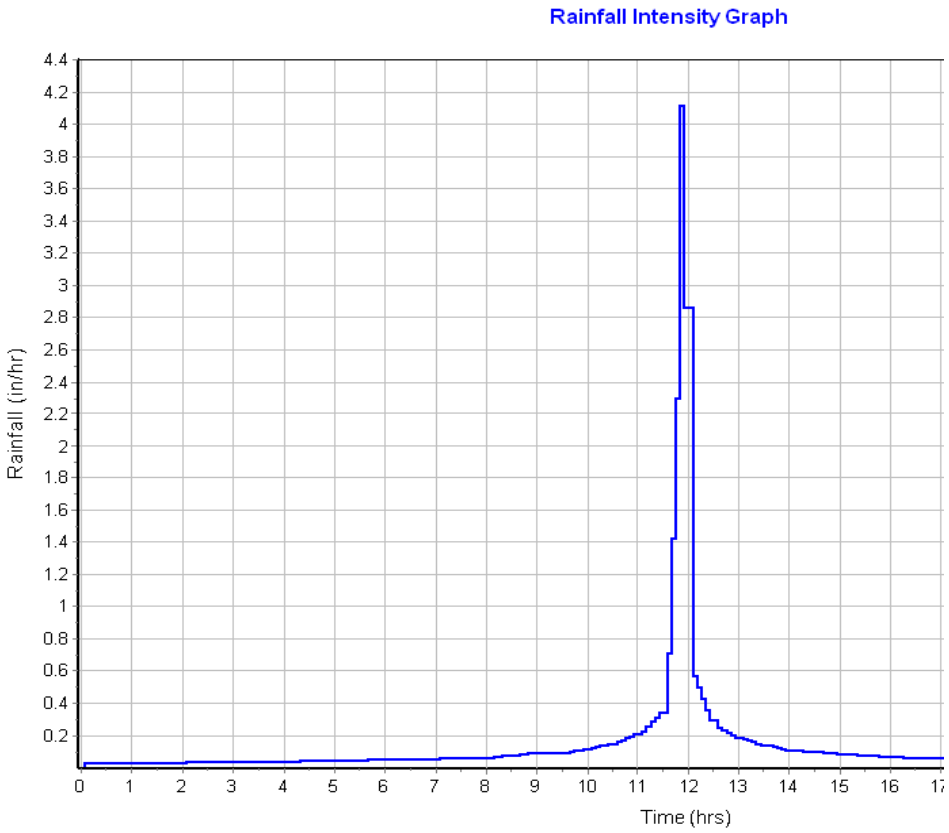
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	60	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	0.49	0.00	0.00

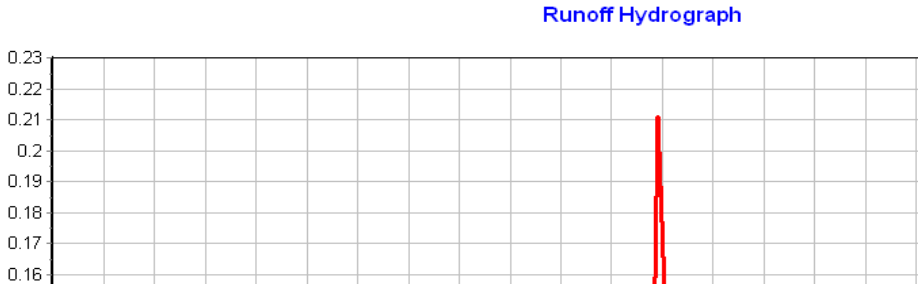
Total TOC (min) 1.70

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.43
Peak Runoff (cfs) 0.21
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:01:42

Subbasin : SHED-E





Subbasin : SHED-F

Input Data

Area (ac) 1.60
Weighted Curve Number 95.00
Rain Gage ID 100YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	1.60	D	95.00
Composite Area & Weighted CN	1.60		95.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	125	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.48	0.00	0.00
Computed Flow Time (min) :	4.38	0.00	0.00

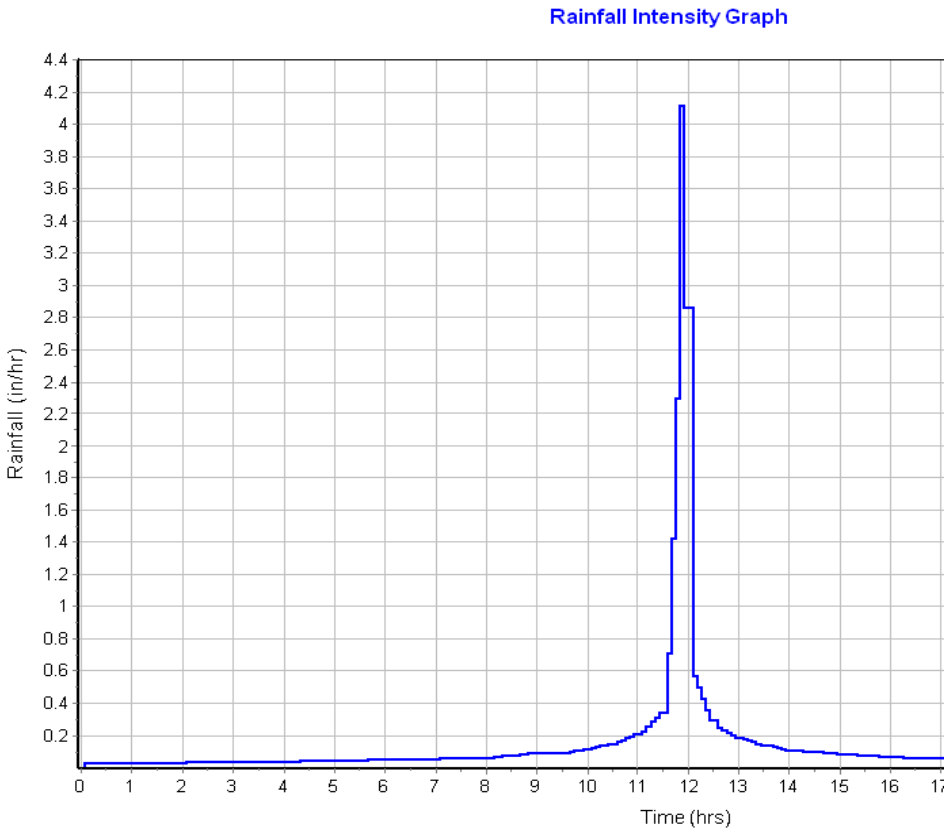
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	600	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	4.93	0.00	0.00

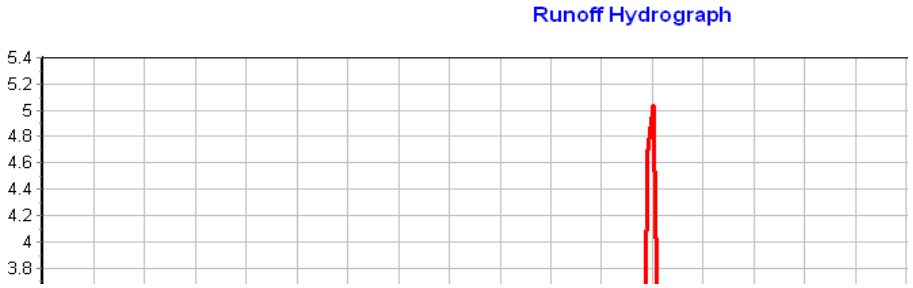
Total TOC (min) 9.31

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.45
Peak Runoff (cfs) 5.21
Weighted Curve Number 95.00
Time of Concentration (days hh:mm:ss) 0 00:09:19

Subbasin : SHED-F





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	JB-1	23.30	26.00	2.70	0.00	-23.30	6.00	-20.00	0.00	0.00
2	JP2	23.20	25.50	2.30	0.00	-23.20	6.00	-19.50	0.00	0.00
3	JP3	25.00	25.50	0.50	0.00	-25.00	6.00	-19.50	0.00	0.00
4	JP4	23.10	25.50	2.40	0.00	-23.10	6.00	-19.50	0.00	0.00
5	JP5	23.05	25.50	2.45	0.00	-23.05	6.00	-19.50	0.00	0.00
6	JP6	25.00	25.50	0.50	0.00	-25.00	6.00	-19.50	0.00	0.00
7	JP7	23.00	25.50	2.50	0.00	-23.00	6.00	-19.50	0.00	0.00
8	JP8	22.95	25.50	2.55	0.00	-22.95	6.00	-19.50	0.00	0.00
9	Jun-01	22.85	25.50	2.65	0.00	-22.85	6.00	-19.50	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)
1	JB-1	5.67	5.67	25.05	1.75	0.00	0.95	24.00	0.70	0 12:10
2	JP2	5.67	0.00	25.05	1.85	0.00	1.15	23.93	0.73	0 12:10
3	JP3	2.95	2.95	25.25	0.25	0.00	0.75	25.04	0.04	0 12:00
4	JP4	5.79	0.52	25.05	1.95	0.00	1.05	23.89	0.79	0 12:10
5	JP5	5.75	0.00	25.03	1.98	0.00	1.02	23.82	0.77	0 12:09
6	JP6	3.62	3.62	25.28	0.28	0.00	0.72	25.04	0.04	0 12:00
7	JP7	5.91	0.21	25.03	2.03	0.00	0.97	23.81	0.81	0 12:09
8	JP8	5.89	0.00	24.99	2.04	0.00	0.96	23.74	0.79	0 12:10
9	Jun-01	8.20	5.03	24.99	2.14	0.00	0.86	23.70	0.85	0 12:10

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entr Lo
1	CH-2	145.00	23.20	0.00	23.10	0.00	0.10	0.0700	Trapezoidal	3.000	15.000	0.0320	0.
2	CH-3	25.00	25.00	0.00	23.10	0.00	1.90	7.6000	Trapezoidal	1.000	8.000	0.0320	0.
3	CH-5	51.00	23.05	0.00	23.00	0.00	0.05	0.1000	Trapezoidal	3.000	21.000	0.0320	0.
4	CH-6	25.00	25.00	0.00	23.00	0.00	2.00	8.0000	Trapezoidal	1.000	8.000	0.0320	0.
5	CH-8	156.00	22.95	0.00	22.85	0.00	0.10	0.0600	Trapezoidal	3.000	21.000	0.0320	0.

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	CH-2	5.62	0 13:21	45.88	0.12	0.63	3.84	1.90	0.63	0.00
2	CH-3	2.95	0 12:00	45.57	0.06	1.22	0.34	0.63	0.63	0.00
3	CH-5	5.74	0 13:26	72.75	0.08	0.51	1.67	2.01	0.67	0.00
4	CH-6	3.62	0 12:00	46.75	0.08	1.45	0.29	0.64	0.64	0.00
5	CH-8	5.87	0 13:31	58.82	0.10	0.52	5.00	2.09	0.70	0.00

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	P-1	22.00	23.30	0.00	23.20	0.00	0.10	0.4500	CIRCULAR	24.000	24.000	0.0150
2	P-4	25.00	23.10	0.00	23.05	0.00	0.05	0.2000	CIRCULAR	24.000	24.000	0.0150
3	P-7	25.00	23.00	0.00	22.95	0.00	0.05	0.2000	CIRCULAR	24.000	24.000	0.0150
4	P-9	129.00	22.85	0.00	22.70	0.00	0.15	0.1200	CIRCULAR	24.000	24.000	0.0150

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	P-1	5.67	0 13:20	13.22	0.43	2.28	0.16	1.80	0.90	0.00
2	P-4	5.75	0 13:25	8.77	0.66	2.22	0.19	1.97	0.98	0.00
3	P-7	5.89	0 13:26	8.77	0.67	2.30	0.18	2.00	1.00	5.00
4	P-9	7.67	0 12:10	6.69	1.15	2.44	0.88	2.00	1.00	10.00

EXHIBIT F

POST-DEVELOPMENT CALCULATIONS

Revised Autodesk SSA Output

EXHIBIT F-1

10-YEAR POST-DEVELOPMENT CALCULATIONS

Developed site.SPF | 1.80-inch SCS Type II

Project Description

File Name ..... Developed site.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Mar 09, 2026	00:00:00
End Analysis On	Mar 10, 2026	00:00:00
Start Reporting On	Mar 09, 2026	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	3
Subbasins	8
Nodes	10
Junctions	1
Outfalls	1
Flow Diversions	0
Inlets	8
Storage Nodes	0
Links	9
Channels	0
Pipes	9
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfa Depth (inche
1		Time Series	10-YEAR	Cumulative	inches	California	Riverside (Desert Center)	10	1.80

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	SHED-A	0.81	94.00	1.80	1.21	0.98	1.52	0 00:05:28
2	SHED-C	0.41	94.00	1.80	1.21	0.50	0.78	0 00:05:00
3	SHED-E	0.19	98.00	1.80	1.57	0.30	0.44	0 00:05:00
4	SHED-F	0.15	98.00	1.80	1.57	0.24	0.34	0 00:05:00
5	SHED-G	0.96	98.00	1.80	1.58	1.51	2.13	0 00:06:05
6	SHED-H	0.80	80.00	1.80	0.45	0.36	0.30	0 00:25:21
7	SUB-D	0.40	94.00	1.80	1.21	0.48	0.76	0 00:05:00
8	UPSHED	15.00	80.00	1.80	0.45	6.68	1.78	0 02:07:14

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Mi Freeboar Attaine (f
1	MH#3	Junction	22.85	25.35	0.00	0.00	10.00	5.53	24.19	0.00	1.1
2	OUTFALL	Outfall	22.70					5.42	23.94		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak D
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	
1	Link-01	Pipe	CB#7	MH#3	46.00	23.15	22.85	0.6500	12.000	0.0150	2.39	2.49	0.96	3.05	
2	Link-02	Pipe	CB#5	CB#6	25.00	23.17	23.04	0.5200	12.000	0.0150	1.90	2.23	0.85	2.42	
3	Link-03	Pipe	CB#3	CB#2	89.00	23.38	23.30	0.0900	12.000	0.0150	1.58	0.93	1.71	2.02	
4	Link-04	Pipe	CB#1	CB#2	88.00	23.38	23.30	0.0900	12.000	0.0150	1.51	0.93	1.62	1.92	
5	Link-05	Pipe	CB#2	CB#4	25.00	23.30	23.14	0.6400	12.000	0.0150	2.89	2.23	1.30	3.67	
6	Link-09	Pipe	MH#3	OUTFALL	97.00	22.85	22.70	0.1500	24.000	0.0150	5.42	7.71	0.70	2.54	
7	Link-15	Pipe	INLET	CB#4	162.00	23.30	23.14	0.1000	24.000	0.0150	1.94	5.55	0.35	1.55	
8	Link-16	Pipe	CB#4	CB#6	141.00	23.14	23.00	0.1000	24.000	0.0150	2.42	5.95	0.41	1.62	
9	Link-17	Pipe	CB#6	MH#3	177.00	23.00	22.85	0.0800	24.000	0.0150	3.49	6.42	0.54	1.73	

Inlet Summary

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Effi during
1	CB#1	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	24.75	0.00	10.00	1.51	N/A	N/A	
2	CB#2	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	0.00	10.00	0.00	N/A	N/A	
3	CB#3	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	25.25	0.00	10.00	0.77	N/A	N/A	
4	CB#4	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	25.32	0.00	10.00	0.44	N/A	N/A	
5	CB#5	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	24.75	0.00	10.00	0.76	N/A	N/A	
6	CB#6	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.04	25.27	0.00	10.00	0.34	N/A	N/A	
7	CB#7	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.15	24.75	0.00	10.00	2.19	N/A	N/A	
8	INLET	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	0.00	10.00	1.78	N/A	N/A	

Subbasin Hydrology

Subbasin : SHED-A

Input Data

Area (ac) 0.81
Weighted Curve Number 94.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.81	C	94.00
Composite Area & Weighted CN	0.81		94.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.45	0.00	0.00
Computed Flow Time (min) :	3.67	0.00	0.00

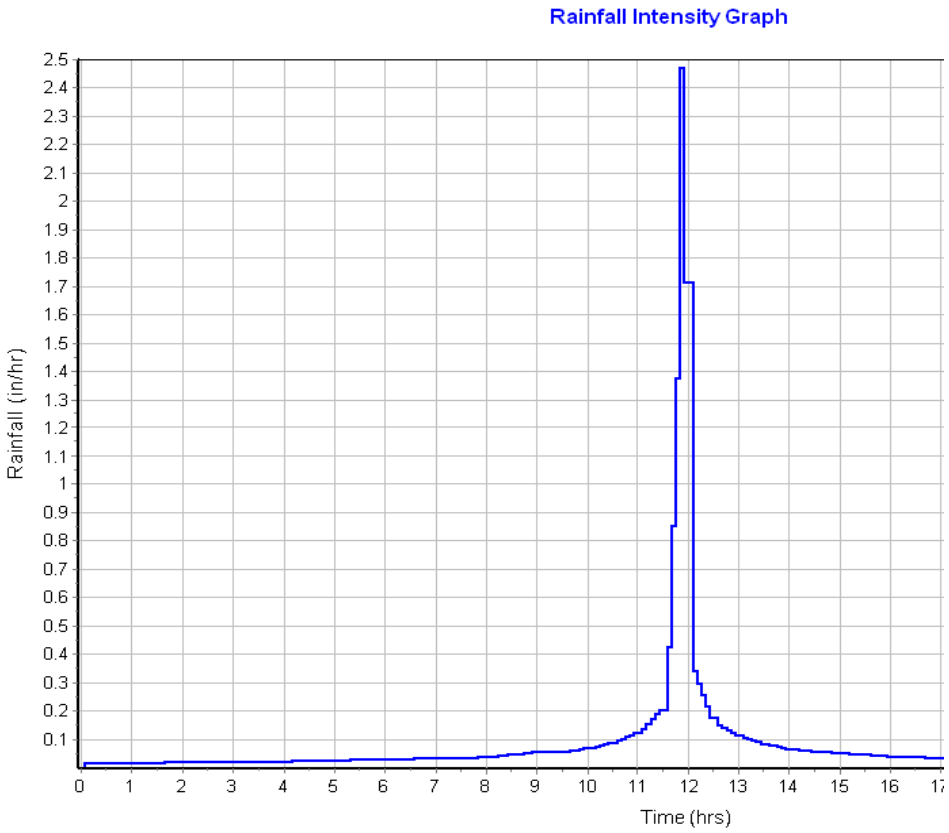
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.81	0.00	0.00

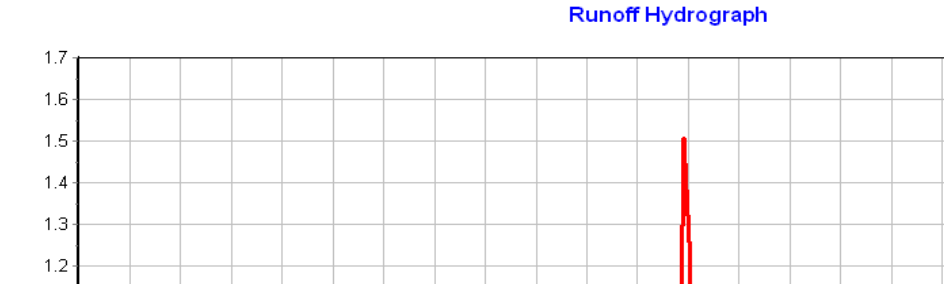
Total TOC (min) 5.48

Subbasin Runoff Results

Total Rainfall (in)	1.80
Total Runoff (in)	1.21
Peak Runoff (cfs)	1.52
Weighted Curve Number	94.00
Time of Concentration (days hh:mm:ss)	0 00:05:29

Subbasin : SHED-A





Subbasin : SHED-C

Input Data

Area (ac) 0.41
Weighted Curve Number 94.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.41	C	94.00
Composite Area & Weighted CN	0.41		94.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	45	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.39	0.00	0.00
Computed Flow Time (min) :	1.94	0.00	0.00

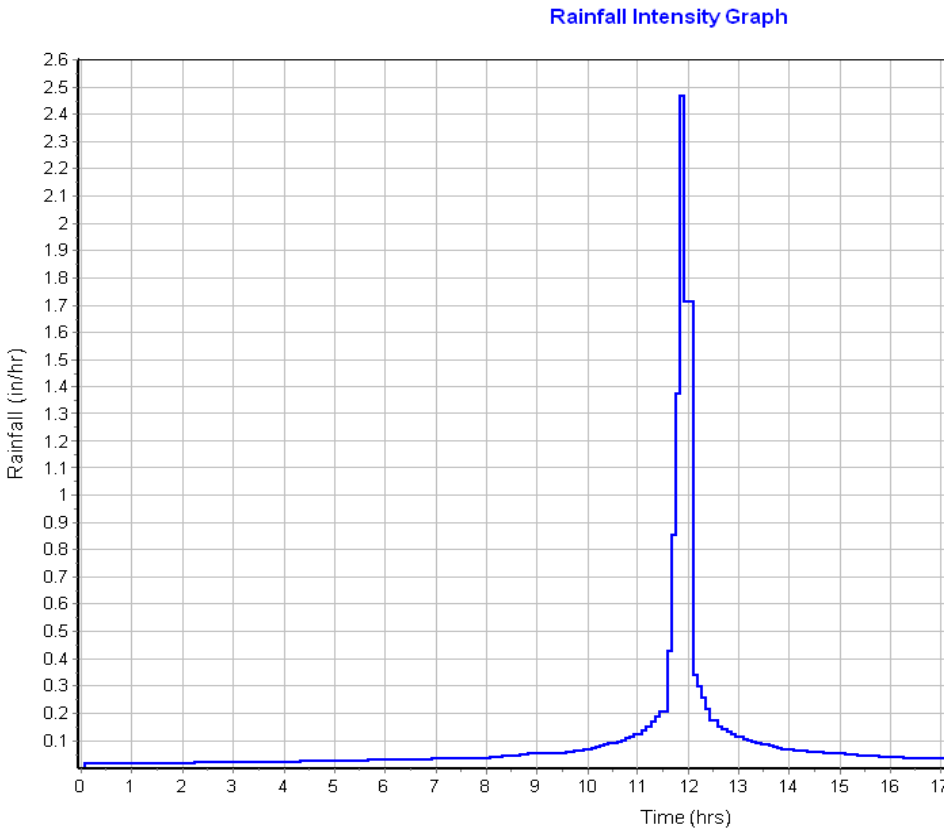
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.44	0.00	0.00

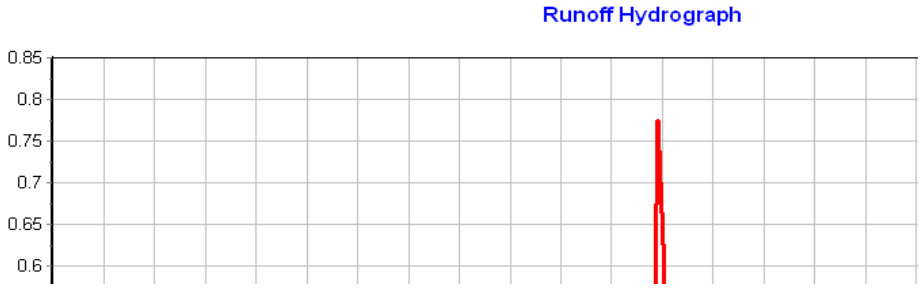
Total TOC (min) 3.37

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.21
Peak Runoff (cfs) 0.78
Weighted Curve Number 94.00
Time of Concentration (days hh:mm:ss) 0 00:03:22

Subbasin : SHED-C





Subbasin : SHED-E

Input Data

Area (ac) 0.19
Weighted Curve Number 98.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.19	D	98.00
Composite Area & Weighted CN	0.19		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

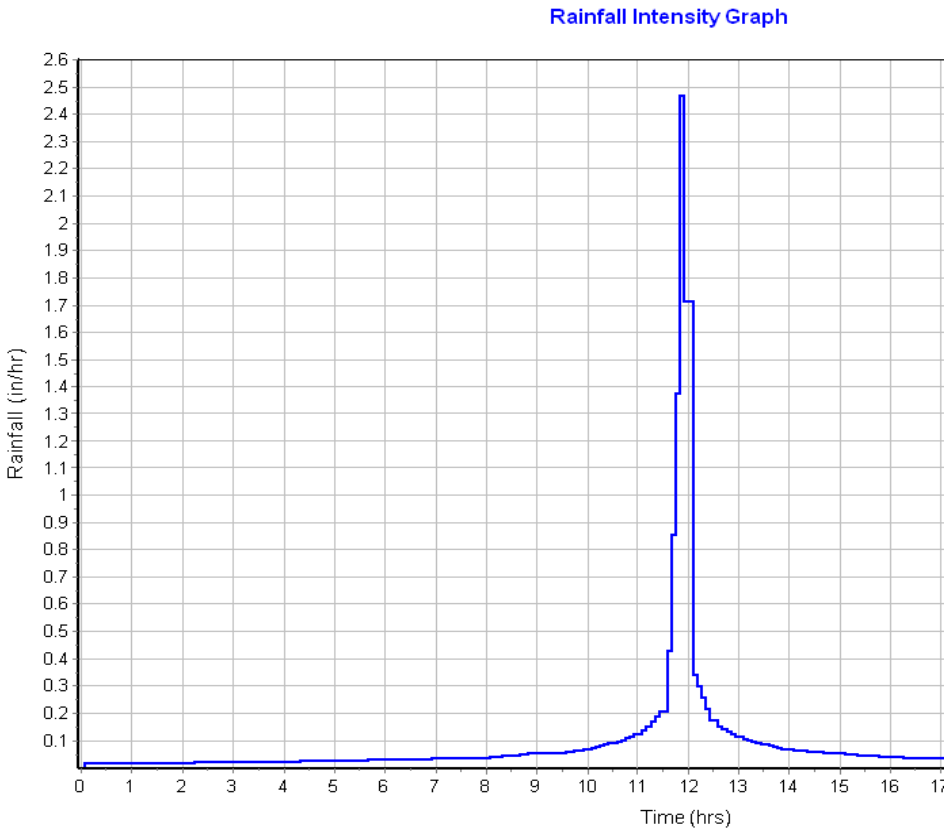
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	160	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.31	0.00	0.00

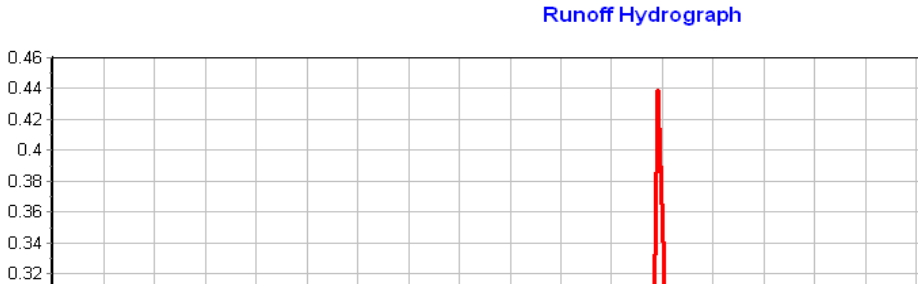
Total TOC (min) 2.52

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.57
Peak Runoff (cfs) 0.44
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:02:31

Subbasin : SHED-E





Subbasin : SHED-F

Input Data

Area (ac) 0.15
Weighted Curve Number 98.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.15	D	98.00
Composite Area & Weighted CN	0.15		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

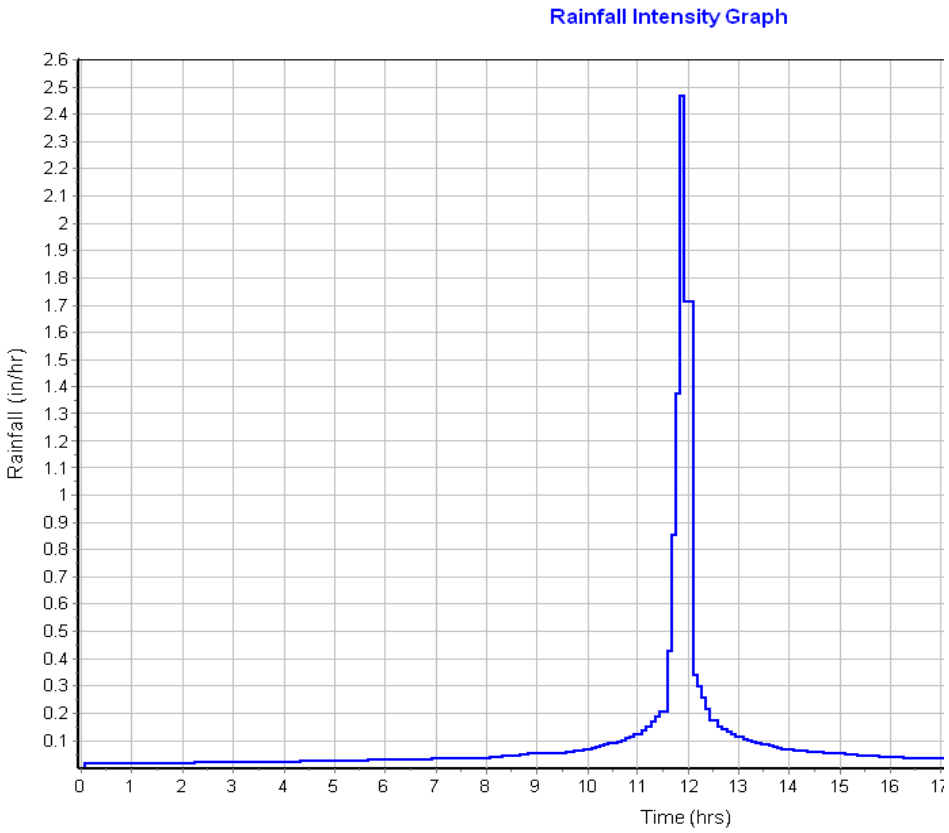
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	140	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.15	0.00	0.00

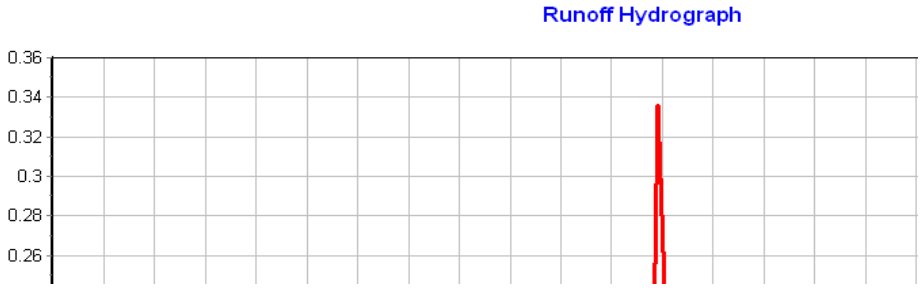
Total TOC (min) 2.36

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.57
Peak Runoff (cfs) 0.34
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:02:22

Subbasin : SHED-F





Subbasin : SHED-G

Input Data

Area (ac) 0.96
Weighted Curve Number 98.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.96	D	98.00
Composite Area & Weighted CN	0.96		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	110	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.46	0.00	0.00
Computed Flow Time (min) :	3.96	0.00	0.00

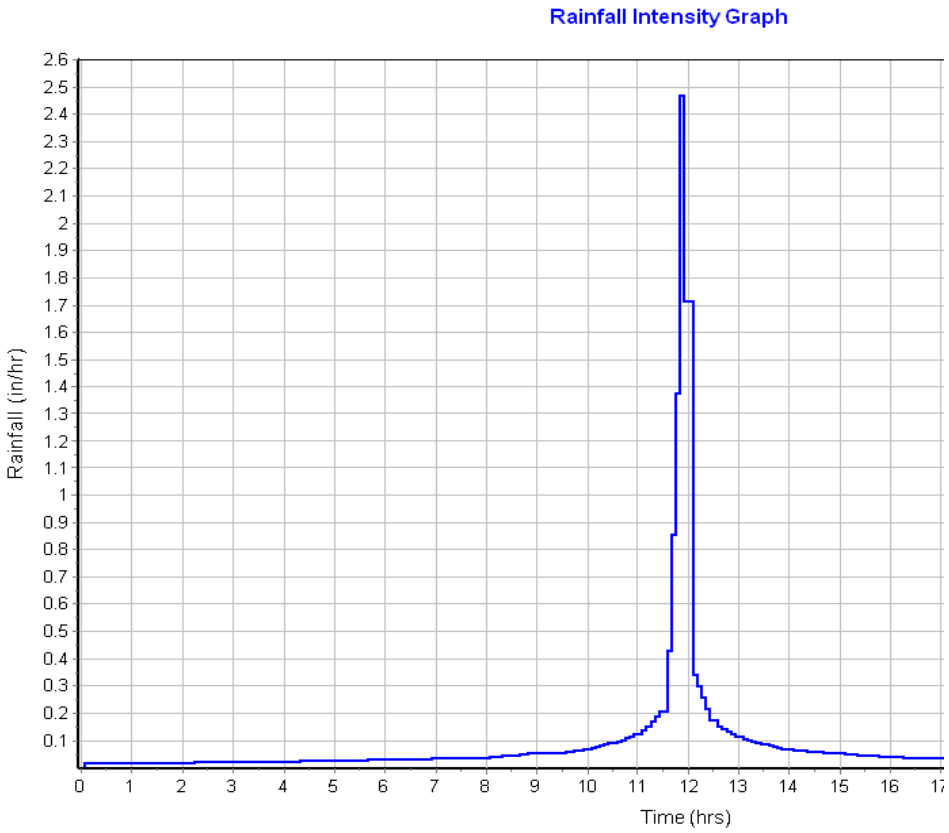
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	260	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.13	0.00	0.00

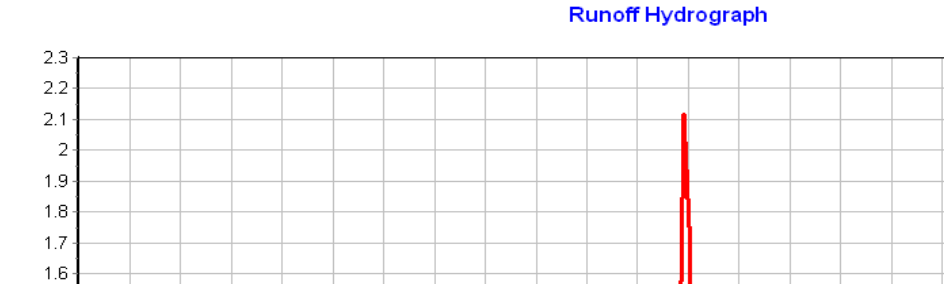
Total TOC (min) 6.09

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.58
Peak Runoff (cfs) 2.13
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:06:05

Subbasin : SHED-G





Subbasin : SHED-H

Input Data

Area (ac) 0.80
Weighted Curve Number 80.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	0.80	D	80.00
Composite Area & Weighted CN	0.80		80.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	30	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.03	0.00	0.00
Computed Flow Time (min) :	19.35	0.00	0.00

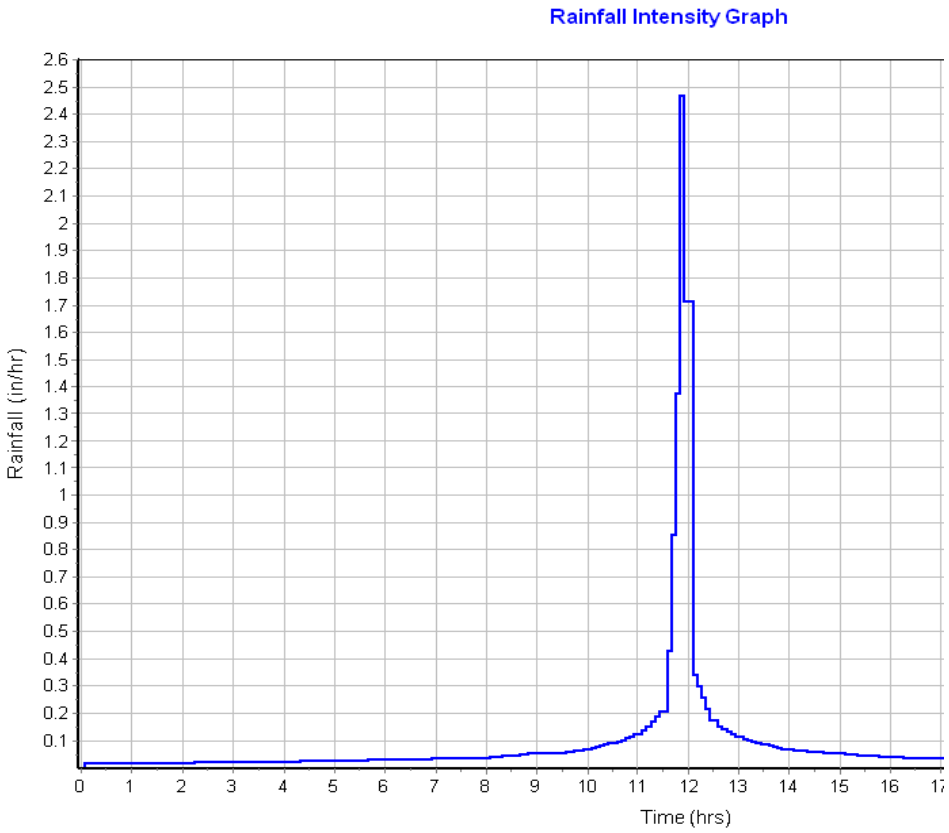
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	580	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	6.00	0.00	0.00

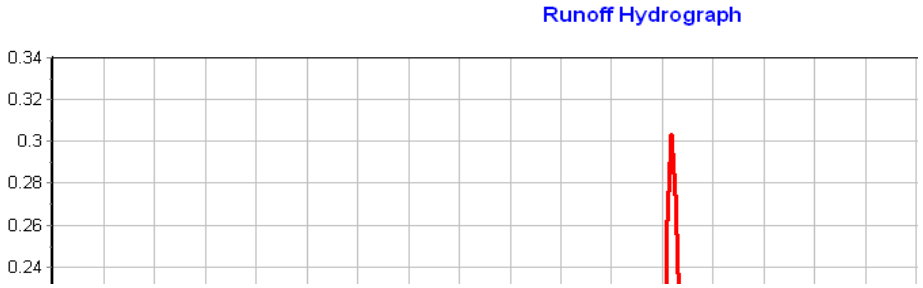
Total TOC (min) 25.35

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 0.45
Peak Runoff (cfs) 0.30
Weighted Curve Number 80.00
Time of Concentration (days hh:mm:ss) 0 00:25:21

Subbasin : SHED-H





Subbasin : SUB-D

Input Data

Area (ac) 0.40
Weighted Curve Number 94.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.40	C	94.00
Composite Area & Weighted CN	0.40		94.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	80	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.43	0.00	0.00
Computed Flow Time (min) :	3.07	0.00	0.00

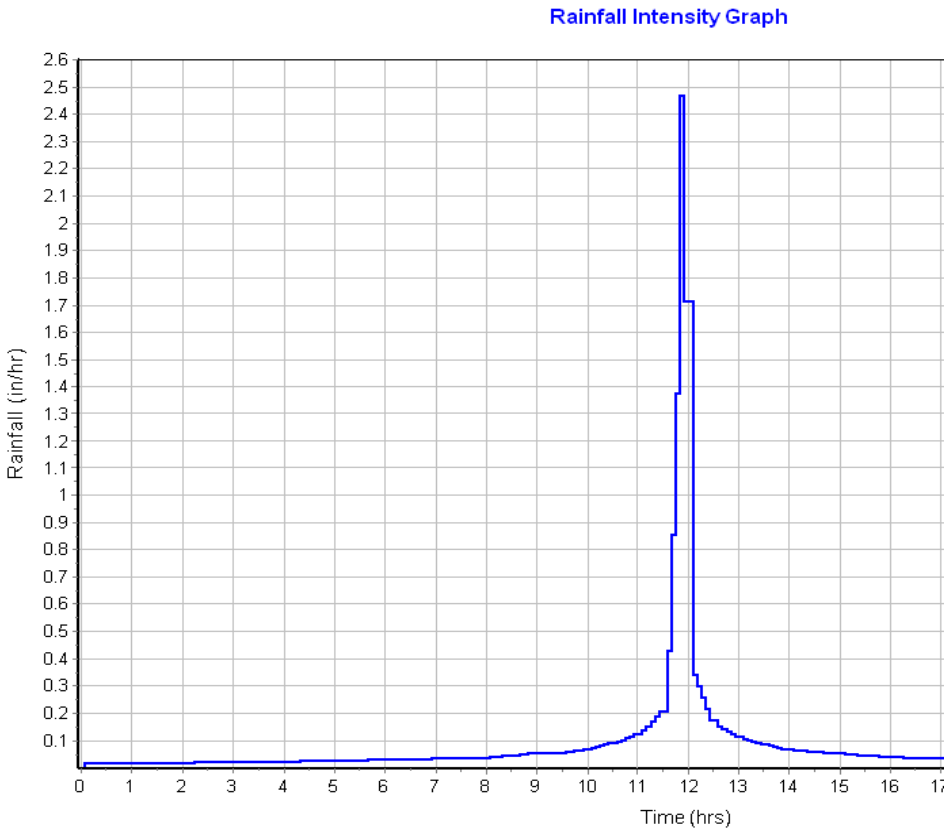
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.44	0.00	0.00

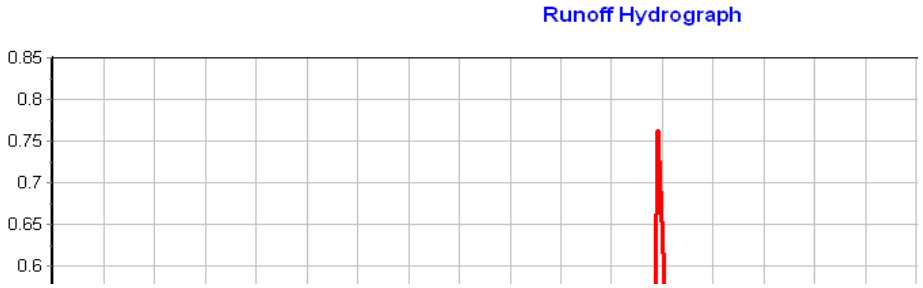
Total TOC (min) 4.50

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 1.21
Peak Runoff (cfs) 0.76
Weighted Curve Number 94.00
Time of Concentration (days hh:mm:ss) 0 00:04:30

Subbasin : SUB-D





Subbasin : UPSHED

Input Data

Area (ac) 15.00
Weighted Curve Number 80.00
Rain Gage ID 10-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	15.00	D	80.00
Composite Area & Weighted CN	15.00		80.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.04	0.00	0.00
Computed Flow Time (min) :	122.07	0.00	0.00

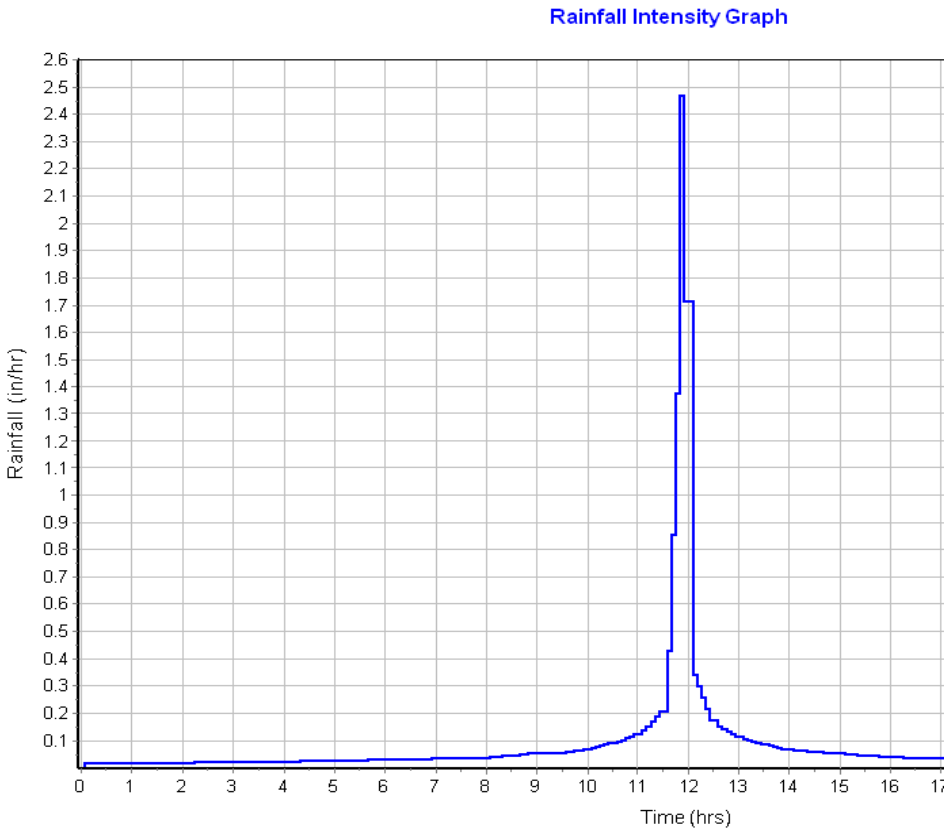
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	500	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	5.18	0.00	0.00

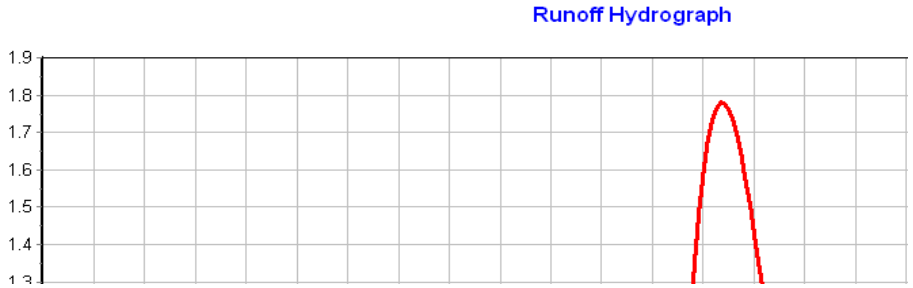
Total TOC (min) 127.24

Subbasin Runoff Results

Total Rainfall (in) 1.80
Total Runoff (in) 0.45
Peak Runoff (cfs) 1.78
Weighted Curve Number 80.00
Time of Concentration (days hh:mm:ss) 0 02:07:14

Subbasin : UPSHED





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	MH#3	22.85	25.35	2.50	0.00	-22.85	0.00	-25.35	10.00	6.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)
1	MH#3	5.53	0.00	24.19	1.34	0.00	1.16	23.29	0.44	0 12:04

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	Link-01	46.00	23.15	0.00	22.85	0.00	0.30	0.6500	CIRCULAR	12.000	12.000	0.0150
2	Link-02	25.00	23.17	0.00	23.04	0.00	0.13	0.5200	CIRCULAR	12.000	12.000	0.0150
3	Link-03	89.00	23.38	0.00	23.30	0.00	0.08	0.0900	CIRCULAR	12.000	12.000	0.0150
4	Link-04	88.00	23.38	0.00	23.30	0.00	0.08	0.0900	CIRCULAR	12.000	12.000	0.0150
5	Link-05	25.00	23.30	0.00	23.14	-0.03	0.16	0.6400	CIRCULAR	12.000	12.000	0.0150
6	Link-09	97.00	22.85	0.00	22.70	0.00	0.15	0.1500	CIRCULAR	24.000	24.000	0.0150
7	Link-15	162.00	23.30	0.00	23.14	-0.03	0.16	0.1000	CIRCULAR	24.000	24.000	0.0150
8	Link-16	141.00	23.14	-0.03	23.00	-0.04	0.14	0.1000	CIRCULAR	24.000	24.000	0.0150
9	Link-17	177.00	23.00	-0.04	22.85	0.00	0.15	0.0800	CIRCULAR	24.000	24.000	0.0150

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	Link-01	2.39	0 12:00	2.49	0.96	3.05	0.25	1.00	1.00	10.00
2	Link-02	1.90	0 12:03	2.23	0.85	2.42	0.17	1.00	1.00	8.00
3	Link-03	1.58	0 12:04	0.93	1.71	2.02	0.73	1.00	1.00	8.00
4	Link-04	1.51	0 12:00	0.93	1.62	1.92	0.76	1.00	1.00	9.00
5	Link-05	2.89	0 12:03	2.23	1.30	3.67	0.11	1.00	1.00	9.00
6	Link-09	5.42	0 12:04	7.71	0.70	2.54	0.64	1.26	0.64	0.00
7	Link-15	1.94	0 13:40	5.55	0.35	1.55	1.74	1.11	0.57	0.00
8	Link-16	2.42	0 12:05	5.95	0.41	1.62	1.45	1.21	0.62	0.00
9	Link-17	3.49	0 12:04	6.42	0.54	1.73	1.71	1.28	0.66	0.00

Inlet Input

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)
1	CB#1	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	24.75	1.37	0.00
2	CB#2	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	2.20	0.00
3	CB#3	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	25.25	1.87	0.00
4	CB#4	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	25.32	2.15	0.00
5	CB#5	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	24.75	1.58	0.00
6	CB#6	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.04	25.27	2.23	0.00
7	CB#7	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.15	24.75	1.60	0.00
8	INLET	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	2.20	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB#1	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
2	CB#2	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
3	CB#3	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
4	CB#4	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
5	CB#5	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
6	CB#6	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
7	CB#7	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
8	INLET	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time Max De Occurre (days hh:m
1	CB#1	1.51	1.51	N/A	N/A	N/A	8.51	25.17	0.42	0 11
2	CB#2	0.00	0.00	N/A	N/A	N/A	0.00	25.50	0.00	0 12
3	CB#3	0.77	0.77	N/A	N/A	N/A	5.08	25.54	0.29	0 12
4	CB#4	0.44	0.44	N/A	N/A	N/A	2.88	25.49	0.17	0 12
5	CB#5	0.76	0.76	N/A	N/A	N/A	5.00	25.04	0.29	0 12
6	CB#6	0.34	0.34	N/A	N/A	N/A	1.83	25.39	0.12	0 12
7	CB#7	2.19	2.19	N/A	N/A	N/A	11.05	25.22	0.47	0 12
8	INLET	1.78	1.78	N/A	N/A	N/A	8.48	26.60	1.10	0 12

EXHIBIT F-2

100-YEAR POST-DEVELOPMENT CALCULATIONS

Developed site.SPF | 3.00-inch SCS Type II

Project Description

File Name ..... Developed site.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Mar 09, 2026	00:00:00
End Analysis On	Mar 10, 2026	00:00:00
Start Reporting On	Mar 09, 2026	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	3
Subbasins	8
Nodes	10
Junctions	1
Outfalls	1
Flow Diversions	0
Inlets	8
Storage Nodes	0
Links	9
Channels	0
Pipes	9
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfa Depth (inche
1		Time Series	100-YEAR	Cumulative	inches	California	Riverside (Desert Center)	100	3.00

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	SHED-A	0.81	94.00	3.00	2.35	1.90	2.86	0 00:05:28
2	SHED-C	0.41	94.00	3.00	2.35	0.96	1.46	0 00:05:00
3	SHED-E	0.19	98.00	3.00	2.77	0.53	0.75	0 00:05:00
4	SHED-F	0.15	98.00	3.00	2.77	0.41	0.57	0 00:05:00
5	SHED-G	0.96	98.00	3.00	2.77	2.66	3.63	0 00:06:05
6	SHED-H	0.80	80.00	3.00	1.25	1.00	0.96	0 00:25:21
7	SUB-D	0.40	94.00	3.00	2.35	0.94	1.44	0 00:05:00
8	UPSHED	15.00	80.00	3.00	1.25	18.75	5.70	0 02:07:14

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Mi Freeboar Attaine (f
1	MH#3	Junction	22.85	25.35	0.00	0.00	10.00	6.92	24.43	0.00	0.9
2	OUTFALL	Outfall	22.70					6.83	24.17		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak D
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	
1	Link-01	Pipe	CB#7	MH#3	46.00	23.15	22.85	0.6500	12.000	0.0150	2.59	2.49	1.04	3.30	
2	Link-02	Pipe	CB#5	CB#6	25.00	23.17	23.04	0.5200	12.000	0.0150	1.62	2.23	0.73	2.06	
3	Link-03	Pipe	CB#3	CB#2	89.00	23.38	23.30	0.0900	12.000	0.0150	1.98	0.93	2.14	2.52	
4	Link-04	Pipe	CB#1	CB#2	88.00	23.38	23.30	0.0900	12.000	0.0150	1.53	0.93	1.65	1.95	
5	Link-05	Pipe	CB#2	CB#4	25.00	23.30	23.14	0.6400	12.000	0.0150	4.27	2.23	1.92	5.43	
6	Link-09	Pipe	MH#3	OUTFALL	97.00	22.85	22.70	0.1500	24.000	0.0150	6.83	7.71	0.89	2.66	
7	Link-15	Pipe	INLET	CB#4	162.00	23.30	23.14	0.1000	24.000	0.0150	5.93	5.55	1.07	2.16	
8	Link-16	Pipe	CB#4	CB#6	141.00	23.14	23.00	0.1000	24.000	0.0150	6.09	5.95	1.02	2.28	
9	Link-17	Pipe	CB#6	MH#3	177.00	23.00	22.85	0.0800	24.000	0.0150	5.99	6.42	0.93	2.37	

Inlet Summary

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Effi during
1	CB#1	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	24.75	0.00	10.00	2.84	N/A	N/A	
2	CB#2	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	0.00	10.00	0.00	N/A	N/A	
3	CB#3	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	25.25	0.00	10.00	1.45	N/A	N/A	
4	CB#4	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	25.32	0.00	10.00	0.75	N/A	N/A	
5	CB#5	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	24.75	0.00	10.00	1.43	N/A	N/A	
6	CB#6	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.04	25.27	0.00	10.00	0.57	N/A	N/A	
7	CB#7	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.15	24.75	0.00	10.00	3.98	N/A	N/A	
8	INLET	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	0.00	10.00	5.70	N/A	N/A	

Subbasin Hydrology

Subbasin : SHED-A

Input Data

Area (ac) 0.81
Weighted Curve Number 94.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.81	C	94.00
Composite Area & Weighted CN	0.81		94.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.45	0.00	0.00
Computed Flow Time (min) :	3.67	0.00	0.00

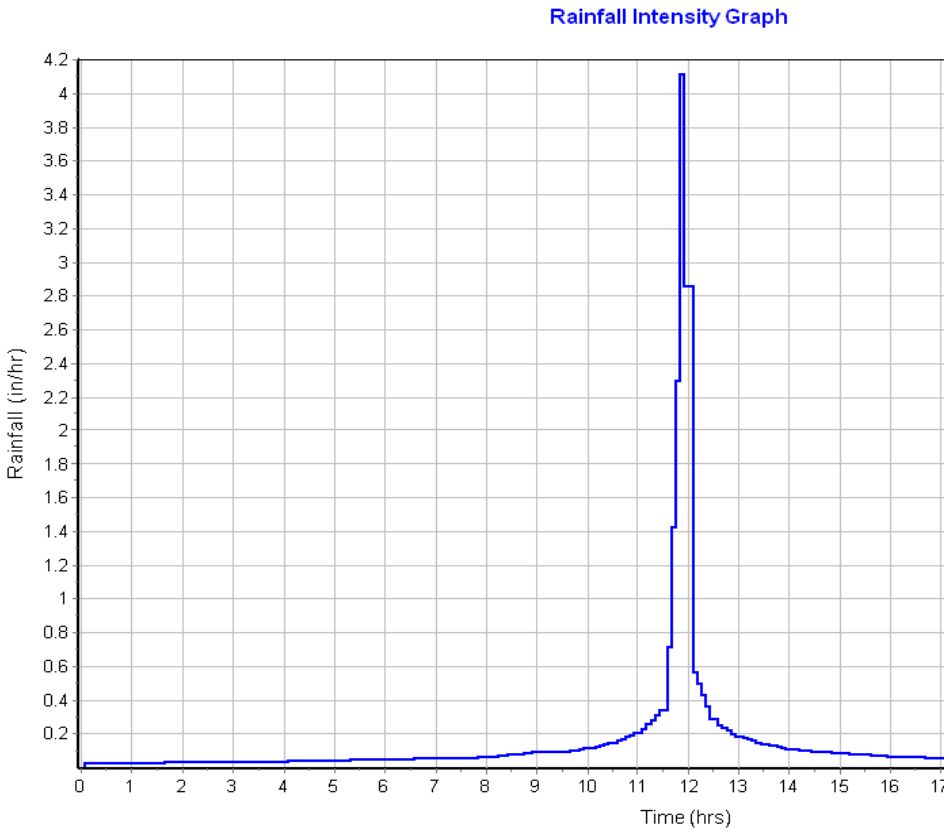
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.81	0.00	0.00

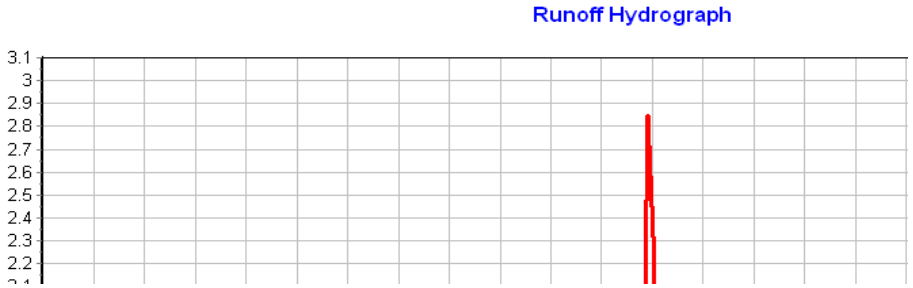
Total TOC (min) 5.48

Subbasin Runoff Results

Total Rainfall (in)	3.00
Total Runoff (in)	2.35
Peak Runoff (cfs)	2.86
Weighted Curve Number	94.00
Time of Concentration (days hh:mm:ss)	0 00:05:29

Subbasin : SHED-A





Subbasin : SHED-C

Input Data

Area (ac) 0.41
Weighted Curve Number 94.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.41	C	94.00
Composite Area & Weighted CN	0.41		94.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	45	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.39	0.00	0.00
Computed Flow Time (min) :	1.94	0.00	0.00

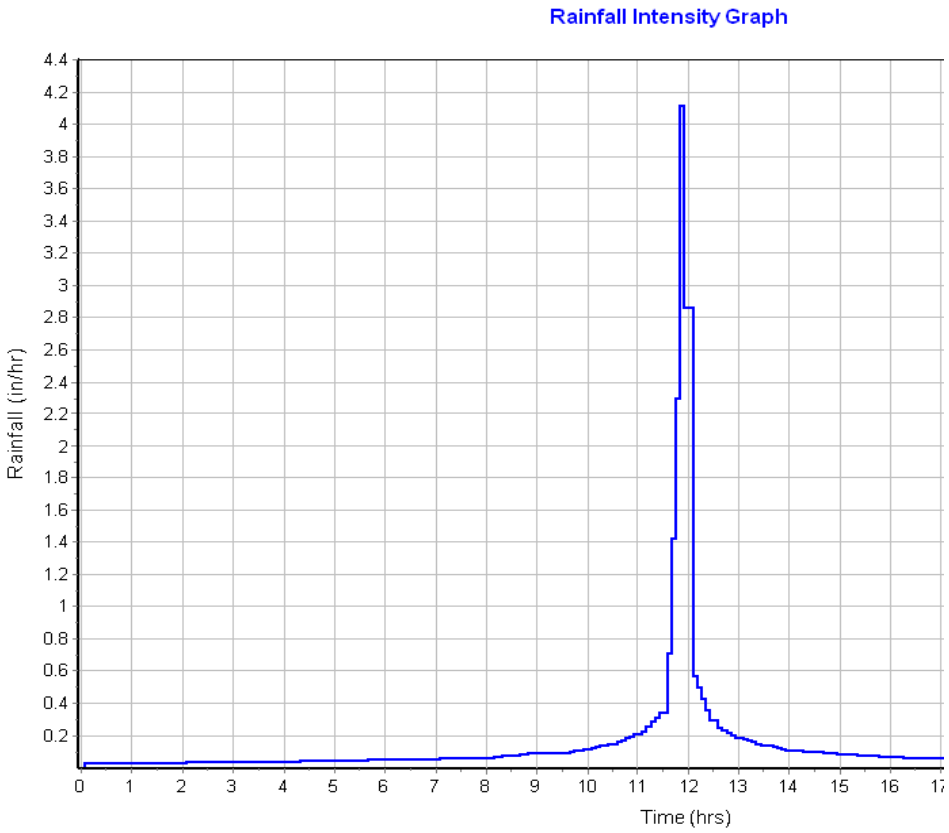
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.44	0.00	0.00

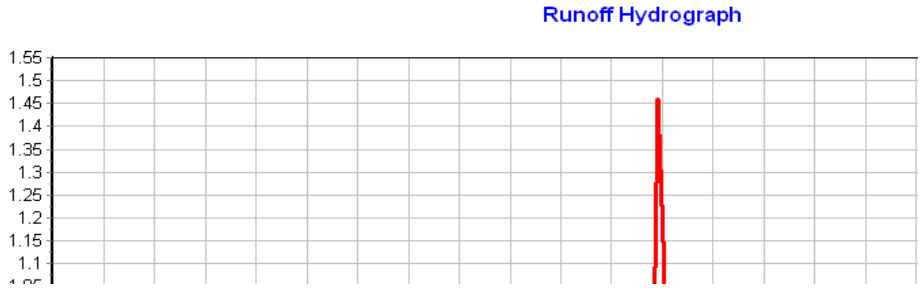
Total TOC (min) 3.37

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.35
Peak Runoff (cfs) 1.46
Weighted Curve Number 94.00
Time of Concentration (days hh:mm:ss) 0 00:03:22

Subbasin : SHED-C





Subbasin : SHED-E

Input Data

Area (ac) 0.19
Weighted Curve Number 98.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.19	D	98.00
Composite Area & Weighted CN	0.19		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

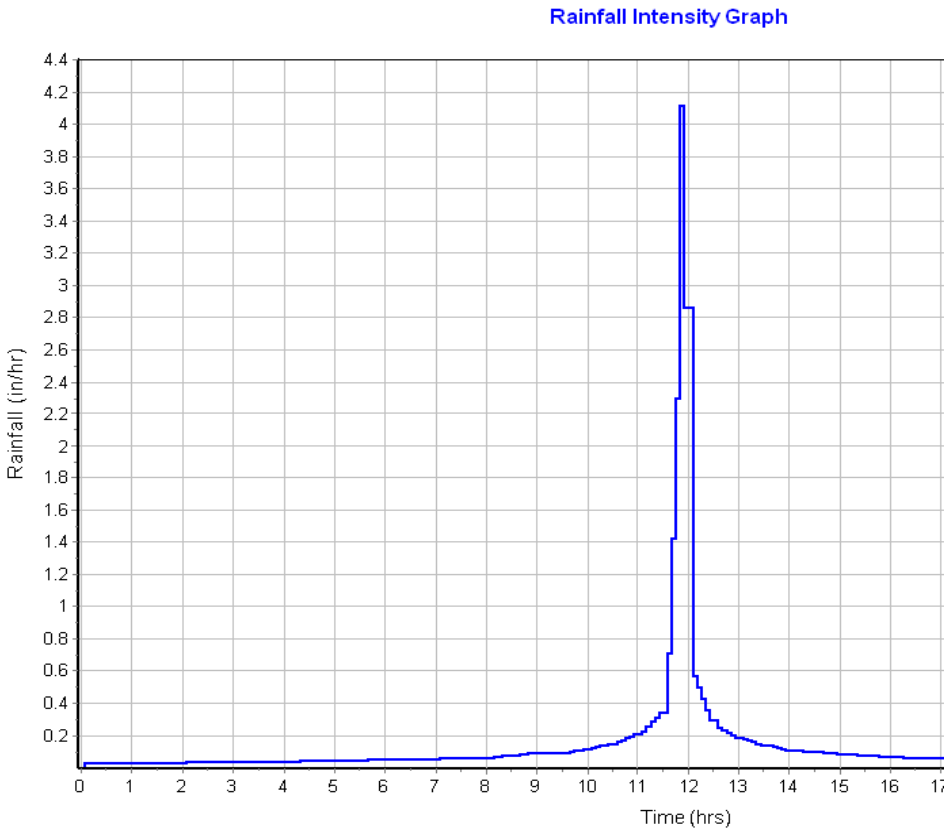
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	160	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.31	0.00	0.00

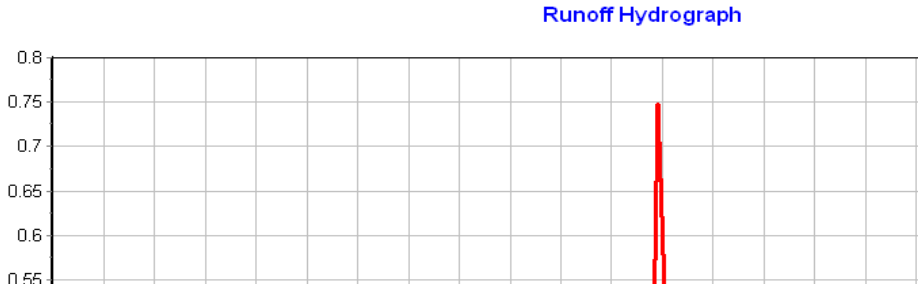
Total TOC (min) 2.52

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.77
Peak Runoff (cfs) 0.75
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:02:31

Subbasin : SHED-E





Subbasin : SHED-F

Input Data

Area (ac) 0.15
Weighted Curve Number 98.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.15	D	98.00
Composite Area & Weighted CN	0.15		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.34	0.00	0.00
Computed Flow Time (min) :	1.21	0.00	0.00

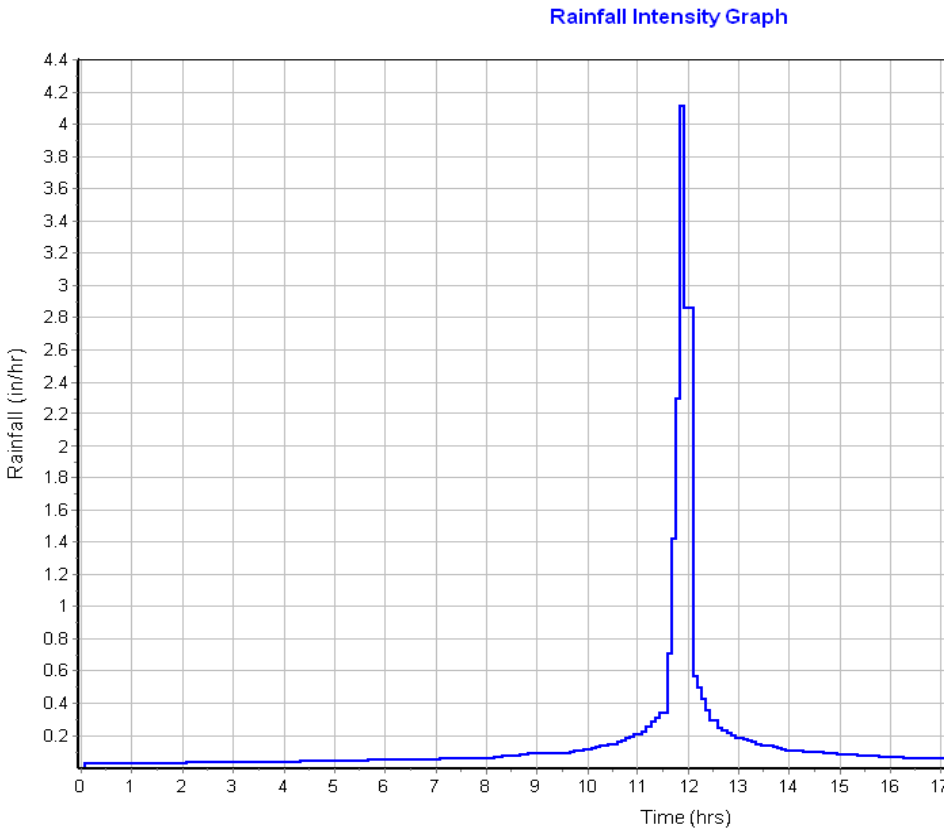
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	140	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.15	0.00	0.00

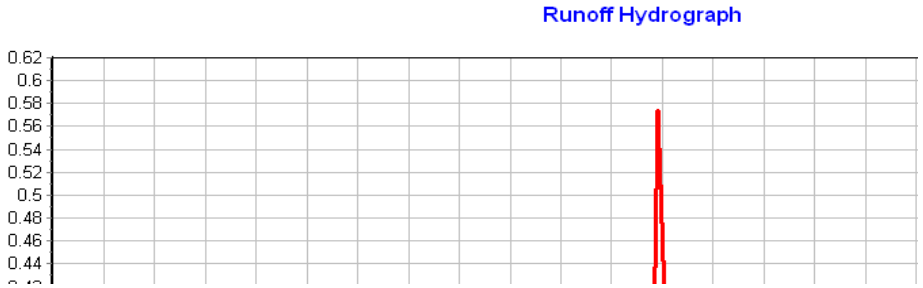
Total TOC (min) 2.36

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.77
Peak Runoff (cfs) 0.57
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:02:22

Subbasin : SHED-F





Subbasin : SHED-G

Input Data

Area (ac) 0.96
Weighted Curve Number 98.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.96	D	98.00
Composite Area & Weighted CN	0.96		98.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	110	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.46	0.00	0.00
Computed Flow Time (min) :	3.96	0.00	0.00

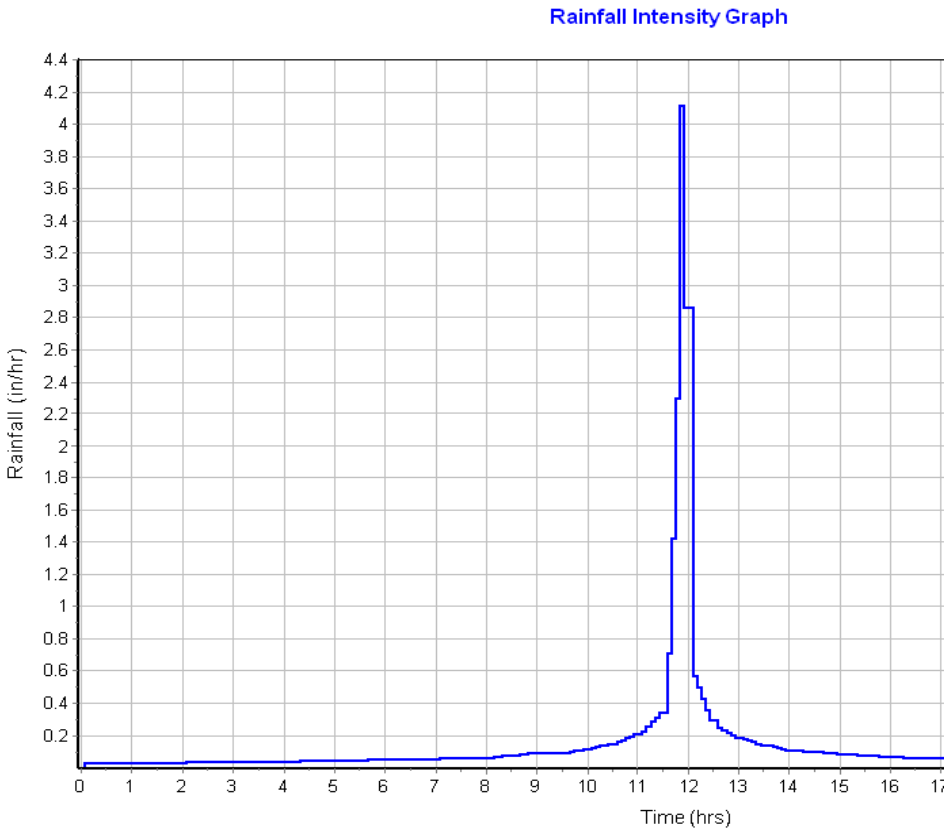
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	260	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	2.13	0.00	0.00

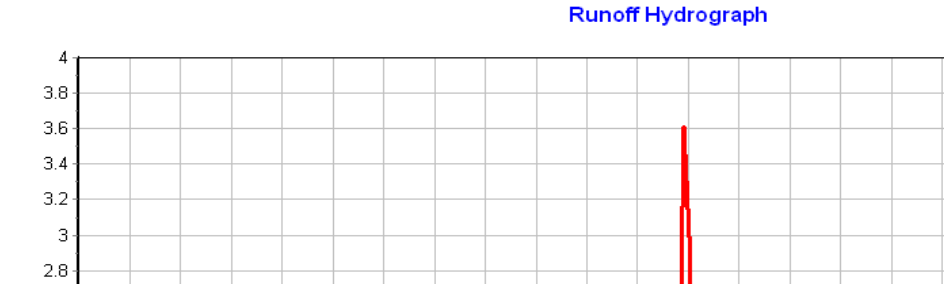
Total TOC (min) 6.09

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.77
Peak Runoff (cfs) 3.63
Weighted Curve Number 98.00
Time of Concentration (days hh:mm:ss) 0 00:06:05

Subbasin : SHED-G





Subbasin : SHED-H

Input Data

Area (ac) 0.80
Weighted Curve Number 80.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	0.80	D	80.00
Composite Area & Weighted CN	0.80		80.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	30	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.03	0.00	0.00
Computed Flow Time (min) :	19.35	0.00	0.00

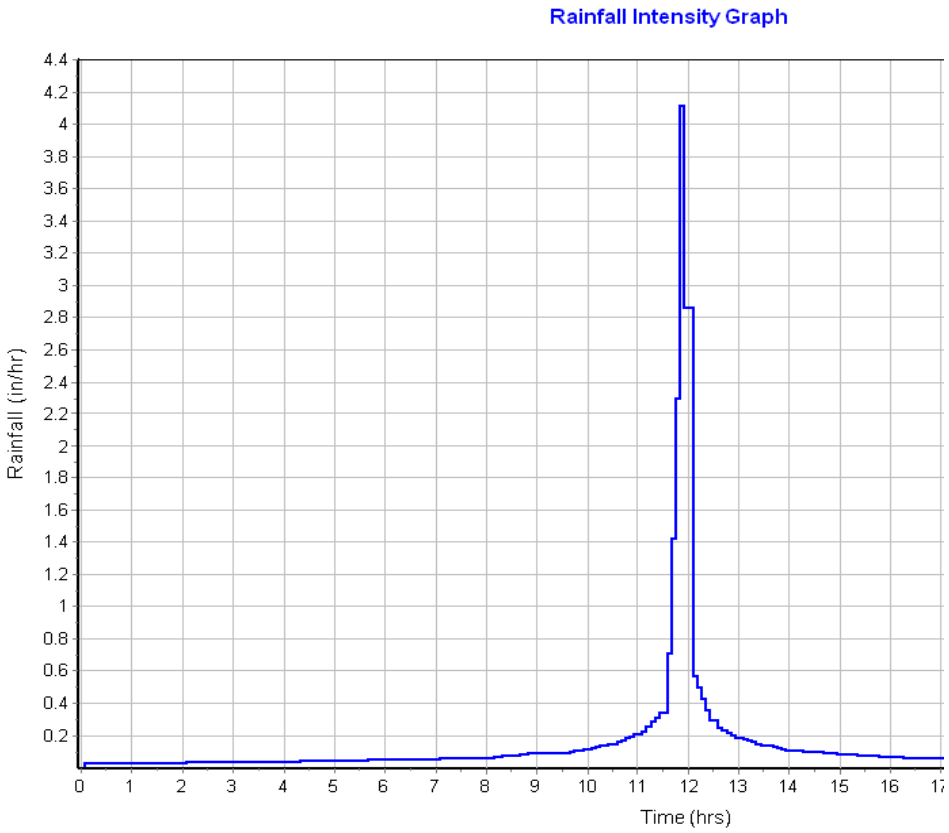
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	580	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	6.00	0.00	0.00

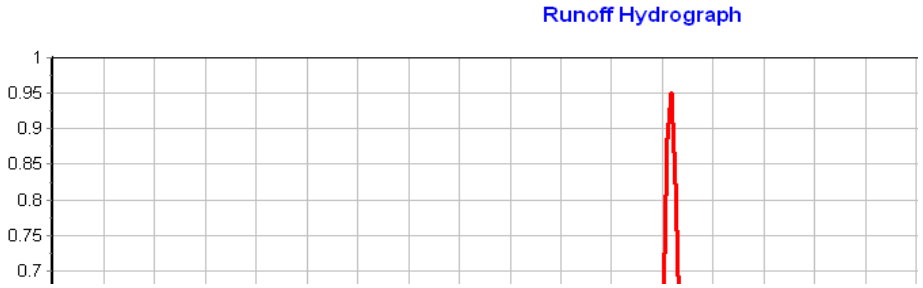
Total TOC (min) 25.35

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 1.25
Peak Runoff (cfs) 0.96
Weighted Curve Number 80.00
Time of Concentration (days hh:mm:ss) 0 00:25:21

Subbasin : SHED-H





Subbasin : SUB-D

Input Data

Area (ac) 0.40
Weighted Curve Number 94.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Urban commercial, 85% imp	0.40	C	94.00
Composite Area & Weighted CN	0.40		94.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.015	0.00	0.00
Flow Length (ft) :	80	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.43	0.00	0.00
Computed Flow Time (min) :	3.07	0.00	0.00

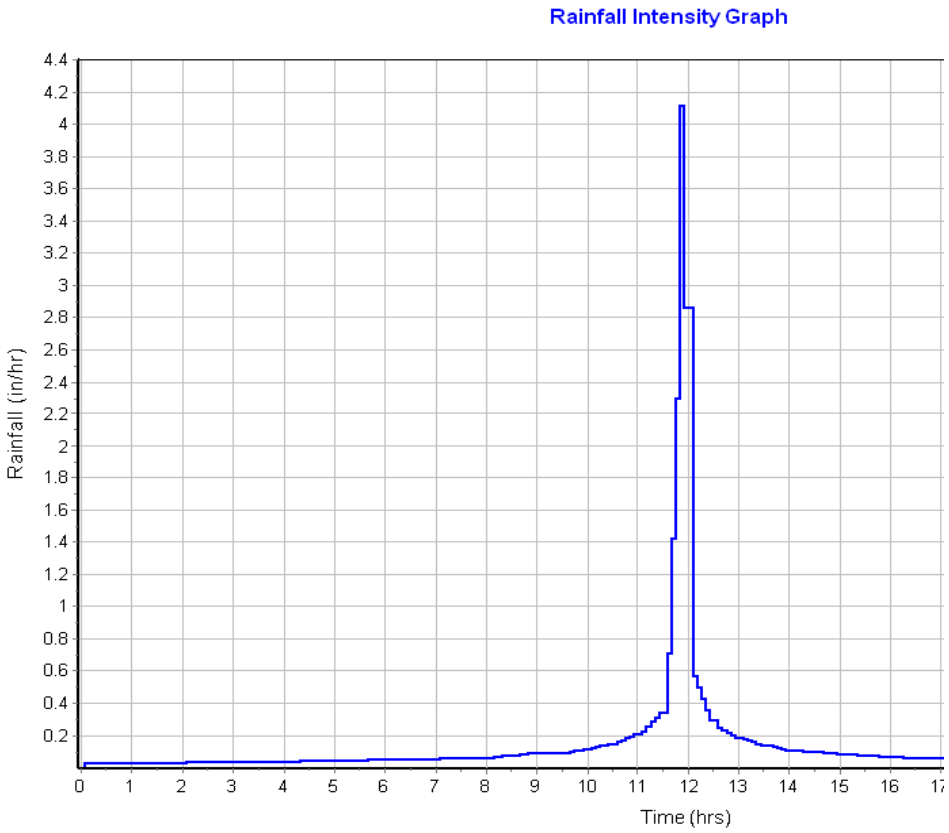
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.03	0.00	0.00
Computed Flow Time (min) :	1.44	0.00	0.00

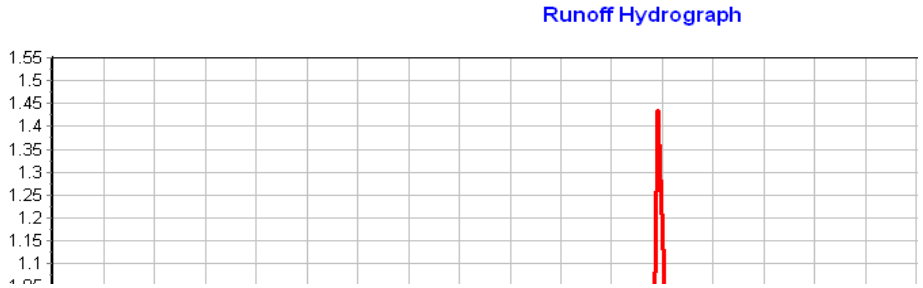
Total TOC (min) 4.50

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 2.35
Peak Runoff (cfs) 1.44
Weighted Curve Number 94.00
Time of Concentration (days hh:mm:ss) 0 00:04:30

Subbasin : SUB-D





Subbasin : UPSHED

Input Data

Area (ac) 15.00
Weighted Curve Number 80.00
Rain Gage ID 100-YEAR

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	15.00	D	80.00
Composite Area & Weighted CN	15.00		80.00

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.00	0.00	0.00
Velocity (ft/sec) :	0.04	0.00	0.00
Computed Flow Time (min) :	122.07	0.00	0.00

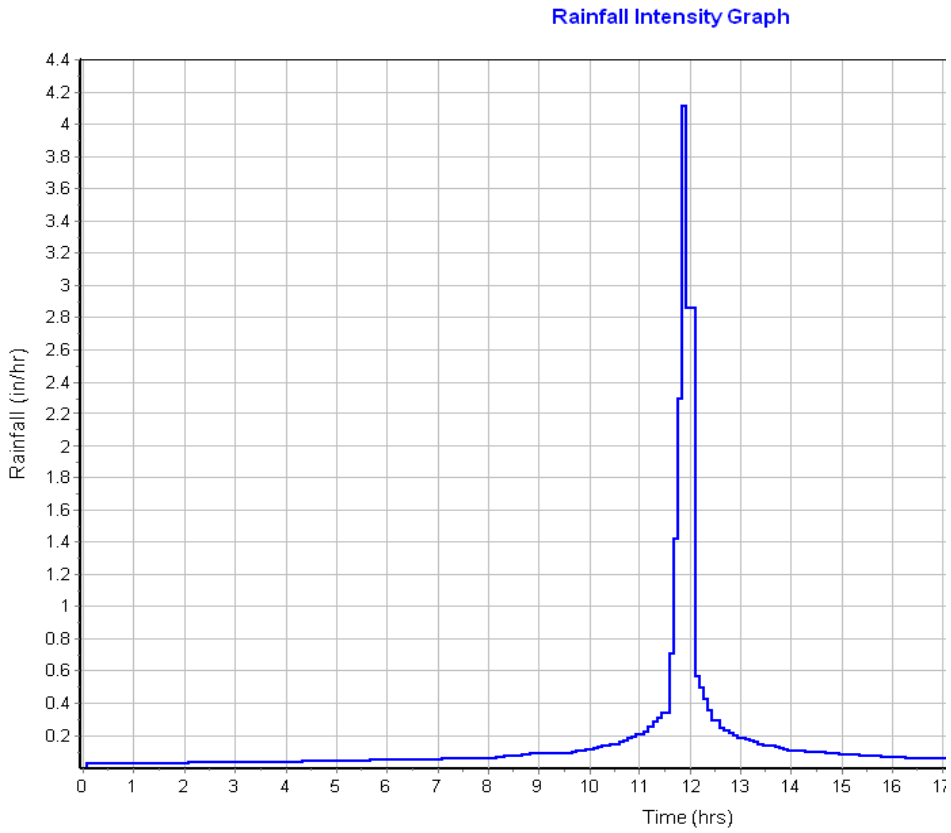
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	500	0.00	0.00
Slope (%) :	1	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	5.18	0.00	0.00

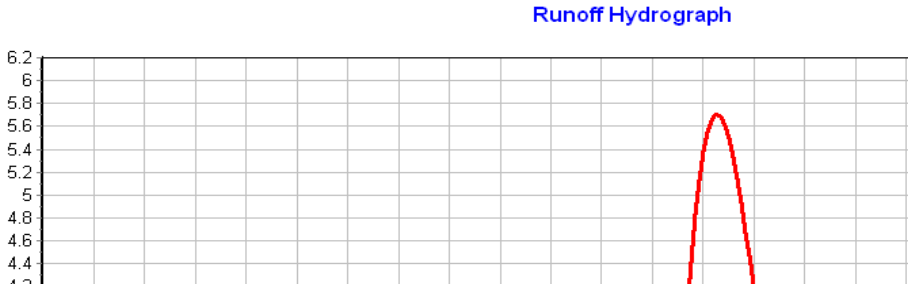
Total TOC (min) 127.24

Subbasin Runoff Results

Total Rainfall (in) 3.00
Total Runoff (in) 1.25
Peak Runoff (cfs) 5.70
Weighted Curve Number 80.00
Time of Concentration (days hh:mm:ss) 0 02:07:14

Subbasin : UPSHED





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	MH#3	22.85	25.35	2.50	0.00	-22.85	0.00	-25.35	10.00	6.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)
1	MH#3	6.92	0.00	24.43	1.58	0.00	0.92	23.56	0.71	0 12:02

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	Link-01	46.00	23.15	0.00	22.85	0.00	0.30	0.6500	CIRCULAR	12.000	12.000	0.0150
2	Link-02	25.00	23.17	0.00	23.04	0.00	0.13	0.5200	CIRCULAR	12.000	12.000	0.0150
3	Link-03	89.00	23.38	0.00	23.30	0.00	0.08	0.0900	CIRCULAR	12.000	12.000	0.0150
4	Link-04	88.00	23.38	0.00	23.30	0.00	0.08	0.0900	CIRCULAR	12.000	12.000	0.0150
5	Link-05	25.00	23.30	0.00	23.14	-0.03	0.16	0.6400	CIRCULAR	12.000	12.000	0.0150
6	Link-09	97.00	22.85	0.00	22.70	0.00	0.15	0.1500	CIRCULAR	24.000	24.000	0.0150
7	Link-15	162.00	23.30	0.00	23.14	-0.03	0.16	0.1000	CIRCULAR	24.000	24.000	0.0150
8	Link-16	141.00	23.14	-0.03	23.00	-0.04	0.14	0.1000	CIRCULAR	24.000	24.000	0.0150
9	Link-17	177.00	23.00	-0.04	22.85	0.00	0.15	0.0800	CIRCULAR	24.000	24.000	0.0150

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)
1	Link-01	2.59	0 11:55	2.49	1.04	3.30	0.23	1.00	1.00	97.0(
2	Link-02	1.62	0 11:59	2.23	0.73	2.06	0.20	1.00	1.00	129.0(
3	Link-03	1.98	0 12:00	0.93	2.14	2.52	0.59	1.00	1.00	103.0(
4	Link-04	1.53	0 11:54	0.93	1.65	1.95	0.75	1.00	1.00	113.0(
5	Link-05	4.27	0 14:04	2.23	1.92	5.43	0.08	1.00	1.00	130.0(
6	Link-09	6.83	0 12:02	7.71	0.89	2.66	0.61	1.49	0.76	0.0(
7	Link-15	5.93	0 13:19	5.55	1.07	2.16	1.25	1.66	0.84	0.0(
8	Link-16	6.09	0 13:31	5.95	1.02	2.28	1.03	1.59	0.80	0.0(
9	Link-17	5.99	0 13:32	6.42	0.93	2.37	1.24	1.53	0.78	0.0(

Inlet Input

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)
1	CB#1	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	24.75	1.37	0.00
2	CB#2	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	2.20	0.00
3	CB#3	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.38	25.25	1.87	0.00
4	CB#4	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	25.32	2.15	0.00
5	CB#5	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.17	24.75	1.58	0.00
6	CB#6	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.04	25.27	2.23	0.00
7	CB#7	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.15	24.75	1.60	0.00
8	INLET	FHWA HEC-22 GENERIC	N/A	On Sag	1	23.30	25.50	2.20	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB#1	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
2	CB#2	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
3	CB#3	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
4	CB#4	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
5	CB#5	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
6	CB#6	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
7	CB#7	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00
8	INLET	N/A	0.0200	0.0160	0.0620	2.00	0.0656	7.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time Max De Occurre (days hh:m
1	CB#1	2.84	2.84	N/A	N/A	N/A	13.14	25.26	0.51	0 11
2	CB#2	0.00	0.00	N/A	N/A	N/A	0.00	25.50	0.00	0 11
3	CB#3	1.45	1.45	N/A	N/A	N/A	8.32	25.67	0.42	0 11
4	CB#4	0.75	0.75	N/A	N/A	N/A	4.89	25.61	0.29	0 13
5	CB#5	1.43	1.43	N/A	N/A	N/A	8.23	25.17	0.42	0 11
6	CB#6	0.57	0.57	N/A	N/A	N/A	3.13	25.48	0.21	0 12
7	CB#7	3.98	3.98	N/A	N/A	N/A	16.50	25.55	0.80	0 11
8	INLET	5.70	5.70	N/A	N/A	N/A	12.40	26.05	1.05	0 13